FEHR PEERS

Memorandum

Date: April 1, 2025

To: John Santry, Ledcor Development

From: Robert Rees and Jackson Zeng, Fehr & Peers

Subject: Hercules Bayfront Blocks K, L, M, P, and O Project – Transportation Impact Analysis

OK24-0555

This memorandum summarizes the Transportation Impact Analysis conducted by Fehr & Peers for the proposed Hercules Bayfront Blocks K, L, M, P, and O Project (the Project) in Hercules, CA. The Project would consist of 140 townhomes and 28 live-work units. The unit count analyzed in this memorandum is 171 units while the current Project, after completing the analysis, is 168 units. The lower unit count does not alter the analysis findings and recommendations presented in this memorandum.

Based on our evaluation:

- The Project does not meet any of the Contra Costa Transportation Authority's (CCTA) screening criteria for Vehicles Miles Traveled (VMT) impact. However, based on a detailed analysis, the Project would have a less than significant impact on VMT.
- The Project would generate approximately 1,112 daily, 58 AM peak hour, and 78 PM peak hour vehicle trips.
- The following improvements are recommended:
    - **Recommendation 1:** Prior to the occupancy of the Project, convert the John Muir Parkway/Bayfront Boulevard intersection to an all-way stop control to reduce conflicts and improve traffic flow.
    - **Recommendation 2:** Maintain 20 feet clear at all intersecting streets to ensure clear sight lines. And apply the 20 feet of red curb at all Project intersections, alleys, and driveways.
    - **Recommendation 3:** Upon development of the Project, maintain the pedestrian and bicycle connection between the Project to the Bay Trail to preserve recreational access for residents and visitors.

- **Recommendation 4:** Upgrade all marked crossings to high-visibility continental crosswalk striping.

The remainder of this memorandum provides more detail on our assumptions and findings on these topics.

Project Description

The Hercules Bayfront Blocks K, L, M, P, and O Project plans to develop 6.7 acres of land into residential housing and live-work units (**Appendix A**). The Project would consist of 140 townhomes and 28 live-work units across Blocks K, L, M, P, and O. The Project site surrounds the intersection of Bayfront Boulevard and John Muir Parkway.

The Project would provide 342 garage parking spaces and 89 surface parking spaces. Access to the units would be provided through multiple alleys that are accessible via Loop Road, Bayfront Boulevard, or John Muir Parkway.

VMT Assessment

This section presents the effects of the Project on VMT using guidelines, thresholds of significance, and screening criteria for evaluating VMT in CEQA documents as recommended by CCTA.

California Senate Bill 743

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changed the way transportation impact analysis is conducted as part of CEQA compliance. These changes include elimination of automobile delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. According to SB 743, these changes are intended to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions."

In December 2018, the State Office of Planning and Research (OPR) completed an update to the CEQA Guidelines to implement the requirements of SB 743. The Guidelines state that VMT must be the metric used to determine significant transportation impacts. The Guidelines require all lead agencies in California to use VMT-based thresholds of significance in CEQA documents published after July 2020.

The OPR Guidelines recommend developing screening criteria for development projects that meet certain criteria that can readily lead to the conclusion that they would not cause a significant impact on VMT. The OPR Guidelines also recommend evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments and/or VMT per worker for office or other employment-based developments.

While the City of Hercules has not developed their screening criteria or thresholds of significance for VMT assessment, the CCTA, which supports travel demand modeling for all jurisdictions in the county, has developed VMT screening criteria, analysis methodologies, and thresholds of significance. Therefore, this analysis uses the screening criteria, analysis methodologies, and the thresholds of significance recommended by CCTA as described in the *VMT Analysis Methodology for Land Use Projects in Contra Costa Technical Memorandum* (CCTA VMT Methodology Memorandum, March 2022).

VMT Definitions

Terms used for VMT screening and estimation are defined below:

- **Home-based VMT –** VMT for trips that begin or end at a residence. Home-based VMT per resident is defined as the total VMT that begins or ends at a residence in a geographic area on a typical weekday divided by the population in that geographic area.
- **Local Serving Uses –** Land uses that are expected to draw users from a local area, typically no more than a 2- to 3-mile radius. The definition of local-serving uses may vary by jurisdiction. These uses may include local-serving public facilities such as a branch library, a police or fire station, neighborhood-based schools, and local-serving retail businesses such as grocery stores, coffee shops or dry cleaners.
- **Transit Priority Areas (TPAs) –** TPAs are areas close to a significant transit mode, defined as one-half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor. Public Resources Code, § 21064.3 defines "major transit stop" as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of 15 minutes or less during the morning and afternoon peak commute periods. Public Resources Code, § 21155 defines a "high-quality transit corridor" as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

VMT Screening

According to the CCTA *VMT Methodology Memorandum,* screening thresholds can be used to quickly identify projects that can be expected to cause a less than significant impact without conducting a detailed study. The CCTA *VMT Methodology Memorandum* recommended screening thresholds and their applicability to the Project are described below.

- **Small Projects –** Projects that have fewer than 10,000 square feet of non-residential space or 20 residential units or less may be assumed to cause a less than significant VMT impact. Analysis: The Project would have over 20 residential units; therefore, it would not meet this screening threshold.
- **Local-Serving Uses –** Projects that consist of local-serving uses can be presumed to have a less than significant impact, since they would primarily draw users and customers from

a small geographical area. Analysis: The Project would not meet this screening threshold since it is a residential development, not a local-serving public facility or business.

- **Located in TPAs –** Projects located within a TPA can be presumed to have a less than significant impact, unless the project meets one or more of the following:

  1. Has a Floor Area Ratio (FAR) greater than 0.75;
  2. Includes more parking for use by residents, customers, or employees than required by the lead agency (if the agency allows but does not require the project to supply a certain amount of parking);
  3. Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the Metropolitan Transportation Commission (MTC)); or
  4. Results in a net reduction in multifamily housing units.

  Analysis: A portion of the development lies within a TPA as defined by the CCTA[1] due to the planned train station and ferry terminal in Hercules. However, since the station's construction has not yet been funded, the Project does not currently meet the criteria for being in a TPA.

- **Located in Low VMT Areas –** Residential projects located within a low VMT-generating area can be presumed to have a less than significant impact. CCTA defines Low VMT areas as follows:

  - For housing projects: Cities and unincorporated portions within CCTA's five subregions that have existing home-based VMT per resident that is 85% or less of the existing County-wide average. Analysis: Based on the data developed by CCTA using the Countywide Travel Demand Model (CCTA Model), Hercules has an existing home-based VMT per resident of 18.5, which is greater than the existing County-wide average home-based VMT per resident of 17.3. Therefore, the Project would not meet this screening threshold.

Since the Project does not meet any of the screening thresholds, a more detailed evaluation of the Project's VMT impact is required.

Detailed VMT Analysis

The detailed VMT evaluation for the Project is conducted using the CCTA Travel Demand Model. The CCTA Model is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes, transit ridership, and VMT using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and expected changes in the transportation network. The CCTA Model, which encompasses the entire nine-county Bay Area region, with additional zonal and network detail within Contra Costa County, is based on the Metropolitan Transportation Commission (MTC) Plan Bay Area 2040 (i.e.,

[1] https://ccta1.maps.arcgis.com/apps/webappviewer/index.html?id=4135020bb272458f824152fedb78a088

Sustainable Communities Strategy) transportation network and land uses for 2020 and 2040. Travel models report data by travel analysis zones (TAZ), which are developed by planning agencies to represent geographic areas with similar travel characteristics.

As a regional planning tool, the CCTA Model was developed through an extensive model validation process and is intended to replicate existing vehicular travel behavior. Therefore, it can provide a reasonable estimate of the VMT generated in various geographic areas on a typical weekday, as well as estimate future VMT that reflects planned local and regional land use and transportation system changes.

Since the Project would be a residential project, the home-based VMT per resident metric is used to generate VMT estimates. As recommended in the CCTA *VMT Methodology Memorandum*, the Project is added to the baseline land use database in the Model to estimate the home-based VMT per resident for the Project.

According to the CCTA, the project generated home-based VMT per resident constitutes a significant impact if it exceeds the following significance thresholds, whichever is less stringent: 1) 85% of the home-based VMT per resident in the subject municipality (i.e., City of Hercules), or 2) 85% of the existing County-wide average home-based VMT per resident. Since the existing average home-based VMT per resident is 18.5 for the City of Hercules and 17.3 for Contra Costa County, this analysis uses 85% of the existing City average home-based VMT per resident as the significance threshold.

Table 1 summarizes the 2020 home-based VMT per resident as estimated by the CCTA Model. The table also compares the home-based VMT per resident for the Project with the City average and 85% of the City average, which is the significance threshold used to determine the significance of the VMT impact.

As shown in Table 1, the 2020 home-based VMT per resident for Project TAZ (10242) is estimated to be 14.6. The 2020 home-based VMT per resident for the Project would be below 85% of the City average (15.8). Thus, the Project impact on VMT is less than significant under CEQA, and no mitigation is required.

Table 1: Daily Vehicle Miles Traveled Summary

Geography	2020 Home-Based VMT per Resident
City Average	18.5
85% of the City Average (i.e., Significance Threshold)	15.8
Project (TAZ 10242)	14.6
Below Threshold?	Yes

Source: CCTA Model, 2021; Fehr & Peers, 2024.

Trip Generation

Trip generation is the process of estimating the number of vehicles that would access the Project site. Fehr & Peers estimated the trip generation for the Project using the data and methodology in the *ITE Trip Generation Manual*, *11th Edition*. The *ITE Trip Generation Manual* provides trip generation data for various land use types based on observations at comparable sites throughout the country.

New versions of the ITE *Trip Generation Manual* have been released since the last EIR, leading to changes in the appropriate ITE land use codes and associated trip generation equations used in this report for the Project site and the remaining buildout of the Bayfront area. The Project involves the development of townhouses, corresponding to ITE Land Use Code 220. The neighboring buildout includes office units (ITE Code 710), retail spaces (ITE Code 821), and hotel rooms (ITE Code 310).

Trip internalization reduction was calculated by applying the proportion of internal reduction from the previous EIR to the total trips in this analysis. The values for transit reduction in the previous EIR were applied in this analysis.

