Final Draft

435 East 3rd Avenue TIA

Prepared for:
City of San Mateo

August 2, 2022

SF21-1188.02

FEHR PEERS

Table of Contents

Appendices

Appendix A: LOS Analysis Screening Memorandum

Appendix B: LOS Calculation Worksheet

List of Figures

List of Tables

435 East 3rd Avenue TIA Executive Summary

This transportation impact assessment (TIA) reviews transportation conditions at and adjacent to 435 East 3rd Avenue, in the City of San Mateo. The proposed project will not result in CEQA impacts on VMT, bicycle, pedestrian, or transit circulation, or hazards and emergency access. The addition of project traffic would not result in unacceptable traffic operations. The project presents no adverse circulation issues and meets the code of design except for the pedestrian facilities. The following summarizes the findings in the TIA and the recommended changes to the site plan would ensure consistency with San Mateo standards and best planning practices.

*Image is a current representation of the project

THE PROJECT

- **¼** acre parcel
- **5** story mixed use building
- **4** floors of office space
- **5** residential units
- **0** on-site parking spaces

ADDITIONAL TRANSPORTATION ANALYSIS

No adverse effects to vehicle, transit, bicycle, or pedestrian circulation are created by the project.

» **49** new AM peak hour and **51** new PM peak hour vehicle trips compared to existing land uses
» Vehicle trips would disperse to nearby parking facilities, such as Kiku Crossing and Main Street Garage

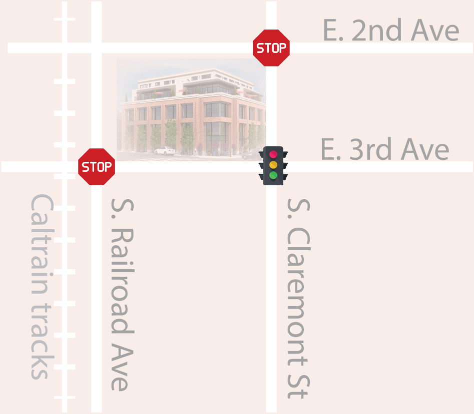
» Project will **generate new riders** on Caltrain and SamTrans

» **9** long-term bicycle parking spaces on-site
» **4** short-term bicycle parking spaces on-site

» **2** pedestrian access points
» Proposed sidewalks range between 15′-16′
» Proposed sidewalks meet ADA standards

STUDY INTERSECTIONS & CEQA IMPACTS

» **No additional delay** during commute hours added by the project
» **Acceptable traffic operations** for all scenarios at all intersections
» **No significant VMT impact** due to proximity to high quality transit (within a 1/2 mile of San Mateo Caltrain Station)
» Minimal impact on neighborhood traffic
» No new hazards or impact to emergency access



RECOMMENDATIONS

» The proposed pedestrian facilities are inconsistent with the San Mateo Pedestrian Master Plan. The project sponsor should widen the proposed sidewalks along South Claremont Street. However, the City's Municipal Code SMMC 27.39.090 requires zero-setbacks unless a setback is provided for landscaping.

» Add advance stop bars at each intersection approach in accordance with City of San Mateo's Pedestrian Design Guidelines.

» The City could consider signal timing adjustments, such as placing all signals on pedestrian recall and installing extinguishable no right turn on red signs during leading pedestrian intervals.

Introduction

This transportation impact assessment (TIA) reviews transportation conditions at and adjacent to the mixed-use project located at 435 East 3rd Avenue in the City of San Mateo. Conditions are evaluated for the current site without the proposed project, for plus project near-term conditions, and for cumulative 2040 conditions with and without the proposed project. The topics presented herein are based on the City of San Mateo's *Transportation Impact Analysis (TIA) Guidelines* (July 2020) and are intended to disclose the transportation related CEQA impacts and local transportation effects of the project. These topics include an assessment of vehicle level of service, vehicle miles traveled, site access and circulation, driveway site distance and vehicle queuing, parking, hazards and emergency vehicle access, and neighborhood traffic.

Study Area and Scenarios

The project site consists of a 10,980 square foot (0.25 acre) parcel at the corner of East 3rd Avenue and South Claremont Street. The project site is bounded directly to the north by restaurant uses along East 3rd Avenue, and office and residential uses directly to the west. The study area, as shown in **Figure 1** is situated in downtown San Mateo between El Camino Real and U.S. 101. The project site is located three blocks from the San Mateo Caltrain station.

Based on recent changes to the California Environmental Quality Act (CEQA) guidelines with the implementation of SB 743 and guidance from the OPR, VMT is recommended as the appropriate measure of transportation impacts under CEQA. LOS and other similar vehicle delay or capacity metrics can no longer serve as transportation impact metrics for CEQA analysis. As stated in the City's TIA Guidelines, the City of San Mateo shifted to using VMT for CEQA impact evaluation but continues to evaluate LOS analysis for land use development projects through the non-CEQA local transportation analysis. Based on these guidelines, three intersections would qualify as study intersections within the project vicinity:

East 2nd Avenue and South Claremont Street
East 3rd Avenue and South Claremont Street
East 3rd Avenue and South Railroad Avenue

Transportation conditions were evaluated for the weekday peak periods of 7:00-9:00 AM and 4:00-6:00 PM in a manner consistent with the TIA Guidelines. Traffic conditions were evaluated for the following scenarios:

- <u>Existing Conditions:</u> Existing traffic volumes were based on historic Streetlight data in addition to 2019 counts collected at the intersection of East 3rd Avenue and South Claremont Street by the City of San Mateo. Due to COVID-19, historic 2019 counts were used in lieu of in-person vehicle counts.

<u>Opening Year Conditions</u>: Existing traffic volumes plus traffic generated by approved but not yet completed or occupied developments near the project site.

Opening Year Plus Project Conditions: Project generated trips added to opening year traffic volumes.

However, as presented in **Appendix A**, due to the lack of on-site parking and the small size of the project, the proposed project would not substantially alter traffic operations surrounding the project site in a manner that would conflict with city policies or standards. Therefore, given that LOS is not allowed for CEQA purposes, this study does not include an assessment of LOS or traffic operations for the cumulative conditions. This study does report an assessment of LOS and traffic operations for the three scenarios listed above.

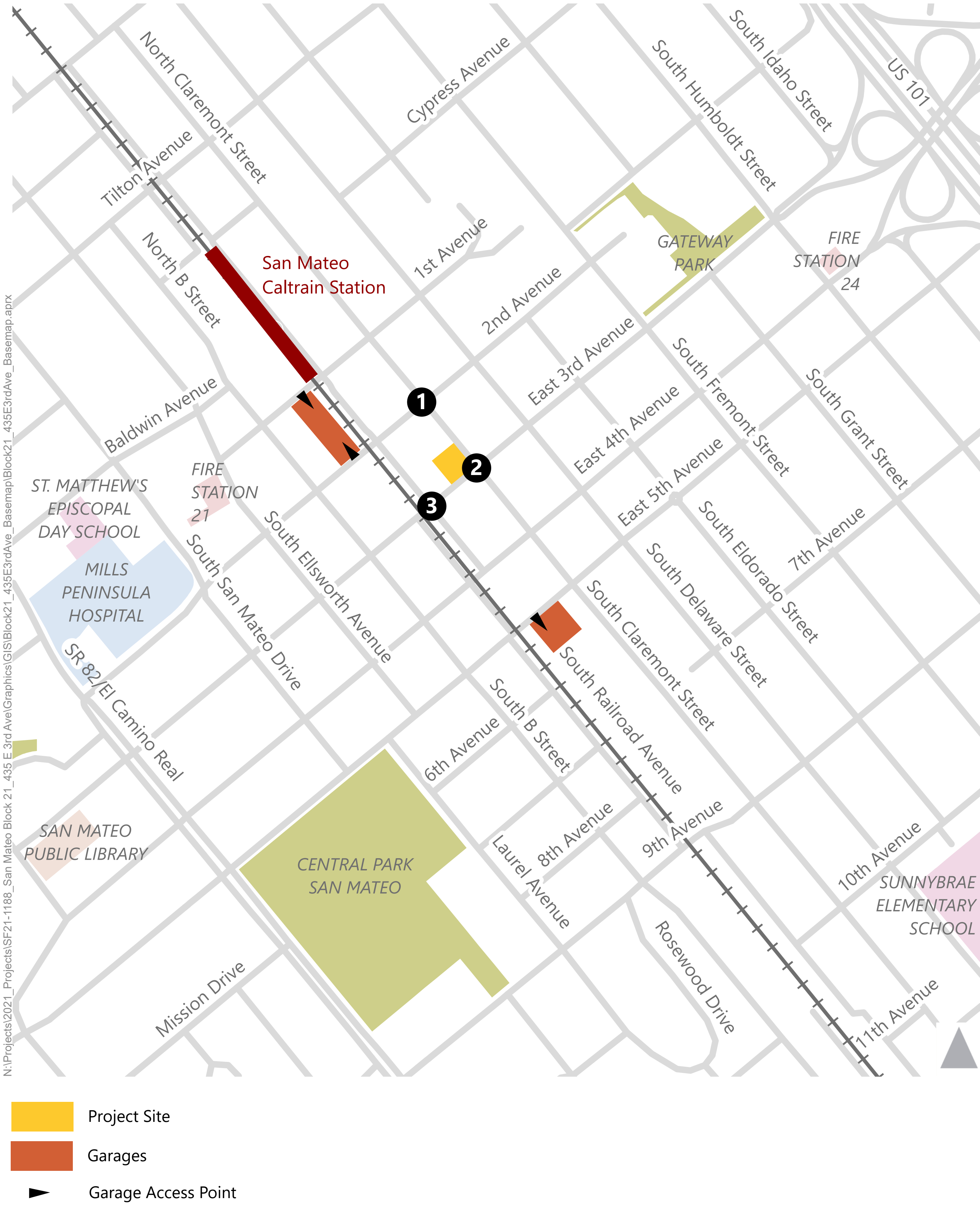


Figure 1

Project Location

Project Description

The project site is currently an auto repair shop that consists of a 10,980 square foot (0.25 acre) parcel at the corner of East 3rd Avenue and South Claremont Street. It has a General Plan Designation of Downtown Retail Core Support and a zoning designation of CBD/S-Central Business District Support. The project site is bounded directly to the north by restaurant uses along East 3rd Avenue, and office and residential uses directly to the west. The San Mateo Caltrain station is located less than one quarter mile to the north and provides local, limited, and Baby Bullet service.

The project proposes the demolition of the existing auto repair shop and construction of a 40,214 square foot, five story mixed use building. The lower four floors would contain all office uses and the fifth level would consist of five residential units, including one studio and four one-bedroom units. The project would include one Below Market Unit (BMR) in accordance with the City of San Mateo BMR Ordinance (20% Low-Income) and is requesting the use of State Density Bonus concessions and waivers as described in the State Density Bonus letter submitted with the project.

There will be two primary pedestrian entries to the building through separate lobbies, on East 3rd Avenue and on South Claremont Street, for office and residential respectively.

The project will not include parking on site and will instead request payment of in-lieu fees in accordance with the City of San Mateo's policies. Trips by personal automobile to and from the project site are expected to primarily use the Main Street Garage, which has entrances and exits on First Avenue and Second Avenue between Main Street and South Railroad Avenue, and the under construction Kiku Crossing Public Garage, which has an entry and exit on East Fifth Avenue between South Railroad Avenue and South Claremont Streets, shown in Figure 1. Short-term visitors to the project site may also use the metered on-street parking surrounding the project site, which is limited to three-hour stays.

The project will also include a Transportation Demand Management (TDM) Plan that would result in a substantial decrease in the number of trips generated and parking demand compared to typical projects of this use and size, similar to the TDM Plans prepared for the 405 East 4th Avenue[1] and 406 East 3rd Avenue projects.[2] Measures would include a TDM coordinator, bike supportive infrastructure, Caltrain Go Passes, etc. The proposed TDM plan for this project, *435 East 3rd Avenue TDM Plan*, was produced by Steer in June 2022.

The project proposes to widen sidewalks, create pedestrian bulb outs, and provide street furnishings and street trees along the project frontages to meet City of San Mateo standards and promote connectivity and pedestrian safety in the project area.

[1] *405 E. 4th Avenue Draft Transportation Impact Analysis*, Hexagon Transportation Consultants, Inc., January 24, 2017.
[2] *406 E. Third Avenue Office & Residential Mixed-Use Development*, Hexagon Transportation Consultants, Inc., May 21 2019, p 34.

Existing Transportation Conditions

The existing transportation conditions surrounding the project site relating to the following topics are presented below: the roadway network, pedestrian facilities, bicycle facilities, transit service, vehicle volumes and lane configurations, and parking conditions.

Existing Roadway Network

As shown in Figure 1, the project site is bound by East 3rd Avenue, South Claremont Street and the existing commercial and residential land uses adjacent to the parcel. El Camino Real/State Route 82 and US 101 are the two primary regional north-south access routes. Drivers use these facilities to reach State Route 92, which provides east-west regional access to the project site. The roadways described below include those that provide direct access to the project site or the two nearby parking garages (the Main Street garage and under construction Kiku Crossing Public Garage).

