Multi-Modal Transportation Analysis

590 Castro Street

Final

January 2022

TJKM

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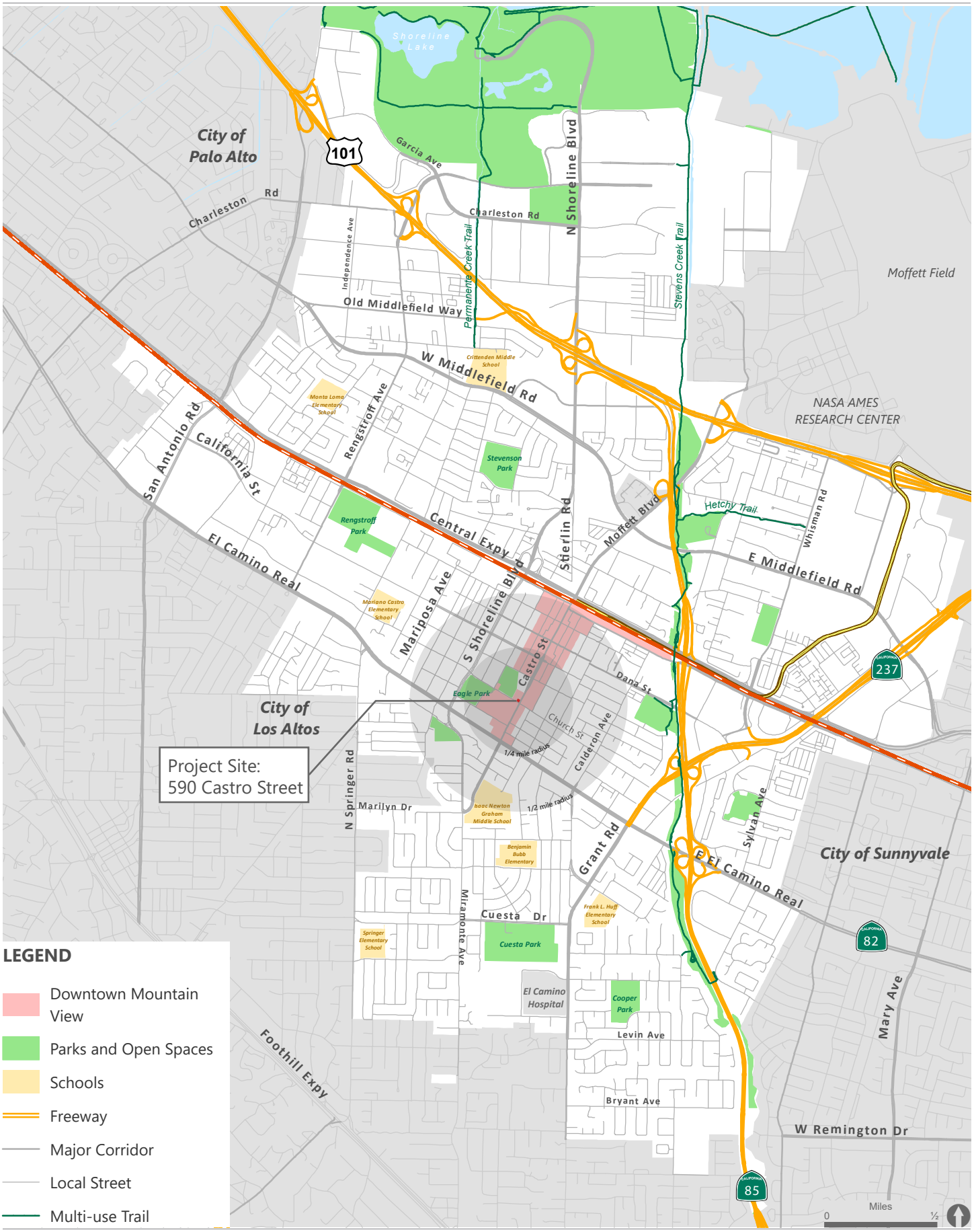
1. INTRODUCTION

This report presents the results of the Multi-Modal Transportation Analysis (MTA) for the proposed mixed-use (office and retail) development project located at 590 Castro Street in the City of Mountain View, California. The purpose of this MTA is to assess operational effects of the proposed project for all modes of transportation, identify adverse effects and potential transportation improvements to address the adverse effects. The reporting requirements of this MTA is based on the MTA Requirement Checklist provided in **Appendix A**. **Figure 1** shows the location of the proposed project site relative to the City of Mountain View.

Figure 1. Project Location

590 Castro Street MTA



LEGEND

- Downtown Mountain View
- Parks and Open Spaces
- Schools
- Freeway
- Major Corridor
- Local Street
- Multi-use Trail

TJKM

Data Source: City of Mountain View GIS Portal | 138-072

1.1 Project Description and Surrounding Areas

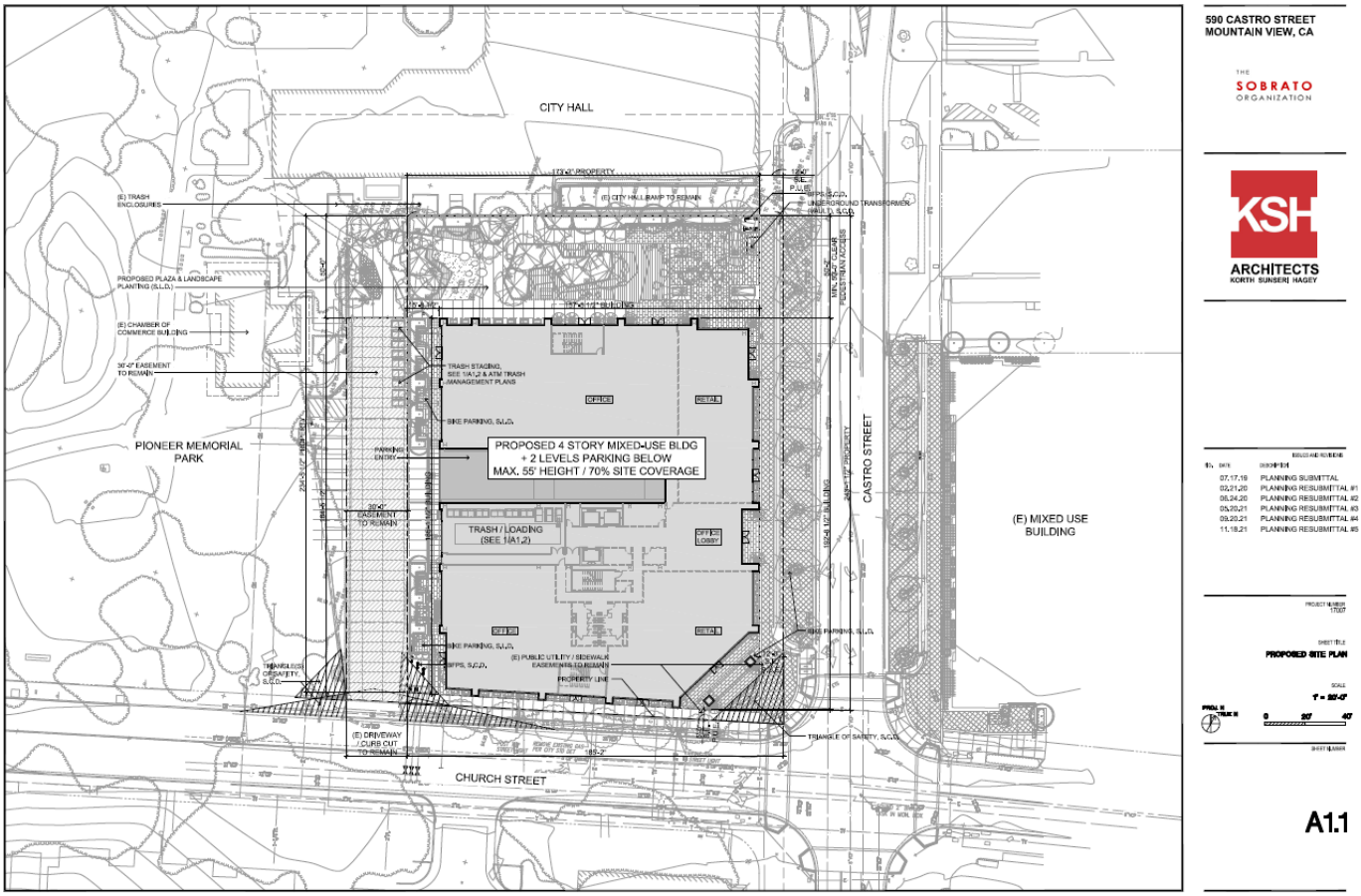
The proposed project consists of a four-story mixed-use office building and two levels of underground parking. It is proposed to develop 95,688 gross square feet of office space on floors one through four, 6,646 gross square feet of retail space on the ground floor, and two levels of underground parking facilities. The underground parking will provide a total of 255 parking spaces on site, including 119 spaces on level P1 and 136 stalls on level P2. The proposed project will also provide short-term bicycle racks that holds 40 bicycles and long-term bicycle enclosures for approximately 16 bicycles. The proposed project has a single driveway that provides ingress and egress at Church Street. The Project site is currently occupied by Wells Fargo Bank. Project proposes to demolish an existing 9,228 square foot bank building and related surface parking lot to construct a new 4-story 102,334 square foot office building with a plaza on a 0.95 acre site. **Figure 2** shows the project site plan.

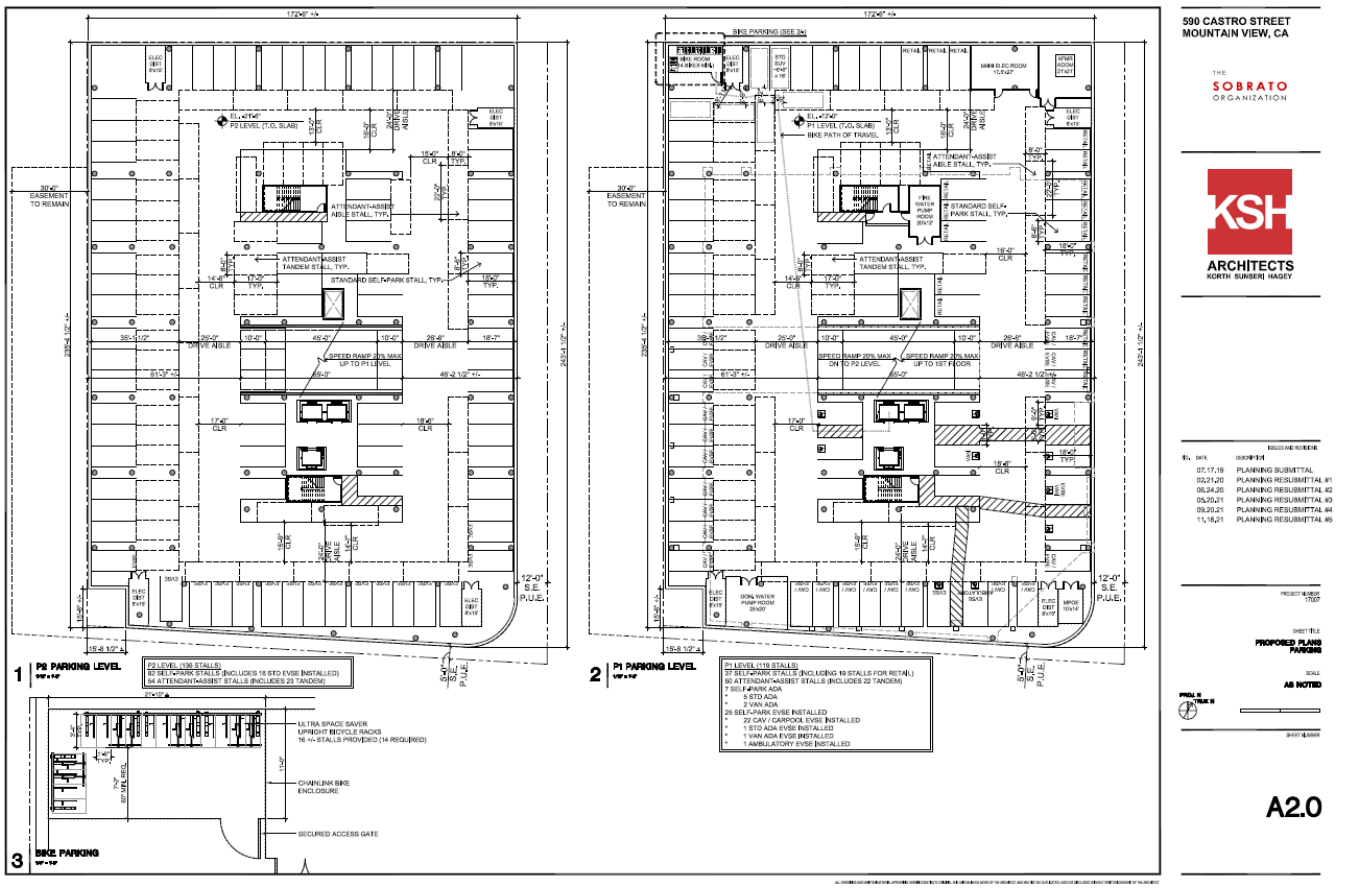
The proposed project is located on the northwest corner of Castro Street and Church Street and is surrounded by mixed-use residential, retail, restaurants and is adjacent to Pioneer Memorial Park and the Mountain View Civic Center. The proposed project is approximately one-half mile from the Mountain View Transit Center – a transit hub that integrates Caltrain, Santa Clara Valley Transportation Authority (VTA) light rail, public buses and private shuttles.

1.2 Study Area

Based on the expected extent of impacts, the study area is generally bounded by Shoreline Boulevard, Central Expressway, Castro Street, Calderon Avenue, and SR 82 (El Camino Real). **Figure 3** shows the study area, its surrounding areas and street network.