Table 2 and Table 3 present the trip generation equations and projected trips for the Project and buildout. The Project would generate 1,112 daily trips, with 58 trips during the AM peak hour and 78 trips during the PM peak hour.

Table 2: ITE Trip Generation Equations

ITE Code	Land Use Description	Units	Daily Trip Equations	AM Peak Hour Trip Equations	PM Peak Hour Trip Equations
220	Townhouses (Low-Rise)	DU	T = 6.41(X) + 75.31	T = 0.31(X) + 22.85	T = 0.43(X) + 20.55
710	Office	KSF	Ln(T) = 0.87*Ln(X) + 3.05	Ln(T) = 0.86*Ln(X)+1.16	Ln(T) = 0.83*Ln(X)+1.29
821	Retail	KSF	T = 67.52*X	T = 1.73*X	T = 5.19*X
310	Hotel	Rooms	T = 7.99*X	T = 0.50*X - 7.45	T = 0.74*X - 27.89

Source: *ITE Trip Generation, 11th Edition,* 2021; Fehr & Peers, 2024.

Table 3: Trip Generation

Land Use	Units	Quantity	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
Townhouses /Live-Work Units (Project)[1]	DU[2]	171	1,112	14	44	58	49	29	78
Townhouses /Live-Work Units (Buildout)	DU[2]	692	4,498	56	177	233	198	116	314
Office	KSF[3]	182[4]	2,120	270	37	307	52	253	305
Retail	KSF[3]	144[4]	9,690	154	94	248	365	380	745
Hotel	Rooms	207	1,650	54	42	96	64	61	125
Subtotal			**19,070**	547	394	**941**	727	839	**1,567**
Total Internal Reduction (Walk/Bike Trips)			*-2,674*	*0*	*0*	*0*	*-108*	*-108*	*-216*
Transit Reduction			*-670*	*-33*	*-38*	*-71*	*-28*	*-35*	*-63*
Net New External Project & Buildout Trips			**15,726**	514	356	**870**	592	696	**1,288**

Notes
1. The analysis was based on 3 additional townhouses in Block K, bringing the total to 39 units in this block.
2. DU = dwelling units
3. KSF = thousand square feet
4. As per the previous EIR, the 134,000 square feet of buildout "flex space" was analyzed as 50% office use and 50% retail use for trip generation purposes and is included in the calculations above.

Source: Fehr & Peers, 2024.

Traffic Operations Analysis

This section presents the traffic operations analysis completed for the Project. This section starts by describing trip distribution and trip assignment for the Project, describing the methodologies used to evaluate traffic operations, followed by selection of study intersections, summary of traffic operations under Existing and Existing Plus Project conditions, summary of Project effects on delay and level of service (LOS) at the study intersections, and recommended improvements.

Trip Distribution, Trip Assignment, and Study Intersection Selection

The trip distribution and assignment process estimate how vehicle trips generated by the Project and buildout will be distributed across the roadway network. Trip distribution is determined by applying ratios from the previous 2019 traffic analysis for the M/P and O development sites by

Fehr & Peers and the previous EIR, each specifying the proportion of trips using Bayfront Boulevard versus John Muir Parkway. The ratios in each of these documents are applied to the generated trips for the Project and buildout, respectively. **Figure 1** and **Figure 2** illustrate the distribution and assignment at the study intersections. Based on this analysis, 94% of AM and PM peak-hour Project trips are expected to use John Muir Parkway, while 6% will use Bayfront Boulevard. Additionally, 55% of AM and 71% of PM peak-hour buildout trips are expected to use John Muir Parkway, while 45% of AM and 29% of PM peak-hour buildout trips will use Bayfront Boulevard.

This analysis evaluates the AM and PM peak hour intersection operations at the following three study intersections under Existing, Existing Plus Project, and Existing Plus Project Plus Buildout conditions:

1. John Muir Parkway/Bayfront Boulevard
2. John Muir Parkway/Bayfront Apartments Driveway
3. John Muir Parkway/Tioga Loop

These intersections were selected for analysis because they serve as the primary entrance and exit points for Project trips, making them most susceptible to traffic impacts by the Project.

Analysis Methodology and Tools

Intersection operations are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Letter grades range from LOS A, with no congestion and short delay, to LOS F, which represents over-capacity conditions with excessive vehicle delay. The Transportation Research Board's *Highway Capacity Manual (HCM)* provides a methodology to calculate LOS at intersections based on average vehicle delay. **Appendix B** describes the various LOS and the corresponding ranges of delays for both signalized and unsignalized intersections based on HCM 2010 methodology. The City of Hercules' General Plan aims to maintain LOS D at intersections along all Basic Routes, including John Muir Parkway and Bayfront Boulevard.

Synchro 11 software is used to estimate delays and the corresponding LOS. Synchro uses the equations provided in the HCM 6th Edition to calculate control delay. These equations use intersection characteristics, such as vehicle and pedestrian volumes, lane geometry, and intersection control, as inputs in estimating control delay.

Traffic Volumes

Existing traffic volumes at both study intersections were collected on Thursday, May 23, 2024. **Appendix C** presents the detailed volume data for the study intersections. **Figure 3** shows the existing AM and PM peak hour intersection vehicle volumes (7:45 to 8:45 AM and 4:15 to 5:15 PM), lane configurations, and signal controls at the study intersections. **Figure 3** also shows the traffic volumes for both the Existing Plus Project and Existing Plus Project Plus Buildout scenarios.

These include the current traffic volumes combined with those generated by the Project alone and the Project plus full buildout. This analysis assumes the John Muir Parkway/Bayfront Boulevard intersection becomes all-way stop controlled under the Existing Plus Project and Existing Plus Project Plus Buildout scenarios.

Intersection LOS Analysis

Based on the volumes, intersection controls, and roadway configurations presented on **Figure 3**, Fehr & Peers calculated the AM and PM peak hour LOS at the study intersections using the methodologies presented above under Existing, Existing Plus Project, and Existing Plus Project Plus Buildout conditions. **Table 4** summarizes the weekday AM and PM peak hour intersection LOS analysis results. **Appendix D** provides detailed calculation worksheets.

Table 4: Intersection LOS Summary

#	Intersection	Traffic Control	Peak Hour	Existing No Project		Existing Plus Project		Existing Plus Project Plus Buildout	
				Delay (Seconds)[2]	LOS[2]	Delay (Seconds)[2]	LOS[2]	Delay (Seconds)[2]	LOS[2]
1	John Muir Parkway/Bayfront Boulevard	All-Way Stop[1]	AM	0	A	7	A	10	B
			PM	0	A	7	A	22	C
2	John Muir Parkway/Bayfront Apartments Driveway	Side-Street Stop	AM	2	A	2	A	1	A
			PM	1	A	1	A	0	A
3	John Muir Parkway/Tioga Loop	Side-Street Stop	AM	0	A	0	A	0	A
			PM	0	A	0	A	0	A

Notes
1. The existing intersection is uncontrolled.
2. Average intersection delay and LOS based on the HCM 6th method.

Source: Fehr & Peers, 2024.

As shown in Table 4, the John Muir Parkway/Bayfront Boulevard intersection operates at LOS C or better during the AM and PM peak hours under the Existing, Existing Plus Project, and Existing Plus Project Plus Buildout conditions. Thus, the intersection would be consistent with the City's LOS goal.

The uncontrolled John Muir Parkway/Bayfront Boulevard intersection operates at LOS A during both AM and PM peak hours under Existing Conditions. In the Existing Plus Project scenario, it is projected to maintain LOS A during both peak hours. In the Existing Plus Project Plus Buildout scenario, the intersection is expected to operate at LOS B during the AM peak and LOS C during the PM peak.

Recommendations:

- To improve future access and circulation at John Muir Parkway/Bayfront Boulevard, it is recommended to convert the intersection to an all-way stop control before Project occupancy. The results for the Existing Plus Project and Existing Plus Project Plus Buildout scenarios, presented in **Table 4,** show that the intersection maintains LOS C, aligning with the City's LOS goal.

Site Access and Circulation Analysis

Below is a summary evaluation of access and circulation for all travel modes, comparing the Project's design as per the site plan (**Appendix A**) against current standards, best practices, and requirements in the form-based code for the Project area outlined in the Waterfront District Master Plan.

Motor Vehicle Access and Circulation

John Muir Parkway, adjacent to the Project, features a 12-foot travel lane, 6-foot bicycle lane, and 8-foot parallel parking lane in each direction. The distance between the two main intersections providing Project access—John Muir Parkway/Bayfront Boulevard and Bayfront Boulevard Apartments Driveway/John Muir Parkway—is 325 feet, below the form-based code's maximum limit of 400 feet.

Driveways at Blocks N, Q, and R, are 20 feet wide, adhering to the maximum width specified in the form-based code. Ensuring driveways at Blocks K, L, M, P, and O are also 20 feet wide will allow for adequate vehicle entry and exit.

Project alleys are designed to load traffic. The 95th percentile queue is less than one vehicle, indicating that queues will rarely exceed one car. Therefore, the Project alleys will effectively handle anticipated traffic queues.

Recommendations:

- Provide 20 feet of red curb on either side of driveways, allies, and intersections to ensure adequate sight distance between drivers and pedestrians walking nearby.
- Provide 20 feet of red curb adjacent to crosswalks to maintain clear sight lines between drivers and pedestrians.
- Convert John Muir Parkway/Bayfront Boulevard to an all-way stop-controlled intersection.

Pedestrian Access and Circulation

Sidewalks adjacent to the Project along John Muir Parkway between Bayfront Boulevard and the Bayfront Boulevard Apartments Driveway are primarily 14 feet wide, which aligns with requirements set by the form-based code. Moreover, these dimensions exceed guidelines set by

the Public Right of Way Guidance (PROWAG), which require a minimum width of 4 feet and recommend at least 5 feet for sidewalks.

To the north of the Project site is the Bay Trail, a shared-use pedestrian and bicycle facility situated along the waterfront. The Project currently provides bicycle and pedestrian access to the Bay Trail through a connection north of the John Muir Parkway/Bayfront Boulevard intersection.

Recommendations:

- Upon development of the Project, maintain the pedestrian connection between the Project and the Bay Trail to preserve recreational access for residents and visitors.
- Upgrade all marked crossings to high-visibility continental crosswalk striping.
- Ensure 20 feet of red curb at new intersection, alley, and driveway approaches at intersections on John Muir Parkway, Bayfront Boulevard, and Project roads.