East 3rd Avenue is a two-way east-west street with two westbound travel lanes, one eastbound travel lane, and parking and sidewalks on each side of the street adjacent to the project site. East of South Delaware Street, East 3rd Avenue becomes a one-way street westbound, part of a one-way couplet with East 4th Avenue. The roadway is approximately 45 feet wide and each sidewalk is approximately six feet wide. East 3rd Avenue provides direct access from US 101 northbound and southbound on/off ramps as well as connection to El Camino Real. The intersection of East 3rd Avenue and South Claremont Street is signalized.

South Claremont Street is a two-way north-south street with one travel lane in each direction and on-street parking and sidewalks on each side of the street. The roadway adjacent to the proposed project site is approximately 45 feet wide. The sidewalks are approximately nine feet wide.

East 4th Avenue is a two-way east-west street with two eastbound travel lanes, one westbound travel lane, and parking and sidewalks on each side of the street. East of South Delaware Street, East 4th Avenue becomes a one-way street eastbound, part of a one-way couplet with East 3rd Avenue. The roadway is approximately 45 feet wide with approximately 12-foot sidewalks on the south side of the road and six-to-eight-foot sidewalks on the north side of the road. Coupled with East 3rd Avenue, East 4th Avenue provides direct access to US 101 and El Camino Real and intersects with South Claremont Street and South Delaware Street by the project site at signalized intersections.

South Railroad Avenue is a one-way northbound street with one travel lane adjacent to the Caltrain tracks. South of 3rd Avenue, South Railroad Avenue is a two-way north-south street with one travel lane in each direction. There are sidewalks on the east side of the street from 1st Avenue to East 5th Avenue, and there are sidewalks on the west side of the street from East 3rd Avenue to East 5th Avenue. South Railroad Avenue is stop-controlled at most intersections, and there is parking between 1st Avenue and 3rd Avenue and on the east side of the street. The roadway is approximately 13 feet wide, and the sidewalks are approximately six feet wide.

1st Avenue is a two-way east-west street with one travel lane in each direction. There is on street parking along the entire corridor and a Class II bikeway in each direction between South Railroad Avenue and South Claremont Street and a Class III bikeway between B Street and South Railroad Avenue. The roadway is approximately 40 feet wide and each sidewalk is approximately eight feet wide. Access to the Main Street garage is provided through a driveway on 1st Avenue.

2nd Avenue is a two-way east-west street with one travel lane in each direction. 2nd Avenue runs from Freemont Street to El Camino Real. There is on street parking along the entire corridor. The roadway is approximately 40 feet wide and each sidewalk is approximately 10 feet wide. The corridor has bulb-outs at South Claremont. Access to the Main Street garage is provided through a driveway on 2nd Avenue.

East 5th Avenue is a two-way east-west street with one travel lane in each direction. There is on street parking along the entire corridor and sharrows striped along the corridor denoting a Class III bikeway. The roadway is approximately 38 feet wide and each sidewalk is approximately 8 feet wide. Access to the Kiku Crossing Public Garage is provided through a driveway on East 5th Avenue.

Existing Pedestrian Facilities

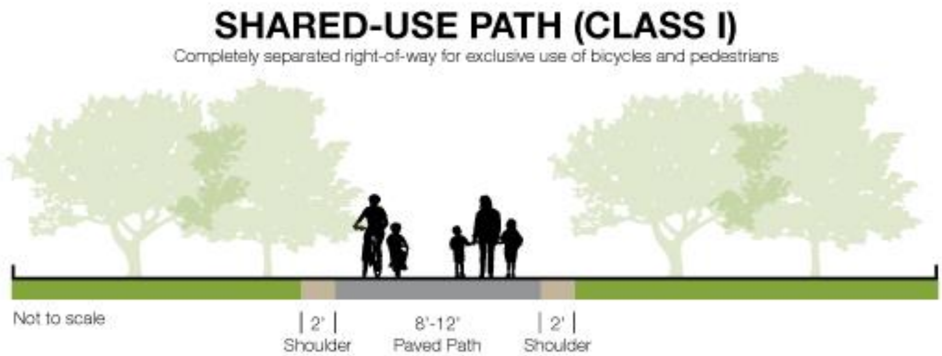
Sidewalks are provided on all approaches to the project site on East 3rd Avenue and South Claremont Street. There are bulbouts at the adjacent intersection of East 3rd Avenue and South Claremont Street on the north side of South Claremont Street. This intersection is signalized and has high-visibility crosswalks, pedestrian push buttons, and leading pedestrian intervals. There are leading pedestrian intervals at all signalized study intersections adjacent to the project site. Pedestrian-scale lighting is present along East 3rd Avenue but not along South Claremont Street. The sidewalks are approximately six to 12 feet wide and are generally in good condition with single curb ramps at all intersections.

There have been four pedestrian/vehicle collisions reported at the following study locations in the last four years as a result of vehicles colliding with pedestrians while crossing at the crosswalk, resulting in minor or no injuries: South Claremont and East 2nd Avenue, South Claremont and East 3rd Avenue (two collisions), and South Railroad and East 3rd Avenue.

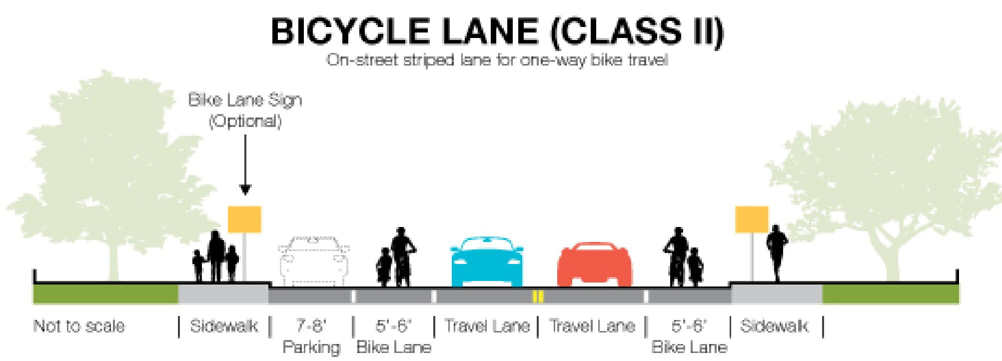
Existing Bicycle Facilities

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design). The Caltrans guidelines cover four primary types of bikeway facilities: Class I, Class II, Class III, and Class IV. These facility types are described below.

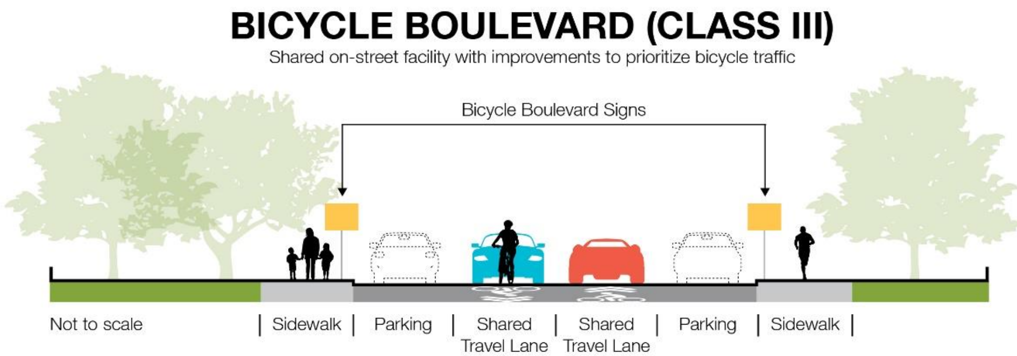
Class I Bikeway (Bike Path) provides a completely separate right-of-way, is designated for the exclusive use of bicycles and pedestrians, and minimizes vehicle and pedestrian cross-flow. In general, bike paths serve corridors that are not served by existing streets and highways, or where sufficient right-of-way exists for such facilities to be constructed.



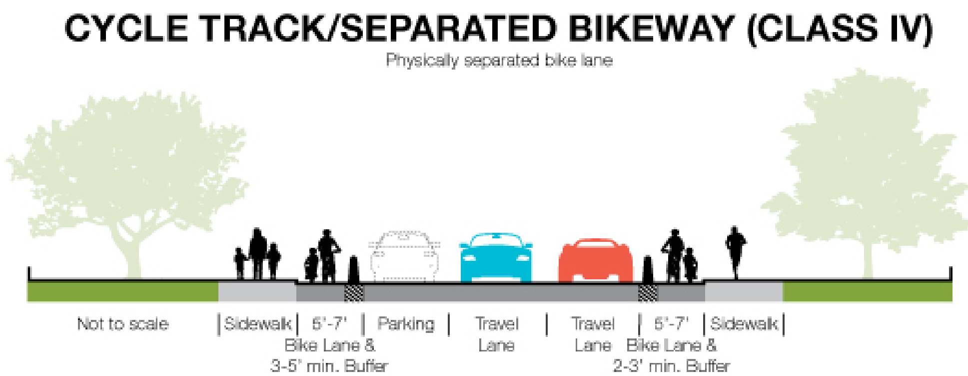
Class II Bikeways (Bike Lanes) are lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally five feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted. Note that when grade separation or buffers are constructed between the bicycle and vehicle lanes, these facilities are classified as Class IV Separated Bikeways.



Class III Bikeway (Bicycle Routes/Bicycle Boulevards) are designated by signs or pavement markings for shared use with pedestrians or motor vehicles but have no separated bicycle right-of-way or lane striping. Bicycle routes serve either to a) provide continuity to other bicycle facilities, or b) designate preferred routes through high demand corridors. Bicycle routes are implemented on low-speed (less than 25 mph) and low-volume (less than 3,000 vehicles/day) streets. The San Mateo Bicycle Master Plan also designates a special subset of Bicycle Routes which include traffic calming treatments as Bicycle Boulevards.



- Class IV Bikeway (Cycle Tracks/Protected Bike Lanes) provide a right-of-way designated exclusively for bicycle travel within a roadway and which are protected from other vehicle traffic with devices, including, but not limited to, grade separation, flexible posts, inflexible physical barriers, or parked cars.



Existing bicycle facilities near the project site include Class III bike routes along South Claremont Street, South Delaware Street, East 5th Avenue, and B Street. Class II bicycle lanes are provided on South Delaware Street south of East 4th Avenue and on 1st Street between Railroad Avenue and South Claremont Street.

However, these bicycle facilities along South Delaware Street and East 5th Avenue would be ranked as having a high "Level of Traffic Stress" (LTS).[3] LTS measures bicycling comfort based on roadway characteristics. Low stress bikeways are comfortable for everyone to ride on, including people who would

[3] The LTS Methodology was developed by Mekuria, Furth, and Nixon in *Low Stress Bicycling and Network Connectivity* (2012).

be categorized as “interested but concerned”. In contrast, high stress bikeways are only tolerated by a few: primarily those who could be described as “strong and fearless” – those comfortable riding under any conditions (about 7% of the population). Class II and Class III bicycle facilities on roadways with multiple lanes of vehicle traffic and speed limits above 25 miles per hour would be categorized as high stress bikeways. The bicycle facilities adjacent to the project site along South Delaware Street would be categorized as high stress (as shown on *Figure 3.7 of the 2020 San Mateo Bicycle Master Plan*[4]). As such, South Claremont Street is expected to be the primary north-south street for bicycle access and it would be unlikely that any but the most confident and fearless bicyclists would feel comfortable bicycling to the project site along South Delaware Street.

The City of San Mateo, through the 2020 Bicycle Master Plan, has proposed a nearby Class IV separated bike lanes on East 3rd Avenue. South Claremont Street is proposed as a Class III bicycle boulevard. Both proposed bicycle facilities are considered high priority as shown on *Figure 6.1* of the *2020 San Mateo Bicycle Master Plan.*[5] A Class II bike lane is also proposed on 1st Street between Railroad Avenue and B Street to connect to the existing Class II facility of 1st Street. A Class II bike facility is proposed on 5th Avenue west of South Delaware Street; the portion at the Kiku Crossing development frontage has been designed as part of that project.

Existing and proposed bicycle facilities are shown on **Figure 2**.

[4] *San Mateo Bicycle Master Plan*, City of San Mateo & Toole Design, 2020, p 28.
[5] *San Mateo Bicycle Master Plan*, City of San Mateo & Toole Design, 2020, p 60.

