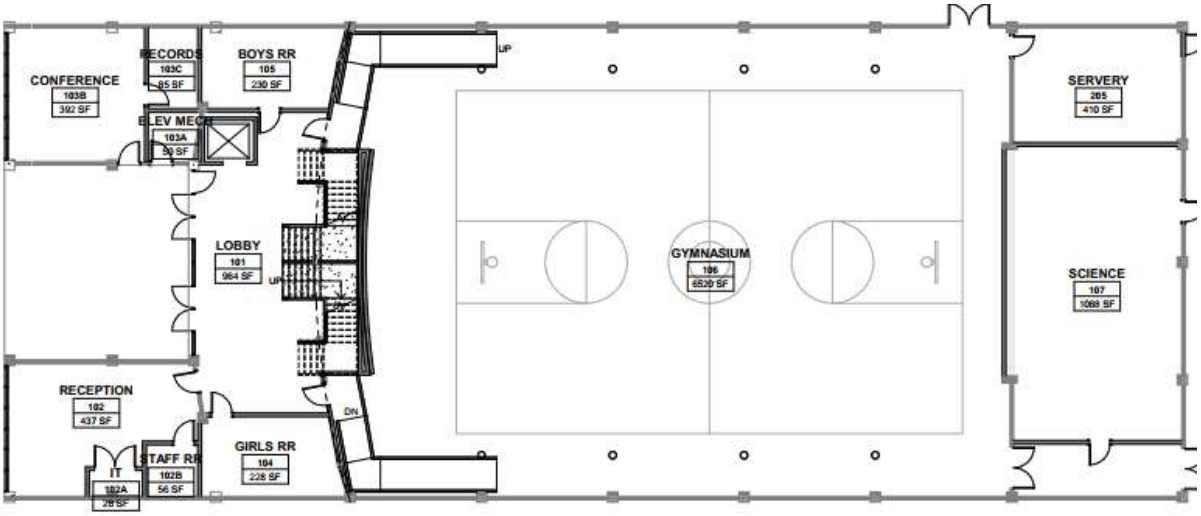
BayTech Charter School
Transportation Impact Review



December 2022

Prepared for:

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Table of Contents

1 Introduction 1

2 Study Area Description 4
- 2.1 Roadway Network 4
- 2.2 Transit Facilities 6
- 2.3 Bicycle Facilities 9
- 2.4 Pedestrian Facilities 11

3 Transportation Analysis 13
- 3.1 Study Intersections and Data Collection 13
- 3.2 Project Trips 17
- 3.3 Intersection Operational Analysis 27
- 3.4 Congestion Management Program 29
- 3.5 Site Analysis 30
- 3.6 Crash History Analysis 41
- 3.7 Construction Impacts 43

4 Transportation and Parking Demand Management (TDM) Plan 44
- 4.1 Required / Mandatory TDM Strategies 44
- 4.2 Supplemental TDM Strategies 46
- 4.3 Vehicle Trip Reductions 48
- 4.4 TDM Compliance 48

5 CEQA Analysis 49
- 5.1 CEQA Significance Criteria 49
- 5.2 CEQA VMT Thresholds of Significance 50
- 5.3 Consistency with Plans 50
- 5.4 Vehicle-Miles Traveled Analysis 55
- 5.5 CEQA Project Impacts 59

6 Conclusion 64
- 6.1 Standard Conditions of Approval 65
- 6.2 Mitigation Measures 65
- 6.3 Improvement Measures Summary 66

List of Figures

Figure 1.1: Project Vicinity Map 2
Figure 1.2: Project Parcels 3
Figure 2.1: Transit Facilities 8
Figure 2.2: Bicycle Facilities in Project Vicinity 10
Figure 3.1: Study Intersections 14
Figure 3.2: Existing Peak Hour Vehicle Volumes AM & PM 15
Figure 3.3: Existing Peak Hour Pedestrian & Bicycle Volumes AM & PM 16
Figure 3.4: Project Only Vehicle Trip Distribution 21
Figure 3.5: Project Only Peak Hour Vehicle Volumes AM & PM 22
Figure 3.6: Project Only Peak Hour Pedestrian & Bicycle Volumes AM & PM 24
Figure 3.7: Existing Plus Project Peak Hour Vehicle Volumes AM & PM 25
Figure 3.8: Existing Plus Project Peak Hour Pedestrian & Bicycle Volumes AM & PM 26
Figure 3.9: Parking Supply and Occupancy Data Collection Locations 33
Figure 3.10: On-Street Parking Occupancy Rate by Time of Day 35

List of Tables

Table 2-1: AC Transit Routes Serving Project 7
Table 2-2: City of Oakland Bicycle Facility Classification 9
Table 2-3: Existing and Planned Bicycle Facilities in Study Area 9
Table 2-4: Pedestrian Facilities at Intersections in Study Area 11
Table 3-1: Study Intersections and Control Type 13
Table 3-2: Project Trip Generation Rates 17
Table 3-3: Project Trip Mode Split 17
Table 3-4: Project Vehicle Trip Generation 18
Table 3-5: Project Trip Generation by Mode 18
Table 3-6: Trip Distribution Across Study Area Gateways 20
Table 3-7: Intersection Level of Service Definitions 27
Table 3-8: Existing and Existing Plus Project Intersection Level of Service – AM Peak Hour 28
Table 3-9: Existing and Existing Plus Project Intersection Level of Service – PM Peak Hour 29
Table 3-10: Anticipated Student Arrival and Departure Times 30
Table 3-11: Parking Occupancy Daily Average Observation Results 34
Table 3-12: Project Special Event Schedule 36
Table 3-13: Transit Stop Distance to Project 39
Table 3-14: Total Crashes by Intersection and Severity (2016-2020) 42
Table 3-15: Crash type for Study Intersections 42
Table 3-16: Crashes by Primary Collision Factor for Study Intersections 43
Table 4-1: Applicable Required / Mandatory TDM Strategies for Project 45
Table 4-2: Daily VMT Reduction for TDM Strategies 48
Table 5-1: VMT Screening Analysis Results 56
Table 5-2: Results for Low-VMT Area Screening Criteria 56

Table 5-3: VMT Generating Indicators for Near Transit Station VMT Screen 58

Table 5-5: CEQA Checklist Impact Determination 59

Table 6-1: Transportation-Related City Standard Conditions of Approval 65

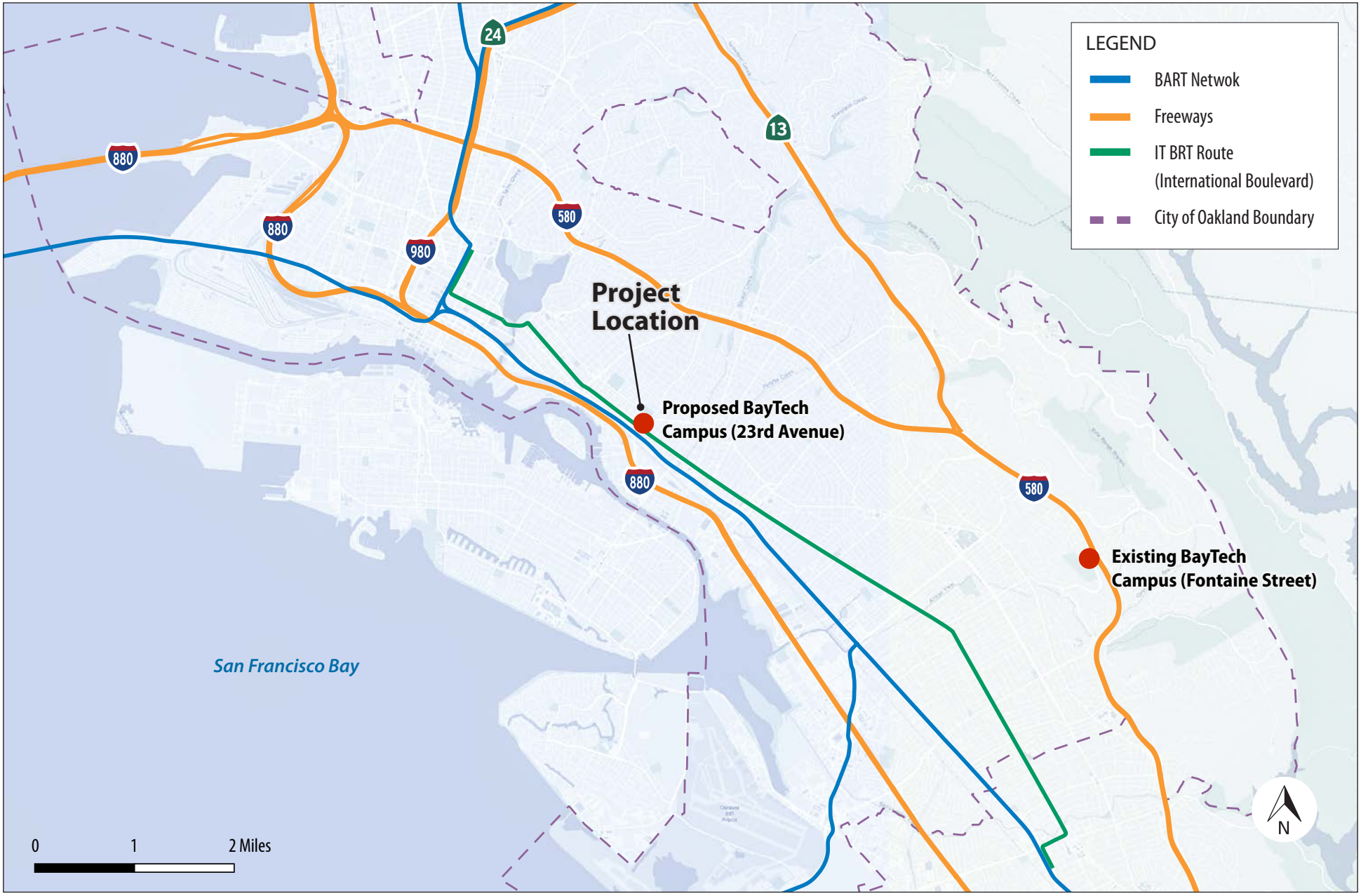
1 Introduction

This report presents the conclusions of the transportation impact review conducted for the proposed Bay Area Technology School ("BayTech") project at 1453 23rd Avenue in Oakland, California ("Project"). This study analyzes anticipated transportation impacts of the Project, including:

- Trip generation and distribution.
- Traffic operations analysis for eight study area intersections.
- Site analysis for vehicle, transit, pedestrian, and bicycle access.
- Crash analysis based on the latest five-year available dataset.
- Transportation and parking demand management.
- Parking needs assessment.
- CEQA traffic impact assessment.

The Project involves relocation of the BayTech grade 6-12 school from its existing campus at 8251 Fontaine Street to 1453 23rd Avenue, both in the City of Oakland ("City"). The Project site includes two parcels: Alameda County Assessor's Parcel Number (APN) 20-152-1 contains the former Palace Theater building, constructed in 1923 as a theater, and used primarily as a church since 1953, as well as an adjacent surface parking lot. APN 20-159-12-2 contains a surface parking lot across East 15th Street from the Palace Theater building.

Figure 1.1 displays the proposed Project site in context of the wider region, and Figure 1.2 shows the parcels involved in the Project.



Data source: City of Oakland

Figure 1.1: Vicinity Map

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Data source: Alameda County Assessor's Office

Figure 1.2: Project Parcels

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2 Study Area Description

The study area for the BayTech transportation impact review encompasses transportation facilities within approximately 0.25 mile of the Project site. This section describes study area existing roadway, transit, bicycle, and pedestrian infrastructure, conditions, and other considerations, as appropriate.

2.1 ROADWAY NETWORK

The following includes description of roads in the study area according to functional classification, number of vehicular travel lanes, on-street parking, sidewalks, and bicycle facilities.

2.1.1 FREEWAYS

Interstate 880 (I-880) is a major freeway that runs approximately 45 miles from Oakland to San Jose. The interchange at 23rd Avenue serves the project site from approximately 1/3rd mile away.

2.1.2 ARTERIALS

East 12th Street is a four-lane divided arterial roadway with a posted speed limit of 35 miles per hour (mph) that extends between 1st Avenue to 46th Avenue. The corridor in the study area is divided by a curbed median and elevated tracks for Bay Area Rapid Transit (BART). Sidewalks are present on both sides of the street. A bike lane[1] exists on the south side of the street, and a buffered bike lane is present on the north side of the street.

On-street parking is available on the north side of the street; no parking is allowed on the south side of the street between 22nd and 23rd Avenue. Parking is restricted on the north side of 12th Street from 9 AM to 12 PM on the first and third Fridays of each month.

International Boulevard is a four-lane arterial roadway with a posted speed limit of 30 mph running continuously between 1st Avenue to San Leandro and beyond to Hayward. In 2020, AC Transit opened the first Bus Rapid Transit service in the area along International Boulevard that operates from downtown Oakland to the San Leandro BART station. The inside lanes in both directions are indicated as bus-only lanes.

No bicycle facilities exist on International Boulevard, and sidewalks are present on both sides of the street. On-street parking is generally available on both sides of the street, except in the immediate vicinity of the bus boarding island at International Boulevard and 24th Avenue.

1 Bicycle facilities are classified based on the City of Oakland Bikeway Types. https://www.oaklandca.gov/resources/bikeway-types. Accessed Aug 4, 2022.

Parking is restricted between 3 AM and 6 AM every Monday, Wednesday, and Friday on the north side of the street, and every Tuesday, Thursday, Saturdays on the south side of the street.

Foothill Boulevard is a two-lane arterial roadway with a prima facie speed limit of 25 mph east of 23rd Ave,30 mph west of 23rd Avenue, and a posted school zone speed limit of 15 mph near Garfield Elementary School between 22nd Avenue and 23rd Avenue. Foothill Boulevard runs between 1st Avenue and 73rd Avenue. Sidewalks are present on both sides of the street. Buffered bike lanes exist west of 23rd Avenue, except for a stretch between Munson Way and 21st Avenue, where the bikeway becomes a standard unbuffered bike lane. A shared bike route, designated by shared use pavement markings ("sharrows") is present east of 23rd Avenue.

On-street parking is generally available on both sides of the street. Parking is restricted between 3 AM and 6 AM every Monday, Wednesday, and Friday on the south side of the street, and every Tuesday, Thursday, Saturdays on the north side of the street.

23rd Avenue is a two-lane arterial roadway with a prima facie speed limit of 25 mph south of Foothill Boulevard, and a posted speed limit of 30 mph north of Foothill Boulevard. 23rd Avenue traverses from East 12th Street to East 31st Street, directly adjacent to the Project site. Sidewalks are present on both sides of the street, and no bicycle facilities exist in the study area.

On-street parking is generally available on both sides of the street. Parking is restricted from 9 AM to 12 PM on the first and third Fridays of each month on the east side of the street, and from 12:30 PM to 3:30 PM on the first and third Wednesdays of each month on the west side of the street.

2.1.3 COLLECTORS

22nd Avenue is a two-lane collector roadway north of Foothill Boulevard, and transitions to a four-lane collector roadway south of Foothill Boulevard. At the intersection of East 12th Street, the roadway becomes 23rd Avenue as it continues to the interchange with I-880. The roadway has a prima facie speed limit of 25 mph.

Sidewalks are present on both sides of the street, except for along the roadway south of East 12th Street. North of Foothill Boulevard, 22nd Avenue is designated as a shared bike route with sharrows; south of Foothill Boulevard no bicycle facilities are present.

On-street parking is generally available on both sides of the roadway north of East 12th Street. Parking is restricted from 12:30 PM to 3:30 PM on the first and third Wednesdays of each month on the east side of the street and street from 9 AM to 12 PM on the first and third Fridays of each month on the west side of the street.

2.1.4 LOCAL ROADS

East 15th Street is a two-lane local road that runs along the north side of the Project site and has a prima facie speed limit of 25 mph. Sidewalks are present on both sides of the street; no bicycle facilities exist.

On-street parking is available on both sides of the street. Parking is restricted between 12:30 PM and 3:30 PM on the first and third Wednesdays of every month, and between 9 AM and 12 PM on the first and third Fridays of every month.

2.2 TRANSIT FACILITIES

The Project study area is served by Alameda-Contra Costa County Transit District (AC Transit). The nearest BART station is approximately 1.0 mile from the Project site and not considered in the study area. Figure 2.1 displays locations of transit facilities in the Project vicinity.

2.2.1 AC TRANSIT

AC Transit operates four routes that directly serve the Project site, including the 1T BRT line, two local lines, and an "All Nighter" line, as summarized in Table 2-1. The 1T BRT and 40 Lines both offer service intervals of every 10 minutes from 6 AM – 7 PM and are both considered high-quality transit corridors.[2]

[2] High-quality transit corridor is defined in the CEQA Statute as a corridor with fixed-route bus service with service intervals no longer than 15 minutes during peak commute hours. *California Public Resources Code, Division 13, §21155*. Published Jan 1, 2022.

Table 2-1: AC Transit Routes Serving Project

Line	Line Type	Route	Day of Week	Service Times	Frequency
1T	Tempo (Bus Rapid Transit)	Uptown Oakland to San Leandro BART via International Blvd.	Weekday	24 hours	6 AM – 7 PM: Every 10 mins 7 PM – 12 AM: Every 15 mins 12 AM – 6 AM: Every 60 mins
			Weekend	24 hours	6 AM – 7 PM: Every 10 mins 7 PM – 12 AM: Every 15 mins 12 AM – 6 AM: Every 30 mins
40	Local	Downtown Oakland to Bay Fair BART via Foothill Blvd. and Bancroft Ave.	Weekday	5:30 AM – 12 AM	5:30 AM – 7 PM: Every 10 mins 7 PM – 12 AM: Every 20 mins
			Weekend	5:30 AM – 12 AM	5:30 AM – 8 PM: Every 15 mins 8 PM – 12 AM: Every 20 mins
840	All Nighter		Daily	12 AM – 6 AM	Hourly
62	Local	West Oakland BART to Fruitvale BART Via Highland Hospital and 23rd Ave.	Weekday	6 AM – 12 AM	Every 20 mins
			Weekend	6 AM – 1 AM	Every 30 mins

Source: AC Transit, schedules as of Aug 24, 2022.

Data source: City of Oakland, AC Transit

Figure 2.1: AC Transit Bus Routes

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2.3 BICYCLE FACILITIES

Table 2-2 summarizes Oakland's bikeway type classification system,[3] which is used to describe existing and proposed bicycle facilities in the Project study area according to Oakland's Bicycle Master Plan, *Let's Bike Oakland!*[4] In Table 2-3. Bicycle facilities are displayed in Figure 2.2.

Table 2-2: City of Oakland Bicycle Facility Classification

Classification	Description
Bike Paths (Class 1)	Paved rights of way completely separated from streets
Bike Lanes (Class 2)	On-street facilities designated for bicyclists using stripes and stencils.
Buffered Bike Lanes (Class 2B)	Include buffer striping to provide greater separation between bicyclists and parked or moving vehicles
Bike Routes (Class 3)	Streets assigned for bicycle travel and shared with motor vehicles, designated with "sharrow" pavement markings
Neighborhood Bike Routes, aka Bike Boulevards (Class 3B)	Bike routes on residential streets that prioritize through trips for bicyclists
Separated Bike Lanes (Class 4)	Cycle track with physical separation from motor vehicle travel lanes by use of parked cars, curbs, bollards, or planter boxes.

Source: City of Oakland, Department of Transportation

Table 2-3: Existing and Planned Bicycle Facilities in Study Area

Roadway Segment	Existing Bicycle Facility	Planned Bicycle Facility
E. 12th St. westbound	Buffered Bike Lane (Class 2B)	Separated Bike Lane (Class 4)
E. 12th St. eastbound	Bike Lane (Class 2)	Separated Bike Lane (Class 4)
International Blvd.	None	None
Foothill Blvd. west of 23rd Ave.	Buffered Bike Lane (Class 2B) Except Munson Wy to 21st Ave, Bike Lane (Class 2)	Buffered Bike Lane (Class 2B)
Foothill Blvd. east of 23rd Ave.	Shared Bike Route (Class 3)	Buffered Bike Lane (Class 2B)
23rd Ave.	None	None
22nd Ave. north of Foothill Blvd.	Bike Boulevard (Class 3B)	Bike Boulevard (Class 3B)
22nd Ave. south of Foothill Blvd.	None	Bike Lane (Class 2)
E. 15th St.	None	None
E. 16th St. east of 23rd Ave.	None	Bike Boulevard (Class 3B)

Source: City of Oakland, Department of Transportation

[3] Bicycle facilities are classified based on the City of Oakland Bikeway Types. https://www.oaklandca.gov/resources/bikeway-types. Accessed Aug 4, 2022.
[4] City of Oakland Department of Transportation, *Lets Bike Oakland*! Issued July 2019. https://www.oaklandca.gov/resources/bicycle-plan. Accessed Jul 28, 2022.

Data source: City of Oakland

Figure 2.2: Existing and Proposed Bicycle Network

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2.4 PEDESTRIAN FACILITIES

Sidewalks are provided along all roadways in the study area. As summarized by Table 2-4, marked crosswalks are present in all intersections in the study area except at the intersection of 22nd Avenue and East 15th Street. Pedestrian pushbuttons and pedestrian signal heads are generally available at all signalized intersections.

Table 2-4: Pedestrian Facilities at Intersections in Study Area

Intersection		Description				
Road 1	**Road 2**	**Intersection Type**	**Marked Crosswalks**	**Curb Ramps**	**Pedestrian Pushbutton**	**Pedestrian Signal Head**
22nd Ave	Foothill Blvd	Signalized	Yes	Yes	Yes	Yes
22nd Ave	E. 15th St	Non-Signalized	No	Yes (not ADA-compliant)	No	No
22nd Ave	International Blvd	Signalized	Yes	Yes	Yes (not ADA-compliant)	Yes
22nd Ave	E. 12th St	Signalized	Yes	Yes	Yes	Yes
23rd Ave	Foothill Blvd	Signalized	Yes	Yes	Yes	Yes
23rd Ave	E. 15th St	Non-Signalized	Yes	Yes	No	No
23rd Ave	International Blvd	Signalized	Yes	Yes	Yes	Yes
23rd Ave	E. 12th St	Signalized	Yes	Yes	Yes	Yes

Source: Parisi Transportation Consulting, 2022

Oakland's Pedestrian Master Plan, *Oakland Walks!*[5] Identifies high injury corridors upon which the majority of pedestrian-involved injuries and fatalities occur. High injury network corridors and intersections in the Project study area include the following:

- East 15th Street between 21st and 26th Avenues.
- International Boulevard between 16th and 28th Avenues.
- Intersection of International Boulevard and 21st Avenue.

[5] City of Oakland Department of Transportation, *Oakland Walks!* Issued 2017. https://www.oaklandca.gov/resources/pedestrian-plan-update. Accessed Jul 28, 2022.

Both the stretch of East 15th Street and International Boulevard are designated as "High Tier" in the prioritization assessment in the Pedestrian Master Plan, and specific projects to address pedestrian safety are listed including:[6]

- At the intersection of 22nd Avenue and East 15th Street, add a pedestrian safety zone extending from the curb, and install high visibility crosswalks with signage and advanced yield markings. Install curb extensions (bulb outs) at all corners as a long-term improvement.
- At the intersection of 23rd Avenue and East 15th Street, install advanced yield markings to each minor approach.
- Along East 15th Street, restrict parking within 20 feet of intersections and marked crosswalks, and add edge line markings for street narrowing and parking definition.

The intersection of 22nd Avenue and International Boulevard contains existing two deficiencies with respect to pedestrian facilities. On the southeast corner, what is assumed to be a former pedestrian pushbutton stanchion appears knocked down and inoperable. On the northwest corner, the pedestrian pushbutton is located next to a ramp, rather than next to a level landing as required by the Americans with Disabilities Act (ADA).

[6] Pedestrian improvements along International Boulevard were included as part of the AC Transit BRT design and installation.

3 Transportation Analysis

This section presents a transportation analysis per the City's Transportation Impact Report Guidelines, Chapter 3, and includes trip generation estimates, counts; site analysis focused on bicycle, pedestrian, and transit; and operations analysis.

3.1 STUDY INTERSECTIONS AND DATA COLLECTION

Eight roadway intersections in the immediate vicinity of the Project were identified as study intersections per the requirements of TIRG Section 3.1.4. These intersections are listed in Table 3-1 along with their control type and displayed in Figure 3.1.

Table 3-1: Study Intersections and Control Type

Intersection Number	Road 1	Road 2	Intersection Type
1	22nd Avenue	East 12th Street	Signalized
2	22nd Avenue	International Boulevard	Signalized
3	22nd Avenue	East 15th Street	Two-Way Stop Controlled
4	22nd Avenue	Foothill Boulevard	Signalized
5	23rd Avenue	East 12th Street	Signalized
6	23rd Avenue	International Boulevard	Signalized
7	23rd Avenue	East 15th Street	Two-Way Stop Controlled
8	23rd Avenue	Foothill Boulevard	Signalized

Source: Parisi Transportation Consulting, 2022.

Turning movement counts were collected for the study intersections on Tuesday, August 16, 2022, between 7 AM and 9 AM, and between 3 PM and 6 PM. These times encompass the typical AM and PM commute peak hours and the Project's proposed typical morning drop-off (7:45 – 8:30 AM) and afternoon pick up periods, including after school programs (2:30 – 6:00 PM). Figure 3.2 displays the AM and PM peak vehicle turning movement volumes, and Figure 3.3 displays pedestrian and bicycle counts collected for input into analysis of existing conditions at the study intersections. Full vehicle turning volume data collected are included in Appendix A.

Figure 3.1: Study Intersections

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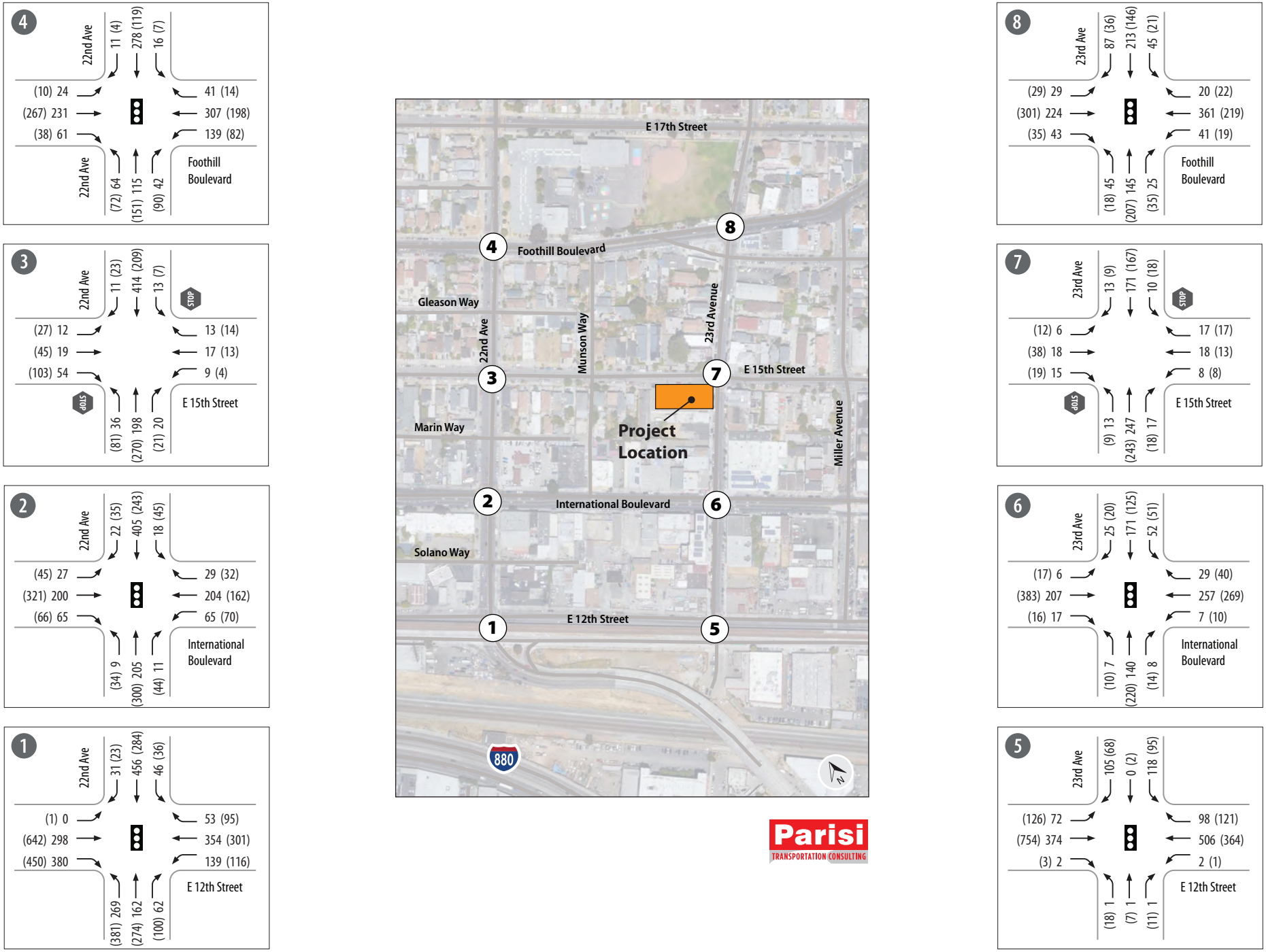
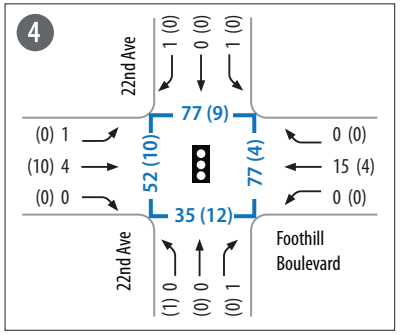
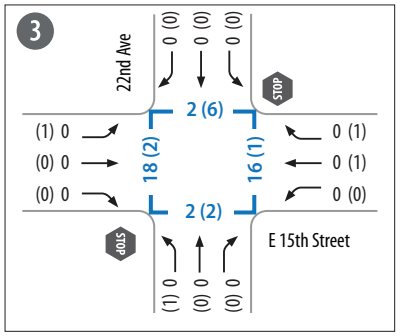
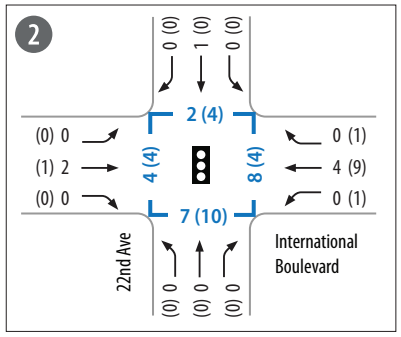


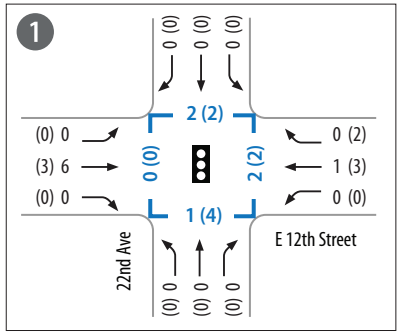
LEGEND: # AM (#) PM

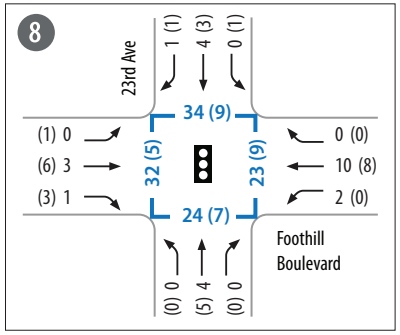
Figure 3-2: Existing Peak Hour Vehicle Volumes AM & PM

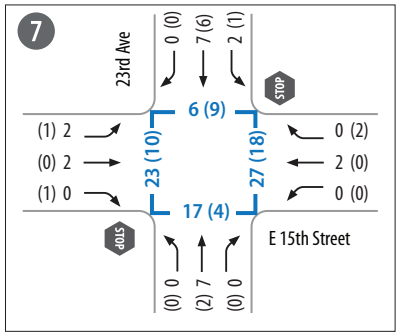


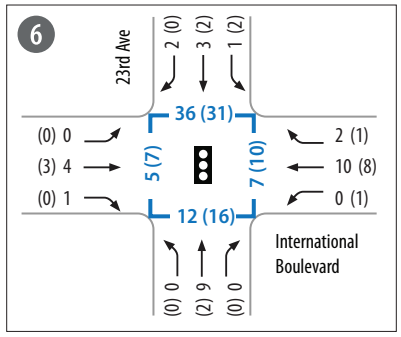


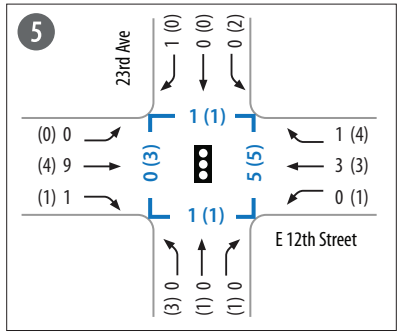












LEGEND
Pedestrian Volumes – # AM (#) PM
Bicycle Volumes – # AM (#) PM

Figure 3-3: Existing Peak Hour Pedestrian & Bicycle Volumes AM & PM

3.2 PROJECT TRIPS

3.2.1 TRIP GENERATION

Vehicle trips generated by the Project were estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th edition*, which provides trip generation rates for a variety of land use types. The analysis applied rates for high schools as the primary land use associated with the Project (Land Use Code 525). Number of enrolled students is utilized as an independent variable that relates to the size of a school and is directly causal for the variation in trips generated. ITE trip generation rate and resulting trips account for all trips generated by the school, including trips made by students, staff, visitors, deliveries, and others (Table 3-2).

Table 3-2: Project Trip Generation Rates

	Daily	AM Peak Hour			PM Peak Hour		
ITE Land Use	**Average Rate**	**Average Rate**	**Entering**	**Exiting**	**Average Rate**	**Entering**	**Exiting**
High School (525)	1.94	0.51	68%	32%	0.32	32%	68%

Source: Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition*, 2021.
Note: Independent variable for trip generation rates is Number of Students

The City of Oakland provides mode split adjustment factors in the TIRG for ITE trip generation rates to reflect the city's urban context and transportation access. These mode split adjustment factors are based on Census commute data for Alameda County that accounts for residential population density and proximity to major transit stops (Table 3-3).

Table 3-3: Project Trip Mode Split

	1453 23rd Ave Oakland, CA 94606
Travel Mode	**Percentage of Trips[1]**
Motor Vehicle Trips	53.1%
Transit Trips	29.7%
Bicycle Trips	5.1%
Walk Trips	10.5%

Source: Oakland TIRG (2017) Table 2: Default City of Oakland Multimodal Trip Generation Adjustment Factors for locations < 0.5 mile from Major Transit Stop.
Note that the adjustment factors do not total to 100% due to a small percentage of "Other" trips.

The proposed BayTech location on 23rd Avenue is within a dense urban setting, and adjacent to frequent bus service, including the newly opened Bus Rapid Transit Line 1T. Based on the City's mode split adjustment factors for the Project site, it can be anticipated that vehicle trips will reduce by 47% to an estimated 53% of the total trips for this context. In practice, over 40 percent

of the student body has a sibling enrolled at BayTech, which naturally facilitates carpooling as a travel mode. Additionally, the project provides shuttle van service for student transport to campus. Because these factors reduce vehicle trips more than typical worker commute patterns, application of the City suggested mode split adjustment factors can be considered conservative with respect to trip generation.

Based on the BayTech enrollment cap of 350 students and overall daily trip generation rate of 1.94 trips per student, the Project would be estimated to generate 679 total trips per day. Applying the TIRG trip mode adjustment factor for vehicle trips (Table 3-3) would reduce vehicle trips by 318, resulting in 361 vehicle trips generated by the Project (Table 3-4). Of these, 95 vehicle trips would be expected to occur during the AM peak hour and 59 trips during PM peak hour.

Table 3-4: Project Vehicle Trip Generation

Land Use	Daily Trip Rate	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
		Average Rate	% In	% Out	Average Rate	% In	% Out
High School (525)[1]	1.94	0.51	68%	32%	0.32	32%	68%
Proposed Project	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
		Total	**In**	**Out**	**Total**	**In**	**Out**
Gross Trip Generation	679	179	121	57	112	36	76
TIRG Vehicle Trip Reduction[2] (47%)	(318)	(84)	(57)	(27)	(53)	(17)	(36)
Net Vehicle Trip Generation	361	95	64	30	59	19	40

Source: 1. Institute of Transportation Engineers, *Trip Generation Manual, 11th Edition*, 2021. 2. City of Oakland TIRG Mode Split Reduction Factors.
Note: Results based on independent variable value of 350 students. Trip generation results include all trips made by students, staff, visitors, deliveries, and others.

Similarly applying mode split adjustment factors (Table 3-3) would result in trips generated by mode during AM and PM peak hours (Table 3-5).

Table 3-5: Project Trip Generation by Mode

	Daily	AM Peak Hour			PM Peak Hour		
Mode	**Trips**	**Trips**	**Entering**	**Exiting**	**Trips**	**Entering**	**Exiting**
Motor Vehicle Trips	361	95	64	30	59	19	40
Transit Trips	202	53	36	17	33	11	23
Bicycle Trips	35	9	6	3	6	2	4
Walk Trips	71	19	13	6	12	4	8
Other	11	3	2	1	2	1	1
Project Generated Trips	679	179	121	57	112	36	76

Source: Parisi Transportation Consulting, 2022.

Table 3-5 indicates that of the 679 daily trips generated by the Project, 179 trips would take place during the AM peak hour, comprised of 95 vehicle trips, 53 transit trips, 35 bicycle trips, and 19 walk trips. PM peak hour trips generated by the Project would equal 112 trips total, including 59 vehicle trips, 33 transit trips, 6 bicycle trips, and 12 walk trips.

3.2.2 TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution was estimated from student and staff address data, existing traffic patterns measured on roadways in the study area, and with consideration for Project operational influences such as pick-up and drop-off approach patterns. Since the address data reflects existing student and staff population and not that of future years of enrollment and employment, the data are considered a conservative estimate of BayTech's geographical student distribution. With the proposed campus relocation and expansion up to the school enrollment cap of 350 students, it is likely the future years' students would likely come from neighborhoods closer to the new campus, and therefore shorter trips would be made to and from BayTech.

Vehicle trip distribution gateways were identified for the Project study area based on the most likely route from addresses to the Project site. Project-generated vehicle trip distribution to gateways is summarized in Table 3-6 and is displayed Figure 3.4.

Table 3-6: Trip Distribution Across Study Area Gateways

	Daily	AM Peak Hour			PM Peak Hour		
	Trips	Trips	Entering	Exiting	Trips	Entering	Exiting
All Project Motor Vehicle Trips	361	95	64	30	59	19	40
Study Area Gateway	**Trip %**	**Trips**	**Entering**	**Exiting**	**Trips**	**Entering**	**Exiting**
23rd Ave Overpass south of E. 12th St	56%	53	38	17	35	11	24
International Blvd west of 22nd Ave	3%	3	2	1	2	1	1
Foothill Blvd west of 22nd Ave	2%	2	1	1	1	0	1
23rd Ave north of Foothill Blvd	16%	15	10	5	9	3	6
Foothill Blvd east of 23rd Ave	18%	15	10	5	10	3	7
International Blvd east of 23rd Ave	5%	4	3	1	2	1	1

Source: Parisi Transportation Consulting, 2022

Project vehicle trips for student loading and unloading would approach the school loading zone by traveling eastbound on East 15th Street from 22nd Avenue. Project-only vehicle turning movement volumes are provided in Figure 3.5.

Figure 3.4: Project Only Vehicle Trip Distribution

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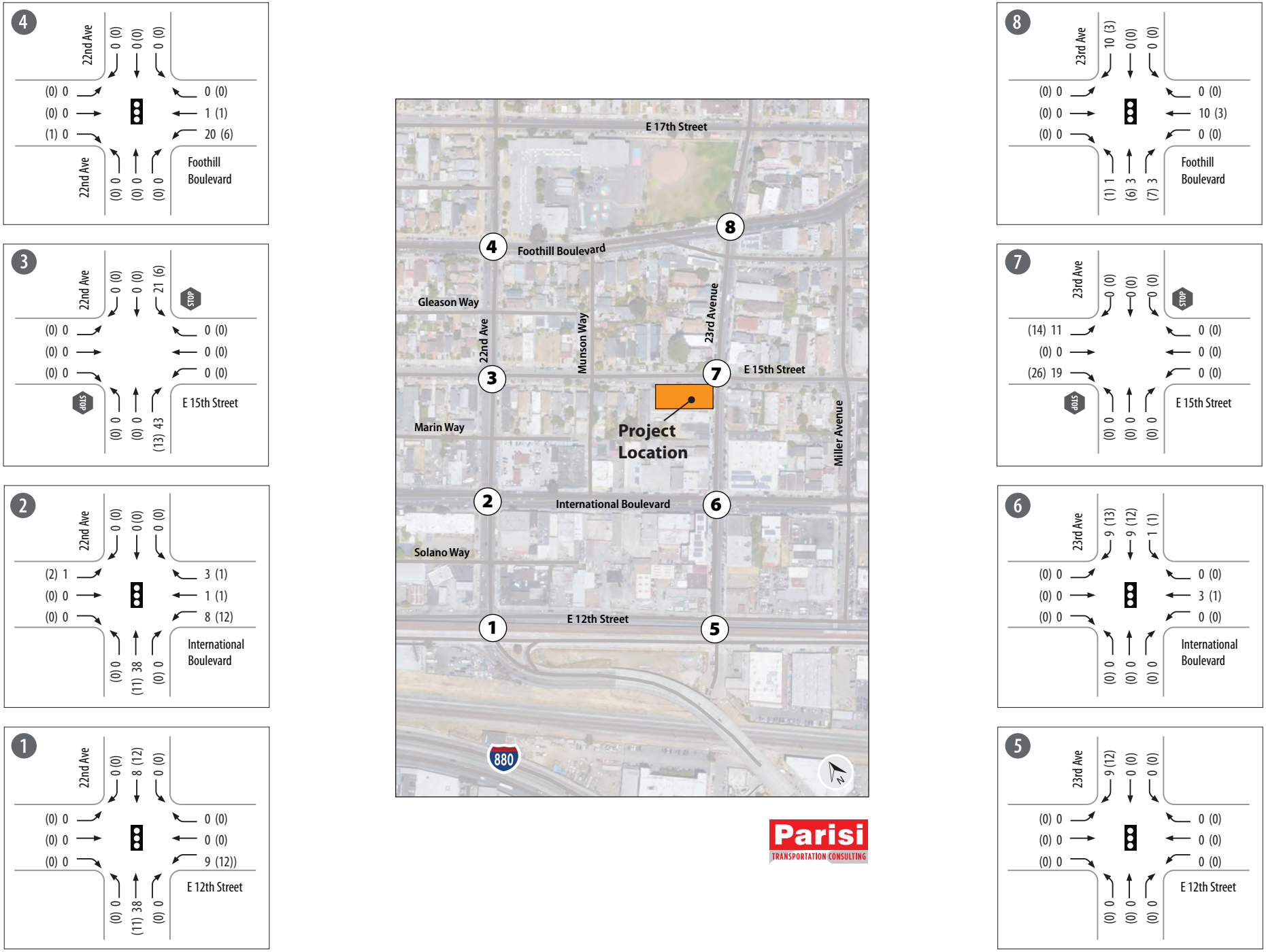


LEGEND: # AM (#) PM

Figure 3-5: Project Only Peak Hour Vehicle Volumes AM & PM

As shown in Table 3-5, it is estimated that during the AM peak hour the Project would generate nine bicycle trips, 53 transit trips, and 19 walking trips. During the PM peak hour, the Project would generate six bicycle trips, 33 transit trips, and 12 walking trips. Project-generated bicycle and pedestrian trip distribution volumes are derived following the same vehicle gateway methodology following appropriate bicycle and pedestrian network connections.

For transit trips, current address data was utilized to assign trips to either the 1T BRT or 40 Lines, as these routes are high frequency and would most directly service student and staff residences. Students making transit trips would be assumed to contribute to the Project-only pedestrian trips to and from the nearest bus stop. The estimated resulting Project-only pedestrian and bicycle volumes are provided in Figure 3.6.

Project-only turning volumes were added with existing volumes to characterize future conditions including Project generated trips. Existing plus Project turning movement volumes for vehicles are displayed in Figure 3.7, and for pedestrians and bicycles in Figure 3.8.

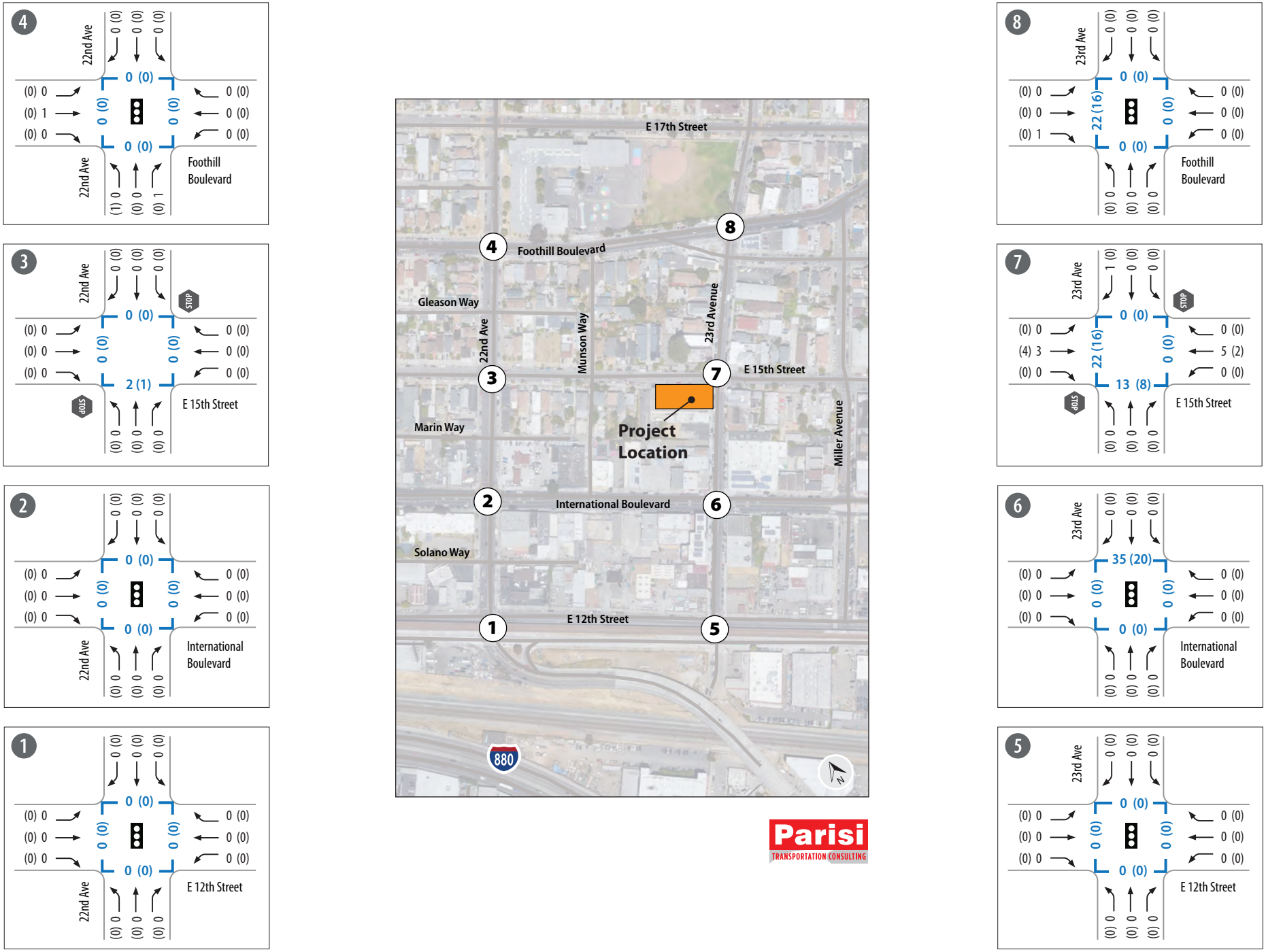
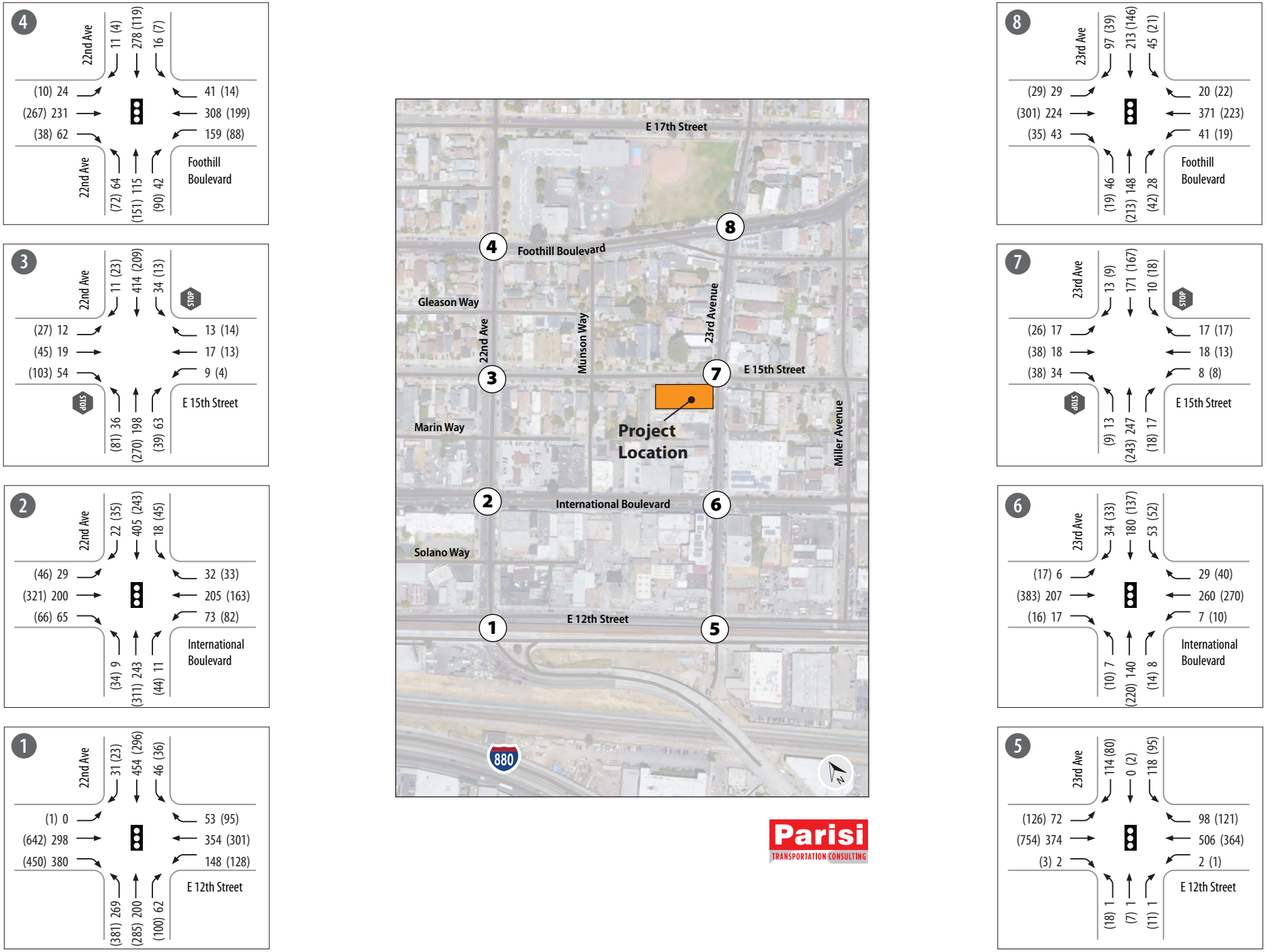


Figure 3-6: Project Only Pedestrian & Bicycle Volumes AM & PM

LEGEND
Pedestrian Volumes – # AM (#) PM
Bicycle Volumes – # AM (#) PM



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LEGEND: # AM (#) PM

Figure 3-7: Existing Plus Project Peak Hour Vehicle Volumes AM & PM

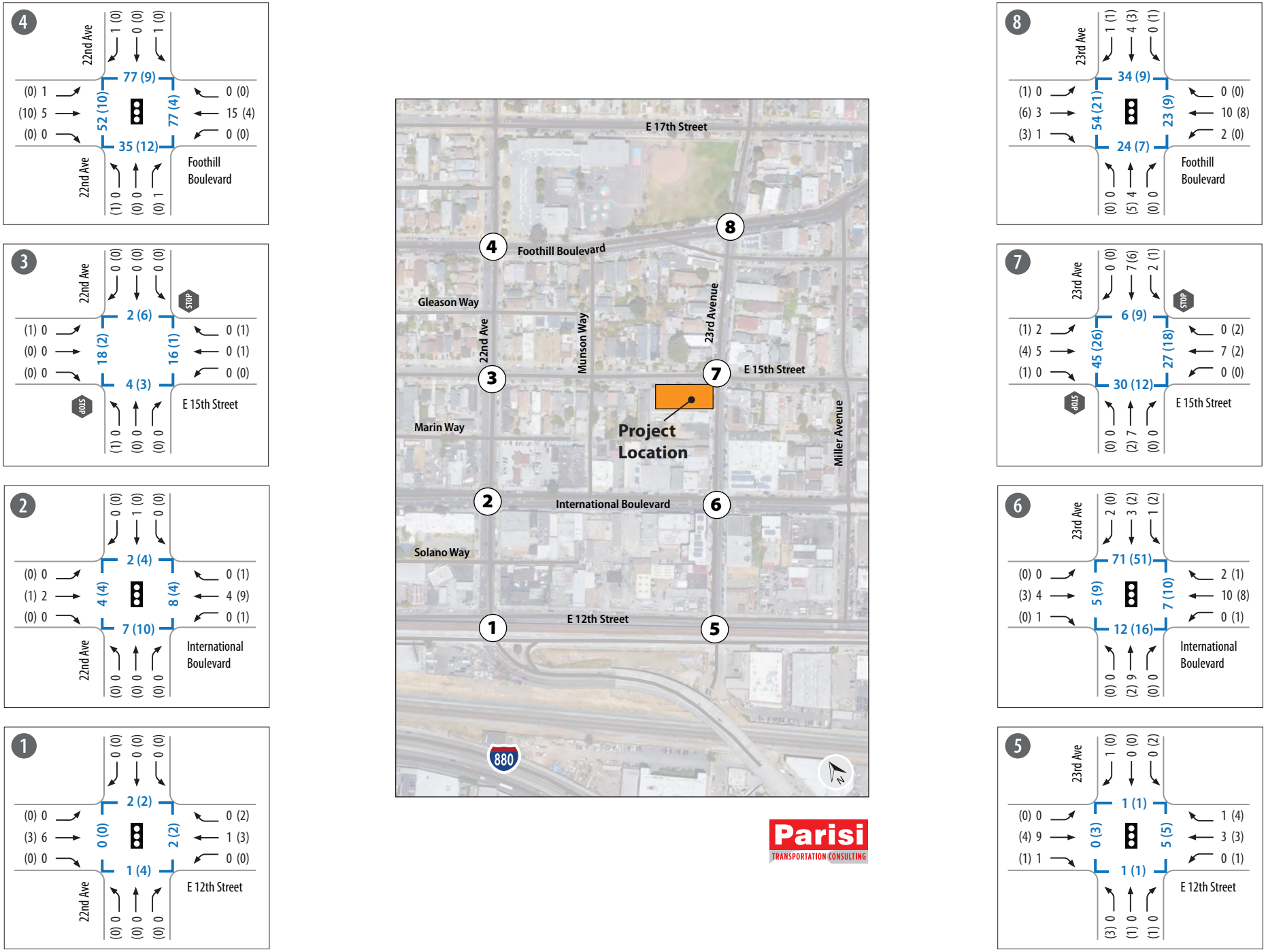

Figure 3-8: Existing Plus Project Peak Hour Pedestrian & Bicycle Volumes AM & PM

LEGEND
Pedestrian Volumes – # AM (#) PM
Bicycle Volumes – # AM (#) PM

3.3 INTERSECTION OPERATIONAL ANALYSIS

Intersection operations analysis was performed for the eight intersections in the study area following the approach from the *Highway Capacity Manual, 6th Edition*.[7] Level of Service (LOS) was determined for four scenarios: "Existing" conditions and "Existing plus Project" conditions were analyzed for both weekday AM and PM peak hour traffic volumes. Analysis was conducted using Synchro 11 software based on physical roadway network infrastructure and signal timing cards provided by the City of Oakland and employed assumptions from Section 7.2 of the TIRG in order to furnish comparable results with other City intersection operation analyses.