Bicycle Access and Circulation

Existing bicycle facilities in the Project vicinity include a Class II bike lane along John Muir Parkway, which extends east to connect with the bike lane on San Pablo Avenue, and a Class I shared-use path along the Bay Trail. Currently, a connection north of John Muir Parkway/Bayfront Boulevard to the Bay Trail provides access to the path.

A proposed Class I shared-use path in the 2009 Contra Costa Countywide Bicycle and Pedestrian Plan[2] is located near the project area. This path, running alongside Refugio Creek, will connect the existing Class I path along Refugio Valley Road, ending at Sycamore Avenue, to the Bay Trail. The proposed Class I path is also included in the Metropolitan Transportation Commission's (MTC) 2023 Bay Trail Gap Closure Implementation Plan[3].

Recommendations:

- Upon development of the Project, maintain the bicycle connection between the Project to the Bay Trail to preserve recreational access for residents and visitors.

Transit Access

WestCAT currently provides bus service in the vicinity of the Project, with the nearest stop located at the Hercules Hub Waterfront at Bayfront Boulevard/Sanderling Drive, approximately 700 feet away from the Project site. The stop serves as the terminal for the JX line, which offers direct service to El Cerrito del Norte BART station.

[2] Contra Costa Countywide Bicycle and Pedestrian Plan (2009) (https://ccta.net/wp-content/uploads/2018/10/52ead8bcc30b4.pdf).

[3] Metropolitan Transportation Commission (MTC) – Bay Trail Gap Closure Implementation Plan Prioritization (https://experience.arcgis.com/experience/817c5f3b503848deb44e83d337285fd6/).

The Hercules Hub Waterfront stop is currently missing a sidewalk, presenting a challenge for safe pedestrian access. Future buildout of the area should prioritize the inclusion of a sidewalk and ensure ADA accessibility at the stop to improve transit access and safety for all users.

On-Street and Off-Street Parking

The Project would include 435 parking spaces. The form-based code in the Waterfront District Master Plan requires 1 space per 1,500 square feet for residential use and live/work units under 2,500 square feet. While the exact square footage of townhomes and live/work units in the Project is unspecified in the site plan, assuming that each is 1,500 square feet would align with typical sizes (around 1,500 to 2,500 square feet). Based on these assumptions, the Project is only required to supply 171 parking spaces, resulting in an excess of 264 spaces (435 spaces minus 171 spaces). Therefore, the Project provides more parking than required per the form-based code.

Parking demand is also estimated using the *ITE Parking Generation Manual*, *6th Edition*, which provides parking demand estimates for land use types based on nationwide observations. For the Project's townhouses (ITE Land Use Code 215), the weighted average parking demand is 241 spaces, and the 85th percentile demand is 388 spaces, as shown in **Table 5**.

The Project's townhouses will provide 2 garage parking spaces per unit, totaling 342 spaces, which meets the average demand but falls short of the 85th percentile. If the project has excess demand, the additional 26 driveway, 14 surface, and 53 on-street spaces can act as overflow parking, increasing the parking supply to 435 total spaces (342 garage plus 26 driveway, 14 surface, and 53 on-street), accommodating the 85th percentile demand of 388 parking spaces.

Table 5: ITE Parking Generation

Statistic	ITE Code 215 Parking Demand Rate (per unit)	Total Parking Demand for Project
Weighted Average	1.41	241
85th Percentile	2.27	388

Source: *ITE Parking Generation Manual, 6th Edition*, 2023.

While the form-based code may be an appropriate application for parking at buildout when the transit services and mix of land uses are provided in the neighborhood, it is unknown when the train station and fully functioning bus transit hub will be operational. Until then, the increased parking – two garage spaces per unit plus driveway, surface, and on-street parking – is necessary to accommodate need per the *ITE Parking Generation Manual*. In addition, the combined 93 driveway, surface, and on-street parking spaces provide an excellent amenity for visitors to the area's coast and commercial establishments now and at buildout.

Per the Bayfront Project Parking Operations Agreement, the Owner commits to share 10% of parking spaces in Blocks E, G, J, K, L, M, N, O, P, Q, and R for public use. The combined 93

driveway, surface, and on-street parking spaces in the Project represent about 20% of the total parking supply provided by the Project, exceeding the parking operations agreement.

Attachments:

Figure 1 – Project Trip Assignment and Distribution

Figure 2 – Buildout Trip Assignment and Distribution

Figure 3 – Peak Hour Intersection Traffic Volumes, Lane Configuration, and Traffic Controls