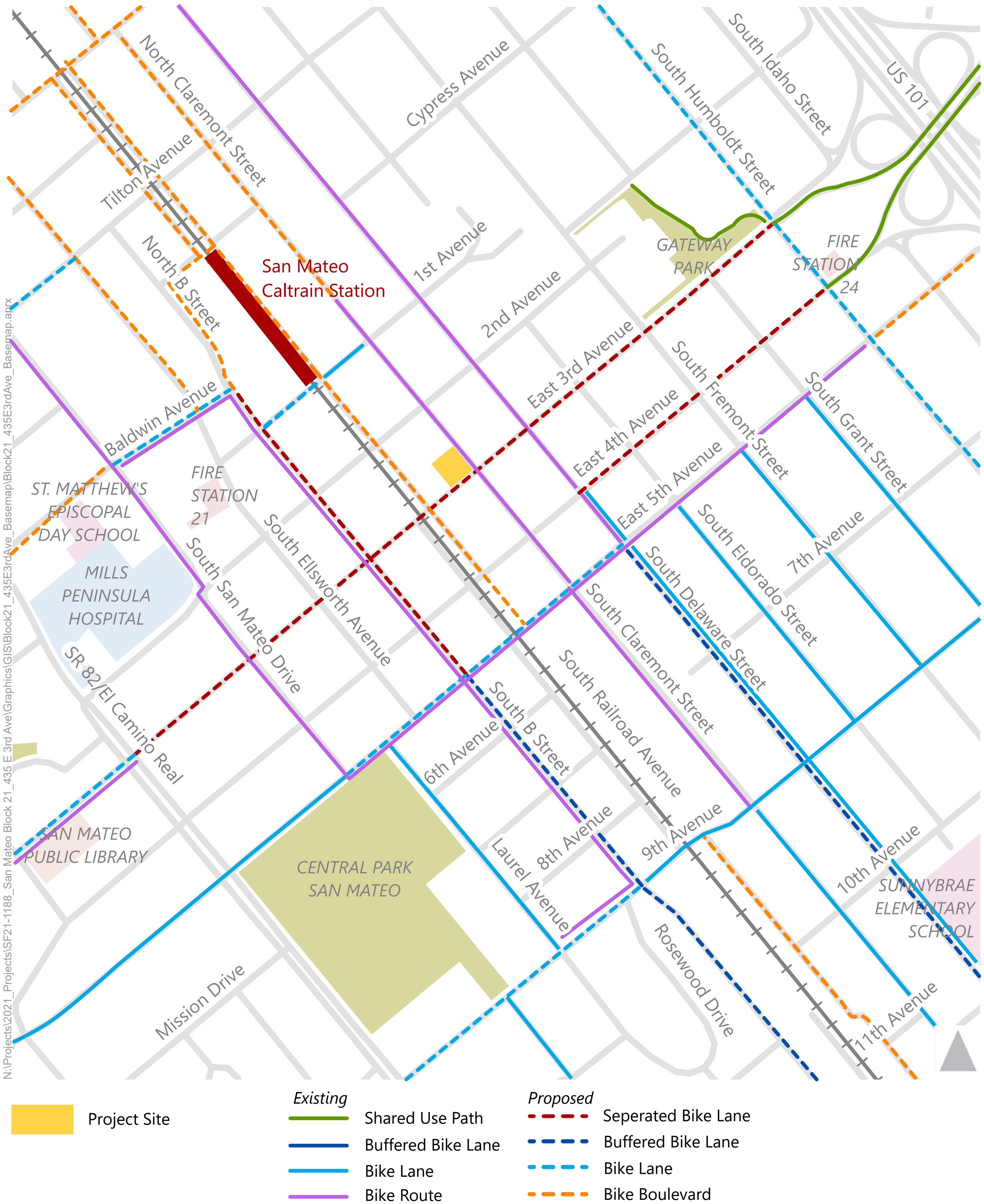


Figure 2

Existing and Proposed Bicycle Facilities

Existing Transit Service

Table 1 and **Figure 3** present the existing transit service providers and routes that provide service near the project site. SamTrans is the primary regional and local transit provider within San Mateo County, serving all Caltrain regional rail stations within the County and major transit transfer points for Santa Clara, Alameda, and San Francisco counties. Many service operators are running reduced schedules due to COVID-19. The schedule information below reflects June 2022 timetables.

Table 1: Existing Transit Service

Route	Weekday Peak Headway (minutes)	Weekend Headway (minutes)	Hours of Operation	Closest Stop(s) to Project Site	Key Destinations Served by Route
SamTrans 53	-	-	School Drop Off/Pick Up Hours Only	Delaware Street and 2nd Street	Peninsula/Humboldt, Borel Middle School
SamTrans 55	-	-	School Drop Off/Pick Up Hours Only	El Camino Real and 4th Avenue	Clark/El Camino, Borel Middle School
SamTrans 59	-	-	School Drop Off/Pick Up Hours Only	Delaware Street and 4th Avenue	Hillsdale/Norfolk, Aragon High School
SamTrans 250	30	60	Weekdays: 5:40 AM – 11:40 PM; Saturdays: 7:00 AM – 8:40 PM	Claremont Street and 2nd Avenue	San Mateo and Hillsdale Caltrain Station, College of San Mateo
SamTrans 292	20	60	Weekdays and Saturdays: 4:00 AM – 2:30 AM	Delaware Street and 2nd Avenue	Downtown San Francisco, SFO, all Caltrain stations in the city of San Mateo, Hillsdale Mall
SamTrans 295	120	-	Weekdays: 6:20 AM – 6:40 PM	B Street and 1st Avenue	San Mateo and Hillsdale Caltrain Stations; Redwood City Transit Center
SamTrans 397	60	60	Weekdays and Saturdays: Early AM hours (12:30 AM – 5:00 AM)	El Camino Real and 2nd Avenue	Palo Alto Transit Center, Downtown San Francisco, San Francisco Airport, all Caltrain stations in San Mateo
SamTrans ECR	15-20	30	All day	El Camino Real and 2nd Avenue	Multiple BART stations, all Caltrain stations in the city of San Mateo, Palo Alto Transit Center
Caltrain	30	60	Weekdays: 4:30 AM – 1:40 AM; Weekends: 7:00 AM – 2:00 AM	San Mateo Station	San Francisco, San Jose

Note: Transit service is representative of June 2022 operations.
Source: SamTrans, Caltrain, and Fehr & Peers, 2022

The nearest Caltrain rail station is the San Mateo Station, located three blocks northwest of the project site, provides local and limited service. People walking between the project site and the Caltrain station would primarily use South Claremont Street to reach the 1st Avenue station entrance. Sidewalks and crosswalks are provided along this walking route but there is a lack of west side street trees and pedestrian scale lighting along South Claremont Street between 1st and 2nd avenues. Street trees are also lacking on South Claremont Street between 2nd and East 3rd avenues. Sidewalks along this path are generally in good condition and range between seven and 12 feet wide, which are below the recommended width in the City's Pedestrian Design Guidelines for streets with mixed-use developments. There are no truncated domes along the ADA curb ramps at the intersection of South Claremont Street and 1st Avenue. Five regular SamTrans routes provide access to all major Caltrain Stations, BART, downtown San Francisco, and other major attractions in the City of San Mateo. There are no bus shelters or seating amenities provided at any of the nearby bus stops except one unsheltered bench at the South Claremont and East 2nd Avenue stop. Sidewalks along these bus stops are narrow and do not provide adequate waiting space. The stops at South Delaware Street and East 2nd Avenue and South Delaware Street and East 3rd Avenue also lack pedestrian-scaled lighting. The City of San Mateo and SamTrans are currently assessing pedestrian facilities surrounding transit facilities and bus stop amenities that may address the deficiencies noted above.

Project Site
Garages
Garage Access Point
Route 53
Route 55
Route 59
Route 250
Route 292
Route 295
Route ECR
Route 397
SamTrans Station
Caltrain Station
Caltrain

Figure 3

Existing Transit Routes

Existing Vehicle Volumes and Lane Configurations

Pre-COVID-19 vehicle volumes at the East 3rd Avenue and South Claremont Street intersection were provided by the City of San Mateo. These historic counts were conducted in 2019 for both the AM peak period (7:00-9:00 AM) and PM peak period (4:00-6:00 PM). The other two study locations used historical counts collected from Streetlight during Fall 2019 months to represent pre-COVID-19 conditions.[6] We also collected counts at the East 3rd Avenue and South Claremont Street intersection for the same analysis periods as the City's count data from Streetlight to develop a factor which was applied to the East 2nd Avenue and South Claremont Street intersection and the East 3rd Avenue and South Railroad Avenue intersection.[7] The existing lane configuration and traffic volumes for this intersection are shown on **Figure 4.**

Existing Intersection Level of Service

Three locations were identified as study intersections within the project vicinity:

East 2nd Avenue and South Claremont Street (all-way stop-controlled)
East 3rd Avenue and South Claremont Street (signalized)
East 3rd Avenue and South Railroad Avenue (side-street stop-controlled)

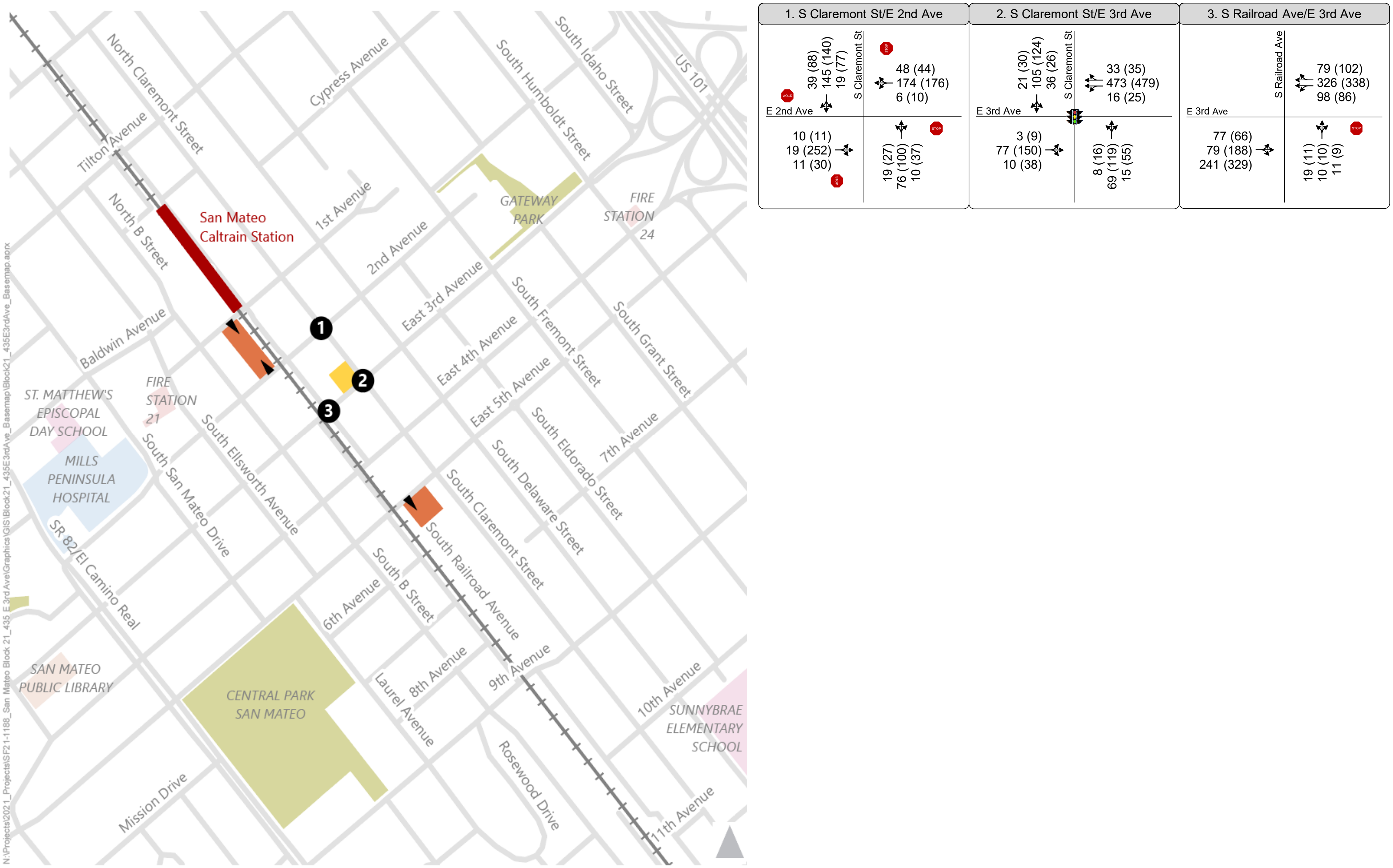
One of the three intersections is signalized, East 3rd Avenue and South Claremont Street. The San Mateo General Plan, through the TIA Guidelines, requires the City to *maintain a Level of Service no worse than mid LOS D, average delay of 45.0 seconds, as the acceptable Level of Service for all signalized intersections within the City. Adverse traffic operations are to be noted if a signalized intersection operating at acceptable LOS is triggered to operate at unacceptable levels of service (from mid LOS D or better to E or F) or increases in the average delay for a signalized intersection that is already operating at unacceptable LOS by 4.0 seconds or more.*

For unsignalized intersections, the guidelines require the City to *maintain a Level of Service no worse than LOS E for unsignalized intersections*. *Adverse traffic operations are to be noted if an unsignalized intersection operating at acceptable LOS is triggered to operate at unacceptable levels of service (from E or better to F) or increases the average delay for an unsignalized intersection that is already operating at unacceptable LOS by 4 or more seconds*.

In order to evaluate these policies, the City uses the metric Level of Service ("LOS"), which is a qualitative description of driver comfort and convenience. Typical factors that affect motorized vehicle LOS include speed, travel time, traffic interruptions, and freedom to maneuver. Typical LOS criteria for signalized and unsignalized intersections are defined in **Table 2** and **Table 3**, respectively.

[6] For more about the performance of StreetLight Data's intersection turning movement count product, please review Fehr & Peers' whitepaper detailing our independent review of the data source: https://www.fehrandpeers.com/transformative-data-collection-solution/

[7] Conservative counts were assumed for South Railroad Avenue based on nearby roadways



Project Site
Garages
Garage Access Points
Study Intersections

XX(YY) AM (PM) Project Trip Volumes
Signalized Intersection
Stop Sign

Figure 4
Existing Vehicle Volumes

Table 2: Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 and ≤ 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 and ≤ 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35 and ≤ 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55 and ≤ 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation poor progression, or very long cycle lengths.	> 80

Source: Transportation Research Board, 2016. *Highway Capacity Manual* 6th Edition

Table 3: Unsignalized Intersection LOS Criteria

Description	LOS	Average Control Delay (seconds per vehicle)
		Unsignalized Intersections
Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	A	≤ 10
Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	B	> 10 to 15
Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	C	> 15 to 25
Represents high-density, but stable flow.	D	> 25 to 35
Represents operating conditions at or near the capacity level.	E	> 35 to 50
Represents forced or breakdown flow.	F	> 50

Source: *Highway Capacity Manual* 6th Edition, Transportation Research Board of the National Academies of Science, 2017.