Table 3-7: Intersection Level of Service Definitions

Level of Service	Description of Intersection Traffic Conditions	Average Delay (seconds per vehicle)	
		Signalized Intersection	TWSC
A	LOS A represents free-flow travel with excellent levels of comfort and convenience and the freedom to maneuver.	≤10	0 – 10
B	LOS B has stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.	>10 – 20	>10 – 15
C	LOS C has stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.	>20 – 35	>15 – 25
D	LOS D represents high-density, but stable flow. Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.	>35 – 55	>25 – 35
E	LOS E represents operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.	>55 – 80	>35 – 50
F	LOS F is used to define forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and go fashion.	>80	>50

Source: Highway Capacity Manual, 6th Edition, 2016. Note: TWSC = Two-way stop-controlled.

[7] Transportation Research Board, *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis, 2016.*

LOS is a qualitative measurement that describes operating conditions and service measures experienced by vehicle roadway users. Intersection LOS is based on a weighted average vehicle stop delay at an intersection. LOS descriptions are included in Table 3-7 for signalized and two-way stop-controlled intersections, which are found in the study area.

3.3.1 EXISTING CONDITIONS

Oakland determines intersection LOS based on average peak hour conditions. Synchro intersection operations analysis yields intersection LOS results for the "Existing" conditions scenario (Table 3-8 and Table 3-9). The results indicate that signalized intersections in the study area operate at LOS B or C during both AM and PM peak periods, while the two unsignalized intersections operate at LOS B during both AM and PM peak periods. Appendix B and Appendix C include detailed Synchro input and output flies for "Existing" AM and PM conditions, respectively.

3.3.2 EXISTING PLUS PROJECT CONDITIONS

Existing plus Project volumes were input into the Synchro model to determine intersection LOS results for the "Existing plus Project" conditions (Table 3-8 and Table 3-9).

Table 3-8: Existing and Existing Plus Project Intersection Level of Service – AM Peak Hour

Intersection				Existing AM		Existing Plus Project AM	
#	Road 1	Road 2	Control	Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
1	22nd Ave	E. 12th St	Signal	25.0	C	25.1	C
2	22nd Ave	International Blvd	Signal	28.5	C	28.9	C
3	22nd Ave	E. 15th St	TWSC	14.8	B	16.0	C
4	22nd Ave	Foothill Blvd	Signal	12.5	B	12.5	B
5	23rd Ave	E. 12th St	Signal	12.9	B	13.2	B
6	23rd Ave	International Blvd	Signal	20.9	C	20.9	C
7	23rd Ave	E. 15th St	TWSC	12.9	B	13.2	B
8	23rd Ave	Foothill Blvd	Signal	12.3	B	12.5	B

Source: Parisi Transportation Consulting, 2022. Note: TWSC = Two-way stop-controlled. Values displayed for TWSC intersections reflect the worst minor street approach delay and resulting LOS.

Table 3-9: Existing and Existing Plus Project Intersection Level of Service – PM Peak Hour

Intersection				Existing PM		Existing Plus Project PM	
#	Road 1	Road 2	Control	Delay (seconds)	Level of Service	Delay (seconds)	Level of Service
1	22nd Ave	E. 12th St	Signal	23.3	C	23.6	C
2	22nd Ave	International Blvd	Signal	27.5	C	27.7	C
3	22nd Ave	E. 15th St	TWSC	14.6	B	15.0	C
4	22nd Ave	Foothill Blvd	Signal	12.6	B	12.6	B
5	23rd Ave	E. 12th St	Signal	11.1	B	11.5	B
6	23rd Ave	International Blvd	Signal	16.1	B	16.5	B
7	23rd Ave	E. 15th St	TWSC	13.2	B	13.8	B
8	23rd Ave	Foothill Blvd	Signal	11.4	B	11.4	B

Source: Parisi Transportation Consulting, 2022. Note: TWSC = Two-way stop-controlled. Values displayed for TWSC intersections reflect the worst minor street approach delay and resulting LOS.

In general, the results show that AM and PM peak hour intersection delays would incur a slight increase of less than one-half second across the study area, with the only exceptions at the two-way stop-controlled intersections. At the intersection with 22nd Avenue, the westbound approach delay on East 15th Street would increase from 14.8 to 16.0 seconds in the AM peak hour, and at 23rd Ave, the eastbound approach delay on East 15th Street would increase by 0.6 seconds in the PM peak hour. As all intersections would be projected to operate at LOS C or better, no alterations or improvements are recommended to lane configurations or the street network as a result of the intersection operations analysis.

Appendix D and Appendix E include detailed inputs and outputs from Synchro for "Existing Plus Project" AM and PM conditions, respectively.

3.4 CONGESTION MANAGEMENT PROGRAM

Alameda County Transportation Commission (Alameda CTC) is the congestion management agency for Alameda County and develops and updates its mandated short-range Congestion Management Program (CMP)."[8] The City of Oakland's TIRG requires a CMP analysis if a project generates over 100 PM peak hour vehicle trips on a roadway segment designated as part of the designated CMP network. In context of this Project, relevant roadways under the CMP include International Boulevard and Foothill Boulevard.

The Project would be estimated to generate 59 PM peak hour vehicle trips (Table 3-4), which is less than the threshold of 100 PM peak hour vehicle trips. Therefore, the Project would not cause

[8] Alameda County Transportation Commission, *2021 Congestion Management Program.* Issued October 2021.

a substantial effect on a CMP network roadway segment and a CMP analysis is not required for this Project.

3.5 SITE ANALYSIS

Multimodal transportation needs and appropriate provisions were analyzed based on typical student arrival and departure volume according to the information received from the Project, as summarized in Table 3-10.[9]

Table 3-10: Anticipated Student Arrival and Departure Times

Event	Student arrival or departure	Time	Number of Students
Middle School Start	Arrival	8:15 AM	160
High School Start	Arrival	8:30 AM	190
Middle School End	Departure	2:25 PM	50
High School End	Departure	3:30 PM	105
Tutoring/Clubs/Sports Release	Departure	5:00 PM	95
After School Program Release	Departure	6:00 PM	100

Source: Bay Area Technical School

The Project would have staggered start times for middle school and high school classes (8:15 AM and 8:30 AM, respectively), to allow for morning drop-off trips to spread across a wider timespan and to reduce peak drop-off demand intensity. The after-school programs would have a similar effect of dispersed dismissal time for student departure from campus.

3.5.1 VEHICLE ACCESS AND CIRCULATION

All vehicle drop-off and pick-up would be routed from the 22nd Avenue / East 15th Street intersection onto eastbound East 15th Street. The Project would have approximately 200 feet of curb frontage on East 15th Street designated as a loading zone. The East 5th Street block between 22nd and 23rd avenues is approximately 650 feet long with residential uses west of the Project site.

The designated loading zone would be able to accommodate roughly eight vehicles at a time during student drop-off and pick-up, and the overall block would be able to accommodate 26 queued vehicles, which is a quarter of the AM drop-off trip demand and nearly half the PM pick-up demand (95 vehicle trips in the AM peak hour and 59 vehicle trips in the PM peak hour). Staggered start and end times for middle and high school students would serve to lessen the vehicle demand posed during the pick-up and drop-off period.

[9] It is noted that Wednesday schedules for both middle and high school involve an early release for those not involved in after-school programming.

Intersection operational analysis results listed in Table 3-8 and Table 3-9 indicate that minor street approach delays on East 15th Street at the intersection at 23rd Avenue would be between 13 to 14 seconds per vehicle during the AM and PM peak hour periods. This represents the maximum drop-off and pick-up clearing rate for the designated loading zone.

Queueing analysis was performed, applying conservative assumptions for loading efficiency and stacked vehicle arrivals during narrowed high demand morning and afternoon drop-off and pick-up periods. These results indicate that total queue lengths of 275 feet in the morning and 325 feet in the afternoon are predicted to form. This translates into queues of three to five vehicles longer than the loading zone and would not impact traffic operations at the intersection of East 15th Street and Munson Way. These queues would persist for four minutes in the morning and seven minutes in the afternoon and would cause only minor impact to normal traffic operations on East 15th Street.

Improvement Measure TR-1 is identified to achieve a functional, safe, and efficient drop-off and pick-up.

> **Improvement Measure TR-1: Develop and Implement Drop-Off and Pick-Up Procedures**
> To minimize potential disturbance impacting surrounding roadways and to maintain safe and effective operations, the Project shall develop and implement drop-off and pick-up procedures to be reviewed and approved by City staff prior to school opening. These procedures would address typical school day, minimum school day, and special event scenarios. These procedures should include:
>
> - Provide clearly marked white curb and signage to designate a drop-off and pick-up zone on the 200 feet of school frontage on the south side of East 15th Street directly adjacent to the Project site.
> - Require drivers to pull up to the front of the designated area and to not leave the vehicle while conducting drop-off or pick-up.
> - Prohibit double parking and waiting in the travel lanes on East 15th Street. Prohibit student loading on 23rd Avenue.
> - Implement an arrival and departure assistant program that allows for students or staff to serve as valets and actively manage and enforce proper loading and unloading procedures. Assistants can also encourage appropriate driving behavior and ensure pedestrian and cyclist safety at the intersection.
> - Communicate drop-off and pick-up procedures to staff, students, and parents using welcome packets, school announcements, and newsletters.

The Project would not otherwise modify the surrounding roadway network and would not affect circulation for bikes, pedestrians, trucks, transit vehicles or emergency access.

3.5.2 OFF-STREET VEHICLE PARKING

Oakland does not include a specific parking requirement for high schools, but rather indicates that the number of parking spaces be determined by the Director of City Planning pursuant to Section 17.116.040, based on traffic generation, amount and frequency of loading operations, and other factors.[10] The Project site includes a parking lot for staff across East 15th Street with parking for 18 vehicles and one ADA accessible space. The parking lot capacity increases to 22 vehicles and one ADA accessible space with valet service.

The Project would have 40 staff for whom parking would be provided; students would not be provided on-site parking. Based on the mode split assumptions from the TIRG, only 53.1% of school trips are expected to be made by motor vehicles (Table 3-3). Assuming the same mode split is applied to staff commute trips and parking demand, the total number of parking spaces needed for staff parking is 21 spaces, which can be accommodated by the planned parking lot capacity of 22 spaces.

Improvement Measure TR-2 is identified to manage off-site parking demand and implement effective use of off-site parking.

> **Improvement Measure TR-2: Off-Site Parking**
> The Project sponsor shall install signs outside the off-street parking lot indicating its reserved use for the school. Within the parking lot, the Project sponsor shall install signs indicating reserved parking for school staff.

3.5.3 ON-STREET VEHICLE PARKING AND LOADING

On-street parking supply and demand analysis was conducted along seven street blocks in the study area within 0.15-mile walking distance from the Project site (Figure 3.9). Parking observations were conducted on Thursday, August 18, 2022, during which inventory of existing spaces and occupancy counts were collected hourly over a twelve-hour period from 7:30 AM to 7:30 PM.

[10] City of Oakland Municipal Code, §17.116.070. https://library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.116OREPALORE. Accessed Aug 15, 2022.

Figure 3.9: Parking Supply and Occupancy Data Collection Locations

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On-street parking spaces are generally unmetered on East 15th Street, metered on International Boulevard, and spaces on 23rd Avenue are metered only in near proximity to International Boulevard. There are several loading zone spaces on the relevant blocks, however, as these spaces are not available for Project use, they were not included in the analysis. International Boulevard has frequent parking restrictions for street cleaning from 3 AM – 6 AM, while East 15th Street and 23rd Avenue have restrictions for street cleaning during school hours twice monthly.

Overall parking supply and occupancy data collected by time of day for each block is summarized in Table 3-11. On average during the data collection period, 120 of the 146 (82%) available on-street parking spaces were in use. The observed occupancy rate correlates highly with the provision of parking meters; the three metered blocks assessed (International Boulevard and 23rd Avenue between International Boulevard and East 15th Street) each have average daily occupancies at 70% or lower, while the non-metered blocks have occupancy rates at 89% or higher.

Table 3-11: Parking Occupancy Daily Average Observation Results

No.	Street Block	Metered or Non-metered	Parking Supply	Average Vehicles Parked	Average Occupancy Rate
1	International Blvd – 22nd Ave to 23rd Ave	Metered	12	5	44%
2	International Blvd – 23rd Ave to Miller Ave	Metered	17	10	61%
3	E. 15th St – 22nd Ave to 23rd Ave	Non-metered	41	36	89%
4	E. 15th St – 23rd Ave to Miller Ave	Non-metered	21	20	97%
5	23rd Ave – E. 12th St to International Blvd	Non-metered[11]	20	18	92%
6	23rd Ave – International Blvd to E. 15th St	Metered	16	11	70%
7	23rd Ave – E. 15th St to Foothill Blvd	Non-metered	19	18	94%
		Total	**146**	**120**	**82%**

Source: Parisi Transportation Consulting, 2022

Figure 3.10 displays the overall occupancy rate over the course of the day for all blocks assessed. Higher rates of overall occupancy are exhibited in the evenings, with 96% of spaces in use at 6:30 PM. The time of day with the lowest observed overall occupancy rate of 71% was at

[11] The section of 23rd Avenue between East 12th Street and International Boulevard is predominately non-metered, containing 18 non-metered on-street parking spaces and 2 metered spaces.

8:30 AM. For the hours encompassing a typical school day from 8:15 AM – 3:30 PM, parking occupancy rates are between 70% – 85% in the vicinity.

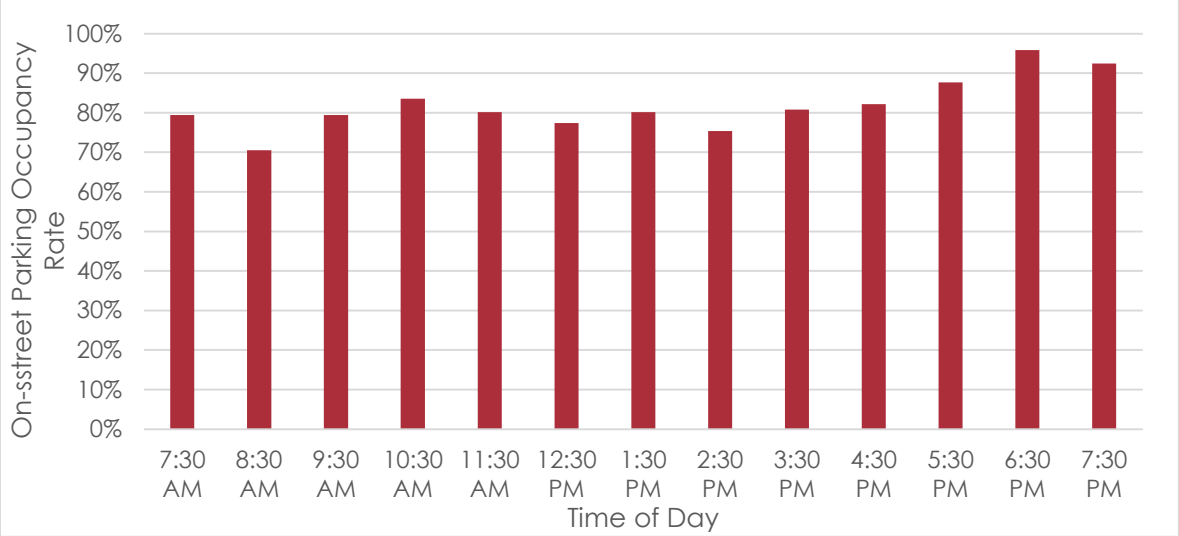

Figure 3.10: On-Street Parking Occupancy Rate by Time of Day
Source: Parisi Transportation Consulting, 2022

Eighty-five percent (85%) parking occupancy is typically considered the optimal level of parking occupancy that results in approximately one vacant space per block face.[12] Given that all blocks in the study area average 82% parking occupancy throughout the day, it should be assumed that the Project sponsor should not rely on available on-street parking spaces to service school visitors or deliveries.

Improvement Measure TR-3 is identified to achieve functional, safe, and efficient drop-off and pick-up as well as ensure availability of visitor parking. This measure would result in a reduction of approximately nine publicly available parking spaces, which would increase the average occupancy of the study area to 84%.

Improvement Measure TR-3: On-Street Parking and Loading
The Project sponsor shall work with the City of Oakland to designate the 200 feet of school frontage on the south side of East 15th Street directly adjacent to the Project site as a white curb loading zone. The Project sponsor shall install signs indicating:

- "No Parking Student Loading Only" zones during the morning drop-off and afternoon pick-up period, and
- "Short-term school visitor parking and deliveries only" zones outside non-student loading hours.

[12] Shoup, D.C. (2005). The High Cost of Free-Parking. APA Planners Press, Chicago

3.5.4 SPECIAL EVENTS PARKING

The Project provided a list of special events that would typically take place outside of typical school hours; their associated frequencies, attendees, and time of day (Table 3-12). During special events, visitor parking would be allowed on the recreation yard to the rear of the building. The recreation yard could accommodate 19 vehicles without valet and 28 vehicles with valet. The existing staff parking lot across East 15th Street can accommodate 22 parking spaces with valet. The total off-street parking capacity for events would total 54 parking spaces.

Assuming a 53.1% vehicle mode share consistent with the TIRG and an average occupancy of two people (one student and one parent) per vehicle, the estimated parking demand for each event is presented in Table 3-12.

Table 3-12: Project Special Event Schedule

Event	Frequency	Number of Attendees	Day of Week	Time	Est. Parking Demand
Community Day	Yearly	150	Friday	9 AM-3 PM	40
Field Day	Yearly	200	Friday	9 AM-2 PM	53
Science Fair	Twice Yearly	250	Saturday	12 PM-4 PM	66
Back to School Night	Yearly	150	Weekday	5 PM-6 PM	40
Summer Orientation	Yearly	75	Weekday	3PM-4 PM or 4 PM-5 PM	20
Graduation	Yearly	100	Friday or Saturday	11 AM-12 PM or 4 PM-5PM	26

Source: Bay Area Technical School, Parisi Transportation Consulting, 2022.

Based on the parking occupancy analysis and proposed on-site parking plan, special events with more than 200 attendees would be expected to generate parking demand in excess of the parking supply provided on site. A parking management measure, Improvement Measure TR-4, is proposed to minimize potential for adverse effects related to event parking demand.

> **Improvement Measure TR-4: Implement Special Event Parking Management Strategies**
> For all special events with more than 200 attendees, the Project sponsor shall implement a parking management plan with the following strategies:
>
> - Provide a special event trip reduction newsletter to clearly communicate special event travel options that include carpooling, taking transit, walking, and biking, special carpool parking, and off-site parking options.
> - Reserve on-site parking for vehicles with four or more occupants to encourage carpooling.

- Direct households that are driving to park two or more blocks away from the Project to reduce instances of cruising for parking at the school frontage.
- Integrate group bicycle rides to campus and other programmatic content as part of special events.

3.5.5 TRANSIT STOPS

The Project site is within a five-minute walk of three bus routes served by AC Transit. The Project is forecast to generate 202 daily transit trips, including 53 trips in AM peak hour and 33 trips in PM peak hour (Table 3-5). According to home addresses of existing students and staff, the majority of transit access to the Project would be serviced by the 1T BRT and 40 lines. As both routes offer service frequencies at 10-minute intervals, buses would be expected to accommodate the increased ridership of approximately three to five riders per bus. To expand access to bus services, the Project plans to offer transit subsidies to 100 students according to need as part of its Transportation Demand Management (TDM) Plan.

Per Oakland Standard Conditions of Approval #78, the project sponsor must prepare a TDM Plan that includes the following transit-related measures (Section 4):

- The project sponsor shall work with the City and AC Transit to identify the feasibility of installing bus shelters for the following bus stops:
    - Stop 51284, Route 62: 23rd Ave northbound at International Blvd.
    - Stop 57505, Route 62: 23rd Ave southbound at International Blvd.
    - Stop 54554, Route 62: 23rd Ave northbound at 16th St.
    - Stop 54448, Route 40: Foothill Blvd eastbound at 23rd Ave.

  If these stops have 25 or more passenger boardings per day and construction of the bus shelters is feasible, the Project sponsor shall contribute its fair share cost responsibility for bus shelters.
- The Project sponsor shall work with AC Transit and the City to determine if the near side bus stop should be relocated to the far side on the following stops:
    - Stop 57505, Route 62: 23rd Ave southbound approach to International Blvd.
    - Stop 54554, Route 62: 23rd Ave northbound approach to 16th St / Foothill Blvd.
    - Stop 54448, Route 40: Foothill Blvd eastbound approach to 23rd Ave.

If the transit stop improvements are found to be feasible, then the Project sponsor shall contribute its fair share cost responsibility toward the transit improvements.

3.5.6 PEDESTRIAN ACCESS AND CIRCULATION

Pedestrian facilities near the Project site include continuous sidewalks on all study area streets and marked crosswalks and ADA-compliant curb ramps at most intersections, except at 22nd Avenue and East 15th Street. The unsignalized intersection of 23rd Avenue and East 15th Street adjacent to the Project entrance has been recently upgraded with decorative crosswalks, curb extensions and curb ramps installed on all four corners. Pedestrian crossings with pedestrian signal heads are provided at all signalized intersections near the Project site. There exist accessible pedestrian signals at five out of six study area signalized intersections, the exception being 22nd Avenue and Foothill Boulevard.

22nd Avenue and East 15th Street

The intersection of 22nd Avenue and East 15th Street is located one block west of the Project site and is the proposed primary vehicle access point for student loading. The intersection has several existing deficiencies: the crosswalks are unmarked and lack warning signs, the curb ramps at all four corners do not have detectable warning surfaces (truncated domes), and the southwest corner curb ramp does not include a level landing. This intersection rests at the top of a crest vertical curve that impedes sight lines between pedestrians and northbound drivers on 22nd Avenue.

22nd Avenue and East 15th Street is noted for improvement in the Oakland Pedestrian Master Plan. Improvement Measure TR-5 reflects the identified action for East 15th Street from the Oakland Pedestrian Master Plan.

> **Improvement Measure TR-5: Pedestrian Safety Enhancements to East 15th Street**
> The Project shall construct improvements at the East side crosswalk of the intersection of 22nd Avenue and East 15th Street including the northeast and southeast corners, consistent with the Oakland Pedestrian Master Plan, subject to review by the City of Oakland Department of Transportation as part of the City's Off Site Infrastructure (PX) Permit process. These improvements include::
>
> - Upgrade non-ADA compliant curb at the northeast and southeast corners of the intersection to be ADA compliant and install a high-visibility yellow school crosswalk on the east crosswalk
> - Add edge line markings on East 15th Street for street narrowing and parking definition. Restrict on-street parking within 20 feet of intersection and marked crosswalks
> - Install pedestrian safety zones extending from the curb at the northeast and southeast corners. The purpose of these painted bulb-outs is to reduce the speed

of turning vehicles and reduce the pedestrian exposure to vehicle traffic while crossing East 15th Street.

- Install Intersection hardening treatments consisting of low-profile wheel stops and flexible vertical delineators on the center double yellow line on 22nd Avenue approaching East 15th Street from the north and south, similar to those one block to the north at 22nd Avenue and Foothill Boulevard

Transit Stop Access

The Project would be estimated to generate 202 daily transit trips that would contribute to pedestrian traffic in the Project area. Table 3-13 lists nearby transit stops and distances along sidewalk from the Project site. Sidewalks from transit stops to the Project site and bus boarding areas are in fair condition with sufficient lighting levels. Based on current levels of pedestrian activity in the study area, walking activity to and from the Project site would not have an adverse impact on surrounding pedestrian facilities.

Table 3-13: Transit Stop Distance to Project

AC Transit Line	Bus Direction	Transit Stop Location	Distance to Project
1T	Westbound	International Blvd and 24th Avenue (center boarding)	800 feet
	Eastbound		
40	Westbound	Foothill Blvd (northside), west of 23rd Ave	540 feet
	Eastbound	Foothill Blvd (southside), west of 23rd Ave	450 feet
62	Northbound	23rd Avenue (eastside), north of International	310 feet
	Southbound	23rd Avenue (westside), north of International	250 feet

Source: AC Transit, Parisi Transportation Consulting, 2022.

The walking route from the Project to the BRT station at 24th Avenue and International Boulevard includes several signalized pedestrian crossings: International Boulevard at 23rd Avenue (north crosswalk) and International Boulevard at Miller Avenue (north and east crosswalks). The traffic signals at these locations are programmed to facilitate BRT through travel; however, the parallel walk phases for crosswalks on International Avenue are not programmed to remain in the Walk phase while the International Avenue vehicle phase is green. Likewise, the crossing from the BRT platform to the sidewalk is subject to a long wait between Walk phases for a relatively short crossing.

Improvement Measure TR-6 addresses the signalized phase timing of these intersections.

Improvement Measure TR-6: Optimize Signal Timing for Pedestrians on International Boulevard between 23rd Avenue and the BRT stop at 24th Avenue

The Project sponsor shall update signal timing cards as needed to optimize the pedestrian Walk phase timing when parallel traffic on International Boulevard has the green phase; this may be achieved by setting phases to 'rest in walk', lengthening the pedestrian walk phase, increasing the Walk phase frequency by shortening the signal cycle (to and from the BRT platform), or by other means at the following crossings:

- 23rd Avenue at International Boulevard (north crosswalk)
- 24th Avenue at International Boulevard (north and east crosswalks)

3.5.7 BICYCLE ACCESS, CIRCULATION, AND PARKING

Bicycle facilities exist in the Project vicinity, and more are proposed in the City Bicycle Master Plan (BMP), although none of the roads fronting the Project site are designated existing or future bike routes (Figure 2.2).

The Oakland Municipal Code and City Standard Conditions of Approval (SCA) 76 requires both long-term and short-term bicycle parking for public and private schools be provided at the following levels:[13]

- Short-term bicycle parking: 1 space per each 20 students of planned capacity.[14]
- Long-term bicycle parking: 1 space for each 10 employees plus 1 space for each 20 students of planned capacity.[15]

BayTech would have a maximum enrollment of 350 students and would employ up to 40 staff. This would result in a requirement for 22 long-term bicycle parking spaces and 18 short-term bicycle parking spaces. The Project would install at least two short-term spaces in the front of the building on 23rd Avenue to accommodate visitors, with the remainder being located behind the building in the multi-purpose access area, which would provide better student access and long-term security throughout the day.

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[13] City of Oakland Municipal Code, §17.117.100. This chapter can be referred to for detailed description of design standards. https://library.municode.com/ca/oakland/codes/planning_code?nodeId=TIT17PL_CH17.117BIPARE. Accessed Aug 15, 2022.

[14] Short-term bicycle parking shall consist of a bicycle rack or racks and is meant to accommodate visitors, customers, messengers, and others expected to park not more than two hours. For remodel projects, short-term bicycle parking requirements apply to projects that are over 10,000 square feet and have an estimated construction cost of greater than $250,000 (2009 value).

[15] Each long-term bicycle parking space shall consist of a locker or locked enclosure providing protection for each bicycle from theft, vandalism, and weather. Long-term bicycle parking is meant to accommodate employees, students, residents, commuters, and others expected to park more than two hours. For remodel projects, long-term bicycle parking requirements apply to projects that are over 10,000 square feet and have an estimated construction cost of greater than $1,000,000 (2009 value).

Improvement Measure TR-7: Install Sufficient On-Site Bicycle Parking
The Project shall install a minimum of 22 long-term and 18 short-term bicycle parking spaces in accordance with the City Municipal Code §17.117.100.

3.6 CRASH HISTORY ANALYSIS

The City of Oakland Pedestrian Master Plan, *Oakland Walks!*[16], designates the following high injury network corridors and intersections in the proposed Project vicinity:

- East 15th Street between 21st and 26th Avenues.
- International Boulevard between 16th and 28th Avenues.
- Intersection of International Boulevard and 21st Avenue.

Of the eight study intersections associated with the Project transportation analysis, four are located within the designated high injury network corridors. Collision analysis was performed for the eight study intersections for the recent five-year period between January 1, 2016, and December 31, 2020, using the crash records from the Statewide Integrated Traffic Records System (SWITRS).[17] Full raw data tables from SWITRS are provided in Appendix F.

Crash data was grouped by intersection and year, and analyzed according to severity, parties involved, impact type, and primary collision factor. Overall, 240 crashes occurred at the eight study intersections in the 5-year period, or an average of 48 crashes per year. Data analysis did not result in a distinct crash relationship or intersection shortfall that the Project should account for as part of Project plans.

Crashes broken down by study intersection, severity and pedestrian or bicycle-involvement are displayed in Table 3-14. During the period assessed, no fatal crashes occurred, and four crashes occurred that resulted in severe injury. Approximately half of all crashes resulted in some form of injury. Most crashes occurred at the signalized intersections in the study area involving Foothill Blvd, International Blvd, and East 12th St. The two unsignalized intersections of East 15th Street with 22nd Avenue and 23rd Avenue accounted for 28 crashes, or 12 percent of the total.

Of the 240 crashes, 16 involved pedestrians and six involved bicycles.

[16] City of Oakland Department of Transportation, *Oakland Walks!* Issued 2017.
[17] California Highway Patrol Statewide Integrated Traffic Records System. https://iswitrs.chp.ca.gov/Reports/jsp/index.jsp. Accessed Aug 4, 2022.

Table 3-14: Total Crashes by Intersection and Severity (2016-2020)

				Collision Severity					
#	Road 1	Road 2	Control	Severe Injury	Other Injury	Property Damage Only	Total	Pedest-rian	Bicycle
1	22nd Ave	E. 12th St	Signal	0	30	30	60	2	1
2	22nd Ave	International Blvd	Signal	1	22	24	47	3	1
3	22nd Ave	E. 15th St	TWSC	1	7	8	16	0	0
4	22nd Ave	Foothill Blvd	Signal	0	21	15	36	3	0
5	23rd Ave	E. 12th St	Signal	1	9	8	18	4	0
6	23rd Ave	International Blvd	Signal	0	12	21	33	0	2
7	23rd Ave	E. 15th St	TWSC	0	3	9	12	0	1
8	23rd Ave	Foothill Blvd	Signal	1	8	9	18	4	1
			Total	**4**	**112**	**124**	**240**	**16**	**6**

Source: California Highway Patrol SWITRS, 2016-2020. Note: TWSC = Two-way stop controlled.

Crashes by type for the study intersections are displayed in Table 3-15. The most frequently occurring crash type was broadside, followed by sideswipe, rear end, and head-on.

Table 3-15: Crash type for Study Intersections

Year	Head-On	Sideswipe	Rear End	Broadside	Hit Object	Overturn	Other	Total
2016	6	8	7	23	1	1	3	49
2017	4	8	6	22	2	0	4	46
2018	6	14	9	12	2	0	8	51
2019	13	12	6	17	0	0	4	52
2020	3	4	10	20	1	0	4	42
Total	**32**	**46**	**38**	**94**	**6**	**1**	**23**	**240**

Source: California Highway Patrol SWITRS, 2016-2020.

Crashes by primary collision factor category for the eight study intersections are summarized in Table 3-16. Of the 240 crashes, 212 were due to vehicle code violation, 13 to pedestrian violation, and 15 were unassigned. The most common vehicle code violations for the study intersections include "Traffic Signals and Signs," "Automobile Right of Way," and "Improper Turning," and "Unsafe Speed." Together, these four factors contribute to 180 of the 240 crashes, or 75%.

Table 3-16: Crashes by Primary Collision Factor for Study Intersections

Primary Collision Factor	2016	2017	2018	2019	2020	Total
Driving Under the Influence	1	2	0	9	0	12
Unsafe Speed	8	2	7	4	7	28
Following Too Closely	4	2	1	0	1	8
Wrong Side of the Road	2	0	2	3	1	8
Unsafe Lane Change	0	0	1	0	0	1
Improper Turning	3	10	10	10	9	42
Automobile Right of Way	11	14	5	9	10	49
Pedestrian Right of Way	2	3	3	1	0	9
Pedestrian Violation	2	0	1	1	0	4
Traffic Signals and Signs	12	11	14	14	10	61
Unsafe Starting and Backing	0	0	3	0	0	3
Other / Unknown	4	2	4	1	4	15
Total	49	46	51	52	42	240

Source: California Highway Patrol SWITRS, 2016-2020.

3.7 CONSTRUCTION IMPACTS

The Project plans to utilize the parking lot behind the existing structure for staging during construction. Building materials and equipment would be transported to the staging area via the entrance off East 15th Street. Construction activity would be required to not obstruct the vehicle travel lanes on 23rd Avenue.

Construction traffic effects on the circulation network would include temporary capacity reduction on the streets in the study area construction vehicle traffic. As the staging area can only be accessed by East 15th Street, construction traffic may result in temporary neighborhood disturbance on the East 15th Street roadway and sidewalk.

If construction activities obstruct public rights-of-way, the Project would meet stipulations of City SCA 75: Construction Activity in the Public Right-of-Way,[18] including submitting a construction traffic control plan to the City for review and approval as part of obstruction permit submission.

[18] City of Oakland Department of Planning and Building. *Standard Conditions of Approval*. Revised December 2020. https://cao-94612.s3.amazonaws.com/documents/Standard-Conditions-of-Approval-December-2020.pdf. Accessed Aug 16, 2022.

4 Transportation and Parking Demand Management (TDM) Plan

City of Oakland Standard Conditions of Approval (SCA) 78 requires all land use projects that generate more than 50 net new AM or PM peak hour vehicle trips to prepare a Transportation and Parking Demand Management (TDM) Plan. The Project is forecast to generate 95 AM peak hour vehicle trips and 59 PM peak hour vehicle trips (Table 3-4); both values exceed the 50 net new trip threshold, and therefore a TDM Plan would be required.

The City TIRG lists the following goals that shall be reflected in the TDM Plan for projects that generate between 50-99 net new AM or PM peak hour vehicle trips:

- Reduce project-generated vehicle traffic and parking demand to the maximum extent practicable, consistent with the potential traffic and parking impacts of the Project.
- Achieve 10 percent vehicle trip reductions (VTR).
- Incorporate location dependent TDM strategies which may be applied toward VTR using Table 4 of the City TIRG.
- Increase pedestrian, bicycle, transit, and carpool / vanpool modes of travel associated with the Project.
- Enhance the City's transportation system, consistent with City policies and programs.

This section presents the TDM strategies incorporated into the Project TDM Plan along with the estimated VTR for each strategy and basis for VTR determination.

4.1 REQUIRED / MANDATORY TDM STRATEGIES

Table 4-1 presents Mandatory TDM strategies from the City TIRG Table 4 that are applicable to the Project. These mandatory TDM strategies are credited toward the Project's VTR alongside supplemental TDM strategies in a subsequent section. A complete assessment of the full Mandatory TDM strategy assessment is included in Appendix G.

Table 4-1: Applicable Required / Mandatory TDM Strategies for Project

TDM Strategy	Description
Bus shelter	The project shall consult with AC Transit and the City to identify feasibility of installing bus shelters for the following bus flag stops: • Stop 51284, Route 62: 23rd Ave northbound at International Blvd • Stop 57505, Route 62: 23rd Ave southbound at International Blvd • Stop 54554, Route 62: 23rd Ave northbound at 16th St • Stop 54448, Route 40: Foothill Blvd eastbound at 23rd Ave If these stops have 25 or more passenger boardings per day and construction of the bus shelters is feasible, the Project will contribute its fair share cost responsibility toward new bus shelters.
Curb extensions of bulb-outs Installation of safety improvements identified in the PMP Paving, lane striping or restriping and signs	The Project shall contribute its fair share cost responsibility for improvements at the 22nd Ave & East 15th St Intersection (Improvement Measure TR-5): • Upgrade non-ADA compliant curb at the northeast and southeast corners of the intersection to be ADA compliant and install a high-visibility yellow school crosswalk on the east crosswalk • Add edge line markings on East 15th Street for street narrowing and parking definition. Restrict on-street parking within 20-feet of intersection and marked crosswalks • Install pedestrian safety zones extending from the curb at the northeast and southeast corners • Install intersection hardening treatments on the center double yellow line on 22nd Avenue approaching East 15th Street from the north and south The Project sponsor shall work with the City to convert the marked crosswalks to yellow school crosswalks at 23rd Avenue and East 15th Street and 23rd Avenue and International Boulevard. The Project sponsor shall work with the City to add yield markings on 23rd Avenue at East 15th Street.
Pedestrian crossing improvements, pedestrian-supportive signal changes	The Project sponsor shall work with the City to optimize the pedestrian Walk phase timing when parallel traffic on International Boulevard has the green phase; this may be achieved by setting phases to 'rest in walk', lengthening the pedestrian walk phase, increasing the Walk phase frequency by shortening the signal cycle (to and from the BRT platform), or by other means at the following crossings (Improvement Measure TR-6): • 23rd Avenue at International Boulevard (east crosswalk) • 24th Avenue at International Boulevard (east and south crosswalks)
Relocating bus stops to far side	The Project shall consult with AC Transit and the City to determine if the following near side bus stops should be relocated to the far side: • Stop 57505, Route 62: 23rd Ave southbound approach to International Blvd • Stop 54554, Route 62: 23rd Ave northbound approach to 16th St/Foothill Blvd • Stop 54448, Route 40: Foothill Blvd eastbound approach to 23rd Ave If the transit stop relocations are found to be feasible, then the Project sponsor will contribute its fair share cost responsibility toward the transit stop relocation.

Source: Parisi Transportation Consulting, 2022

4.2 SUPPLEMENTAL TDM STRATEGIES

The following TDM strategies would be incorporated into the Project's TDM Plan in addition to the mandatory TDM Strategies listed above. These supplemental TDM strategies were selected based on anticipated effectiveness to achieve the required vehicle trip reduction of 10% as documented by California Air Pollution Control Officers Association (CAPCOA) research[19]. The VTR calculations are provided in Appendix G.

TDM Program Coordinator

Description: The TDM Program Coordinator would be responsible for implementation and monitoring of the TDM Plan. The TDM Coordinator would facilitate site inspections by City staff to verify that the standards specified as conditions of approval are met. This person(s) could be a school employee or a third-party provider that runs the program.

Discussion: The TDM Program Coordinator would be responsible for managing T-7 Implement Commute Trip Reduction Marketing, T-9 Implement Subsidized or Discounted Transit Program, and T-41 Implement a School Pool Program.

Target Users: Students and staff

Estimated VTR: N/A

T-7 Implement Commute Trip Reduction Marketing

Description: The Project sponsor would implement a marketing strategy to promote a commute trip reduction (CTR) program. Information sharing and marketing promote and educate students and staff about their travel choices to the Project location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

Target Users: Students and staff

Range of Effectiveness: Up to 4%

Estimated VTR: 4%

T-9 Implement Subsidized or Discounted Transit Program

Description: The Project sponsor would provide subsidized or discounted, or free transit passes for 100 students. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and

[19] California Air Pollution Control Officers Association, Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers. Issued Dec 2021.

decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.

Target Users: Students and staff

Range of Effectiveness: Up to 5.5%

Estimated VTR: 1.6%

T-10 Provide End-of-Trip Bicycle Facilities

Description: The Project sponsor would install and maintain end-of-trip facilities for employee use. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions. This measure is consistent with Project SCA 76 Bicycle Parking.

Target Users: Students and staff

Range of Effectiveness: Up to 4.4%

Estimated VTR: 0.6%

T-18 Provide Pedestrian Network Improvement

Description: This measure would increase the sidewalk coverage to improve pedestrian access, which may include crossing safety improvements. Providing sidewalks and an enhanced pedestrian network would encourage people to walk instead of drive. This mode shift would result in a reduction in VMT and GHG emissions.

Target Users: Students and staff

Range of Effectiveness: Up to 6.4%

Estimated VTR: 1.0%

T-41 Implement a School Pool Program (CAPCOA 2010 TRT-10)

Description: The Project sponsor would create a ridesharing program for school children. Most school districts provide bussing services to public schools only. School pool helps match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for bussing. A school pool program can help reduce onsite air pollutant emissions at the school by reducing private vehicle trips, especially if the pool vehicle is zero emissions.

Target Users: Students

Range of Effectiveness: 7.2 – 15.8%

Estimated VTR: 7.2%

4.3 VEHICLE TRIP REDUCTIONS

Vehicle Trip Reductions estimates for each of the TDM strategies are based on VMT reduction estimates compiled by the California Air Pollution Control Officers Association (CAPCOA)[20]. Calculation variables depend on the extent of strategy adoption. VMT reduction estimates are calculated according to the specific characteristics of the Project and TDM strategy implementation and are summarized in Table 4-2, which demonstrates that the TDM Plan is anticipated to achieve the required goal of 10 percent VTR.

Table 4-2: Daily VMT Reduction for TDM Strategies

CAPCOA GHG Reduction Measure		VMT Reduction Estimate Range	Project Estimated VMT Reduction
T-7[1]	Implement Commute Trip Reduction Marketing	Up to 4%	4%
T-9[1]	Subsidized Transit Program	Up to 5.5%	1.6%
T-10[1]	End-of-Trip Bike Facilities	Up to 4.4%	0.6%
T-18[1]	Pedestrian Network Improvements	Up to 6.4%	1.0%
T-41[2]	Implement a School Pool Program	7.2-15.8%	7.2%
	Total		14.4%

Source:
1. CAPCOA VMT Reduction Estimates, Handbook for Analyzing Greenhouse Gas Emission Reductions, Dec 2021.
2. CAPCOA VMT Reduction Estimates, Quantifying Greenhouse Gas Mitigation Measures, Aug. 2010.

4.4 TDM COMPLIANCE

Oakland TIRG requires projects that generate 100 or more net new AM or PM peak hour vehicle trips to submit an annual compliance report for the first five years following completion of the project. The Project is forecast to generate 95 AM peak hour vehicle trips and 59 PM peak hour vehicle trips (Table 3-4) and therefore an annual TDM compliance report would not be required.

[20] California Air Pollution Control Officers Association, Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers. Issued Dec 2021.

5 CEQA Analysis

In January 2016, the California Office of Planning and Research (OPR) published a *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*[21] for public review. These guidelines direct lead agencies to require project transportation impacts to be evaluated on the basis of Vehicle Miles Traveled (VMT). This proposal was formally issued by OPR in December 2018, as the *Technical Advisory on Evaluating Transportation Impacts in CEQA.*[22]

In April 2017, the City of Oakland issued *Transportation Impact Review Guidelines* (TIRG)[23] that incorporated guidance requiring evaluation of potential impacts related to VMT criteria in CEQA transportation studies of proposed land use development projects. These guidelines also ensure that potentially significant impacts are studied according to the City's established thresholds of significance.

This section includes the City's thresholds of significance, describes the methodology and results of the VMT screening assessment and Project-specific analysis.

The California Code of Regulations Guidelines for Implementation of CEQA includes a sample environmental checklist form that may be used to foster agency review. Transportation-related checklist question results are in a later section.

5.1 CEQA SIGNIFICANCE CRITERIA

The following are CEQA significance criteria established by the City of Oakland as described in the TIRG. A land use project would have a significant effect on the environment if it would:

- Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile level of service or other measures of vehicle delay); or
- Cause substantial additional VMT per capita, per service population, or other appropriate efficiency measure; or
- Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.

[21] California Governor's Office of Planning and Research, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013).* Issued January 20, 2016.
[22] California Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Issued December 2018. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed Aug 4, 2022.
[23] City of Oakland, *Transportation Impact Review Guidelines for Land Use Development Projects*. Issued April 14, 2017.

5.2 CEQA VMT THRESHOLDS OF SIGNIFICANCE

In line with CEQA Guidelines, public agencies are encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects related to substantial additional VMT per capita.[24] The City used OPR guidance to establish its thresholds of significance as described in the TIRG:

- For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
- For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.

Of note with respect to Oakland's thresholds of significance is that VMT impacts are compared on a regional basis, as opposed to a City-wide basis, i.e., the VMT thresholds are determined by the Alameda County Transportation Commission. Project VMT analyses are to apply the same methodologies described in thresholds of significance to the extent practicable. In the case of this Project's land use (Grade 6-12 school), the office projects threshold of significance will be applied, in accordance with the TIRG.

5.3 CONSISTENCY WITH PLANS

Transportation aspects of land use projects are shaped by adopted plans and policies at various levels of governmental agencies. These plans and policies are consulted as part of this Project in order to evaluate against applied principles and efforts to mitigate environmental effects. Discussion of this Project with respect to the framework established by federal, state, regional, and local plans and policies for purpose of mitigating significant environmental effects is presented in this section. This section also includes rationale behind the conclusion that the proposed Project does not conflict with any described plans and policies.

5.3.1 FEDERAL PLANS, POLICIES AND REGULATIONS

There are no federal plans, policies, or regulations related to transportation impacts that have been identified as applicable to this Project.

5.3.2 STATE PLANS, POLICIES AND REGULATIONS

CEQA Statute & Guidelines

Senate Bill 743, which was signed into law in 2013, mandated a change in CEQA guidelines to utilize VMT as opposed to vehicle flow or traffic congestion as a more appropriate metric for

[24] CEQA Guidelines, California Code of Regulations, Title 14, Division 6, Chapter 3, §15064.7(b). January 2022.

assessing impacts associated with projects, in line with goals of helping to achieve climate commitments, improving health and safety, and prioritizing co-located land uses. After the California Governor's Office of Planning and Research issued the updated *Technical Advisory on Evaluating Transportation Impacts in CEQA* in 2018, CEQA analysis that met this framework became mandatory on July 1, 2020, for proposed land use projects. This Project ensures compliance with this technical advisory by following the TIRG issued in 2017 by the City of Oakland as the local authority.

5.3.3 REGIONAL PLANS, POLICIES AND REGULATIONS

Alameda County Congestion Management Program (CMP)

Alameda County Transportation Commission (Alameda CTC) is the congestion management agency for Alameda County, and develops and updates its mandated short-range Congestion Management Program (CMP) every two years to describe strategies to "assess and monitor the performance of the county's multimodal transportation system, address congestion and improve the performance of a multimodal system."[25] The City of Oakland's TIRG describes where and how CMP requirements apply for transportation analyses. A CMP analysis is required if a project generates over 100 PM peak hour vehicle trips on a roadway segment designated as part of the designated CMP network. In context of this Project, relevant roadways under the CMP include International Boulevard and Foothill Boulevard.

The Project would generate 59 vehicle trips during the PM peak hour (Table 3-4), which is below the CMP threshold of 100 PM peak hour vehicle trips. As such, a CMP analysis is not required for the Project, and the project does not conflict with the CMP.

Plan Bay Area 2040 (2013)

The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments updated the Regional Transportation Plan and Sustainable Communities Strategy in 2013.[26] According to Plan Bay Area 2040, the Project site is located in a priority development area and is in line with plan objectives for multimodal transportation use.

5.3.4 LOCAL PLANS, POLICIES AND REGULATIONS

City of Oakland General Plan – Land Use and Transportation Element (1998)

The City establishes a local framework related to projects in its Land Use and Transportation Element (LUTE)[27] of the General Plan. The Project area is identified in the LUTE implementation

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[25] Alameda County Transportation Commission, *2021 Congestion Management Program.* https://www.alamedactc.org/planning/congestion-management-program/. Accessed Aug 4, 2022.
[26] Metropolitan Transportation Commission and Association of Bay Area Governments, *Plan Bay Area 2014, Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2013-2040*. Adopted July 18, 2013. https://mtc.ca.gov/planning/long-range-planning/plan-bay-area-2040. Accessed Aug 4, 2022.
[27] City of Oakland, *Land Use and Transportation Element, Envision Oakland.* Issued March 1998. https://www.oaklandca.gov/resources/land-use-and-transportation-element. Accessed Jul 28, 2022.

program as a target area for community and economic development and reuse of under-developed sites for community and economic development.

The City of Oakland's Land Use Diagram[28] designates the Project site and surrounding blocks along 23rd Avenue between International Boulevard and Foothill Boulevard as Neighborhood Center Mixed Use. Indicated desired land use types include smaller scale retail, housing, office, active open space, eating and drinking establishments, personal and business services, and smaller scale educational, cultural, or entertainment uses. The Project proposal to utilize the existing Palace Theatre building is in line with the intent of this land use designation and goals in the LUTE.

City of Oakland General Plan – Bicycle Master Plan (2019)

The Oakland General Plan elements addressing circulation have been implemented recently in the Bicycle Master Plan (BMP), *Lets Bike Oakland!* (2019)[29], and the Pedestrian Master Plan, *Oakland Walks!* (2017, described in next section). The BMP's recommendations that involve facilities near the Project site and in the major catchment area of the existing student body include:

- Protected bike lanes on 12th Street from 14th Avenue to the Fruitvale BART Station, leading to a separated bike path along San Leandro Street from the Fruitvale BART station to the San Leandro BART station
- Buffered bike lanes on Foothill Boulevard from Lakeshore Avenue to 48th Avenue, and continuing along Bancroft Avenue from 50th Avenue to Havenscourt Boulevard, where the facility transitions to a separated bike path along Bancroft to 106th Avenue
- Neighborhood bike route on East 16th Street from 23rd Avenue to Fruitvale Avenue

Each of these projects is indicated as a short-term priority project as part of the priority corridor identification in the plan.

In addition to bicycle network facilities, the Bicycle Master Plan includes recommendations for supporting infrastructure such as bike parking and wayfinding, as well as recommendations addressing existing and future bicycle programs that facilitate progress against overall BMP goals.

The proposed Project would be generally consistent with the BMP. Bicycle parking facilities would be provided on site. The proposed Project would not conflict with any of the bike facilities proposed in the BMP.

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[28] City of Oakland Planning and Building Department, *Zoning and Estuary Policy Plan Map*, February 2022. https://www.oaklandca.gov/resources/zoning-map. Accessed Jul 28, 2022.
[29] City of Oakland Department of Transportation, *Lets Bike Oakland*! Issued July 2019. https://www.oaklandca.gov/resources/bicycle-plan. Accessed Jul 28, 2022.

City of Oakland General Plan – Pedestrian Master Plan (2017)

The Oakland General Plan circulation element also includes the Pedestrian Master Plan (PMP), *Oakland Walks!*[30] The plan calculates that 36% of pedestrian collisions occur on only two percent of Oakland streets, which are designated as high injury network corridors and intersections. High injury network corridors and intersections in the proposed Project vicinity include the following:

- East 15th Street between 21st and 26th Avenues
- International Boulevard between 16th and 28th Avenues
- Intersection of International Boulevard and 21st Avenue

Recommended actions specific to these relevant high injury network locations near the proposed Project include the following:

- At the intersection of 22nd Avenue and East 15th Street, add a pedestrian safety zone extending from the curb, and install high visibility crosswalks with signage and advanced yield markings
- At the intersection of 23rd Avenue and East 15th Street, install advanced yield markings to each minor approach
- Along East 15th Street, restrict parking within 20 feet of intersections and marked crosswalks, and add edge line markings for street narrowing and parking definition

The proposed Project would be consistent with the PMP as it would incorporate features noted for improvement that would enhance pedestrian safety and facilitate pedestrian access to the Project site.