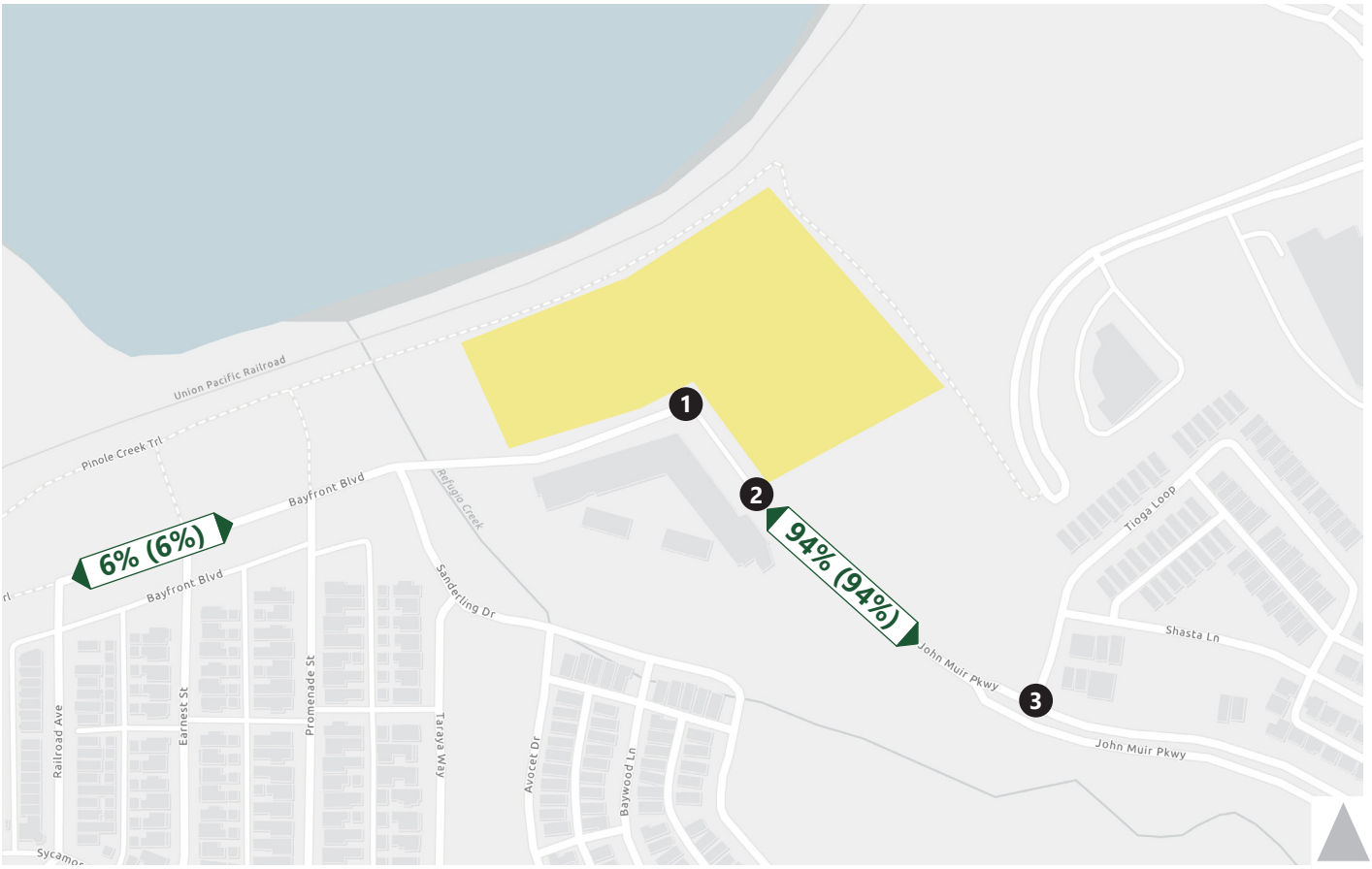
Figure 4 – Recommendations

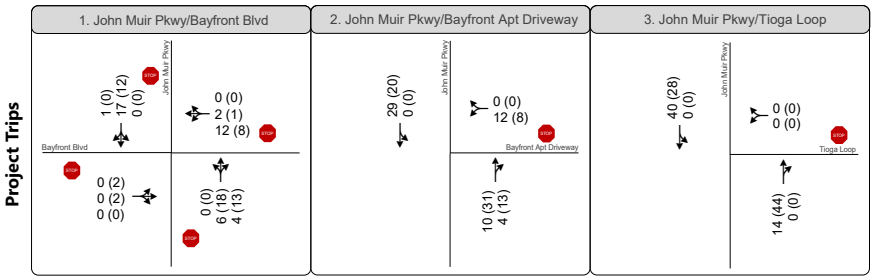
Appendix A – Project Site Plan

Appendix B – LOS Evaluation Criteria

Appendix C – Intersection Volumes

Appendix D – Intersection LOS worksheets





Project Site

Study Intersection

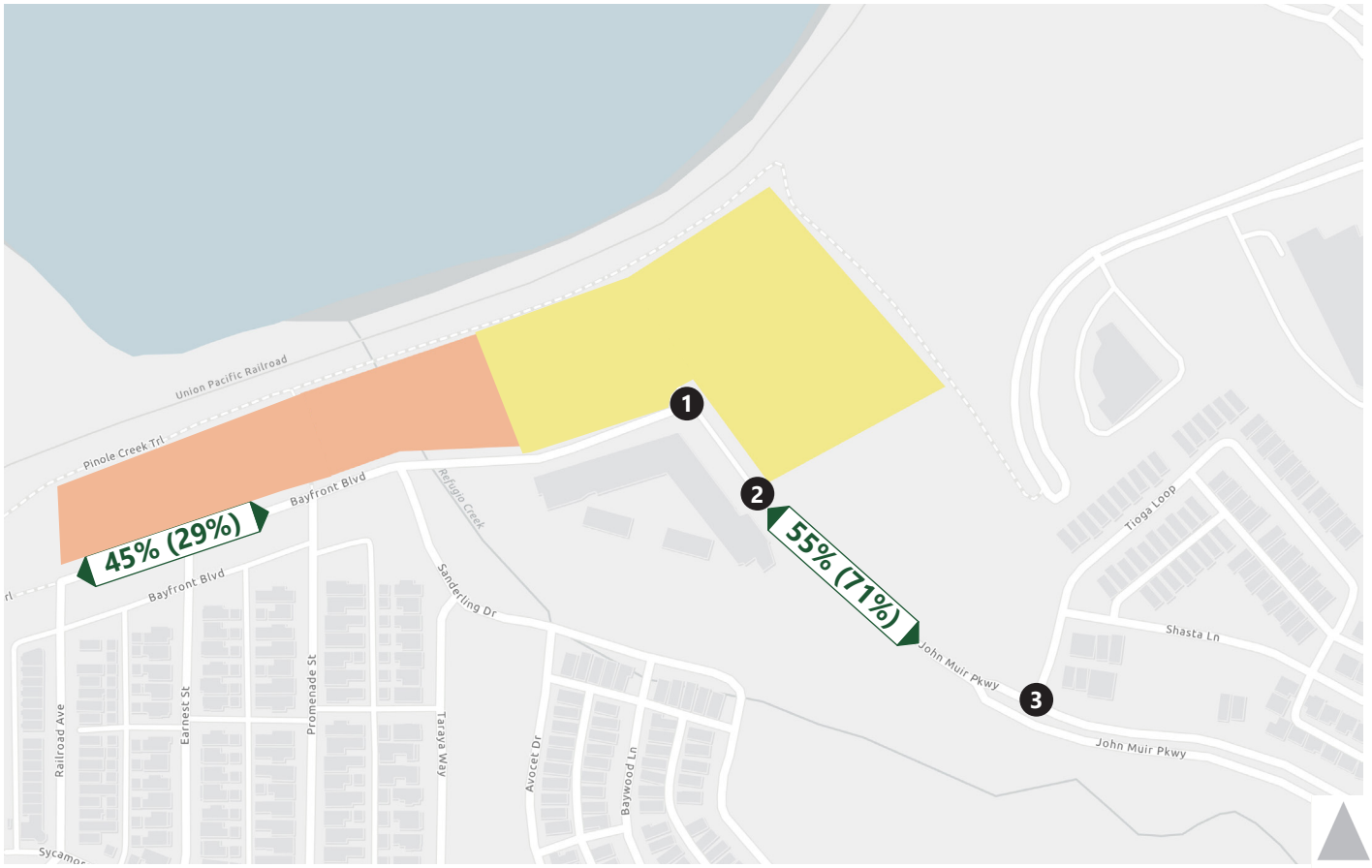
Stop Sign

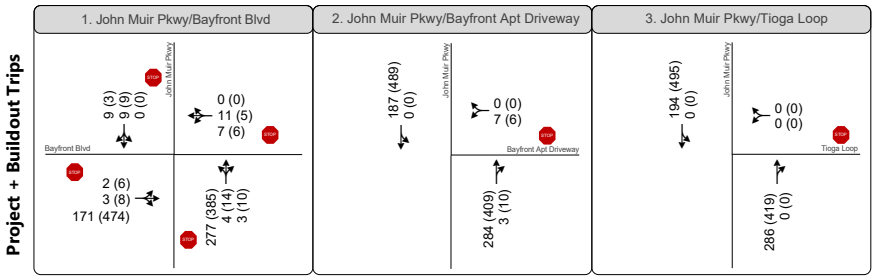
XX (YY) — AM (PM) Peak Hour Traffic Volumes

XX% (YY%) — AM (PM) Peak Hour Project Site Trip Distribution

Figure 1

Project Site Trip Distribution and Assignment





Project Site

Buildout

\# Study Intersection

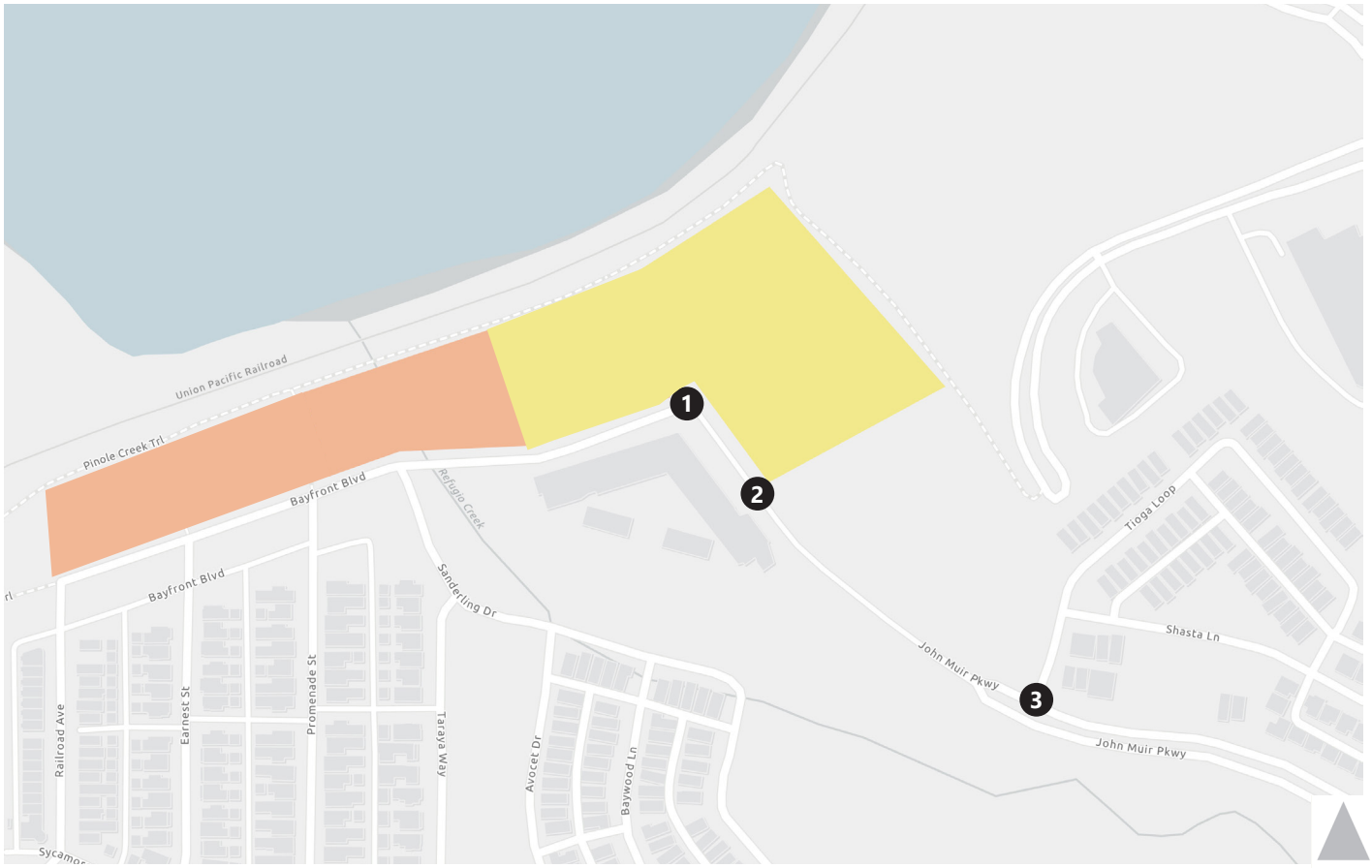
Stop Sign

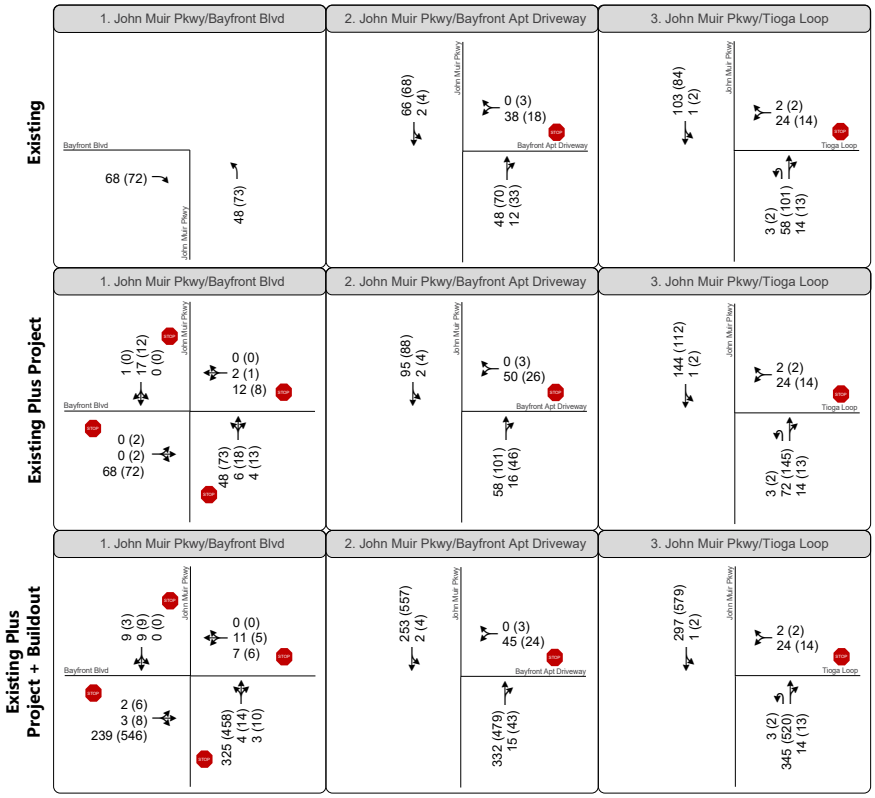
XX (YY) AM (PM) Peak Hour Traffic Volumes

XX% (YY%) AM (PM) Peak Hour Project + Buildout Trip Distribution

Figure 2

Buildout Trip Distribution and Assignment





Project Site

Buildout

\# Study Intersection

STOP Stop Sign

XX (YY) AM (PM) Peak Hour Traffic Volumes

Figure 3

Peak Hour Intersection Traffic Volumes, Lane Configurations, and Traffic Controls