Table 4 below presents existing LOS and intersection delay in seconds for each study intersection. The study intersections perform acceptably under existing conditions in both the AM and PM peak periods. See **Appendix B** for detailed LOS results.

Table 4: Existing LOS and Delay Results

Intersection	LOS Threshold	Peak Hour	Existing	
			Delay	LOS
1. East 2nd Avenue and South Claremont Street	E	AM	10	A
		PM	15	B
2. East 3rd Avenue and South Claremont Street	D	AM	12	B
		PM	13	B
3. East 3rd Avenue and South Railroad Avenue	E	AM	<10	A
		PM	<10	A

Source: Fehr & Peers, 2022

Existing Parking Conditions

There is metered on-street parking along East 3rd Avenue and South Claremont Street. Parking along East 3rd Avenue is limited to three hours, 8:00 AM to 6:00 PM everyday with street cleaning on Mondays, Wednesdays, and Fridays between 4:00 AM and 6:00 AM. Parking on South Claremont Street is limited to three hours 8:00 AM to 6:00 PM Monday through Saturday with street cleaning every first and third Wednesday 7:00 AM to 9:00 AM.

The project does not include on-site off-street parking. Parking for the project would occur on-street for short-term visitors (less than three hours) and at nearby public parking facilities for long-term parking, including the Main Street garage and the proposed Kiku Crossing Public Garage attached to the Kiku Crossing project located at 480 East 4th Avenue.[8] The Main Street garage has entrances and exits on 1st Avenue and 2nd Avenue between Main Street and South Railroad Avenue. The entrance to the Kiku Crossing Public Garage is on East 5th Avenue between South Claremont Street and South Railroad Avenue.

[8] *480 E. 4th Avenue Residential Development Transportation Analysis*, Hexagon Transportation Consultants, Inc., June 5, 2020.

Opening Year Conditions

The Opening Year reflects the anticipated transportation conditions at the time of the occupancy of the proposed project. Opening Year Conditions include traffic volumes added by nearby developments that have been approved but not yet completed or occupied near the project site. The approved project list includes:

- 405 East 4th Avenue Office and Residential Mixed-Use Development
- 406 East 3rd Avenue Office and Residential Mixed-Use Development
- 303 Baldwin Avenue Office and Commercial Mixed-Use Development
- 480 East 4th Avenue (Kiku Crossing) Residential Development

Figure 5 shows the location of these projects relative to the project site.

Each of these projects proposes new pedestrian improvements including:

- A new bulbout at the northeast corner of Railroad Avenue and 4th Avenue
- A new bulbout at the southeast corner of Railroad Avenue and 3rd Avenue
- New bulbouts at the northeast corner of Ellsworth Avenue and Baldwin Avenue and the northwest corner of B Street and Baldwin Avenue
- Wider sidewalks with landscaping zone along sections of B street and Baldwin Avenue fronting the 303 Baldwin Avenue project site
- Wider sidewalks with landscaping zone along the residential frontage of Kiku Crossing

Vehicle volumes were extrapolated from the TIAs provided by the City of San Mateo for the nearby development projects listed above. Opening Year traffic volumes that include the estimated traffic generated by these development projects are shown in **Figure 6.**

Project Site

Background Projects

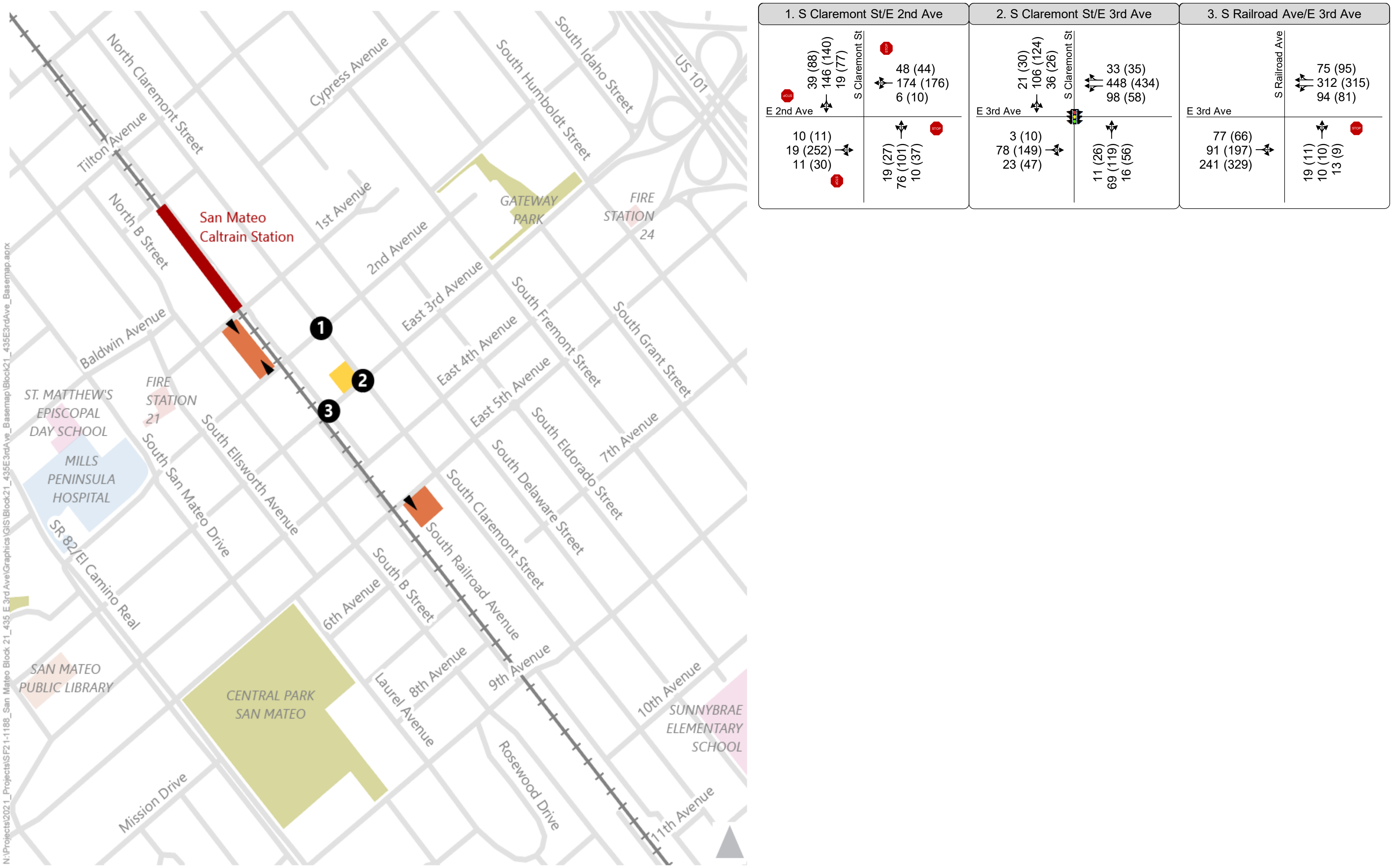
Driveways

Caltrain Station

Caltrain

Figure 5

Background Project Sites



Project Site
Garages
Garage Access Points
Study Intersections

XX(YY) AM (PM) Project Trip Volumes
Signalized Intersection
Stop Sign

Figure 6
Opening Year Vehicle Volumes

Opening Year Conditions Intersection Level of Service

Table 5 below presents opening year LOS and intersection delay in seconds for each study intersection. There is no change in LOS between existing conditions and opening year conditions due to volume growth. All the study intersections perform acceptably under opening year conditions in both the AM and PM peak periods. See **Appendix B** for detailed LOS results.

Table 5: Opening Year LOS and Delay Results

Intersection	LOS Threshold	Peak Hour	Existing		Opening Year	
			Delay	LOS	Delay	LOS
1. East 2nd Avenue and South Claremont Street	E	AM	10	A	10	A
		PM	15	B	15	B
2. East 3rd Avenue and South Claremont Street	D	AM	12	B	12	B
		PM	13	B	13	B
3. East 3rd Avenue and South Railroad Avenue	E	AM	<10	A	<10	A
		PM	<10	A	<10	A

Source: Fehr & Peers, 2022

Project Conditions

The project proposes a five-story mixed use development with office and residential uses. This section presents the traffic conditions with the project, including Vehicle Miles Traveled and LOS, while site access and circulation issues and other related topics are evaluated within the Additional Transportation Analysis sections.

Project Trip Generation and Distribution

Trip Generation

Vehicle trip estimates for the project were developed by applying national trip generation rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition to the proposed land uses: “Multifamily Housing Low-Rise (220)” and “General Office (710).” Fehr & Peers used the trip generation methodology known as MXD+ to calibrate the trip generation estimates to local conditions and the mixed-use nature of the project and proximity to adjacent office/research, commercial, and residential uses. The MXD+ method accounts for built environment factors such as the density and diversity of land uses, design of the pedestrian and bicycling environment, demographics of the site, and distance to transit to develop more realistic trip generation estimates than those provided by traditional traffic engineering methods. MXD reductions include trip reductions attributed to internal capture and walk/bike trips. Trip reductions from internal capture represent trips between the two land uses (e.g., residents who may work in the office space). Trip reductions from walk/bike trips represent external person trips that are taken by foot or by bicycle (e.g., residents commuting to their jobs elsewhere on foot or bike).

To determine existing trip generation for the various uses, the ITE rates for Automobile Care Center (942) were used. As shown in **Table 6** below, the trips generated by the existing uses to be removed were subtracted from the project trips generated. The proposed project would generate a total of 49 net new vehicle trips in the AM peak hour and 51 new vehicle trips in the PM peak hour.

Table 6: Project Vehicle Trip Generation

Land Use	ITE LU Code	Quantity	Units[1]	Daily	AM			PM		
				Total	In	Out	Total	In	Out	Total
Proposed project										
Multifamily Low-Rise	220	5	DU	34	0	2	2	2	1	3
General Office Building	710	34	KSF	454	58	8	66	12	56	68
Reductions[2]										
Internal Capture				-8	0	0	0	0	0	0
External Walk, Bike, and Transit				-91	-12	-1	-13	-3	-9	-12
Proposed Project Subtotal				**389**	**46**	**9**	**55**	**11**	**48**	**59**
Existing Uses										
Automobile Care Center	942	2.7	KSF	80	4	2	6	4	4	8
Reductions[2]										
Internal Capture				0	0	0	0	0	0	0
External Walk, Bike, and Transit				0	0	0	0	0	0	0
Existing Uses Subtotal				**80**	**4**	**2**	**6**	**4**	**4**	**8**
Net new trips (Proposed project minus existing)				**309**	**42**	**7**	**49**	**7**	**44**	**51**

Notes: Assumes 100% of existing uses were occupied

1. DU=dwelling unit; KSF=1,000 square feet
2. Based on MXD+ trip generation methodology which accounts for built environment factors such as density and diversity of land uses, design of the pedestrian and bicycle environment, site demographics, and accessibility of transit, among other factors. Internal trip reductions account for trips made between land uses on the site.