City of Oakland General Plan – Transit First Policy (1996)

The Transit First Policy is Oakland's "Resolution declaring the City of Oakland's Support of Public Transit & Other Alternatives to Single-Occupant Vehicles."[31]

The proposed Project is consistent with the Transit First Policy because it is within a half-mile from two high quality transit corridors, including the Bus Rapid Transit line on International Boulevard.

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[30] City of Oakland Department of Transportation, Oakland Walks! Issued 2017. https://www.oaklandca.gov/resources/pedestrian-plan-update. Accessed Jul 28, 2022.

[31] For more information on the Transit First Policy and how that translates into current action plans undertaken by local agencies, reference the *Transit Action Strategy* developed by AC Transit and City of Oakland Department of Transportation, 2020. https://ca0-94612.s3.amazonaws.com/documents/OakTAS-Final.pdf. Accessed Aug 4, 2022.

City of Oakland General Plan – Scenic Highways (1974)

The Scenic Highways Element addresses the preservation and enhancement of attractive roadways and major streets going through the City.[32] The proposed Project is not near roadways that are assigned as part of the existing or future scenic route network.

Central and East Oakland Community-Based Transportation Plan (2007)

This plan was developed by the Alameda County Congestion Management Agency to address an identified need to support local planning efforts in low-income communities throughout the region.[33]

The proposed Project is consistent with the Central and East Oakland Community-Based Transportation Plan by fostering utilization of the transit lines that connect student and staff population with the Project site.

Oakland Department of Transportation Strategic Plan (2016)

The Oakland Department of Transportation released a strategic plan in 2016[34] to underpin project and operational prioritization and strategy of the brand-new Oakland Department of Transportation. The plan includes 37 goals within the context of four values, and implementable strategies that support each goal. Two goals of the strategic plan are directly relevant to the Project:

- Provide safe access to all Oakland schools: strategies listed under this goal include development of stronger partnerships with the Alameda County Safe Routes to Schools program, and regularly updating school walking plans to support safe travel for students.
- Lower transportation costs for Oaklanders: strategies listed in pursuit of this goal include supporting transit subsidies for youth and leveraging public-private partnerships to support the transit needs of low-income residents. A specific mention of school transit passes to overcome cost of transportation to school as a barrier to school attendance and afterschool activities is highlighted in the report.

The Project plans to offer student transit passes to foster access to multimodal transportation. The Project does not present a conflict with the strategies presented in the strategic plan.

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[32] City of Oakland, *Scenic Highways, an Element of the Oakland Comprehensive Plan*. Issued September 1974. https://www.oaklandca.gov/resources/download-the-city-of-oakland-scenic-highways-element. Accessed Aug 4, 2022.
[33] Almeda County Congestion Management Agency, *Central and East Oakland Community-Based Transportation Plan*. Issued December 2007.
[34] City of Oakland Department of Transportation, *Transportation Strategic Plan*. Issued 2016. https://mtc.ca.gov/sites/default/files/OaklandCBTPFinalPlan%202007.pdf. Accessed Jul 29, 2022.

Americans with Disabilities Act Policy

Compliance with disability access laws is an integral responsibility to provide equitable services to the public. All California building owners and tenants with buildings open to the public fall under requirements of federal Americans with Disabilities Act (ADA) regulations and California Disabled Persons Act laws and must ensure that capital improvements meet these standards. In Oakland, code requirements for meeting these standards of access are described in the Oakland Municipal Code.

The Project is required to make modifications to the school in accordance with the latest ADA standards and does not conflict with the City ADA policy.

Complete Streets Policy

The Oakland Complete Streets Policy, Resolution Number 84204 C.M.S., declares a policy to further ensure that Oakland streets provide safe and convenient travel options for all users."[35]

Any off-site improvements initiated by the proposed Project would be in accordance with ADA requirements and would facilitate provision of infrastructure and programs that facilitate alternative means of transportation, which is consistent with the principles contained in the Complete Streets Policy.

5.4 VEHICLE-MILES TRAVELED ANALYSIS

5.4.1 VMT SCREENING ASSESSMENT

In *Technical Advisory on Evaluating Transportation Impacts in CEQA*, the California OPR includes guidelines for agencies to establish VMT screening thresholds, in order to facilitate rapid identification of projects that are expected to cause a less-than-significant impact. The City of Oakland includes VMT screening criteria in its TIRG. If projects meet any of the City's three screening criteria, they are considered to be "screened-out," and it is presumed that VMT impacts for the project would be less-than-significant, and a detailed VMT analysis is not required for transportation CEQA analysis purposes.

The VMT screening assessment determined that the Project meets the screening criterion for proximity to a transit station. Thus, the Project is considered to cause a less-than-significant impact and is exempt from a detailed CEQA analysis. The results of the VMT screening assessment are displayed in Table 5-1, and associated description for each screening criteria are included in this section.

[35] Oakland City Council, *Complete Streets Policy Resolution*. Filed January 2013. http://www2.oaklandnet.com/n/OAK039959. Accessed Jul 28, 2022.

Table 5-1: VMT Screening Analysis Results

Screening Criteria	Screening Criteria Description	Screening Criteria Met?
Small Project	Project generates less than 100 daily vehicle trips	No
Low-VMT Area	Project is located within a low-VMT area	No
Near Transit Station	Project is located within 0.5 mile of major transit stop	Yes

Source: Parisi Transportation Consulting, 2022

Small Projects Screening

Projects that generate fewer than 100 vehicle trips per day generally may be assumed to cause a less-than-significant transportation impact.

To determine trip generation, the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*[36] was used to estimate the number of trips the Project would generate. Trip Generation approach and results are discussed in detail in Section 3.2.1. The project would generate 361 daily vehicle trips (Table 3-4) and as a result the Project does not meet the screening criteria for small projects.

Low-VMT Area Screening

Projects located in an area with low VMT as determined by comparison to the thresholds of significance and incorporating similar characteristics of land use and multi-modal transportation accessibility exhibited by the existing built environment, can be presumed to cause a less-than-significant transportation impact. Comparison with the thresholds of significance is made according to the project transportation analysis zone (TAZ). For this Project screening, the BayTech campus is treated as an office use, and VMT per worker is used for screening.

Average daily VMT per employee for the region and the proposed Project TAZ based on Alameda County 2020 data[37] is included in Table 5-2 below.

Table 5-2: Results for Low-VMT Area Screening Criteria

	VMT / Employee		
Project Location	**Regional Average**	**Threshold of Significance**	**Project TAZ**
1453 23rd Avenue Oakland, CA	15.9	13.5	18.9

Source: Alameda County Transportation Commission

[36] Institute of Transportation Engineers, *Trip Generation Manual, 11th edition*, 2021.
[37] Alameda County Transportation Commission, SB 743 and VMT tool resources. https://www.alamedactc.org/planning/sb743-vmt/. Accessed Jul 28, 2022.

The average daily VMT per worker in the Project TAZ is 18.9 miles, which is above the threshold of significance (15 percent below the regional average) of 13.5 miles. As such, the Project does not meet screening criteria based on location within a low-VMT area.

Near Transit Station Screening

Projects proposed within 0.5 miles of an existing major transit stop or existing stop along a high-quality transit corridor are presumed to have less-than-significant impact on VMT. The 2021 CEQA Statue defines a Major Transit Stop as containing any of the following: [38]

a) An existing rail or bus rapid transit (BRT) station.
b) A ferry terminal served by either a bus or rail transit service.
c) The intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

The Project site at 1453 23rd Avenue is located 0.15 miles from the BRT stop at the intersection of International Boulevard and 24th Avenue, which is well within the distance of 0.5 miles from a major transit stop for screening purposes. BRT buses operate in an exclusive right-of-way, and the concept endeavors to combine the advantages of service frequency, accessibility, safety, and reliability.[39] The newly opened AC Transit BRT route 1T began service in August 2020, and runs 9.5 miles along International Boulevard, connecting Downtown Oakland through East Oakland to San Leandro. The 1T BRT operates at a frequency service interval of 10 minutes during daytime hours continually from morning to afternoon peak commute periods[40].

City of Oakland guidelines require determination that a less than significant impact presumption for Projects near transit stations is valid by comparison against other VMT generating indicators. If the Project is described by any of the following indicators in Table 5-3, it is presumed that the Project may still generate significant levels of VMT.

[38] CEQA Statue. *California Public Resources Code, Division 13, §21064.3*. Published Jan 1, 2022.
[39] AC Transit, *East Bay BRT, Revolutionizing Public Transit*. Factsheet issued August 2016. https://www.actransit.org/website/uploads/Factsheet_ENGLISH_Complete.pdf. Accessed Aug 1, 2022.
[40] AC Transit 1T Schedule. https://www.actransit.org/bus-lines-schedules/1T. Accessed Aug 1, 2022.

Table 5-3: VMT Generating Indicators for Near Transit Station VMT Screen

VMT Generating Indicator	Conclusion	Significant VMT Generated?
Floor Area Ratio (FAR) less than 0.75	Approximate combined FAR for all Project parcels is 1.4	No
Project includes more parking than required[41]	The Project includes parking for 22 vehicles in an existing lot across the street from the main building. BayTech employs 40 staff in maximum enrollment scenario.	No
Inconsistent with Sustainable Communities Strategy[42]	The Project is in a priority development area	No
Retail component greater than 80,000 sf.	There is no retail component to this Project	No

Source: Parisi Transportation Consulting, 2022

As the nearest BRT station is within 0.5 miles of the Project location, and Project-specific information in Table 5-3 does not indicate that significant levels of VMT would be generated, this screening criteria for being near a major transit stop is met, and it is determined that the Project would have a less than significant impact on VMT.

[41] According to City of Oakland Municipal Code §17.116.070, there is no applicable off-street parking requirement for community education facility in the Project's context, though required number of parking spaces may be prescribed by the Director of City Planning based on results of a parking needs analysis.

[42] Metropolitan Transportation Commission and Association of Bay Area Governments, *Plan Bay Area 2014, Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2013-2040*. Adopted July 18, 2013.

5.5 CEQA PROJECT IMPACTS

Table 5-4 is a summary of the Project's CEQA determination for each of the criteria that could constitute potential environmental impact. A discussion of each finding follows.

Table 5-4: CEQA Checklist Impact Determination

Question	CEQA Determination
Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Less Than Significant Impact
Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Less Than Significant Impact
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less Than Significant Impact
Would the project result in inadequate emergency access?	Less Than Significant Impact

Source: Parisi Transportation Consulting, 2022

5.5.1 TRAF-1 Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The Project would relocate an existing charter school from the Eastmont Hills / Oak Knoll-Golf Links neighborhood in the Oakland Hills to an existing vacant theater building in the San Antonio neighborhood in East Oakland. All Project improvements would be made within the existing site with no planned changes to the circulation system.

Ordinances and policies addressing the circulation system in the Project area include:

- Alameda County Congestion Management Program (CMP, 2021)[43] – The Project would generate fewer than 100 PM peak hour trips on a roadway segment designated as part of the designated CMP network, which in the project area are International Boulevard and Foothill Boulevard. As such, the Project is not required to develop a Congestion Management Plan CMP) analysis.
- Plan Bay Area 2040 (2013) [44] - The Project site is located in a priority development area and is in line with plan objectives for multimodal transportation use.
- City of Oakland General Plan – Land Use and Transportation Element (1998) – The Project area is identified in the LUTE implementation program as a target area for community

[43] Alameda County Transportation Commission, *2021 Congestion Management Program.* https://www.alamedactc.org/planning/congestion-management-program/. Accessed Aug 4, 2022.
[44] Metropolitan Transportation Commission and Association of Bay Area Governments, *Plan Bay Area 2014, Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2013-2040*. Adopted July 18, 2013. https://mtc.ca.gov/planning/long-range-planning/plan-bay-area-2040. Accessed Aug 4, 2022.

and economic development and reuse of under-developed sites for community and economic development. The Project is consistent with the LUTE's seven overarching transportation goals:

- ***Capitalize on our location***. *Take full advantage of Oakland's position as a major West Coast transportation hub.*

  The Project location is approximately a half mile away from the I-880 freeways, is approximately 0.10 mile away from two arterial roadways (International and Foothill boulevards), and 0.10 mile away from two high-frequency transit routes (AC Transit Route 1T bus rapid transit (BRT) and Route 40).

- ***Integrate land use and transportation planning***. *Integrate transportation and land use planning at the neighborhood, city, and regional levels by developing transit-oriented development, where appropriate, at transit and commercial nodes.*

  The Project is located near two existing high-frequency transit routes within an existing dense, mixed use urban area. The Project does not interfere with any planned improvements to the transportation network.

- ***Reduce congestion***. *Reduce congestion and improve traffic flow by developing and integrated road system and traffic demand management system that provides an appropriate mix of mobility and accessibility throughout the city.*

  The Project is located near two existing high-frequency transit routes within a dense urban area that allows nearly one half of students and students to use non-drive modes. The Project's traffic operations analysis forecasts minor increases to vehicle delay as a result of Project vehicle trips.

- ***Promote alternative transportation options***. *Reduce dependency on the automobile by providing facilities that support use of transportation modes.*

  The Project is located near between two high-frequency transit routes, including one BRT route, and is integrated into the City's existing bicycle and pedestrian networks. The City's TIRG guidelines forecast that nearly one-half of the Project trips would use non-drive modes.

- ***Find funding***. *Program and provide adequate funding for needed transportation facilities and services, and related investments.*

  The Project would work with the City and appropriate agencies to determine its cost responsibility for transportation improvements as part of its Transportation and Parking Demand Management (TDM) Plan as a Standard Condition of Approval.

- **Safety**. Provide safe streets.

  The Project would contributing its fair share toward infrastructure improvements at the East 15th Street / 22nd Avenue intersection that include marking the crosswalks, adding crosswalk warning signs, marking yield lines, adding edge line markings, and installing pedestrian safety zones at each corner.

  At the 23rd Avenue / East 15th Street, 23rd Avenue / International Boulevard and East 15th Street / Miller Avenue, the Project would convert the marked crosswalks to yellow school crosswalks. The project would install School Area Warning Signs consistent with the California Manual on Uniform Traffic Control Devices (CA MUTCD).

  The Project would coordinate with the City of Oakland to increase the pedestrian crossing time at the International Boulevard / Miller Avenue intersection.

- ***Improve the environment***. *Improve air quality and reduce exposure to traffic noise.*

  The Project is located near between two high-frequency transit routes, including one BRT route, and is integrated into the City's existing bicycle and pedestrian networks. The City's TIRG guidelines forecast that nearly one-half of the Project trips would use non-drive modes.

Since the Project would not make off-site improvements that would conflict with planned programs, plans, ordinances, or policies related to transportation and circulation in the Project vicinity and would implement the TDM strategies as a Standard Condition of Approval, the Project would result in a less than significant impact.

5.5.2 TRAF-2 Would the project conflict or be inconsistent with CEQA guidelines section 15064.3, subdivision (b)?

Based on CEQA Guidelines Section 15064.3, Subdivision (b), vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. Additionally, according to the State of California Governor's Office of Planning and Research (OPR) and the City of Oakland *Transportation Impact Review Guidelines* (TIRG), projects within 0.5 mile of either an existing major transit stop or a stop along an existing high-quality transit corridor is presumed to cause a less-than-significant transportation impact to Vehicle Miles Traveled (VMT). A "high-quality transit corridor" means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

The Project site is located 0.15 miles from an existing stop at 24th Avenue and International Boulevard for AC Transit Bus Rapid Transit (BRT) Route 1T. Thus, the Project would meet the City VMT screening criteria of being located within 0.5 miles of an existing stop on a high-quality

transit corridor and is therefore presumed to have a less than significant VMT impact; the project is also exempt from performing a detailed VMT analysis.

The Project would be required to implement a TDM as the peak hour trips are greater than 50. With implementation of the TDM plan (attached), the Project would further reduce any transportation impact to less than significant.

5.5.3 TRAF-3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project does not include off-site transportation network design alterations that may potentially increase sharp curves or other geometric hazards. Access to the campus via 22nddd Avenue and E. 15th Street would not be affected and no changes to existing city streets would be required. The Project is near other operating schools and does not present an incompatible transportation mode use.

The Project would provide a dedicated loading zone on East 15th Street, which is the Project's minor street frontage. East 15th Street is a local access street that does not have bus service. The overall block of East 15th Street is 650 feet long, which can accommodate 26 queued vehicles. East 15th Street is approximately 44 feet wide; assuming 8 feet for parking on each side of the street, the remaining width for vehicle travel lanes is 28 feet, which exceeds City fire department standards for a 26-foot two-way minimum width.[45]

The project Project's student drop-off and pick-up plan would require one-way vehicle traffic on East 15th Street from 22nd Avenue, prohibit drop-off and pick-up from 23rd Avenue, prohibit double parking, and designate staff to assist with operations, among others. Vehicle delay for drivers at the egress intersection, East 15th Street at 23rd Avenue, is forecast to be on average 15 seconds or less per vehicle (LOS "B").

As the Project is not incompatible with the existing Neighborhood Mixed Use Zone land use designation, there are no off-site road geometric design alterations, and vehicle queuing issues associated with pick-up and drop-off would be addressed by Project programs, the Project results in a less-than-significant CEQA impact.

[45] City of Oakland, Oakland Fire Code. 4907.5 Fire Apparatus Access Roads.

5.5.4 TRAF-4 Would the project result in inadequate emergency access?

Emergency access requirements applicable to the Project are included in the Oakland Fire Code, which adopts the California Fire Code with amendments.[46] The Project does not include internal on-site drive aisles or circulation improvements that require emergency vehicle access within the Project boundary.

Fire apparatus access to the Project site would be included in the fire safety plan. Potential impacts to roadway emergency access during construction would be addressed through the construction traffic control plan. Potential impacts to roadway emergency access during operational periods would be addressed in the pick-up and drop-off procedures. Each of these plans would be reviewed and approved by appropriate City departments.

Since adequate emergency access is required as part of the Oakland Fire Code and Project plans would be reviewed by local fire officials as part of design review, the Project would have a less-than-significant CEQA impact with respect to emergency access.

[46] City of Oakland, Oakland Fire Code. https://library.municode.com/ca/oakland/codes/code_of_ordinances?nodeId=TIT15BUCO_CH15.12OAFICO. Accessed Aug 23, 2022.

6 Conclusion

This report contains results of a Transportation Impact Review conducted for the proposed Project relocation of BayTech charter school from its current location at 8251 Fontaine Street to 1453 23rd Avenue in Oakland, California. The Project was assessed with the Oakland Transportation Impact Review Guidelines and found to be in conformance with the following impact review areas.

- The Project consists of a charter school for grades 6-12 and would serve up to 350 students with 40 staff.
- The Project is located within 0.15 mile of a transit stop along two separate high-quality transit corridors. The AC Transit Route 1T BRT runs down International Boulevard and Route 40 services Foothill Boulevard. The initial estimate of 29.7% of trips being made by transit would be strengthened by transit pass and other TDM programs.
- Trip generation estimates were developed according to the ITE *Trip Generation Manual, 11th Edition* and applying the City TIRG mode share adjustment factors. The Project would generate 361 daily vehicle trips, including 95 AM and 60 PM peak hour vehicle trips.
- Intersection traffic analysis for "Existing" and "Existing Plus Project" conditions indicate that all study intersections operate at Level of Service "B" or "C." The Project does not adversely impact intersection LOS.
- Site access for vehicles would be accommodated by provision of a drop-off and pick-up white curb zone on the Project site frontage along East 15th Street and implementation of Improvement Measure TR-3.
- The Project provision of 28 off-street parking spaces for staff and visitors only combined with access to two high-quality transit corridors would encourage travel to campus by alternative modes of transportation.
- Improvement Measure TR-4 addresses parking management during school special events by reserving on-site parking to carpools and directing drivers to park.
- Between 2016 and 2020, a total of 240 vehicle crashes occurred at intersections in the study area. No crashes resulted in fatalities, and four resulted in serious injury. 16 crashes involved a pedestrian, and six involved a bicyclist. The collisions do not appear to have a specific pattern which would be mitigatable by a specific improvement. Therefore, there are no improvements recommended for vehicles in the vicinity.
- The Project would result in a less-than-significant CEQA transportation impact.

6.1 STANDARD CONDITIONS OF APPROVAL

Transportation-related requirements for the Project identified in the City Standard Conditions of Approval, Dec 2020 revision, are summarized in Table 6-1 below, along with the report sections that address sufficient application of these requirements.[47]

Table 6-1: Transportation-Related City Standard Conditions of Approval

Standard Condition of Approval		Description	Report Section
SCA 75	Construction Activity in Public Right-of-Way	If construction activities would obstruct the circulation network, Project shall develop traffic control plan and obtain obstruction permit.	Section 3.7
SCA 76	Bicycle Parking	Project shall provide bicycle parking in compliance with Oakland Municipal Code §17.117.100.	Section 3.5.7
SCA 77	Transportation Improvements	Project is responsible for implementation of recommendations included in the Transportation Impact Study (this report).	Section 6.3
SCA 78	Transportation and Parking Demand Management	Project shall submit a TDM Plan for review and approval by the City.	Section 4
SCA 79	Transportation Impact Fee	Project shall comply with requirements of Transportation Impact Fees in chapter 15.74 of the Oakland Municipal Code.	N/A

Source: City of Oakland, Department of Planning and Building

6.2 MITIGATION MEASURES

The Project would not have a significant impact on vehicle miles traveled or conflict with existing plans and policies, and therefore no mitigation measures are required.

[47] City of Oakland Department of Planning and Building, *Standard Conditions of Approval*, Revised December 16, 2020. https://cao-94612.s3.amazonaws.com/documents/Standard-Conditions-of-Approval-December-2020.pdf. Accessed Aug 24, 2022.

6.3 IMPROVEMENT MEASURES SUMMARY

A combined list of all recommendations from the Site transportation analysis, Transportation Demand Management, and Parking needs assessment are summarized in below. Implementation of these is required as per City SCA 77, Transportation Improvements.

6.3.1 TRANSPORTATION IMPROVEMENT MEASURES

Improvement Measure TR-1: Develop and Implement Drop-Off and Pick-Up Procedures
To minimize potential disturbance impacting surrounding roadways and to maintain safe and effective operations, the Project shall develop and implement drop-off and pick-up procedures to be reviewed and approved by City staff prior to school opening. These procedures would address typical school day, minimum school day, and special event scenarios. These procedures should include:

- Provide clearly marked white curb and signage to designate a drop-off and pick-up zone on the 200 feet of school frontage on the south side of East 15th Street directly adjacent to the Project site.
- Require drivers to pull up to the front of the designated area and to not leave the vehicle while conducting drop-off or pick-up.
- Prohibit double parking and waiting in the travel lanes on East 15th Street. Prohibit student loading on 23rd Avenue.
- Implement an arrival and departure assistant program that allows for students or staff to serve as valets and actively manage and enforce proper loading and unloading procedures. Assistants can also encourage appropriate driving behavior and ensure pedestrian and cyclist safety at the intersection.
- Communicate drop-off and pick-up procedures to staff, students, and parents using welcome packets, school announcements, and newsletters.

Improvement Measure TR-2: Off-Site Parking
The Project sponsor shall install signs outside the off-street parking lot indicating its reserved use for the school. Within the parking lot, the Project sponsor shall install signs indicating reserved parking for school staff.

Improvement Measure TR-3: On-Street Parking and Loading
The Project sponsor shall work with the City of Oakland to designate the 200 feet of school frontage on the south side of East 15th Street directly adjacent to the Project site as a white curb loading zone. The Project sponsor shall install signs indicating:

- "No Parking Student Loading Only" zones during the morning drop-off and afternoon pick-up period, and

- "Short-term school visitor parking and deliveries only" zones outside non-student loading hours.

Improvement Measure TR-4: Implement Special Event Parking Management Strategies
For all special events with more than 200 attendees, the Project sponsor shall implement a parking management plan with the following strategies:

- Provide a special event trip reduction newsletter to clearly communicate special event travel options that include carpooling, taking transit, walking, and biking, special carpool parking, and off-site parking options.
- Reserve on-site parking for vehicles with four or more occupants to encourage carpooling.
- Direct households that are driving to park two or more blocks away from the Project to reduce instances of cruising for parking at the school frontage.
- Integrate group bicycle rides to campus and other programmatic content as part of special events.

Improvement Measure TR-5: Pedestrian Safety Enhancements to East 15th Street
The Project shall construct improvements at the East side crosswalk of the intersection of 22nd Avenue and East 15th Street including the northeast and southeast corners, consistent with the Oakland Pedestrian Master Plan, subject to review by the City of Oakland Department of Transportation as part of the City's Off Site Infrastructure (PX) Permit process. These improvements include::

- Upgrade non-ADA compliant curb at the northeast and southeast corners of the intersection to be ADA compliant and install a high-visibility yellow school crosswalk on the east crosswalk
- Add edge line markings on East 15th Street for street narrowing and parking definition. Restrict on-street parking within 20 feet of intersection and marked crosswalks
- Install pedestrian safety zones extending from the curb at the northeast and southeast corners. The purpose of these painted bulb-outs is to reduce the speed of turning vehicles and reduce the pedestrian exposure to vehicle traffic while crossing East 15th Street.
- Install Intersection hardening treatments consisting of low-profile wheel stops and flexible vertical delineators on the center double yellow line on 22nd Avenue approaching East 15th Street from the north and south, similar to those one block to the north at 22nd Avenue and Foothill Boulevard

Improvement Measure TR-6: Optimize Signal Timing for Pedestrians on International Boulevard between 23rd Avenue and the BRT stop at 24th Avenue

The Project sponsor shall update signal timing cards as needed to optimize the pedestrian Walk phase timing when parallel traffic on International Boulevard has the green phase; this may be achieved by setting phases to 'rest in walk', lengthening the pedestrian walk phase, increasing the Walk phase frequency by shortening the signal cycle (to and from the BRT platform), or by other means at the following crossings:

- 23rd Avenue at International Boulevard (north crosswalk)
- 24th Avenue at International Boulevard (north and east crosswalks)

Improvement Measure TR-7: Install Sufficient On-Site Bicycle Parking

The Project shall install a minimum of 22 long-term and 18 short-term bicycle parking spaces in accordance with the City Municipal Code §17.117.100.

Mandatory TDM Plan Strategies

TDM Strategy	Description
Bus shelter	The project shall consult with AC Transit and the City to identify feasibility of installing bus shelters for the following bus flag stops: • Stop 51284, Route 62: 23rd Ave northbound at International Blvd • Stop 57505, Route 62: 23rd Ave southbound at International Blvd • Stop 54554, Route 62: 23rd Ave northbound at 16th St • Stop 54448, Route 40: Foothill Blvd eastbound at 23rd Ave If these stops have 25 or more passenger boardings per day and construction of the bus shelters is feasible, the Project will contribute its fair share cost responsibility toward new bus shelters.
Curb extensions of bulb-outs Installation of safety improvements identified in the PMP Paving, lane striping or restriping and signs	The Project shall contribute its fair share cost responsibility for improvements at the 22nd Ave & East 15th St Intersection (Improvement Measure TR-5): • Upgrade non-ADA compliant curb at the northeast and southeast corners of the intersection to be ADA compliant and install a high-visibility yellow school crosswalk on the east crosswalk • Add edge line markings on East 15th Street for street narrowing and parking definition. Restrict on-street parking within 20-feet of intersection and marked crosswalks • Install pedestrian safety zones extending from the curb at the northeast and southeast corners • Install intersection hardening treatments on the center double yellow line on 22nd Avenue approaching East 15th Street from the north and south The Project sponsor shall work with the City to convert the marked crosswalks to yellow school crosswalks at 23rd Avenue and East 15th Street and 23rd Avenue and International Boulevard. The Project sponsor shall work with the City to add yield markings on 23rd Avenue at East 15th Street.
Pedestrian crossing improvements, pedestrian-supportive signal changes	The Project sponsor shall work with the City to optimize the pedestrian Walk phase timing when parallel traffic on International Boulevard has the green phase; this may be achieved by setting phases to 'rest in walk', lengthening the pedestrian walk phase, increasing the Walk phase frequency by shortening the signal cycle (to and from the BRT platform), or by other means at the following crossings (Improvement Measure TR-6): • 23rd Avenue at International Boulevard (east crosswalk) • 24th Avenue at International Boulevard (east and south crosswalks)
Relocating bus stops to far side	The Project shall consult with AC Transit and the City to determine if the following near side bus stops should be relocated to the far side: • Stop 57505, Route 62: 23rd Ave southbound approach to International Blvd • Stop 54554, Route 62: 23rd Ave northbound approach to 16th St/Foothill Blvd • Stop 54448, Route 40: Foothill Blvd eastbound approach to 23rd Ave If the transit stop relocations are found to be feasible, then the Project sponsor will contribute its fair share cost responsibility toward the transit stop relocation.

6.3.2 SUPPLEMENTAL TDM PLAN STRATEGIES

TDM Program Coordinator

Description: The TDM Program Coordinator would be responsible for implementation and monitoring of the TDM Plan. The TDM Coordinator would facilitate site inspections by City staff to verify that the standards specified as conditions of approval are met. This person(s) could be a school employee or a third-party provider that runs the program.

T-7 Implement Commute Trip Reduction Marketing

Description: The Project sponsor would implement a marketing strategy to promote a commute trip reduction (CTR) program. Information sharing and marketing promote and educate students and staff about their travel choices to the Project location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

T-9 Implement Subsidized or Discounted Transit Program

Description: The Project sponsor would provide subsidized or discounted, or free transit passes for 100 students. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.

T-10 Provide End-of-Trip Bicycle Facilities

Description: The Project sponsor would install and maintain end-of-trip facilities for employee use. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions. This measure is consistent with Project SCA 76 Bicycle Parking.

T-18 Provide Pedestrian Network Improvement

Description: This measure would increase the sidewalk coverage to improve pedestrian access, which may include crossing safety improvements. Providing sidewalks and an enhanced pedestrian network would encourage people to walk instead of drive. This mode shift would result in a reduction in VMT and GHG emissions.

T-41 Implement a School Pool Program (CAPCOA 2010 TRT-10)

Description: The Project sponsor would create a ridesharing program for school children. Most school districts provide bussing services to public schools only. School pool helps match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for bussing. A school pool program can help reduce

onsite air pollutant emissions at the school by reducing private vehicle trips, especially if the pool vehicle is zero emissions.

Appendix A Vehicle Turning Volume Data

TRAFFIC COUNTS PLUS
mietekm@comcast.net
925.305.4358

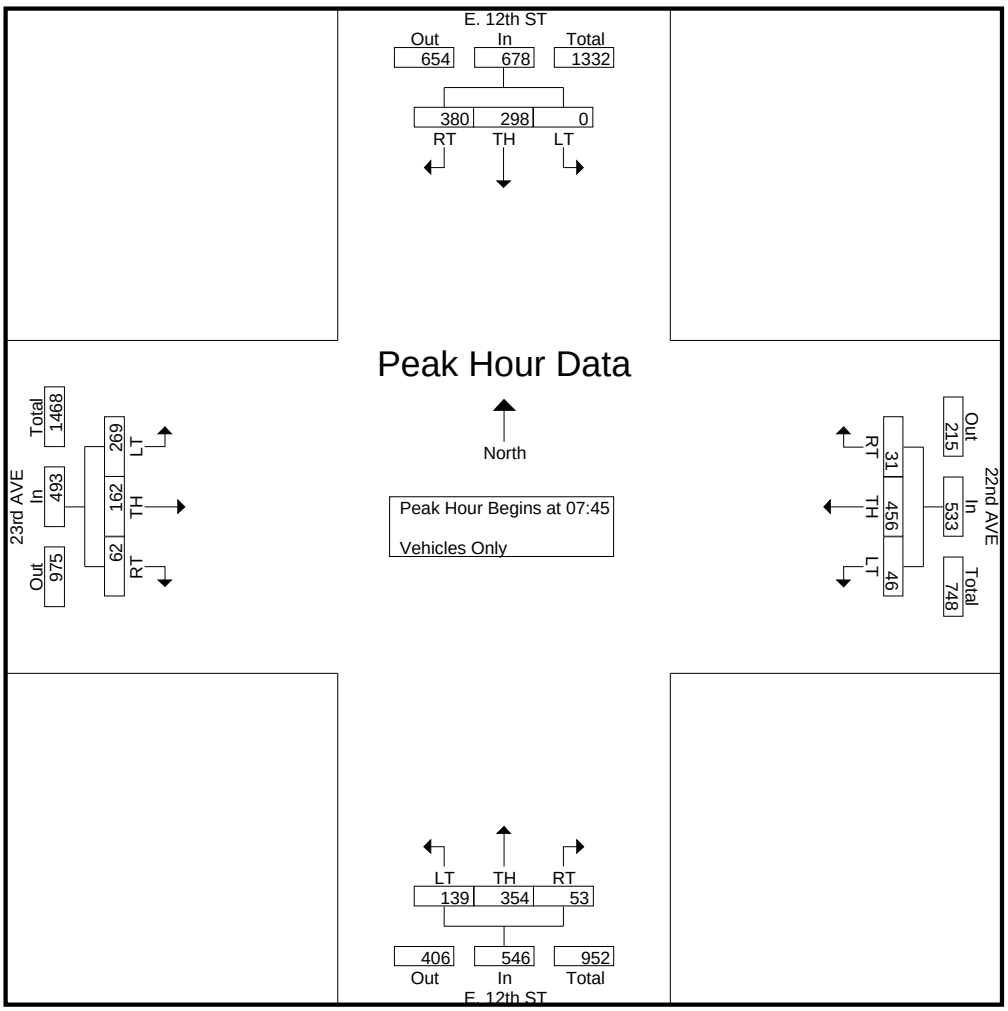
CITY OF OAKLAND
E. 12th AVE. & 22nd / 23rd Ave.
Latitude: 37.783732
Longitude: -122.238689

File Name : 12-22-a
Site Code : 4
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 12th ST Southbound				22nd AVE Westbound				E. 12th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	56	30	1	87	4	69	2	75	9	41	26	76	7	25	45	77	315
07:15	64	34	0	98	7	77	11	95	12	49	30	91	4	28	35	67	351
07:30	92	37	1	130	5	96	6	107	5	58	26	89	7	31	43	81	407
07:45	87	56	0	143	9	119	8	136	7	80	39	126	13	45	60	118	523
Total	299	157	2	458	25	361	27	413	33	228	121	382	31	129	183	343	1596
08:00	87	55	0	142	8	115	12	135	15	98	28	141	5	39	75	119	537
08:15	109	86	0	195	9	124	13	146	15	85	28	128	24	46	68	138	607
08:30	97	101	0	198	5	98	13	116	16	91	44	151	20	32	66	118	583
08:45	86	76	0	162	6	100	11	117	15	101	31	147	9	33	50	92	518
Total	379	318	0	697	28	437	49	514	61	375	131	567	58	150	259	467	2245
Grand Total	678	475	2	1155	53	798	76	927	94	603	252	949	89	279	442	810	3841
Apprch %	58.7	41.1	0.2		5.7	86.1	8.2		9.9	63.5	26.6		11	34.4	54.6		
Total %	17.7	12.4	0.1	30.1	1.4	20.8	2	24.1	2.4	15.7	6.6	24.7	2.3	7.3	11.5	21.1	

	E. 12th ST Southbound				22nd AVE Westbound				E. 12th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	87	56	0	143	**9**	119	8	136	7	80	39	126	13	45	60	118	523
08:00	87	55	0	142	8	115	12	135	15	**98**	28	141	5	39	**75**	119	537
08:15	**109**	86	0	195	9	**124**	**13**	**146**	15	85	28	128	**24**	**46**	68	**138**	**607**
08:30	97	**101**	0	**198**	5	98	13	116	**16**	91	**44**	**151**	20	32	66	118	583
Total Volume	380	298	0	678	31	456	46	533	53	354	139	546	62	162	269	493	2250
% App. Total	56	44	0		5.8	85.6	8.6		9.7	64.8	25.5		12.6	32.9	54.6		
PHF	.872	.738	.000	.856	.861	.919	.885	.913	.828	.903	.790	.904	.646	.880	.897	.893	.927



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CITY OF OAKLAND
E. 12th AVE. & 22nd / 23rd Ave.
Latitude: 37.783732
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File Name : 12-22-p
Site Code : 4
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 12 ST Southbound				22nd AVE Westbound				E. 12 ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	105	131	0	236	8	70	6	84	19	61	21	101	22	67	80	169	590
15:15	113	135	0	248	5	72	10	87	15	63	22	100	27	63	60	150	585
15:30	106	141	0	247	8	55	15	78	13	63	33	109	27	68	72	167	601
15:45	104	156	0	260	6	80	8	94	19	66	37	122	34	54	61	149	625
Total	428	563	0	991	27	277	39	343	66	253	113	432	110	252	273	635	2401
16:00	80	135	0	215	4	74	9	87	23	65	31	119	34	69	85	188	609
16:15	81	152	0	233	0	83	9	92	19	76	26	121	26	77	85	188	634
16:30	84	139	0	223	6	63	8	77	14	69	34	117	27	61	70	158	575
16:45	126	181	0	307	6	69	7	82	18	78	29	125	24	52	79	155	669
Total	371	607	0	978	16	289	33	338	74	288	120	482	111	259	319	689	2487
17:00	101	172	0	273	8	70	7	85	22	69	35	126	28	57	75	160	644
17:15	122	164	0	286	4	66	9	79	31	86	35	152	24	84	121	229	746
17:30	101	125	1	227	5	79	13	97	24	68	17	109	24	81	106	211	644
17:45	102	155	0	257	4	63	13	80	15	67	28	110	28	71	88	187	634
Total	426	616	1	1043	21	278	42	341	92	290	115	497	104	293	390	787	2668
Grand Total	1225	1786	1	3012	64	844	114	1022	232	831	348	1411	325	804	982	2111	7556
Apprch %	40.7	59.3	0		6.3	82.6	11.2		16.4	58.9	24.7		15.4	38.1	46.5		
Total %	16.2	23.6	0	39.9	0.8	11.2	1.5	13.5	3.1	11	4.6	18.7	4.3	10.6	13	27.9	

	E. 12 ST Southbound				22nd AVE Westbound				E. 12 ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	**126**	**181**	0	**307**	6	69	7	82	18	78	29	125	24	52	79	155	669
17:00	101	172	0	273	**8**	70	7	85	22	69	**35**	126	**28**	57	75	160	644
17:15	122	164	0	286	4	66	9	79	**31**	**86**	35	**152**	24	**84**	**121**	**229**	**746**
17:30	101	125	**1**	227	5	**79**	**13**	**97**	24	68	17	109	24	81	106	211	644
Total Volume	450	642	1	1093	23	284	36	343	95	301	116	512	100	274	381	755	2703
% App. Total	41.2	58.7	0.1		6.7	82.8	10.5		18.6	58.8	22.7		13.2	36.3	50.5		
PHF	.893	.887	.250	.890	.719	.899	.692	.884	.766	.875	.829	.842	.893	.815	.787	.824	.906

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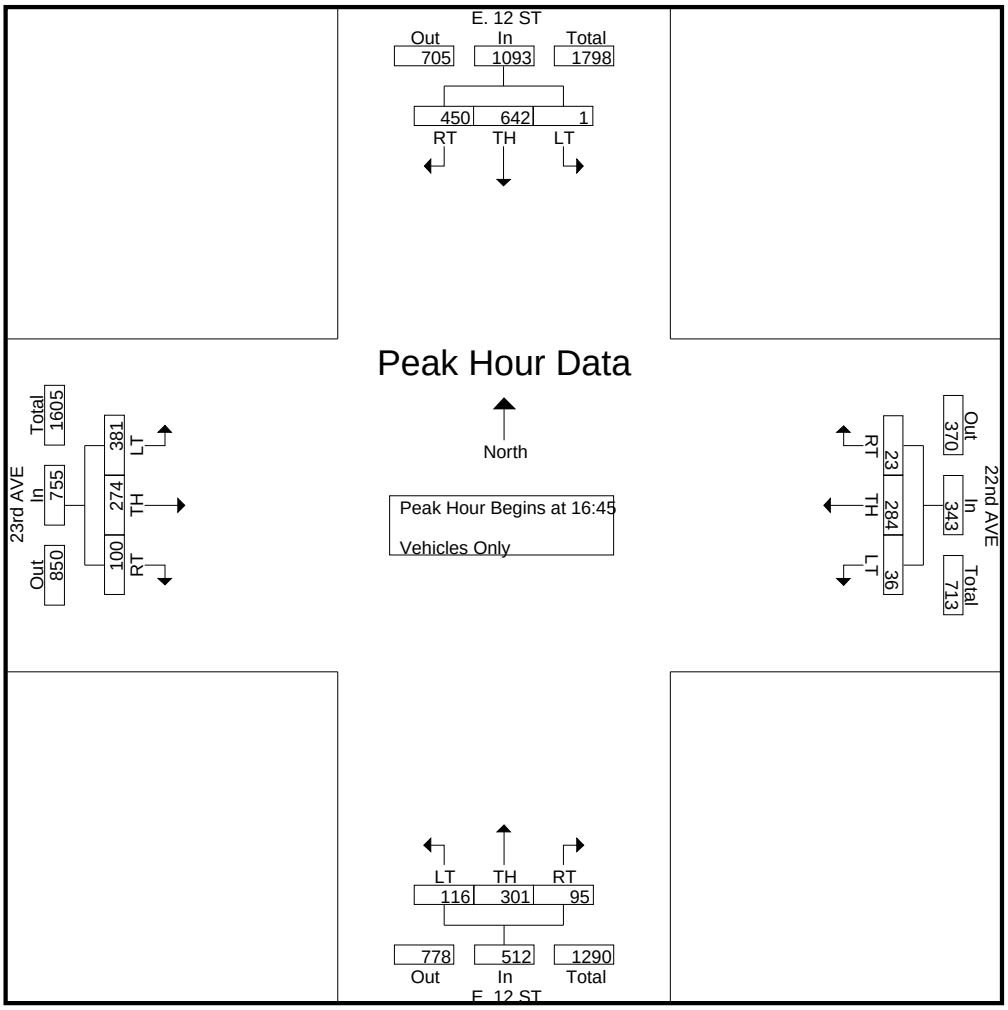
File Name : 12-22-p
Site Code : 4
Start Date : 8/16/2022
Page No : 2



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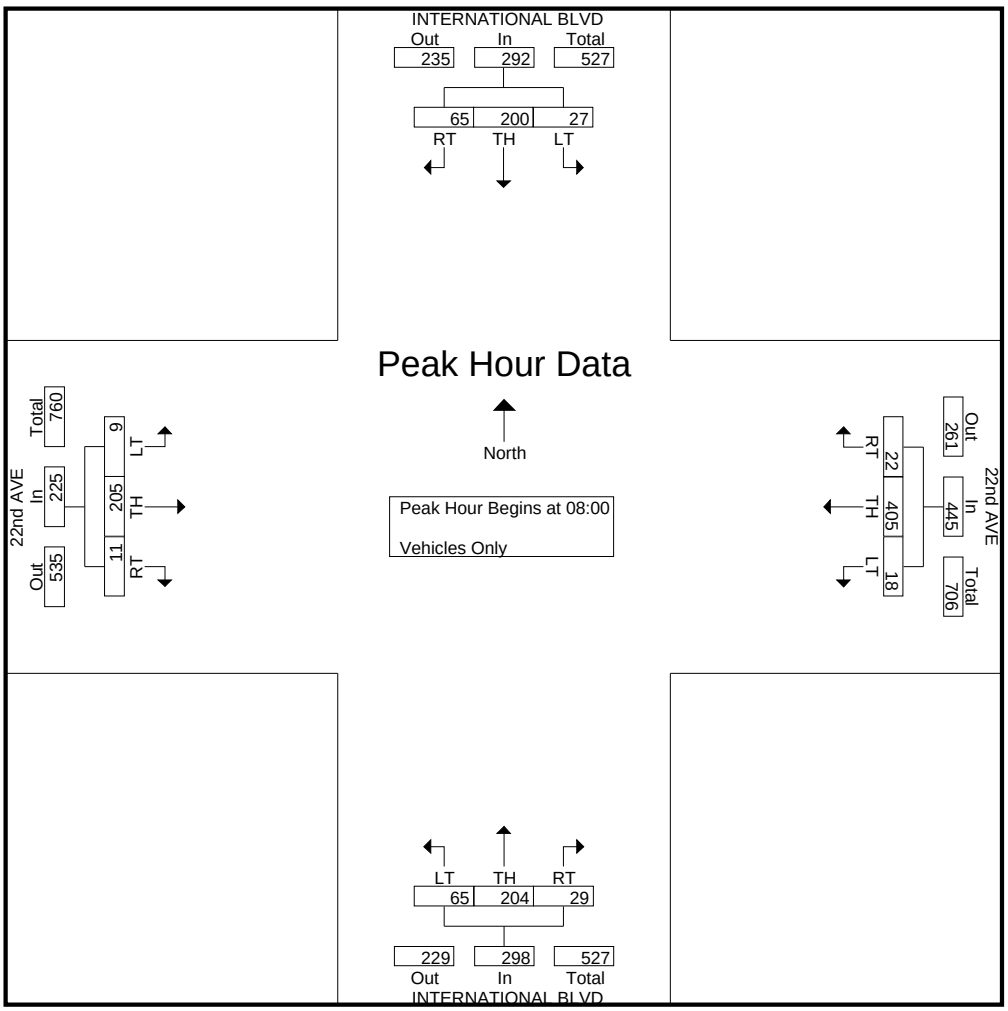
CITY OF OAKLAND
International Blvd. & 22nd Ave.
Latitude: 37.784572
Longitude: -122.237864

File Name : international-22-a
Site Code : 3
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	INTERNATIONAL BLVD Southbound				22nd AVE Westbound				INTERNATIONAL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	12	19	1	32	2	59	3	64	6	27	8	41	2	30	4	36	173
07:15	9	26	1	36	5	75	6	86	4	28	6	38	4	32	3	39	199
07:30	13	27	4	44	10	78	7	95	8	40	13	61	4	29	1	34	234
07:45	12	33	3	48	9	116	4	129	3	46	11	60	2	48	4	54	291
Total	46	105	9	160	26	328	20	374	21	141	38	200	12	139	12	163	897
08:00	18	49	5	72	7	97	3	107	9	43	21	73	6	51	2	59	311
08:15	19	41	8	68	6	113	6	125	4	52	22	78	1	62	0	63	334
08:30	18	61	10	89	6	99	7	112	6	46	10	62	1	44	3	48	311
08:45	10	49	4	63	3	96	2	101	10	63	12	85	3	48	4	55	304
Total	65	200	27	292	22	405	18	445	29	204	65	298	11	205	9	225	1260
Grand Total	111	305	36	452	48	733	38	819	50	345	103	498	23	344	21	388	2157
Apprch %	24.6	67.5	8		5.9	89.5	4.6		10	69.3	20.7		5.9	88.7	5.4		
Total %	5.1	14.1	1.7	21	2.2	34	1.8	38	2.3	16	4.8	23.1	1.1	15.9	1	18	

	INTERNATIONAL BLVD Southbound				22nd AVE Westbound				INTERNATIONAL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	18	49	5	72	**7**	97	3	107	9	43	21	73	**6**	51	2	59	311
08:15	**19**	41	8	68	6	**113**	6	**125**	4	52	**22**	78	1	**62**	0	**63**	**334**
08:30	18	**61**	**10**	**89**	6	99	**7**	112	6	46	10	62	1	44	3	48	311
08:45	10	49	4	63	3	96	2	101	**10**	**63**	12	**85**	3	48	**4**	55	304
Total Volume	65	200	27	292	22	405	18	445	29	204	65	298	11	205	9	225	1260
% App. Total	22.3	68.5	9.2		4.9	91	4		9.7	68.5	21.8		4.9	91.1	4		
PHF	.855	.820	.675	.820	.786	.896	.643	.890	.725	.810	.739	.876	.458	.827	.563	.893	.943



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CITY OF OAKLAND
International Blvd. & 22nd Ave.
Latitude: 37.784572
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File Name : international-22-p
Site Code : 3
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	INTERNATIONAL BLVD Southbound				22nd AVE Westbound				INTERNATIONAL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	12	67	4	83	7	60	10	77	8	32	12	52	9	79	7	95	307
15:15	22	79	8	109	4	65	13	82	11	45	15	71	10	62	7	79	341
15:30	22	74	10	106	5	61	9	75	15	33	13	61	6	75	9	90	332
15:45	18	85	12	115	16	64	7	87	6	54	22	82	14	61	6	81	365
Total	74	305	34	413	32	250	39	321	40	164	62	266	39	277	29	345	1345
16:00	14	70	8	92	6	56	9	71	9	51	19	79	11	78	10	99	341
16:15	20	79	10	109	7	67	17	91	9	25	13	47	9	89	11	109	356
16:30	14	87	15	116	6	56	12	74	8	32	16	56	10	72	7	89	335
16:45	18	74	14	106	10	64	15	89	10	44	10	64	9	64	7	80	339
Total	66	310	47	423	29	243	53	325	36	152	58	246	39	303	35	377	1371
17:00	22	72	8	102	16	59	9	84	12	31	12	55	9	64	9	82	323
17:15	15	73	10	98	9	59	12	80	11	45	13	69	9	99	9	117	364
17:30	21	81	16	118	6	57	10	73	17	47	21	85	9	93	10	112	388
17:45	26	69	7	102	6	63	12	81	8	35	13	56	7	79	6	92	331
Total	84	295	41	420	37	238	43	318	48	158	59	265	34	335	34	403	1406
Grand Total	224	910	122	1256	98	731	135	964	124	474	179	777	112	915	98	1125	4122
Apprch %	17.8	72.5	9.7		10.2	75.8	14		16	61	23		10	81.3	8.7		
Total %	5.4	22.1	3	30.5	2.4	17.7	3.3	23.4	3	11.5	4.3	18.9	2.7	22.2	2.4	27.3	

	INTERNATIONAL BLVD Southbound				22nd AVE Westbound				INTERNATIONAL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	18	85	12	115	**16**	64	7	87	6	**54**	**22**	**82**	**14**	61	6	81	**365**
16:00	14	70	8	92	6	56	9	71	**9**	51	19	79	11	78	10	99	341
16:15	**20**	79	10	109	7	**67**	**17**	**91**	9	25	13	47	9	**89**	**11**	**109**	356
16:30	14	**87**	**15**	**116**	6	56	12	74	8	32	16	56	10	72	7	89	335
Total Volume	66	321	45	432	35	243	45	323	32	162	70	264	44	300	34	378	1397
% App. Total	15.3	74.3	10.4		10.8	75.2	13.9		12.1	61.4	26.5		11.6	79.4	9		
PHF	.825	.922	.750	.931	.547	.907	.662	.887	.889	.750	.795	.805	.786	.843	.773	.867	.957

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CITY OF OAKLAND
International Blvd. & 22nd Ave.
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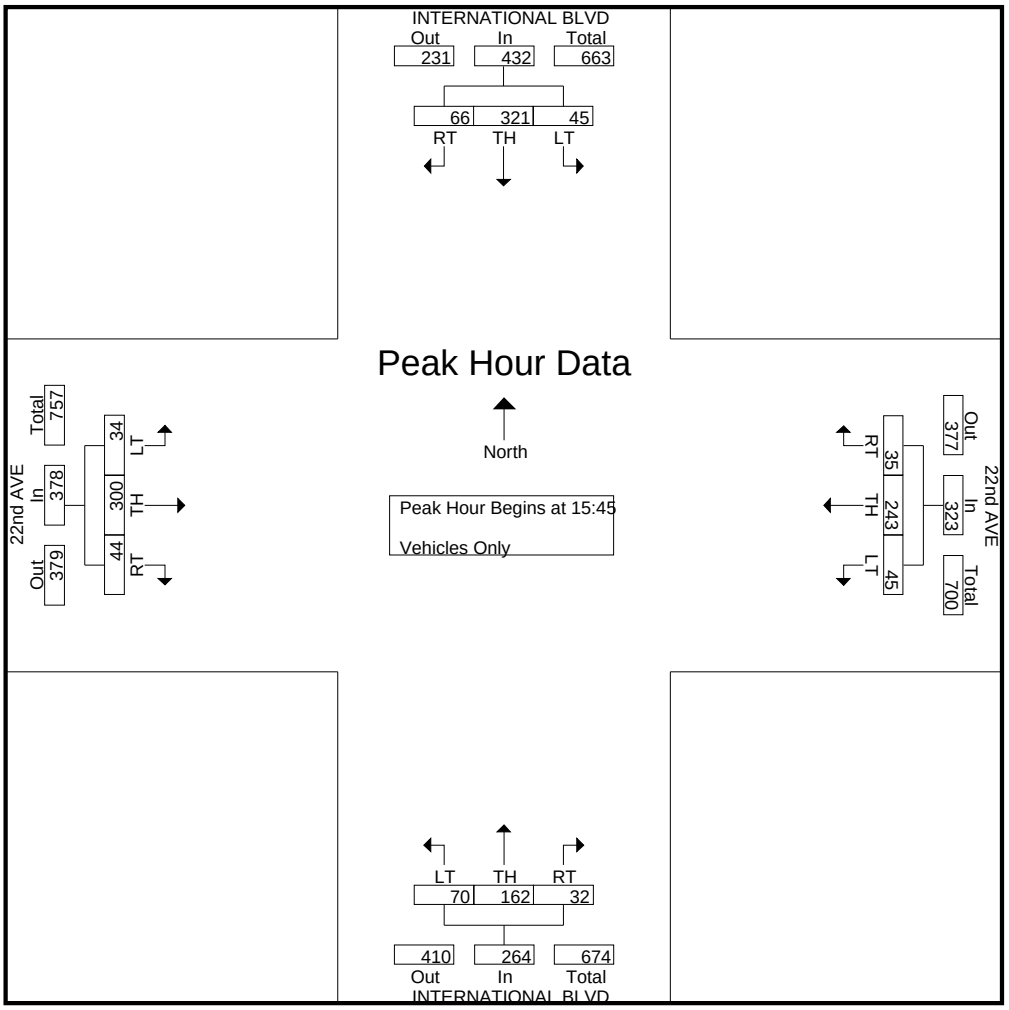
File Name : international-22-p
Site Code : 3
Start Date : 8/16/2022
Page No : 2