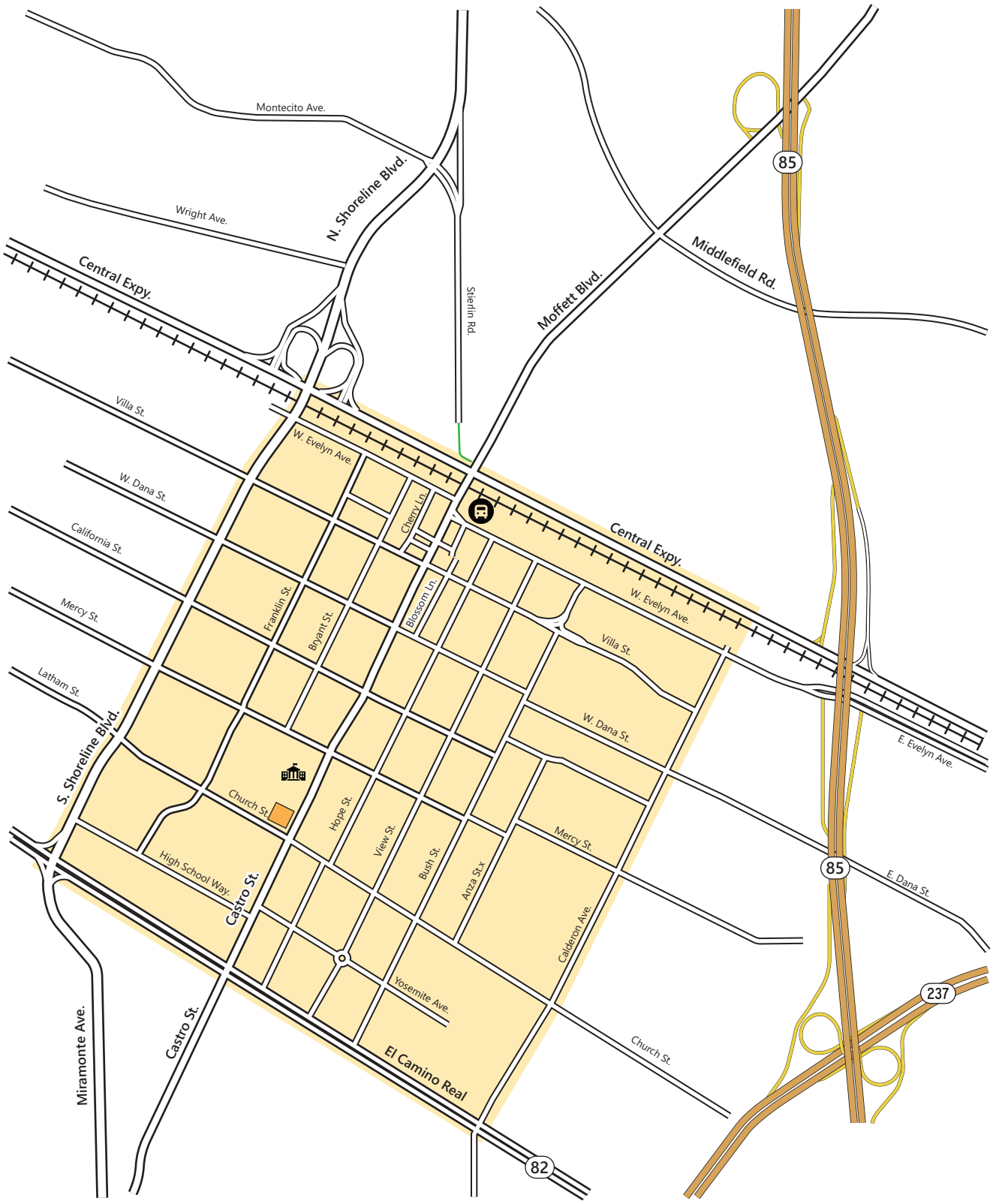
Figure 2. Project Site Plan





Source: The Sobrato Organization | 138-072

Figure 3. Study Area



Legend

- Project Site
- Study Area
- Mountain View Transit Center
- Railway
- Mountain View Civic Center

N

2. EXISTING CONDITIONS

This chapter describes existing conditions in the immediate vicinity of the proposed project, including roadway facilities, bicycle and pedestrian facilities, and available transit services.

2.1 Planning Context: Downtown Precise Plan

Adopted in 1988 and updated in 2019, the City of Mountain View's Downtown Precise Plan provides land use policies, development standards, and design guidelines for the downtown area. The proposed project is located within subarea "Area I" - Civic Center/Eagle Square/Gateway Block that generally defines the northwest part of Downtown based on the intersection of Castro Street and Mercy Street. **Table 1** summarizes the overall goals, guiding principles, and policies relevant to the multi-modal aspects of where the proposed project is located. Detailed policy conformance of the proposed project is provided in the next chapter.

Table 1. Overall Goals, Guiding Principles, and Policies

Vision	New buildings in the downtown will be designed to fit into the context of the surrounding properties, both in terms of appearance and use. New buildings will be of the highest-quality design, well crafted and make a contribution to the strong overall downtown character. Building facades will add richness and detail to the public spaces that they define, and public spaces must work for the people who use them.
Development Objectives	Enhance the role of Castro Street as the functional and symbolic center of the community by creating an active and attractive pedestrian environment with a fine-grained scale, strong pedestrian connections to adjacent areas across the railroad tracks at Central Expressway and at El Camino Real, and by including major civic and cultural facilities as focal points along its length.
Land Use Policies	• Concentrate pedestrian-oriented uses along Castro Street and cross streets and extending one block on either side of Castro Street. Create a distinctive, destination-oriented image or the street. • Focus new office development on the 400 blocks of Castro Street and in Area I. • Ensure that sufficient and well-designed parking is provided for all new development. Maintain and encourage convenient parking for all uses. • Link surrounding residential neighborhoods to the downtown core with attractive street improvements and pedestrian connections.
Parking Standards and Policies	• Facilitate the development of a convenient and accessible downtown by ensuring that adequate parking is provided. • Provide incentives and shared parking facilities for the creation of a busy and active Castro Street, particularly between Mercy Street and Evelyn Avenue. • Encourage the use of transit, bicycles, shuttles and other alternatives to the automobile to reduce the demand for downtown parking facilities. • Encourage public/private partnerships aimed at increasing the supply of parking where it is shown to be needed. • Provide adequate and well-located parking within the Downtown Precise Plan area to allow for future growth. • Monitor parking supply and demand, taking into consideration use of alternate modes of transportation.
Parking and Loading Zone Requirements	See Chapter 3 of this report for detailed assessments.
Area-Specific Standards, Guidelines, and Prototypes	See Chapter 3 of this report for detailed assessments.
Source: Downtown Precise Plan, City of Mountain View, June 2019	

2.2 Existing Setting and Roadway System

Regional roadway facilities providing access to the proposed development site is provided via US 101, State Route (SR) 237 and SR 85. Local access to the proposed project is provided generally via SR 82 (El Camino Real), Central Expressway, Shoreline Boulevard, Castro Street, Calderon Avenue, W. Evelyn Avenue, California Street, and Church Street. Descriptions of the existing roadways are provided as follows:

US 101 is a north-south, eight-lane freeway with three mixed-flow lanes and one High Occupancy Vehicle (HOV) lane in each direction in the vicinity of the project. HOV Lanes, also known as diamond or carpool lanes, are restricted for use by vehicles occupied by two or more persons or motorcycles between 5-9 a.m. and between 3-7 p.m. HOV includes carpools, vanpools, and buses. US 101 is located north of the project site and provides regional freeway access north through the City of San Francisco and south through the City of San Jose. Near the project site, US 101 is oriented in an east-west direction. Access from US 101 to the project site is provided via interchanges at Shoreline Boulevard, Moffett Boulevard, SR 85, and SR 237.

SR 85 is a north-south, six-lane freeway with two mixed-flow lanes per direction and one HOV lane in each direction during peak periods in the vicinity of the project site. SR 85 extends from the SR 85/US 101 interchange in Mountain View to the SR 85/US 101 interchange in south San Jose. Access from SR 85 to the project site is provided via interchanges at Moffett Boulevard, Central Expressway/Evelyn Avenue, SR 237, and El Camino Real.

SR 237 is an east-west freeway extending between the City of Mountain View (El Camino Real/SR 85) and the City of Milpitas (I-680). SR 237 includes two mixed flow lanes in the City of Mountain View. Access from SR 237 to the project site is provided via an interchange at Whisman Road and an at-grade intersection with El Camino Real/Grant Road.

SR 82 (El Camino Real) provides regional access between the City of San Francisco to the north and the City of San Jose to the south. It is a regionally significant east-west (in the project vicinity) arterial with three mixed-flow lanes in each direction. The roadway provides local connections to the project site via SR 85, SR 237, Phyllis Avenue, Calderon Avenue, Bush Street, Hope Street, Castro Street, and Shoreline Boulevard.

Central Expressway is a regionally significant roadway located north of the project site that provides access between the City of Mountain View to the north and the City of Santa Clara to the south. It is an east-west expressway with two mixed-flow lanes in each direction in the vicinity of the proposed project. Access from Central Expressway in the project vicinity is provided by Castro Street/Moffett Boulevard and Shoreline Boulevard.

Castro Street is a two-lane north-south roadway that extends between Central Expressway and Miramonte Avenue. Between El Camino Real and Central Expressway, Castro Street is the main street in

the core downtown area of Mountain View. East of Central Expressway, Castro Street becomes Moffett Boulevard and provides direct freeway access to and from US 101 and SR 85.

W. Evelyn Avenue is a two-lane and four-lane roadway comprised of residential, commercial, and office uses. At the intersection of Hope Street and W. Evelyn Avenue, there is the entrance to the Mountain View Transit Center. This area is considered the Downtown Precise Plan "Transit Center Block". In Mountain View, Evelyn Avenue is a two-lane roadway. South of the Stevens Creek Trail, Evelyn Avenue becomes a four-lane roadway until the city limits with Sunnyvale.

Hope Street is a two-lane, north-south roadway that extends between El Camino Real and W. Evelyn Avenue. In the project vicinity, it serves the United States Postal Service and a mix of commercial, office, and residential land uses. On-street parking is allowed on Hope Street in both the directions.

Shoreline Boulevard is a four-lane and six-lane roadway aligned in a mostly north-south orientation in the vicinity of the site. Shoreline Boulevard extends from SR 82 (El Camino Real) to Shoreline Park.

Villa Street, California Street, and Church Street are all two-lane, east-west roadways, parallel to El Camino Real, with a mix of commercial, restaurant, and primarily residential land uses in the vicinity of the proposed project. All these streets intersect Castro Street and Hope Street and provide local access to the project site. On-street parking is allowed on all three of these streets with few regulations.

2.3 Existing Pedestrian Facilities

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities. The proposed project site is located adjacent to the Mountain View Civic Center and Pioneer Memorial Park in Downtown Mountain View. Sidewalks are available in front of the project site on both Church Street and Castro Street.

In the project vicinity, all signalized study intersections are equipped with countdown pedestrian signal heads. Study intersections along Castro Street and Shoreline Boulevard have crosswalks and curb ramps except at Shoreline Boulevard/Mercy Street (north side), and Shoreline Boulevard/Villa Street (north side) intersections. The roadway segments surrounding the project vicinity have sidewalk along both sides of the street.

In the downtown area, the City has installed pedestrian refuge islands, mid-block crosswalks, and signage on Castro Street to increase driver awareness of pedestrians and provide acceptable gaps in traffic to allow for crossings. The existing pedestrian facilities in the study area are shown in **Figure 4**.

2.4 Existing Bicycle Facilities

Existing bicycle facilities[1] are described below and shown in **Figure 5**. The City of Mountain View 2015 Bicycle Transportation Plan Update[2] describes the four bikeway classifications in the City.

- **Class I Bikeways/Multi-Use Paths**: Class I bikeways are also referred to as multi-use or shared-use paths. They provide completely separated, exclusive right of way for people to walk and bike. Stevens Creek Trail located approximately a mile east of the Project is a north-south Class I bikeway providing north-south intercity connections. The trail is currently accessible via Evelyn Avenue, Dana Street and Yuba Drive near the Project.
- **Class II Bikeways/On-Street Bike Lanes**: Class II bikeways are striped lanes on roadways for one-way bicycle travel. Some Class II bikeways can also have painted buffers that add a few feet of separation between the bike lane and the traffic lane. Class II bicycle lanes are available on portions of Shoreline Boulevard, Moffett Boulevard, Calderon Avenue, Evelyn Avenue, Dana Street, and California Street.
- **Class III Bikeways/Bike Routes**: Class III bikeways are signed bike routes where bicyclists share a travel lane with motorists. Class III bike routes are appropriate for low-volume streets with slow travel speeds, especially those on which vehicular traffic volumes are low enough that passing maneuvers can use the full street width, on roadways with bicycle demand but without adequate space for Class II striped bike lanes, and as "gap fillers" where there are short breaks in Class II lanes due to right-of-way constraints.
- **Class III Bicycle Boulevards:** Bicycle Boulevards are a type of Class III bikeway with additional treatments that prioritize bicycle use. Bike Boulevards are signed, shared roadways with low motor vehicle volume, such that motorists passing bicyclists can use the full width of the roadway. Bicycle Boulevards prioritize convenient and safe bicycle travel through traffic calming strategies, wayfinding signage, and other measures. Church Street is classified as a bike route (Class III) with bicycle route signs along the street as are segments of Evelyn Avenue, California Street, Bush Street, Dana Street, and View Street.
- **Class IV Bikeways/Protected On-Street Bike Lane/Cycle tracks:** A Class IV bikeway, known as a cycle track or protected bike lane, is an on-street bike lane that is physically separated from motor-vehicle traffic by a vertical separation, such as a raised curb, bollard, or car parking. Class IV bikeways are available on Castro Street between El Camino Real and Miramonte Avenue.

Bicycle Parking. A Class I bike shelter is located in the Mountain View Train Station, adjacent to the Mountain View Transit Center. This bike shelter holds more than 40 bikes on lockable vertical bike racks

[1] Access MV (Comprehensive Modal Plan), City of Mountain View, March 2021
[2] Bicycle Transportation Plan Update, City of Mountain View, November 17, 2015, Page 14-18

within a secured room, which can be accessed only by authorized renters and City staff. These spaces can be rented through the City. The Transit Center is also home to several types of Class III bike racks and more than 100 Class I bicycle lockers owned by Caltrain. Class III bike racks have been incorporated on each block of Castro Street and two-bike Class I bike lockers have been placed in many of the adjacent public parking areas. These lockers are owned by and can be rented from the City. Class III bike racks are available on a first-come, first-serve basis.

2.5 Existing Transit Services and Facilities

Mountain View has a variety of transit options that provide access to regional destinations as well as intercity travel, including Caltrain, VTA Light Rail Transit (LRT), VTA bus, MVgo Shuttle, and Mountain View Community Shuttle services. The existing transit services and facilities in the study area are shown in **Figure 6**. VTA services are based on the VTA 2019 New Transit Service Plan[3], which reflects what are likely to be more permanent baseline conditions prior to the temporary service changes associated with COVID-19.

Caltrain. Caltrain provides commuter rail service along the San Francisco Bay Area Peninsula between Gilroy, through the south bay in San Jose, to San Francisco. Mountain View has two stations: San Antonio Station located at 190 Showers Drive and the Mountain View Station located at 600 W. Evelyn Avenue. The Caltrain Mountain View Station is an integral part of the Mountain View Transit Center, which has connections to VTA buses and light rail, community shuttles, bicycle share, and parking facilities. This station offers the Baby Bullet Express service which travels between San Francisco and San Jose in about an hour, stopping at a few popular stations.