Sources: Fehr & Peers; ITE *Trip Generation Manual,* 11th Edition, 2022

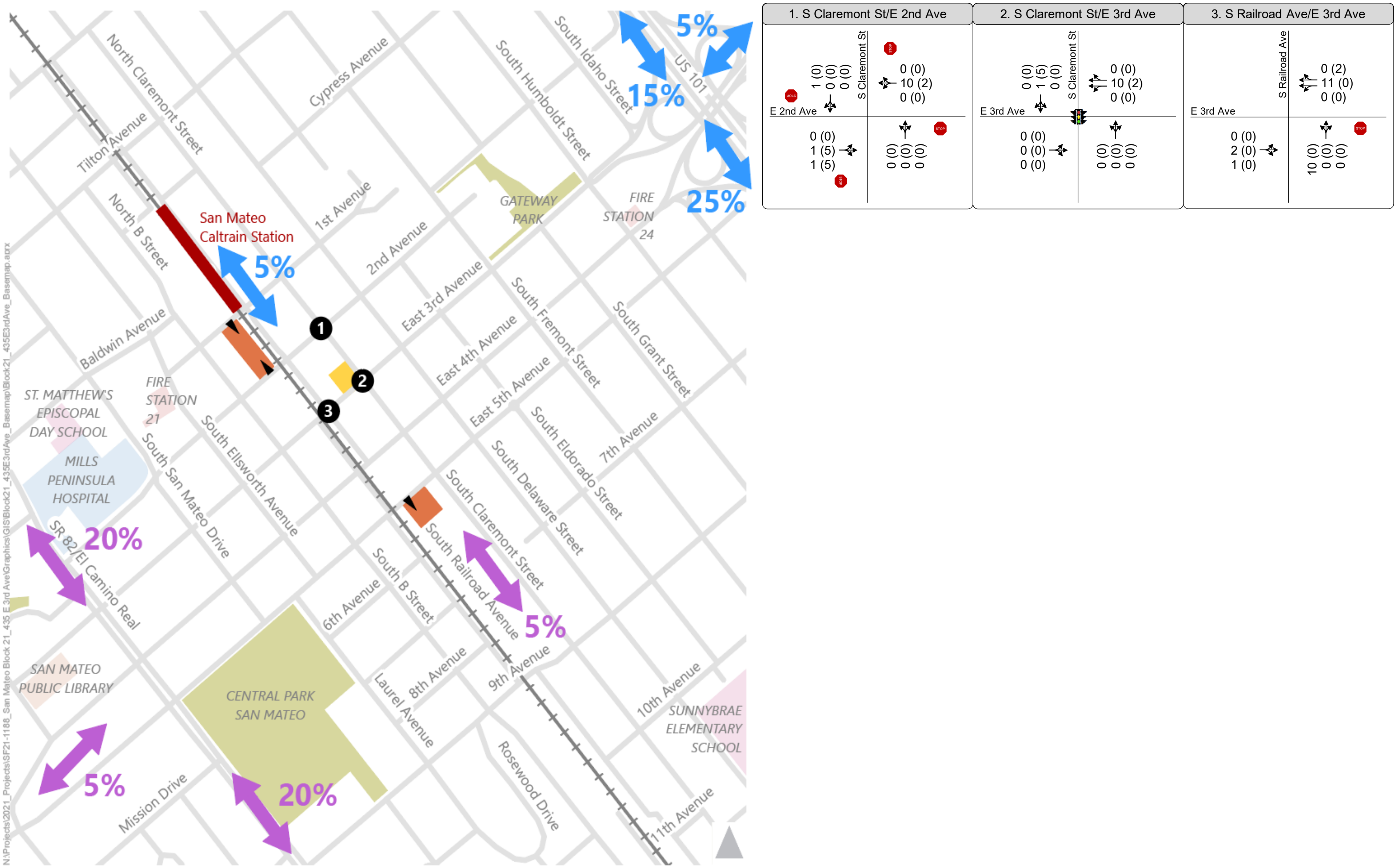
Trip Distribution

Trips generated by the project were distributed through the three study intersections based on the existing travel patterns on the surrounding roadway system and the locations of complementary land uses. Since the project does not include on-site parking, trips that were generated by the project were directed to the nearby Main Street and Kiku Crossing Garages. Trips generated by the project that were routed on US 101 North and US 101 South, and trips routed on local roads north of the project site were directed to the Main Street Garage, while trips generated by the project that were routed on El Camino Real and local roads south of the project were routed to the Kiku Crossing Public Garage. These assumptions were made in order to allocate as many trips through the study intersections recommended by the City's TIA guidelines and were approved by the City. The proposed residential use would typically generate outbound trips in the morning to employment areas and inbound trips in the evening from employment areas. The proposed office would operate similarly to residential uses except the office would typically generate inbound trips in the morning and outbound trips in the evening.

The peak-hour trips generated by the existing and proposed uses were assigned to the roadway network based on the directions of approach and departure, the roadway network connections, and the location of freeway on/off ramps. The trip distribution patterns were compared to ensure consistency with other recent studies, such as the 406 East 3rd Avenue office & Residential Mixed-Use Development[9] analysis located across the street from the project site. Approximately 45% of trips would travel to and from east of the project site along East 3rd and East 4th avenues toward US 101 or Foster City, 45% would travel west toward El Camino Real and into the hills, with the remaining 10% traveling to the north and south of the project site on Delaware or Claremont streets. The trips generated by the existing uses to be removed were subtracted from the roadway network prior to assigning project trips. **Figure 7** shows the net project trip distribution and assignment of the project trips at the study intersections.

---

[9] Hexagon Transportation Consultants, Inc., *406 East [3rd] Avenue office & Residential Mixed-Use Development*, April 25, 2029, p. 26.



Project Site
Garages
Garage Access Points
Study Intersections

XX(YY) AM (PM) Project Trip Volumes
Signalized Intersection
Stop Sign
Trip Distribution Percentage, Routed to Main Street Garage
Trip Distribution Percentage, Routed to Kiku Garage

Figure 7
Trip Distribution and Assignment of Project Trips

Plus Project VMT

The purpose of this section is to introduce vehicle miles traveled (VMT) and evaluate whether the project fulfills the screening criteria presented in the TIA Guidelines. VMT is a measurement of the amount and distance that a person drives, accounting for the number of passengers within a vehicle. Many interdependent factors affect the amount and distance a person might drive. In particular, the type of built environment affects how many places a person can access within a given distance, time, and cost, using different ways of travel (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few alternatives to the private vehicle provides less access than a location with high density, mix of land uses, and numerous ways of travel. Therefore, low-density development typically generates more VMT per capita compared to a similarly sized development located in urban areas. In general, higher VMT areas are associated with more air pollution, including greenhouse gas emissions, and energy usage than lower VMT areas. VMT is calculated by multiplying the number of trips generated by a project by the total distance of each of those trips.

VMT Screening

Although OPR provides recommendations for adopting new VMT analysis guidelines, lead agencies, such as the City of San Mateo, have the final say in designing their methodology to assess VMT and determine a relevant threshold. Lead agencies must prove that their selected analysis methodology aligns with SB 743's goals to promote infill development, reduce greenhouse gases, and reduce VMT. Per the City of San Mateo's TIA guidelines, a project does not need to conduct a detailed VMT analysis if the project is located within a half mile of a high-quality transit area as the project can be presumed to have a less-than-significant impact. The project is located within a half mile of the San Mateo Caltrain Station (see Figure 1), which the City designates as a high-quality transit service as defined by OPR guidelines. In addition to being located within a half mile of a Caltrain station, the project must have:

- a floor area ratio of more than 0.75,
- include no more than the minimum parking required by the City of San Mateo,
- be consistent with the Metropolitan Transportation Commissions' (MTC) Sustainable Communities Strategy (SCS), and
- Cannot result in a reduction of affordable residential units.

The project has a floor area ratio of 3.66, provides less parking than the minimum parking required, is consistent with MTC's SCS, and the current site does not include any residential units. The developer has proposed to pay fees in-lieu of providing on-site parking at 435 East 3rd Avenue and as a result will be providing less parking than required by the City of San Mateo's Municipal Code. The project is consistent with the SCS's goals of building affordable housing, creating healthy and safe streets by building a complete streets network, and reducing climate emissions by 1) providing land use growth and provides affordable housing near high-quality transit, and 2) promoting alternative modes of travel (walking/biking) through improvements like enhanced sidewalks and bicycle parking. Therefore, this project would have a less than significant VMT impact in background plus project and cumulative plus project conditions due to its proximity to high-quality transit.

Opening Year Plus Project Vehicle Volumes and Level of Service

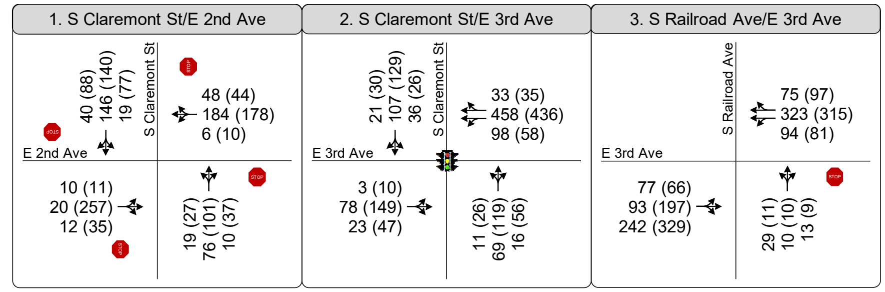
The net new project trips assignment on were added to the opening year volumes to develop opening year plus project volumes, shown on **Figure 8**.

Table 7 below presents the opening year and opening year plus project LOS and intersection delay in seconds for each study intersection. There is no change in LOS in Opening Year Plus Project from Opening Year and all intersections perform acceptably. The addition of proposed project trips does not result in adverse traffic operations at the study locations. See **Appendix B** for detailed LOS results.

Table 7: Opening Year Plus Project LOS and Delay Results

Intersection	LOS Threshold	Peak Hour	Opening Year		Opening Year Plus Project	
			Delay	LOS	Delay	LOS
1. East 2nd Avenue and South Claremont Street	E	AM	10	A	10	A
		PM	15	B	15	B
2. East 3rd Avenue and South Claremont Street	D	AM	12	B	12	B
		PM	13	B	13	B
3. East 3rd Avenue and South Railroad Avenue	E	AM	<10	A	<10	A
		PM	<10	A	<10	A

Source: Fehr & Peers, 2022



Project Site
Garages
Garage Access Points
Study Intersections

XX(YY) AM (PM) Project Trip Volumes
Signalized Intersection
Stop Sign

Figure 8
Opening Year Plus Project Vehicle Volumes

Additional Transportation Analysis

This section presents an analysis of other transportation issues associated with the project site, including the following:

- Impacts to vehicle, pedestrian & bicycle site access
- Parking
- Hazards and emergency vehicle access
- Neighborhood traffic

The analyses in this section are in accordance with the City of San Mateo's General Plan Circulation Element outlined in the TIA guidelines that requires a non-CEQA local transportation analysis for land use projects that may have an effect on the local street system. The analysis in this section is based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Although operational issues are not considered CEQA impacts, they do describe traffic conditions that are relevant to describing the project environment.

Vehicle Site Access and Circulation

The project proposes two new geometric design changes to the surrounding roadway network: 1) the removal of all existing driveways surrounding the project site, and 2) realignment of the curb at the intersection of South Claremont Street and East 3rd Avenue adjacent to the project. The project will add 49 vehicle trips during the AM peak hour and 51 vehicle trips during the PM peak hour. As summarized in the sections above, the addition of the proposed project trips would not result in any adverse effects on traffic operations at the study locations. These trips will be routed to the Main Street and Kiku Crossing Public Garages.

Trips from local roads to the north of the project site and trips from US 101 are likely to use the Main Street Garage, while trips from local roads to the south and west of the project site and trips from El Camino Real are likely to use the Kiku Crossing Public Garage. The main paths of travel to access the Main Street Garage include 1st Avenue and 2nd Avenue. To access the Kiku Crossing Public Garage , vehicles would likely take East 5th Avenue or 9th Avenue, South B Street and South Claremont Street.

Garbage facilities will be accessed from the curb on South Claremont Street. The realignment of the curb at the intersection of East 3rd Avenue and South Claremont provides more space for pedestrians and landscaping, and reduces the travel distance to cross each street (see **Figure 9**). Since the proposed project will not have an on-site garage, there will be no impacts related to vehicle queuing or driveway sight distance.

Loading and Curbside Management

Although the site does not provide a loading zone, there is an existing yellow loading zone west of the site on East 3rd Avenue. Garbage collection will happen along South Claremont Street. Garbage collection occurs infrequently, typically during off-peak times, and is proposed on a low volume street. Therefore, it is not expected to substantially interfere with pedestrians on the sidewalk or block traffic on the street.

Pedestrian & Bicycle Site Access and Circulation

Pedestrian Access

The office space has a pedestrian entrance on East 3rd Avenue, and the residential space has a pedestrian entrance on South Claremont Street. The adjacent intersection at South Claremont and East 3rd Avenue is signalized and has marked crosswalks. In general, the proposed project would enhance pedestrian conditions surrounding the project site by removing driveways on South Claremont and East 3rd Avenue and the addition of a curb extension at the corner of South Claremont and East 3rd Avenue. The following discussion compares the proposed facilities to the City's policies and guidelines.

Per General Plan Policy C4.5 and C4.6 of the City's General Plan Circulation Element, the City requires as a condition of development project approval the provision of sidewalks and wheelchair ramps where lacking and the repair or replacement of damaged sidewalks. The project would enhance sidewalks on the two blocks fronting the project site with wider sidewalks, street furniture such as benches, street trees, and pedestrian-scale lighting. According to the City of San Mateo's Pedestrian Design Guidelines, Appendix B of the 2012 San Mateo Pedestrian Master Plan[10], the recommended minimum sidewalk widths for mixed use developments are 16 feet wide with a recommendation of 20 feet wide for blocks with no street parking and no setbacks and 26 feet wide where there are amenities in the frontage zone. The minimum through zone width is 8 feet wide. However, the City's Municipal Code SMMC 27.39.090 requires zero-setbacks unless a setback is provided for landscaping.

The proposed project would not meet these guidelines along South Claremont Street or along East 3rd Avenue. The sidewalk along South Claremont Street will have an overall width of 16 feet with a 7.5 foot through-zone; and the sidewalk along East 3rd Avenue will have an overall width of 15 feet with a 6.5 foot through zone. Both proposed sidewalks adjacent to the project site should be widened along East 3rd Avenue and South Claremont Street in accordance with San Mateo's Pedestrian Design Guidelines.

As noted in the City's TIA Guidelines, pedestrian safety and accessibility connecting to transit stops or stations in the vicinity of the project site must be assessed. In addition to sidewalks, the City of San Mateo's Pedestrian Design Guidelines provide guidance on the following physical pedestrian facilities that are applicable to the intersection adjacent to the proposed project site. The lack of features consistent with the City's Pedestrian Design Guidelines surrounding the project site could limit pedestrian accessibility to transit stops or stations by creating an uncomfortable or unsafe conditions for people

[10] *San Mateo Citywide Pedestrian Master Plan*, City of San Mateo & Alta Planning + Design, 2012, p. A-12-A13.

walking. **Table 9** assesses whether the intersections surrounding the project site are consistent with the guidelines under existing and proposed conditions and provides recommendations to enhance pedestrian comfort and safety based on community feedback and collision data.