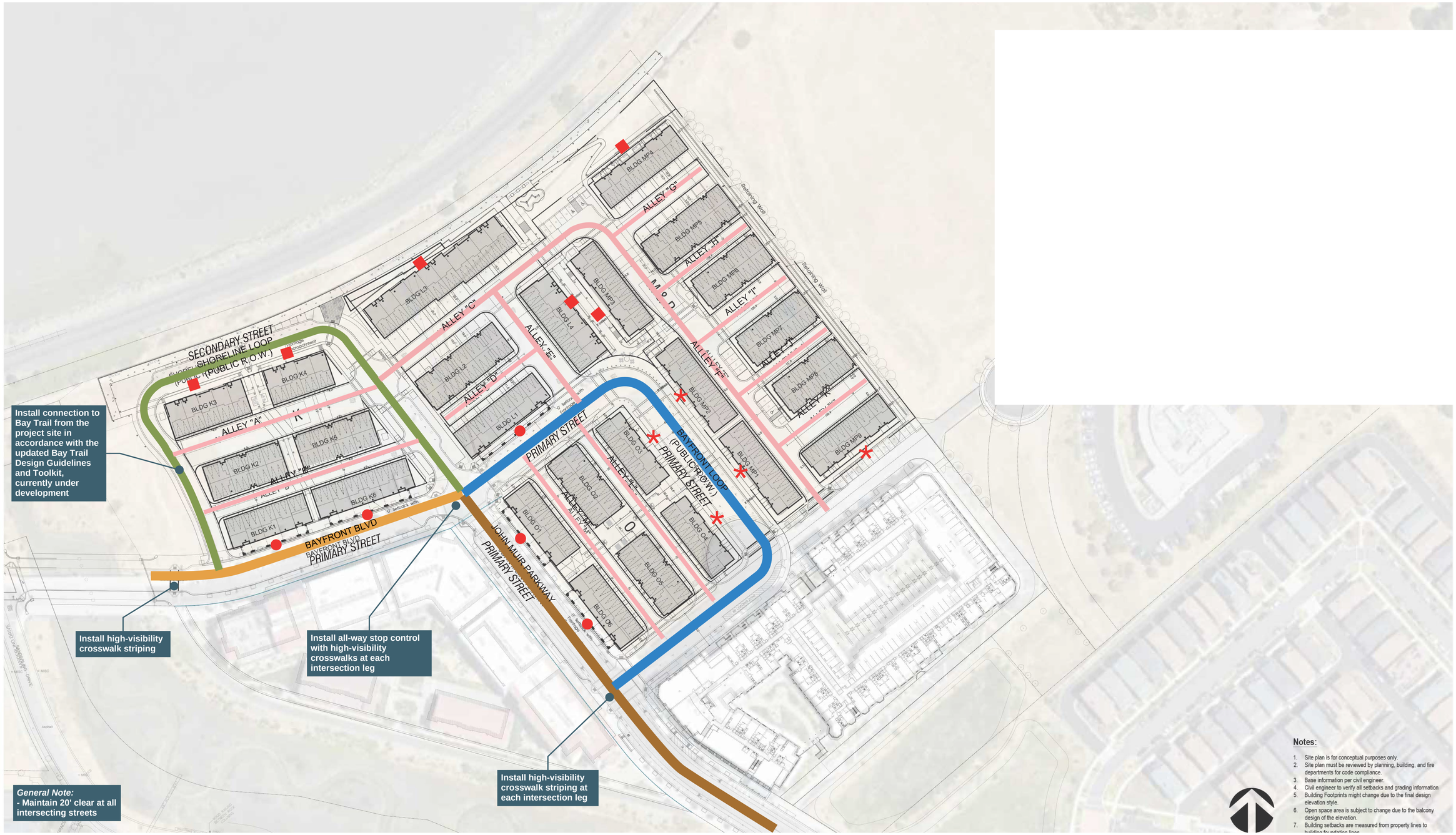


Figure 4

Project Site Plan Recommendations—Blocks K, L, M, P, & O

Appendix A: Project Site Plan

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

0 30 60 120

STREET AND CIRCULATION PLAN

HERCULES WATERFRONT DISTRICT - BLOCK K,L,M,O,P

HERCULES, CA

SP-14

DEVELOPMENT REVIEW 3RD SUBMITTAL

ARCHITECTS . PLANNERS . DESIGNERS

WHA.

ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO

Appendix B: LOS Evaluation Criteria

Appendix B – Intersection Level of Service Analysis Criteria

Intersection operations are evaluated using the methods provided in the 2010 Highway Capacity Manual (HCM). These methods use intersection characteristics to estimate average control delay and then assigns a Level of Service (LOS) value. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at a signalized intersection. **Tables A-1** and **A-2** describe the various LOS and the corresponding ranges of delays for signalized and unsignalized intersections.

TABLE A-1: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service Grade	Average Control Vehicle Delay (Seconds)	Description
A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/ or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

Source: Highway Capacity Manual, Transportation Research Board, 2010.

TABLE A-2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

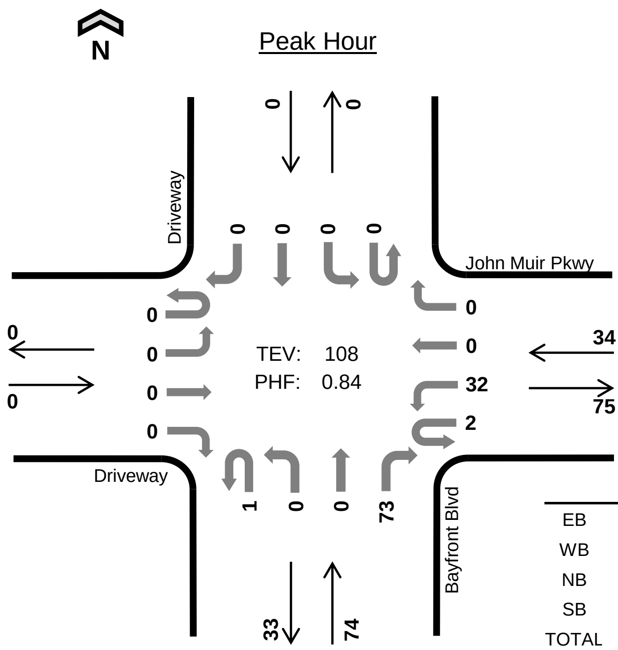
Level of Service Grade	Average Control Vehicle Delay (Seconds)	Description
A	≤10.0	Little or No Delays
B	>10.0 and 15.0	Short Traffic Delays
C	>15.0 and 25.0	Average Traffic Delays
D	>25.0 and 35.0	Long Traffic Delays
E	>35.0 and 50.0	Very Long Traffic Delays
F	>50.0	Extreme Traffic Delays with Intersection Capacity Exceeded

Source: Highway Capacity Manual, Transportation Research Board, 2010.

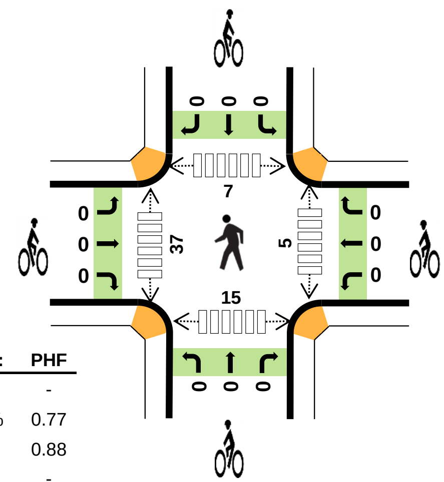
Appendix C: Intersection Volumes

Bayfront Blvd
John Muir Pkwy

Date: 05/23/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	-	-
WB	11.8%	0.77
NB	4.1%	0.88
SB	-	-
TOTAL	6.5%	0.84



Two-Hour Count Summaries

Interval Start	Driveway Eastbound UT	LT	TH	RT	John Muir Pkwy Westbound UT	LT	TH	RT	Bayfront Blvd Northbound UT	LT	TH	RT	Driveway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	1	6	0	0	0	0	0	12	0	0	0	0	19	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**1**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**23**	0
7:30 AM	**0**	**0**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**0**	**28**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**0**	**0**	**32**	102
8:00 AM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**25**	**108**
8:15 AM	0	0	0	0	0	10	0	0	0	0	0	9	0	0	0	0	19	104
8:30 AM	0	0	0	0	1	10	0	0	0	0	0	20	0	0	0	0	31	107
8:45 AM	0	0	0	0	2	10	0	0	0	0	0	17	0	0	0	0	29	104
Count Total	0	0	0	0	6	68	0	0	1	0	0	131	0	0	0	0	206	0
Peak Hour All	**0**	**0**	**0**	**0**	**2**	**32**	**0**	**0**	**1**	**0**	**0**	**73**	**0**	**0**	**0**	**0**	**108**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**0%**	**13%**	**-**	**-**	**0%**	**-**	**-**	**4%**	**-**	**-**	**-**	**-**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	2	1	0	*3*	0	0	0	0	*0*	0	4	1	0	*5*
7:15 AM	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**3**	**19**	**2**	**6**	*30*
7:30 AM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**7**	**0**	**3**	*10*
7:45 AM	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**7**	**3**	**3**	*13*
8:00 AM	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**2**	**4**	**2**	**3**	***11***
8:15 AM	0	1	1	0	*2*	0	0	1	0	*1*	4	12	0	3	*19*
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	17	0	5	*22*
8:45 AM	0	1	0	0	*1*	0	0	0	0	*0*	2	11	5	4	*22*
Count Total	0	8	5	0	*13*	0	0	1	0	*1*	11	81	13	27	*132*
Peak Hour	**0**	**4**	**3**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**5**	**37**	**7**	**15**	***64***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				John Muir Pkwy				Bayfront Blvd				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	3	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	8
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**7**
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2	7
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	5
Count Total	0	0	0	0	0	8	0	0	0	0	0	5	0	0	0	0	13	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**0**