The station is within 0.5 mile from the proposed project site.

VTA Light Rail Transit and Bus Services. The VTA operates bus and light rail transit (LRT) services in the City of Mountain View, feeding into the entire Santa Clara County system. There are two VTA bus stops within 600 feet of the project site on Castro Street, one at the Civic Center and the other at the intersection of Castro Street and Yosemite Avenue. Based on regular service plan adopted in 2019, Routes 21, 52, and 51 operate at these two stops providing regional and local services.

[3] 2019 new transit service plan. Retrieved March 26, 2021, from https://www.vta.org/projects/2019-new-transit-service-plan

Community Shuttles. Three community shuttles operate at the Mountain View Transit Center. The Mountain View Community Shuttle also operates at the two bus stops on Castro Street near the proposed project.

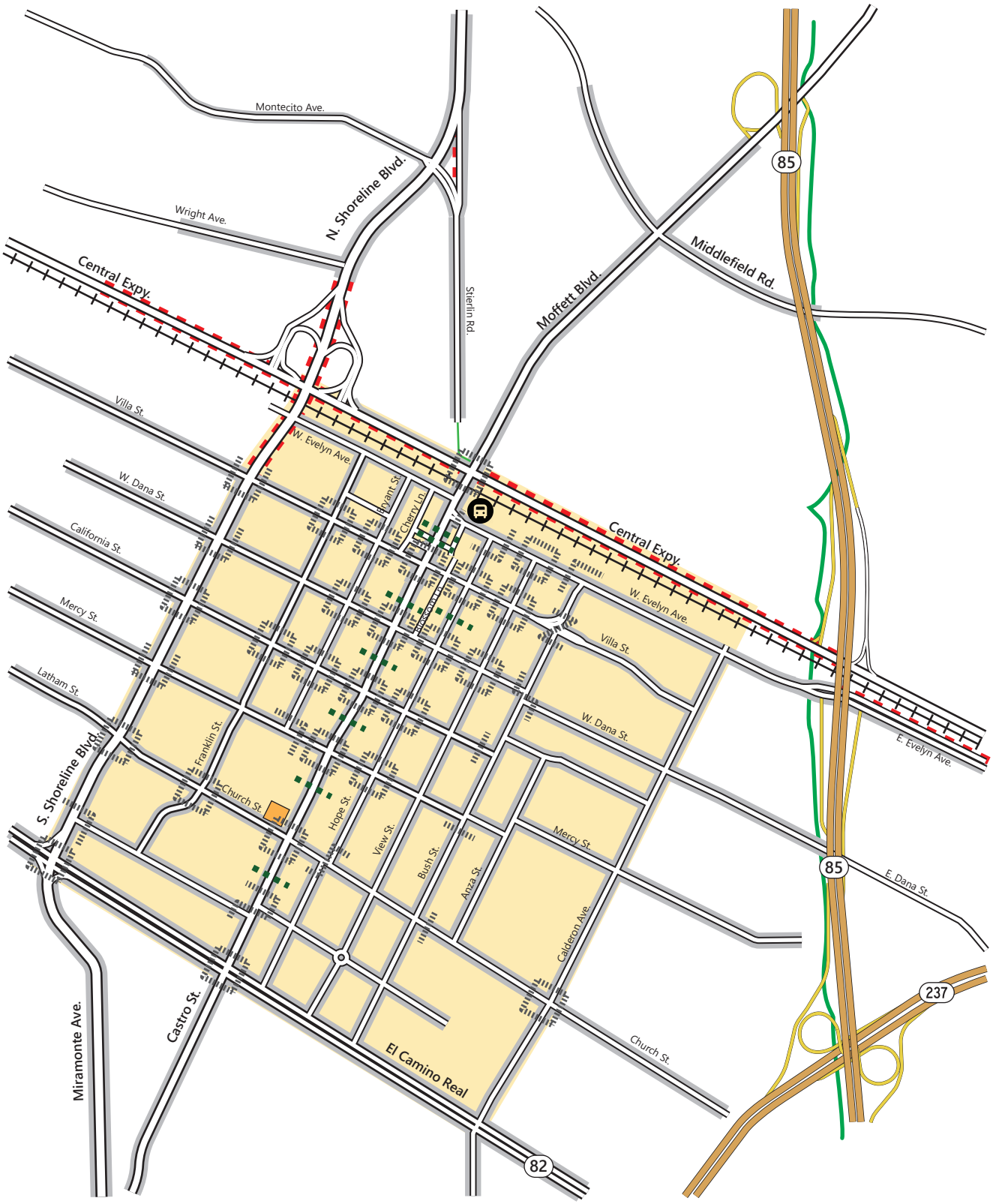
- MVgo – a service of the Mountain View Transportation Management Association (MTMA), a nonprofit organization run by local businesses and landowners to reduce traffic congestion on Mountain View streets.
- Mountain View Community Shuttle – Google Inc. operates the service, providing residents and visitors transportation connections between transit center facilities; residential neighborhoods; senior residences and services; City offices, Library, park and recreation facilities; medical offices; shopping centers; and entertainment venues throughout the City.

2.6 Existing Parking

On-street parking is available with varying time limits and restrictions along Church Street, Castro Street, Mercy Street, and most streets in the study area not immediately adjacent to the block of the proposed project. On-street parking spaces on Castro Street serve the downtown businesses and are limited to one-hour parking as faster turnover is expected.

Figure 4. Existing Pedestrian Facilties

590 Castro Street MTA



Legend

- Project Site
- Study Area
- Mountain View Transit Center
- Railway
- Mountain View Civic Center
- Sidewalk
- No Sidewalk
- Crosswalk
- Midblock Crosswalk
- Stevens Creek Trail

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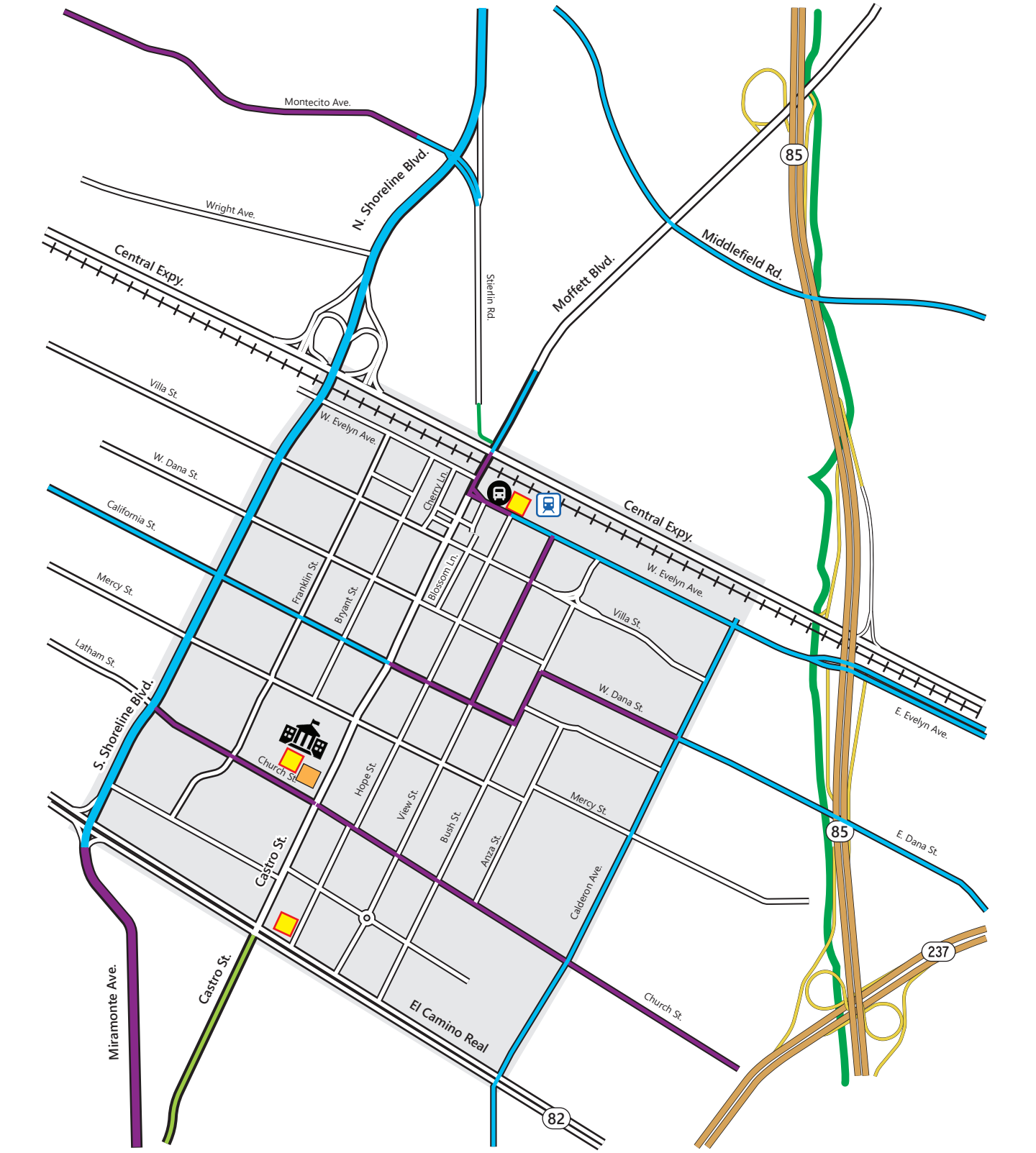
Figure 5. Existing Bicycle Facilties

590 Castro Street MTA



Legend

- Project Site
- Study Area
- Mountain View Transit Center
- Railway
- Mountain View Civic Center
- Class I Trail
- Class IV Cycle Track
- Class II Bike Lane
- Class III Bike Route
- Bay Area Bike Share Stations

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Source: Comprehensive Modal Plan, 2021, City of Mountain View | 138-072

TJKM

Figure 6. Existing Transit Facilties 590 Castro Street MTA

Source: VTA 2019 New Transit Service Plan, Valley Transportation Authority | 138-072

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3. CITY POLICY CONFORMANCE

The proposed project is located in the Downtown Precise Plan (P-19) area within the Civic Center/Eagle Square/Gateway Center subarea[4]. The following describes requirements specific to the project site and pertinent to multimodal transportation. This chapter describes the assessment of the conformance of the proposed project to the mobility and transportation requirements set forth in the Downtown Precise Plan.

3.1 Parking Requirements

It is required for the project site that one vehicle parking space be provided for each 333 square feet of office space, and one parking space for each 300 square feet of retail[5]. Though the proposed project ***does not meet this requirement*** immediately, the provision of parking is deemed feasible based on the analysis in the **Parking** chapter of this report.

3.2 Loading Space Requirements

According to the Downtown Precise Plan, one loading space shall be provided for new office buildings over 10,000 square feet. For new buildings over 30,000 square feet, an evaluation of the loading space requirements for the project and a comparison of loading space requirements in similar downtown areas must be supplied by the developer[6]. The proposed project provides a 10'x25' loading stall and loading/trash room adjacent to the parking garage.

The proposed project meets this requirement. Detailed evaluation is described in **Site Access and Circulation** chapter of this report. Loading Space diagram is shown in **Appendix B** (Figure B1).

3.3 Building Coverage and Open Spaces

It is required that the site be developed with ground-level open space, with at least 30 percent of the site devoted to publicly accessible open space that provides a pedestrian environment connecting Castro Street to Pioneer Park[7]. The proposed plaza and landscaped planting area of the development meets this requirement. The area of building coverage is shown in **Appendix B** (Figure B2).

A pedestrian open space approximately 50'to 60'in width will connect Castro Street to Pioneer Park along the north side of the project.

[4] Downtown Precise Plan, City of Mountain View, June 2019, page 3
[5] Downtown Precise Plan, City of Mountain View, June 2019, Table II-1, page 13
[6] Downtown Precise Plan, City of Mountain View, June 2019, pages 96-106
[7] Downtown Precise Plan, City of Mountain View, June 2019, page 104

3.4 Site Access

According to the Downtown Precise Plan, access to the project site should be from Church Street with vehicular access at least 50 feet from the property line along Castro Street[8]. The proposed project meets this requirement and shown in **Appendix B** (Figure B5.).

4. SITE ACCESS AND CIRCULATION

This chapter describes the evaluation of site access and circulation and identifies potential conflicts and proposed solutions for each mode of transportation.

4.1 Pedestrian Access and Circulation

Pedestrian access to the proposed project site will be facilitated by existing sidewalks and crosswalks on Castro Street and Church Street, as well as proposed internal pedestrian circulation facilities. The proposed project increases connectivity and convenience of foot traffic by providing the plaza with new walkways for pedestrians, and having adequate access to the project site from all building facades.

Open Space

The project proposes to provide a plaza at the northern section of the project site. The plaza will provide landscaping via trees and planter boxes, and seating. The plaza will be a connecting space that supports pedestrian activity to and from the project site and other downtown destinations and connects the project site for pedestrian activity between Castro Street and Pioneer Memorial Park. Pedestrian access and open space diagram is illustrated in **Appendix B** (Figure B3).

Street-Oriented Entrances

There are a total of 10 entrances to the building, including eight main entrances and two entrances to the staircases. Of the eight main entrances, three of them are fronting Castro Street, one fronting Church Street, one at the corner of Castro Street and Church Street. There are three through the Plaza and one facing the development driveway.

Crossing Conditions

All existing marked crosswalks are retained.

4.2 Bicycle Access and Circulation

The project proposes to have 11 racks onsite (22 short-term bicycle parking spaces) and 9 racks offsite within frontage (18 short-term bicycle parking spaces). These bicycle racks can be accessed from the proposed driveway. There are also long-term bicycle secured enclosures proposed at parking level P1 that

[8] Downtown Precise Plan, City of Mountain View, June 2019, page 106

can fit 16 bicycles. These bicycle enclosures are accessible from the building's elevators or stairs. **Appendix B** (Figure B4) shows the bicycle access diagram.

4.3 Vehicle Access and Circulation

In terms of external access, the project site plan (dated November 18, 2021) shows a single driveway that the proposed project would use. The driveway on Church Street serves vehicle ingress and egress which is approximately 185 feet west of the Castro Street/Church Street intersection. Vehicle access for the project is shown in **Appendix B** (Figure B5). The Church Street driveway would be approximately 30 feet wide and accommodate inbound and outbound project traffic. This driveway would provide access to the two levels of underground parking. It is anticipated that this driveway would accommodate 122 a.m. peak hour trips, 105 midday peak hour trips, and 115 p.m. peak hour trips. TJKM conducted a vehicle queuing and level of service (LOS analysis) at the project driveway on Church Street. The 95th percentile (maximum) queues were analyzed using the HCM 2000 Queue methodology contained in TRAFFIX software for the project driveways. Table 2 summarizes the 95th percentile queue lengths and LOS at the project driveways under all scenarios. Based on the level of service (LOS) analysis as shown in Table 2, this driveway would operate at LOS B during the a.m., midday, and p.m. peak hours under project conditions. In addition, the 95th percentile queueing at the outbound approach of project driveways is expected to be minimal.