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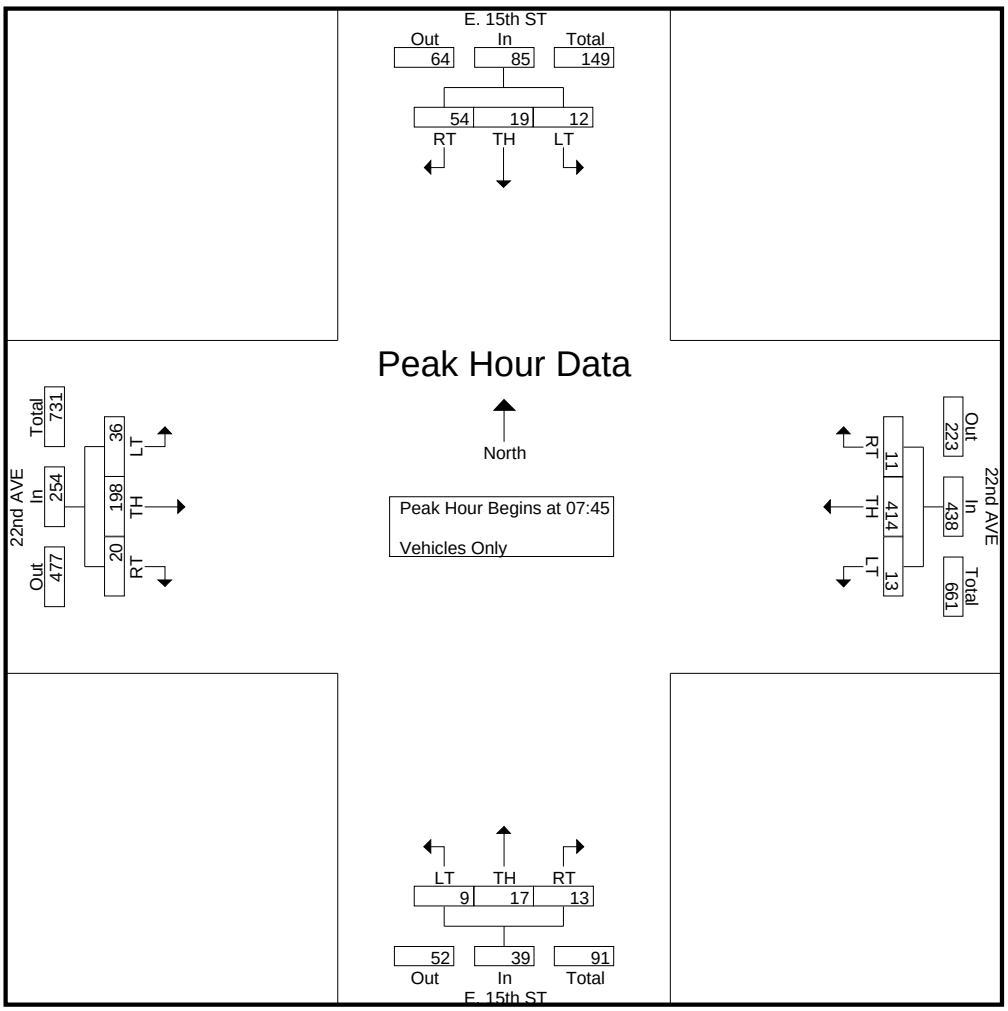
CITY OF OAKLAND
E. 15th St. & 22nd Ave.
Latitude: 37.785427
Longitude: -122.237076

File Name : 15-22-a
Site Code : 2
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 15th ST Southbound				22nd AVE Westbound				E. 15th ST Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	10	3	2	15	5	50	0	55	4	2	4	10	1	17	16	34	114
07:15	12	5	1	18	1	65	1	67	1	4	2	7	2	20	14	36	128
07:30	16	2	2	20	1	80	1	82	0	5	4	9	4	24	14	42	153
07:45	11	3	1	15	0	120	2	122	2	2	2	6	4	38	8	50	193
Total	49	13	6	68	7	315	4	326	7	13	12	32	11	99	52	162	588
08:00	13	3	6	22	6	95	2	103	2	3	1	6	4	49	11	64	195
08:15	12	6	2	20	2	100	3	105	9	4	3	16	4	64	8	76	217
08:30	18	7	3	28	3	99	6	108	0	8	3	11	8	47	9	64	211
08:45	16	3	2	21	5	78	2	85	2	5	4	11	7	40	14	61	178
Total	59	19	13	91	16	372	13	401	13	20	11	44	23	200	42	265	801
Grand Total	108	32	19	159	23	687	17	727	20	33	23	76	34	299	94	427	1389
Apprch %	67.9	20.1	11.9		3.2	94.5	2.3		26.3	43.4	30.3		8	70	22		
Total %	7.8	2.3	1.4	11.4	1.7	49.5	1.2	52.3	1.4	2.4	1.7	5.5	2.4	21.5	6.8	30.7	

	E. 15th ST Southbound				22nd AVE Westbound				E. 15th ST Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	11	3	1	15	0	**120**	2	**122**	2	2	2	6	4	38	8	50	193
08:00	13	3	**6**	22	**6**	95	2	103	2	3	1	6	4	49	**11**	64	195
08:15	12	6	2	20	2	100	3	105	**9**	4	**3**	**16**	4	**64**	8	**76**	**217**
08:30	**18**	**7**	3	**28**	3	99	**6**	108	0	**8**	3	11	**8**	47	9	64	211
Total Volume	54	19	12	85	11	414	13	438	13	17	9	39	20	198	36	254	816
% App. Total	63.5	22.4	14.1		2.5	94.5	3		33.3	43.6	23.1		7.9	78	14.2		
PHF	.750	.679	.500	.759	.458	.863	.542	.898	.361	.531	.750	.609	.625	.773	.818	.836	.940



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CITY OF OAKLAND
E. 15th St. & 22nd Ave.
Latitude: 37.785427
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File Name : 15-22-p
Site Code : 2
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	E. 15th ST Southbound				22nd AVE Westbound				E. 15th ST Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	22	7	3	32	2	56	3	61	2	4	2	8	2	73	18	93	194
15:15	25	13	4	42	2	57	5	64	3	2	3	8	1	55	26	82	196
15:30	19	12	7	38	6	53	0	59	1	2	3	6	10	66	22	98	201
15:45	27	15	2	44	11	53	4	68	3	3	4	10	3	61	12	76	198
Total	93	47	16	156	21	219	12	252	9	11	12	32	16	255	78	349	789
16:00	20	10	6	36	5	48	1	54	3	4	1	8	5	68	17	90	188
16:15	26	5	5	36	7	58	2	67	6	1	4	11	9	68	32	109	223
16:30	28	15	4	47	7	47	2	56	4	1	3	8	3	70	16	89	200
16:45	29	15	12	56	4	56	2	62	1	7	1	9	4	64	16	84	211
Total	103	45	27	175	23	209	7	239	14	13	9	36	21	270	81	372	822
17:00	27	16	5	48	6	51	1	58	2	10	1	13	5	56	21	82	201
17:15	29	12	5	46	11	45	3	59	2	8	4	14	4	89	29	122	241
17:30	23	15	6	44	10	50	1	61	2	2	2	6	5	100	22	127	238
17:45	25	6	3	34	4	46	3	53	1	5	1	7	11	59	21	91	185
Total	104	49	19	172	31	192	8	231	7	25	8	40	25	304	93	422	865
Grand Total	300	141	62	503	75	620	27	722	30	49	29	108	62	829	252	1143	2476
Apprch %	59.6	28	12.3		10.4	85.9	3.7		27.8	45.4	26.9		5.4	72.5	22		
Total %	12.1	5.7	2.5	20.3	3	25	1.1	29.2	1.2	2	1.2	4.4	2.5	33.5	10.2	46.2	

	E. 15th ST Southbound				22nd AVE Westbound				E. 15th ST Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	20	10	6	36	5	48	1	54	3	4	1	8	5	68	17	90	188
16:15	26	5	5	36	**7**	**58**	**2**	**67**	**6**	1	**4**	**11**	**9**	68	**32**	**109**	**223**
16:30	28	**15**	4	47	7	47	2	56	4	1	3	8	3	**70**	16	89	200
16:45	**29**	15	**12**	**56**	4	56	2	62	1	**7**	1	9	4	64	16	84	211
Total Volume	103	45	27	175	23	209	7	239	14	13	9	36	21	270	81	372	822
% App. Total	58.9	25.7	15.4		9.6	87.4	2.9		38.9	36.1	25		5.6	72.6	21.8		
PHF	.888	.750	.563	.781	.821	.901	.875	.892	.583	.464	.563	.818	.583	.964	.633	.853	.922

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CITY OF OAKLAND
E. 15th St. & 22nd Ave.
Latitude: 37.785427
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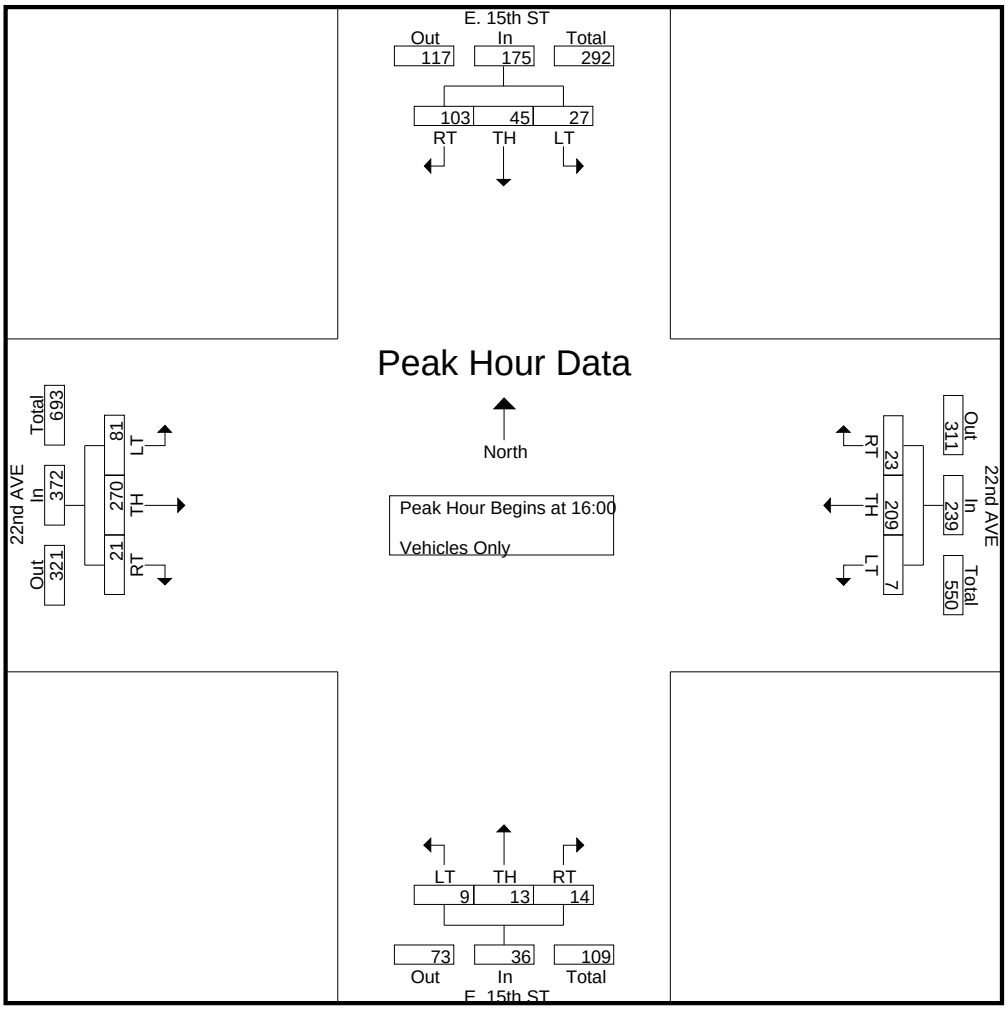
File Name : 15-22-p
Site Code : 2
Start Date : 8/16/2022
Page No : 2



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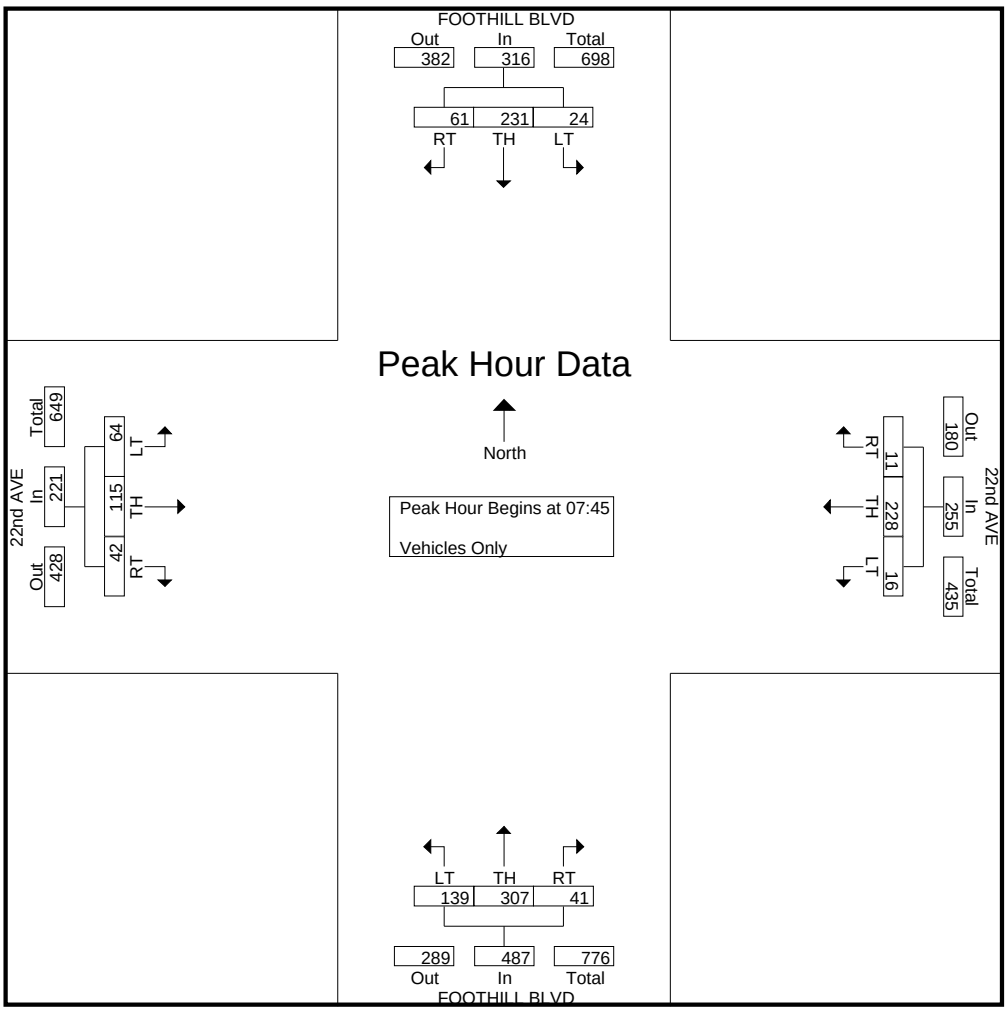
CITY OF OAKLAND
Foothill Blvd. & 22nd Ave.
Latitude: 37.786243
Longitude: -122.236301

File Name : foothill-22-a
Site Code : 1
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	FOOTHILL BLVD Southbound				22nd AVE Westbound				FOOTHILL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	8	21	1	30	5	25	0	30	0	36	22	58	7	8	6	21	139
07:15	9	26	4	39	2	29	2	33	1	27	27	55	4	12	9	25	152
07:30	15	27	3	45	3	38	2	43	0	45	31	76	7	10	5	22	186
07:45	16	50	4	70	3	68	4	75	5	62	38	105	8	20	13	41	291
Total	48	124	12	184	13	160	8	181	6	170	118	294	26	50	33	109	768
08:00	11	54	3	68	2	51	3	56	8	74	38	120	11	32	11	54	298
08:15	16	58	13	87	3	56	4	63	17	93	33	143	10	41	26	77	370
08:30	18	69	4	91	3	53	5	61	11	78	30	119	13	22	14	49	320
08:45	10	46	3	59	3	46	2	51	5	54	34	93	18	16	11	45	248
Total	55	227	23	305	11	206	14	231	41	299	135	475	52	111	62	225	1236
Grand Total	103	351	35	489	24	366	22	412	47	469	253	769	78	161	95	334	2004
Apprch %	21.1	71.8	7.2		5.8	88.8	5.3		6.1	61	32.9		23.4	48.2	28.4		
Total %	5.1	17.5	1.7	24.4	1.2	18.3	1.1	20.6	2.3	23.4	12.6	38.4	3.9	8	4.7	16.7	

	FOOTHILL BLVD Southbound				22nd AVE Westbound				FOOTHILL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	16	50	4	70	**3**	**68**	4	**75**	5	62	**38**	105	8	20	13	41	291
08:00	11	54	3	68	2	51	3	56	8	74	38	120	11	32	11	54	298
08:15	16	58	**13**	87	3	56	4	63	**17**	**93**	33	**143**	10	**41**	**26**	**77**	**370**
08:30	**18**	**69**	4	**91**	3	53	**5**	61	11	78	30	119	**13**	22	14	49	320
Total Volume	61	231	24	316	11	228	16	255	41	307	139	487	42	115	64	221	1279
% App. Total	19.3	73.1	7.6		4.3	89.4	6.3		8.4	63	28.5		19	52	29		
PHF	.847	.837	.462	.868	.917	.838	.800	.850	.603	.825	.914	.851	.808	.701	.615	.718	.864



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CITY OF OAKLAND
Foothill Blvd. & 22nd Ave.
Latitude: 37.786243
Longitude: -122.236301

File Name : foothill-22-p
Site Code : 1
Start Date : 8/16/2022
Page No : 1

Groups Printed- Vehicles Only

	FOOTHILL BLVD Southbound				22nd AVE Westbound				FOOTHILL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	12	54	0	66	0	24	2	26	4	35	23	62	11	32	24	67	221
15:15	16	64	0	80	4	24	2	30	6	40	25	71	11	31	18	60	241
15:30	10	58	4	72	0	29	2	31	2	52	19	73	18	30	23	71	247
15:45	19	73	9	101	4	25	4	33	2	38	24	64	8	35	22	65	263
Total	57	249	13	319	8	102	10	120	14	165	91	270	48	128	87	263	972
16:00	9	64	4	77	1	30	4	35	2	56	16	74	19	46	20	85	271
16:15	8	67	5	80	2	36	3	41	3	43	22	68	17	44	12	73	262
16:30	13	72	0	85	1	23	0	24	4	46	17	67	26	38	14	78	254
16:45	8	64	1	73	0	30	0	30	5	53	27	85	28	23	26	77	265
Total	38	267	10	315	4	119	7	130	14	198	82	294	90	151	72	313	1052
17:00	13	72	4	89	4	20	0	24	4	44	23	71	19	31	16	66	250
17:15	12	77	3	92	2	28	0	30	0	52	17	69	18	54	25	97	288
17:30	9	57	4	70	1	33	0	34	7	51	16	74	20	44	26	90	268
17:45	8	63	10	81	4	25	4	33	11	59	22	92	16	38	20	74	280
Total	42	269	21	332	11	106	4	121	22	206	78	306	73	167	87	327	1086
Grand Total	137	785	44	966	23	327	21	371	50	569	251	870	211	446	246	903	3110
Apprch %	14.2	81.3	4.6		6.2	88.1	5.7		5.7	65.4	28.9		23.4	49.4	27.2		
Total %	4.4	25.2	1.4	31.1	0.7	10.5	0.7	11.9	1.6	18.3	8.1	28	6.8	14.3	7.9	29	

	FOOTHILL BLVD Southbound				22nd AVE Westbound				FOOTHILL BLVD Northbound				22nd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	9	64	4	77	1	30	**4**	35	2	**56**	16	74	19	**46**	20	**85**	**271**
16:15	8	67	**5**	80	**2**	**36**	3	**41**	3	43	22	68	17	44	12	73	262
16:30	**13**	**72**	0	**85**	1	23	0	24	4	46	17	67	26	38	14	78	254
16:45	8	64	1	73	0	30	0	30	**5**	53	**27**	**85**	**28**	23	**26**	77	265
Total Volume	38	267	10	315	4	119	7	130	14	198	82	294	90	151	72	313	1052
% App. Total	12.1	84.8	3.2		3.1	91.5	5.4		4.8	67.3	27.9		28.8	48.2	23		
PHF	.731	.927	.500	.926	.500	.826	.438	.793	.700	.884	.759	.865	.804	.821	.692	.921	.970

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CITY OF OAKLAND
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Latitude: 37.786243
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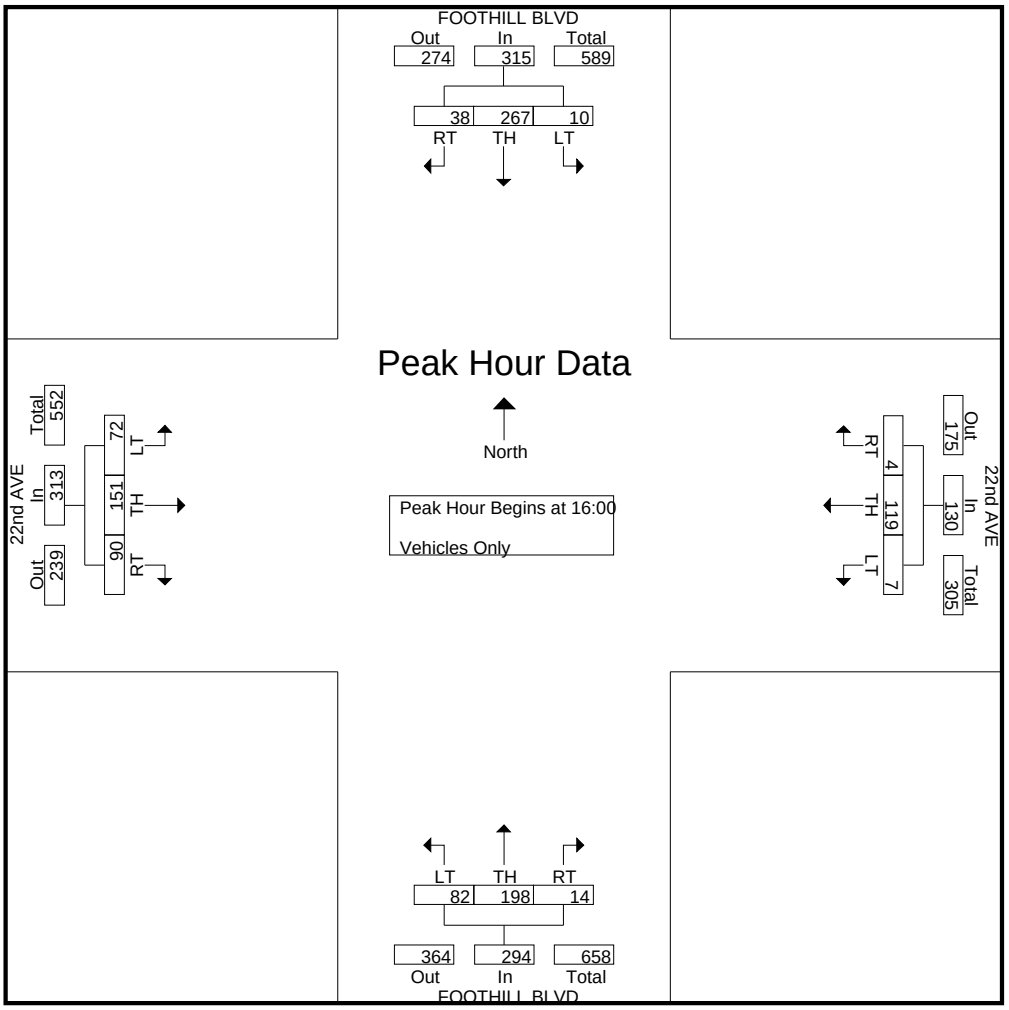
File Name : foothill-22-p
Site Code : 1
Start Date : 8/16/2022
Page No : 2



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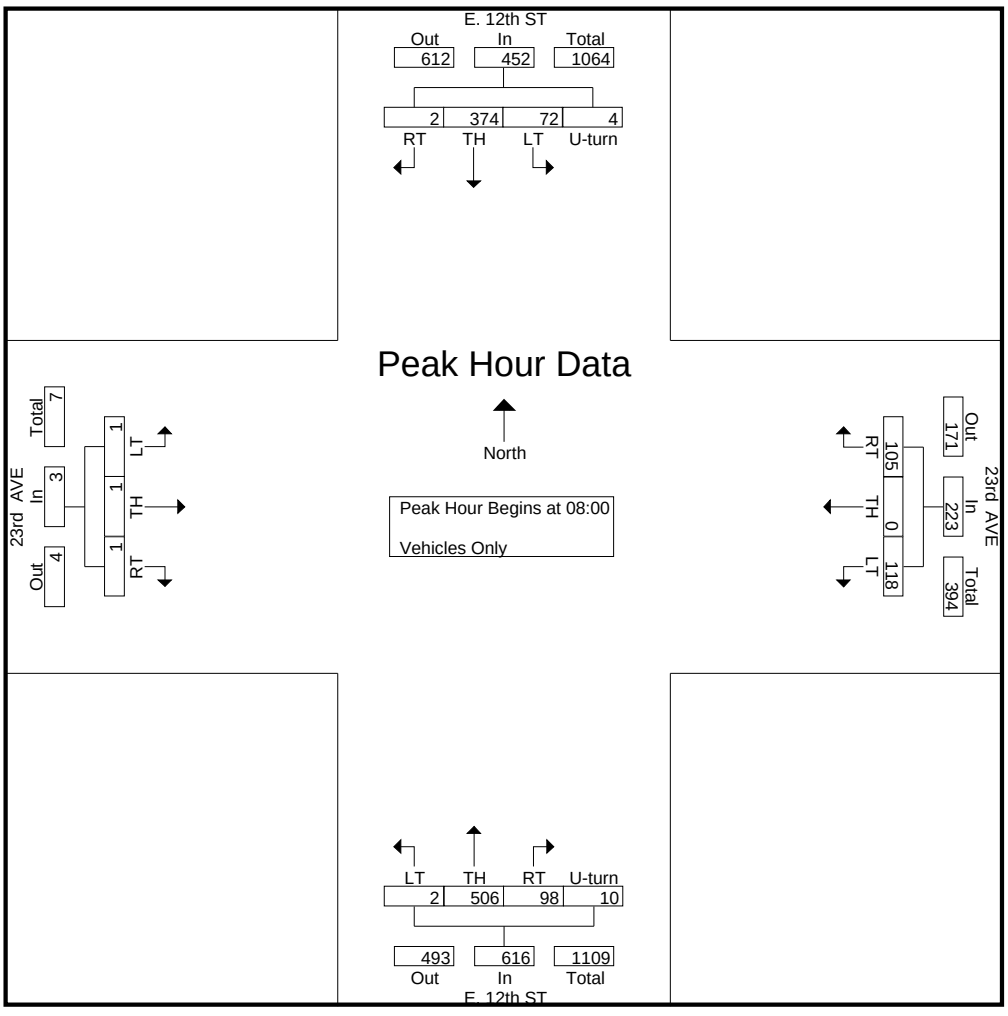
CITY OF OAKLAND
E. 12th ST. & 23rd Ave.
Latitude: 37.782552
Longitude: -122.236735

File Name : 12-23-a
Site Code : 8
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 12th ST Southbound					23rd AVE Westbound				E. 12th ST Northbound					23rd AVE Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	1	27	3	1	32	21	0	7	28	7	54	0	1	62	0	0	0	0	122
07:15	0	38	6	2	46	19	0	13	32	18	72	2	1	93	0	1	1	2	173
07:30	1	41	7	3	52	26	0	13	39	14	71	0	0	85	0	1	0	1	177
07:45	0	58	7	2	67	30	0	19	49	16	97	0	1	114	0	0	0	0	230
Total	2	164	23	8	197	96	0	52	148	55	294	2	3	354	0	2	1	3	702
08:00	0	86	17	0	103	37	0	27	64	29	114	0	1	144	0	0	0	0	311
08:15	0	80	18	1	99	17	0	38	55	29	149	1	3	182	0	1	1	2	338
08:30	0	107	19	2	128	31	0	30	61	21	135	1	4	161	0	0	0	0	350
08:45	2	101	18	1	122	20	0	23	43	19	108	0	2	129	1	0	0	1	295
Total	2	374	72	4	452	105	0	118	223	98	506	2	10	616	1	1	1	3	1294
Grand Total	4	538	95	12	649	201	0	170	371	153	800	4	13	970	1	3	2	6	1996
Apprch %	0.6	82.9	14.6	1.8		54.2	0	45.8		15.8	82.5	0.4	1.3		16.7	50	33.3		
Total %	0.2	27	4.8	0.6	32.5	10.1	0	8.5	18.6	7.7	40.1	0.2	0.7	48.6	0.1	0.2	0.1	0.3	

	E. 12th ST Southbound					23rd AVE Westbound				E. 12th ST Northbound					23rd AVE Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 08:00																			
08:00	0	86	17	0	103	**37**	0	27	**64**	**29**	114	0	1	144	0	0	0	0	311
08:15	0	80	18	1	99	17	0	**38**	55	29	**149**	**1**	3	**182**	0	**1**	**1**	**2**	338
08:30	0	**107**	**19**	**2**	**128**	31	0	30	61	21	135	1	**4**	161	0	0	0	0	**350**
08:45	**2**	101	18	1	122	20	0	23	43	19	108	0	2	129	**1**	0	0	1	295
Total Volume	2	374	72	4	452	105	0	118	223	98	506	2	10	616	1	1	1	3	1294
% App. Total	0.4	82.7	15.9	0.9		47.1	0	52.9		15.9	82.1	0.3	1.6		33.3	33.3	33.3		
PHF	.250	.874	.947	.500	.883	.709	.000	.776	.871	.845	.849	.500	.625	.846	.250	.250	.250	.375	.924



TRAFFIC COUNTS PLUS
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CITY OF OAKLAND
E. 12th ST. & 23rd Ave.
Latitude: 37.782552
Longitude: -122.236735

File Name : 12-23-p
Site Code : 8
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 12th ST Southbound					23rd AVE Westbound				E. 12th ST Northbound					23rd AVE Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	0	108	19	3	130	11	0	27	38	23	100	1	2	126	3	0	1	4	298
15:15	0	127	23	1	151	18	0	24	42	23	79	0	7	109	1	0	0	1	303
15:30	0	165	23	3	191	16	0	27	43	27	81	2	1	111	1	0	1	2	347
15:45	0	174	32	1	207	21	1	19	41	27	92	0	3	122	0	0	0	0	370
Total	0	574	97	8	679	66	1	97	164	100	352	3	13	468	5	0	2	7	1318
16:00	0	162	25	3	190	17	0	30	47	28	83	1	4	116	1	0	0	1	354
16:15	0	173	28	0	201	15	0	20	35	46	84	0	12	142	2	0	1	3	381
16:30	1	186	32	3	222	13	0	19	32	25	84	0	3	112	1	0	4	5	371
16:45	1	192	25	2	220	16	1	25	42	29	82	0	3	114	3	1	0	4	380
Total	2	713	110	8	833	61	1	94	156	128	333	1	22	484	7	1	5	13	1486
17:00	0	192	31	3	226	19	1	21	41	37	93	0	6	136	5	5	8	18	421
17:15	1	184	38	3	226	20	0	30	50	30	105	1	4	140	2	1	6	9	425
17:30	0	162	41	2	205	21	0	22	43	35	76	0	10	121	1	0	1	2	371
17:45	0	183	32	1	216	13	1	19	33	30	92	0	6	128	0	1	0	1	378
Total	1	721	142	9	873	73	2	92	167	132	366	1	26	525	8	7	15	30	1595
Grand Total	3	2008	349	25	2385	200	4	283	487	360	1051	5	61	1477	20	8	22	50	4399
Apprch %	0.1	84.2	14.6	1		41.1	0.8	58.1		24.4	71.2	0.3	4.1		40	16	44		
Total %	0.1	45.6	7.9	0.6	54.2	4.5	0.1	6.4	11.1	8.2	23.9	0.1	1.4	33.6	0.5	0.2	0.5	1.1	

	E. 12th ST Southbound					23rd AVE Westbound				E. 12th ST Northbound					23rd AVE Eastbound				
Start Time	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	RT	TH	LT	U-turn	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 17:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 16:30																			
16:30	**1**	186	32	**3**	222	13	0	19	32	25	84	0	3	112	1	0	4	5	371
16:45	1	**192**	25	2	220	16	**1**	25	42	29	82	0	3	114	3	1	0	4	380
17:00	0	192	31	3	**226**	19	1	21	41	**37**	93	0	**6**	136	**5**	**5**	**8**	**18**	421
17:15	1	184	**38**	3	226	**20**	0	**30**	**50**	30	**105**	**1**	4	**140**	2	1	6	9	**425**
Total Volume	3	754	126	11	894	68	2	95	165	121	364	1	16	502	11	7	18	36	1597
% App. Total	0.3	84.3	14.1	1.2		41.2	1.2	57.6		24.1	72.5	0.2	3.2		30.6	19.4	50		
PHF	.750	.982	.829	.917	.989	.850	.500	.792	.825	.818	.867	.250	.667	.896	.550	.350	.563	.500	.939

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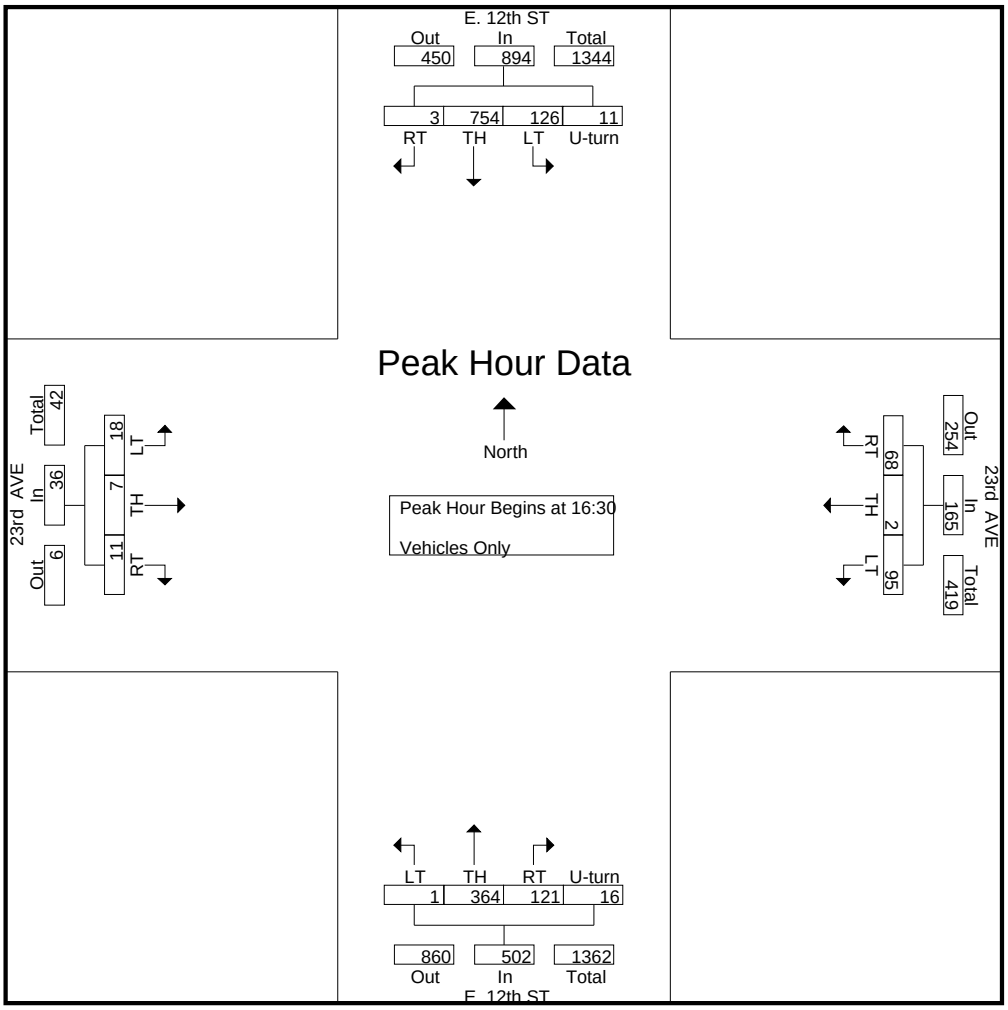
CITY OF OAKLAND
E. 12th ST. & 23rd Ave.
Latitude: 37.782552
Longitude: -122.236735

File Name : 12-23-p
Site Code : 8
Start Date : 8/17/2022
Page No : 2



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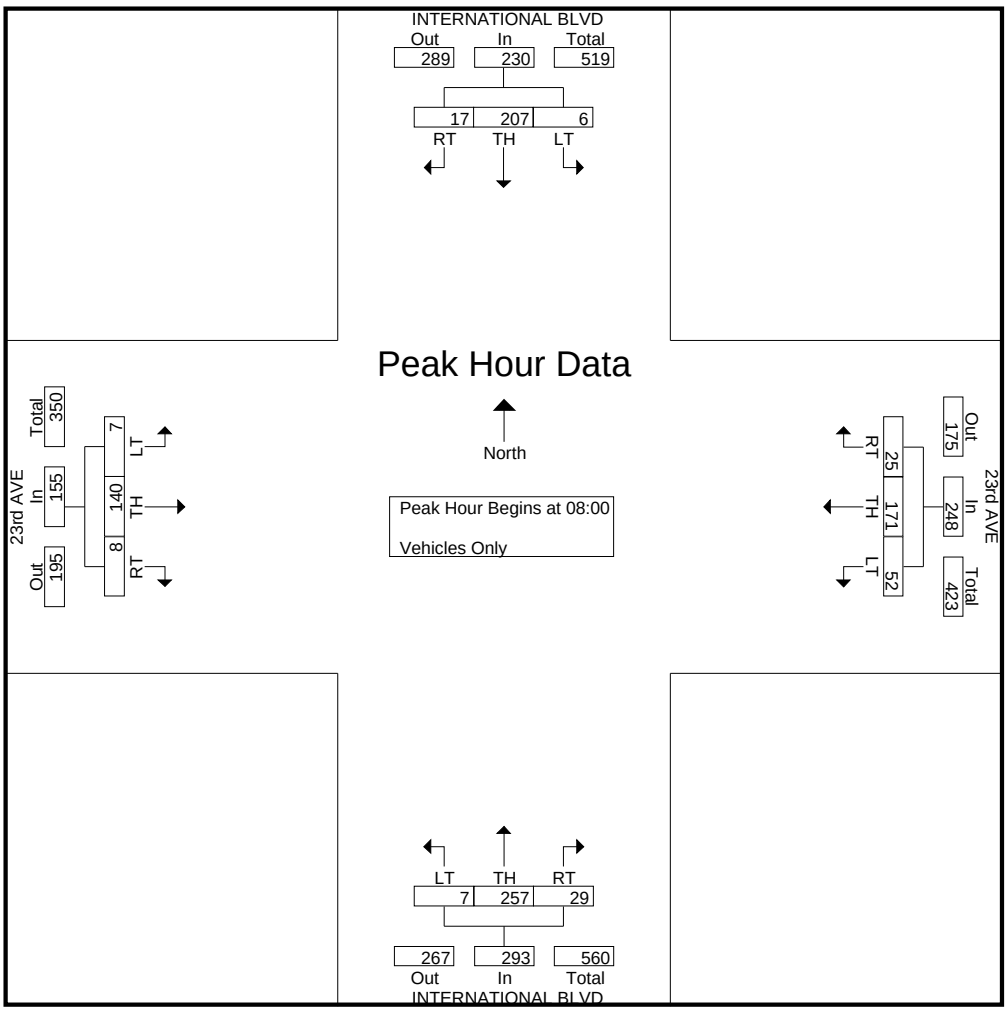
CITY OF OAKLAND
International Blvd. & 23rd Ave.
Latitude: 37.783409
Longitude: -122.235947

File Name : international-23-a
Site Code : 7
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	INTERNATIONAL BLVD Southbound				23rd AVE Westbound				INTERNATIONAL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	1	22	0	23	3	20	5	28	0	38	3	41	2	9	1	12	104
07:15	4	35	1	40	2	23	8	33	1	50	2	53	0	22	0	22	148
07:30	1	31	2	34	3	33	3	39	7	45	3	55	2	22	3	27	155
07:45	2	36	3	41	4	44	8	56	10	57	4	71	1	23	0	24	192
Total	8	124	6	138	12	120	24	156	18	190	12	220	5	76	4	85	599
08:00	4	30	0	34	4	30	6	40	5	47	3	55	2	26	0	28	157
08:15	4	53	3	60	7	50	14	71	9	72	0	81	2	45	2	49	261
08:30	3	65	1	69	3	50	17	70	8	62	2	72	3	39	3	45	256
08:45	6	59	2	67	11	41	15	67	7	76	2	85	1	30	2	33	252
Total	17	207	6	230	25	171	52	248	29	257	7	293	8	140	7	155	926
Grand Total	25	331	12	368	37	291	76	404	47	447	19	513	13	216	11	240	1525
Apprch %	6.8	89.9	3.3		9.2	72	18.8		9.2	87.1	3.7		5.4	90	4.6		
Total %	1.6	21.7	0.8	24.1	2.4	19.1	5	26.5	3.1	29.3	1.2	33.6	0.9	14.2	0.7	15.7	

	INTERNATIONAL BLVD Southbound				23rd AVE Westbound				INTERNATIONAL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	4	30	0	34	4	30	6	40	5	47	**3**	55	2	26	0	28	157
08:15	4	53	**3**	60	7	**50**	14	**71**	**9**	72	0	81	2	**45**	2	**49**	**261**
08:30	3	**65**	1	**69**	3	50	**17**	70	8	62	2	72	**3**	39	**3**	45	256
08:45	**6**	59	2	67	**11**	41	15	67	7	**76**	2	**85**	1	30	2	33	252
Total Volume	17	207	6	230	25	171	52	248	29	257	7	293	8	140	7	155	926
% App. Total	7.4	90	2.6		10.1	69	21		9.9	87.7	2.4		5.2	90.3	4.5		
PHF	.708	.796	.500	.833	.568	.855	.765	.873	.806	.845	.583	.862	.667	.778	.583	.791	.887



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CITY OF OAKLAND
International Blvd. & 23rd Ave.
Latitude: 37.783409
Longitude: -122.235947

File Name : international-23-p
Site Code : 7
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	INTERNATIONAL BLVD Southbound				23rd AVE Westbound				INTERNATIONAL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	8	81	0	89	3	31	10	44	96	63	4	163	0	38	3	41	337
15:15	4	74	1	79	6	35	9	50	4	65	3	72	3	40	3	46	247
15:30	6	93	3	102	4	38	11	53	9	59	3	71	4	40	3	47	273
15:45	5	100	5	110	6	34	8	48	12	63	3	78	6	55	1	62	298
Total	23	348	9	380	19	138	38	195	121	250	13	384	13	173	10	196	1155
16:00	4	89	4	97	3	37	13	53	9	73	2	84	5	45	4	54	288
16:15	4	108	6	118	3	28	14	45	3	54	3	60	2	62	5	69	292
16:30	3	86	2	91	8	26	16	50	16	79	2	97	1	58	0	59	297
16:45	8	86	4	98	3	36	13	52	6	43	2	51	2	53	4	59	260
Total	19	369	16	404	17	127	56	200	34	249	9	292	10	218	13	241	1137
17:00	8	105	0	113	3	29	6	38	11	60	2	73	2	53	4	59	283
17:15	12	87	1	100	6	39	12	57	12	53	3	68	1	70	4	75	300
17:30	7	113	3	123	4	30	9	43	11	70	4	85	2	73	4	79	330
17:45	4	95	3	102	6	24	16	46	9	68	1	78	1	57	4	62	288
Total	31	400	7	438	19	122	43	184	43	251	10	304	6	253	16	275	1201
Grand Total	73	1117	32	1222	55	387	137	579	198	750	32	980	29	644	39	712	3493
Apprch %	6	91.4	2.6		9.5	66.8	23.7		20.2	76.5	3.3		4.1	90.4	5.5		
Total %	2.1	32	0.9	35	1.6	11.1	3.9	16.6	5.7	21.5	0.9	28.1	0.8	18.4	1.1	20.4	

	INTERNATIONAL BLVD Southbound				23rd AVE Westbound				INTERNATIONAL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	**5**	100	5	110	6	34	8	48	12	63	**3**	78	**6**	55	1	62	**298**
16:00	4	89	4	97	3	**37**	13	**53**	9	73	2	84	5	45	4	54	288
16:15	4	**108**	**6**	**118**	3	28	14	45	3	54	3	60	2	**62**	**5**	**69**	292
16:30	3	86	2	91	**8**	26	**16**	50	**16**	**79**	2	**97**	1	58	0	59	297
Total Volume	16	383	17	416	20	125	51	196	40	269	10	319	14	220	10	244	1175
% App. Total	3.8	92.1	4.1		10.2	63.8	26		12.5	84.3	3.1		5.7	90.2	4.1		
PHF	.800	.887	.708	.881	.625	.845	.797	.925	.625	.851	.833	.822	.583	.887	.500	.884	.986

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File Name : international-23-p
Site Code : 7
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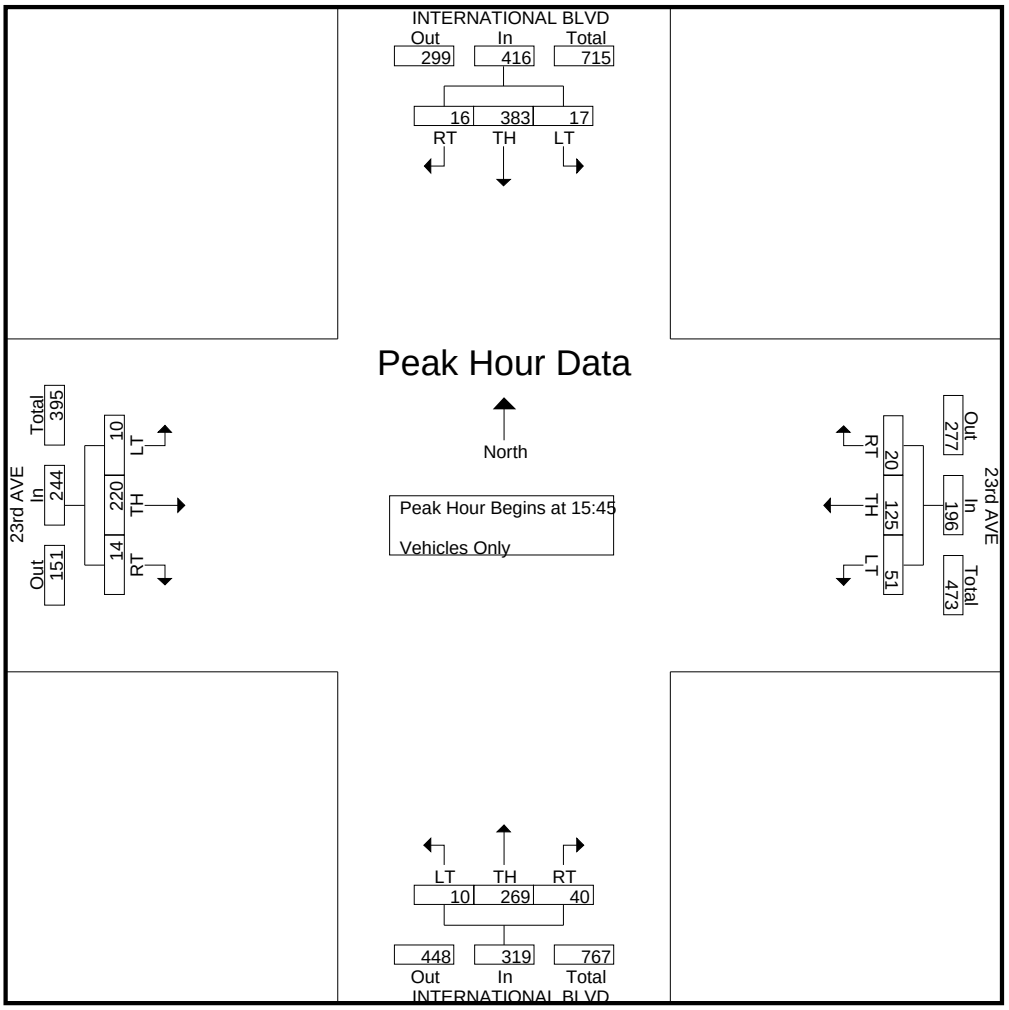
Page No : 2



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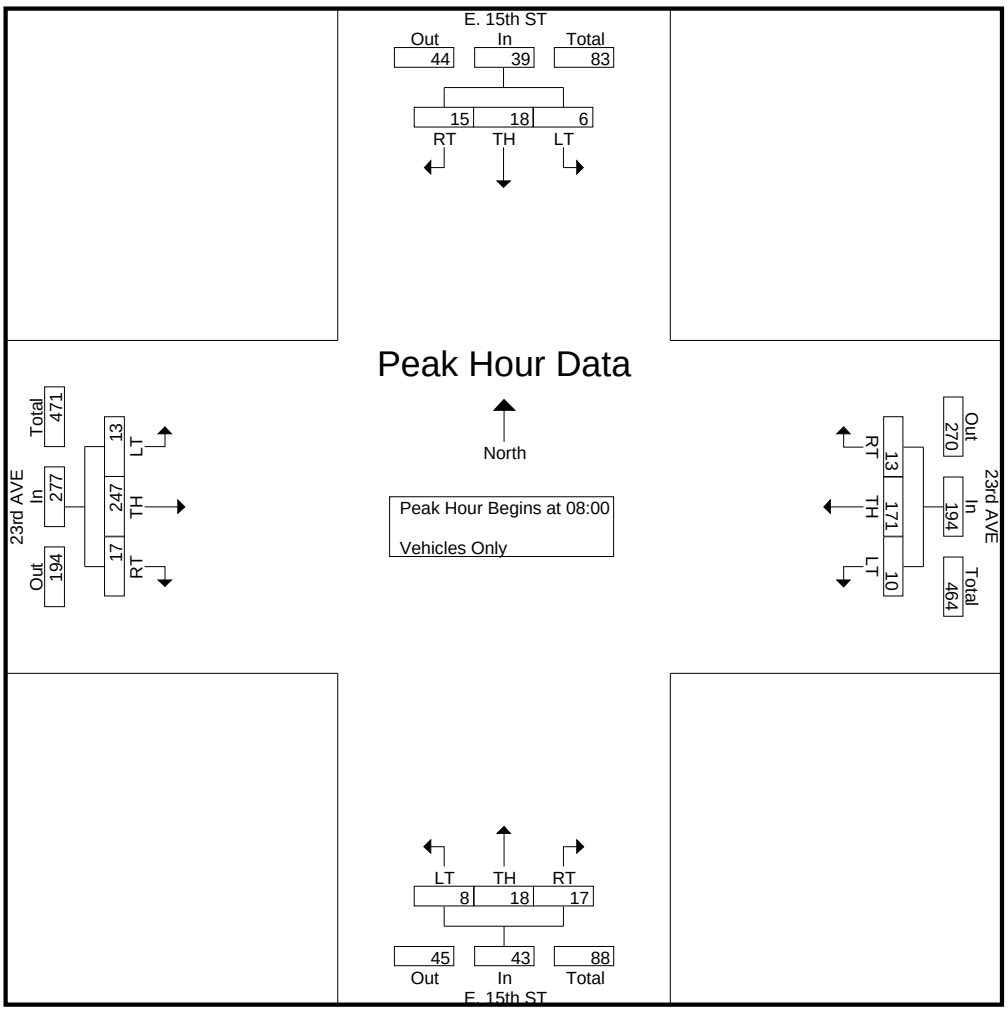
CITY OF OAKLAND
E. 15th St. & 23rd Ave.
Latitude: 37.784259
Longitude: -122.235158