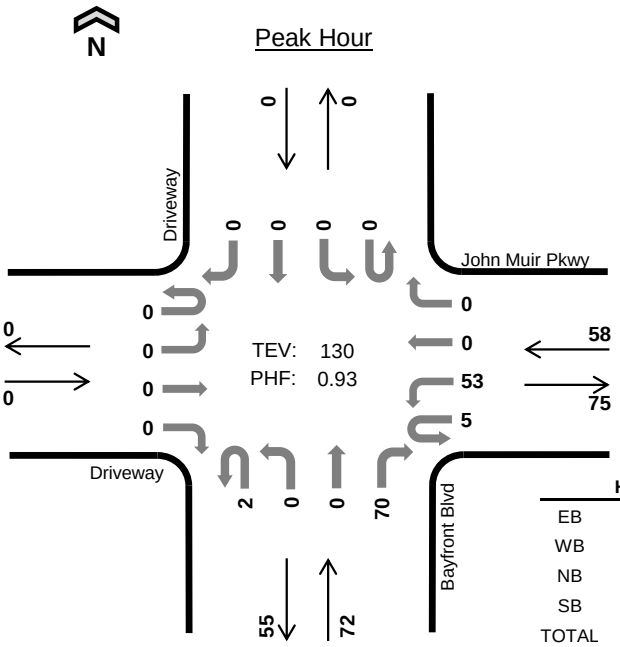
Two-Hour Count Summaries - Bikes

Interval Start	Driveway			John Muir Pkwy			Bayfront Blvd			Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

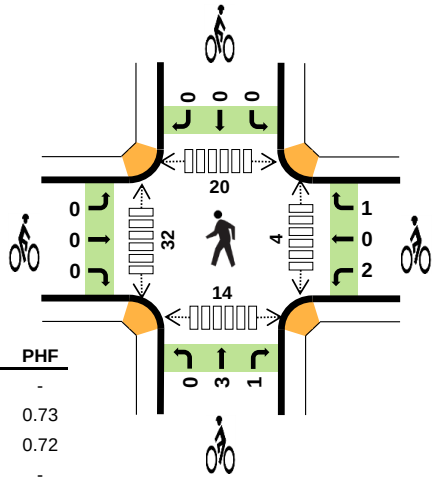
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayfront Blvd
John Muir Pkwy

Date: 05/23/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	-	-
WB	5.2%	0.73
NB	5.6%	0.72
SB	-	-
TOTAL	5.4%	0.93



Two-Hour Count Summaries

Interval Start	Driveway Eastbound				John Muir Pkwy Westbound				Bayfront Blvd Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	2	16	0	0	0	0	0	11	0	0	0	0	29	0
4:15 PM	0	0	0	0	2	6	0	0	0	0	0	14	0	0	0	0	22	0
4:30 PM	0	0	0	0	2	15	0	0	0	0	0	14	0	0	0	0	31	0
4:45 PM	0	0	0	0	2	12	0	0	0	0	0	12	0	0	0	0	26	108
5:00 PM	**0**	**0**	**0**	**0**	**2**	**18**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**35**	114
5:15 PM	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**29**	121
5:30 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**2**	**0**	**0**	**23**	**0**	**0**	**0**	**0**	**33**	123
5:45 PM	**0**	**0**	**0**	**0**	**3**	**15**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**33**	**130**
Count Total	0	0	0	0	13	102	0	0	2	0	0	121	0	0	0	0	238	0
Peak Hour All	**0**	**0**	**0**	**0**	**5**	**53**	**0**	**0**	**2**	**0**	**0**	**70**	**0**	**0**	**0**	**0**	**130**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**7**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**0%**	**6%**	**-**	**-**	**0%**	**-**	**-**	**6%**	**-**	**-**	**-**	**-**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	0	0	*1*	0	0	0	1	*1*	1	7	1	9	*18*
4:15 PM	0	1	2	0	*3*	0	0	0	0	*0*	3	4	7	3	*17*
4:30 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	4	0	2	*6*
4:45 PM	0	2	1	0	*3*	0	0	2	1	*3*	0	6	2	12	*20*
5:00 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**2**	**0**	***2***	**0**	**8**	**7**	**5**	*20*
5:15 PM	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**1**	**0**	***1***	**1**	**4**	**2**	**3**	*10*
5:30 PM	**0**	**1**	**1**	**0**	***2***	**0**	**1**	**0**	**0**	***1***	**0**	**12**	**7**	**4**	*23*
5:45 PM	**0**	**1**	**1**	**0**	***2***	**0**	**2**	**1**	**0**	***3***	**3**	**8**	**4**	**2**	***17***
Count Total	0	8	7	0	*15*	0	3	6	2	*11*	8	53	30	40	*131*
Peak Hour	**0**	**3**	**4**	**0**	***7***	**0**	**3**	**4**	**0**	***7***	**4**	**32**	**20**	**14**	***70***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				John Muir Pkwy				Bayfront Blvd				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	3	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	3	8
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	8
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	7
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	8
5:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**7**
Count Total	0	0	0	0	0	8	0	0	0	0	0	7	0	0	0	0	15	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**7**	**0**

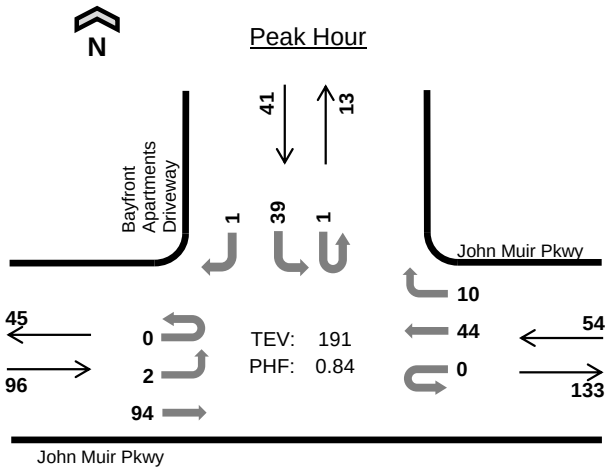
Two-Hour Count Summaries - Bikes

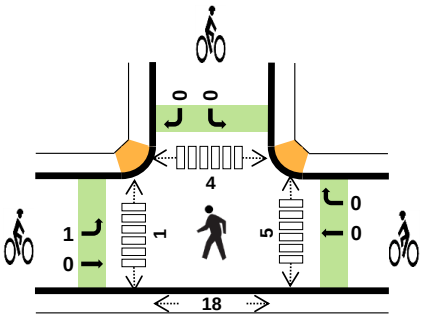
Interval Start	Driveway			John Muir Pkwy			Bayfront Blvd			Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	1	0	1	0	3	4
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	5
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	6
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	7
5:45 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**7**
Count Total	0	0	0	2	0	1	0	4	2	0	2	0	11	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**3**	**1**	**0**	**0**	**0**	**7**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayfront Apartments Driveway
John Muir Pkwy

Date: 05/23/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	3.1%	0.83
WB	5.6%	0.79
NB	-	-
SB	0.0%	0.85
TOTAL	3.1%	0.84

Two-Hour Count Summaries

Interval Start		John Muir Pkwy Eastbound				John Muir Pkwy Westbound				N/A Northbound				Bayfront Apartments Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	17	0	0	0	6	0	0	0	0	0	0	7	0	0	30	0
7:15 AM		0	0	17	0	0	0	8	0	0	0	0	0	0	5	0	0	30	0
7:30 AM		**0**	**0**	**28**	**0**	**0**	**0**	**9**	**3**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**1**	**52**	0
7:45 AM		**0**	**0**	**29**	**0**	**0**	**0**	**14**	**3**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**57**	169
8:00 AM		**0**	**1**	**26**	**0**	**0**	**0**	**9**	**3**	**0**	**0**	**0**	**0**	**1**	**9**	**0**	**0**	**49**	188
8:15 AM		**0**	**1**	**11**	**0**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**33**	**191**
8:30 AM		0	0	22	0	0	0	13	5	0	0	0	0	1	8	0	0	49	188
8:45 AM		0	0	22	0	0	0	13	3	0	0	0	0	0	2	0	0	40	171
Count Total		0	2	172	0	0	0	84	18	0	0	0	0	2	61	0	1	340	0
Peak Hour	**All**	**0**	**2**	**94**	**0**	**0**	**0**	**44**	**10**	**0**	**0**	**0**	**0**	**1**	**39**	**0**	**1**	**191**	**0**
	HV	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**
	HV%	**-**	**0%**	**3%**	**-**	**-**	**-**	**7%**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	1	0	0	*2*	0	0	0	0	*0*	1	0	1	1	*3*
7:15 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	4	0	*4*
7:30 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**3**	*5*
7:45 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**2**	**3**	*6*
8:00 AM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**7**	*10*
8:15 AM	**1**	**1**	**0**	**0**	***2***	**1**	**0**	**0**	**0**	***1***	**2**	**0**	**0**	**5**	***7***
8:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	2	0	0	11	*13*
8:45 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	1	5	*6*
Count Total	5	6	0	0	*11*	1	0	0	0	*1*	8	1	10	35	*54*
Peak Hr	**3**	**3**	**0**	**0**	***6***	**1**	**0**	**0**	**0**	***1***	**5**	**1**	**4**	**18**	***28***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	John Muir Pkwy				John Muir Pkwy				N/A				Bayfront Apartments Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	6
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	6
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**6**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5
Count Total	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0	11	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

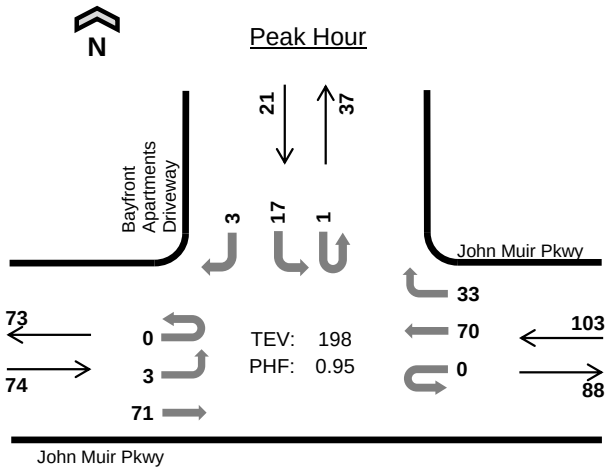
Two-Hour Count Summaries - Bikes

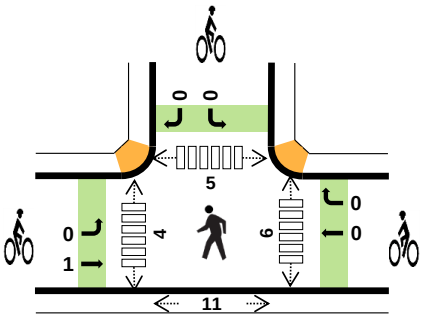
Interval Start	John Muir Pkwy			John Muir Pkwy			N/A			Bayfront Apartments Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayfront Apartments Driveway
John Muir Pkwy