Table 2. 95th Percentile Queues and Level of Service Analysis at Project Driveways

#	Study Intersections	Control	Peak Hour	Baseline plus Project Conditions			Background plus Project Conditions			Cumulative plus Project Conditions		
				Delay[1]	LOS[2]	95th Percentile Queue	Delay[1]	LOS[2]	95th Percentile Queue	Delay[1]	LOS[2]	95th Percentile Queue
1	Church Street/Project Driveway	One Way Stop	AM	10.4	B	<25	10.4	B	<25	10.7	B	<25
			MID	10.1	B	<25	10.1	B	<25	10.4	B	<25
			PM	11.3	B	<25	11.3	B	<25	11.8	B	<25

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay –Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
95th percentile queue is expressed in feet per lane
Reported values of 95th percentile Queues are for the outbound movements at the project driveways

The driveway provides access to a loading zone and trash staging area on the west side of the building, and to a two-level subterranean parking structure. The trash enclosures can be accessed by garbage trucks via Church Street. The internal circulation for the proposed underground parking garages was reviewed for issues related to queuing, safety, dead-end aisles, and parking spaces with difficult maneuvers. All of the circulation aisles will adequately accommodate two-way travel.

Service vehicles have access to the proposed development via the proposed driveway on Church Street for the loading and trash enclosure. These vehicles will circulate to the trash enclosures and the service entrance via Church Street, and exit via Church Street. Truck turning paths for large vehicles are shown in **Appendix B** (Figure B6). The internal circulation including entrance and exit paths for vehicles is illustrated in the **Appendix B** (Figure B7).

From the site plan, it appears that fire truck access will not occur to the project interior. Fire trucks would serve the site from the public street frontages, and there will be onsite fire suppression systems, wharf hydrants, etc. to provide service to the buildings and site interior per the Municipal Fire Code. Fire access plan is illustrated in **Appendix B** (Figure B8).

According to American Association of State Highway and Transportation Officials (ASSHTO)[9], the required minimum stopping sight distance for right turn vehicles with a design speed of 25 mph is 155 feet. The project driveway at Church Street has a sight distance for passenger cars for 240 feet from Castro Street/Church Street intersection. Sight distance for a right turn maneuver at the driveway is adequate.

The nearest intersection at Church Street and Castro Street is Case D1; which indicates intersections with traffic signal control (Section 9.5.3.4). At signalized intersections, the first vehicle stopped on one approach should be visible to the driver of the first vehicle stopped on each of the other approaches. Left-turning vehicles should have sufficient sight distance to select gaps in oncoming traffic and complete left turns. Apart from these sight conditions, there are generally no other approach or departure sight triangles needed for signalized intersections. These requirements are met at the intersection of Church Street and Castro Street.

4.4 Driveway Pedestrian and Vehicular Triangle of Safety

Sight lines to the pedestrian and vehicular triangle of safety was also evaluated for the proposed driveway at Church Street using the City of Mountain View's Public Works Department Standard Detail[10]. The pedestrian triangle of safety extends 25 feet from both sides of the driveway at Church Street and 25 feet from the back of sidewalk. In addition to the pedestrian triangle of safety the vehicular triangle of safety extends 15 feet from the back of sidewalk to 90 feet east and 65 feet west. Pedestrian and vehicular triangle of safety are shown in the **Appendix B** (Figure B9).

[9] A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2018, Table 9-9.
[10] Standard Detail A-22, Public Works Department, City of Mountain View.

4.5 Corner Section Visibility Area

In addition to sight triangles and sight distance, the corner/intersection visibility area was also evaluated using the City of Mountain View's Public Works Department Standard Detail[11] at the northwest corner of Castro Street and Church Street. The traffic safety visibility area extends 35 feet from the right of way on Church Street to 35 feet from the right of way on Castro Street. Sight triangles and corner visibility are shown in the **Appendix B** (Figures B10 and B11).

4.6 Emergency and Service Vehicle Access

A review of the project site plan dated November 18, 2021 appears to have adequate vehicular access for emergency vehicles and that all existing and/or newly constructed emergency facilities (e.g., hydrants) are clearly marked, unobstructed, and accessible for emergency responders. The project has incorporated an emergency and service vehicle access to the project via Church Street via a driveway. The site plan is subject to final review by the City of Mountain View to ensure compliance with all regulations set forth in the City's Fire Code and applicable emergency design measures (e.g., Standard Details and Specifications for Fire Apparatus Turnaround Access). The project does not conflict with existing and planned emergency access therefore no adverse effect to emergency and service vehicle access is expected.. A fire access plan is illustrated in **Appendix B** (Figure B8).

4.7 Loading Areas

Service vehicles and passenger loading vehicles have access to the proposed development via the proposed driveway on Church Street for the loading and trash enclosure. These vehicles will circulate to the trash enclosures and the service entrance via Church Street, and exit via Church Street. The loading area is shown in the **Appendix B** (Figure B1).

[11] Standard Detail A-23, Public Works Department, City of Mountain View.

5. MOTOR VEHICLE OPERATIONS

5.1 Signalized Intersection Level of Service (LOS)

Level of Service Analysis Methodology

LOS is a qualitative measure that describes operational conditions as they relate to the traffic stream and perceptions by motorists and passengers. The LOS generally describes these conditions in terms of such factors as speed and travel time, delays, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The operational LOS are given letter designations from A to F, with A representing the best operating conditions (free-flow) and F the worst (severely-congested flow with high delays). Intersections generally are the capacity-controlling locations with respect to traffic operations on arterial and collector streets. The LOS methodologies for roadway segments, signalized and unsignalized intersections are described in detail in **Appendix C**.

Signalized Intersections

The study intersections under traffic signal control were analyzed using the 2000 Highway Capacity Manual (HCM) Operations Methodology for signalized intersections described in Chapter 16 (HCM 2000). This methodology determines LOS based on average control delay per vehicle for the overall intersection during peak-hour intersection operating conditions. The LOS methodology is approved by VTA and adopted by the City. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Unsignalized Intersections

The study intersections under stop control (Unsignalized) were analyzed using the 2000 HCM Operations Methodology for unsignalized intersections described in Chapter 17 (HCM 2000). LOS ratings for stop-sign controlled intersections are based on the average control delay expressed in seconds per vehicle. At the side street, controlled intersections or two-way stop sign intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The weighted average delay for the entire intersections is presented for all-way stop controlled intersections.

The average control delay for both signalized and unsignalized intersections were calculated using TRAFFIX 8.0 analysis software and were correlated to a LOS designation as shown in **Appendix C**.

Roadway Segment Operations

Roadways were analyzed by comparing the daily volume to threshold volumes based on roadway type as presented in Appendix C Table IV.C-3. Daily roadway capacity is an indicator used to evaluate roadway segment operations at the General Plan planning-level. This daily analysis approach is consistent with the level of planning detail addressed in a General Plan where specific development details and locations are

not typically known. This approach helps to evaluate and determine the roadway cross-sections (e.g., two, four or six travel lanes) rather than detailed operational issues at the intersection level, which are dependent on the number of turn lanes, signal timing, adjacent driveway operations, and development details and locations that are not typically known at the time of a program level general plan analysis. In addition to being the most feasible level of analysis for program level general plan environmental evaluation, daily operations better indicate the use of a roadway over a longer period of time outside the traditional peak hours and account for the nonpeak times when roadways are substantially underutilized. The LOS methodology for roadway segments is described in detail in **Appendix C**.

5.2 Adverse Intersection Operation Effects

According to the City of Mountain View, an adverse effect on intersection operations occurs when the analysis demonstrates that a project would cause the operational conditions at a study intersection to fall below LOS D with the addition of project vehicle trips when comparing either existing conditions (baseline) to project conditions or background conditions (baseline) to project conditions.
For CMP intersections, an adverse effect on intersection operations occurs when the analysis demonstrates that a project would cause the operations at a CMP intersection to degrade to LOS F; or the addition of traffic causes increases in critical delay by four or more seconds and critical volume/capacity to increase 0.010 (one percent) or more.
For an intersection operating at LOS E or F under baseline conditions, an adverse effect is defined as:

- An increase in average critical delay by 4.0 seconds or more AND an increase in the critical volume-to-capacity (V/C) ratio of 0.010 or more; OR
- A decrease in average critical delay AND an increase in the critical V/C ratio of 0.010 or more.

Addressing Adverse Effects on Intersection Operations

There are three possible approaches to address adverse effects at signalized intersections:

- Reduce project vehicle-trips to eliminate the adverse effect and bring the intersection back to the background or baseline condition. The Santa Clara Countywide VMT Evaluation Tool (VMT Tool) can be used to select measures that would achieve the reduction of vehicle-trips.
- Construct improvements to the affected intersection or other roadway segments of the citywide transportation system to improve operations provided the proposed improvements are consistent with Mountain View plans and policies and do not result in other impacts or adverse effects.
- Construct multi-modal improvements to increase transportation capacity for pedestrian, bicycle, and transit modes, and/or improve access to transit.

5.3 Existing Conditions

Study Intersections

TJKM evaluated traffic conditions at 16 study intersections during the a.m., midday, and p.m. peak hours for a typical weekday. The study intersections were selected in consultation with the City of Mountain View staff. The peak periods observed were between 7:00 a.m.-10:00 a.m., 11:30 a.m.-1:30 p.m., and 4:00 p.m.-7:00 p.m. The study intersections and associated traffic controls are as follows:

1. Castro Street/El Camino Real (Signal)
2. Castro Street/High School Way-Yosemite Avenue (Unsignalized)
3. Castro Street/Church Street (Signal)
4. Castro Street/Mercy Street (Signal)
5. Castro Street/California Street (Signal)
6. Castro Street/Villa Street (Signal)
7. Castro Street/Central Expressway*(Signal)
8. Hope Street/Church Street (Unsignalized)
9. Franklin Street/Church Street (Unsignalized)
10. Shoreline Boulevard/El Camino Real*(Signal)
11. Shoreline Boulevard/Latham Street-Church Street (Signal)
12. Shoreline Boulevard/California Street (Signal)
13. Villa Street/Hope Street (Unsignalized)
14. Evelyn Avenue/Hope Street (Signal)
15. Church Street/Calderon Avenue (Unsignalized)
16. Villa Street/Shoreline Boulevard (Signal)

*Congestion Management Program (CMP) Intersection

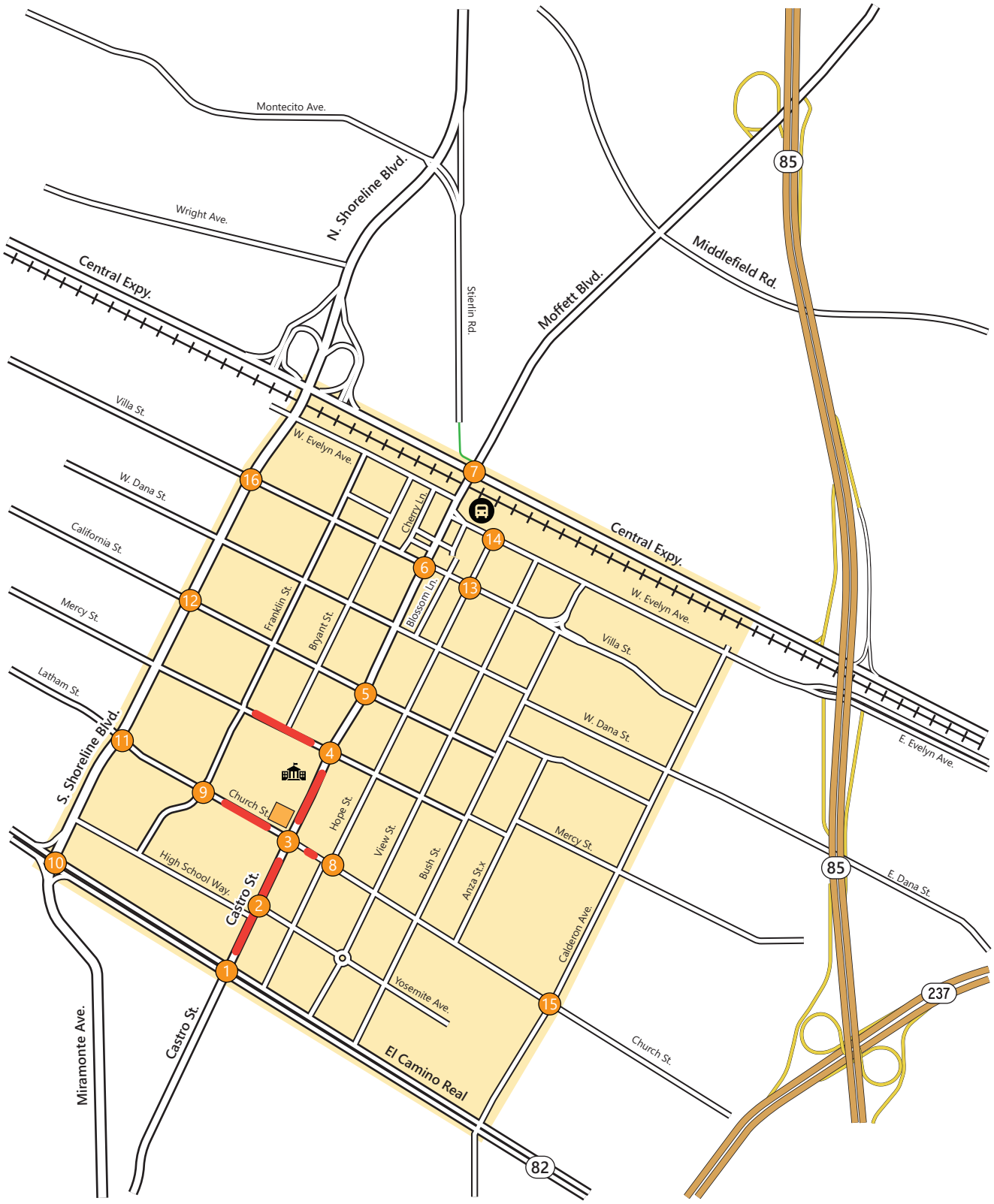
Roadway Segments

TJKM also evaluated traffic conditions on five roadway segments that the proposed project may impact. The roadway segments analyzed were selected in consultation with City of Mountain View staff and are as follows:

1. Castro Street, between Church Street and El Camino Real
2. Castro Street, between Church Street and Mercy Street
3. Church Street, between Franklin Street and Castro Street
4. Church Street, between Castro Street and Hope Street
5. Mercy Street, between Castro Street and Franklin Street

Figure 7 illustrates the study intersections and roadway segments.