File Name : 15-23-a
Site Code : 6
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	E. 15th ST Southbound				23rd AVE Westbound				E. 15th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	2	3	1	6	3	8	0	11	3	2	0	5	3	24	2	29	51
07:15	0	1	3	4	1	23	1	25	2	2	2	6	1	28	1	30	65
07:30	1	6	2	9	1	26	3	30	2	1	2	5	1	37	0	38	82
07:45	3	5	2	10	4	29	3	36	1	4	0	5	4	51	0	55	106
Total	6	15	8	29	9	86	7	102	8	9	4	21	9	140	3	152	304
08:00	6	5	3	14	1	44	3	48	4	2	1	7	4	58	3	65	134
08:15	2	5	1	8	5	49	3	57	6	4	2	12	5	64	1	70	147
08:30	3	7	1	11	5	42	2	49	3	8	1	12	4	67	4	75	147
08:45	4	1	1	6	2	36	2	40	4	4	4	12	4	58	5	67	125
Total	15	18	6	39	13	171	10	194	17	18	8	43	17	247	13	277	553
Grand Total	21	33	14	68	22	257	17	296	25	27	12	64	26	387	16	429	857
Apprch %	30.9	48.5	20.6		7.4	86.8	5.7		39.1	42.2	18.8		6.1	90.2	3.7		
Total %	2.5	3.9	1.6	7.9	2.6	30	2	34.5	2.9	3.2	1.4	7.5	3	45.2	1.9	50.1	

	E. 15th ST Southbound				23rd AVE Westbound				E. 15th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	**6**	5	**3**	**14**	1	44	**3**	48	4	2	1	7	4	58	3	65	134
08:15	2	5	1	8	**5**	**49**	3	**57**	**6**	4	2	**12**	**5**	64	1	70	**147**
08:30	3	**7**	1	11	5	42	2	49	3	**8**	1	12	4	**67**	4	**75**	147
08:45	4	1	1	6	2	36	2	40	4	4	**4**	12	4	58	**5**	67	125
Total Volume	15	18	6	39	13	171	10	194	17	18	8	43	17	247	13	277	553
% App. Total	38.5	46.2	15.4		6.7	88.1	5.2		39.5	41.9	18.6		6.1	89.2	4.7		
PHF	.625	.643	.500	.696	.650	.872	.833	.851	.708	.563	.500	.896	.850	.922	.650	.923	.940



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E. 15th St. & 23rd Ave.
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File Name : 15-23-p
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Groups Printed- Vehicles Only

	E. 15th ST Southbound				23rd AVE Westbound				E. 15th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	6	1	1	8	4	31	2	37	1	3	0	4	0	43	4	47	96
15:15	4	7	2	13	1	51	1	53	3	3	0	6	2	42	0	44	116
15:30	2	7	6	15	7	45	4	56	0	1	2	3	5	44	1	50	124
15:45	6	13	3	22	5	40	6	51	8	3	3	14	8	59	5	72	159
Total	18	28	12	58	17	167	13	197	12	10	5	27	15	188	10	213	495
16:00	3	11	3	17	2	43	3	48	3	5	3	11	2	54	1	57	133
16:15	3	8	3	14	1	40	6	47	3	2	2	7	3	66	2	71	139
16:30	7	6	3	16	1	44	3	48	3	3	0	6	5	64	1	70	140
16:45	4	10	9	23	1	40	4	45	2	4	2	8	7	53	4	64	140
Total	17	35	18	70	5	167	16	188	11	14	7	32	17	237	8	262	552
17:00	2	12	7	21	1	38	3	42	3	3	3	9	5	56	1	62	134
17:15	6	4	2	12	1	48	2	51	3	1	3	7	9	67	6	82	152
17:30	3	13	5	21	0	28	6	34	7	4	5	16	3	84	2	89	160
17:45	3	14	8	25	5	39	5	49	4	2	1	7	5	67	1	73	154
Total	14	43	22	79	7	153	16	176	17	10	12	39	22	274	10	306	600
Grand Total	49	106	52	207	29	487	45	561	40	34	24	98	54	699	28	781	1647
Apprch %	23.7	51.2	25.1		5.2	86.8	8		40.8	34.7	24.5		6.9	89.5	3.6		
Total %	3	6.4	3.2	12.6	1.8	29.6	2.7	34.1	2.4	2.1	1.5	6	3.3	42.4	1.7	47.4	

	E. 15th ST Southbound				23rd AVE Westbound				E. 15th ST Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	6	**13**	**3**	**22**	**5**	40	**6**	**51**	**8**	3	**3**	**14**	**8**	59	**5**	**72**	**159**
16:00	3	11	3	17	2	43	3	48	3	**5**	3	11	2	54	1	57	133
16:15	3	8	3	14	1	40	6	47	3	2	2	7	3	**66**	2	71	139
16:30	**7**	6	3	16	1	**44**	3	48	3	3	0	6	5	64	1	70	140
Total Volume	19	38	12	69	9	167	18	194	17	13	8	38	18	243	9	270	571
% App. Total	27.5	55.1	17.4		4.6	86.1	9.3		44.7	34.2	21.1		6.7	90	3.3		
PHF	.679	.731	1.00	.784	.450	.949	.750	.951	.531	.650	.667	.679	.563	.920	.450	.938	.898

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Site Code : 6
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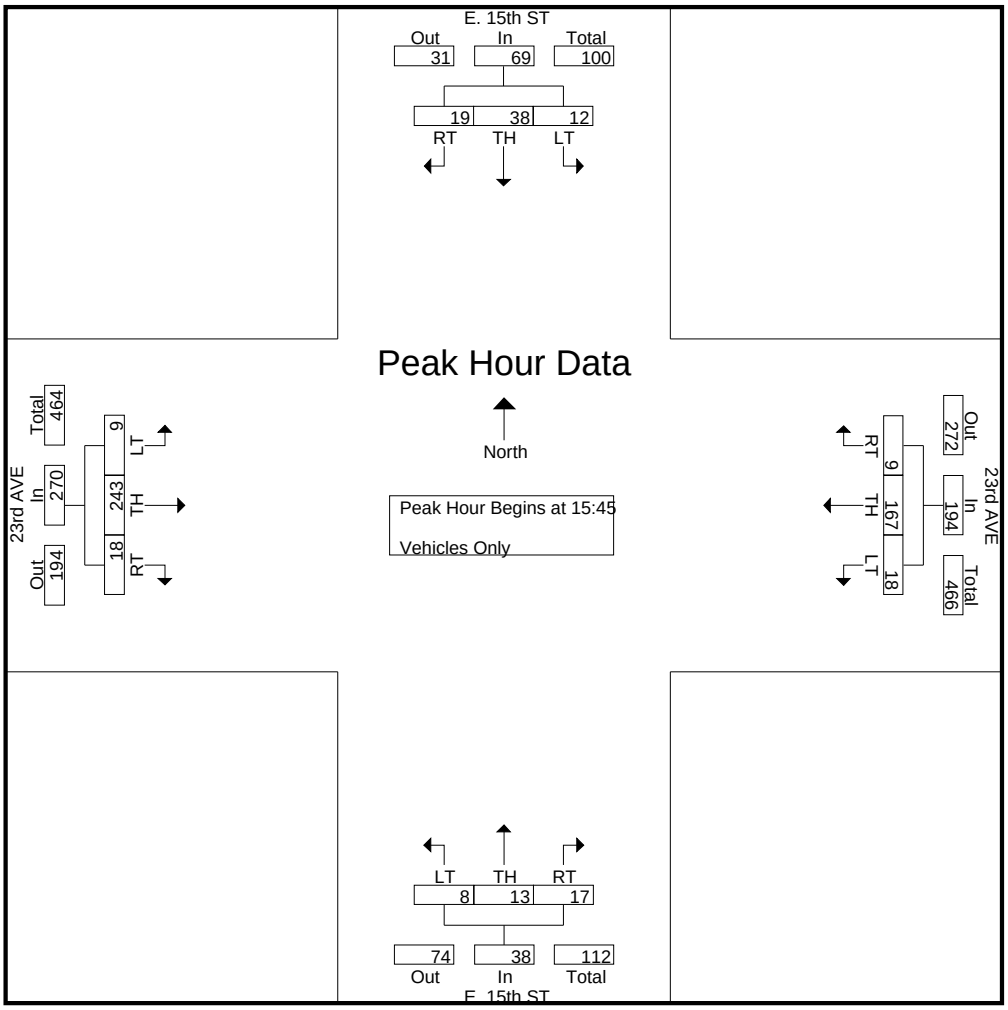
Page No : 2



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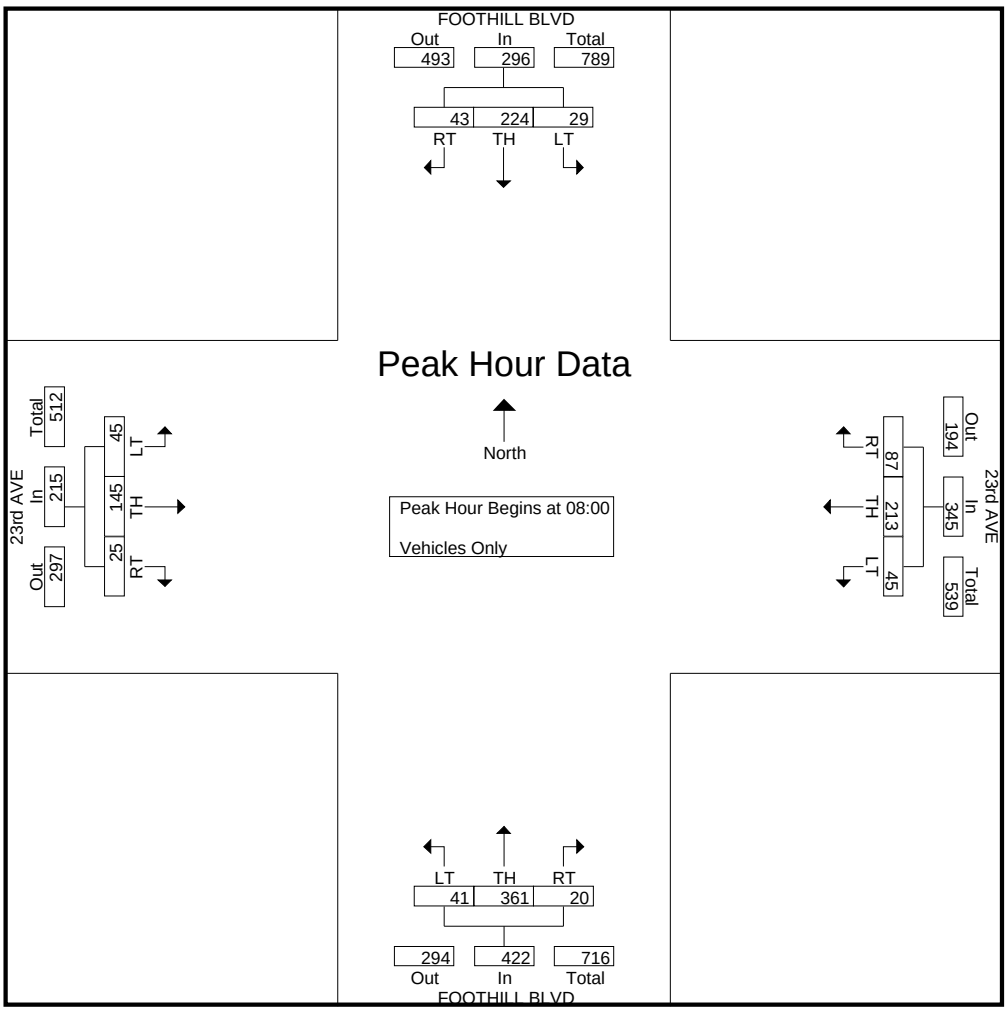
CITY OF OAKLAND
Foothill Blvd. & 23rd Ave.
Latitude: 37.785187
Longitude: -122.234128

File Name : foothill-23-a
Site Code : 5
Start Date : 8/17/2022
Page No : 1

Groups Printed- Vehicles Only

	FOOTHILL BLVD Southbound				23rd AVE Westbound				FOOTHILL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	2	19	2	23	8	24	8	40	2	54	1	57	3	8	1	12	132
07:15	3	31	1	35	11	24	4	39	6	39	1	46	4	20	1	25	145
07:30	5	28	4	37	10	32	3	45	4	71	2	77	1	23	4	28	187
07:45	2	48	5	55	13	50	5	68	2	81	3	86	4	29	2	35	244
Total	12	126	12	150	42	130	20	192	14	245	7	266	12	80	8	100	708
08:00	8	66	7	81	17	49	5	71	8	88	13	109	8	32	13	53	314
08:15	16	54	10	80	33	54	15	102	5	102	13	120	6	44	16	66	368
08:30	8	63	4	75	25	65	16	106	4	91	7	102	8	36	9	53	336
08:45	11	41	8	60	12	45	9	66	3	80	8	91	3	33	7	43	260
Total	43	224	29	296	87	213	45	345	20	361	41	422	25	145	45	215	1278
Grand Total	55	350	41	446	129	343	65	537	34	606	48	688	37	225	53	315	1986
Apprch %	12.3	78.5	9.2		24	63.9	12.1		4.9	88.1	7		11.7	71.4	16.8		
Total %	2.8	17.6	2.1	22.5	6.5	17.3	3.3	27	1.7	30.5	2.4	34.6	1.9	11.3	2.7	15.9	

	FOOTHILL BLVD Southbound				23rd AVE Westbound				FOOTHILL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	8	**66**	7	**81**	17	49	5	71	**8**	88	**13**	109	**8**	32	13	53	314
08:15	**16**	54	**10**	80	**33**	54	15	102	5	**102**	13	**120**	6	**44**	**16**	**66**	**368**
08:30	8	63	4	75	25	**65**	**16**	**106**	4	91	7	102	8	36	9	53	336
08:45	11	41	8	60	12	45	9	66	3	80	8	91	3	33	7	43	260
Total Volume	43	224	29	296	87	213	45	345	20	361	41	422	25	145	45	215	1278
% App. Total	14.5	75.7	9.8		25.2	61.7	13		4.7	85.5	9.7		11.6	67.4	20.9		
PHF	.672	.848	.725	.914	.659	.819	.703	.814	.625	.885	.788	.879	.781	.824	.703	.814	.868



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CITY OF OAKLAND
Foothill Blvd. & 23rd Ave.
Latitude: 37.785187
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File Name : foothill-23-p
Site Code : 5
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Groups Printed- Vehicles Only

	FOOTHILL BLVD Southbound				23rd AVE Westbound				FOOTHILL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
15:00	6	49	4	59	8	27	4	39	6	40	5	51	7	40	7	54	203
15:15	8	60	6	74	7	36	6	49	2	57	11	70	5	34	6	45	238
15:30	10	54	2	66	12	40	7	59	6	42	9	57	7	39	4	50	232
15:45	9	88	8	105	9	39	4	52	5	54	2	61	8	50	1	59	277
Total	33	251	20	304	36	142	21	199	19	193	27	239	27	163	18	208	950
16:00	12	80	5	97	11	37	7	55	3	62	3	68	8	49	2	59	279
16:15	8	66	6	80	4	32	6	42	5	63	6	74	8	56	10	74	270
16:30	6	67	10	83	12	38	4	54	9	40	8	57	11	52	5	68	262
16:45	9	89	9	107	3	43	5	51	5	50	4	59	5	51	2	58	275
Total	35	302	30	367	30	150	22	202	22	215	21	258	32	208	19	259	1086
17:00	11	73	17	101	3	34	5	42	3	55	9	67	8	54	7	69	279
17:15	11	83	9	103	8	39	14	61	1	58	3	62	7	65	6	78	304
17:30	9	83	6	98	14	35	8	57	5	45	2	52	13	66	1	80	287
17:45	14	76	10	100	12	38	14	64	4	41	6	51	14	56	6	76	291
Total	45	315	42	402	37	146	41	224	13	199	20	232	42	241	20	303	1161
Grand Total	113	868	92	1073	103	438	84	625	54	607	68	729	101	612	57	770	3197
Apprch %	10.5	80.9	8.6		16.5	70.1	13.4		7.4	83.3	9.3		13.1	79.5	7.4		
Total %	3.5	27.2	2.9	33.6	3.2	13.7	2.6	19.5	1.7	19	2.1	22.8	3.2	19.1	1.8	24.1	

	FOOTHILL BLVD Southbound				23rd AVE Westbound				FOOTHILL BLVD Northbound				23rd AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	9	**88**	8	**105**	9	**39**	4	52	5	54	2	61	8	50	1	59	277
16:00	**12**	80	5	97	11	37	**7**	**55**	3	62	3	68	8	49	2	59	**279**
16:15	8	66	6	80	4	32	6	42	5	**63**	6	**74**	8	**56**	**10**	**74**	270
16:30	6	67	**10**	83	**12**	38	4	54	**9**	40	**8**	57	**11**	52	5	68	262
Total Volume	35	301	29	365	36	146	21	203	22	219	19	260	35	207	18	260	1088
% App. Total	9.6	82.5	7.9		17.7	71.9	10.3		8.5	84.2	7.3		13.5	79.6	6.9		
PHF	.729	.855	.725	.869	.750	.936	.750	.923	.611	.869	.594	.878	.795	.924	.450	.878	.975

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CITY OF OAKLAND
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Latitude: 37.785187
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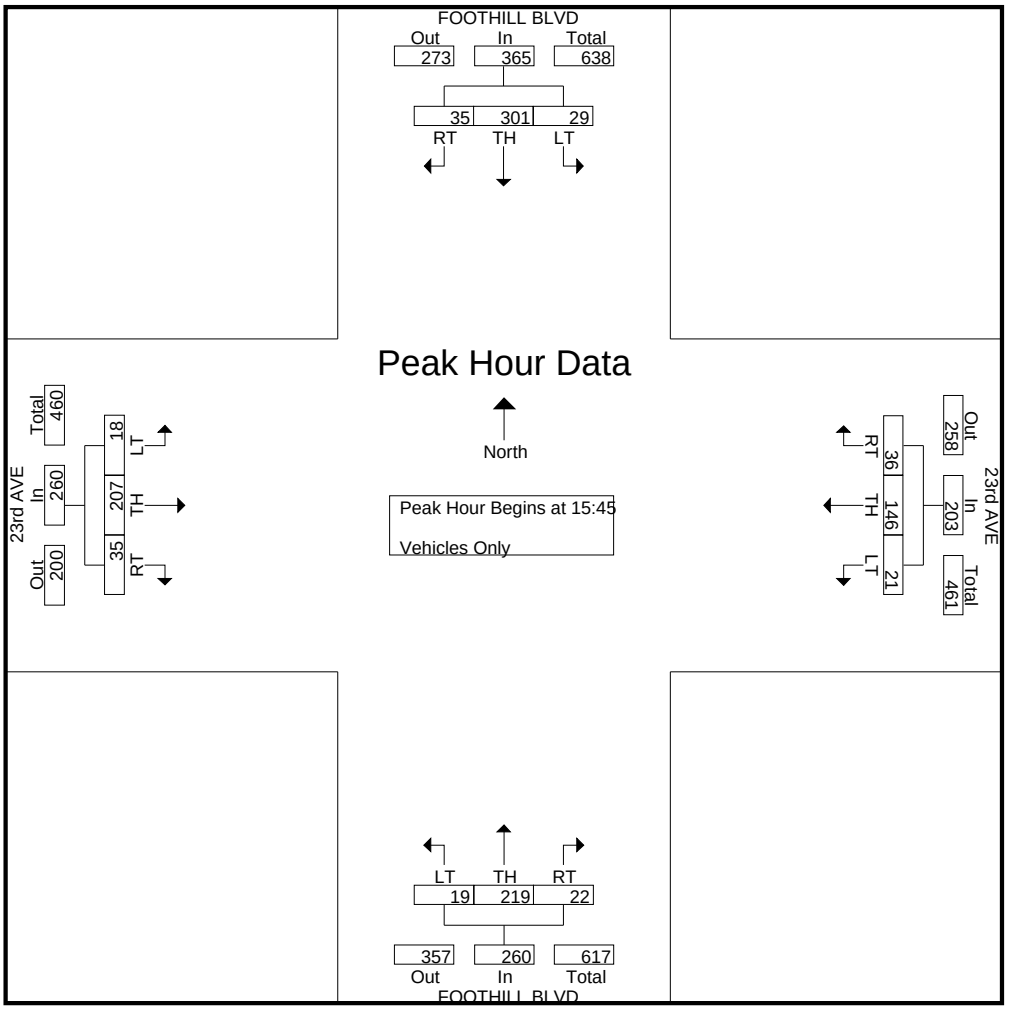
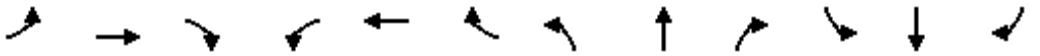
File Name : foothill-23-p
Site Code : 5
Start Date : 8/17/2022
Page No : 2



Appendix B Existing Conditions AM Synchro Level of Service Worksheets

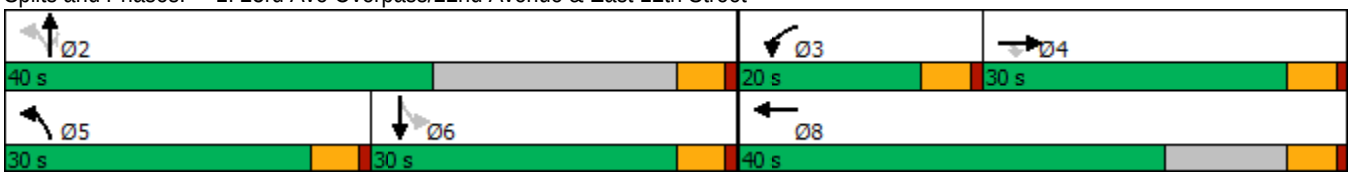


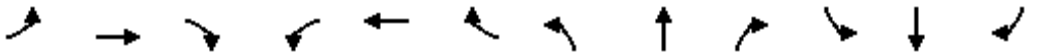
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	298	380	139	354	53	269	162	62	46	456	31
Future Volume (vph)	0	298	380	139	354	53	269	162	62	46	456	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		150	150		0	0		100	0		0
Storage Lanes	0		1	2		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99		1.00	
Frt			0.850		0.980				0.850		0.991	
Flt Protected				0.950			0.950				0.996	
Satd. Flow (prot)	0	5085	1583	3433	1822	0	1770	1863	1583	0	3377	0
Flt Permitted				0.950			0.263				0.911	
Satd. Flow (perm)	0	5085	1552	3433	1822	0	490	1863	1561	0	3088	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			380		8				69		5	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		489			688			376			392	
Travel Time (s)		9.5			13.4			8.5			10.7	
Confl. Peds. (#/hr)			1			2			2	2		
Confl. Bikes (#/hr)			6			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)												1
Adj. Flow (vph)	0	298	380	139	354	53	269	162	62	46	456	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	298	380	139	407	0	269	162	62	0	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Prot	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases			4				2		2	6		
Detector Phase		4	4	3	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)		7.0	7.0	5.0	8.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (%)		27.3%	27.3%	18.2%	36.4%		27.3%	36.4%	36.4%	27.3%	27.3%	
Maximum Green (s)		25.0	25.0	15.0	35.0		25.0	35.0	35.0	25.0	25.0	
Yellow Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)		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)		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag		Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode		Max	Max	None	Max		None	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0			
Flash Dont Walk (s)		11.0	11.0		10.0			25.0	25.0			
Pedestrian Calls (#/hr)		1	1		2			2	2			
Act Effct Green (s)		25.1	25.1	8.1	38.3		45.3	45.3	45.3		25.1	
Actuated g/C Ratio		0.27	0.27	0.09	0.41		0.48	0.48	0.48		0.27	
v/c Ratio		0.22	0.55	0.47	0.54		0.61	0.18	0.08		0.64	
Control Delay		28.3	6.7	47.0	24.7		21.0	14.3	3.1		35.2	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay		28.3	6.7	47.0	24.7		21.0	14.3	3.1		35.2	
LOS		C	A	D	C		C	B	A		D	
Approach Delay		16.2			30.4			16.5			35.2	
Approach LOS		B			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 93.6			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: 23rd Ave Overpass/22nd Avenue & East 12th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	298	380	139	354	53	269	162	62	46	456	31
Future Volume (veh/h)	0	298	380	139	354	53	269	162	62	46	456	31
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		0.99	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	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	298	0	139	354	53	269	162	62	46	456	31
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1446		249	653	98	453	888	752	104	806	54
Arrive On Green	0.00	0.28	0.00	0.07	0.41	0.41	0.13	0.47	0.47	0.28	0.28	0.28
Sat Flow, veh/h	0	5274	1585	3456	1586	237	1781	1870	1583	199	2846	191
Grp Volume(v), veh/h	0	298	0	139	0	407	269	162	62	291	0	242
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	0	1824	1781	1870	1583	1747	0	1488
Q Serve(g_s), s	0.0	3.9	0.0	3.4	0.0	14.9	8.6	4.4	1.9	5.7	0.0	12.3
Cycle Q Clear(g_c), s	0.0	3.9	0.0	3.4	0.0	14.9	8.6	4.4	1.9	12.3	0.0	12.3
Prop In Lane	0.00		1.00	1.00		0.13	1.00		1.00	0.16		0.13
Lane Grp Cap(c), veh/h	0	1446		249	0	751	453	888	752	542	0	422
V/C Ratio(X)	0.00	0.21		0.56	0.00	0.54	0.59	0.18	0.08	0.54	0.00	0.57
Avail Cap(c_a), veh/h	0	1446		587	0	751	717	888	752	542	0	422
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)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	0.0	39.6	0.0	19.7	17.5	13.3	12.7	26.9	0.0	27.1
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.7	0.0	2.8	0.5	0.5	0.2	3.8	0.0	5.6
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	0.0	1.6	0.0	1.4	0.0	6.5	3.4	1.9	0.7	5.7	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.4	0.0	40.3	0.0	22.4	17.9	13.8	12.9	30.7	0.0	32.7
LnGrp LOS	A	C		D	A	C	B	B	B	C	A	C
Approach Vol, veh/h		298			546			493			533	
Approach Delay, s/veh		24.4			27.0			15.9			31.6	
Approach LOS		C			C			B			C	

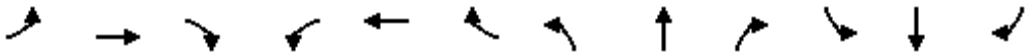
Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		46.9	11.4	30.0	16.9	30.0		41.4				
Change Period (Y+Rc), s		5.0	5.0	5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s		35.0	15.0	25.0	25.0	25.0		35.0				
Max Q Clear Time (g_c+I1), s		7.4	6.4	6.9	11.6	15.3		17.9				
Green Ext Time (p_c), s		0.7	0.1	1.2	0.3	1.7		1.4				

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

Notes

User approved changes to right turn type.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

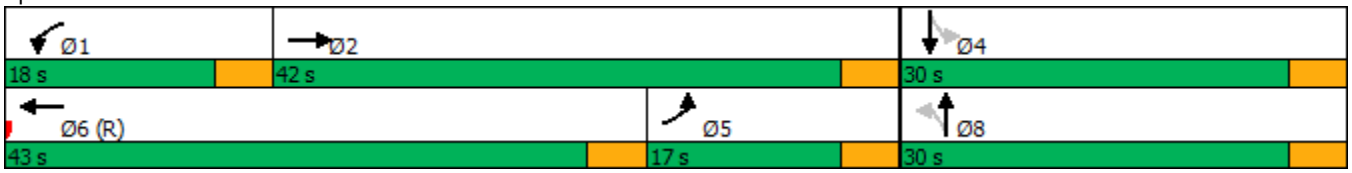


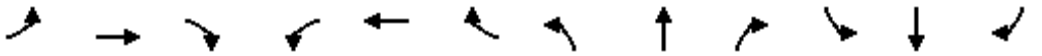
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	200	65	65	204	29	9	205	11	18	405	22
Future Volume (vph)	27	200	65	65	204	29	9	205	11	18	405	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	125		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.963			0.981			0.993			0.993	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1711	1728	0	1711	1763	0	0	3207	0	0	3208	0
Flt Permitted	0.950			0.950				0.933			0.937	
Satd. Flow (perm)	1711	1728	0	1711	1763	0	0	2997	0	0	3010	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			10			6			6	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		505			702			392			392	
Travel Time (s)		11.5			16.0			10.7			10.7	
Confl. Peds. (#/hr)			2			2	4		8	8		4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)								1			1	
Adj. Flow (vph)	27	200	65	65	204	29	9	205	11	18	405	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	265	0	65	233	0	0	225	0	0	445	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.12	1.04	1.04	1.12	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0		10.0	23.0		25.0	25.0		26.0	26.0	
Total Split (s)	17.0	42.0		18.0	43.0		30.0	30.0		30.0	30.0	
Total Split (%)	18.9%	46.7%		20.0%	47.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	13.0	38.0		14.0	39.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		15.0	15.0	
Pedestrian Calls (#/hr)		2			2		4	4		4	4	
Act Effct Green (s)	6.1	54.2		7.9	59.8			17.7			17.7	
Actuated g/C Ratio	0.07	0.60		0.09	0.66			0.20			0.20	
v/c Ratio	0.23	0.25		0.43	0.20			0.38			0.75	
Control Delay	44.0	10.3		49.1	4.6			31.5			41.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	44.0	10.3		49.1	4.6			31.5			41.4	
LOS	D	B		D	A			C			D	
Approach Delay		13.4			14.3			31.5			41.4	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 42 (47%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: 22nd Avenue & International Boulevard

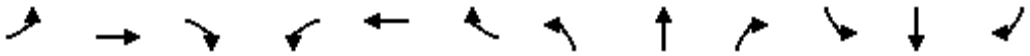




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	200	65	65	204	29	9	205	11	18	405	22
Future Volume (veh/h)	27	200	65	65	204	29	9	205	11	18	405	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
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	27	200	65	65	204	29	9	205	11	18	405	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	585	190	99	694	99	51	541	29	57	573	31
Arrive On Green	0.06	0.43	0.43	0.06	0.43	0.43	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	1351	439	1781	1601	228	45	3052	165	80	3233	173
Grp Volume(v), veh/h	27	0	265	65	0	233	114	0	111	234	0	211
Grp Sat Flow(s),veh/h/ln	1781	0	1791	1781	0	1829	1594	0	1668	1820	0	1666
Q Serve(g_s), s	1.3	0.0	8.9	3.2	0.0	7.4	0.1	0.0	5.3	4.1	0.0	10.8
Cycle Q Clear(g_c), s	1.3	0.0	8.9	3.2	0.0	7.4	10.9	0.0	5.3	10.8	0.0	10.8
Prop In Lane	1.00		0.25	1.00		0.12	0.08		0.10	0.08		0.10
Lane Grp Cap(c), veh/h	99	0	776	99	0	793	326	0	295	365	0	295
V/C Ratio(X)	0.27	0.00	0.34	0.65	0.00	0.29	0.35	0.00	0.38	0.64	0.00	0.72
Avail Cap(c_a), veh/h	257	0	776	277	0	793	520	0	482	565	0	481
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	1.00	0.97	0.00	0.97	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	17.0	41.6	0.0	16.6	32.5	0.0	32.6	34.9	0.0	34.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	2.6	0.0	0.9	0.2	0.0	0.3	0.7	0.0	1.2
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	0.6	0.0	3.5	1.5	0.0	3.2	2.2	0.0	2.2	4.9	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	17.1	44.3	0.0	17.5	32.7	0.0	32.9	35.6	0.0	36.1
LnGrp LOS	D	A	B	D	A	B	C	A	C	D	A	D
Approach Vol, veh/h		292			298			225			445	
Approach Delay, s/veh		19.3			23.3			32.8			35.8	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	43.0		19.9	9.0	43.0		19.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	14.0	38.0		26.0	13.0	39.0		26.0				
Max Q Clear Time (g_c+I1), s	6.2	11.9		13.8	4.3	10.4		13.9				
Green Ext Time (p_c), s	0.0	1.0		1.5	0.0	0.9		0.7				

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	54	9	17	13	36	198	20	13	414	11
Future Volume (vph)	12	19	54	9	17	13	36	198	20	13	414	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Grade (%)		0%			0%			1%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.914			0.955			0.988			0.996	
Flt Protected		0.993			0.989			0.993			0.999	
Satd. Flow (prot)	0	1505	0	0	1566	0	0	3164	0	0	3242	0
Flt Permitted		0.993			0.989			0.993			0.999	
Satd. Flow (perm)	0	1505	0	0	1566	0	0	3164	0	0	3242	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		433			717			392			375	
Travel Time (s)		11.8			19.6			10.7			10.2	
Confl. Peds. (#/hr)	2		2	2		2	18		16	16		18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			2			1			1	
Adj. Flow (vph)	12	19	54	9	17	13	36	198	20	13	414	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	39	0	0	254	0	0	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.16	1.00	1.00	1.16	1.00	1.05	1.13	1.05	1.04	1.11	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	12	19	54	9	17	13	36	198	20	13	414	11
Future Vol, veh/h	12	19	54	9	17	13	36	198	20	13	414	11
Conflicting Peds, #/hr	2	0	2	2	0	2	18	0	16	16	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	1	-	-	-1	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	19	54	9	17	13	36	198	20	13	414	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	646	770	233	541	765	127	443	0	0	234	0	0
Stage 1	464	464	-	296	296	-	-	-	-	-	-	-
Stage 2	182	306	-	245	469	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	357	330	769	424	332	900	1113	-	-	1331	-	-
Stage 1	548	562	-	688	667	-	-	-	-	-	-	-
Stage 2	802	660	-	737	559	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	318	303	754	354	305	885	1094	-	-	1311	-	-
Mov Cap-2 Maneuver	318	303	-	354	305	-	-	-	-	-	-	-
Stage 1	518	545	-	652	632	-	-	-	-	-	-	-
Stage 2	738	626	-	651	542	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.8	14.8	1.3	0.2
HCM LOS	B	B		

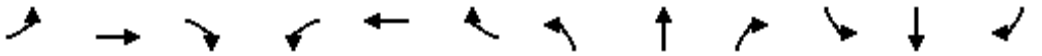
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1094	-	-	494	407	1311	-	-
HCM Lane V/C Ratio	0.033	-	-	0.172	0.096	0.01	-	-
HCM Control Delay (s)	8.4	0.1	-	13.8	14.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.3	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	231	61	139	307	41	64	115	42	16	228	11
Future Volume (vph)	24	231	61	139	307	41	64	115	42	16	228	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	11	11	12	12	12
Grade (%)		0%			0%			1%			-1%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96	0.99		0.99	0.99		0.95	0.95			0.99	
Frt		0.969			0.982			0.960			0.994	
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1652	1674	0	1652	1496	0	1702	1467	0	0	1652	0
Flt Permitted	0.514			0.561			0.507				0.980	
Satd. Flow (perm)	858	1674	0	964	1496	0	859	1467	0	0	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			18			30			4	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		319			757			375			149	
Travel Time (s)		7.3			17.2			10.2			4.1	
Confl. Peds. (#/hr)	77		35	35		77	52		77	77		52
Confl. Bikes (#/hr)			4						15			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)			1		3			1			1	
Adj. Flow (vph)	24	231	61	139	307	41	64	115	42	16	228	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	292	0	139	348	0	64	157	0	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.27	1.09	1.05	1.21	1.05	0.99	1.15	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	40.0	40.0		40.0	40.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		23.0	23.0		23.0	23.0	
Total Split (%)	63.5%	63.5%		63.5%	63.5%		36.5%	36.5%		36.5%	36.5%	
Maximum Green (s)	36.0	36.0		36.0	36.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	25.0	25.0		25.0	25.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	10	10		15	15		15	15		12	12	
Act Effct Green (s)	36.0	36.0		36.0	36.0		19.0	19.0			19.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.30	0.30			0.30	
v/c Ratio	0.05	0.30		0.25	0.40		0.25	0.34			0.52	
Control Delay	6.3	7.1		8.3	8.8		19.8	16.2			22.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.3	7.1		8.3	8.8		19.8	16.2			22.6	
LOS	A	A		A	A		B	B			C	
Approach Delay		7.0			8.7			17.2			22.6	
Approach LOS		A			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 63			
Actuated Cycle Length: 63			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

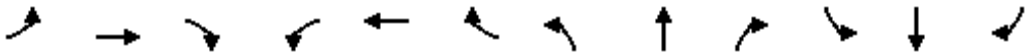
Splits and Phases: 4: 22nd Avenue & Foothill Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	231	61	139	307	41	64	115	42	16	228	11
Future Volume (veh/h)	24	231	61	139	307	41	64	115	42	16	228	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	0.98		0.93	0.93		0.84	0.91		0.87
Parking Bus, Adj	1.00	1.00	0.89	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	1864	1864	1864	1909	1909	1909
Adj Flow Rate, veh/h	24	231	61	139	307	41	64	115	42	16	228	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	581	720	190	618	914	122	420	371	136	77	516	24
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	994	1260	333	1060	1600	214	1060	1232	450	54	1711	80
Grp Volume(v), veh/h	24	0	292	139	0	348	64	0	157	255	0	0
Grp Sat Flow(s),veh/h/ln	994	0	1592	1060	0	1814	1060	0	1682	1845	0	0
Q Serve(g_s), s	0.8	0.0	6.1	5.0	0.0	6.4	0.0	0.0	4.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.2	0.0	6.1	11.1	0.0	6.4	3.2	0.0	4.5	6.9	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.12	1.00		0.27	0.06		0.04
Lane Grp Cap(c), veh/h	581	0	910	618	0	1036	420	0	507	617	0	0
V/C Ratio(X)	0.04	0.00	0.32	0.22	0.00	0.34	0.15	0.00	0.31	0.41	0.00	0.00
Avail Cap(c_a), veh/h	581	0	910	618	0	1036	420	0	507	617	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.1	0.0	7.1	10.0	0.0	7.2	16.5	0.0	16.9	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	0.8	0.0	0.9	0.8	0.0	1.6	2.0	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	0.2	0.0	1.9	1.2	0.0	2.2	0.7	0.0	1.9	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	8.0	10.8	0.0	8.0	17.3	0.0	18.5	19.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		316			487			221			255	
Approach Delay, s/veh		8.1			8.8			18.2			19.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		40.0		23.0		40.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0		36.0		19.0		36.0				
Max Q Clear Time (g_c+I1), s		7.5		10.2		9.9		14.1				
Green Ext Time (p_c), s		0.9		1.9		1.0		2.8				

Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

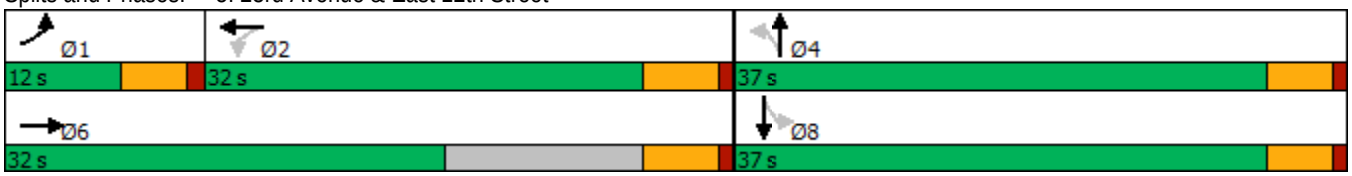


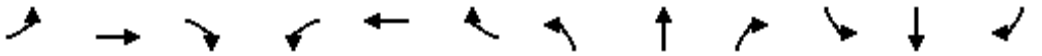
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	374	2	2	506	98	1	1	1	118	0	105
Future Volume (vph)	72	374	2	2	506	98	1	1	1	118	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Storage Length (ft)	135		40	0		100	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.999			0.976			0.955			0.936	
Flt Protected	0.950							0.984			0.974	
Satd. Flow (prot)	1770	3535	0	0	3267	0	0	1683	0	0	1469	0
Flt Permitted	0.950				0.954			0.909			0.833	
Satd. Flow (perm)	1770	3535	0	0	3117	0	0	1555	0	0	1254	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			29			1			101	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		688			605			163			371	
Travel Time (s)		13.4			11.8			4.4			10.1	
Confl. Peds. (#/hr)			1	1		1			5	5		
Confl. Bikes (#/hr)			3			4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)					0						1	
Adj. Flow (vph)	72	374	2	2	506	98	1	1	1	118	0	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	376	0	0	606	0	0	3	0	0	223	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases				2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	23.5		23.5	23.5		37.0	37.0		37.0	37.0	
Total Split (s)	12.0	32.0		32.0	32.0		37.0	37.0		37.0	37.0	
Total Split (%)	14.8%	39.5%		39.5%	39.5%		45.7%	45.7%		45.7%	45.7%	
Maximum Green (s)	7.0	26.5		26.5	26.5		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	5.0	5.5			5.5			5.0			5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Max		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		7.0	7.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		1		1	1		5	5		0	0	
Act Effct Green (s)	7.3	36.6			30.1			9.2			12.7	
Actuated g/C Ratio	0.12	0.61			0.50			0.15			0.21	
v/c Ratio	0.34	0.17			0.39			0.01			0.65	
Control Delay	33.4	7.1			13.4			17.7			20.7	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	33.4	7.1			13.4			17.7			20.7	
LOS	C	A			B			B			C	
Approach Delay		11.3			13.4			17.7			20.7	
Approach LOS		B			B			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 81	
Actuated Cycle Length: 60.2	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: 23rd Avenue & East 12th Street

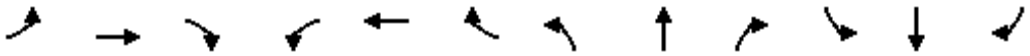




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	374	2	2	506	98	1	1	1	118	0	105
Future Volume (veh/h)	72	374	2	2	506	98	1	1	1	118	0	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
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	72	374	2	2	506	98	1	1	1	118	0	105
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	2213	12	62	1289	247	164	156	120	253	6	149
Arrive On Green	0.08	0.61	0.61	0.44	0.44	0.44	0.21	0.21	0.21	0.21	0.00	0.21
Sat Flow, veh/h	1781	3624	19	2	2896	556	391	733	562	755	30	699
Grp Volume(v), veh/h	72	183	193	326	0	280	3	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1869	0	1586	1686	0	0	1485	0	0
Q Serve(g_s), s	2.3	2.7	2.7	0.0	0.0	7.1	0.0	0.0	0.0	7.8	0.0	0.0
Cycle Q Clear(g_c), s	2.3	2.7	2.7	7.0	0.0	7.1	0.1	0.0	0.0	8.3	0.0	0.0
Prop In Lane	1.00		0.01	0.01		0.35	0.33		0.33	0.53		0.47
Lane Grp Cap(c), veh/h	146	1085	1140	892	0	706	440	0	0	409	0	0
V/C Ratio(X)	0.49	0.17	0.17	0.37	0.00	0.40	0.01	0.00	0.00	0.55	0.00	0.00
Avail Cap(c_a), veh/h	209	1085	1140	892	0	706	938	0	0	888	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.2	5.0	5.0	11.1	0.0	11.1	18.5	0.0	0.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.3	0.3	1.2	0.0	1.7	0.0	0.0	0.0	0.4	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	0.9	0.8	0.8	2.7	0.0	2.4	0.0	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	5.4	5.4	12.3	0.0	12.8	18.5	0.0	0.0	22.1	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	B	A	A	C	A	A
Approach Vol, veh/h		448			606			3			223	
Approach Delay, s/veh		8.9			12.5			18.5			22.1	
Approach LOS		A			B			B			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.9	32.0		17.7		41.9		17.7				
Change Period (Y+Rc), s	5.0	5.5		5.0		5.5		5.0				
Max Green Setting (Gmax), s	7.0	26.5		32.0		26.5		32.0				
Max Q Clear Time (g_c+I1), s	5.3	10.1		3.1		5.7		11.3				
Green Ext Time (p_c), s	0.0	2.1		0.0		1.3		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									

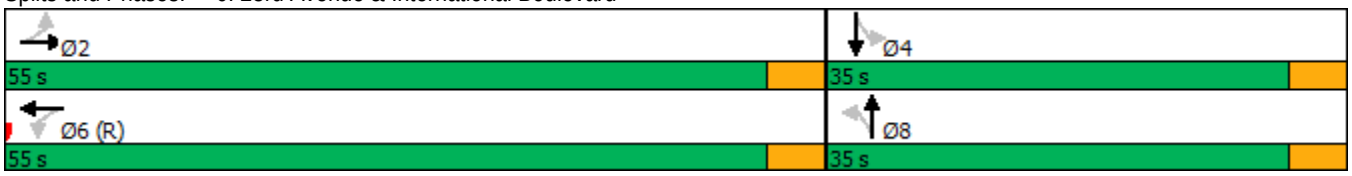


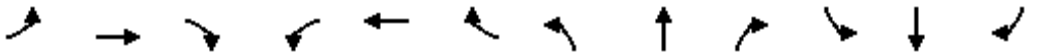
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	207	17	7	257	29	7	140	8	52	171	25
Future Volume (vph)	6	207	17	7	257	29	7	140	8	52	171	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			1.00			0.99	
Frt		0.990			0.987			0.993			0.986	
Flt Protected		0.999			0.999			0.998			0.990	
Satd. Flow (prot)	0	1578	0	0	1567	0	0	1603	0	0	1568	0
Flt Permitted		0.993			0.994			0.986			0.899	
Satd. Flow (perm)	0	1568	0	0	1559	0	0	1583	0	0	1421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			10			3			7	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		702			831			371			394	
Travel Time (s)		16.0			18.9			10.1			10.7	
Confl. Peds. (#/hr)			12			36	5		7	7		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			1			0			1	
Adj. Flow (vph)	6	207	17	7	257	29	7	140	8	52	171	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	230	0	0	293	0	0	155	0	0	248	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.21	1.04	1.04	1.20	1.04	1.04	1.19	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		24.0	24.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	51.0	51.0		51.0	51.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		C-Max	C-Max		None	None		None	None	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0		12.0	12.0		13.0	13.0	
Pedestrian Calls (#/hr)	8	8		20	20		6	6		4	4	
Act Effct Green (s)		62.4			62.4			19.6			19.6	
Actuated g/C Ratio		0.69			0.69			0.22			0.22	
v/c Ratio		0.21			0.27			0.45			0.79	
Control Delay		7.3			6.8			32.5			49.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.3			6.8			32.5			49.1	
LOS		A			A			C			D	
Approach Delay		7.3			6.8			32.5			49.1	
Approach LOS		A			A			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 23 (26%), Referenced to phase 6:WBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 52.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: 23rd Avenue & International Boulevard

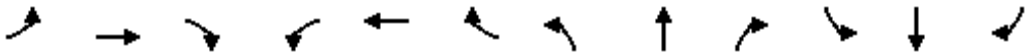




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	207	17	7	257	29	7	140	8	52	171	25
Future Volume (veh/h)	6	207	17	7	257	29	7	140	8	52	171	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.97	0.99		0.98	0.99		0.98
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	6	207	17	7	257	29	7	140	8	52	171	25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	955	77	48	923	102	48	316	18	102	233	32
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	14	1685	136	13	1629	180	35	1710	95	293	1262	174
Grp Volume(v), veh/h	230	0	0	293	0	0	155	0	0	248	0	0
Grp Sat Flow(s),veh/h/ln	1834	0	0	1823	0	0	1840	0	0	1729	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	7.4	0.0	0.0	6.7	0.0	0.0	12.1	0.0	0.0
Prop In Lane	0.03		0.07	0.02		0.10	0.05		0.05	0.21		0.10
Lane Grp Cap(c), veh/h	1081	0	0	1074	0	0	382	0	0	368	0	0
V/C Ratio(X)	0.21	0.00	0.00	0.27	0.00	0.00	0.41	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	1081	0	0	1074	0	0	670	0	0	632	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)	0.98	0.00	0.00	1.00	0.00	0.00	0.96	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.7	0.0	0.0	10.1	0.0	0.0	32.7	0.0	0.0	34.7	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	0.0	0.0	10.7	0.0	0.0	32.9	0.0	0.0	35.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		230			293			155			248	
Approach Delay, s/veh		10.1			10.7			32.9			35.5	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	55.0	20.6	55.0	20.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	51.0	31.0	51.0	31.0
Max Q Clear Time (g_c+I1), s	8.6	15.1	10.4	9.7
Green Ext Time (p_c), s	0.9	0.9	1.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	18	15	8	18	17	13	247	17	10	171	13
Future Volume (vph)	6	18	15	8	18	17	13	247	17	10	171	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.948			0.947			0.992			0.991	
Flt Protected		0.992			0.991			0.998			0.997	
Satd. Flow (prot)	0	1568	0	0	1565	0	0	1595	0	0	1592	0
Flt Permitted		0.992			0.991			0.998			0.997	
Satd. Flow (perm)	0	1568	0	0	1565	0	0	1595	0	0	1592	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		717			577			394			452	
Travel Time (s)		19.6			15.7			10.7			12.3	
Confl. Peds. (#/hr)	6		17	17		6	23		27	27		23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		1			1			1			1	
Adj. Flow (vph)	6	18	15	8	18	17	13	247	17	10	171	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	0	43	0	0	277	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.15	1.00	1.00	1.15	1.00	1.04	1.20	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

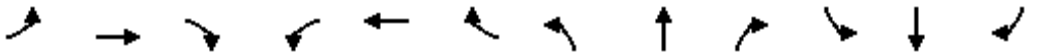
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	18	15	8	18	17	13	247	17	10	171	13
Future Vol, veh/h	6	18	15	8	18	17	13	247	17	10	171	13
Conflicting Peds, #/hr	6	0	17	17	0	6	23	0	27	27	0	23
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	18	15	8	18	17	13	247	17	10	171	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	526	538	218	540	536	289	207	0	0	291	0	0
Stage 1	221	221	-	309	309	-	-	-	-	-	-	-
Stage 2	305	317	-	231	227	-	-	-	-	-	-	-
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	462	450	822	453	451	750	1364	-	-	1271	-	-
Stage 1	781	720	-	701	660	-	-	-	-	-	-	-
Stage 2	705	654	-	772	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	418	420	792	406	421	727	1334	-	-	1238	-	-
Mov Cap-2 Maneuver	418	420	-	406	421	-	-	-	-	-	-	-
Stage 1	755	698	-	676	636	-	-	-	-	-	-	-
Stage 2	658	630	-	720	694	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	12.9	0.4	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1334	-	-	512	501	1238	-	-
HCM Lane V/C Ratio	0.01	-	-	0.076	0.086	0.008	-	-
HCM Control Delay (s)	7.7	0	-	12.6	12.9	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3	0	-	-

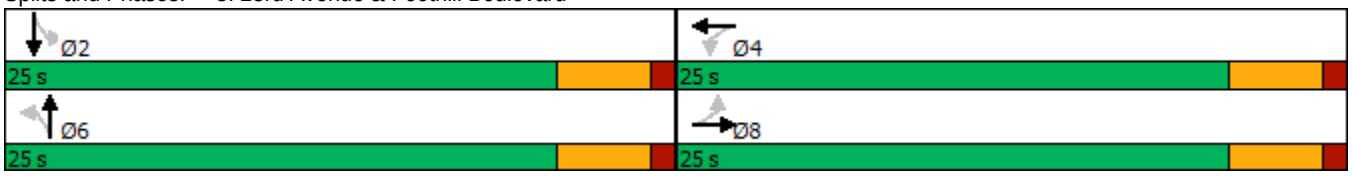


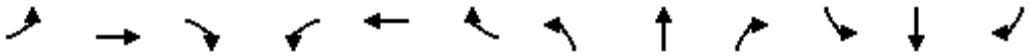
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	224	43	41	361	20	45	145	25	45	213	87
Future Volume (vph)	29	224	43	41	361	20	45	145	25	45	213	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			0.99			0.98	
Frt		0.980			0.994			0.984			0.966	
Flt Protected		0.995			0.995			0.990			0.994	
Satd. Flow (prot)	0	1620	0	0	1643	0	0	1744	0	0	1524	0
Flt Permitted		0.940			0.947			0.883			0.940	
Satd. Flow (perm)	0	1527	0	0	1560	0	0	1549	0	0	1438	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			6			16			41	
Link Speed (mph)		30			25			25			25	
Link Distance (ft)		757			336			452			200	
Travel Time (s)		17.2			9.2			12.3			5.5	
Confl. Peds. (#/hr)	34		24	24		34	32		23	23		32
Confl. Bikes (#/hr)			3									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		0			1						1	
Adj. Flow (vph)	29	224	43	41	361	20	45	145	25	45	213	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	0	0	422	0	0	215	0	0	345	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.14	1.00	1.00	1.15	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	16	16		21	21		15	15		20	20	
Act Effct Green (s)		20.5			20.5			20.5			20.5	
Actuated g/C Ratio		0.41			0.41			0.41			0.41	
v/c Ratio		0.46			0.66			0.33			0.56	
Control Delay		12.9			17.7			11.1			14.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.9			17.7			11.1			14.2	
LOS		B			B			B			B	
Approach Delay		12.9			17.7			11.1			14.2	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: 23rd Avenue & Foothill Boulevard



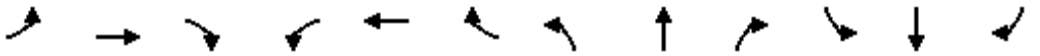


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	224	43	41	361	20	45	145	25	45	213	87
Future Volume (veh/h)	29	224	43	41	361	20	45	145	25	45	213	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.94	0.98		0.96	0.98		0.96	0.97		0.96
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	29	224	43	41	361	20	45	145	25	45	213	87
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	570	103	120	653	35	177	512	79	136	465	175
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	86	1391	251	101	1594	84	220	1248	193	133	1135	428
Grp Volume(v), veh/h	296	0	0	422	0	0	215	0	0	345	0	0
Grp Sat Flow(s),veh/h/ln	1728	0	0	1779	0	0	1661	0	0	1695	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	0.0	0.0	8.8	0.0	0.0	3.9	0.0	0.0	7.1	0.0	0.0
Prop In Lane	0.10		0.15	0.10		0.05	0.21		0.12	0.13		0.25
Lane Grp Cap(c), veh/h	788	0	0	808	0	0	768	0	0	776	0	0
V/C Ratio(X)	0.38	0.00	0.00	0.52	0.00	0.00	0.28	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	788	0	0	808	0	0	768	0	0	776	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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.4	0.0	0.0	11.3	0.0	0.0	9.9	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	2.4	0.0	0.0	0.1	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	3.6	0.0	0.0	1.4	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	13.7	0.0	0.0	9.9	0.0	0.0	12.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	B	A	A
Approach Vol, veh/h		296			422			215			345	
Approach Delay, s/veh		11.8			13.7			9.9			12.7	
Approach LOS		B			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.5		20.5		20.5		20.5				
Max Q Clear Time (g_c+I1), s		10.1		11.8		6.9		8.8				
Green Ext Time (p_c), s		1.1		1.3		0.7		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			12.3									
HCM 6th LOS			B									