Table 8: Existing and Proposed Pedestrian Facilities

Pedestrian Design Feature	Guidelines Summary Applicable to Project[1]	Existing Condition	Proposed Condition	Recommendations
A.11. Curb ramps	Directional (two) curb ramps should be installed at intersections with high vehicle volumes, such as those surrounding the project site.	Directional curb ramps are present at the adjacent intersection. ADA accessible ramp is missing at the NW corner of South Claremont and East 3rd Avenue intersection	ADA accessible directional curb ramps at the NW corner of South Claremont and East 3rd Avenue intersection	None
A.12. Curb extensions	Curb extensions should not encroach into bike lanes but should allow for bus and emergency turning access.	There is an existing curb extension at the intersection adjacent to the project site.	No change	Consider how this curb extension will impact any future bike facilities on East 3rd Avenue
A.13 and A.14. Standard and high visibility crosswalks	High visibility continental crosswalks should be prioritized for locations with anticipated high pedestrian activity or a high number of pedestrian-related collisions have occurred.	The adjacent intersection is signalized and has marked, high-visibility crosswalks. Collision data indicate crossing at East 3rd Avenue needs improvement.[2]	No change	None
A.15. Advance stop bars	Advance stop bars should be installed at all controlled intersections.	All four approaches at the adjacent intersection do not have advance stop bars.	No change	The project sponsor should install add advance stop bars at the adjacent intersection to increase visibility between drivers and pedestrians.
A.23. Signalized pedestrian crossings	All new and modified traffic signals without a dedicated pedestrian phase should include accessible pushbuttons.	The adjacent intersection is controlled with a traffic signal and has accessible push buttons.	No change	None
A.25. Signal timing	Countdown heads with audible instructions should be installed at multi-lane arterial roadway intersections.	Present at adjacent intersection.	No change	None

A.26. Leading Pedestrian Interval (LPI)	LPI's should be installed in the downtown area bounded by Tilton Avenue to 5th Avenue and from El Camino Real to Delaware Street, which includes the project site.	Present at adjacent intersection.	No change	None

1. *San Mateo Citywide Pedestrian Master Plan*, City of San Mateo & Alta Planning + Design, 2012, Appendix B: Pedestrian Design Guidelines
2. City of San Mateo Collision Data, 2022, https://experience.arcgis.com/experience/8a9f7321d1ce46ffbc0e1f04757efb5f/page/Maps/?views=All-Collisions

Recommended Improvement

The project sponsor should widen the proposed sidewalks along South Claremont Street and East 3rd Avenue and add the recommended pedestrian facilities from **Table 8** to be consistent with the City of San Mateo's Pedestrian Design Guidelines. The City could consider further enhancements through use of transportation impact fee (TIF) funds to add the remaining missing features, such as directional curb ramps on corners that don't front the project site, no right-turn on red signs to support LPI's, and pedestrian recall for locations with high pedestrian volumes.

Bicycle Access

The project proposes four short-term bicycle parking spaces and nine long-term parking spaces. As shown in the site plan in **Figure 9**, two circular bicycle racks for four bicycles are proposed to be placed at street level near the main pedestrian entrances in the landscaping strip between the sidewalk and the roadway. The long-term bicycle parking for office users is on the first floor of the office space, located in the northwest corner. The long-term bicycle parking for residents is on the fifth floor next to the residential elevator. Bicycle parking should restrict access to authorized users and provide lockers to ensure people who ride can securely park bicycles for long periods of time. Residents have access to storage on the first floor near the residential elevators that are accessible through the main residential pedestrian entrance from South Claremont Street. There are no other proposed bicycle facility changes, thus the project would not disrupt existing bicycle facilities in the City.

The City of San Mateo, through the 2020 Bicycle Master Plan, has proposed Class IV separated bike lanes on East 3rd Avenue. South Claremont Street is proposed as a Class III bicycle boulevard. These proposed bicycle facilities are considered high priority as shown on *Figure 6.1* of the *2020 San Mateo Bicycle Master Plan*[11] and would substantially improve accessibility for people bicycling in the downtown area by providing low stress bicycle facilities, and thus reducing the need for driving trips for project residents and employees. Should these bike lanes be installed in the future, the bulbout adjacent to the project site at the corner of South Claremont Street and East 3rd Avenue may need to be removed to accommodate the bike lane. South Claremont Street is best suited as the main access route to and from the project site to

[11] *San Mateo Bicycle Master Plan*, City of San Mateo & Toole Design, 2020, p 60.

the Caltrain station given the lower traffic volumes, most direct access to the Caltrain station, and proximity to the project entrances. The project would not contain features that would conflict with the proposed bicycle boulevard on South Claremont Street.

Transit Access and Circulation

Neither public transit conditions nor public transit access are expected to change with the project. As noted in **Table 6**, the project is estimated to generate approximately 389 daily trips and approximately 12 peak hour trips by walking, bicycling, or transit given its proximity to destinations such as downtown San Mateo and high-quality transit services such as Caltrain and SamTrans. Likely associated with commutes, new transit trips could be accommodated by existing nearby transit routes and services including SamTrans and Caltrain. SamTrans bus stops are also located along South Claremont and South Delaware one to two blocks from the project site. These stops do not include bus shelters and seating. Although there are not currently plans to add these features, SamTrans is studying the bus stop amenities throughout the system and may include these features in the future. The pedestrian improvements recommended above and in **Table 8** would ensure that a safe and comfortable path of travel to and from transit is accessible for all users.

Vehicle Parking Conditions

This project will not provide any off-street parking. The project anticipates paying in-lieu fees for 64 office spaces and three residential spaces to meet the parking requirement. In-lieu fees for the office parking will be based on a rate of 1.87 stalls per 1,000 gross square feet. The three residential parking spaces represents a parking ratio of approximately 0.5 vehicles per residential unit. Although the Municipal Code requires 1.5-2 units per multi-family dwelling unit, the State Density Bonus permits a reduced parking ratio of 0.5 spaces/bedroom because the project is within a half mile of public transit.[12]

Hazards and Emergency Vehicle Access

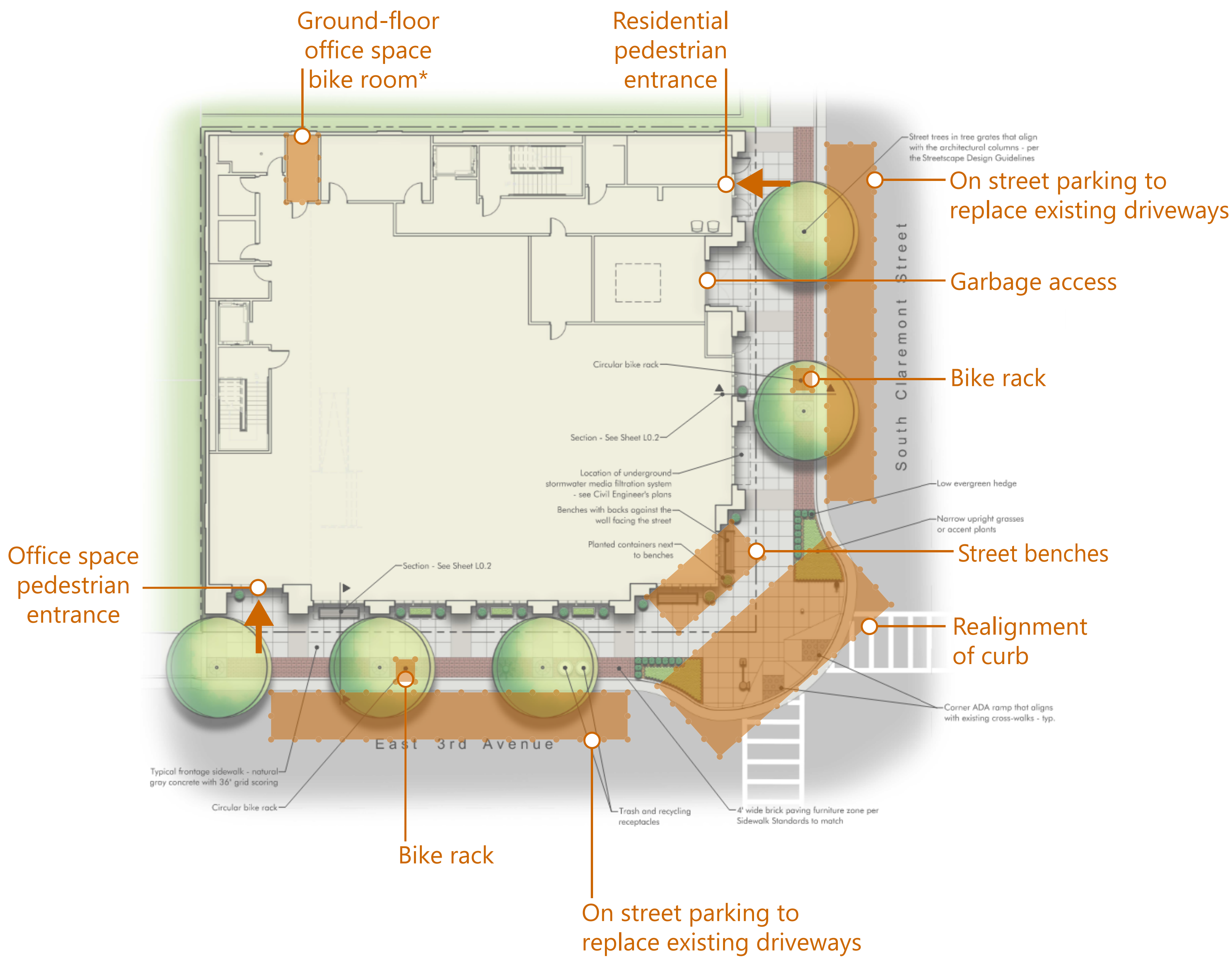
The proposed project would not create or worsen existing roadway hazards. The project does not propose altering the existing roadway network and does not propose new vehicular roadways that would create hazards or impede emergency vehicle access.

Neighborhood Traffic

Due to the relatively small increase in net new vehicle volumes generated by the project, the impact to neighboring streets will be low, given the location of the project site on East 3rd Avenue, which is a neighborhood arterial, and the multitude of paths to and from the project site and parking garages that the trips will be routed to. Additionally, because trips are routed to two parking garages that are not adjacent to the project site, the vehicle volumes that are generated will be dispersed across the

[12] *San Mateo Block 21 and 435 East 3rd Avenue Parking Demand Fee Memorandum*, Fehr & Peers, March 22, 2022

neighborhood street network. Traffic calming devices along South Claremont Street, as recommended in the *2020 San Mateo Bicycle Master Plan,* would help discourage cut-through traffic and enhance walking and biking connections to the major transit facilities on this local access street.



*Long term residential bike parking will be located on the 5th floor next to the elevators.

Figure 9

Project Site Plan

Conclusion

The proposed project will not result in CEQA impacts on VMT, bicycle, pedestrian, or transit circulation, or hazards and emergency access. VMT is screened out because of the project's proximity to high-quality transit. The project presents no adverse LOS effects or site circulation issues. The project does not include features that would disrupt these facilities nor generate a substantial number of people that would worsen or create a new impact. The project meets the City's design standards except for sidewalk widths as recommended in the San Mateo Pedestrian Master Plan. The following recommended changes to the site plan would ensure consistency with San Mateo standards and best planning practices. The addition of proposed project trips would not result in adverse effects on traffic operations.

Recommendations

- The proposed pedestrian facilities are inconsistent with the San Mateo Pedestrian Master Plan. The project sponsor should widen the proposed sidewalks along South Claremont Street. However, the City's Municipal Code SMMC 27.39.090 requires zero-setbacks unless a setback is provided for landscaping.
- Add advance stop bars at each intersection approach in accordance with City of San Mateo's Pedestrian Design Guidelines.
- The City could consider signal timing adjustments, such as placing all signals on pedestrian recall and installing extinguishable no right turn on red signs during leading pedestrian intervals.

Appendix A: LOS Analysis Screening Memorandum

FEHR & PEERS

Memorandum

Date: June 14, 2022

To: Michael Kato, City of San Mateo

From: Ashley Hong and Matt Goyne, Fehr & Peers

Subject: Screening Out 435 E 3rd Avenue Mixed-Use Project from LOS Analysis

SF21-1188.02

This memo is to support screening out the LOS analysis for the 435 E 3rd Avenue mixed-use building project. Given that existing and opening year traffic operations analysis had been prepared already, these results are presented as additional substantiation for screening out projects from LOS analysis that generate few vehicle trips.

<u>Reasons to screen out LOS analysis:</u>

- Recap: City of San Mateo *Transportation Impact Analysis (TIA) Guidelines* (pg 15)

> **3.1. STUDY AREA**
>
> At a minimum, the study must examine signalized and unsignalized intersections that fall into at least one of the following categories:
>
> - Project driveways
> - Intersections at either end of the block on which the project is located or up to 500 feet from the primary project driveways, whichever is farther
> - Intersection of collector or higher classified streets where the project adds 100 or more peak hour trips
>
> The study should also examine any other locations necessary as determined by City staff.