Date: 05/23/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	5.4%	0.93
WB	3.9%	0.89
NB	-	-
SB	4.8%	0.75
TOTAL	4.5%	0.95

Two-Hour Count Summaries

Interval Start		John Muir Pkwy Eastbound				John Muir Pkwy Westbound				N/A Northbound				Bayfront Apartments Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		1	2	11	0	0	0	21	4	0	0	0	0	0	5	0	3	47	0
4:15 PM		**0**	**1**	**18**	**0**	**0**	**0**	**12**	**11**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**46**	0
4:30 PM		**0**	**1**	**16**	**0**	**0**	**0**	**20**	**7**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**1**	**51**	0
4:45 PM		**0**	**0**	**18**	**0**	**0**	**0**	**19**	**5**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**49**	193
5:00 PM		**0**	**1**	**19**	**0**	**0**	**0**	**19**	**10**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**52**	**198**
5:15 PM		1	0	16	0	0	0	15	4	0	0	0	0	0	1	0	0	37	189
5:30 PM		0	1	22	0	0	0	11	6	0	0	0	0	0	7	0	0	47	185
5:45 PM		0	1	21	0	0	0	21	3	0	0	0	0	0	2	0	1	49	185
Count Total		2	7	141	0	0	0	138	50	0	0	0	0	1	32	0	7	378	0
Peak Hour	**All**	**0**	**3**	**71**	**0**	**0**	**0**	**70**	**33**	**0**	**0**	**0**	**0**	**1**	**17**	**0**	**3**	**198**	**0**
	HV	**0**	**1**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**9**	**0**
	HV%	**-**	**33%**	**4%**	**-**	**-**	**-**	**6%**	**0%**	**-**	**-**	**-**	**-**	**0%**	**6%**	**-**	**0%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	0	0	*1*	0	0	0	0	*0*	2	0	0	0	*2*
4:15 PM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**3**	*5*
4:30 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**1**	**2**	**3**	**2**	*8*
4:45 PM	**1**	**2**	**0**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**4**	**1**	**0**	**4**	*9*
5:00 PM	**1**	**0**	**0**	**0**	***1***	**1**	**0**	**0**	**0**	***1***	**1**	**0**	**1**	**2**	***4***
5:15 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	1	4	1	*6*
5:30 PM	1	0	0	0	*1*	0	0	0	0	*0*	1	2	2	1	*6*
5:45 PM	1	1	0	0	*2*	0	0	0	2	*2*	1	3	3	7	*14*
Count Total	6	7	0	1	*14*	1	0	0	2	*3*	10	10	14	20	*54*
Peak Hr	**4**	**4**	**0**	**1**	***9***	**1**	**0**	**0**	**0**	***1***	**6**	**4**	**5**	**11**	***26***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	John Muir Pkwy				John Muir Pkwy				N/A				Bayfront Apartments Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	9
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**9**
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	7
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
5:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	5
Count Total	0	1	5	0	0	0	7	0	0	0	0	0	0	1	0	0	14	0
Peak Hour	**0**	**1**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**9**	**0**

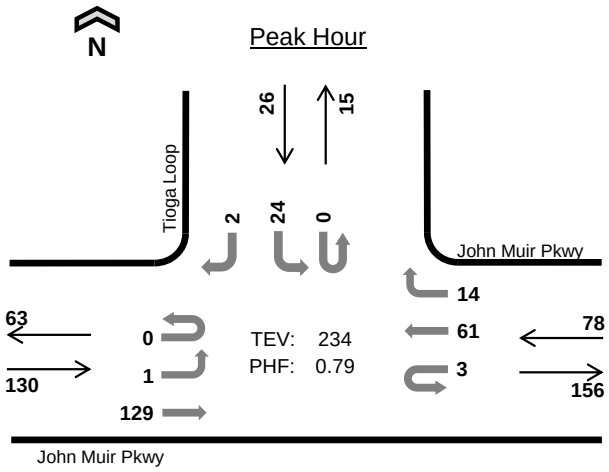
Two-Hour Count Summaries - Bikes

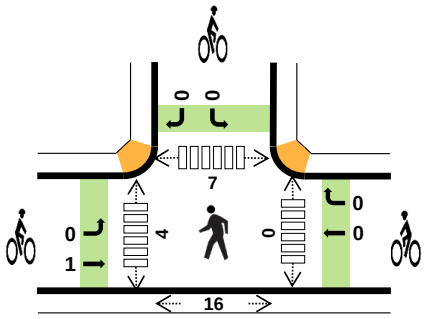
Interval Start	John Muir Pkwy			John Muir Pkwy			N/A			Bayfront Apartments Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	2	3
Count Total	0	1	0	0	0	0	0	0	0	1	0	1	3	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tioga Loop
John Muir Pkwy

Date: 05/23/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	1.5%	0.71
WB	3.8%	0.89
NB	-	-
SB	3.8%	0.65
TOTAL	2.6%	0.79

Two-Hour Count Summaries

Interval Start	John Muir Pkwy Eastbound				John Muir Pkwy Westbound				N/A Northbound				Tioga Loop Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	25	0	1	0	6	0	0	0	0	0	0	3	0	0	35	0
7:15 AM	0	0	20	0	0	0	8	1	0	0	0	0	0	5	0	0	34	0
7:30 AM	0	1	36	0	0	0	12	0	0	0	0	0	0	3	0	1	53	0
7:45 AM	**0**	**0**	**46**	**0**	**1**	**0**	**16**	**1**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**1**	**74**	196
8:00 AM	**0**	**0**	**33**	**0**	**0**	**0**	**11**	**7**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**59**	220
8:15 AM	**0**	**0**	**18**	**0**	**1**	**0**	**15**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**42**	228
8:30 AM	**0**	**1**	**32**	**0**	**1**	**0**	**19**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**59**	**234**
8:45 AM	0	2	21	0	0	0	16	7	0	0	0	0	0	3	0	1	50	210
Count Total	0	4	231	0	4	0	103	22	0	0	0	0	0	38	0	4	406	0
Peak Hour All	**0**	**1**	**129**	**0**	**3**	**0**	**61**	**14**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**2**	**234**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**
Peak Hour HV%	**-**	**0%**	**2%**	**-**	**0%**	**-**	**5%**	**0%**	**-**	**-**	**-**	**-**	**-**	**4%**	**-**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	2	0	0	*4*	0	0	0	0	*0*	0	0	1	1	*2*
7:15 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	1	2	0	*3*
7:30 AM	2	0	0	0	*2*	0	0	0	0	*0*	0	1	1	2	*4*
7:45 AM	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**2**	**1**	*4*
8:00 AM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**2**	**4**	*8*
8:15 AM	**0**	**1**	**0**	**0**	***1***	**1**	**0**	**0**	**0**	***1***	**0**	**1**	**2**	**4**	*7*
8:30 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**7**	***8***
8:45 AM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	3	8	*11*
Count Total	6	7	0	1	*14*	1	0	0	0	*1*	0	6	14	27	*47*
Peak Hr	**2**	**3**	**0**	**1**	***6***	**1**	**0**	**0**	**0**	***1***	**0**	**4**	**7**	**16**	***27***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	John Muir Pkwy				John Muir Pkwy				N/A				Tioga Loop				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	9
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	7
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	7
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5
Count Total	0	0	6	0	0	0	7	0	0	0	0	0	0	1	0	0	14	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**

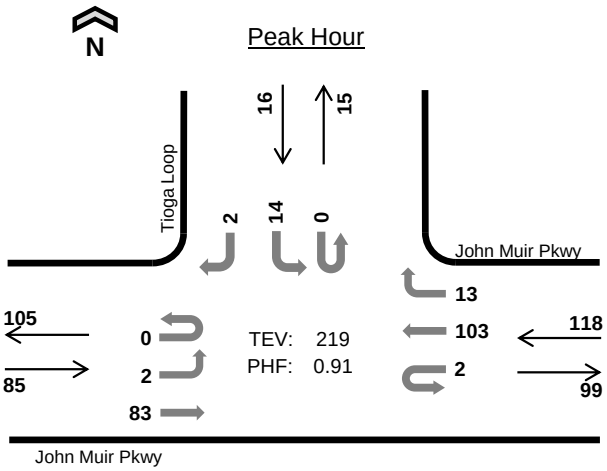
Two-Hour Count Summaries - Bikes

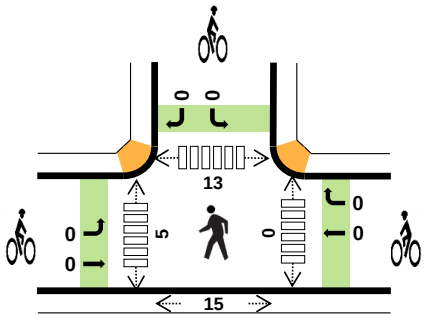
Interval Start	John Muir Pkwy			John Muir Pkwy			N/A			Tioga Loop			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tioga Loop
John Muir Pkwy

Date: 05/23/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	5.9%	0.89
WB	2.5%	0.89
NB	-	-
SB	12.5%	0.57
TOTAL	4.6%	0.91