Appendix C Existing Conditions PM Synchro Level of Service Worksheets

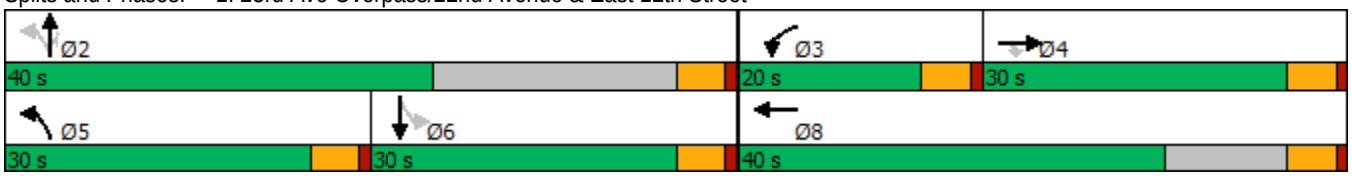


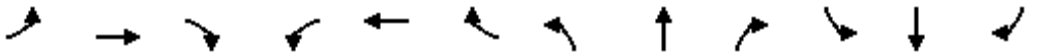
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	642	450	116	301	95	281	274	100	36	284	23
Future Volume (vph)	0	642	450	116	301	95	281	274	100	36	284	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		150	150		0	0		100	0		0
Storage Lanes	0		1	2		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99		1.00	
Frt			0.850		0.964				0.850		0.990	
Flt Protected				0.950			0.950				0.995	
Satd. Flow (prot)	0	5085	1583	3433	1788	0	1770	1863	1583	0	3370	0
Flt Permitted				0.950			0.407				0.893	
Satd. Flow (perm)	0	5085	1548	3433	1788	0	758	1863	1561	0	3024	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			450		17				100		6	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		489			688			376			392	
Travel Time (s)		9.5			13.4			8.5			10.7	
Confl. Peds. (#/hr)			4			2			2	2		
Confl. Bikes (#/hr)			3			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)												1
Adj. Flow (vph)	0	642	450	116	301	95	281	274	100	36	284	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	642	450	116	396	0	281	274	100	0	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Prot	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases			4				2		2	6		
Detector Phase		4	4	3	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)		7.0	7.0	5.0	8.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (%)		27.3%	27.3%	18.2%	36.4%		27.3%	36.4%	36.4%	27.3%	27.3%	
Maximum Green (s)		25.0	25.0	15.0	35.0		25.0	35.0	35.0	25.0	25.0	
Yellow Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)		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)		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag		Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode		Max	Max	None	Max		None	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0			
Flash Dont Walk (s)		11.0	11.0		10.0			25.0	25.0			
Pedestrian Calls (#/hr)		1	1		2			2	2			
Act Effct Green (s)		25.1	25.1	7.5	37.7		45.9	45.9	45.9		25.1	
Actuated g/C Ratio		0.27	0.27	0.08	0.40		0.49	0.49	0.49		0.27	
v/c Ratio		0.47	0.60	0.42	0.54		0.52	0.30	0.12		0.42	
Control Delay		31.0	7.1	46.9	24.6		18.3	15.3	3.1		30.8	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay		31.0	7.1	46.9	24.6		18.3	15.3	3.1		30.8	
LOS		C	A	D	C		B	B	A		C	
Approach Delay		21.1			29.7			14.7			30.8	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 93.6			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 60			

Splits and Phases: 1: 23rd Ave Overpass/22nd Avenue & East 12th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	642	450	116	301	95	281	274	100	36	284	23
Future Volume (veh/h)	0	642	450	116	301	95	281	274	100	36	284	23
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		0.98	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	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	642	0	116	301	95	281	274	100	36	284	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1453		221	550	174	545	899	761	109	780	62
Arrive On Green	0.00	0.28	0.00	0.06	0.41	0.41	0.14	0.48	0.48	0.28	0.28	0.28
Sat Flow, veh/h	0	5274	1585	3456	1357	428	1781	1870	1583	213	2740	218
Grp Volume(v), veh/h	0	642	0	116	0	396	281	274	100	187	0	156
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	0	1786	1781	1870	1583	1688	0	1483
Q Serve(g_s), s	0.0	9.0	0.0	2.9	0.0	14.9	8.9	7.8	3.1	0.0	0.0	7.4
Cycle Q Clear(g_c), s	0.0	9.0	0.0	2.9	0.0	14.9	8.9	7.8	3.1	7.0	0.0	7.4
Prop In Lane	0.00		1.00	1.00		0.24	1.00		1.00	0.19		0.15
Lane Grp Cap(c), veh/h	0	1453		221	0	724	545	899	761	529	0	422
V/C Ratio(X)	0.00	0.44		0.53	0.00	0.55	0.52	0.30	0.13	0.35	0.00	0.37
Avail Cap(c_a), veh/h	0	1453		590	0	724	803	899	761	529	0	422
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)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	25.7	0.0	39.8	0.0	20.0	16.2	13.9	12.6	25.0	0.0	25.1
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.7	0.0	3.0	0.3	0.9	0.4	1.9	0.0	2.5
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	0.0	3.6	0.0	1.2	0.0	6.4	3.5	3.4	1.1	3.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	26.7	0.0	40.6	0.0	23.0	16.4	14.7	13.0	26.8	0.0	27.6
LnGrp LOS	A	C		D	A	C	B	B	B	C	A	C
Approach Vol, veh/h		642			512			655			343	
Approach Delay, s/veh		26.7			26.9			15.2			27.2	
Approach LOS		C			C			B			C	

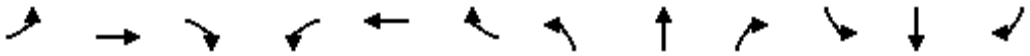
Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		47.2	10.6	30.0	17.2	30.0		40.6				
Change Period (Y+Rc), s		5.0	5.0	5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s		35.0	15.0	25.0	25.0	25.0		35.0				
Max Q Clear Time (g_c+I1), s		10.8	5.9	12.0	11.9	10.4		17.9				
Green Ext Time (p_c), s		1.2	0.1	2.4	0.3	1.2		1.4				

Intersection Summary		
HCM 6th Ctrl Delay		23.3
HCM 6th LOS		C

Notes

User approved changes to right turn type.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

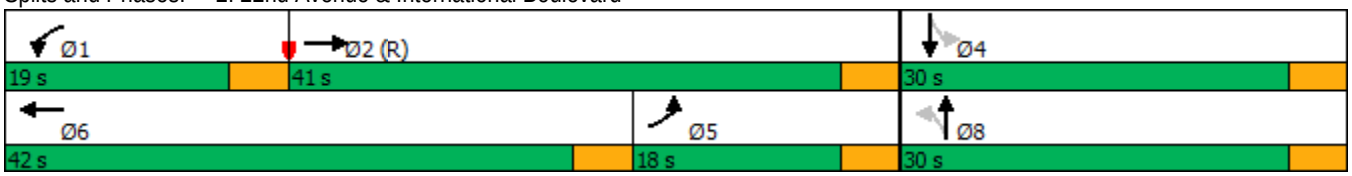


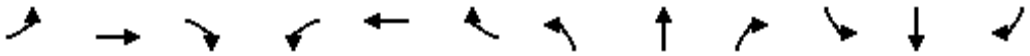
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	321	66	70	162	32	34	300	44	45	243	35
Future Volume (vph)	45	321	66	70	162	32	34	300	44	45	243	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	125		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.974			0.975			0.983			0.984	
Flt Protected	0.950			0.950				0.996			0.993	
Satd. Flow (prot)	1711	1746	0	1711	1751	0	0	3163	0	0	3158	0
Flt Permitted	0.950			0.950				0.883			0.772	
Satd. Flow (perm)	1711	1746	0	1711	1751	0	0	2803	0	0	2453	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			14			16			15	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		505			702			392			392	
Travel Time (s)		11.5			16.0			10.7			10.7	
Confl. Peds. (#/hr)			10			4	4		4	4		4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)								1			1	
Adj. Flow (vph)	45	321	66	70	162	32	34	300	44	45	243	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	387	0	70	194	0	0	378	0	0	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.12	1.04	1.04	1.12	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0		10.0	23.0		25.0	25.0		26.0	26.0	
Total Split (s)	18.0	41.0		19.0	42.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	45.6%		21.1%	46.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	14.0	37.0		15.0	38.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		15.0	15.0	
Pedestrian Calls (#/hr)		2			2		4	4		4	4	
Act Effct Green (s)	17.3	55.5		8.2	50.3			16.1			16.1	
Actuated g/C Ratio	0.19	0.62		0.09	0.56			0.18			0.18	
v/c Ratio	0.14	0.36		0.45	0.20			0.73			0.72	
Control Delay	25.3	11.3		41.9	16.0			42.3			42.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	25.3	11.3		41.9	16.0			42.3			42.4	
LOS	C	B		D	B			D			D	
Approach Delay		12.7			22.9			42.3			42.4	
Approach LOS		B			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 29 (32%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 29.5		Intersection LOS: C	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 60			

Splits and Phases: 2: 22nd Avenue & International Boulevard

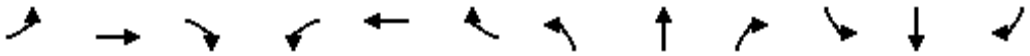




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	321	66	70	162	32	34	300	44	45	243	35
Future Volume (veh/h)	45	321	66	70	162	32	34	300	44	45	243	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.99	1.00		0.99
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	45	321	66	70	162	32	34	300	44	45	243	35
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	934	918	189	106	221	44	78	493	75	92	432	67
Arrive On Green	0.52	0.61	0.61	0.06	0.15	0.15	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1504	309	1781	1514	299	157	2508	384	206	2200	342
Grp Volume(v), veh/h	45	0	387	70	0	194	191	0	187	155	0	168
Grp Sat Flow(s),veh/h/ln	1781	0	1813	1781	0	1814	1421	0	1628	1111	0	1636
Q Serve(g_s), s	1.1	0.0	9.5	3.5	0.0	9.2	4.1	0.0	9.4	4.2	0.0	8.3
Cycle Q Clear(g_c), s	1.1	0.0	9.5	3.5	0.0	9.2	12.3	0.0	9.4	13.5	0.0	8.3
Prop In Lane	1.00		0.17	1.00		0.16	0.18		0.24	0.29		0.21
Lane Grp Cap(c), veh/h	934	0	1107	106	0	264	326	0	320	270	0	321
V/C Ratio(X)	0.05	0.00	0.35	0.66	0.00	0.73	0.59	0.00	0.58	0.58	0.00	0.52
Avail Cap(c_a), veh/h	934	0	1107	297	0	766	480	0	470	410	0	473
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	1.00	0.97	0.00	0.97	0.96	0.00	0.96	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	8.7	41.4	0.0	36.8	33.6	0.0	32.8	34.1	0.0	32.4
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.5	0.0	1.5	0.6	0.0	0.6	0.7	0.0	0.5
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	0.4	0.0	3.6	1.6	0.0	4.1	4.0	0.0	3.7	3.3	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.4	0.0	9.5	43.9	0.0	38.2	34.2	0.0	33.4	34.9	0.0	32.9
LnGrp LOS	B	A	A	D	A	D	C	A	C	C	A	C
Approach Vol, veh/h		432			264			378			323	
Approach Delay, s/veh		9.6			39.7			33.8			33.8	
Approach LOS		A			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	59.0		21.7	51.2	17.1		21.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	15.0	37.0		26.0	14.0	38.0		26.0				
Max Q Clear Time (g_c+I1), s	6.5	12.5		16.5	4.1	12.2		15.3				
Green Ext Time (p_c), s	0.0	1.6		0.9	0.0	0.7		1.2				

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	45	103	9	12	14	81	270	21	7	209	23
Future Volume (vph)	27	45	103	9	12	14	81	270	21	7	209	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Grade (%)		0%			0%			1%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.921			0.946			0.992			0.986	
Flt Protected		0.992			0.987			0.989			0.999	
Satd. Flow (prot)	0	1515	0	0	1548	0	0	3164	0	0	3209	0
Flt Permitted		0.992			0.987			0.989			0.999	
Satd. Flow (perm)	0	1515	0	0	1548	0	0	3164	0	0	3209	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		433			717			392			375	
Travel Time (s)		11.8			19.6			10.7			10.2	
Confl. Peds. (#/hr)	6		2	2		6	2		1	1		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			2			1			1	
Adj. Flow (vph)	27	45	103	9	12	14	81	270	21	7	209	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	0	0	35	0	0	372	0	0	239	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.16	1.00	1.00	1.16	1.00	1.05	1.13	1.05	1.04	1.11	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 60			

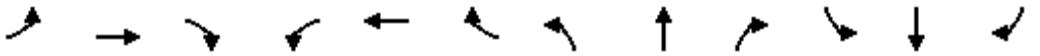
Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	45	103	9	12	14	81	270	21	7	209	23
Future Vol, veh/h	27	45	103	9	12	14	81	270	21	7	209	23
Conflicting Peds, #/hr	6	0	2	2	0	6	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	1	-	-	-1	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	45	103	9	12	14	81	270	21	7	209	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	546	691	120	587	692	153	234	0	0	292	0	0
Stage 1	237	237	-	444	444	-	-	-	-	-	-	-
Stage 2	309	454	-	143	248	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	421	366	909	393	366	866	1331	-	-	1267	-	-
Stage 1	745	708	-	563	574	-	-	-	-	-	-	-
Stage 2	676	568	-	845	700	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	376	336	906	294	336	861	1328	-	-	1266	-	-
Mov Cap-2 Maneuver	376	336	-	294	336	-	-	-	-	-	-	-
Stage 1	689	702	-	521	532	-	-	-	-	-	-	-
Stage 2	599	526	-	696	694	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	14.3	1.9	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	548	424	1266	-	-
HCM Lane V/C Ratio	0.061	-	-	0.319	0.083	0.006	-	-
HCM Control Delay (s)	7.9	0.2	-	14.6	14.3	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.3	0	-	-

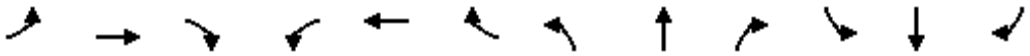


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	267	38	82	198	14	72	151	90	7	119	4
Future Volume (vph)	10	267	38	82	198	14	72	151	90	7	119	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	11	11	12	12	12
Grade (%)		0%			0%			1%			-1%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00		0.99	0.99			1.00	
Frt		0.981			0.990			0.944			0.996	
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1652	1701	0	1652	1520	0	1702	1498	0	0	1662	0
Flt Permitted	0.625			0.550			0.697				0.983	
Satd. Flow (perm)	1080	1701	0	952	1520	0	1231	1498	0	0	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			9			49			3	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		319			757			375			149	
Travel Time (s)		7.3			17.2			10.2			4.1	
Confl. Peds. (#/hr)	9		12	12		9	10		4	4		10
Confl. Bikes (#/hr)			10			4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)			1		3			1			1	
Adj. Flow (vph)	10	267	38	82	198	14	72	151	90	7	119	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	305	0	82	212	0	72	241	0	0	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.27	1.09	1.05	1.21	1.05	0.99	1.15	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	40.0	40.0		40.0	40.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		23.0	23.0		23.0	23.0	
Total Split (%)	63.5%	63.5%		63.5%	63.5%		36.5%	36.5%		36.5%	36.5%	
Maximum Green (s)	36.0	36.0		36.0	36.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	25.0	25.0		25.0	25.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	12	12		9	9		4	4		10	10	
Act Effct Green (s)	36.0	36.0		36.0	36.0		19.0	19.0			19.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.30	0.30			0.30	
v/c Ratio	0.02	0.31		0.15	0.24		0.19	0.50			0.26	
Control Delay	6.0	7.6		7.2	7.3		18.1	18.4			18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.0	7.6		7.2	7.3		18.1	18.4			18.1	
LOS	A	A		A	A		B	B			B	
Approach Delay		7.6			7.3			18.4			18.1	
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 63			
Actuated Cycle Length: 63			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 60			

Splits and Phases: 4: 22nd Avenue & Foothill Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	267	38	82	198	14	72	151	90	7	119	4
Future Volume (veh/h)	10	267	38	82	198	14	72	151	90	7	119	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.97	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	0.89	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	1864	1864	1864	1909	1909	1909
Adj Flow Rate, veh/h	10	267	38	82	198	14	72	151	90	7	119	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	713	816	116	620	984	70	517	328	195	71	537	17
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1161	1429	203	1070	1722	122	1249	1087	648	36	1781	58
Grp Volume(v), veh/h	10	0	305	82	0	212	72	0	241	130	0	0
Grp Sat Flow(s),veh/h/ln	1161	0	1632	1070	0	1844	1249	0	1735	1874	0	0
Q Serve(g_s), s	0.3	0.0	6.2	2.8	0.0	3.5	0.0	0.0	7.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	6.2	9.0	0.0	3.5	1.9	0.0	7.1	3.2	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.37	0.05		0.03
Lane Grp Cap(c), veh/h	713	0	933	620	0	1053	517	0	523	625	0	0
V/C Ratio(X)	0.01	0.00	0.33	0.13	0.00	0.20	0.14	0.00	0.46	0.21	0.00	0.00
Avail Cap(c_a), veh/h	713	0	933	620	0	1053	517	0	523	625	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	7.1	9.5	0.0	6.5	16.0	0.0	17.8	16.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.4	0.0	0.4	0.6	0.0	2.9	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	0.6	0.0	1.2	0.8	0.0	3.1	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	0.0	8.1	9.9	0.0	7.0	16.6	0.0	20.8	17.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	C	B	A	A
Approach Vol, veh/h		315			294			313			130	
Approach Delay, s/veh		8.0			7.8			19.8			17.2	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		40.0		23.0		40.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0		36.0		19.0		36.0				
Max Q Clear Time (g_c+I1), s		10.1		9.2		6.2		12.0				
Green Ext Time (p_c), s		1.1		1.9		0.5		1.6				

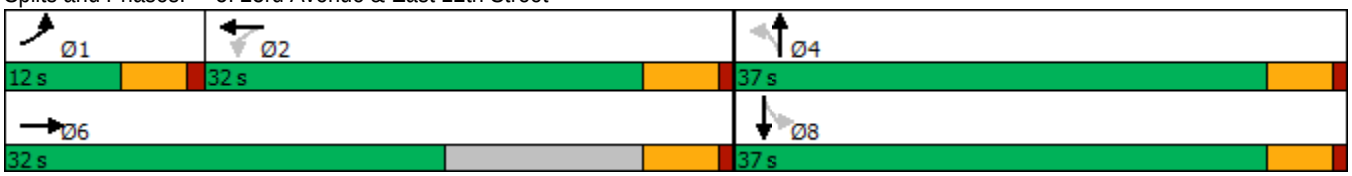
Intersection Summary												
HCM 6th Ctrl Delay			12.6									
HCM 6th LOS			B									

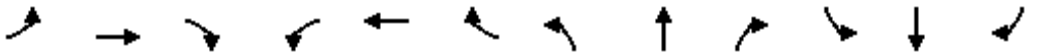
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	754	3	1	364	121	18	7	11	95	2	68
Future Volume (vph)	126	754	3	1	364	121	18	7	11	95	2	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Storage Length (ft)	135		40	0		100	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.999			0.963			0.959			0.944	
Flt Protected	0.950							0.976			0.972	
Satd. Flow (prot)	1770	3535	0	0	3217	0	0	1677	0	0	1464	0
Flt Permitted	0.950				0.954			0.854			0.802	
Satd. Flow (perm)	1770	3535	0	0	3069	0	0	1466	0	0	1206	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			59			11			52	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		688			605			163			371	
Travel Time (s)		13.4			11.8			4.4			10.1	
Confl. Peds. (#/hr)			1	1		1	3		5	5		3
Confl. Bikes (#/hr)			9			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)					0						1	
Adj. Flow (vph)	126	754	3	1	364	121	18	7	11	95	2	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	757	0	0	486	0	0	36	0	0	165	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases				2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	23.5		23.5	23.5		37.0	37.0		37.0	37.0	
Total Split (s)	12.0	32.0		32.0	32.0		37.0	37.0		37.0	37.0	
Total Split (%)	14.8%	39.5%		39.5%	39.5%		45.7%	45.7%		45.7%	45.7%	
Maximum Green (s)	7.0	26.5		26.5	26.5		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	5.0	5.5			5.5			5.0			5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Max		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		7.0	7.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		1		1	1		5	5		0	0	
Act Effct Green (s)	7.1	40.7			28.5			11.0			12.5	
Actuated g/C Ratio	0.11	0.64			0.45			0.17			0.20	
v/c Ratio	0.64	0.34			0.35			0.14			0.59	
Control Delay	48.0	7.6			12.8			15.5			23.9	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	48.0	7.6			12.8			15.5			23.9	
LOS	D	A			B			B			C	
Approach Delay		13.4			12.8			15.5			23.9	
Approach LOS		B			B			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 81	
Actuated Cycle Length: 63.9	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 60	

Splits and Phases: 5: 23rd Avenue & East 12th Street

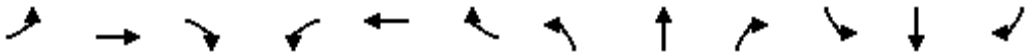




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	754	3	1	364	121	18	7	11	95	2	68
Future Volume (veh/h)	126	754	3	1	364	121	18	7	11	95	2	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	0.99		0.99	0.99		0.99
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	126	754	3	1	364	121	18	7	11	95	2	68
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	2357	9	63	1173	382	205	84	86	240	6	104
Arrive On Green	0.11	0.65	0.65	0.46	0.46	0.46	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3630	14	1	2562	834	659	499	509	840	37	614
Grp Volume(v), veh/h	126	369	388	264	0	222	36	0	0	165	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1869	0	1528	1667	0	0	1491	0	0
Q Serve(g_s), s	3.9	5.3	5.3	0.0	0.0	5.3	0.0	0.0	0.0	4.9	0.0	0.0
Cycle Q Clear(g_c), s	3.9	5.3	5.3	5.2	0.0	5.3	1.0	0.0	0.0	5.9	0.0	0.0
Prop In Lane	1.00		0.01	0.00		0.55	0.50		0.31	0.58		0.41
Lane Grp Cap(c), veh/h	187	1154	1213	918	0	700	375	0	0	350	0	0
V/C Ratio(X)	0.67	0.32	0.32	0.29	0.00	0.32	0.10	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	216	1154	1213	918	0	700	942	0	0	909	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.9	4.5	4.5	9.9	0.0	9.9	20.4	0.0	0.0	22.3	0.0	0.0
Incr Delay (d2), s/veh	4.6	0.7	0.7	0.8	0.0	1.2	0.0	0.0	0.0	0.4	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	1.8	1.4	1.5	1.9	0.0	1.7	0.4	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	5.2	5.2	10.7	0.0	11.1	20.4	0.0	0.0	22.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	C	A	A	C	A	A
Approach Vol, veh/h		883			486			36			165	
Approach Delay, s/veh		8.7			10.9			20.4			22.7	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.1	32.0		14.8		43.1		14.8				
Change Period (Y+Rc), s	5.0	5.5		5.0		5.5		5.0				
Max Green Setting (Gmax), s	7.0	26.5		32.0		26.5		32.0				
Max Q Clear Time (g_c+I1), s	6.9	8.3		4.0		8.3		8.9				
Green Ext Time (p_c), s	0.0	1.7		0.1		2.8		0.6				

Intersection Summary												
HCM 6th Ctrl Delay			11.1									
HCM 6th LOS			B									

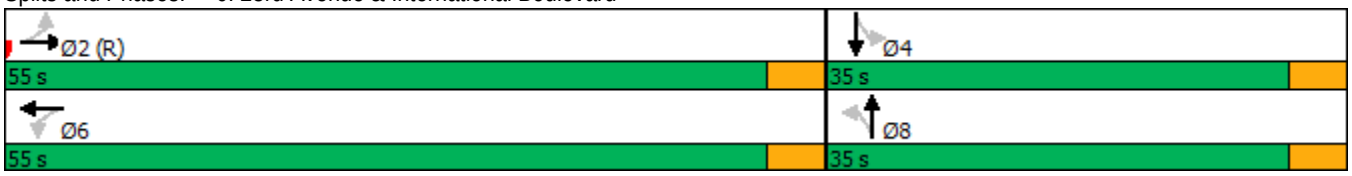


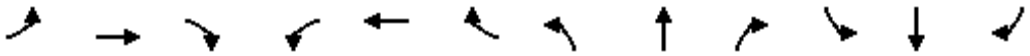
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	383	16	10	269	40	10	220	14	51	125	20
Future Volume (vph)	17	383	16	10	269	40	10	220	14	51	125	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			1.00			0.99	
Frt		0.995			0.983			0.992			0.986	
Flt Protected		0.998			0.998			0.998			0.987	
Satd. Flow (prot)	0	1587	0	0	1556	0	0	1600	0	0	1562	0
Flt Permitted		0.983			0.988			0.987			0.724	
Satd. Flow (perm)	0	1563	0	0	1541	0	0	1582	0	0	1142	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13			4			7	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		702			831			371			394	
Travel Time (s)		16.0			18.9			10.1			10.7	
Confl. Peds. (#/hr)			16			31	9		10	10		9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			1			0			1	
Adj. Flow (vph)	17	383	16	10	269	40	10	220	14	51	125	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	416	0	0	319	0	0	244	0	0	196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.21	1.04	1.04	1.20	1.04	1.04	1.19	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		24.0	24.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	51.0	51.0		51.0	51.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0		12.0	12.0		13.0	13.0	
Pedestrian Calls (#/hr)	8	8		20	20		6	6		4	4	
Act Effct Green (s)		63.8			63.8			18.2			18.2	
Actuated g/C Ratio		0.71			0.71			0.20			0.20	
v/c Ratio		0.38			0.29			0.76			0.83	
Control Delay		12.2			6.3			49.1			66.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.2			6.3			49.1			66.2	
LOS		B			A			D			E	
Approach Delay		12.2			6.3			49.1			66.2	
Approach LOS		B			A			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 65 (72%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 60			

Splits and Phases: 6: 23rd Avenue & International Boulevard

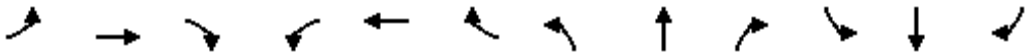




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	383	16	10	269	40	10	220	14	51	125	20
Future Volume (veh/h)	17	383	16	10	269	40	10	220	14	51	125	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.98	0.98		0.97	0.99		0.97
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	17	383	16	10	269	40	10	220	14	51	125	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	1266	52	57	1142	166	48	301	19	106	188	28
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	34	1726	70	22	1556	226	37	1697	106	312	1059	156
Grp Volume(v), veh/h	416	0	0	319	0	0	244	0	0	196	0	0
Grp Sat Flow(s),veh/h/ln	1831	0	0	1804	0	0	1839	0	0	1527	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0	5.1	0.0	0.0	11.2	0.0	0.0	11.0	0.0	0.0
Prop In Lane	0.04		0.04	0.03		0.13	0.04		0.06	0.26		0.10
Lane Grp Cap(c), veh/h	1385	0	0	1365	0	0	368	0	0	322	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.23	0.00	0.00	0.66	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	1385	0	0	1365	0	0	670	0	0	583	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)	0.94	0.00	0.00	1.00	0.00	0.00	0.83	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.1	0.0	0.0	3.9	0.0	0.0	35.1	0.0	0.0	34.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.4	0.0	0.0	0.6	0.0	0.0	0.7	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	2.2	0.0	0.0	1.6	0.0	0.0	5.1	0.0	0.0	4.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	0.0	0.0	4.3	0.0	0.0	35.7	0.0	0.0	35.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		416			319			244			196	
Approach Delay, s/veh		4.6			4.3			35.7			35.4	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.0		20.0		70.0		20.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		51.0		31.0		51.0		31.0				
Max Q Clear Time (g_c+I1), s		9.9		14.0		8.1		14.2				
Green Ext Time (p_c), s		1.8		0.7		1.4		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	38	19	8	13	17	9	243	18	18	167	9
Future Volume (vph)	12	38	19	8	13	17	9	243	18	18	167	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.963			0.940			0.991			0.994	
Flt Protected		0.991			0.990			0.998			0.995	
Satd. Flow (prot)	0	1591	0	0	1551	0	0	1594	0	0	1594	0
Flt Permitted		0.991			0.990			0.998			0.995	
Satd. Flow (perm)	0	1591	0	0	1551	0	0	1594	0	0	1594	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		717			577			394			452	
Travel Time (s)		19.6			15.7			10.7			12.3	
Confl. Peds. (#/hr)	9		4	4		9	10		18	18		10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		1			1			1			1	
Adj. Flow (vph)	12	38	19	8	13	17	9	243	18	18	167	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	69	0	0	38	0	0	270	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.15	1.00	1.00	1.15	1.00	1.04	1.20	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.0%		ICU Level of Service A	
Analysis Period (min) 60			

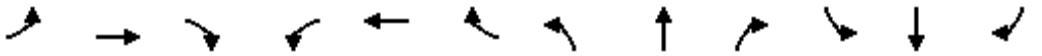
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	38	19	8	13	17	9	243	18	18	167	9
Future Vol, veh/h	12	38	19	8	13	17	9	243	18	18	167	9
Conflicting Peds, #/hr	9	0	4	4	0	9	10	0	18	18	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	38	19	8	13	17	9	243	18	18	167	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	512	515	186	528	510	279	186	0	0	279	0	0
Stage 1	218	218	-	288	288	-	-	-	-	-	-	-
Stage 2	294	297	-	240	222	-	-	-	-	-	-	-
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	472	464	856	461	467	760	1388	-	-	1284	-	-
Stage 1	784	723	-	720	674	-	-	-	-	-	-	-
Stage 2	714	668	-	763	720	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	435	441	845	405	444	741	1375	-	-	1262	-	-
Mov Cap-2 Maneuver	435	441	-	405	444	-	-	-	-	-	-	-
Stage 1	771	704	-	702	657	-	-	-	-	-	-	-
Stage 2	673	651	-	692	701	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	12.3	0.3	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	506	528	1262	-	-
HCM Lane V/C Ratio	0.007	-	-	0.136	0.072	0.014	-	-
HCM Control Delay (s)	7.6	0	-	13.2	12.3	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0	-	-

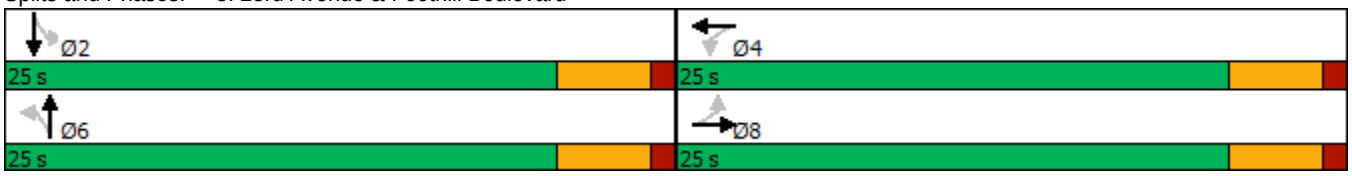


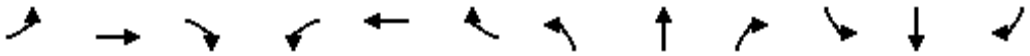
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	301	35	19	219	22	18	207	35	21	146	39
Future Volume (vph)	29	301	35	19	219	22	18	207	35	21	146	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.987			0.989			0.982			0.974	
Flt Protected		0.996			0.996			0.997			0.995	
Satd. Flow (prot)	0	1642	0	0	1637	0	0	1756	0	0	1554	0
Flt Permitted		0.964			0.964			0.976			0.958	
Satd. Flow (perm)	0	1588	0	0	1584	0	0	1718	0	0	1495	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			11			19			28	
Link Speed (mph)		30			25			25			25	
Link Distance (ft)		757			336			452			200	
Travel Time (s)		17.2			9.2			12.3			5.5	
Confl. Peds. (#/hr)	9		7	7		9	5		9	9		5
Confl. Bikes (#/hr)			6									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		0			1						1	
Adj. Flow (vph)	29	301	35	19	219	22	18	207	35	21	146	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	365	0	0	260	0	0	260	0	0	206	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.14	1.00	1.00	1.15	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	16	16		21	21		15	15		20	20	
Act Effct Green (s)		20.5			20.5			20.5			20.5	
Actuated g/C Ratio		0.41			0.41			0.41			0.41	
v/c Ratio		0.55			0.40			0.36			0.33	
Control Delay		14.9			12.2			11.3			10.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.9			12.2			11.3			10.4	
LOS		B			B			B			B	
Approach Delay		14.9			12.2			11.3			10.4	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 50.7%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 8: 23rd Avenue & Foothill Boulevard



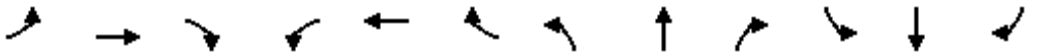


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	301	35	19	219	22	18	207	35	21	146	39
Future Volume (veh/h)	29	301	35	19	219	22	18	207	35	21	146	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.99	0.99		0.99	0.99		0.99
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	29	301	35	19	219	22	18	207	35	21	146	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	631	70	101	650	62	99	614	99	113	549	136
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	74	1540	171	58	1585	152	54	1497	241	82	1339	332
Grp Volume(v), veh/h	365	0	0	260	0	0	260	0	0	206	0	0
Grp Sat Flow(s),veh/h/ln	1784	0	0	1795	0	0	1793	0	0	1753	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.3	0.0	0.0	4.9	0.0	0.0	4.9	0.0	0.0	3.8	0.0	0.0
Prop In Lane	0.08		0.10	0.07		0.08	0.07		0.13	0.10		0.19
Lane Grp Cap(c), veh/h	809	0	0	813	0	0	812	0	0	798	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.00	0.32	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	809	0	0	813	0	0	812	0	0	798	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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	10.1	0.0	0.0	10.2	0.0	0.0	9.8	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.9	0.0	0.0	1.7	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	11.2	0.0	0.0	10.2	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		365			260			260			206	
Approach Delay, s/veh		12.7			11.2			10.2			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.5		20.5		20.5		20.5				
Max Q Clear Time (g_c+I1), s		6.8		7.9		7.9		10.3				
Green Ext Time (p_c), s		0.7		0.8		0.8		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									

Appendix D Existing Plus Project Conditions AM Synchro Level of Service Worksheets

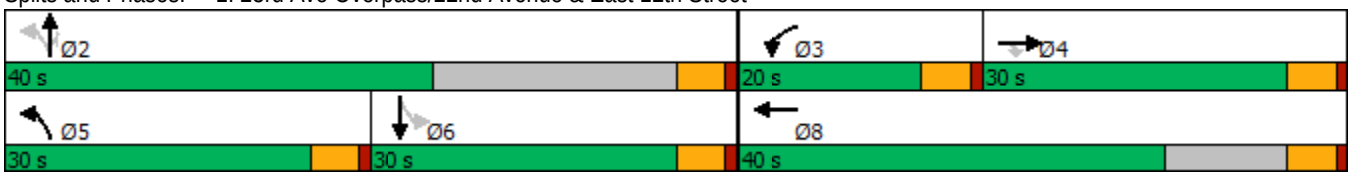


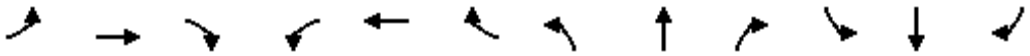
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	298	380	148	354	53	269	200	62	46	464	31
Future Volume (vph)	0	298	380	148	354	53	269	200	62	46	464	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		150	150		0	0		100	0		0
Storage Lanes	0		1	2		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99		1.00	
Frt			0.850		0.980				0.850		0.991	
Flt Protected				0.950			0.950				0.996	
Satd. Flow (prot)	0	5085	1583	3433	1822	0	1770	1863	1583	0	3377	0
Flt Permitted				0.950			0.258				0.907	
Satd. Flow (perm)	0	5085	1552	3433	1822	0	481	1863	1561	0	3075	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			380		8				69		5	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		489			688			376			392	
Travel Time (s)		9.5			13.4			8.5			10.7	
Confl. Peds. (#/hr)			1			2			2	2		
Confl. Bikes (#/hr)			6			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)												1
Adj. Flow (vph)	0	298	380	148	354	53	269	200	62	46	464	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	298	380	148	407	0	269	200	62	0	541	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Prot	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases			4				2		2	6		
Detector Phase		4	4	3	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)		7.0	7.0	5.0	8.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (%)		27.3%	27.3%	18.2%	36.4%		27.3%	36.4%	36.4%	27.3%	27.3%	
Maximum Green (s)		25.0	25.0	15.0	35.0		25.0	35.0	35.0	25.0	25.0	
Yellow Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)		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)		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag		Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode		Max	Max	None	Max		None	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0			
Flash Dont Walk (s)		11.0	11.0		10.0			25.0	25.0			
Pedestrian Calls (#/hr)		1	1		2			2	2			
Act Effct Green (s)		25.1	25.1	8.4	38.6		45.4	45.4	45.4		25.1	
Actuated g/C Ratio		0.27	0.27	0.09	0.41		0.48	0.48	0.48		0.27	
v/c Ratio		0.22	0.55	0.48	0.54		0.61	0.22	0.08		0.66	
Control Delay		28.5	6.7	47.2	24.6		21.3	14.9	3.2		35.9	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay		28.5	6.7	47.2	24.6		21.3	14.9	3.2		35.9	
LOS		C	A	D	C		C	B	A		D	
Approach Delay		16.3			30.6			16.7			35.9	
Approach LOS		B			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 94			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 77.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: 23rd Ave Overpass/22nd Avenue & East 12th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	298	380	148	354	53	269	200	62	46	464	31
Future Volume (veh/h)	0	298	380	148	354	53	269	200	62	46	464	31
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		0.99	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	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	298	0	148	354	53	269	200	62	46	464	31
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1441		259	656	98	448	886	750	102	803	53
Arrive On Green	0.00	0.28	0.00	0.07	0.41	0.41	0.14	0.47	0.47	0.28	0.28	0.28
Sat Flow, veh/h	0	5274	1585	3456	1586	237	1781	1870	1583	195	2845	187
Grp Volume(v), veh/h	0	298	0	148	0	407	269	200	62	295	0	246
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	0	1824	1781	1870	1583	1738	0	1489
Q Serve(g_s), s	0.0	3.9	0.0	3.7	0.0	14.9	8.7	5.6	1.9	6.0	0.0	12.6
Cycle Q Clear(g_c), s	0.0	3.9	0.0	3.7	0.0	14.9	8.7	5.6	1.9	12.6	0.0	12.6
Prop In Lane	0.00		1.00	1.00		0.13	1.00		1.00	0.16		0.13
Lane Grp Cap(c), veh/h	0	1441		259	0	754	448	886	750	538	0	420
V/C Ratio(X)	0.00	0.21		0.57	0.00	0.54	0.60	0.23	0.08	0.55	0.00	0.59
Avail Cap(c_a), veh/h	0	1441		585	0	754	710	886	750	538	0	420
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)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.2	0.0	39.6	0.0	19.6	17.7	13.7	12.8	27.2	0.0	27.4
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.7	0.0	2.8	0.5	0.6	0.2	4.0	0.0	5.9
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	0.0	1.6	0.0	1.5	0.0	6.5	3.4	2.4	0.7	5.9	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.6	0.0	40.4	0.0	22.4	18.2	14.3	13.0	31.2	0.0	33.2
LnGrp LOS	A	C		D	A	C	B	B	B	C	A	C
Approach Vol, veh/h		298			555			531			541	
Approach Delay, s/veh		24.6			27.2			16.1			32.1	
Approach LOS		C			C			B			C	

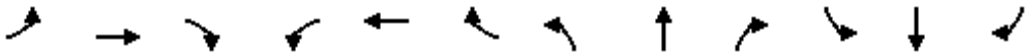
Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		47.0	11.6	30.0	17.0	30.0		41.6				
Change Period (Y+Rc), s		5.0	5.0	5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s		35.0	15.0	25.0	25.0	25.0		35.0				
Max Q Clear Time (g_c+I1), s		8.6	6.7	6.9	11.7	15.6		17.9				
Green Ext Time (p_c), s		0.8	0.1	1.2	0.3	1.7		1.4				

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

Notes

User approved changes to right turn type.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

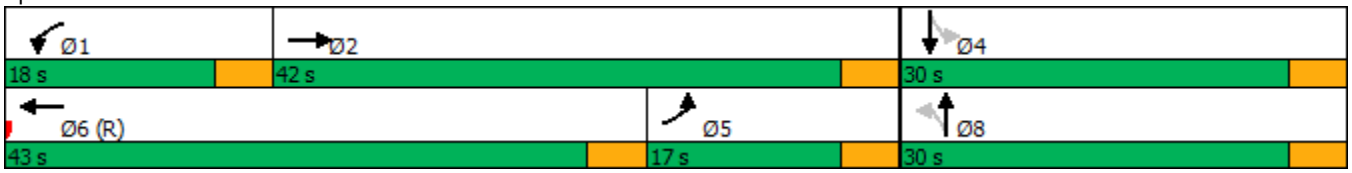


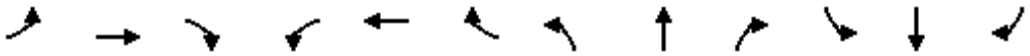
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	200	65	73	205	32	9	243	11	18	405	22
Future Volume (vph)	29	200	65	73	205	32	9	243	11	18	405	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	125		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.963			0.980			0.994			0.993	
Flt Protected	0.950			0.950				0.998			0.998	
Satd. Flow (prot)	1711	1728	0	1711	1761	0	0	3211	0	0	3208	0
Flt Permitted	0.950			0.950				0.936			0.935	
Satd. Flow (perm)	1711	1728	0	1711	1761	0	0	3011	0	0	3004	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			11			5			6	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		505			702			392			392	
Travel Time (s)		11.5			16.0			10.7			10.7	
Confl. Peds. (#/hr)			2			2	4		8	8		4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)								1			1	
Adj. Flow (vph)	29	200	65	73	205	32	9	243	11	18	405	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	265	0	73	237	0	0	263	0	0	445	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.12	1.04	1.04	1.12	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0		10.0	23.0		25.0	25.0		26.0	26.0	
Total Split (s)	17.0	42.0		18.0	43.0		30.0	30.0		30.0	30.0	
Total Split (%)	18.9%	46.7%		20.0%	47.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	13.0	38.0		14.0	39.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		15.0	15.0	
Pedestrian Calls (#/hr)		2			2		4	4		4	4	
Act Effct Green (s)	6.2	53.8		8.3	59.7			17.7			17.7	
Actuated g/C Ratio	0.07	0.60		0.09	0.66			0.20			0.20	
v/c Ratio	0.25	0.25		0.46	0.20			0.44			0.75	
Control Delay	44.2	10.6		50.5	4.7			32.8			41.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	44.2	10.6		50.5	4.7			32.8			41.4	
LOS	D	B		D	A			C			D	
Approach Delay		13.9			15.5			32.8			41.4	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 42 (47%), Referenced to phase 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: 22nd Avenue & International Boulevard

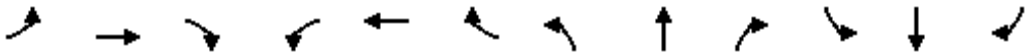




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	200	65	73	205	32	9	243	11	18	405	22
Future Volume (veh/h)	29	200	65	73	205	32	9	243	11	18	405	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.98	0.99		0.98
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	29	200	65	73	205	32	9	243	11	18	405	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	99	577	188	110	684	107	50	548	25	57	572	31
Arrive On Green	0.06	0.43	0.43	0.06	0.43	0.43	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	1351	439	1781	1579	246	38	3092	142	79	3229	173
Grp Volume(v), veh/h	29	0	265	73	0	237	134	0	129	233	0	212
Grp Sat Flow(s),veh/h/ln	1781	0	1791	1781	0	1826	1600	0	1673	1816	0	1666
Q Serve(g_s), s	1.4	0.0	9.0	3.6	0.0	7.6	0.2	0.0	6.2	4.1	0.0	10.8
Cycle Q Clear(g_c), s	1.4	0.0	9.0	3.6	0.0	7.6	10.9	0.0	6.2	10.8	0.0	10.8
Prop In Lane	1.00		0.25	1.00		0.14	0.07		0.08	0.08		0.10
Lane Grp Cap(c), veh/h	99	0	764	110	0	791	326	0	296	365	0	295
V/C Ratio(X)	0.29	0.00	0.35	0.66	0.00	0.30	0.41	0.00	0.44	0.64	0.00	0.72
Avail Cap(c_a), veh/h	257	0	764	277	0	791	522	0	483	563	0	481
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	1.00	0.97	0.00	0.97	0.98	0.00	0.98	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	17.3	41.3	0.0	16.6	32.8	0.0	33.0	34.8	0.0	34.9
Incr Delay (d2), s/veh	0.6	0.0	0.1	2.4	0.0	0.9	0.3	0.0	0.4	0.7	0.0	1.2
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	0.6	0.0	3.6	1.6	0.0	3.3	2.6	0.0	2.5	4.9	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	0.0	17.4	43.7	0.0	17.5	33.1	0.0	33.4	35.5	0.0	36.1
LnGrp LOS	D	A	B	D	A	B	C	A	C	D	A	D
Approach Vol, veh/h		294			310			263			445	
Approach Delay, s/veh		19.8			23.7			33.3			35.8	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	42.4		19.9	9.0	43.0		19.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	14.0	38.0		26.0	13.0	39.0		26.0				
Max Q Clear Time (g_c+I1), s	6.6	12.0		13.8	4.4	10.6		13.9				
Green Ext Time (p_c), s	0.0	1.0		1.5	0.0	0.9		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		28.9	
HCM 6th LOS		C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	54	9	17	13	36	198	63	34	414	11
Future Volume (vph)	12	19	54	9	17	13	36	198	63	34	414	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Grade (%)		0%			0%			1%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.914			0.955			0.968			0.996	
Flt Protected		0.993			0.989			0.994			0.996	
Satd. Flow (prot)	0	1505	0	0	1566	0	0	3103	0	0	3232	0
Flt Permitted		0.993			0.989			0.994			0.996	
Satd. Flow (perm)	0	1505	0	0	1566	0	0	3103	0	0	3232	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		433			717			392			375	
Travel Time (s)		11.8			19.6			10.7			10.2	
Confl. Peds. (#/hr)	2		4	4		2	18		16	16		18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			2			1			1	
Adj. Flow (vph)	12	19	54	9	17	13	36	198	63	34	414	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	39	0	0	297	0	0	459	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.16	1.00	1.00	1.16	1.00	1.05	1.13	1.05	1.04	1.11	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

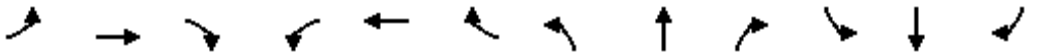
Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	19	54	9	17	13	36	198	63	34	414	11
Future Vol, veh/h	12	19	54	9	17	13	36	198	63	34	414	11
Conflicting Peds, #/hr	2	0	4	4	0	2	18	0	16	16	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	1	-	-	-1	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	19	54	9	17	13	36	198	63	34	414	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	688	855	235	607	829	149	443	0	0	277	0	0
Stage 1	506	506	-	318	318	-	-	-	-	-	-	-
Stage 2	182	349	-	289	511	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	333	294	767	380	305	871	1113	-	-	1283	-	-
Stage 1	517	538	-	668	652	-	-	-	-	-	-	-
Stage 2	802	632	-	694	535	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	264	751	309	274	856	1094	-	-	1263	-	-
Mov Cap-2 Maneuver	290	264	-	309	274	-	-	-	-	-	-	-
Stage 1	489	511	-	632	617	-	-	-	-	-	-	-
Stage 2	737	599	-	596	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	16	1.1	0.7
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1094	-	-	459	367	1263	-	-
HCM Lane V/C Ratio	0.033	-	-	0.185	0.106	0.027	-	-
HCM Control Delay (s)	8.4	0.1	-	14.6	16	7.9	0.1	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.4	0.1	-	-

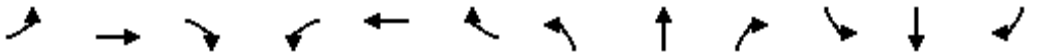


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	231	62	159	308	41	64	115	42	16	228	11
Future Volume (vph)	24	231	62	159	308	41	64	115	42	16	228	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	11	11	12	12	12
Grade (%)		0%			0%			1%			-1%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96	0.99		0.99	0.99		0.95	0.96			0.99	
Frt		0.968			0.982			0.960			0.994	
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1652	1672	0	1652	1494	0	1702	1474	0	0	1652	0
Flt Permitted	0.513			0.561			0.507				0.980	
Satd. Flow (perm)	856	1672	0	964	1494	0	859	1474	0	0	1612	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			18			30			4	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		319			757			375			149	
Travel Time (s)		7.3			17.2			10.2			4.1	
Confl. Peds. (#/hr)	77		35	35		77	52		77	77		52
Confl. Bikes (#/hr)			5			15						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)			1		3			1			1	
Adj. Flow (vph)	24	231	62	159	308	41	64	115	42	16	228	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	293	0	159	349	0	64	157	0	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.27	1.09	1.05	1.21	1.05	0.99	1.15	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	40.0	40.0		40.0	40.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		23.0	23.0		23.0	23.0	
Total Split (%)	63.5%	63.5%		63.5%	63.5%		36.5%	36.5%		36.5%	36.5%	
Maximum Green (s)	36.0	36.0		36.0	36.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	25.0	25.0		25.0	25.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	10	10		15	15		15	15		12	12	
Act Effct Green (s)	36.0	36.0		36.0	36.0		19.0	19.0			19.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.30	0.30			0.30	
v/c Ratio	0.05	0.30		0.29	0.41		0.25	0.34			0.52	
Control Delay	6.3	7.1		8.7	8.9		19.8	16.2			22.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.3	7.1		8.7	8.9		19.8	16.2			22.6	
LOS	A	A		A	A		B	B			C	
Approach Delay		7.0			8.8			17.2			22.6	
Approach LOS		A			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 63			
Actuated Cycle Length: 63			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			

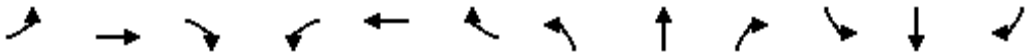
Splits and Phases: 4: 22nd Avenue & Foothill Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	231	62	159	308	41	64	115	42	16	228	11
Future Volume (veh/h)	24	231	62	159	308	41	64	115	42	16	228	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	0.98		0.90	0.93		0.87	0.91		0.87
Parking Bus, Adj	1.00	1.00	0.89	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	1864	1864	1864	1909	1909	1909
Adj Flow Rate, veh/h	24	231	62	159	308	41	64	115	42	16	228	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	580	717	192	617	911	121	420	376	137	77	516	24
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	993	1254	337	1059	1594	212	1060	1248	456	54	1711	80
Grp Volume(v), veh/h	24	0	293	159	0	349	64	0	157	255	0	0
Grp Sat Flow(s),veh/h/ln	993	0	1591	1059	0	1806	1060	0	1704	1845	0	0
Q Serve(g_s), s	0.8	0.0	6.1	5.8	0.0	6.5	0.0	0.0	4.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.3	0.0	6.1	11.9	0.0	6.5	3.2	0.0	4.5	6.9	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.12	1.00		0.27	0.06		0.04
Lane Grp Cap(c), veh/h	580	0	909	617	0	1032	420	0	514	617	0	0
V/C Ratio(X)	0.04	0.00	0.32	0.26	0.00	0.34	0.15	0.00	0.31	0.41	0.00	0.00
Avail Cap(c_a), veh/h	580	0	909	617	0	1032	420	0	514	617	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.1	0.0	7.1	10.2	0.0	7.2	16.5	0.0	16.9	17.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	1.0	0.0	0.9	0.8	0.0	1.5	2.0	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	0.2	0.0	1.9	1.4	0.0	2.2	0.7	0.0	1.9	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	8.0	11.2	0.0	8.1	17.3	0.0	18.5	19.8	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B	A	B	B	A	A
Approach Vol, veh/h		317			508			221			255	
Approach Delay, s/veh		8.1			9.1			18.1			19.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		40.0		23.0		40.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0		36.0		19.0		36.0				
Max Q Clear Time (g_c+I1), s		7.5		10.3		9.9		14.9				
Green Ext Time (p_c), s		0.9		2.0		1.0		2.9				

Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

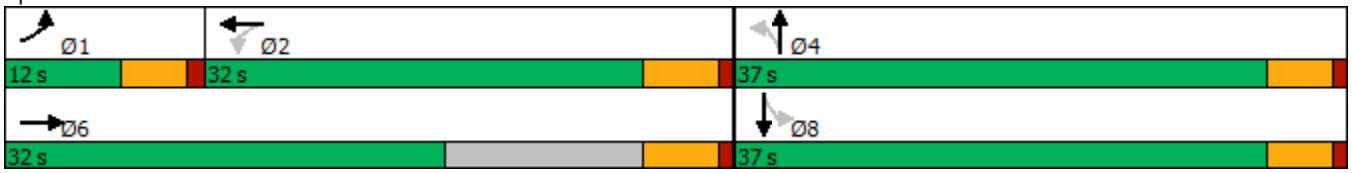


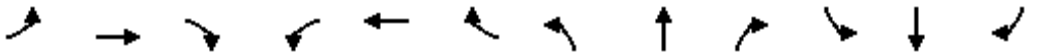
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	374	2	2	506	98	1	1	1	118	0	114
Future Volume (vph)	72	374	2	2	506	98	1	1	1	118	0	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Storage Length (ft)	135		40	0		100	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.999			0.976			0.955			0.934	
Flt Protected	0.950							0.984			0.975	
Satd. Flow (prot)	1770	3535	0	0	3267	0	0	1683	0	0	1468	0
Flt Permitted	0.950				0.954			0.910			0.838	
Satd. Flow (perm)	1770	3535	0	0	3117	0	0	1557	0	0	1259	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			29			1			101	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		688			605			163			371	
Travel Time (s)		13.4			11.8			4.4			10.1	
Confl. Peds. (#/hr)			1	1		1			5	5		
Confl. Bikes (#/hr)			3			4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)					0						1	
Adj. Flow (vph)	72	374	2	2	506	98	1	1	1	118	0	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	376	0	0	606	0	0	3	0	0	232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases				2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	23.5		23.5	23.5		37.0	37.0		37.0	37.0	
Total Split (s)	12.0	32.0		32.0	32.0		37.0	37.0		37.0	37.0	
Total Split (%)	14.8%	39.5%		39.5%	39.5%		45.7%	45.7%		45.7%	45.7%	
Maximum Green (s)	7.0	26.5		26.5	26.5		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	5.0	5.5			5.5			5.0			5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Max		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		7.0	7.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		1		1	1		5	5		0	0	
Act Effct Green (s)	7.3	36.2			29.8			9.2			12.9	
Actuated g/C Ratio	0.12	0.60			0.50			0.15			0.21	
v/c Ratio	0.34	0.18			0.39			0.01			0.66	
Control Delay	33.6	7.2			13.6			17.7			21.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	33.6	7.2			13.6			17.7			21.4	
LOS	C	A			B			B			C	
Approach Delay		11.4			13.6			17.7			21.4	
Approach LOS		B			B			B			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 81	
Actuated Cycle Length: 60.1	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: 23rd Avenue & East 12th Street

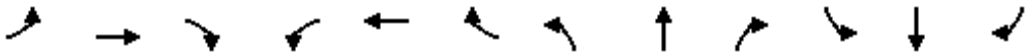




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	374	2	2	506	98	1	1	1	118	0	114
Future Volume (veh/h)	72	374	2	2	506	98	1	1	1	118	0	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
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	72	374	2	2	506	98	1	1	1	118	0	114
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	2198	12	61	1279	245	166	158	122	249	7	160
Arrive On Green	0.08	0.61	0.61	0.44	0.44	0.44	0.22	0.22	0.22	0.22	0.00	0.22
Sat Flow, veh/h	1781	3624	19	2	2896	556	392	725	558	723	34	732
Grp Volume(v), veh/h	72	183	193	326	0	280	3	0	0	232	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1866	1869	0	1586	1674	0	0	1489	0	0
Q Serve(g_s), s	2.3	2.7	2.7	0.0	0.0	7.2	0.0	0.0	0.0	8.1	0.0	0.0
Cycle Q Clear(g_c), s	2.3	2.7	2.7	7.1	0.0	7.2	0.1	0.0	0.0	8.6	0.0	0.0
Prop In Lane	1.00		0.01	0.01		0.35	0.33		0.33	0.51		0.49
Lane Grp Cap(c), veh/h	145	1078	1132	886	0	700	446	0	0	416	0	0
V/C Ratio(X)	0.50	0.17	0.17	0.37	0.00	0.40	0.01	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	208	1078	1132	886	0	700	928	0	0	882	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.4	5.2	5.2	11.3	0.0	11.4	18.4	0.0	0.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.3	0.3	1.2	0.0	1.7	0.0	0.0	0.0	0.4	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	1.0	0.8	0.8	2.7	0.0	2.4	0.0	0.0	0.0	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	5.5	5.5	12.5	0.0	13.1	18.4	0.0	0.0	22.1	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	B	A	A	C	A	A
Approach Vol, veh/h		448			606			3			232	
Approach Delay, s/veh		9.0			12.8			18.4			22.1	
Approach LOS		A			B			B			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.9	32.0		18.1		41.9		18.1				
Change Period (Y+Rc), s	5.0	5.5		5.0		5.5		5.0				
Max Green Setting (Gmax), s	7.0	26.5		32.0		26.5		32.0				
Max Q Clear Time (g_c+I1), s	5.3	10.2		3.1		5.7		11.6				
Green Ext Time (p_c), s	0.0	2.1		0.0		1.3		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									

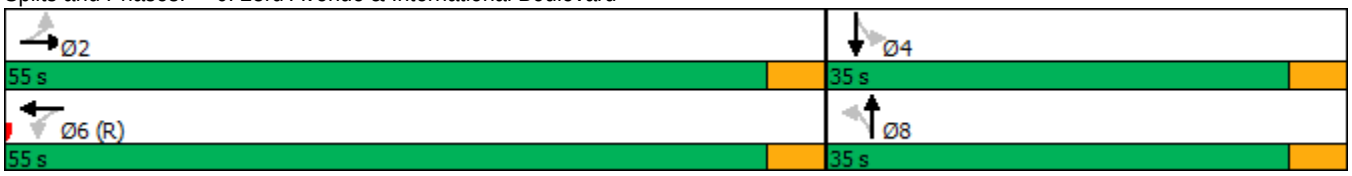


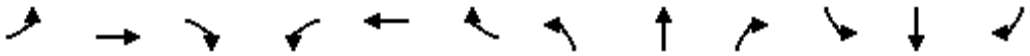
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	207	17	7	260	29	7	140	8	53	180	34
Future Volume (vph)	6	207	17	7	260	29	7	140	8	53	180	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.97			1.00			0.99	
Frt		0.990			0.987			0.993			0.983	
Flt Protected		0.999			0.999			0.998			0.990	
Satd. Flow (prot)	0	1578	0	0	1548	0	0	1603	0	0	1562	0
Flt Permitted		0.993			0.994			0.986			0.911	
Satd. Flow (perm)	0	1568	0	0	1541	0	0	1583	0	0	1434	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			10			3			9	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		702			831			371			394	
Travel Time (s)		16.0			18.9			10.1			10.7	
Confl. Peds. (#/hr)			12			71	5		7	7		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			1			0			1	
Adj. Flow (vph)	6	207	17	7	260	29	7	140	8	53	180	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	230	0	0	296	0	0	155	0	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.21	1.04	1.04	1.20	1.04	1.04	1.19	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		24.0	24.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	51.0	51.0		51.0	51.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	Max	Max		C-Max	C-Max		None	None		None	None	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0		12.0	12.0		13.0	13.0	
Pedestrian Calls (#/hr)	8	8		20	20		6	6		4	4	
Act Effct Green (s)		61.3			61.3			20.7			20.7	
Actuated g/C Ratio		0.68			0.68			0.23			0.23	
v/c Ratio		0.22			0.28			0.42			0.79	
Control Delay		8.2			7.4			31.0			47.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.2			7.4			31.0			47.8	
LOS		A			A			C			D	
Approach Delay		8.2			7.4			31.0			47.8	
Approach LOS		A			A			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 23 (26%), Referenced to phase 6:WBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: 23rd Avenue & International Boulevard

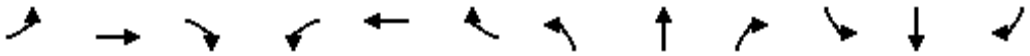




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	207	17	7	260	29	7	140	8	53	180	34
Future Volume (veh/h)	6	207	17	7	260	29	7	140	8	53	180	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.94	0.99		0.98	0.99		0.98
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	6	207	17	7	260	29	7	140	8	53	180	34
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	955	77	48	921	101	49	333	18	101	239	43
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	14	1685	136	13	1625	178	35	1711	95	274	1229	219
Grp Volume(v), veh/h	230	0	0	296	0	0	155	0	0	267	0	0
Grp Sat Flow(s),veh/h/ln	1834	0	0	1816	0	0	1841	0	0	1723	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	0.0	7.6	0.0	0.0	6.6	0.0	0.0	13.1	0.0	0.0
Prop In Lane	0.03		0.07	0.02		0.10	0.05		0.05	0.20		0.13
Lane Grp Cap(c), veh/h	1080	0	0	1070	0	0	400	0	0	383	0	0
V/C Ratio(X)	0.21	0.00	0.00	0.28	0.00	0.00	0.39	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	1080	0	0	1070	0	0	670	0	0	631	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)	0.98	0.00	0.00	1.00	0.00	0.00	0.96	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.7	0.0	0.0	10.1	0.0	0.0	31.9	0.0	0.0	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	0.0	0.0	10.7	0.0	0.0	32.1	0.0	0.0	35.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		230			296			155			267	
Approach Delay, s/veh		10.1			10.7			32.1			35.2	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		21.5		55.0		21.5				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		51.0		31.0		51.0		31.0				
Max Q Clear Time (g_c+I1), s		8.6		16.1		10.6		9.6				
Green Ext Time (p_c), s		0.9		1.0		1.2		0.5				

Intersection Summary												
HCM 6th Ctrl Delay			20.9									
HCM 6th LOS			C									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	18	34	8	18	17	13	247	17	10	171	13
Future Volume (vph)	17	18	34	8	18	17	13	247	17	10	171	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.933			0.947			0.992			0.991	
Flt Protected		0.988			0.991			0.998			0.997	
Satd. Flow (prot)	0	1537	0	0	1565	0	0	1595	0	0	1592	0
Flt Permitted		0.988			0.991			0.998			0.997	
Satd. Flow (perm)	0	1537	0	0	1565	0	0	1595	0	0	1592	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		717			577			394			452	
Travel Time (s)		19.6			15.7			10.7			12.3	
Confl. Peds. (#/hr)	6		30	30		6	45		27	27		45
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		1			1			1			1	
Adj. Flow (vph)	17	18	34	8	18	17	13	247	17	10	171	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	69	0	0	43	0	0	277	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.15	1.00	1.00	1.15	1.00	1.04	1.20	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.3%		ICU Level of Service A	
Analysis Period (min) 15			

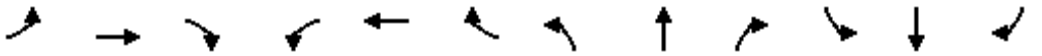
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	18	34	8	18	17	13	247	17	10	171	13
Future Vol, veh/h	17	18	34	8	18	17	13	247	17	10	171	13
Conflicting Peds, #/hr	6	0	30	30	0	6	45	0	27	27	0	45
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	18	34	8	18	17	13	247	17	10	171	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	548	560	253	563	558	289	229	0	0	291	0	0
Stage 1	243	243	-	309	309	-	-	-	-	-	-	-
Stage 2	305	317	-	254	249	-	-	-	-	-	-	-
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	447	437	786	437	438	750	1339	-	-	1271	-	-
Stage 1	761	705	-	701	660	-	-	-	-	-	-	-
Stage 2	705	654	-	750	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	395	399	733	376	400	727	1282	-	-	1238	-	-
Mov Cap-2 Maneuver	395	399	-	376	400	-	-	-	-	-	-	-
Stage 1	720	668	-	675	635	-	-	-	-	-	-	-
Stage 2	658	629	-	672	665	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	13.2	0.4	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	513	480	1238	-	-
HCM Lane V/C Ratio	0.01	-	-	0.135	0.09	0.008	-	-
HCM Control Delay (s)	7.8	0	-	13.1	13.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0	-	-

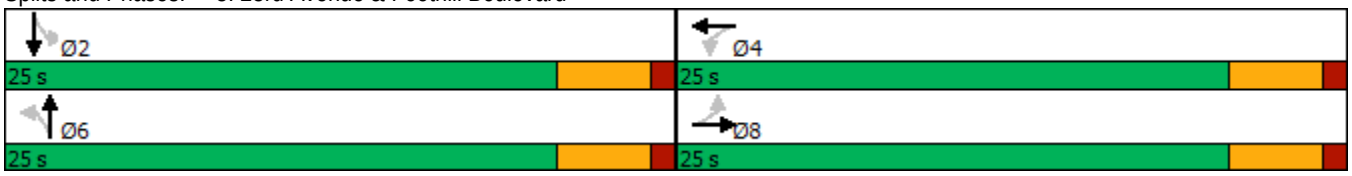


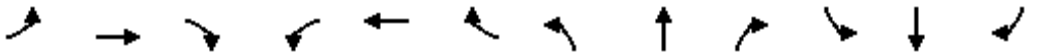
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	224	43	41	371	20	46	148	28	45	213	97
Future Volume (vph)	29	224	43	41	371	20	46	148	28	45	213	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99			0.99			0.97	
Frt		0.980			0.994			0.983			0.963	
Flt Protected		0.995			0.995			0.990			0.994	
Satd. Flow (prot)	0	1620	0	0	1643	0	0	1742	0	0	1506	0
Flt Permitted		0.939			0.948			0.881			0.941	
Satd. Flow (perm)	0	1525	0	0	1562	0	0	1538	0	0	1422	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			6			18			46	
Link Speed (mph)		30			25			25			25	
Link Distance (ft)		757			336			452			200	
Travel Time (s)		17.2			9.2			12.3			5.5	
Confl. Peds. (#/hr)	34		24	24		34	54		23	23		54
Confl. Bikes (#/hr)			3									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		0			1						1	
Adj. Flow (vph)	29	224	43	41	371	20	46	148	28	45	213	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	0	0	432	0	0	222	0	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.14	1.00	1.00	1.15	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	16	16		21	21		15	15		20	20	
Act Effct Green (s)		20.5			20.5			20.5			20.5	
Actuated g/C Ratio		0.41			0.41			0.41			0.41	
v/c Ratio		0.46			0.67			0.35			0.58	
Control Delay		12.9			18.4			11.2			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.9			18.4			11.2			14.5	
LOS		B			B			B			B	
Approach Delay		12.9			18.4			11.2			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 8: 23rd Avenue & Foothill Boulevard



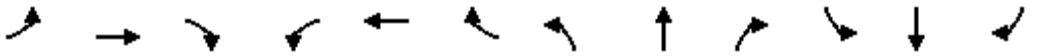


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	224	43	41	371	20	46	148	28	45	213	97
Future Volume (veh/h)	29	224	43	41	371	20	46	148	28	45	213	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.94	0.98		0.96	0.97		0.93	0.95		0.93
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	29	224	43	41	371	20	46	148	28	45	213	97
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	570	103	119	656	34	175	503	85	133	446	187
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	86	1390	251	99	1600	82	215	1228	208	128	1087	457
Grp Volume(v), veh/h	296	0	0	432	0	0	222	0	0	355	0	0
Grp Sat Flow(s),veh/h/ln	1727	0	0	1781	0	0	1651	0	0	1671	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.8	0.0	0.0	9.1	0.0	0.0	4.1	0.0	0.0	7.5	0.0	0.0
Prop In Lane	0.10		0.15	0.09		0.05	0.21		0.13	0.13		0.27
Lane Grp Cap(c), veh/h	787	0	0	809	0	0	764	0	0	766	0	0
V/C Ratio(X)	0.38	0.00	0.00	0.53	0.00	0.00	0.29	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	787	0	0	809	0	0	764	0	0	766	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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.4	0.0	0.0	11.4	0.0	0.0	9.9	0.0	0.0	10.9	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	2.5	0.0	0.0	0.1	0.0	0.0	2.0	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	2.2	0.0	0.0	3.7	0.0	0.0	1.4	0.0	0.0	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	13.9	0.0	0.0	10.0	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	B	A	A
Approach Vol, veh/h		296			432			222			355	
Approach Delay, s/veh		11.8			13.9			10.0			12.9	
Approach LOS		B			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.5		20.5		20.5		20.5				
Max Q Clear Time (g_c+I1), s		10.5		12.1		7.1		8.8				
Green Ext Time (p_c), s		1.2		1.3		0.8		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									

Appendix E Existing Plus Project Conditions PM Synchro Level of Service Worksheets



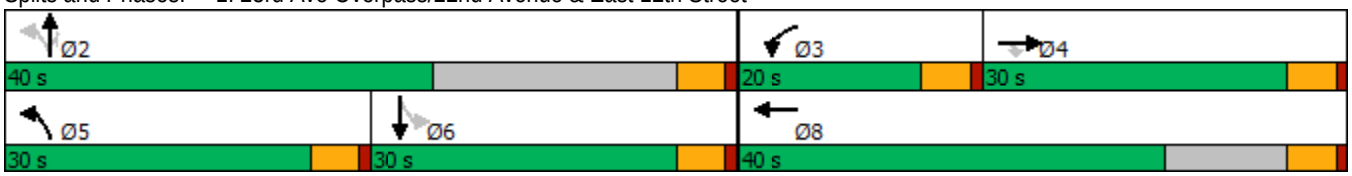
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	642	450	128	301	95	281	285	100	36	296	23
Future Volume (vph)	0	642	450	128	301	95	281	285	100	36	296	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		150	150		0	0		100	0		0
Storage Lanes	0		1	2		0	1		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99		1.00	
Frt			0.850		0.964				0.850		0.990	
Flt Protected				0.950			0.950				0.995	
Satd. Flow (prot)	0	5085	1583	3433	1788	0	1770	1863	1583	0	3370	0
Flt Permitted				0.950			0.397				0.893	
Satd. Flow (perm)	0	5085	1548	3433	1788	0	740	1863	1561	0	3024	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			450		17				100		6	
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		489			688			376			392	
Travel Time (s)		9.5			13.4			8.5			10.7	
Confl. Peds. (#/hr)			4			2			2	2		
Confl. Bikes (#/hr)			3			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)												1
Adj. Flow (vph)	0	642	450	128	301	95	281	285	100	36	296	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	642	450	128	396	0	281	285	100	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Prot	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases			4				2		2	6		
Detector Phase		4	4	3	8		5	2	2	6	6	
Switch Phase												
Minimum Initial (s)		7.0	7.0	5.0	8.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (s)		30.0	30.0	20.0	40.0		30.0	40.0	40.0	30.0	30.0	
Total Split (%)		27.3%	27.3%	18.2%	36.4%		27.3%	36.4%	36.4%	27.3%	27.3%	
Maximum Green (s)		25.0	25.0	15.0	35.0		25.0	35.0	35.0	25.0	25.0	
Yellow Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)		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)		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	

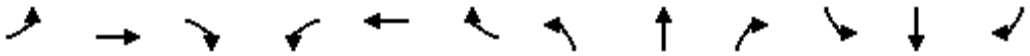
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag		Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode		Max	Max	None	Max		None	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0			
Flash Dont Walk (s)		11.0	11.0		10.0			25.0	25.0			
Pedestrian Calls (#/hr)		1	1		2			2	2			
Act Effct Green (s)		25.1	25.1	7.8	38.0		45.9	45.9	45.9		25.1	
Actuated g/C Ratio		0.27	0.27	0.08	0.40		0.49	0.49	0.49		0.27	
v/c Ratio		0.47	0.61	0.45	0.54		0.53	0.31	0.12		0.44	
Control Delay		31.2	7.1	47.3	24.5		18.6	15.6	3.1		31.3	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay		31.2	7.1	47.3	24.5		18.6	15.6	3.1		31.3	
LOS		C	A	D	C		B	B	A		C	
Approach Delay		21.3			30.1			15.0			31.3	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 94
Natural Cycle: 110
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 72.5% ICU Level of Service C
Analysis Period (min) 60

Splits and Phases: 1: 23rd Ave Overpass/22nd Avenue & East 12th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	642	450	128	301	95	281	285	100	36	296	23
Future Volume (veh/h)	0	642	450	128	301	95	281	285	100	36	296	23
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		0.98	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	0.89
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	642	0	128	301	95	281	285	100	36	296	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1445		235	553	175	537	896	758	106	782	60
Arrive On Green	0.00	0.28	0.00	0.07	0.41	0.41	0.14	0.48	0.48	0.28	0.28	0.28
Sat Flow, veh/h	0	5274	1585	3456	1357	428	1781	1870	1583	203	2763	211
Grp Volume(v), veh/h	0	642	0	128	0	396	281	285	100	193	0	162
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1728	0	1786	1781	1870	1583	1693	0	1484
Q Serve(g_s), s	0.0	9.1	0.0	3.2	0.0	14.9	9.0	8.3	3.1	0.0	0.0	7.8
Cycle Q Clear(g_c), s	0.0	9.1	0.0	3.2	0.0	14.9	9.0	8.3	3.1	7.3	0.0	7.8
Prop In Lane	0.00		1.00	1.00		0.24	1.00		1.00	0.19		0.14
Lane Grp Cap(c), veh/h	0	1445		235	0	728	537	896	758	527	0	420
V/C Ratio(X)	0.00	0.44		0.54	0.00	0.54	0.52	0.32	0.13	0.37	0.00	0.39
Avail Cap(c_a), veh/h	0	1445		587	0	728	792	896	758	527	0	420
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)	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.0	0.0	39.8	0.0	19.9	16.4	14.1	12.8	25.3	0.0	25.5
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.7	0.0	2.9	0.3	0.9	0.4	2.0	0.0	2.7
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	0.0	3.7	0.0	1.3	0.0	6.4	3.5	3.6	1.1	3.5	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.0	0.0	40.6	0.0	22.9	16.7	15.1	13.2	27.3	0.0	28.2
LnGrp LOS	A	C		D	A	C	B	B	B	C	A	C
Approach Vol, veh/h		642			524			666			355	
Approach Delay, s/veh		27.0			27.2			15.5			27.7	
Approach LOS		C			C			B			C	

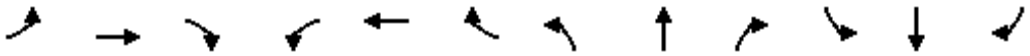
Timer - Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		47.3	11.0	30.0	17.3	30.0		41.0				
Change Period (Y+Rc), s		5.0	5.0	5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s		35.0	15.0	25.0	25.0	25.0		35.0				
Max Q Clear Time (g_c+I1), s		11.3	6.2	12.1	12.0	10.8		17.9				
Green Ext Time (p_c), s		1.2	0.1	2.4	0.3	1.3		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			23.6									
HCM 6th LOS			C									

Notes

User approved changes to right turn type.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

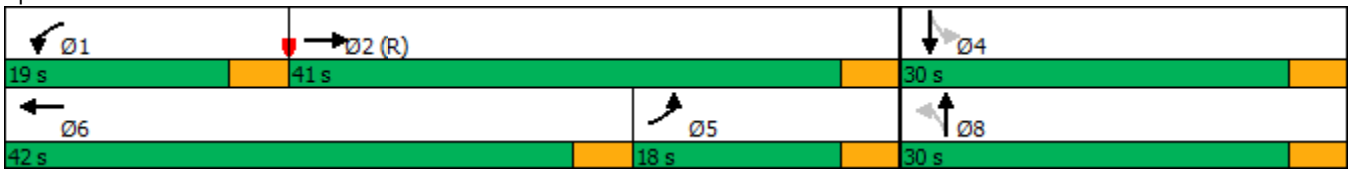


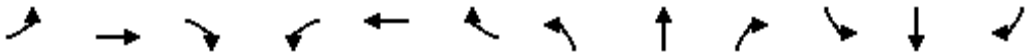
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	321	66	82	163	33	34	311	44	45	243	35
Future Volume (vph)	46	321	66	82	163	33	34	311	44	45	243	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	125		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.974			0.975			0.983			0.984	
Flt Protected	0.950			0.950				0.996			0.993	
Satd. Flow (prot)	1711	1746	0	1711	1750	0	0	3164	0	0	3158	0
Flt Permitted	0.950			0.950				0.890			0.769	
Satd. Flow (perm)	1711	1746	0	1711	1750	0	0	2826	0	0	2444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			14			15			15	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		505			702			392			392	
Travel Time (s)		11.5			16.0			10.7			10.7	
Confl. Peds. (#/hr)			10			4	4		4	4		4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)								1			1	
Adj. Flow (vph)	46	321	66	82	163	33	34	311	44	45	243	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	387	0	82	196	0	0	389	0	0	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.12	1.04	1.04	1.12	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	23.0		10.0	23.0		25.0	25.0		26.0	26.0	
Total Split (s)	18.0	41.0		19.0	42.0		30.0	30.0		30.0	30.0	
Total Split (%)	20.0%	45.6%		21.1%	46.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	14.0	37.0		15.0	38.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lag	Lag		Lead	Lead							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	C-Max		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		15.0	15.0	
Pedestrian Calls (#/hr)		2			2		4	4		4	4	
Act Effct Green (s)	17.3	54.7		8.7	50.0			16.4			16.4	
Actuated g/C Ratio	0.19	0.61		0.10	0.56			0.18			0.18	
v/c Ratio	0.14	0.36		0.50	0.20			0.74			0.71	
Control Delay	25.3	11.8		43.1	16.2			42.3			41.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	25.3	11.8		43.1	16.2			42.3			41.6	
LOS	C	B		D	B			D			D	
Approach Delay		13.2			24.1			42.3			41.6	
Approach LOS		B			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 29 (32%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 29.7		Intersection LOS: C	
Intersection Capacity Utilization 61.1%		ICU Level of Service B	
Analysis Period (min) 60			

Splits and Phases: 2: 22nd Avenue & International Boulevard

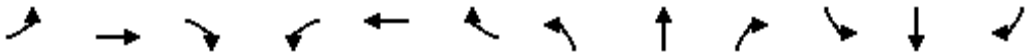




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	321	66	82	163	33	34	311	44	45	243	35
Future Volume (veh/h)	46	321	66	82	163	33	34	311	44	45	243	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
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	46	321	66	82	163	33	34	311	44	45	243	35
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	929	902	185	122	222	45	77	502	74	92	434	68
Arrive On Green	0.52	0.60	0.60	0.07	0.15	0.15	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1504	309	1781	1507	305	154	2535	374	202	2190	341
Grp Volume(v), veh/h	46	0	387	82	0	196	197	0	192	155	0	168
Grp Sat Flow(s),veh/h/ln	1781	0	1813	1781	0	1812	1433	0	1630	1096	0	1637
Q Serve(g_s), s	1.1	0.0	9.8	4.0	0.0	9.3	4.3	0.0	9.6	4.1	0.0	8.3
Cycle Q Clear(g_c), s	1.1	0.0	9.8	4.0	0.0	9.3	12.5	0.0	9.6	13.7	0.0	8.3
Prop In Lane	1.00		0.17	1.00		0.17	0.17		0.23	0.29		0.21
Lane Grp Cap(c), veh/h	929	0	1087	122	0	266	331	0	323	269	0	324
V/C Ratio(X)	0.05	0.00	0.36	0.67	0.00	0.74	0.60	0.00	0.59	0.58	0.00	0.52
Avail Cap(c_a), veh/h	929	0	1087	297	0	765	482	0	471	406	0	473
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	1.00	0.97	0.00	0.97	0.96	0.00	0.96	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.6	0.0	9.2	40.9	0.0	36.7	33.6	0.0	32.8	34.0	0.0	32.2
Incr Delay (d2), s/veh	0.0	0.0	0.9	2.3	0.0	1.5	0.6	0.0	0.6	0.7	0.0	0.5
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	0.4	0.0	3.8	1.8	0.0	4.2	4.1	0.0	3.8	3.3	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	10.1	43.2	0.0	38.2	34.2	0.0	33.4	34.7	0.0	32.7
LnGrp LOS	B	A	B	D	A	D	C	A	C	C	A	C
Approach Vol, veh/h		433			278			389			323	
Approach Delay, s/veh		10.1			39.7			33.8			33.7	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	58.0		21.8	50.9	17.2		21.8				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	15.0	37.0		26.0	14.0	38.0		26.0				
Max Q Clear Time (g_c+I1), s	7.0	12.8		16.7	4.1	12.3		15.5				
Green Ext Time (p_c), s	0.0	1.6		0.9	0.0	0.7		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			27.7									
HCM 6th LOS			C									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	45	103	9	12	14	81	270	34	13	209	23
Future Volume (vph)	27	45	103	9	12	14	81	270	34	13	209	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Grade (%)		0%			0%			1%			-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.921			0.946			0.987			0.986	
Flt Protected		0.992			0.987			0.990			0.997	
Satd. Flow (prot)	0	1515	0	0	1548	0	0	3152	0	0	3203	0
Flt Permitted		0.992			0.987			0.990			0.997	
Satd. Flow (perm)	0	1515	0	0	1548	0	0	3152	0	0	3203	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		433			717			392			375	
Travel Time (s)		11.8			19.6			10.7			10.2	
Confl. Peds. (#/hr)	6		3	3		6	2		1	1		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			2			1			1	
Adj. Flow (vph)	27	45	103	9	12	14	81	270	34	13	209	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	0	0	35	0	0	385	0	0	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.16	1.00	1.00	1.16	1.00	1.05	1.13	1.05	1.04	1.11	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	60		

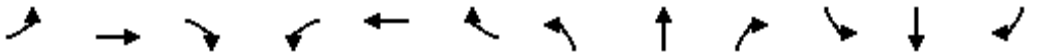
Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	45	103	9	12	14	81	270	34	13	209	23
Future Vol, veh/h	27	45	103	9	12	14	81	270	34	13	209	23
Conflicting Peds, #/hr	6	0	3	3	0	6	2	0	1	1	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	1	-	-	-1	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	45	103	9	12	14	81	270	34	13	209	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	558	716	121	606	710	159	234	0	0	305	0	0
Stage 1	249	249	-	450	450	-	-	-	-	-	-	-
Stage 2	309	467	-	156	260	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	412	354	908	381	357	858	1331	-	-	1253	-	-
Stage 1	733	699	-	558	570	-	-	-	-	-	-	-
Stage 2	676	560	-	831	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	366	323	904	281	326	853	1328	-	-	1252	-	-
Mov Cap-2 Maneuver	366	323	-	281	326	-	-	-	-	-	-	-
Stage 1	677	689	-	516	527	-	-	-	-	-	-	-
Stage 2	599	518	-	678	682	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	14.6	1.8	0.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	535	411	1252	-	-
HCM Lane V/C Ratio	0.061	-	-	0.327	0.085	0.01	-	-
HCM Control Delay (s)	7.9	0.2	-	15	14.6	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.3	0	-	-

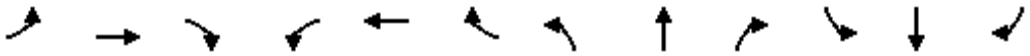


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	267	38	88	199	14	72	151	90	7	119	4
Future Volume (vph)	10	267	38	88	199	14	72	151	90	7	119	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	11	11	12	12	12
Grade (%)		0%			0%			1%			-1%	
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00		0.99	0.99			1.00	
Frt		0.981			0.990			0.944			0.996	
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1652	1701	0	1652	1520	0	1702	1498	0	0	1662	0
Flt Permitted	0.625			0.550			0.697				0.983	
Satd. Flow (perm)	1080	1701	0	952	1520	0	1231	1498	0	0	1638	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			9			49			3	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		319			757			375			149	
Travel Time (s)		7.3			17.2			10.2			4.1	
Confl. Peds. (#/hr)	9		12	12		9	10		4	4		10
Confl. Bikes (#/hr)			10			4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)			1		3			1			1	
Adj. Flow (vph)	10	267	38	88	199	14	72	151	90	7	119	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	305	0	88	213	0	72	241	0	0	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.27	1.09	1.05	1.21	1.05	0.99	1.15	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	40.0	40.0		40.0	40.0		21.0	21.0		21.0	21.0	
Total Split (s)	40.0	40.0		40.0	40.0		23.0	23.0		23.0	23.0	
Total Split (%)	63.5%	63.5%		63.5%	63.5%		36.5%	36.5%		36.5%	36.5%	
Maximum Green (s)	36.0	36.0		36.0	36.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	25.0	25.0		25.0	25.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	12	12		9	9		4	4		10	10	
Act Effct Green (s)	36.0	36.0		36.0	36.0		19.0	19.0			19.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.30	0.30			0.30	
v/c Ratio	0.02	0.31		0.16	0.24		0.19	0.50			0.26	
Control Delay	6.0	7.6		7.4	7.3		18.1	18.4			18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.0	7.6		7.4	7.3		18.1	18.4			18.1	
LOS	A	A		A	A		B	B			B	
Approach Delay		7.6			7.3			18.4			18.1	
Approach LOS		A			A			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 63			
Actuated Cycle Length: 63			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 60			

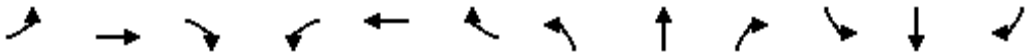
Splits and Phases: 4: 22nd Avenue & Foothill Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	267	38	88	199	14	72	151	90	7	119	4
Future Volume (veh/h)	10	267	38	88	199	14	72	151	90	7	119	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.97	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	0.89	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	1864	1864	1864	1909	1909	1909
Adj Flow Rate, veh/h	10	267	38	88	199	14	72	151	90	7	119	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	712	816	116	620	984	69	517	328	195	71	537	17
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1160	1429	203	1070	1723	121	1249	1087	648	36	1781	58
Grp Volume(v), veh/h	10	0	305	88	0	213	72	0	241	130	0	0
Grp Sat Flow(s),veh/h/ln	1160	0	1632	1070	0	1844	1249	0	1735	1874	0	0
Q Serve(g_s), s	0.3	0.0	6.2	3.0	0.0	3.5	0.0	0.0	7.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	6.2	9.2	0.0	3.5	1.9	0.0	7.1	3.2	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.37	0.05		0.03
Lane Grp Cap(c), veh/h	712	0	933	620	0	1054	517	0	523	625	0	0
V/C Ratio(X)	0.01	0.00	0.33	0.14	0.00	0.20	0.14	0.00	0.46	0.21	0.00	0.00
Avail Cap(c_a), veh/h	712	0	933	620	0	1054	517	0	523	625	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	7.1	9.5	0.0	6.5	16.0	0.0	17.8	16.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.5	0.0	0.4	0.6	0.0	2.9	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	0.7	0.0	1.2	0.8	0.0	3.1	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	0.0	8.1	10.0	0.0	7.0	16.6	0.0	20.8	17.2	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B	A	C	B	A	A
Approach Vol, veh/h		315			301			313			130	
Approach Delay, s/veh		8.0			7.9			19.8			17.2	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.0		40.0		23.0		40.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		19.0		36.0		19.0		36.0				
Max Q Clear Time (g_c+I1), s		10.1		9.2		6.2		12.2				
Green Ext Time (p_c), s		1.1		1.9		0.5		1.6				

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

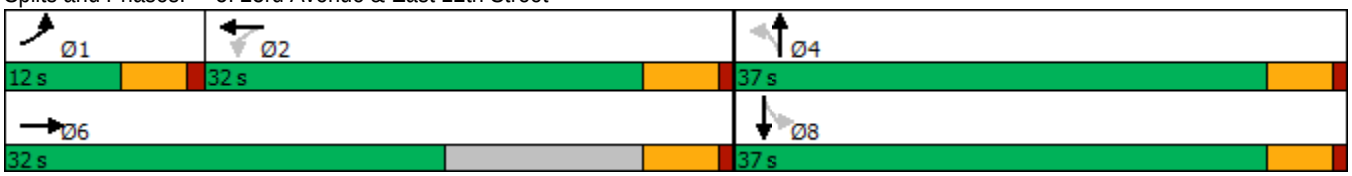


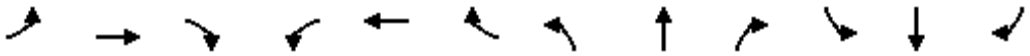
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	754	3	1	364	121	18	7	11	95	2	80
Future Volume (vph)	126	754	3	1	364	121	18	7	11	95	2	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Storage Length (ft)	135		40	0		100	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			0.99	
Frt		0.999			0.963			0.959			0.939	
Flt Protected	0.950							0.976			0.974	
Satd. Flow (prot)	1770	3535	0	0	3217	0	0	1677	0	0	1458	0
Flt Permitted	0.950				0.954			0.857			0.813	
Satd. Flow (perm)	1770	3535	0	0	3069	0	0	1471	0	0	1215	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			59			11			61	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		688			605			163			371	
Travel Time (s)		13.4			11.8			4.4			10.1	
Confl. Peds. (#/hr)			1	1		1	3		5	5		3
Confl. Bikes (#/hr)			9			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)					0						1	
Adj. Flow (vph)	126	754	3	1	364	121	18	7	11	95	2	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	757	0	0	486	0	0	36	0	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.07	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			8	
Permitted Phases				2			4			8		
Detector Phase	1	6		2	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	23.5		23.5	23.5		37.0	37.0		37.0	37.0	
Total Split (s)	12.0	32.0		32.0	32.0		37.0	37.0		37.0	37.0	
Total Split (%)	14.8%	39.5%		39.5%	39.5%		45.7%	45.7%		45.7%	45.7%	
Maximum Green (s)	7.0	26.5		26.5	26.5		32.0	32.0		32.0	32.0	
Yellow Time (s)	4.0	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
All-Red Time (s)	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	
Total Lost Time (s)	5.0	5.5			5.5			5.0			5.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Max		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0		7.0	7.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		1		1	1		5	5		0	0	
Act Effct Green (s)	7.1	40.1			27.9			11.0			12.6	
Actuated g/C Ratio	0.11	0.63			0.44			0.17			0.20	
v/c Ratio	0.64	0.34			0.35			0.14			0.61	
Control Delay	47.6	7.7			12.9			15.5			23.6	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	47.6	7.7			12.9			15.5			23.6	
LOS	D	A			B			B			C	
Approach Delay		13.4			12.9			15.5			23.6	
Approach LOS		B			B			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 81			
Actuated Cycle Length: 63.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 60			

Splits and Phases: 5: 23rd Avenue & East 12th Street

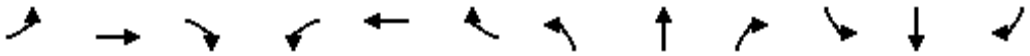




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	754	3	1	364	121	18	7	11	95	2	80
Future Volume (veh/h)	126	754	3	1	364	121	18	7	11	95	2	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	0.99		0.99	0.99		0.99
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	126	754	3	1	364	121	18	7	11	95	2	80
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	186	2332	9	62	1160	378	209	86	89	232	9	120
Arrive On Green	0.10	0.64	0.64	0.45	0.45	0.45	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	3630	14	1	2562	834	655	484	501	770	49	675
Grp Volume(v), veh/h	126	369	388	264	0	222	36	0	0	177	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1869	0	1528	1639	0	0	1494	0	0
Q Serve(g_s), s	4.0	5.5	5.5	0.0	0.0	5.4	0.0	0.0	0.0	5.4	0.0	0.0
Cycle Q Clear(g_c), s	4.0	5.5	5.5	5.3	0.0	5.4	1.0	0.0	0.0	6.4	0.0	0.0
Prop In Lane	1.00		0.01	0.00		0.55	0.50		0.31	0.54		0.45
Lane Grp Cap(c), veh/h	186	1142	1200	908	0	692	384	0	0	361	0	0
V/C Ratio(X)	0.68	0.32	0.32	0.29	0.00	0.32	0.09	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	213	1142	1200	908	0	692	925	0	0	900	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.3	4.7	4.7	10.2	0.0	10.2	20.2	0.0	0.0	22.3	0.0	0.0
Incr Delay (d2), s/veh	5.0	0.8	0.7	0.8	0.0	1.2	0.0	0.0	0.0	0.4	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	1.8	1.5	1.6	2.0	0.0	1.7	0.4	0.0	0.0	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	5.5	5.4	11.0	0.0	11.5	20.2	0.0	0.0	22.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	C	A	A	C	A	A
Approach Vol, veh/h		883			486			36			177	
Approach Delay, s/veh		9.0			11.2			20.2			22.7	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.1	32.0		15.4		43.1		15.4				
Change Period (Y+Rc), s	5.0	5.5		5.0		5.5		5.0				
Max Green Setting (Gmax), s	7.0	26.5		32.0		26.5		32.0				
Max Q Clear Time (g_c+I1), s	7.0	8.4		4.0		8.5		9.4				
Green Ext Time (p_c), s	0.0	1.7		0.1		2.8		0.7				

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

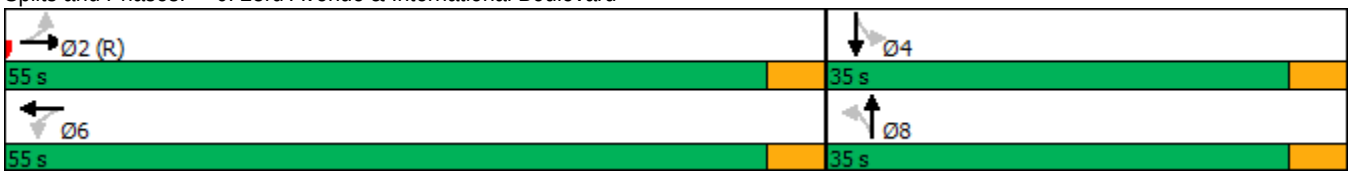


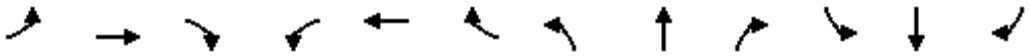
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	383	16	10	270	40	10	220	14	52	137	33
Future Volume (vph)	17	383	16	10	270	40	10	220	14	52	137	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			1.00			0.99	
Frt		0.995			0.983			0.992			0.980	
Flt Protected		0.998			0.998			0.998			0.988	
Satd. Flow (prot)	0	1587	0	0	1543	0	0	1600	0	0	1551	0
Flt Permitted		0.983			0.988			0.988			0.743	
Satd. Flow (perm)	0	1563	0	0	1527	0	0	1584	0	0	1163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13			4			11	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		702			831			371			394	
Travel Time (s)		16.0			18.9			10.1			10.7	
Confl. Peds. (#/hr)			16			51	9		10	10		9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		2			1			0			1	
Adj. Flow (vph)	17	383	16	10	270	40	10	220	14	52	137	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	416	0	0	320	0	0	244	0	0	222	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.21	1.04	1.04	1.20	1.04	1.04	1.19	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0		24.0	24.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	51.0	51.0		51.0	51.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0		12.0	12.0		13.0	13.0	
Pedestrian Calls (#/hr)	8	8		20	20		6	6		4	4	
Act Effct Green (s)		63.6			63.6			18.4			18.4	
Actuated g/C Ratio		0.71			0.71			0.20			0.20	
v/c Ratio		0.38			0.30			0.75			0.90	
Control Delay		12.3			6.5			47.8			84.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.3			6.5			47.8			84.2	
LOS		B			A			D			F	
Approach Delay		12.3			6.5			47.8			84.2	
Approach LOS		B			A			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 65 (72%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 60			

Splits and Phases: 6: 23rd Avenue & International Boulevard

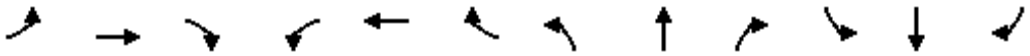




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	383	16	10	270	40	10	220	14	52	137	33
Future Volume (veh/h)	17	383	16	10	270	40	10	220	14	52	137	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.97	0.99		0.97
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	17	383	16	10	270	40	10	220	14	52	137	33
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	1249	51	57	1125	163	48	318	20	103	196	44
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	34	1726	70	21	1554	225	36	1698	106	289	1045	233
Grp Volume(v), veh/h	416	0	0	320	0	0	244	0	0	222	0	0
Grp Sat Flow(s),veh/h/ln	1830	0	0	1801	0	0	1840	0	0	1567	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	7.2	0.0	0.0	5.3	0.0	0.0	11.1	0.0	0.0	12.1	0.0	0.0
Prop In Lane	0.04		0.04	0.03		0.12	0.04		0.06	0.23		0.15
Lane Grp Cap(c), veh/h	1367	0	0	1345	0	0	386	0	0	343	0	0
V/C Ratio(X)	0.30	0.00	0.00	0.24	0.00	0.00	0.63	0.00	0.00	0.65	0.00	0.00
Avail Cap(c_a), veh/h	1367	0	0	1345	0	0	670	0	0	591	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)	0.94	0.00	0.00	1.00	0.00	0.00	0.84	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.4	0.0	0.0	4.2	0.0	0.0	34.3	0.0	0.0	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	1.7	0.0	0.0	5.0	0.0	0.0	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.0	0.0	0.0	4.6	0.0	0.0	34.8	0.0	0.0	35.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		416			320			244			222	
Approach Delay, s/veh		5.0			4.6			34.8			35.2	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.2		20.8		69.2		20.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		51.0		31.0		51.0		31.0				
Max Q Clear Time (g_c+I1), s		10.2		15.1		8.3		14.1				
Green Ext Time (p_c), s		1.8		0.8		1.4		0.9				

Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	38	38	8	13	17	9	243	18	18	167	9
Future Volume (vph)	26	38	38	8	13	17	9	243	18	18	167	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.950			0.940			0.991			0.994	
Flt Protected		0.987			0.990			0.998			0.995	
Satd. Flow (prot)	0	1563	0	0	1551	0	0	1594	0	0	1594	0
Flt Permitted		0.987			0.990			0.998			0.995	
Satd. Flow (perm)	0	1563	0	0	1551	0	0	1594	0	0	1594	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		717			577			394			452	
Travel Time (s)		19.6			15.7			10.7			12.3	
Confl. Peds. (#/hr)	9		12	12		9	26		18	18		26
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		1			1			1			1	
Adj. Flow (vph)	26	38	38	8	13	17	9	243	18	18	167	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	38	0	0	270	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.15	1.00	1.00	1.15	1.00	1.04	1.20	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.3%		ICU Level of Service A	
Analysis Period (min) 60			

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	38	38	8	13	17	9	243	18	18	167	9
Future Vol, veh/h	26	38	38	8	13	17	9	243	18	18	167	9
Conflicting Peds, #/hr	9	0	12	12	0	9	26	0	18	18	0	26
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	38	38	8	13	17	9	243	18	18	167	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	528	531	210	546	526	279	202	0	0	279	0	0
Stage 1	234	234	-	288	288	-	-	-	-	-	-	-
Stage 2	294	297	-	258	238	-	-	-	-	-	-	-
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	461	454	830	448	457	760	1370	-	-	1284	-	-
Stage 1	769	711	-	720	674	-	-	-	-	-	-	-
Stage 2	714	668	-	747	708	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	418	425	801	380	428	741	1336	-	-	1262	-	-
Mov Cap-2 Maneuver	418	425	-	380	428	-	-	-	-	-	-	-
Stage 1	744	682	-	702	657	-	-	-	-	-	-	-
Stage 2	673	651	-	654	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.8	12.6	0.3	0.7
HCM LOS	B	B		

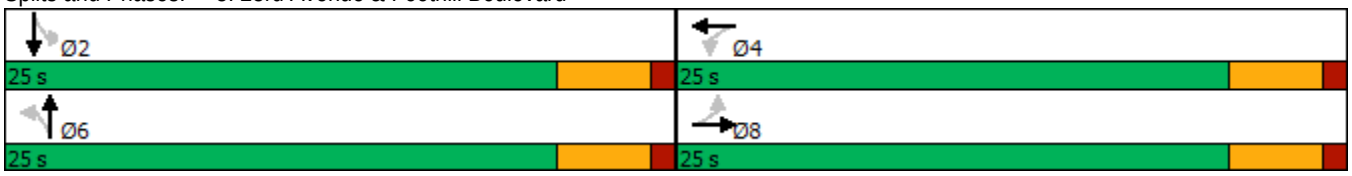
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1336	-	-	512	511	1262	-	-
HCM Lane V/C Ratio	0.007	-	-	0.199	0.074	0.014	-	-
HCM Control Delay (s)	7.7	0	-	13.8	12.6	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.2	0	-	-

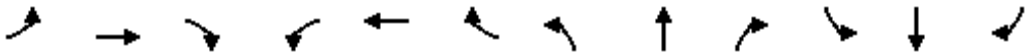
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	301	35	19	223	22	19	213	42	21	146	39
Future Volume (vph)	29	301	35	19	223	22	19	213	42	21	146	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	11	11	11	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.987			0.989			0.979			0.974	
Flt Protected		0.996			0.996			0.997			0.995	
Satd. Flow (prot)	0	1642	0	0	1637	0	0	1749	0	0	1548	0
Flt Permitted		0.963			0.964			0.975			0.957	
Satd. Flow (perm)	0	1587	0	0	1584	0	0	1708	0	0	1488	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			11			22			28	
Link Speed (mph)		30			25			25			25	
Link Distance (ft)		757			336			452			200	
Travel Time (s)		17.2			9.2			12.3			5.5	
Confl. Peds. (#/hr)	9		7	7		9	21		9	9		21
Confl. Bikes (#/hr)			6									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking (#/hr)		0			1						1	
Adj. Flow (vph)	29	301	35	19	223	22	19	213	42	21	146	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	365	0	0	264	0	0	274	0	0	206	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.14	1.00	1.00	1.15	1.00	1.04	1.04	1.04	1.04	1.20	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	Max	Max		Max	Max		None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	16	16		21	21		15	15		20	20	
Act Effct Green (s)		20.5			20.5			20.5			20.5	
Actuated g/C Ratio		0.41			0.41			0.41			0.41	
v/c Ratio		0.55			0.40			0.38			0.33	
Control Delay		14.9			12.3			11.4			10.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.9			12.3			11.4			10.4	
LOS		B			B			B			B	
Approach Delay		14.9			12.3			11.4			10.4	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 50			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 8: 23rd Avenue & Foothill Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	301	35	19	223	22	19	213	42	21	146	39
Future Volume (veh/h)	29	301	35	19	223	22	19	213	42	21	146	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.99	0.98		0.97	0.98		0.97
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	29	301	35	19	223	22	19	213	42	21	146	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	631	70	101	651	61	100	595	112	113	547	135
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	73	1539	171	57	1589	150	55	1452	273	81	1333	330
Grp Volume(v), veh/h	365	0	0	264	0	0	274	0	0	206	0	0
Grp Sat Flow(s),veh/h/ln	1784	0	0	1796	0	0	1780	0	0	1745	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.3	0.0	0.0	4.9	0.0	0.0	5.3	0.0	0.0	3.8	0.0	0.0
Prop In Lane	0.08		0.10	0.07		0.08	0.07		0.15	0.10		0.19
Lane Grp Cap(c), veh/h	809	0	0	813	0	0	807	0	0	795	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.00	0.34	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	809	0	0	813	0	0	807	0	0	795	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	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	10.2	0.0	0.0	10.3	0.0	0.0	9.8	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.9	0.0	0.0	1.8	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	11.2	0.0	0.0	10.3	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		365			264			274			206	
Approach Delay, s/veh		12.7			11.2			10.3			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.5		20.5		20.5		20.5				
Max Q Clear Time (g_c+I1), s		6.8		7.9		8.3		10.3				
Green Ext Time (p_c), s		0.7		0.9		0.9		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									