- The Project does not include on-site parking to encourage travel by alternate modes. For residents and employees that do drive, the vehicle trips would be distributed throughout the roadway network much more than for a project with on-site parking. Parking garages are available 3-4 blocks away and thus the Guidelines recommended approach would not capture nearly all project-generated vehicle trips.
- The Project does not generate 100 or more peak hour trips total (AM: 42 in/7out; PM 7 in/44 out), and thus would generate far fewer trips at any one intersection. The project-

added trips at the intersections would result in imperceptible traffic volume and average intersection delay increases to the average driver, as substantiated below.

Project Contribution to Traffic Volumes:

Table 1 summarizes the traffic volumes for all the analysis scenarios. The project adds at most 24 trips, or up to three percent of an intersection's total volume, to the recommended study intersections during a peak hour. This level of traffic is below the average daily fluctuation of traffic volumes, which is typically around 5 to 10 percent.[1] This generally represents the level of traffic that is imperceptible to the average driver.

Table 1: Traffic Growth

		AM	PM		AM	PM		AM	PM
Int #	Name	Existing			Opening Year			Cumulative	
1	2nd/Claremont	576	991		577	992		691	1189
2	3rd/Claremont	866	1106		942	1114		1131	1364
3	3rd/Railroad	940	1138		932	1112		1129	1366
		Existing +P			Opening Year + P			Cumulative +P	
1	2nd/Claremont	589	1003		590	1004		704	1201
2	3rd/Claremont	877	1113		953	1121		1142	1371
3	3rd/Railroad	964	1145		956	1119		1153	1373
		Delta			Delta			Delta	
1	2nd/Claremont	13	12		13	12		13	12
2	3rd/Claremont	11	7		11	7		11	7
3	3rd/Railroad	24	7		24	7		24	7
		% Change			% Change			% Change	
1	2nd/Claremont	2%	1%		2%	1%		2%	1%
2	3rd/Claremont	1%	1%		1%	1%		1%	1%
3	3rd/Railroad	3%	1%		3%	1%		2%	1%

Project Effect on LOS:

All the Guidelines recommended study intersections operate acceptably, at LOS B or better, under existing and opening year conditions. The project increases delay at intersections by one second at most, indicating that the level of traffic generated by the 435 E 3rd Avenue project would not affect the roadway network or traffic operational issues. Given the negligible changes to traffic operations under existing and opening year conditions, level of service analysis under cumulative conditions is not recommended.

[1] *Variability in Traffic Monitoring Data Final Summary Report;* Center for Transportation Analysis of Oak Ridge National Laboratory for the Federal Highway Administration; August 1997

Table 2: LOS Summary

#	Int	Control	Peak Hour	Existing Delay	Existing LOS	Opening Year Delay	Opening Year LOS	Opening Year Plus Project Delay	Opening Year Plus Project LOS
1	South Claremont St/ E 2nd Ave	AWSC	AM	10	A	10	A	10	A
			PM	15	B	15	B	15	B
2	South Claremont St/ E 3rd Ave	Signal	AM	12	B	12	B	12	B
			PM	13	B	13	B	13	B
3	South Railroad Ave/ E 3rd Ave	TWSC	AM	2	A	2	A	3	A
			PM	2	A	2	A	2	A

If you have any questions, please reach out to Ashley Hong at a.hong@fehrandpeers.com.

Appendix B: LOS Calculation Worksheet

Intersection Operations Summary

Intersection	Signal Control	LOS Threshold	Peak Hour	Existing		Opening Year		Opening Year Plus Project	
				Delay	LOS	Delay	LOS	Delay	LOS
1. East 2nd Avenue and South Claremont Street	AWSC	E	AM	10	A	10	A	10	A
			PM	15	B	15	B	15	B
2. East 3rd Avenue and South Claremont Street	Signal	D	AM	12	B	12	B	12	B
			PM	13	B	13	B	13	B
3. East 3rd Avenue and South Railroad Avenue	TWSC	E	AM	<10	A	<10	A	<10	A
			PM	<10	A	<10	A	<10	A

Source: Fehr & Peers, 2022

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	10	19	11	6	174	48	19	76	10	19	145	39
Future Vol, veh/h	10	19	11	6	174	48	19	76	10	19	145	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	21	12	7	189	52	21	83	11	21	158	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	9.9	8.8	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	25%	3%	9%
Vol Thru, %	72%	47%	76%	71%
Vol Right, %	10%	28%	21%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	40	228	203
LT Vol	19	10	6	19
Through Vol	76	19	174	145
RT Vol	10	11	48	39
Lane Flow Rate	114	43	248	221
Geometry Grp	1	1	1	1
Degree of Util (X)	0.155	0.06	0.321	0.287
Departure Headway (Hd)	4.881	4.93	4.663	4.678
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	730	721	768	766
Service Time	2.939	2.997	2.712	2.728
HCM Lane V/C Ratio	0.156	0.06	0.323	0.289
HCM Control Delay	8.8	8.3	9.9	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	1.4	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	77	10	16	473	33	8	69	15	36	105	21
Future Volume (veh/h)	3	77	10	16	473	33	8	69	15	36	105	21
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	0.99		0.96	0.98		0.91	0.94		0.94
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	3	85	8	18	520	32	9	76	4	40	115	23
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	988	91	84	2096	127	62	281	14	98	207	37
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.25	0.25	0.25	0.19	0.19	0.19
Sat Flow, veh/h	17	1441	133	53	3057	185	65	1507	74	229	1111	199
Grp Volume(v), veh/h	96	0	0	319	0	251	89	0	0	178	0	0
Grp Sat Flow(s),veh/h/ln	1590	0	0	1846	0	1448	1645	0	0	1538	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	3.5	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	0.0	5.2	0.0	5.3	3.4	0.0	0.0	8.3	0.0	0.0
Prop In Lane	0.03		0.08	0.06		0.13	0.10		0.04	0.22		0.13
Lane Grp Cap(c), veh/h	1137	0	0	1314	0	993	357	0	0	342	0	0
V/C Ratio(X)	0.08	0.00	0.00	0.24	0.00	0.25	0.25	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	1137	0	0	1314	0	993	595	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.95	0.00	0.95	0.99	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.2	0.0	0.0	4.8	0.0	4.8	25.7	0.0	0.0	29.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.6	0.1	0.0	0.0	0.5	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	0.5	0.0	0.0	1.8	0.0	1.5	1.3	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.3	0.0	0.0	5.2	0.0	5.4	25.9	0.0	0.0	30.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		96			570			89			178	
Approach Delay, s/veh		4.3			5.3			25.9			30.2	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.0		20.0		60.0		20.0				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		42.9		26.9		42.9		26.9				
Max Q Clear Time (g_c+I1), s		3.6		10.3		7.3		5.4				
Green Ext Time (p_c), s		0.8		0.6		5.9		0.3				