Figure 7. Study Intersections and Roadway Segments



Legend

- Project Site
- Study Area
- Mountain View Transit Center
- Railway
- Mountain View Civic Center
- Study Intersection
- Study Roadway Segment

N

Analysis Scenarios

This study addresses the following six traffic scenarios:

- **Baseline Conditions** – This scenario evaluates the study intersections based on baseline traffic volumes, existing lane geometry, and traffic controls.
- **Baseline plus Project Conditions** – This scenario is identical to Baseline Conditions, but with the addition of traffic from the proposed project.
- **Background (Baseline plus Approved and Planned Development Projects) Conditions** – This scenario is similar to Baseline Conditions, but with the addition of traffic from approved and planned developments within the vicinity of the proposed project.
- **Background plus Project Conditions** – This scenario is identical to Background Conditions, but with the addition of traffic from the proposed project.
- **Cumulative Conditions** – This scenario is similar to the Background Conditions but with the projected growth rate of two percent per year for five years, which was applied to baseline traffic volumes, and then background project trips were added, in accordance with standard Mountain View procedures.
- **Cumulative plus Project Conditions** – This scenario is identical to Cumulative Conditions, but with the addition of traffic from the proposed project.

Data Collection

The existing operations of the study intersections were evaluated for the highest one-hour volumes during weekday morning, midday and evening peak periods. The pre-COVID intersection counts are available for 11 of the 16 intersections[12]. Vehicles, bicycles, and pedestrians counts were collected in 2018 or 2019 and will be used for conducting level of service (LOS) analysis. TJKM applied an annual growth factor of one percent per year for 2018 counts to reflect 2019 conditions. TJKM used the traffic counts to obtain turning movement counts for vehicles, bicycles, and pedestrians during the weekday a.m. peak period (7:00 a.m.-10:00 a.m.), midday peak period (11:30 a.m.-1:30 p.m.) and p.m. peak period (4:00 p.m.-7:00 p.m.) at the study intersections. At the five locations where recent counts were unavailable, and at one baseline intersection that had been previously counted, new counts were collected. TJKM followed the City of Mountain View data collection guidelines to determine an "adjustment rate" that would estimate pre-COVID volumes. These adjustment rates were applied to all volume data including pedestrians and bicyclists at the five study intersections. The newly collected traffic volumes are contained in **Appendix D**.

[12] Castro Bikeway Feasibility Study, Lots 4 & 8 Hope Street Mixed-Use Development TIS, Mountain View Transit Center Grade Separation and Access Project

Turning Movement Counts

TJKM collected the peak period turning movement counts on Thursday, February 4, 2021 at 6 study intersections using video cameras installed on the side streets:

- Castro Street/Church Street
- Hope Street / Church Street
- Franklin Street/Church Street
- Shoreline Boulevard/El Camino Real
- Shoreline Boulevard/Latham Street-Church Street
- Church Street/Calderon Avenue

TJKM conducted the counts in 15-minute intervals during the weekday a.m. peak period (7:00 to 9:00 a.m.), midday peak period (11:30 a.m. to 1:30 p.m.) and p.m. peak period (4:00 to 6:00 p.m.) at the study intersections. Data collection at each study intersection consists of three primary components: vehicles, bicycles, and pedestrians.

Average Daily Traffic (ADT)

As part of the analysis, TJKM collected 24-hour bi-directional traffic volume tube counts on Thursday, February 4, 2021 and Tuesday, February 9, 2021 at the following 5 locations:

- Castro Street, between Church Street and El Camino Real
- Castro Street, between Church Street and Mercy Street
- Church Street, between Franklin Street and Castro Street
- Church Street, between Castro Street and Hope Street
- Mercy Street, between Castro Street and Franklin Street

Proposed Methodology for Baseline 2021 Conditions

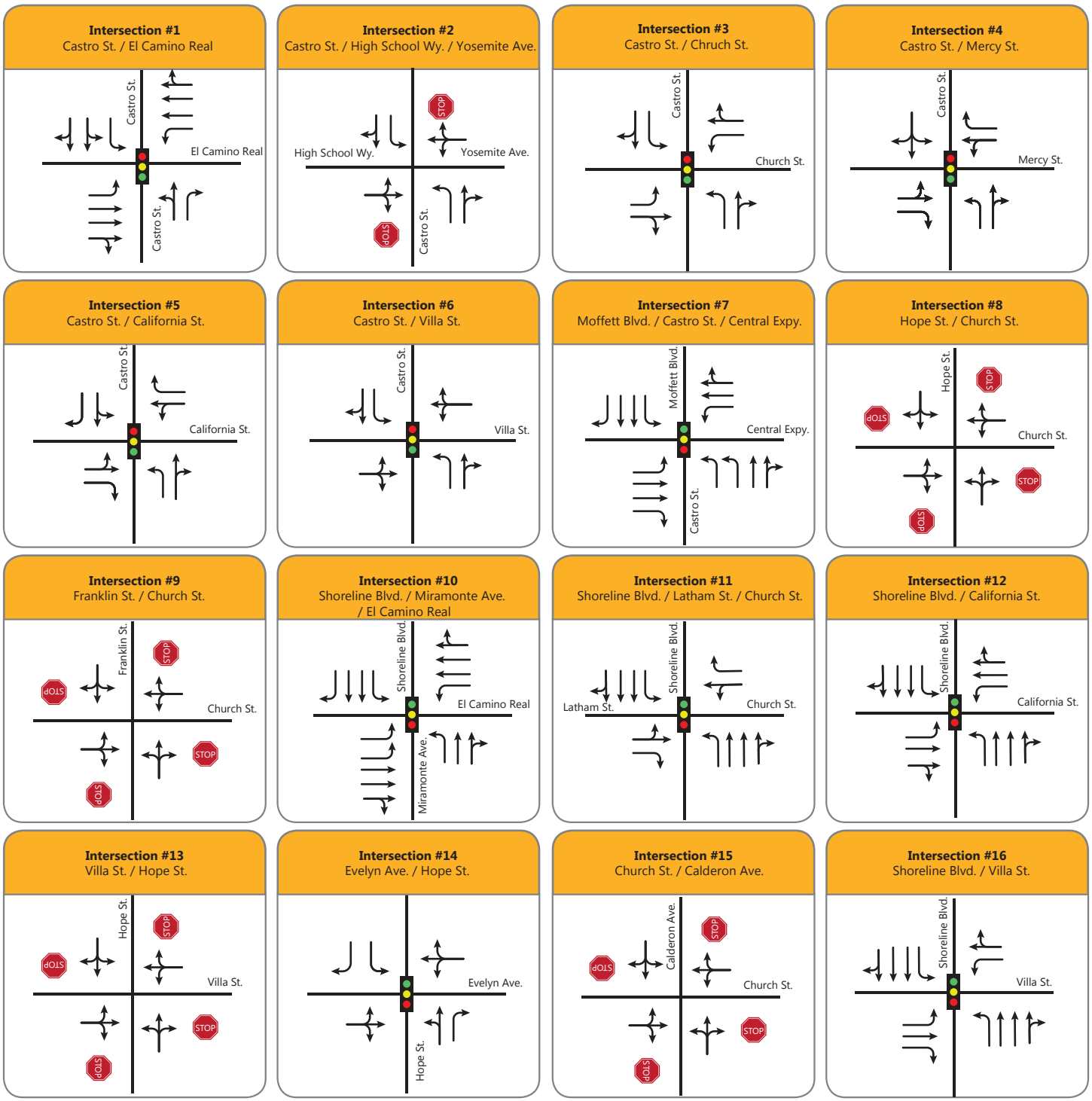
During the COVID-19 pandemic, traffic count data have been likely subject to unstable conditions and undercounting. During the pandemic, the number of vehicle miles traveled along California's highways[13] and local arterials has significantly decreased. This is due to day-to-day activities and businesses operating under various restrictions, including shelter-in-place and complete business shutdowns. TJKM used the following methodology for data collection and an estimation of an appropriate adjustment rate that was applied only to the five intersections collected in 2021:

- For this project, the **Castro Street/Church Street intersection** was selected as a "Baseline Intersection" because of the availability of pre-COVID (2019) counts and its close proximity to the project site.

[13] State of California, Department of Transportation – Traffic Operations Policy Directive

- TJKM collected new turning movement count data at the 6 study intersections including the baseline intersection in February 2021.
- TJKM compared the 2019 counts with 2021 counts for the baseline intersection to determine an adjustment factor to apply to the other intersections and roadway segments. Based on the comparison, the adjustment factor for turning movement counts is 2.33 in the a.m., 1.61 in the midday, and 2.18 during the p.m. peak hour. These adjustment rates are to be applied to all volume data including pedestrians and bicyclists at the 5 study intersections.
- For the "Baseline Segment", TJKM used the roadway segment of Castro Street, between Dana Street and Villa Street, where 2018 counts were available, and this segment is closer to the project site. TJKM compared the 2018 counts and 2021 counts to establish an adjustment factor of 1.42 for the northbound/eastbound directions, and 1.70 for the southbound/westbound directions on all study segments. The estimated rates are to be applied to all volume data at 5 roadway segments.

The adjusted results are to be used as the baseline 2021 conditions in the traffic analysis. **Figure 8** illustrates the existing lane geometry, and traffic controls at the study intersections. **Figure 9** illustrates the baseline (2021) a.m., midday and p.m. peak hour pedestrian and bicycle volumes at the study intersections. **Figure 10** illustrates the baseline (2021) a.m., midday and p.m. peak hour vehicle turning movement volumes at the study intersections.



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Traffic Signal

STOP Stop Control

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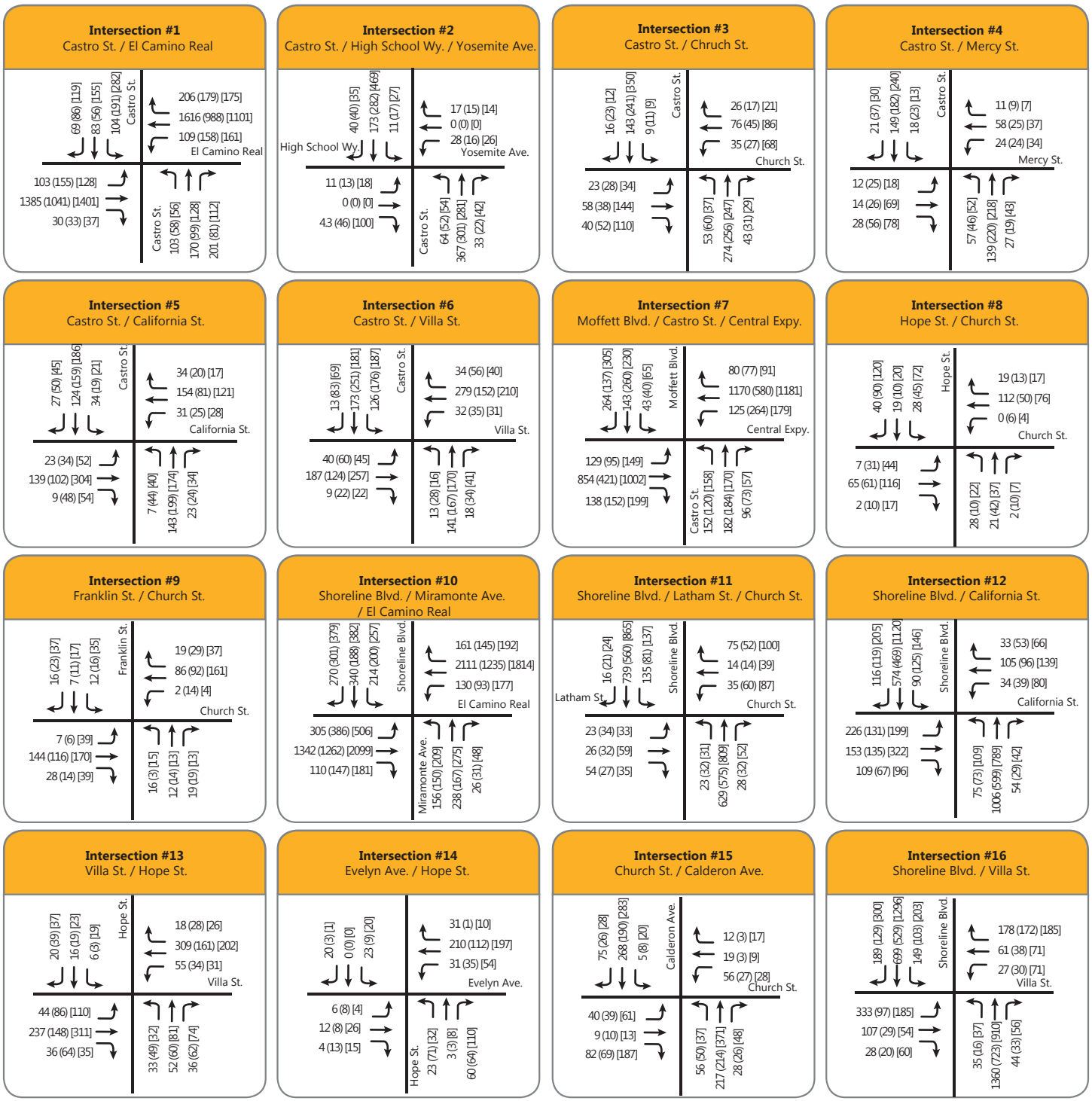
XX(XX)[XX] AM(MID)[PM] Peak Hour Ped/Bike Volumes

Pedestrian Crossing Volume

Bicycle Turn Movement Volume

Figure 10. Baseline Conditions Peak Hour Traffic Volumes



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XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Intersection Level of Service Analysis – Baseline Conditions

Existing intersection lane configurations, signal timings, and baseline turning movement volumes are used to calculate the level of service for the study intersections during each peak hour. The peak hour factor of 1.00 was used to all study intersections for the baseline conditions analysis. The results of the LOS analysis using the TRAFFIX software program for Baseline Conditions are summarized in **Table 3**.

The Baseline Conditions LOS analysis for purpose of this MTA is based on an isolated intersection analysis of traffic volumes, rather than analysis of the corridor as a whole. The standalone LOS results sometimes can be misleading if a corridor operates under forced flow, or congested, traffic conditions. Forced flow traffic operations can reduce overall vehicle throughput per hour at intersections, leading to LOS analysis results that suggest there is less corridor congestion than is actually occurring under existing field conditions. Where there is known congestion, additional analysis of field conditions becomes necessary in order to review and evaluate the extent of forced flow operations. Under the Baseline Conditions scenario, all of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours. LOS worksheets are provided in **Appendix E**.