Appendix F SWITRS Crash Records

CASE_ID	ACC_YR	COL_DATE	COL_TIME	DAY_WEEK	PRIMARY_RD	SECONDARY_RD	DST	DIR	INT_SCN	WTR_1	TOW_AWY	COL_SEV	NUM_KLLD	NUM_INJ	PTY_CNT	PRI_COL_FCTR	HIT_RUN	TPE_COL	PED_ACTN	LGHT	PED_ACC	BIC_ACC	MC_ACC	TRK_ACC	ALC_INV	STWD_VHTP_FLT	CNT_SEV_INJ	CNT_VIS_INJ	CNT_CMP_PAIN	CNT_PED_INJ	CNT_BIC_INJ	CNT_MC_INJ
7208092	2016	20160208	1801	1	E 12TH ST	22ND AV	5	E	N	A	N	4	0	1	2	A	N	C	A	A					Y	A	0	0	1	0	0	0
8008710	2017	20170119	1948	4	E 12TH ST	22ND AV	0		Y	B	Y	4	0	2	2	A	N	D	A	C						A	0	0	2	0	0	0
8030124	2016	20160108	846	5	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
8040401	2016	20160208	813	1	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	1	2	A	N	A	A	A				Y		A	0	0	1	0	0	1
8043958	2016	20160411	1757	1	22ND AV	E 15TH ST	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8051231	2016	20160328	1241	1	22ND AV	E 12TH ST	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
8058280	2016	20160413	1640	3	E 12TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
8062141	2016	20160517	2319	2	INTERNATIONAL BL	22ND AV	0		Y	A	N	4	0	1	2	A	N	D	A	C						A	0	0	1	0	0	0
8062172	2016	20160527	1315	5	22ND AV	E 12TH ST	0		Y	A	Y	4	0	2	4	A	M	B	A	A						A	0	0	2	0	0	0
8066775	2016	20160509	1521	1	FOOTHILL BL	23RD AV	0		Y	A	N	0	0	0	2	A	N	A	A	A						A	0	0	0	0	0	0
8070606	2016	20160602	256	4	INTERNATIONAL BL	22ND AV	40	W	N	A	Y	4	0	2	2	A	M	C	A	C						A	0	0	2	0	0	0
8084618	2016	20160430	2150	6	23RD AV	E 15TH ST	0		Y	A	N	4	0	1	2	A	M	B	A	C						A	0	0	1	0	0	0
8084858	2016	20160318	1730	5	22ND AV	FOOTHILL BL	20	S	N	A	N	0	0	0	2	A	M	B	A	A						A	0	0	0	0	0	0
8093472	2016	20160502	1641	1	E 12TH ST	22ND AV	0		Y	A	N	4	0	1	2	A	N	D	A	A						-	0	0	1	0	0	0
8094182	2016	20160513	1216	5	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	2	2	A	N	D	A	A						A	0	0	2	0	0	0
8106231	2016	20160514	130	6	E 12TH ST	22ND AV	0		Y	A	Y	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8115752	2016	20160712	2003	2	22ND AV	E 12TH ST	25	S	N	A	N	3	0	3	2	A	N	A	A	A						A	0	1	2	0	0	0
8120795	2016	20160609	905	4	22ND AV	FOOTHILL BL	125	S	N	A	N	0	0	0	3	A	N	D	A	A						A	0	0	0	0	0	0
8135185	2016	20160827	2111	6	INTERNATIONAL BL	22ND AV	10	N	N	A	N	0	0	0	2	A	N	C	A	C						A	0	0	0	0	0	0
8143918	2016	20161014	1004	5	22ND AV	FOOTHILL BL	0		Y	C	Y	4	0	1	3	A	N	D	A	A						-	0	0	1	0	0	0
8144113	2016	20161009	20	7	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	2	2	A	N	D	A	C						A	0	0	2	0	0	0
8145260	2016	20160811	752	4	FOOTHILL BL	23RD AV	0		Y	B	Y	0	0	0	1	A	N	A	A	A						A	0	0	0	0	0	0
8145300	2016	20160705	316	2	FOOTHILL BL	22ND AV	60	W	N	B	N	0	0	0	4	A	M	B	A	C						-	0	0	0	0	0	0
8150859	2016	20160929	921	4	23RD AV	FOOTHILL BL	10	N	N	B	N	4	0	1	2	A	N	C	A	A						A	0	0	1	0	0	0
8161775	2016	20160917	2130	6	E 12TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	N	D	A	C						-	0	0	0	0	0	0
8165851	2016	20160905	1834	1	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	1	2	A	N	G	B	A	Y					A	0	0	1	1	0	0
8165879	2016	20160919	1519	1	INTERNATIONAL BL	22ND AV	0		Y	A	N	4	0	1	2	D	M	D	A	A						-	0	0	1	0	0	0
8165997	2016	20161014	1650	5	INTERNATIONAL BL	23RD AV	0		Y	B	N	4	0	2	3	A	N	D	A	A						A	0	0	2	0	0	0
8172021	2016	20160914	413	3	22ND AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
8172685	2016	20160709	1750	6	E 12TH ST	22ND AV	0		Y	A	N	4	0	1	2	A	M	B	A	A					Y	A	0	0	1	0	0	0
8175996	2016	20160825	1701	4	22ND AV	FOOTHILL BL	0		Y	A	Y	4	0	1	3	A	N	D	A	A						A	0	0	1	0	0	0
8179818	2016	20161019	1515	3	22ND AV	E 12TH ST	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
8191482	2016	20161023	1450	7	INTERNATIONAL BL	23RD AV	0		Y	A	N	3	0	1	2	A	N	D	A	A	Y					D	0	1	0	0	1	0
8191560	2016	20161013	242	4	INTERNATIONAL BL	22ND AV	0		Y	A	Y	4	0	1	3	A	N	D	A	C						A	0	0	1	0	0	0
8191572	2016	20161028	217	5	INTERNATIONAL BL	23RD AV	0		Y	C	Y	4	0	1	2	A	N	B	A	C						A	0	0	1	0	0	0
8191588	2016	20161025	1939	2	E 12TH ST	22ND AV	0		Y	A	Y	4	0	2	3	A	N	D	A	C						-	0	0	2	0	0	0
8192029	2016	20160925	2217	7	INTERNATIONAL BL	22ND AV	100	W	N	A	N	0	0	0	2	A	M	F	A	C						A	0	0	0	0	0	0
8198356	2016	20161022	2324	6	22ND AV	12TH ST	400	E	N	A	N	4	0	2	2	A	N	A	A	C						D	0	0	2	0	0	0
8198384	2016	20161103	1855	4	12TH ST	22ND AV	0		Y	A	N	3	0	1	3	A	N	D	A	C						A	0	1	0	0	0	0
8204181	2016	20160905	2020	1	FOOTHILL BL	23RD AV	0		Y	A	N	3	0	1	2	A	M	G	D	C	Y				Y	N	0	1	0	1	0	0
8283343	2016	20161129	1627	2	23RD AV	INTERNATIONAL BL	0		Y	A	N	4	0	1	2	A	N	B	A	A		Y				L	0	0	1	0	1	0
8294720	2016	20161108	1920	2	E 12TH ST	22ND AV	0		Y	A	Y	4	0	2	2	A	N	A	A	C						-	0	0	2	0	0	0
8298316	2016	20161209	2030	5	22ND AV	E 12TH ST	0		Y	B	Y	4	0	2	3	A	M	B	A	C						A	0	0	2	0	0	0
8298639	2017	20170107	427	6	INTERNATIONAL BL	23RD AV	0		Y	C	Y	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8300017	2016	20161120	33	7	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	3	A	M	C	A	A						A	0	0	0	0	0	0
8300502	2016	20161124	2300	4	22ND AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	M	G	F	C	Y				Y	A	0	0	1	1	0	0
8319951	2016	20161210	453	6	22ND AV	INTERNATIONAL BL	0		Y	C	N	4	0	2	3	A	N	D	A	C						A	0	0	2	0	0	0
8322257	2016	20161119	2300	6	FOOTHILL BL	23RD AV	0		Y	C	N	0	0	0	2	A	N	D	A	C						-	0	0	0	0	0	0
8322499	2016	20161212	540	1	FOOTHILL BL	23RD AV	100	E	N	A	Y	2	0	1	2	A	F	E	A	C						A	1	0	0	0	0	0
8327064	2016	20161209	1810	5	23RD AV	E 12TH ST	30	N	N	A	N	0	0	0	2	A	M	C	A	C						-	0	0	0	0	0	0
8332601	2017	20170112	1811	4	22ND AV	E 12TH ST	0		Y	A	N	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
8350581	2017	20170301	2250	3	E 12TH ST	22ND AV	0		Y	A	Y	4	0	1	2	A	N	D	A	C						A	0	0	1	0	0	0
8365591	2017	20170322	2138	3	E 12TH ST	22ND AV	5	E	N	A	Y	0	0	0	2	A	M	C	A	C					Y	A	0	0	0	0	0	0
8366779	2017	20170111	750	3	E 12TH ST	22ND AV	245	W	N	B	N	0	0	0	1	A	M	E	A	A						-	0	0	0	0	0	0
8367234	2017	20170114	1816	6	EAST 12TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	N	A	A	C						A	0	0	0	0	0	0
8373855	2017	20170125	1030	3	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	2	A	M	C	A	A						A	0	0	0	0	0	0
8374097	2017	20170125	1040	3	E 12TH ST	22ND AV	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8374466	2017	20170213	900	1	E 12TH	22ND AV	0		Y	B	N	4	0	2	2	A	N	D	A	A						A	0	0	2	0	0	0
8385644	2017	20170407	2306	5	INTERNATIONAL BL	22ND AV	0		Y	C	Y	0	0	0	3	A	M	D	A	C					Y	A	0	0	0	0	0	0
8389944	2017	20170207	2030	2	12TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	N	A	A	C						A	0	0	0	0	0	0
8390345	2016	20161125	118	5	INTERNATIONAL BL	22ND AV	0		Y	A	Y	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8393515	2017	20170211	1545	6	INTERNATIONAL BL	22ND AV	10	E	N	A	N	4	0	1	3	A	N	B	A	A						A	0	0	1	0	0	0
8398647	2017	20170321	936	2	E 12TH ST	22ND AV	32	E	N	A	N	0	0	0	3	A	N	C	A	A				Y		F	0	0	0	0	0	0
8398801	2017	20170322	2122	3	INTERNATIONAL BL	23RD AV	0		Y	A	N	0	0	0	2	A	N	D	A	C						-	0	0	0	0	0	0
8402099	2017	20170404	1200	2	FOOTHILL BL	22ND AV	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8409245	2017	20170421	2345	5	22ND AV	E 15TH ST	0		Y	B	N	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8409378	2017	20170330	1029	4	22ND AV	INTERNATIONAL	12	S	N	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0
8409409	2017	20170305	150	7	INTERNATIONAL BL	22ND AV	0		Y	C	N	4	0	4	2	A	N	D	A	C						A	0	0	4	0	0	0
8413471	2017	20170415	1050	6	22ND AV	E 12TH ST	0		Y	A	N	0	0	0	2	A	N	B	A	A				Y		A	0	0	0	0	0	0
8413900	2017	20170501	924	1	FOOTHILL BL	23RD AV	0		Y	A	N	4	0	1	2	A	N	B	A	A		Y				L	0	0	1	0	1	0
8415322	2018	20180523	2354	3	INTERNATIONAL BL	23RD AV	0		Y	A	Y	0	0	0	3	A	M	B	A	C						A	0	0	0	0	0	0
8425688	2017	20170507	1324	7	22ND AV	E 15TH ST	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8426363	2017	20170526	1726	5	22ND AV	EAST 12TH ST	0		Y	A	N	4	0	1	3	A	M	D	A	A						A	0	0	1	0	0	0
8427162	2017	20170321	1200	2	E 12TH ST	22ND AV	0		Y	A	N	4	0	3	2	A	N	D	A	A						A	0	0	3	0	0	0
8438394	2017	20170723	2113	7	FOOTHILL BL	22ND AV	30	E	N	A	Y	4	0	2	2	A	N	C	A	C					Y	A	0	0	2	0	0	0
8440331	2017	20170516	1254	2	E 12TH ST	22ND AV	0		Y	A	N	0	0	0	5	A	N	D	A	A						A	0	0	0	0	0	0
8452639	2017	20170521	2121	7	FOOTHILL BL	23RD AV	0		Y	A	N	4	0	1	2	A	M	G	B	C	Y					D	0	0	1	1	0	0
8454033	2017	20170703	1602	1	23RD AV	FOOTHILL BL	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
8455210	2017	20170610	1936	6	FOOTHILL BL	23RD AV	0		Y	A	Y	3	0	2	2	A	N	D	A	B						A	0	1	1	0	0	0
8456525	2017	20170605	748	1	22ND AV	EAST 12TH ST	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8475415	2017	20170715	1252	6	22ND AV	E 12TH ST	100	S	N	A	N	0	0	0	2	B	N	B	A	A						J	0	0	0	0	0	0
8492750	2017	20170627	803	2	23RD AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	N	G	B	A	Y					D	0	0	1	1	0	0
8510009	2017	20171115	1500	3	E 12TH ST	22ND AV	0		Y	B	N	4	0	1	2	A	N	D	A	C						-	0	0	1	0	0	0
8515345	2017	20170921	925	4	INTERNATIONAL BL	22ND AV	0		Y	A	Y	4	0	1	3	A	N	A	A	A						A	0	0	1	0	0	0
8519540	2017	20171018	1928	3	E 12TH ST	22ND AV	100	W	N	A	N	0	0	0	2	A	N	C	A	C						D	0	0	0	0	0	0
8527870	2017	20170702	2300	7	INTERNATIONAL BL	22ND AV	10	W	N	A	N	0	0	0	2	A	M	C	A	C						A	0	0	0	0	0	0
8530584	2017	20170811	2133	5	22ND AV	INTERNATIONAL BL	20	N	N	A	N	4	0	1	2	A	M	G	D	C	Y					A	0	0	1	1	0	0
8533980	2017	20170718	1854	2	23RD AV	INTERNATIONAL	15	N	N	A	N	0	0	0	1	A	N	E	A	A						A	0	0	0	0	0	0
8534113	2017	20171025	1704	3	22ND AV	FOOTHILL BL	0		Y	A	N	3	0	1	2	A	M	G	B	A	Y					A	0	1	0	1	0	0
8535119	2017	20170827	1052	7	FOOTHILL BL	23RD AV	60	W	N	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0

CASE_ID	ACC_YR	COL_DATE	COL_TIME	DAY_WEEK	PRIMARY_RD	SECONDARY_RD	DST	DIR	INT_SCN	WTR_1	TOW_AWY	COL_SEV	NUM_KLLD	NUM_INJ	PTY_CNT	PRI_COL_FCTR	HIT_RUN	TPE_COL	PED_ACTN	LGHT	PED_ACC	BIC_ACC	MC_ACC	TRK_ACC	ALC_INV	STWD_VHTP_FLT	CNT_SEV_INJ	CNT_VIS_INJ	CNT_CMP_PAIN	CNT_PED_INJ	CNT_BIC_INJ	CNT_MC_INJ
8548069	2017	20171003	905	2	E 15TH AV	22ND AV	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
8553411	2017	20170812	33	6	E 12TH ST	22ND AV	125	E	N	A	N	4	0	2	3	A	N	B	E	C	Y					A	0	0	2	0	0	0
8553715	2017	20170904	2005	1	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	2	A	N	B	A	C						-	0	0	0	0	0	0
8557516	2018	20180102	1100	2	23RD AV	INTERNATIONAL BL	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8565323	2017	20170904	1153	1	22ND AV	FOOTHILL BL	0		Y	B	Y	3	0	3	2	A	N	A	A	A						A	0	1	2	0	0	0
8573632	2018	20180108	754	1	23RD AV	E 12TH ST	0		Y	C	N	0	0	0	2	A	N	A	B	B	Y					A	0	0	0	0	0	0
8578385	2017	20171028	820	6	22ND AV	15TH ST	10	E	N	B	N	3	0	1	2	A	N	D	A	A						A	0	1	0	0	0	0
8589173	2018	20180303	600	6	E 15TH ST	22ND AV	0		Y	B	N	4	0	1	5	A	M	D	A	C						A	0	0	1	0	0	0
8603156	2018	20180331	1700	6	22ND AV	FOOTHILL BL	0		Y	A	N	0	0	0	2	A	M	A	A	A				Y		F	0	0	0	0	0	0
8603996	2018	20180320	1714	2	23RD AV	15TH ST	10	N	N	C	N	0	0	0	2	A	M	C	A	A						A	0	0	0	0	0	0
8609789	2018	20180315	1601	4	23RD AV	E 12TH ST	100	N	N	A	N	0	0	0	2	A	N	H	A	A						A	0	0	0	0	0	0
8613382	2018	20180320	1336	2	22ND AV	FOOTHILL BL	0		Y	C	N	0	0	0	3	A	M	B	A	A						A	0	0	0	0	0	0
8624052	2018	20180321	1750	3	E 12TH ST	22ND AV	0		Y	B	N	0	0	0	2	A	N	B	A	B						A	0	0	0	0	0	0
8631675	2018	20180215	1357	4	EAST 12TH ST	22ND AV	10	W	N	A	N	3	0	5	4	A	N	B	B	A	Y					A	0	1	4	1	0	0
8639849	2018	20180331	19	6	23RD AV	INTERNATIONAL BL	25	N	N	A	N	0	0	0	6	A	M	B	A	C						A	0	0	0	0	0	0
8641311	2018	20180225	1027	7	E 12TH ST	23RD AV	0		Y	A	Y	2	0	1	2	A	N	B	A	A			Y			C	1	0	0	0	0	1
8669529	2018	20180602	2051	6	22ND AV	INTERNATIONAL BL	0		Y	A	N	3	0	5	2	A	N	A	A	C						A	0	2	3	0	0	0
8671069	2018	20180604	30	1	E 12TH ST	22ND AV	125	W	N	A	N	0	0	0	1	A	M	E	A	C						A	0	0	0	0	0	0
8679581	2018	20180614	1400	4	22ND AV	E 15TH ST	0		Y	-	N	4	0	1	2	A	N	D	A	A						D	0	0	1	0	0	0
8690109	2018	20180627	1656	3	23RD AV	E 12TH ST	20	S	N	A	N	0	0	0	2	A	M	C	A	A						A	0	0	0	0	0	0
8690299	2018	20180328	1749	3	12TH ST	23RD AV	15	E	N	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0
8701843	2018	20180720	1159	5	FOOTHILL BL	23RD AV	5	W	N	A	N	3	0	1	2	A	M	G	B	A	Y					A	0	1	0	1	0	0
8709483	2018	20180623	2343	6	12TH ST	22ND AV	0		Y	A	N	0	0	0	3	A	N	B	A	C						A	0	0	0	0	0	0
8709563	2018	20180323	2002	5	E 15TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
8710504	2018	20180715	930	7	E 12TH ST	22ND AV	10	W	N	A	N	0	0	0	1	A	N	E	A	A						A	0	0	0	0	0	0
8710813	2018	20180829	1414	3	22ND AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	N	D	A	A						A	0	0	1	0	0	0
8710841	2018	20180823	1435	4	E 12TH ST	23RD AV	160	W	N	A	Y	4	0	1	2	A	M	G	F	A	Y					A	0	0	1	1	0	0
8711543	2018	20180819	1323	7	INTERNATIONAL BL	22ND AV	0		Y	A	Y	4	0	1	3	A	N	D	A	A						A	0	0	1	0	0	0
8717584	2018	20180721	1830	6	22ND AV	INTERNATIONAL BL	2	S	N	A	N	4	0	1	2	A	N	A	A	A		Y				A	0	0	1	0	1	0
8730549	2018	20180111	1850	4	E 12TH ST	22ND AV	15	W	N	A	N	0	0	0	2	A	M	C	A	A					Y	A	0	0	0	0	0	0
8730901	2018	20180807	2027	2	22ND AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	M	C	A	C							0	0	1	0	0	0
8731171	2018	20180726	1749	4	22ND AV	E 12TH ST	0		Y	A	N	4	0	6	2	D	N	A	A	A						-	0	0	6	0	0	0
8734635	2018	20180714	1411	6	E 12TH ST	22ND AV	50	E	N	A	N	4	0	2	3	A	N	C	A	A						A	0	0	2	0	0	0
8736368	2018	20180730	636	1	E 15TH ST	22ND AV	0		Y	A	N	0	0	0	4	A	M	H	A	A						A	0	0	0	0	0	0
8740731	2018	20180817	1408	5	12TH ST	22ND AV	0		-	A	N	3	0	2	2	A	N	D	A	A						A	0	1	1	0	0	0
8740882	2018	20180805	2233	7	23RD AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	3	A	M	B	A	C		Y				A	0	0	0	0	0	0
8740913	2018	20180801	2256	3	22ND AV	INTERNATIONAL BL	5	S	N	A	N	0	0	0	2	A	N	C	A	C			Y			C	0	0	0	0	0	0
8740949	2018	20180817	1715	5	22ND AV	FOOTHILL BL	5	S	N	A	N	0	0	0	2	A	N	G	A	A			Y			A	0	0	0	0	0	0
8743038	2018	20180911	2340	2	INTERNATIONAL BL	22ND AV	0		Y	A	N	3	0	1	2	A	N	B	B	C	Y					N	0	1	0	1	0	0
8743138	2018	20180925	840	2	INTERNATIONAL BL	22ND AV	50	W	N	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
8748657	2018	20181101	1615	4	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0
8751574	2018	20181020	1433	6	22ND AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	M	B	A	A						D	0	0	1	0	0	0
8754123	2018	20181014	315	7	INTERNATIONAL BL	23RD AV	25	E	N	A	Y	0	0	0	3	A	N	B	A	C						A	0	0	0	0	0	0
8764924	2018	20180818	918	6	23RD AV	12TH ST	40	S	N	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
8766492	2018	20181122	750	4	22ND AV	INTERNATIONAL BL	0		Y	B	N	0	0	0	2	A	N	D	A	A						D	0	0	0	0	0	0
8770673	2018	20180810	830	5	23RD AV	INTERNATIONAL BL	0		Y	A	N	4	0	3	2	A	N	A	A	A						-	0	0	3	0	0	0
8771049	2018	20181106	620	2	INTERNATIONAL BL	23RD AV	0		Y	A	Y	4	0	5	2	A	N	D	A	A						A	0	0	5	0	0	0
8771151	2018	20181116	843	5	E 12TH ST	23RD AV	0		Y	A	N	0	0	0	2	A	N	D	A	A						-	0	0	0	0	0	0
8785474	2018	20181216	1417	7	FOOTHILL BL	22ND AV	0		Y	C	N	0	0	0	2	A	M	H	A	A					Y	A	0	0	0	0	0	0
8785692	2018	20181212	753	3	FOOTHILL BL	22ND AV	120	E	N	B	N	3	0	1	2	A	F	G	C	B	Y					A	0	1	0	1	0	0
8785700	2018	20181213	803	4	23RD AV	E 12TH ST	60	S	N	A	N	4	0	1	2	A	N	G	F	A	Y					A	0	0	1	1	0	0
8800912	2018	20181217	11	1	22ND AV	INTERNATIONAL BL	0		Y	A	Y	4	0	1	2	A	M	C	A	C						A	0	0	1	0	0	0
8812241	2019	20190110	1251	4	FOOTHILL BL	23RD AV	0		Y	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
8812376	2019	20190108	301	2	INTERNATIONAL BL	22ND AV	0		Y	A	N	0	0	0	2	A	N	D	A	C						-	0	0	0	0	0	0
8812732	2019	20190122	1911	2	E 12TH ST	23RD AV	0		Y	A	Y	4	0	1	4	A	N	B	A	C						-	0	0	1	0	0	0
8815400	2019	20190122	958	2	INTERNATIONAL BL	23RD AV	10	E	N	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
8821092	2019	20190123	1602	3	FOOTHILL BL	22ND AV	0		Y	A	N	4	0	2	2	A	N	A	A	A						A	0	0	2	0	0	0
8822685	2019	20190116	1925	3	E 12TH ST	23RD AV	0		Y	C	N	4	0	1	2	A	N	D	D	C	Y					N	0	0	1	1	0	0
8822867	2019	20190217	2225	7	INTERNATIONAL BL	23RD AV	20	W	N	A	Y	0	0	0	2	A	N	C	A	C					Y	A	0	0	0	0	0	0
8823723	2019	20190202	224	6	23RD AV	INTERNATIONAL BL	0		Y	C	N	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8830411	2019	20190203	2302	7	INTERNATIONAL BL	22ND AV	0		Y	C	N	0	0	0	2	A	N	D	A	C						-	0	0	0	0	0	0
8831140	2019	20190212	1307	2	FOOTHILL BL	22ND AV	0		Y	B	N	0	0	0	2	A	N	A	A	A						A	0	0	0	0	0	0
8843140	2018	20181027	1034	6	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	1	2	A	M	D	A	A						A	0	0	1	0	0	0
8846072	2019	20190215	2356	5	22ND AV	FOOTHILL BL	0		Y	C	Y	0	0	0	4	A	M	D	A	C						-	0	0	0	0	0	0
8849603	2018	20181213	1700	4	INTERNATIONAL BL	23RD AV	0		Y	A	Y	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
8851017	2019	20190305	211	2	INTERNATIONAL BL	22ND AV	0		Y	A	N	2	0	1	1	A	N	A	A	C						A	1	0	0	0	0	0
8869105	2019	20190403	221	3	INTERNATIONAL BL	23RD AV	0		Y	A	N	0	0	0	3	A	M	B	A	C						A	0	0	0	0	0	0
8870202	2019	20190402	1129	2	FOOTHILL BL	22ND AV	0		Y	B	N	4	0	1	3	A	N	D	A	A						A	0	0	1	0	0	0
8873139	2019	20190430	2231	2	INTERNATIONAL BL	22ND AV	150	W	N	A	N	0	0	0	2	A	M	A	A	C					Y	A	0	0	0	0	0	0
8880513	2019	20190522	1531	3	22ND AV	INTERNATIONAL BL	128	N	N	A	N	0	0	0	2	A	N	H	A	A						A	0	0	0	0	0	0
8883447	2019	20190524	2330	5	E 12TH ST	23RD AV	73	E	N	A	N	0	0	0	2	A	M	C	A	C					Y	A	0	0	0	0	0	0
8893234	2019	20190524	1707	5	FOOTHILL BL	23RD AV	50	W	N	A	N	4	0	2	2	A	N	C	A	A						A	0	0	2	0	0	0
8893364	2019	20190503	1710	5	E 12TH ST	22ND AV	20	W	N	A	Y	0	0	0	5	A	N	B	A	A						A	0	0	0	0	0	0
8902454	2019	20190506	1006	1	FOOTHILL BL	22ND AV	100	W	N	B	Y	0	0	0	3	A	N	D	A	A						A	0	0	0	0	0	0
8904977	2019	20190619	1335	3	INTERNATIONAL BL	22ND AV	0		Y	A	N	4	0	2	2	A	N	A	A	A						A	0	0	2	0	0	0
8910776	2019	20190408	2256	1	FOOTHILL BL	22ND AV	100	E	N	A	N	4	0	1	4	A	N	B	A	C					Y	A	0	0	1	0	0	0
8915608	2019	20190426	2108	5	E 15TH ST	23RD AV	10	W	N	A	Y	0	0	0	2	A	N	B	A	C						A	0	0	0	0	0	0
8920168	2019	20190705	1854	5	FOOTHILL BL	22ND AV	0		Y	A	N	4	0	1	2	A	N	A	A	A						A	0	0	1	0	0	0
8920466	2019	20190627	1130	4	FOOTHILL BL	22ND AV	0		Y	A	Y	4	0	1	3	A	M	D	A	A						A	0	0	1	0	0	0
8928847	2019	20190726	2051	5	FOOTHILL BL	22ND AV	75	W	N	A	N	4	0	1	3	A	N	D	A	C						A	0	0	1	0	0	0
8929155	2019	20190501	52	3	FOOTHILL BL	22ND AV	100	W	N	A	Y	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
8944027	2019	20190727	2019	6	22ND AV	E 12TH ST	10	N	N	A	N	0	0	0	2	A	N	A	A	B					Y	A	0	0	0	0	0	0
8946359	2019	20190608	2200	6	FOOTHILL BL	22ND AV	0		Y	A	N	4	0	2	2	A	N	A	A	C						A	0	0	2	0	0	0
8947987	2019	20190608	1505	6	23RD AV	INTERNATIONAL BL	50	N	N	A	Y	0	0	0	3	A	N	A	A	A					Y	A	0	0	0	0	0	0
8950605	2019	20190707	2353	7	23RD AV	E 15TH ST	25	N	N	A	N	0	0	0	4	A	N	B	A	C					Y	A	0	0	0	0	0	0
8965296	2019	20190704	607	4	INTERNATIONAL BL	23RD AV	0		Y	A	N	4	0	1	3	A	N	A	A	A						-	0	0	1	0	0	0
8966040	2019	20190619	333	3	FOOTHILL BL	22ND AV	25	E	N	A	N	0	0	0	2	A	M	B	A	C					Y	A	0	0	0	0	0	0
8971017	2019	20190816	1822	5	22ND AV	15TH ST	0		Y	A	N	2	0	3	2	A	F	D	A	A						A	1	0	2	0	0	0
8977271	2019	20190801	858	4	22ND AV	12TH ST	20	E	N	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0
8996136	2019	20191004	2127	5	INTERNATIONAL BL	23RD AV	18	E	N	A	N	3	0	1	2	A	M	D	A	C						A	0	1	0	0	0	0

CASE_ID	ACC_YR	COL_DATE	COL_TIME	DAY_WEEK	PRIMARY_RD	SECONDARY_RD	DIST	DIR	INT_SEC	WTR_1	TOW_AWY	COL_SEV	NUM_KLLD	NUM_INJ	PTY_CNT	PRI_COL_FCTR	HIT_RUN	TPE_COL	PED_ACTN	LGHT	PED_ACC	BIC_ACC	MC_ACC	TRK_ACC	ALC_INV	STWD_VHTP_FLT	CNT_SEV_INJ	CNT_VIS_INJ	CNT_CMP_PAIN	CNT_PED_INJ	CNT_BIC_INJ	CNT_MC_INJ
9002183	2019	20191015	1530	2	22ND AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
9006546	2019	20191103	2245	7	23RD AV	INTERNATIONAL AV	20	N	N	A	N	0	0	0	2	A	M	B	A	C					Y	A	0	0	0	0	0	0
9008857	2019	20191029	2255	2	INTERNATIONAL BL	23RD AV	50	E	N	A	N	0	0	0	3	A	N	A	A	C						A	0	0	0	0	0	0
9016990	2020	20200131	1913	5	22ND AV	INTERNATIONAL BL	0		Y	A	N	4	0	1	2	A	N	D	A	C						D	0	0	1	0	0	0
9017249	2020	20200207	706	5	E 12TH ST	22ND AV	0		Y	A	N	0	0	0	2	A	F	B	A	A						A	0	0	0	0	0	0
9036923	2019	20190619	248	3	23RD AV	FOOTHILL BL	75	S	N	A	N	0	0	0	5	A	M	B	A	C						A	0	0	0	0	0	0
9037449	2019	20191228	540	6	22ND AV	E 15TH ST	0		Y	A	Y	0	0	0	2	A	N	H	A	B						A	0	0	0	0	0	0
9043639	2020	20200205	1007	3	E 12TH ST	22ND AV	0		Y	A	N	0	0	0	1	A	M	H	A	A						-	0	0	0	0	0	0
90436940	2017	20170328	1031	2	INTERNATIONAL BLVD	22ND AVE	20	N	N	A	N	0	0	0	2	A	N	D	A	A						-	0	0	0	0	0	0
9044079	2020	20200112	2214	7	22ND AV	E 15TH ST	0		Y	C	N	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
9045290	2019	20191202	1527	1	INTERNATIONAL BL	23RD AV	15	E	N	C	N	4	0	1	2	A	F	B	A	A						A	0	0	1	0	0	0
9046188	2019	20191127	1551	3	INTERNATIONAL BL	22ND AV	0		Y	A	N	4	0	2	2	A	N	A	A	A						A	0	0	2	0	0	0
9054671	2019	20191118	2022	1	22ND AV	INTERNATIONAL BL	0		Y	A	N	4	0	1	2	A	F	A	B	C	Y					A	0	0	1	1	0	0
9054704	2019	20191013	10	7	22ND AV	INTERNATIONAL BL	0		Y	A	Y	4	0	1	2	A	M	D	A	C						A	0	0	1	0	0	0
9054745	2019	20191124	942	7	22ND AV	INTERNATIONAL AV	0		Y	A	N	0	0	0	3	A	M	D	A	A						A	0	0	0	0	0	0
9054765	2019	20191122	2139	5	23RD AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
9056212	2019	20191122	938	5	22ND AV	INTERNATIONAL BL	0		Y	-	N	4	0	1	2	A	N	B	A	A				Y		A	0	0	1	0	0	0
90662122	2018	20180212	1600	1	INTERNATIONAL BL	23RD AVE	100	E	N	A	N	0	0	0	2	A	N	B	A	A						A	0	0	0	0	0	0
9070197	2020	20200401	1457	3	22ND AV	E 15TH ST	0		Y	A	N	0	0	0	2	A	M	D	A	A						A	0	0	0	0	0	0
9070255	2019	20191217	2353	2	INTERNATIONAL BL	23RD AV	0		Y	C	N	4	0	2	2	A	M	D	A	C						A	0	0	2	0	0	0
9076378	2019	20190919	737	4	E 15TH ST	23RD AV	0		Y	A	N	4	0	1	2	A	N	D	A	A		Y				L	0	0	1	0	1	0
9077408	2019	20191201	1800	7	FOOTHILL BL	23RD AV	100	E	N	A	N	4	0	1	2	A	N	G	D	C	Y					N	0	0	1	1	0	0
9078893	2020	20200319	239	4	23RD AV	15TH ST	0		Y	A	N	0	0	0	2	A	M	D	A	C		Y				D	0	0	0	0	0	0
9085935	2020	20200404	1810	6	FOOTHILL BL	23RD AV	71	E	N	C	N	0	0	0	5	A	N	C	A	B						A	0	0	0	0	0	0
9095847	2020	20200408	125	3	INTERNATIONAL BL	23RD AV	10	E	N	A	N	0	0	0	4	A	N	C	A	C						A	0	0	0	0	0	0
9102203	2020	20200509	2147	6	INTERNATIONAL BL	23RD AV	60	W	N	A	N	0	0	0	3	A	N	C	A	C						A	0	0	0	0	0	0
9107706	2020	20200427	1803	1	E 12TH ST	22ND AV	30	W	N	A	N	0	0	0	2	B	N	C	A	A						J	0	0	0	0	0	0
9112515	2020	20200512	1637	2	23RD AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	2	A	M	A	A	A						A	0	0	0	0	0	0
9116328	2020	20200611	1135	4	22ND AV	E 12TH ST	0		Y	B	Y	3	0	3	2	A	M	D	A	A						A	0	2	1	0	0	0
9119686	2020	20200528	1900	4	E 15TH ST	22ND AV	30	E	N	A	Y	4	0	1	3	A	N	D	A	A						A	0	0	1	0	0	0
9121628	2020	20200104	947	6	E 12TH ST	23RD AV	0		Y	C	N	4	0	2	4	A	M	A	A	A						A	0	0	2	0	0	0
9125821	2019	20191129	2315	5	23RD AV	E 15TH ST	0		Y	B	N	0	0	0	2	A	M	-	A	C					Y	A	0	0	0	0	0	0
9129721	2020	20200710	1605	5	22ND AV	INTERNATIONAL BL	0		Y	A	N	4	0	1	2	A	M	D	A	A						A	0	0	1	0	0	0
9132152	2020	20200720	2230	1	INTERNATIONAL BL	22ND AV	60	E	N	A	Y	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
9133264	2020	20200706	2000	1	FOOTHILL BL	22ND AV	0		Y	A	N	0	0	0	2	A	N	B	A	B						D	0	0	0	0	0	0
9134080	2020	20200709	834	4	23RD AV	E 15TH ST	0		Y	A	Y	4	0	1	2	D	M	D	A	A						-	0	0	1	0	0	0
9142676	2020	20200806	1617	4	22ND AV	EAST 12TH ST	0		Y	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
9151356	2020	20200815	2226	6	FOOTHILL BL	22ND AV	0		Y	A	Y	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
9153451	2020	20200828	159	5	E 12TH ST	22ND AV	0		Y	A	Y	0	0	0	2	A	M	B	A	C						-	0	0	0	0	0	0
9153577	2020	20200822	2011	6	22ND AV	FOOTHILL BL	0		Y	A	N	4	0	1	2	A	N	D	A	C						A	0	0	1	0	0	0
9153580	2020	20200814	1839	5	23RD AV	12TH ST	10	E	N	A	N	4	0	1	2	A	N	C	A	A						A	0	0	1	0	0	0
9163039	2020	20200905	2131	6	22ND AV	E 15TH ST	0		Y	A	N	4	0	2	2	A	N	D	A	C						A	0	0	2	0	0	0
9163593	2020	20200909	950	3	INTERNATIONAL BL	23RD AV	0		Y	B	Y	3	0	3	2	A	N	D	A	A						A	0	1	2	0	0	0
9176715	2020	20200906	824	7	E 15TH ST	23RD AV	0		Y	A	N	0	0	0	2	A	N	D	A	A						D	0	0	0	0	0	0
9182296	2020	20200930	2137	3	FOOTHILL BL	22ND AV	0		Y	A	Y	4	0	1	2	A	M	D	A	C						A	0	0	1	0	0	0
9183562	2020	20200518	2051	1	22ND AV	E 15TH ST	0		Y	A	N	0	0	0	4	A	N	B	A	C						A	0	0	0	0	0	0
9198501	2020	20200827	1200	4	23RD AV	FOOTHILL BL	90	N	N	A	N	0	0	0	2	A	M	H	A	A						-	0	0	0	0	0	0
9199263	2020	20200930	1	3	23RD AV	E 15TH ST	0		Y	A	Y	0	0	0	2	A	N	D	A	C						A	0	0	0	0	0	0
9199512	2020	20201016	902	5	22ND AV	E 12TH ST	0		Y	A	N	0	0	0	2	A	N	C	A	A						A	0	0	0	0	0	0
9202204	2020	20201202	951	3	23RD AV	E 15TH ST	0		Y	A	N	0	0	0	2	A	N	D	A	A						A	0	0	0	0	0	0
9203211	2020	20200531	1626	7	23RD AV	E 12TH ST	0		Y	A	N	4	0	1	2	A	M	C	A	A						A	0	0	1	0	0	0
9206401	2020	20201203	1205	4	23RD AV	E 12TH ST	63	S	N	A	Y	3	0	1	1	A	N	E	A	A				Y		C	0	1	0	0	0	1
9209193	2020	20201015	2213	4	22ND AV	INTERNATIONAL BL	0		Y	A	N	0	0	0	2	A	M	-	A	C						A	0	0	0	0	0	0
9219271	2020	20201107	1327	6	E 12TH ST	22ND AV	50	E	N	A	N	4	0	1	2	D	N	C	A	A		Y				-	0	0	1	0	1	0
9224232	2020	20201214	640	1	22D AV	E 12TH ST	80	S	N	A	N	4	0	1	2	A	F	A	A	A						D	0	0	1	0	0	0
9225104	2020	20201114	4	6	23RD AV	E 15TH ST	0		Y	C	N	0	0	0	2	A	M	D	A	C						-	0	0	0	0	0	0
9225188	2020	20201130	455	1	INTERNATIONAL BL	22ND AV	0		Y	-	N	4	0	2	2	A	M	-	A	-						A	0	0	2	0	0	0
9251967	2020	20201220	55	7	FOOTHILL BL	22ND AV	50	S	N	A	N	0	0	0	2	A	M	D	A	C						A	0	0	0	0	0	0
9299010	2020	20201204	1146	5	E 12TH ST	22ND AV	5	W	N	A	N	0	0	0	3	A	M	C	A	A						A	0	0	0	0	0	0
9327638	2020	20201105	2120	4	INTERNATIONAL BL	23RD AV	0		Y	A	Y	0	0	0	4	A	M	D	A	C				Y		A	0	0	0	0	0	0

Appendix G TDM Strategies and VTR Calculations

TDM Strategies

The following are all TDM strategies listed in the City TIRG that must be assessed for context, and if determined to be relevant, incorporated into a TDM Plan. Project assessment against each of the strategies is included in the table below.

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
Bus boarding bulbs or islands	• A bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or • A bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb	No	There are no bus stops located along the Project frontage
Bus shelter	• A stop with no shelter is located within the project frontage, or • The project is located within 0.10 miles of a flag stop with 25 or more boardings per day	Yes	The Project shall consult with AC Transit and the City to identify feasibility of installing bus shelters for the following bus flag stops: • Stop 51284, Route 62: 23rd Ave northbound at International Blvd. • Stop 57505, Route 62: 23rd Ave southbound at International Blvd. • Stop 54554, Route 62: 23rd Ave northbound at 16th St. • Stop 54448, Route 40: Foothill Blvd eastbound at 23rd Ave. If these stops have 25 or more passenger boardings per day and construction of the bus shelters is feasible, the Project shall install bus shelters

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
Concrete bus pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist	No	There are no bus stops located along the Project frontage
Curb extensions or bulb-outs	• Identified as an improvement within site analysis	Yes	Existing conditions at the intersection of 22nd Ave and East 15th St warrants improvements, and intersection is poorly visible from northbound traffic on 22nd Ave due to the crest vertical curve. Existing conditions do not include crosswalks, and crossing distance to cross 22nd Ave is 60 ft. The following improvement is recommended in response to these conditions and also included under "Safety Improvement" below: • 22nd Ave / East 15th St: Install pedestrian safety zones extending from the curb. Install high visibility crosswalks with signage and advanced yield markings Curb extensions are present at the intersection adjacent to the Project at 23rd Ave and East 15th St. Other intersections in study area are signalized with pedestrian push buttons and curb extensions are not necessary.
Corridor-level bikeway improvement	• A buffered Class II or Class IV bikeway facility is in a local or county adopted plan within 0.1 miles of the project location; and • The project would generate 500 or more daily bicycle trips	No	The Project would generate 35 bicycle trips daily (Table 3-5).
Corridor-level transit capital improvement	• A high-quality transit facility is in a local or county adopted plan within 0.25 miles of project location; and • The project would generate 400 or more peak period transit trips	No	Based on trip generation analysis, the Project would generate 202 transit trips daily (Table 3-5).

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
Pedestrian amenities	• Always required to assess pedestrian improvements such as lighting, trees, other greening landscape, and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan	Yes	The Project shall install amenities such as lighting, trees or other greening landscape, and trash receptacles.
Safety improvement	• When improvements are identified in the Pedestrian Master Plan (PMP) along project frontage or at an adjacent intersection	Yes	The PMP identifies the following improvements for East 15th Street which is identified as a high injury corridor: • 23rd Ave / East 15th St: Install of advanced yield markings to each minor approach. • 22nd Ave / East 15th St: Install pedestrian safety zones extending from the curb. Install high visibility crosswalks with signage and advanced yield markings. • East 15th St: Add edge line markings for street narrowing and parking definition. • Restrict on-street parking within 20 feet of intersection and crosswalks. The Project shall work with the city to implement the above improvements identified in the PMP. These are included in Improvement Measure TR-5.
In-street bicycle corral	• A project includes more than 10,000 square feet of ground floor retail, is located along a Tier 1 bikeway, and on-street vehicle parking is provided along the project frontages	No	The Project does not contain a retail component and is not located along a Tier 1 bikeway.
Intersection improvement	• Identified as improvement within site analysis	Yes	Site analysis and the City PMP identify improvements to the intersection at 22nd Ave and East 15th St. These are included under the item "Safety improvement."
New sidewalk, curb ramps, and gutter	• Always required if existing infrastructure does not meet current City and ADA standards	Yes	Site analysis and the City PMP identify improvements to the intersection at 22nd Ave and East 15th St. These are included under the item "Safety improvement." Curb ramps at all other study intersections have been updated recently and appear to meet City and ADA requirements.

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
No monthly permits and min price for public parking	• If proposed parking ratio exceeds 1:1000 sf for commercial projects	No	The Project does not contain a commercial component.
Parking garage designed with retrofit capability	• Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1000 sf (commercial)	No	The Project does not contain a residential or commercial component.
Parking space reserved for car share	• A project is located within downtown. One car share space preserved for buildings between 50-200 units, then one car share space per 200 units.	No	The Project is not located within downtown.
Paving, lane striping, and signs to midpoint of street section	• Typically required	Yes	The Project shall work with the City to determine if paving, lane striping, or restriping would be required in the study area. As mentioned under "Safety improvement," the PMP identifies the following improvement for East 15th St: • East 15th St: Add edge line markings for street narrowing and parking definition.
Pedestrian crossing improvement	• Identified as an improvement within site analysis • Identified as an improvement within operations analysis	Yes	Site analysis and the City PMP identify improvements to the intersection at 22nd Ave and East 15th St. These are included under the item "Safety improvement." As per California MUTCD, these crossings should be striped in yellow to indicate a school crossing due to the intersection proximity within 600 feet of the Project site.[48]
Real-time transit information system	• A project frontage block includes a bus stop or BART station and is along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better	No	The Project frontage does not contain a bus stop. The BRT stop at 24th Ave and International Blvd includes a dynamic real-time transit information sign.

[48] See California Manual on Uniform Traffic Control Devices, 2014 Rev 6, §7C.02.

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
Relocating bus stops to far side	• A project is located within 0.10 mile of any active bus stop that is currently near side	Yes	The Project shall work with AC Transit and the City to determine if the following near side bus stops should be relocated to the far side: • Line 62: 23rd Ave southbound approach to International Blvd. • Line 62: 23rd Ave northbound approach to 16th St / Foothill Blvd. • Line 40: Foothill Blvd eastbound approach to 23rd Ave – not recommended for relocation, as existing location utilizes public plaza and far side would be disadvantaged in terms of topography and loading space.
Signal upgrades	• Project size exceeds 100 residential units, 80,000 sf of retail, or 100,000 sf of commercial; and • Project frontage abuts an intersection with signal infrastructure older than 15 years	No	Project size does not exceed 100,000 sf, and frontage does not abut a signalized intersection.
Transit queue jumps	• Identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better	No	The Project operations analysis did not identify a significant impact to congestion or need for a transit queue jump improvement.
Placement of conduit for traffic signal interconnect	• Project size exceeds 100 residential units, 80,000 sf of retail, or 100,000 sf of commercial; and • Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and • A major transit improvement is identified within operations analysis requiring traffic signal interconnect	No	The project size does not exceed 100,000 sf.

City of Oakland TIRG Requirements		Project Assessment	
Strategy	**Required When…**	**Required for Project?**	**Project Assessment**
Unbundled parking	• If proposed parking ratio exceeds 1:1.25 (residential)	No	The project does not contain a residential component.

VTR Calculations

Vehicle Trip Reduction for the following TDM strategies is calculated as per California Air Pollution Control Officers Association (CAPCOA) research[4950].

For all TDM measures proposed for the Project, it is noted that each measure would decrease vehicle trips by approximately the same rate as greenhouse gas emissions, since the selected measures would result in fewer vehicle trips by promoting alternative modes of transportation in place of single-occupancy vehicles.

[49] California Air Pollution Control Officers Association, Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers. Issued Dec 2021.
[50] California Air Pollution Control Officers Association, Quantifying Greenhouse Gas Mitigation Measures, a Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. Issued August, 2010.

T-7 Implement Commute Trip Reduction Marketing

GHG Reduction Formula

$A = B \times C \times D$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project/site employee commute VMT	0–4.0	%	calculated
User Inputs				
B	Percent of employees eligible for program	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Percent reduction in employee commute vehicle trips	-4	%	TRB 2010
D	Adjustment from vehicle trips to VMT	1	unitless	assumed

Source: CAPCOA, 2021. This measure would decrease vehicle trips by approximately the same rate as greenhouse gas emissions

Project input (B): 100% of students and staff would be eligible for the program

Constants, Assumptions, and Available Defaults (C), (D): as indicated above

Output (A): 4.0% VTR

T-9 Implement Subsidized or Discounted Transit Program

GHG Reduction Formula

$$A = \frac{C}{B} \times G \times D \times E \times F \times H \times I$$

GHG Calculation Variables

If subsidies or discounts target employees, the GHG reduction from this measure may be limited to work-related employee trips only (i.e., home-to- work) and work-to-other, where at least one trip end is work). If residents are targeted, the GHG reductions extend to all trips.

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from employee/resident vehicles accessing the site	0–5.5	%	calculated
User Inputs				
B	Average transit fare without subsidy	[ ]	$	user input
C	Subsidy amount	[ ]	$	user input
D	Percent of employees/residents eligible for subsidy	0–100	%	user input
E	Percent of project-generated VMT from employees/residents	0–100	%	user input
Constants, Assumptions, and Available Defaults				
F	Transit mode share of all trips or work trips	Table T-3.1 or Table T-9.1	%	FHWA 2017
G	Elasticity of transit boardings with respect to transit fare price	-0.43	unitless	Taylor et al. 2008
H	Percent of transit trips that would otherwise be made in a vehicle	50	%	Handy & Boarnet 2013
I	Conversion factor of vehicle trips to VMT	1.0	unitless	assumption

Source: CAPCOA, 2021. This measure would decrease vehicle trips by approximately the same rate as greenhouse gas emissions.

Project input (B): $2.25

Project input (C): $2.25

Project input (D): 29%

Project input (E): 100%

Constants, Assumptions, and Available Defaults (F), (G) (H), (I): as indicated above

Output (A): 1.6% VTR

T-10 Provide End-of-Trip Bicycle Facilities

GHG Reduction Formula

$$A = \frac{C \times (E - (B \times E))}{D \times F}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from employee project/site commute VMT	0.1–4.4	%	calculated
User Inputs				
	None			
Constants, Assumptions, and Available Defaults				
B	Bike mode adjustment factor	1.78 or 4.86	unitless	Buehler 2012
C	Existing bicycle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
D	Existing vehicle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
E	Existing bicycle mode share for work trips in region	Table T-10.2	%	FHWA 2017b
F	Existing vehicle mode share for work trips in region	Table T-10.2	%	FHWA 2017b

Source: CAPCOA, 2021. This measure would decrease vehicle trips by approximately the same rate as greenhouse gas emissions.

Project input: None

Constant (B): 1.78 (no shower or locker facilities will be provided by Project)

Constant (C): 2.10

Constant (D): 12.4

Constant (E): 2.8%

Constant (F): 67.1%

Output (A): 0.6% VTR

T-18 Provide Pedestrian Network Improvement

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

Source: CAPCOA, 2021. This measure would decrease vehicle trips by approximately the same rate as greenhouse gas emissions.

Project input (B): 5

Project input (C): 6

Constant (D): as indicated above

Output (A): 1.0% VTR

T-41 Implement a School Pool Program

Mitigation Method:

% VMT Reduction = Families * B

Where

Families = % families that participate (from [1] and [2])
B = adjustments to convert from participation to daily VMT to annual school VMT

Detail:

- Families: 16% (moderate implementation), 35% (aggressive implementation), (from [1] and [2])
- B: 45% (see Appendix C for detail)

Source: CAPCOA, 2010. This measure would decrease vehicle trips by approximately the same rate as VMT.

Project input (Families): 16%

Project input (B): 45%

Output (A): 7.2% VTR

Appendix H Parking Observation Data

City of Oakland
Parking Supply and Occupancy Survey
Thursday, 8-18-2022

International Boulevard

	22nd to Munson			Munson to 23rd					23rd to Miller				
	West side		East side	West side		East side			West side			East side	
Supply	Loading zone 1	2-hr metered 8a - 6p Mon.-Sat. 1	ADA 1	Loading zone 2	2-hr metered 8a - 6p Mon.-Sat. 8	ADA 1	Loading zone 2	2-hr metered 8a - 6p Mon.-Sat. 7	ADA 1	Loading zone 2	2-hr metered 8a - 6p Mon.-Sat. 7	Loading zone 2	2-hr metered 8a - 6p Mon.-Sat. 9
Start time													
7:30	0	0	0	0	5	1	0	5	1	0	5	0	5
8:30	0	0	0	0	4	1	0	3	1	0	3	0	3
9:30	0	0	0	0	4	1	0	6	1	0	2	0	2
10:30	0	0	0	0	4	1	0	6	1	0	6	0	6
11:30	0	0	0	0	4	1	1	4	0	0	4	0	4
12:30	0	0	0	0	4	1	1	3	0	0	5	0	5
1:30	0	0	0	0	4	1	1	3	1	0	5	0	5
2:30	0	0	0	0	4	1	1	4	1	0	3	0	3
3:30	0	0	0	0	3	0	0	4	0	1	5	1	5
4:30	0	0	0	0	6	0	0	5	0	0	4	0	4
5:30	0	0	0	0	6	0	0	4	0	1	7	1	7
6:30	0	0	0	2	6	1	0	5	0	1	8	1	8
7:30	0	0	0	0	5	0	1	5	1	1	7	1	7

Notes:
East side of street: No parking 3a-6a Mon. Wed. Fri. each month - street cleaning
West side of street: No parking 3a-6a Tue. Thu. Sat. each month - street cleaning

City of Oakland
Parking Supply and Occupancy Survey
Thursday, 8-18-2022

East 15th Street

	22nd to Munson			Munson to 23rd		23rd to Miller	
	West side		East side	West side	East side	West side	East side
	ADA	non-metered	non-metered	non-metered	non-metered	non-metered	non-metered
Supply	1	6	8	13	13	10	11
Start time							
7:30	1	6	6	11	10	10	11
8:30	1	6	7	10	9	10	11
9:30	1	5	7	12	12	9	11
10:30	1	5	6	12	12	10	11
11:30	1	6	8	12	10	9	10
12:30	1	5	8	11	11	8	11
1:30	1	4	8	11	11	9	11
2:30	1	3	8	11	11	9	11
3:30	1	4	8	12	11	9	11
4:30	1	4	8	13	11	10	10
5:30	1	3	8	13	12	10	11
6:30	1	6	8	13	13	10	11
7:30	1	6	8	13	12	10	11

Notes:
East side of street: No parking 12:30p - 3:30p 1st and 3rd Wednesday - street cleaning
West side of street: No parking 9a - 12p 1st and 3rd Friday - street cleaning

City of Oakland
Parking Supply and Occupancy Survey
Thursday, 8-18-2022

23rd Avenue

	E. 12th to International					International to E. 15th				E. 15th to Foothill			
	North side			South side		North side		South side		North side		South side	
	Loading zone	12-min time limit	non-metered	non-metered	2-hr metered 8a - 6p Mon.-Sat.	ADA	2-hr metered 8a - 6p Mon.-Sat.	Loading zone	2-hr metered 8a - 6p Mon.-Sat.	ADA	non-metered	Green curb (no posted signs)	non-metered
Supply	1	1	8	9	2	1	8	1	7	1	9	1	8
Start time													
7:30	1	0	7	6	2	0	6	0	6	0	8	1	8
8:30	1	0	7	7	2	0	4	0	2	0	7	1	8
9:30	1	0	6	9	2	1	5	1	5	1	9	1	8
10:30	1	1	8	8	2	0	4	0	3	1	9	1	8
11:30	1	1	7	9	1	0	6	0	5	1	9	1	8
12:30	1	1	8	6	1	0	3	0	7	1	8	1	8
1:30	1	1	8	8	2	0	7	1	4	0	9	1	7
2:30	1	1	8	9	1	0	5	0	4	0	7	1	8
3:30	1	1	8	9	2	0	6	0	4	0	9	1	8
4:30	1	1	8	9	2	0	8	0	4	0	9	1	8
5:30	1	1	8	9	2	1	8	0	6	0	9	1	7
6:30	1	1	8	9	2	1	8	1	7	0	9	1	8
7:30	1	1	7	9	2	1	8	1	7	1	9	1	8

Notes:
North side of street: No parking 12:30p - 3:30p 1st and 3rd Wednesday - street cleaning
South side of street: No parking 9a - 12p 1st and 3rd Friday - street cleaning