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

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	79	241	98	326	79	19	10	11	0	0	0
Future Vol, veh/h	77	79	241	98	326	79	19	10	11	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	86	262	107	354	86	21	11	12	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	440	0	0	348	0	0	776	1039	217
Stage 1	-	-	-	-	-	-	385	385	-
Stage 2	-	-	-	-	-	-	391	654	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1118	-	-	1209	-	-	350	230	822
Stage 1	-	-	-	-	-	-	687	610	-
Stage 2	-	-	-	-	-	-	653	462	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1118	-	-	1209	-	-	279	0	822
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	0	-
Stage 1	-	-	-	-	-	-	620	0	-
Stage 2	-	-	-	-	-	-	575	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	1.8	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	368	1118	-	-	1209	-	-
HCM Lane V/C Ratio	0.118	0.075	-	-	0.088	-	-
HCM Control Delay (s)	16.1	8.5	0	-	8.3	0.3	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	252	30	10	176	44	27	100	37	77	140	88
Future Vol, veh/h	11	252	30	10	176	44	27	100	37	77	140	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	274	33	11	191	48	29	109	40	84	152	96
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.6	13.5	12.2	15.9
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	4%	4%	25%
Vol Thru, %	61%	86%	77%	46%
Vol Right, %	23%	10%	19%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	293	230	305
LT Vol	27	11	10	77
Through Vol	100	252	176	140
RT Vol	37	30	44	88
Lane Flow Rate	178	318	250	332
Geometry Grp	1	1	1	1
Degree of Util (X)	0.311	0.529	0.421	0.546
Departure Headway (Hd)	6.289	5.979	6.069	5.933
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	570	602	593	607
Service Time	4.336	4.019	4.113	3.972
HCM Lane V/C Ratio	0.312	0.528	0.422	0.547
HCM Control Delay	12.2	15.6	13.5	15.9
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.3	3.1	2.1	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	150	38	25	479	35	16	119	55	26	124	30
Future Volume (veh/h)	9	150	38	25	479	35	16	119	55	26	124	30
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	0.98		0.94	0.96		0.87	0.94		0.92
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	10	167	34	28	532	35	18	132	38	29	138	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	837	165	112	1970	127	64	242	65	81	263	37
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.28	0.28	0.28	0.21	0.21	0.21
Sat Flow, veh/h	32	1261	248	95	2967	192	73	1163	313	141	1260	176
Grp Volume(v), veh/h	211	0	0	332	0	263	188	0	0	188	0	0
Grp Sat Flow(s),veh/h/ln	1541	0	0	1812	0	1441	1549	0	0	1578	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.1	0.0	0.0	5.8	0.0	6.0	8.1	0.0	0.0	8.1	0.0	0.0
Prop In Lane	0.05		0.16	0.08		0.13	0.10		0.20	0.15		0.11
Lane Grp Cap(c), veh/h	1070	0	0	1252	0	957	372	0	0	381	0	0
V/C Ratio(X)	0.20	0.00	0.00	0.27	0.00	0.27	0.51	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	1070	0	0	1252	0	957	565	0	0	573	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.93	0.00	0.93	0.65	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	0.0	0.0	5.5	0.0	5.5	25.8	0.0	0.0	28.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.7	0.3	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	1.3	0.0	0.0	2.1	0.0	1.7	2.9	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	0.0	0.0	6.0	0.0	6.2	26.1	0.0	0.0	28.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		211			595			188			188	
Approach Delay, s/veh		5.6			6.1			26.1			28.7	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		58.2		21.8		58.2		21.8				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		42.9		26.9		42.9		26.9				
Max Q Clear Time (g_c+I1), s		6.1		10.1		8.0		10.1				
Green Ext Time (p_c), s		2.1		0.7		6.3		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			12.8									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	188	329	86	338	102	11	10	9	0	0	0
Future Vol, veh/h	66	188	329	86	338	102	11	10	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	204	358	93	367	111	12	11	10	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	478	0	0	562	0	0	897	1191	383
Stage 1	-	-	-	-	-	-	527	527	-
Stage 2	-	-	-	-	-	-	370	664	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1082	-	-	1007	-	-	294	187	664
Stage 1	-	-	-	-	-	-	591	527	-
Stage 2	-	-	-	-	-	-	670	457	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1082	-	-	1007	-	-	230	0	664
Mov Cap-2 Maneuver	-	-	-	-	-	-	230	0	-
Stage 1	-	-	-	-	-	-	530	0	-
Stage 2	-	-	-	-	-	-	584	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1	1.7	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	326	1082	-	-	1007	-	-
HCM Lane V/C Ratio	0.1	0.066	-	-	0.093	-	-
HCM Control Delay (s)	17.3	8.6	0	-	8.9	0.4	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	10	19	11	6	174	48	19	76	10	19	146	39
Future Vol, veh/h	10	19	11	6	174	48	19	76	10	19	146	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	21	12	7	189	52	21	83	11	21	159	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	9.9	8.8	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	25%	3%	9%
Vol Thru, %	72%	47%	76%	72%
Vol Right, %	10%	28%	21%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	40	228	204
LT Vol	19	10	6	19
Through Vol	76	19	174	146
RT Vol	10	11	48	39
Lane Flow Rate	114	43	248	222
Geometry Grp	1	1	1	1
Degree of Util (X)	0.155	0.06	0.321	0.288
Departure Headway (Hd)	4.882	4.932	4.665	4.678
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	730	721	768	765
Service Time	2.94	2.999	2.714	2.729
HCM Lane V/C Ratio	0.156	0.06	0.323	0.29
HCM Control Delay	8.8	8.3	9.9	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	1.4	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	78	23	98	448	33	11	69	16	36	106	21
Future Volume (veh/h)	3	78	23	98	448	33	11	69	16	36	106	21
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	0.99		0.96	0.98		0.91	0.95		0.94
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	3	86	22	108	492	32	12	76	6	40	116	23
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	849	212	386	1689	109	67	268	19	98	208	37
Arrive On Green	0.69	0.69	0.69	0.69	0.69	0.69	0.25	0.25	0.25	0.19	0.19	0.19
Sat Flow, veh/h	13	1239	309	476	2464	159	89	1431	104	227	1114	198
Grp Volume(v), veh/h	111	0	0	340	0	292	94	0	0	179	0	0
Grp Sat Flow(s),veh/h/ln	1561	0	0	1645	0	1454	1624	0	0	1539	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	6.3	0.0	0.0	0.0	3.6	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	0.0	5.8	0.0	6.3	3.7	0.0	0.0	8.3	0.0	0.0
Prop In Lane	0.03		0.20	0.32		0.11	0.13		0.06	0.22		0.13
Lane Grp Cap(c), veh/h	1116	0	0	1187	0	996	354	0	0	343	0	0
V/C Ratio(X)	0.10	0.00	0.00	0.29	0.00	0.29	0.27	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	1116	0	0	1187	0	996	588	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.95	0.00	0.95	0.99	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	0.0	4.8	0.0	5.0	25.8	0.0	0.0	29.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.7	0.1	0.0	0.0	0.5	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	0.6	0.0	0.0	2.0	0.0	1.8	1.4	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	0.0	0.0	5.4	0.0	5.7	25.9	0.0	0.0	30.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		111			632			94			179	
Approach Delay, s/veh		4.4			5.5			25.9			30.2	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		59.9		20.1		59.9		20.1
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1
Max Green Setting (Gmax), s		42.9		26.9		42.9		26.9
Max Q Clear Time (g_c+I1), s		3.9		10.3		8.3		5.7
Green Ext Time (p_c), s		1.0		0.6		6.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	91	241	94	312	75	19	10	13	0	0	0
Future Vol, veh/h	77	91	241	94	312	75	19	10	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	99	262	102	339	82	21	11	14	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	421	0	0	361	0	0	772	1023	230
Stage 1	-	-	-	-	-	-	398	398	-
Stage 2	-	-	-	-	-	-	374	625	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1136	-	-	1196	-	-	352	235	808
Stage 1	-	-	-	-	-	-	678	602	-
Stage 2	-	-	-	-	-	-	667	476	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1136	-	-	1196	-	-	282	0	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	0	-
Stage 1	-	-	-	-	-	-	613	0	-
Stage 2	-	-	-	-	-	-	592	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	1.8	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	383	1136	-	-	1196	-	-
HCM Lane V/C Ratio	0.119	0.074	-	-	0.085	-	-
HCM Control Delay (s)	15.7	8.4	0	-	8.3	0.3	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	11	252	30	10	176	44	27	101	37	77	140	88
Future Vol, veh/h	11	252	30	10	176	44	27	101	37	77	140	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	274	33	11	191	48	29	110	40	84	152	96
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.6	13.5	12.2	16
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	4%	4%	25%
Vol Thru, %	61%	86%	77%	46%
Vol Right, %	22%	10%	19%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	293	230	305
LT Vol	27	11	10	77
Through Vol	101	252	176	140
RT Vol	37	30	44	88
Lane Flow Rate	179	318	250	332
Geometry Grp	1	1	1	1
Degree of Util (X)	0.313	0.529	0.422	0.547
Departure Headway (Hd)	6.289	5.983	6.074	5.936
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	570	602	593	607
Service Time	4.34	4.026	4.12	3.977
HCM Lane V/C Ratio	0.314	0.528	0.422	0.547
HCM Control Delay	12.2	15.6	13.5	16
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.3	3.1	2.1	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	149	47	58	434	35	26	119	56	26	124	30
Future Volume (veh/h)	10	149	47	58	434	35	26	119	56	26	124	30
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	0.98		0.94	0.96		0.87	0.94		0.92
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	11	166	44	64	482	35	29	132	39	29	138	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	787	201	243	1757	126	79	234	63	82	267	37
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.28	0.28	0.28	0.21	0.21	0.21
Sat Flow, veh/h	34	1190	304	286	2655	191	130	1109	300	142	1264	177
Grp Volume(v), veh/h	221	0	0	316	0	265	200	0	0	188	0	0
Grp Sat Flow(s),veh/h/ln	1529	0	0	1690	0	1441	1539	0	0	1582	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.1	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	5.5	0.0	6.1	8.6	0.0	0.0	8.1	0.0	0.0
Prop In Lane	0.05		0.20	0.20		0.13	0.14		0.19	0.15		0.11
Lane Grp Cap(c), veh/h	1058	0	0	1172	0	953	376	0	0	386	0	0
V/C Ratio(X)	0.21	0.00	0.00	0.27	0.00	0.28	0.53	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	1058	0	0	1172	0	953	561	0	0	574	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.93	0.00	0.93	0.65	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	5.5	0.0	5.6	25.8	0.0	0.0	28.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.7	0.3	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	1.4	0.0	0.0	2.0	0.0	1.8	3.1	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	0.0	0.0	6.0	0.0	6.3	26.1	0.0	0.0	28.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		221			581			200			188	
Approach Delay, s/veh		5.8			6.2			26.1			28.5	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	58.0	22.0	58.0	22.0
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1
Max Green Setting (Gmax), s	42.9	26.9	42.9	26.9
Max Q Clear Time (g_c+I1), s	6.4	10.1	8.1	10.6
Green Ext Time (p_c), s	2.2	0.7	6.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	197	329	81	315	95	11	10	9	0	0	0
Future Vol, veh/h	66	197	329	81	315	95	11	10	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	214	358	88	342	103	12	11	10	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	445	0	0	572	0	0	884	1158	393
Stage 1	-	-	-	-	-	-	537	537	-
Stage 2	-	-	-	-	-	-	347	621	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1113	-	-	999	-	-	300	195	655
Stage 1	-	-	-	-	-	-	585	522	-
Stage 2	-	-	-	-	-	-	688	478	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1113	-	-	999	-	-	238	0	655
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	0	-
Stage 1	-	-	-	-	-	-	526	0	-
Stage 2	-	-	-	-	-	-	606	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	1.7	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	334	1113	-	-	999	-	-
HCM Lane V/C Ratio	0.098	0.064	-	-	0.088	-	-
HCM Control Delay (s)	16.9	8.5	0	-	9	0.4	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	10	20	12	6	184	48	19	76	10	19	146	40
Future Vol, veh/h	10	20	12	6	184	48	19	76	10	19	146	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	22	13	7	200	52	21	83	11	21	159	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	10.1	8.9	9.7
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	24%	3%	9%
Vol Thru, %	72%	48%	77%	71%
Vol Right, %	10%	29%	20%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	42	238	205
LT Vol	19	10	6	19
Through Vol	76	20	184	146
RT Vol	10	12	48	40
Lane Flow Rate	114	46	259	223
Geometry Grp	1	1	1	1
Degree of Util (X)	0.156	0.063	0.336	0.291
Departure Headway (Hd)	4.917	4.946	4.68	4.708
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	725	719	766	760
Service Time	2.979	3.014	2.73	2.763
HCM Lane V/C Ratio	0.157	0.064	0.338	0.293
HCM Control Delay	8.9	8.4	10.1	9.7
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.6	0.2	1.5	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	78	23	98	458	33	11	69	16	36	107	21
Future Volume (veh/h)	3	78	23	98	458	33	11	69	16	36	107	21
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	0.99		0.96	0.98		0.91	0.95		0.95
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	3	86	22	108	503	32	12	76	6	40	118	23
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	848	212	379	1698	107	67	269	19	97	210	37
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.25	0.25	0.25	0.19	0.19	0.19
Sat Flow, veh/h	13	1239	309	468	2479	157	89	1431	104	225	1120	196
Grp Volume(v), veh/h	111	0	0	346	0	297	94	0	0	181	0	0
Grp Sat Flow(s),veh/h/ln	1561	0	0	1649	0	1454	1624	0	0	1540	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	6.5	0.0	0.0	0.0	3.6	0.0	0.0
Cycle Q Clear(g_c), s	1.9	0.0	0.0	6.0	0.0	6.5	3.7	0.0	0.0	8.4	0.0	0.0
Prop In Lane	0.03		0.20	0.31		0.11	0.13		0.06	0.22		0.13
Lane Grp Cap(c), veh/h	1115	0	0	1188	0	996	356	0	0	344	0	0
V/C Ratio(X)	0.10	0.00	0.00	0.29	0.00	0.30	0.26	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	1115	0	0	1188	0	996	588	0	0	565	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.95	0.00	0.95	0.99	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	0.0	4.9	0.0	5.0	25.7	0.0	0.0	29.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.7	0.1	0.0	0.0	0.5	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	0.6	0.0	0.0	2.0	0.0	1.8	1.4	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.5	0.0	0.0	5.5	0.0	5.7	25.9	0.0	0.0	30.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		111			643			94			181	
Approach Delay, s/veh		4.5			5.6			25.9			30.2	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		59.9		20.1		59.9		20.1				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		42.9		26.9		42.9		26.9				
Max Q Clear Time (g_c+I1), s		3.9		10.4		8.5		5.7				
Green Ext Time (p_c), s		1.0		0.6		6.9		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			11.6									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	93	242	94	323	75	29	10	13	0	0	0
Future Vol, veh/h	77	93	242	94	323	75	29	10	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	101	263	102	351	82	32	11	14	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	433	0	0	364	0	0	781	1038	233
Stage 1	-	-	-	-	-	-	401	401	-
Stage 2	-	-	-	-	-	-	380	637	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1125	-	-	1193	-	-	347	230	805
Stage 1	-	-	-	-	-	-	675	600	-
Stage 2	-	-	-	-	-	-	662	470	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1125	-	-	1193	-	-	278	0	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	278	0	-
Stage 1	-	-	-	-	-	-	610	0	-
Stage 2	-	-	-	-	-	-	587	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.6	1.8	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	349	1125	-	-	1193	-	-
HCM Lane V/C Ratio	0.162	0.074	-	-	0.086	-	-
HCM Control Delay (s)	17.3	8.5	0	-	8.3	0.3	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	11	257	35	10	178	44	27	101	37	77	140	88
Future Vol, veh/h	11	257	35	10	178	44	27	101	37	77	140	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	279	38	11	193	48	29	110	40	84	152	96
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.1	13.7	12.3	16.2
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	4%	4%	25%
Vol Thru, %	61%	85%	77%	46%
Vol Right, %	22%	12%	19%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	303	232	305
LT Vol	27	11	10	77
Through Vol	101	257	178	140
RT Vol	37	35	44	88
Lane Flow Rate	179	329	252	332
Geometry Grp	1	1	1	1
Degree of Util (X)	0.316	0.549	0.428	0.551
Departure Headway (Hd)	6.35	5.999	6.117	5.988
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	565	599	588	603
Service Time	4.401	4.04	4.163	4.031
HCM Lane V/C Ratio	0.317	0.549	0.429	0.551
HCM Control Delay	12.3	16.1	13.7	16.2
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.3	3.3	2.1	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	149	47	58	436	35	26	119	56	26	129	30
Future Volume (veh/h)	10	149	47	58	436	35	26	119	56	26	129	30
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	0.98		0.94	0.96		0.87	0.94		0.92
Parking Bus, Adj	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88	1.00	1.00	0.88
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1945	1870	1870	1945	1870
Adj Flow Rate, veh/h	11	166	44	64	484	35	29	132	39	29	143	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	787	201	242	1759	126	79	234	63	81	269	36
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.28	0.28	0.28	0.21	0.21	0.21
Sat Flow, veh/h	34	1190	304	285	2658	190	131	1110	301	138	1274	172
Grp Volume(v), veh/h	221	0	0	318	0	265	200	0	0	193	0	0
Grp Sat Flow(s),veh/h/ln	1529	0	0	1691	0	1442	1541	0	0	1585	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.1	0.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	5.5	0.0	6.1	8.6	0.0	0.0	8.3	0.0	0.0
Prop In Lane	0.05		0.20	0.20		0.13	0.14		0.19	0.15		0.11
Lane Grp Cap(c), veh/h	1059	0	0	1173	0	954	376	0	0	386	0	0
V/C Ratio(X)	0.21	0.00	0.00	0.27	0.00	0.28	0.53	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	1059	0	0	1173	0	954	561	0	0	575	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.93	0.00	0.93	0.65	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	0.0	5.5	0.0	5.6	25.8	0.0	0.0	28.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.7	0.3	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	1.4	0.0	0.0	2.0	0.0	1.8	3.1	0.0	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	0.0	0.0	6.0	0.0	6.3	26.1	0.0	0.0	28.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		221			583			200			193	
Approach Delay, s/veh		5.8			6.2			26.1			28.6	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		58.0		22.0		58.0		22.0				
Change Period (Y+Rc), s		5.1		5.1		5.1		5.1				
Max Green Setting (Gmax), s		42.9		26.9		42.9		26.9				
Max Q Clear Time (g_c+I1), s		6.4		10.3		8.1		10.6				
Green Ext Time (p_c), s		2.2		0.7		6.2		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	197	329	81	315	97	11	10	9	0	0	0
Future Vol, veh/h	66	197	329	81	315	97	11	10	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	214	358	88	342	105	12	11	10	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	447	0	0	572	0	0	884	1160	393
Stage 1	-	-	-	-	-	-	537	537	-
Stage 2	-	-	-	-	-	-	347	623	-
Critical Hdwy	4.13	-	-	4.13	-	-	6.63	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.83	5.53	-
Follow-up Hdwy	2.219	-	-	2.219	-	-	3.519	4.019	3.319
Pot Cap-1 Maneuver	1111	-	-	999	-	-	300	195	655
Stage 1	-	-	-	-	-	-	585	522	-
Stage 2	-	-	-	-	-	-	688	477	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1111	-	-	999	-	-	238	0	655
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	0	-
Stage 1	-	-	-	-	-	-	526	0	-
Stage 2	-	-	-	-	-	-	606	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.9	1.7	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	334	1111	-	-	999	-	-
HCM Lane V/C Ratio	0.098	0.065	-	-	0.088	-	-
HCM Control Delay (s)	16.9	8.5	0	-	9	0.4	-
HCM Lane LOS	C	A	A	-	A	A	-
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.3	-	-