Table 3. Intersection Level of Service Analysis – Baseline Conditions

#	Study Intersections	Control	Peak Hour	Baseline Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	28.9	C	0.680	30.5
			MID	31.1	C	0.519	32.9
			PM	33.1	C	0.639	35.9
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	15.7	C	0.000	0.000
			MID	14.6	B	0.000	0.000
			PM	23.0	C	0.000	0.000
3	Castro Street/Church Street	Signalized	AM	29.5	C	0.279	24.3
			MID	28.0	C	0.254	24.1
			PM	33.8	C	0.442	32.6
4	Castro Street/Mercy Street	Signalized	AM	7.8	A	0.167	8.4
			MID	7.2	A	0.196	6.5
			PM	8.2	A	0.225	7.4
5	Castro Street/California Street	Signalized	AM	24.3	C	0.306	24.5
			MID	20.7	C	0.276	22.7
			PM	24.3	C	0.424	23.7
6	Castro Street/Villa Street	Signalized	AM	17.5	B	0.397	18.1
			MID	18.5	B	0.396	19.5
			PM	20.9	C	0.468	21.6

#	Study Intersections	Control	Peak Hour	Baseline Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
7	Castro Street/Central Expressway*	Signalized	AM	47.1	D	0.685	50.1
			MID	50.4	D	0.426	55.8
			PM	50.2	D	0.715	53.0
8	Hope Street/Church Street	All-Way Stop	AM	7.8	A	0.157	7.8
			MID	7.8	A	0.168	7.8
			PM	8.7	A	0.268	8.7
9	Franklin Street/Church Street	All-Way Stop	AM	7.9	A	0.208	7.9
			MID	7.8	A	0.161	7.8
			PM	8.9	A	0.309	8.9
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	44.6	D	0.796	48.2
			MID	39.6	D	0.603	41.7
			PM	63.9	E	0.995	67.1
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.4	C	0.223	14.1
			MID	25.6	C	0.232	22.9
			PM	26.7	C	0.362	27.3
12	Shoreline Boulevard/California Street	Signalized	AM	34.7	C	0.464	33.3
			MID	36.6	D	0.339	37.0
			PM	34.7	C	0.542	32.2
13	Villa Street/Hope Street	All-Way Stop	AM	11.3	B	0.513	11.3
			MID	10.0	A	0.402	10.0
			PM	13.3	B	0.65	13.3
14	Evelyn Avenue/Hope Street	Signalized	AM	14.2	B	0.226	14.3
			MID	19.0	B	0.161	21.5
			PM	14.6	B	0.216	16.0
15	Church Street/Calderon Avenue	All-Way Stop	AM	10.9	B	0.473	10.9
			MID	9.5	A	0.372	9.5
			PM	14.9	B	0.681	14.9
16	Villa Street/Shoreline Boulevard	Signalized	AM	36.4	D	0.742	39.7
			MID	30.0	C	0.356	29.5
			PM	29.7	C	0.596	26.0

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Critical volume to capacity ratio
4. Critical movement delay
*CMP intersections with LOS E threshold
Non-CMP intersections with LOS D threshold

Roadway Segment Level of Service Analysis – Baseline Conditions

The analysis methodology used to analyze roadway facilities is described in the LOS analysis methodology section. LOS was determined by comparing baseline traffic volumes for selected roadway segments with daily traffic capacities. **Table 4** below summarizes the study roadway segment operations under baseline conditions and includes facility type; maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS B or better.

Table 4. Roadway Segment Level of Service Analysis – Baseline Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	7,547	B
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	5,359	B
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	3,214	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,097	A
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	1,912	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

5.4 Background Conditions

This scenario is similar to Baseline Conditions, but with the addition of traffic from approved and planned developments located within the immediate vicinity of the project. City staff provided the list of approved but not constructed projects. Approved trip inventory (ATI) volumes were added to the Baseline Conditions volumes to project the peak hour turning movements at the study intersections under Background Conditions. The ATI sheets are included in **Appendix E**.

Approved Projects and Planned Developments

Approved and planned developments located within the immediate vicinity of the project are:

Projects under review located within the immediate vicinity of the project are:

- 325-339 Franklin Street – 15 residential units
- 756 California Street – 7,664 sf commercial use
- 555 West Middlefield Road – 341 residential units
- 1919-1933 Gamel Way and 574 Escuela Avenue – 121 residential units
- 294 -296 Tyrella – 11 residential units
- 198 Easy Street – 5 residential units
- 676 Dana Street – 20,166 sf mixed use
- 881 Castro Street – 6,300 sf of commercial use and 24 residential units
- 601 Escuela Avenue – 25 residential units
- 747 West Dana Street – 1,541 sf of retail and 9,628 sf office use

Approved developments located within the immediate vicinity of the project which are not completed are:

- 777 West Middlefield Road – 716 residential units
- 759 West Middlefield Road – 75 residential units
- Hope Street Lots (City Lots 4 and 8) – 120,000 sf commercial use
- 1411-1495 West El Camino Real – 53 residential units
- 701 West Evelyn Avenue – 6,500 sf retail and 28,090 sf office
- 1958 Latham Street – 6 residential units
- 231-235 Hope Street – 9 unit residential units
- 855-1023 West El Camino Real – Senior care facility
- 1313 and 1347 West El Camino Real – 24 residential units

The level of service analysis has taken into account the City of Mountain View Transit Center Study and the planned closure of the intersection of Castro Street and Central Expressway under the Background and Cumulative conditions. Figures 11 A & B show the plan view of the Transit Center Master Plan. In addition to this, the Villa Street/Hope Street intersection would be signalized in the future and signal improvements will be made at the intersection of Castro Street/Villa Street.

The City of Mountain View embarked on the Transit Center Master Plan to establish a vision that not only expands and integrates the various transportation elements, but creates a landmark facility that supports a thriving downtown for the foreseeable future. Employment growth in Mountain View and surrounding cities has been paralleled by growth in Caltrain service. In coming decades, use of the facility is expected to double, to over 20,000 distinct trips per weekday. Improving the Transit Center's facilities, and access to

and from them, offers a unique opportunity for Mountain View to enhance mobility for its residents and support the growth of sustainable – i.e. non-single-occupant auto -- transportation modes. The existing transit facility and the adjacent Castro Street at-grade rail crossing have been overloaded by demand for use of the facility. The existing at-grade rail crossing results in significant congestion and delay for motorists, cyclists and pedestrians. It also presents a barrier for hundreds of pedestrians and bicyclists attempting to access the Transit Center, Downtown Mountain View, Moffett Boulevard, and points north. To address this problem, the Master Plan recommends re-directing Castro Street to Evelyn Avenue, connecting to Shoreline Boulevard. This plan also provides a grade-separated pedestrian and bicycle undercrossing of the rail tracks and Central Expressway, and a more direct and seamless connection for these travel modes to Moffett Boulevard, neighborhoods and employment centers to the north, the Transit Center, and Downtown. The schematic below illustrates the proposed changes as per the City of Mountain View Transit Center study.

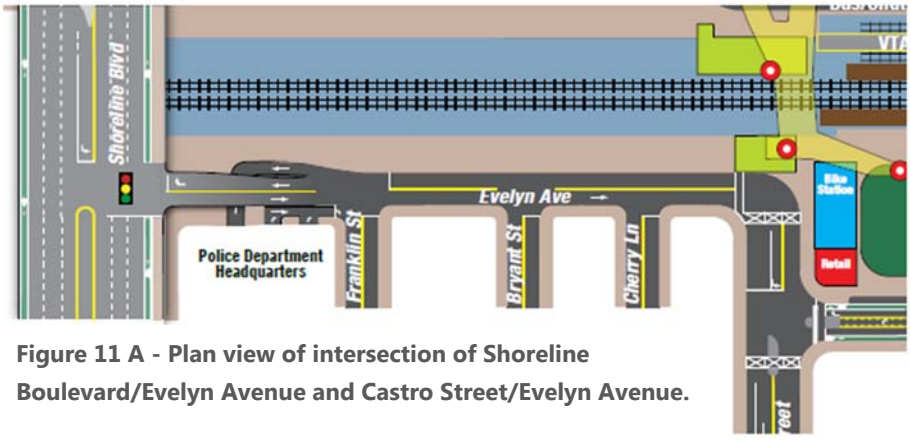


Figure 11 A - Plan view of intersection of Shoreline Boulevard/Evelyn Avenue and Castro Street/Evelyn Avenue.

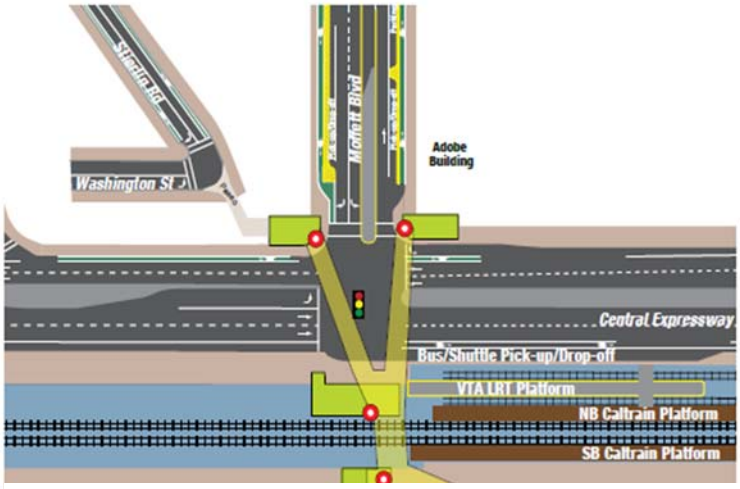


Figure 11 B- Plan view of intersection of Moffett Boulevard/Central Expressway

Figure 12 shows background conditions, lane geometry and traffic controls at all of the study intersections. **Figure 13** shows projected turning movement volumes at all of the study intersections under Background Conditions for a.m., midday and p.m. peak hours.

Intersections Level of Service Analysis – Background Conditions

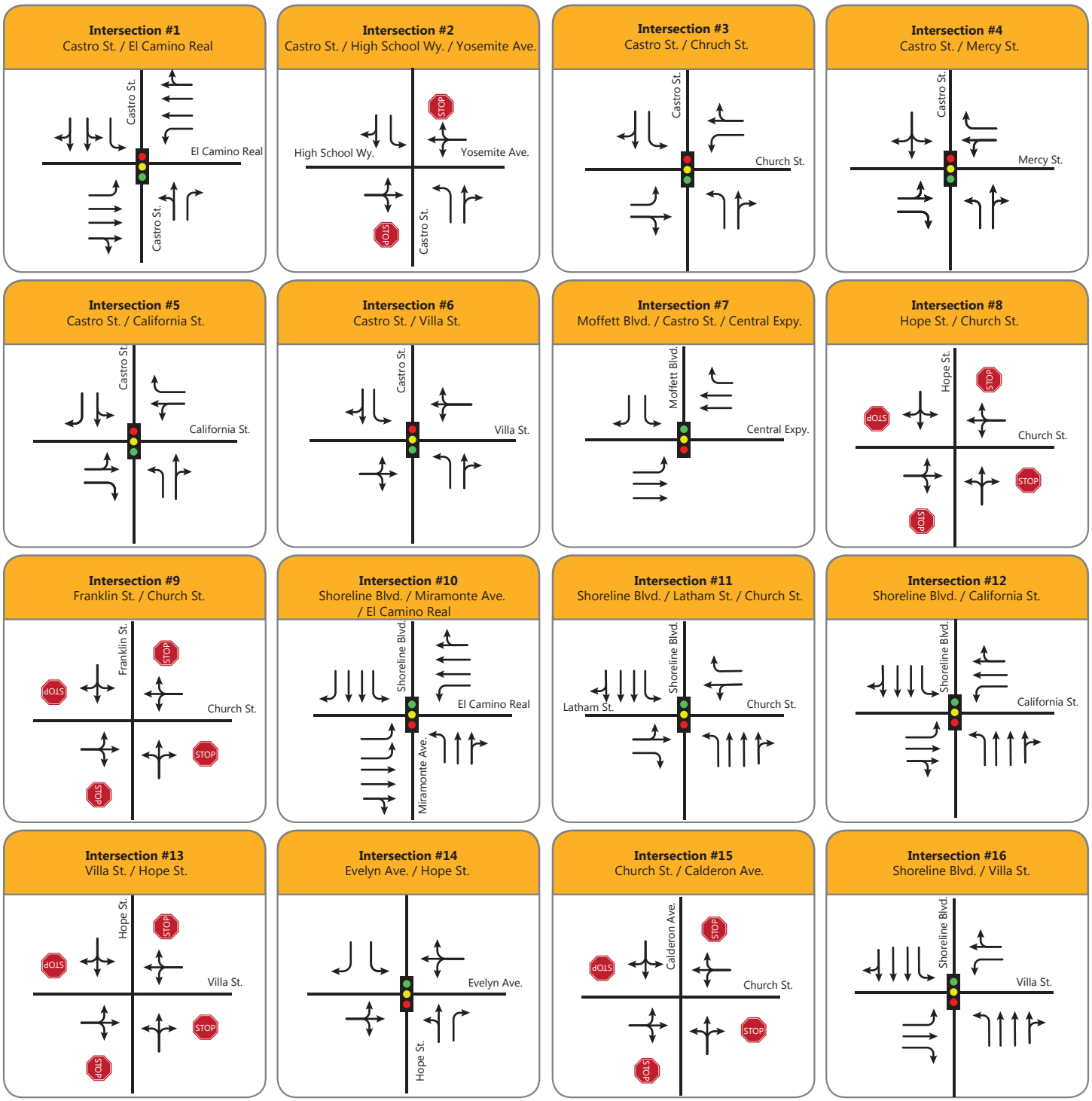
The intersection LOS analysis results for Background Conditions are summarized in **Table 5**. Detailed calculation sheets for Background Conditions (Baseline plus Approved and Planned Development Projects) are contained in **Appendix E**. All of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours under this scenario except at the intersection of Castro Street/Central Expressway, which operates at LOS F during p.m. peak hour.