Two-Hour Count Summaries

Interval Start	John Muir Pkwy Eastbound				John Muir Pkwy Westbound				N/A Northbound				Tioga Loop Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	15	0	1	0	25	6	0	0	0	0	0	2	0	1	52	0
4:15 PM	**0**	**0**	**24**	**0**	**1**	**0**	**24**	**4**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**60**	0
4:30 PM	**0**	**0**	**23**	**0**	**1**	**0**	**26**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**55**	0
4:45 PM	**0**	**1**	**18**	**0**	**0**	**0**	**24**	**4**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**51**	218
5:00 PM	**0**	**1**	**18**	**0**	**0**	**0**	**29**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**53**	**219**
5:15 PM	0	0	21	0	0	0	20	5	0	0	0	0	0	1	0	0	47	206
5:30 PM	0	0	28	0	1	0	16	1	0	0	0	0	0	7	0	1	54	205
5:45 PM	0	1	23	0	1	0	24	1	0	0	0	0	0	2	0	0	52	206
Count Total	0	5	170	0	5	0	188	26	0	0	0	0	0	26	0	4	424	0
Peak Hour All	**0**	**2**	**83**	**0**	**2**	**0**	**103**	**13**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**2**	**219**	**0**
Peak Hour HV	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**10**	**0**
Peak Hour HV%	**-**	**0%**	**6%**	**-**	**0%**	**-**	**3%**	**0%**	**-**	**-**	**-**	**-**	**-**	**7%**	**-**	**50%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**3**	**1**	*4*
4:30 PM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**4**	**4**	*12*
4:45 PM	**2**	**1**	**0**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**3**	**6**	*9*
5:00 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**3**	**4**	***8***
5:15 PM	0	1	0	0	*1*	0	1	0	0	*1*	0	0	6	2	*8*
5:30 PM	2	1	0	0	*3*	0	0	0	0	*0*	0	3	0	1	*4*
5:45 PM	1	1	0	0	*2*	1	0	0	0	*1*	0	3	7	6	*16*
Count Total	8	7	0	2	*17*	1	1	0	0	*2*	0	11	26	24	*61*
Peak Hr	**5**	**3**	**0**	**2**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**5**	**13**	**15**	***33***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	John Muir Pkwy				John Muir Pkwy				N/A				Tioga Loop				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
4:45 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**	10
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	9
5:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	10
5:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	7
Count Total	0	0	8	0	0	0	7	0	0	0	0	0	0	1	0	1	17	0
Peak Hour	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**10**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	John Muir Pkwy			John Muir Pkwy			N/A			Tioga Loop			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	2
Count Total	1	0	0	0	1	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix D: Intersection LOS Worksheets

Intersection	
Int Delay, s/veh	2.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	2	66	48	12	38	0
Future Vol, veh/h	2	66	48	12	38	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	2	66	53	12	38	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	65	0	-	0	129	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1550	-	-	-	865	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1550	-	-	-	864	1007
Mov Cap-2 Maneuver	-	-	-	-	864	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	953	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1550	-	864
HCM Lane V/C Ratio	-	-	0.001	-	0.044
HCM Control Delay (s)	-	-	7.3	0	9.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	4	68	70	33	18	3
Future Vol, veh/h	4	68	70	33	18	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	4	68	78	33	18	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	111	0	-	0	171	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1492	-	-	-	819	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	947	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1492	-	-	-	817	962
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	947	-

Approach	SE	NW	SW
HCM Control Delay, s	0.4	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1492	-	837
HCM Lane V/C Ratio	-	-	0.003	-	0.025
HCM Control Delay (s)	-	-	7.4	0	9.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	0	68	0	17	1	48	6	4	12	2
Future Vol, veh/h	0	68	0	17	1	48	6	4	12	2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Heavy Vehicles, %	0	2	0	2	2	2	2	2	2	2
Mvmt Flow	0	68	0	17	1	48	7	4	12	2
Number of Lanes	1	0	0	1	0	0	1	0	1	0

Approach	EB	SE	NW	SW
Opposing Approach		NW	SE	
Opposing Lanes	0	1	1	0
Conflicting Approach Left	SE	SW	EB	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NW	EB	SW	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.7	7.2	7.5	7.3
HCM LOS	A	A	A	A

Lane	NWLn1	EBLn1	SELn1	SWLn1
Vol Left, %	83%	0%	0%	86%
Vol Thru, %	10%	0%	94%	0%
Vol Right, %	7%	100%	6%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	68	18	14
LT Vol	48	0	0	12
Through Vol	6	0	17	0
RT Vol	4	68	1	2
Lane Flow Rate	59	68	18	14
Geometry Grp	1	1	1	1
Degree of Util (X)	0.069	0.065	0.02	0.016
Departure Headway (Hd)	4.213	3.442	4.086	4.204
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	851	1034	874	847
Service Time	2.234	1.486	2.119	2.25
HCM Lane V/C Ratio	0.069	0.066	0.021	0.017
HCM Control Delay	7.5	6.7	7.2	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.2	0.1	0

Intersection	
Int Delay, s/veh	2.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	2	95	58	16	50	0
Future Vol, veh/h	2	95	58	16	50	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	2	95	64	16	50	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	171	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1531	-	-	-	819	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1531	-	-	-	818	990
Mov Cap-2 Maneuver	-	-	-	-	818	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	925	-

Approach	SE	NW	SW
HCM Control Delay, s	0.2	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1531	-	818
HCM Lane V/C Ratio	-	-	0.001	-	0.061
HCM Control Delay (s)	-	-	7.4	0	9.7
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.2

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	2	72	0	12	0	73	18	13	8	1
Future Vol, veh/h	2	72	0	12	0	73	18	13	8	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Heavy Vehicles, %	0	2	0	2	2	2	2	2	2	2
Mvmt Flow	2	72	0	12	0	73	20	13	8	1
Number of Lanes	1	0	0	1	0	0	1	0	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW	EB	NW
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	EB	SW	EB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.3	7.8	7.4
HCM LOS	A	A	A

Lane	NWLn1	EBLn1	SELn1	SWLn1
Vol Left, %	70%	5%	0%	89%
Vol Thru, %	17%	0%	100%	0%
Vol Right, %	12%	95%	0%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	76	12	9
LT Vol	73	4	0	8
Through Vol	18	0	12	0
RT Vol	13	72	0	1
Lane Flow Rate	106	76	12	9
Geometry Grp	1	1	1	1
Degree of Util (X)	0.122	0.076	0.014	0.011
Departure Headway (Hd)	4.158	3.587	4.164	4.31
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	863	987	855	822
Service Time	2.182	1.65	2.21	2.379
HCM Lane V/C Ratio	0.123	0.077	0.014	0.011
HCM Control Delay	7.8	6.9	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0	0

Intersection	
Int Delay, s/veh	1.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	4	88	101	46	26	3
Future Vol, veh/h	4	88	101	46	26	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	4	88	112	46	26	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	158	0	-	0	231	135
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1434	-	-	-	757	914
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1434	-	-	-	755	914
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	928	-

Approach	SE	NW	SW
HCM Control Delay, s	0.3	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1434	-	770
HCM Lane V/C Ratio	-	-	0.003	-	0.038
HCM Control Delay (s)	-	-	7.5	0	9.9
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	3	239	0	9	9	325	4	3	7	11
Future Vol, veh/h	3	239	0	9	9	325	4	3	7	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Heavy Vehicles, %	0	2	0	2	2	2	2	2	2	2
Mvmt Flow	3	239	0	9	9	325	4	3	7	11
Number of Lanes	1	0	0	1	0	0	1	0	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW	EB	NW
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	EB	SW	EB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.8	11.4	8
HCM LOS	A	B	A

Lane	NWLn1	EBLn1	SELn1	SWLn1
Vol Left, %	98%	2%	0%	39%
Vol Thru, %	1%	0%	50%	0%
Vol Right, %	1%	98%	50%	61%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	332	244	18	18
LT Vol	325	5	0	7
Through Vol	4	0	9	0
RT Vol	3	239	9	11
Lane Flow Rate	332	244	18	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.435	0.287	0.023	0.024
Departure Headway (Hd)	4.713	4.237	4.607	4.789
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	847	773	745
Service Time	2.753	2.262	2.66	2.832
HCM Lane V/C Ratio	0.436	0.288	0.023	0.024
HCM Control Delay	11.4	9	7.8	8
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.2	1.2	0.1	0.1

Intersection	
Int Delay, s/veh	1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	2	253	332	15	45	0
Future Vol, veh/h	2	253	332	15	45	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	2	253	369	15	45	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	384	0	-	0	634	377
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	257	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1186	-	-	-	443	670
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	786	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1186	-	-	-	442	670
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	786	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1186	-	442
HCM Lane V/C Ratio	-	-	0.002	-	0.102
HCM Control Delay (s)	-	-	8	0	14.1
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection	
Intersection Delay, s/veh	22.3
Intersection LOS	C

Movement	EBL	EBR	SEL	SET	SER	NWL	NWT	NWR	SWL	SWR
Lane Configurations										
Traffic Vol, veh/h	8	546	0	9	3	458	14	10	6	5
Future Vol, veh/h	8	546	0	9	3	458	14	10	6	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Heavy Vehicles, %	0	2	0	2	2	2	2	2	2	2
Mvmt Flow	8	546	0	9	3	458	16	10	6	5
Number of Lanes	1	0	0	1	0	0	1	0	1	0

Approach	SE	NW	SW
Opposing Approach	NW	SE	
Opposing Lanes	1	1	0
Conflicting Approach Left	SW	EB	NW
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	EB	SW	EB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.3	23.9	9.3
HCM LOS	A	C	A

Lane	NWLn1	EBLn1	SELn1	SWLn1
Vol Left, %	95%	3%	0%	55%
Vol Thru, %	3%	0%	75%	0%
Vol Right, %	2%	97%	25%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	482	560	12	11
LT Vol	458	14	0	6
Through Vol	14	0	9	0
RT Vol	10	546	3	5
Lane Flow Rate	484	561	12	11
Geometry Grp	1	1	1	1
Degree of Util (X)	0.754	0.759	0.02	0.019
Departure Headway (Hd)	5.61	4.876	6.114	6.096
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	746	582	583
Service Time	3.653	2.876	4.191	4.174
HCM Lane V/C Ratio	0.753	0.752	0.021	0.019
HCM Control Delay	23.9	21.5	9.3	9.3
HCM Lane LOS	C	C	A	A
HCM 95th-tile Q	6.8	7.1	0.1	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	4	557	479	43	24	3
Future Vol, veh/h	4	557	479	43	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	90	100	100	90
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	4	557	532	43	24	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	575	0	-	0	1119	554
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	565	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1008	-	-	-	229	532
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1008	-	-	-	228	532
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	569	-

Approach	SE	NW	SW
HCM Control Delay, s	0.1	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1008	-	245
HCM Lane V/C Ratio	-	-	0.004	-	0.112
HCM Control Delay (s)	-	-	8.6	0	21.5
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.4