Table 5. Intersection Level of Service Analysis – Background Conditions

#	Study Intersections	Control	Peak Hour	Background Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	32.0	C	0.744	35.2
			MID	33.7	C	0.584	36.3
			PM	36.4	D	0.686	38.5
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	19.0	C	-	-
			MID	17.1	C	-	-
			PM	30.7	D	-	-
3	Castro Street/Church Street	Signalized	AM	27.4	C	0.333	22.5
			MID	25.7	C	0.307	22.2
			PM	32.7	C	0.495	32.2
4	Castro Street/Mercy Street	Signalized	AM	6.8	A	0.207	7.5
			MID	6.4	A	0.240	5.6
			PM	7.5	A	0.28	6.6
5	Castro Street/California Street	Signalized	AM	23.2	C	0.363	24.6
			MID	19.1	B	0.336	21.6
			PM	24.3	C	0.484	24.8
6	Castro Street/Villa Street	Signalized	AM	20.4	C	0.497	20.7
			MID	19.7	B	0.509	21.0
			PM	21.4	C	0.565	22.2
7	Castro Street/Central Expressway*	Signalized	AM	65.0	E	0.980	85.4
			MID	52.6	D	0.798	62.6
			PM	**80.5**	**F**	**1.061**	**109.0**
8	Hope Street/Church Street	All-Way Stop	AM	7.8	A	0.157	7.8
			MID	7.8	A	0.168	7.8
			PM	8.7	A	0.268	8.7
9	Franklin Street/Church Street		AM	7.9	A	0.208	7.9

#	Study Intersections	Control	Peak Hour	Background Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
		All-Way Stop	MID	7.8	A	0.161	7.8
			PM	8.9	A	0.309	8.9
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	45.7	D	0.807	50.4
			MID	39.8	D	0.614	42.2
			PM	63.7	E	0.865	59.9
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.5	C	0.227	14.1
			MID	25.5	C	0.233	22.8
			PM	26.7	C	0.364	27.2
12	Shoreline Boulevard/California Street	Signalized	AM	34.7	C	0.466	33.4
			MID	36.6	D	0.342	37.0
			PM	34.7	C	0.545	32.2
13	Villa Street/Hope Street	All-Way Stop	AM	14.0	B	0.612	14.0
			MID	11.7	B	0.543	11.7
			PM	17.9	C	0.787	17.9
14	Evelyn Avenue/Hope Street	Signalized	AM	16.3	B	0.254	16.8
			MID	20.3	C	0.186	23.0
			PM	16.6	B	0.241	18.7
15	Church Street/Calderon Avenue	All-Way Stop	AM	10.9	B	0.473	10.9
			MID	9.5	A	0.372	9.5
			PM	14.9	B	0.681	14.9
16	Villa Street/Shoreline Boulevard	Signalized	AM	36.9	D	0.755	40.7
			MID	30.3	C	0.368	30.2
			PM	30.2	C	0.604	26.4

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Critical volume to capacity ratio
4. Critical movement delay
*CMP intersections with LOS E threshold. Assumed closure of Castro Street at the tracks and no through movements at this intersection
Non-CMP intersections with LOS D threshold



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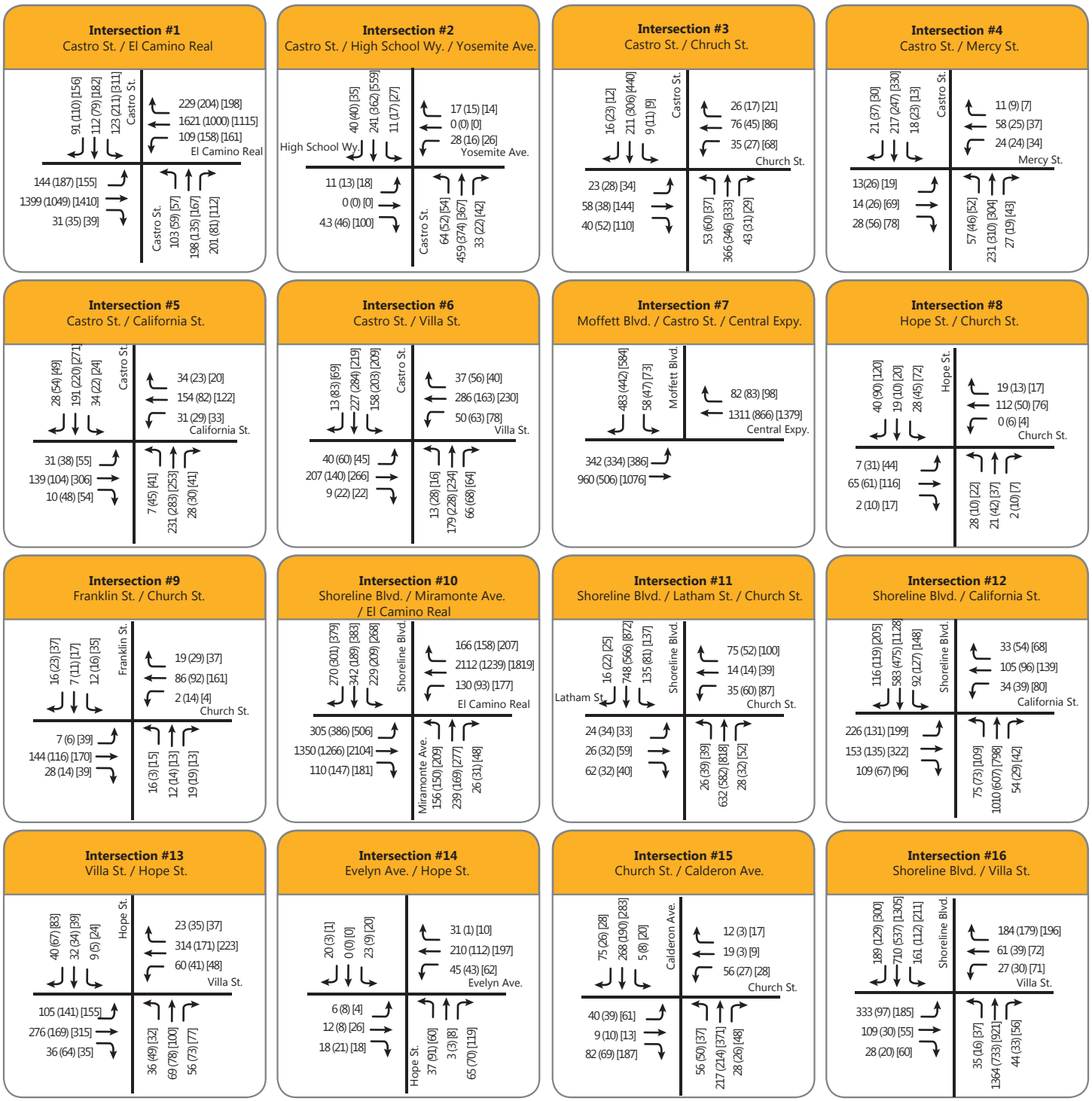
Traffic Signal

STOP Stop Control

N



Legend

XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Roadway Segment Level of Service Analysis – Background Conditions

Table 6 below summarizes the study roadway segment operations under Background Conditions and includes facility type, maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS B or better.

Table 6. Roadway Segment Level of Service Analysis – Background Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	9,267	B
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	7,039	B
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	3,214	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,097	A
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	1,912	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

5.5 Project Conditions

The impacts of the proposed project on the transportation system are discussed in this chapter. First, the method used to estimate the amount of traffic generated by the project is described. Then, the results of the level of service calculations for Baseline plus Project Conditions are presented. (Baseline plus Project Conditions are defined as baseline conditions plus traffic generated by the proposed project). A comparison of intersections under Baseline plus Project Conditions and Baseline Conditions is presented and the impacts of the project on the study intersections are discussed.

The amount of traffic added to the roadway system by the proposed development is estimated using a three-step process.

- Trip Generation – Estimates the amount of traffic added to the roadway network,
- Trip Distribution – Estimates the direction of travel to and from the project site,
- Trip Assignment – The new trips are assigned to specific street segments and intersection turning movements.

Project Trip Generation

TJKM developed estimated project trip generation for the proposed project based on published trip generation rates from the Institute of Transportation Engineers' (ITE) publication *Trip Generation (10th Edition)*. TJKM applied trip discounts to the proposed project trip generation that are consistent with the Valley Transportation Authority (VTA) Traffic Analysis Guidelines, for retail pass-by and proximity to transit facilities.

TJKM used published trip rates for General Office Building (ITE Code 710) and Shopping Center (ITE Code 820) for this project, as this land use most closely matches the trip characteristics of the proposed mixed use development. For purposes of forecasting net peak hour trips, TJKM applied a two percent trip reduction factor for employment near bus stops, and a 30 percent trip reduction factor for pass-by trips for retail land uses as per VTA TIA guidelines.

Table 7 shows the trips expected to be generated by the proposed project, as well as the net increase in trips in comparison to the existing land use. The proposed project is expected to generate approximately 122 weekday a.m. peak hour trips (103 inbound trips, 19 outbound trips), 115 midday peak hour trips (22 inbound trips, 93 outbound trips) and 126 weekday p.m. peak hour trips (26 inbound trips, 100 outbound trips).

At the existing site (Wells Fargo Bank), traffic volumes were not collected due to COVID-19 pandemic-induced changes in traffic conditions. Alternatively, General Office Building (ITE Code 710) was used for estimation based on the existing 9,228 square foot building footprint. As shown in **Table 7**, the existing

land use was estimated to generate 103 weekday daily trips, 10 midday peak hour trips, and 12 weekday p.m. peak hour trips. Note that the trip discounts were not applied to retail in the a.m. peak hour because the proposed retail use is a Wells Fargo Bank and their normal lobby (business) hours (9 a.m. to 5 p.m.) do not fall within the study a.m. peak period.

Table 7. Project Trip Generation

Land Use & ITE Code	Building Area	Units	Daily		AM Peak						Midday Peak*						PM Peak					
			Rate	Trips	Rate	In %	Out %	In	Out	Total	Rate	In %	Out %	In	Out	Total	Rate	In %	Out %	In	Out	Total
Proposed Land Use																						
General Office Building (ITE Code 710)[1]	97.693	k.s.f	*10.62*	1,037	*1.21*	*86*	*14*	101	17	118	*0.97*	*14*	*86*	13	82	95	*1.14*	*16*	*84*	18	93	111
Reduction : Office Land Use - Employment near a Major Bus Stop, 2%[2]				*-21*				*-2*	*-1*	*-3*				*0*	*-2*	*-2*				*0*	*-2*	*-2*
Retail (ITE Code 820)[3]	6.500	k.s.f	*37.75*	245	*0.94*	*62*	*38*	4	3	7	*3.24*	*41*	*59*	9	13	22	*3.81*	*48*	*52*	12	13	25
Reduction : Retail Land Use Peak Hour Pass by Trip Reduction (as per VTA guidelines) , 30%[4]			**N/A**		**N/A**						**N/A**									-4	-4	-8
Proposed Trips (A)				**1,261**				**103**	**19**	**122**				**22**	**93**	**115**				**26**	**100**	**126**
Existing Land Use																						
General Office Building (ITE Code 710)[1]	9.228	k.s.f	*11.40*	105				0	0	0	*1.09*	*14*	*86*	1	9	10	*1.28*	*16*	*84*	2	10	12
Reduction : Office Land Use - Employment near a Major Bus Stop, 2%[2, 5]				-2				0	0	0				0	0	0				0	0	0
Existing Trips (B)				**103**				**0**	**0**	**0**				**1**	**9**	**10**				**2**	**10**	**12**
Total Trips Increased (A)-(B)				**1,158**				**103**	**19**	**122**				**21**	**84**	**105**				**24**	**90**	**114**

Notes: Source - ITE Trip Generation Manual, 10th Edition (2017)

[1] Fitted Curve Equations for Office Land Use Daily: Ln(T)= 0.97Ln(X)+2.50; AM Peak: T = 0.94(X) + 26.49; PM Peak: Ln(T) = 0.95 Ln(X) + 0.36. Where T = Average Vehicle Trip Ends; X = Land Use Size in ksf (One Thousand Square Feet).

[2] Employment sites where the walking distance from the front door of the development to the major bus stop is 2,000 feet or less may reduce their trip generation volumes by two percent (2%) (Ref: Santa Clara Valley Transportation Authority October 2014, Chapter 8.2.1.3)

[3] TJKM assumed Retail (ITE Land Use Code 820). Vehicle trip rates are based upon number of thousand square feet gross leasable area.

[4] Pass-by trip reduction is 30% for Retail as per VTA guidelines.

Existing land use i.e Wells Fargo Bank, ITE code used as 710.Trip credits were not taken during a.m. peak hour based on operational hours.

[5] Trip reduction for middday and p.m. peak hour trips are less than one trip. Hence zeros are applied.

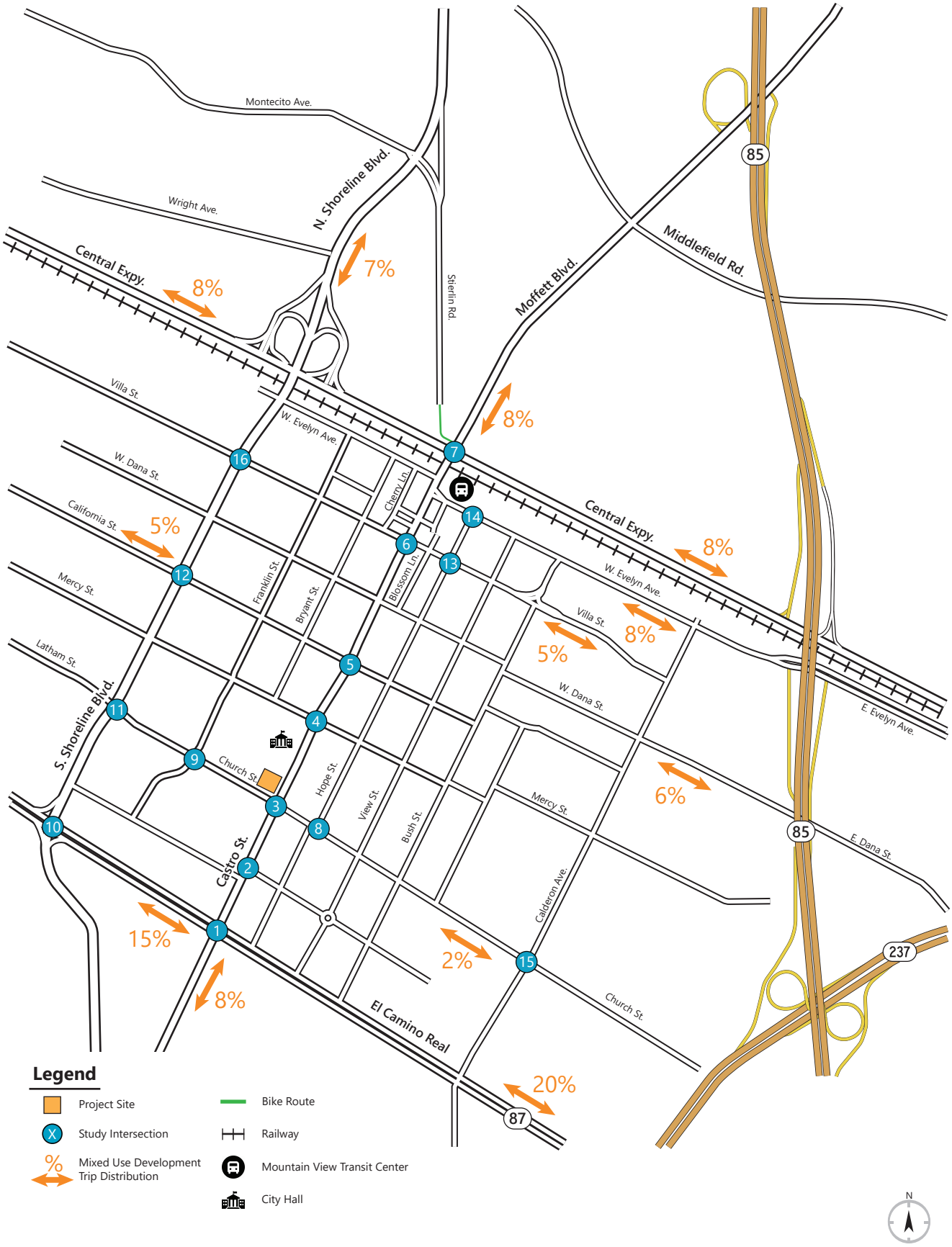
*ITE Manual does not include midday peak rates, TJKM estimated a midday peak rate as a percentage of the Midday Peak Hour Volume to the PM Peak Hour Volume. (85 percent of PM Peak Hour Volume)

Project Trip Distribution and Assignment

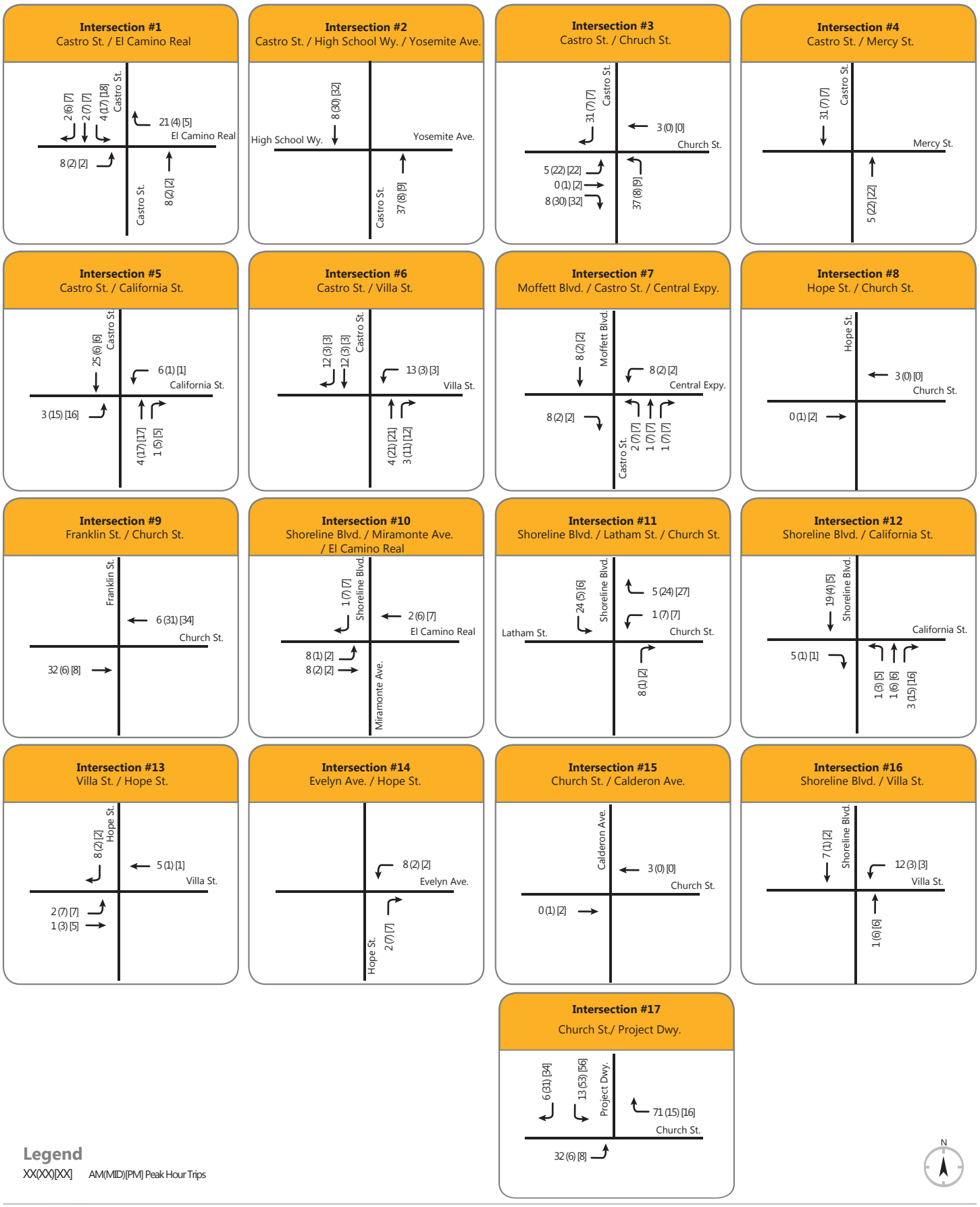
Trip distribution is a process of developing study assumptions that estimate the direction of travel vehicular trips will arrive to and depart from the study site. It also estimates the specific streets and turning movements at study intersections for project-related or site traffic. Trip distribution assumptions for the proposed project are developed based on existing travel patterns and knowledge of the study area.

Figure 14 illustrates the trip distribution percentages developed for the proposed mixed-use development project and **Figures 15** illustrates the trip assignment project volumes developed for the proposed project. The assigned project trips were then added to traffic volumes under baseline conditions to generate Baseline plus Project Conditions traffic volumes.

Figure 14. Trip Distribution



TJKM


Intersection #1
Castro St. / El Camino Real
2 (6) [7]
2 (7) [7]
4 (17) [18]
Castro St.
21 (4) [5]
El Camino Real
8 (2) [2]
8 (2) [2]
Castro St.
Intersection #2
Castro St. / High School Wy. / Yosemite Ave.
8 (30) [32]
High School Wy.
Yosemite Ave.
Castro St.
37 (8) [9]
Intersection #3
Castro St. / Chruch St.
31 (7) [7]
Castro St.
3 (0) [0]
Church St.
5 (22) [22]
0 (1) [2]
8 (30) [32]
37 (8) [9]
Intersection #4
Castro St. / Mercy St.
31 (7) [7]
Castro St.
Mercy St.
5 (22) [22]
Intersection #5
Castro St. / California St.
25 (6) [6]
Castro St.
6 (1) [1]
California St.
3 (15) [16]
4 (17) [17]
1 (5) [5]
Intersection #6
Castro St. / Villa St.
12 (3) [3]
12 (3) [3]
Castro St.
13 (3) [3]
Villa St.
4 (21) [21]
3 (11) [12]
Intersection #7
Moffett Blvd. / Castro St. / Central Expy.
8 (2) [2]
Moffett Blvd.
8 (2) [2]
Central Expy.
8 (2) [2]
Castro St.
2 (7) [7]
1 (7) [7]
1 (7) [7]
Intersection #8
Hope St. / Church St.
Hope St.
3 (0) [0]
Church St.
0 (1) [2]
Intersection #9
Franklin St. / Church St.
Franklin St.
6 (31) [34]
Church St.
32 (6) [8]
Intersection #10
Shoreline Blvd. / Miramonte Ave. / El Camino Real
1 (7) [7]
Shoreline Blvd.
2 (6) [7]
El Camino Real
8 (1) [2]
8 (2) [2]
Miramonte Ave.
Intersection #11
Shoreline Blvd. / Latham St. / Church St.
24 (5) [6]
Shoreline Blvd.
5 (24) [27]
1 (7) [7]
Latham St.
Church St.
8 (1) [2]
Intersection #12
Shoreline Blvd. / California St.
19 (4) [5]
Shoreline Blvd.
California St.
5 (1) [1]
1 (3) [5]
1 (6) [6]
3 (15) [16]
Intersection #13
Villa St. / Hope St.
8 (2) [2]
Hope St.
5 (1) [1]
Villa St.
2 (7) [7]
1 (3) [5]
Intersection #14
Evelyn Ave. / Hope St.
8 (2) [2]
Evelyn Ave.
Hope St.
2 (7) [7]
Intersection #15
Church St. / Calderon Ave.
Calderon Ave.
3 (0) [0]
Church St.
0 (1) [2]
Intersection #16
Shoreline Blvd. / Villa St.
7 (1) [2]
Shoreline Blvd.
12 (3) [3]
Villa St.
1 (6) [6]
Intersection #17
Church St./ Project Dwy.
6 (31) [34]
13 (53) [56]
Project Dwy.
71 (15) [16]
Church St.
32 (6) [8]
Legend
XX(XX)[XX] AM(MID)[PM] Peak Hour Trips
N

Intersection Level of Service Analysis – Baseline plus Project Conditions

The intersection LOS analysis results for Baseline plus Project Conditions are summarized in **Table 8**. Detailed calculation sheets for Baseline plus Project Conditions are contained in **Appendix E**. All of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours under this scenario.

Based on the City of Mountain View LOS standards, the project would not have any adverse effects at all the study intersections evaluated in this MTA.

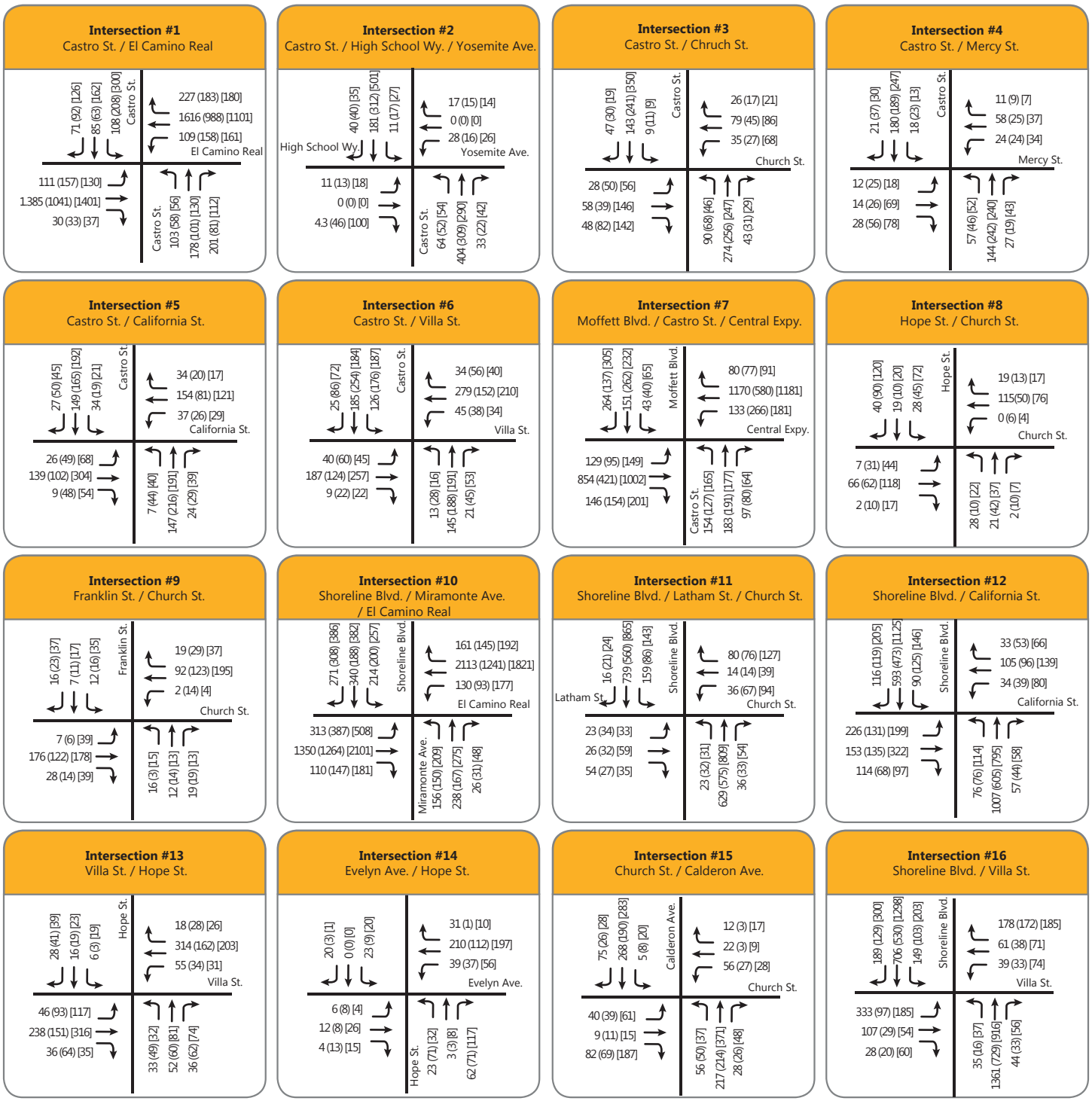
Figure 16 displays projected peak hour turning movement volumes at all of the study intersections for Baseline plus Project Conditions. The results for Baseline Conditions are included for comparison purposes, along with the projected increases in critical delay and critical V/C ratios. It should be noted that some of the study intersections are estimated to show a decrease in average intersection delay due to the addition of project trips to non-critical turn movements. That is, more vehicles would be using the intersection during the peak hour but on non-critical lanes and movements, so the average delay per vehicle decreases.

Table 8. Intersection Level of Service Analysis – Baseline plus Project Conditions

#	Study Intersections	Control	Peak Hour	Baseline Conditions		Baseline plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	28.9	C	29.5	C	0.016	0.9
			MID	31.1	C	31.7	C	0.010	0.6
			PM	33.1	C	33.7	C	0.008	0.5
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	15.7	C	16.6	C	0.000	0.0
			MID	14.6	B	15.1	C	0.000	0.0
			PM	23.0	C	24.6	C	0.000	0.0
3	Castro Street/Church Street	Signalized	AM	29.5	C	29.9	C	-0.002	0.0
			MID	28.0	C	31.6	C	0.048	6.6
			PM	33.8	C	34.6	C	0.037	0.8
4	Castro Street/Mercy Street	Signalized	AM	7.8	A	7.5	A	0.018	-0.4
			MID	7.2	A	7.1	A	0.004	-0.1
			PM	8.2	A	8.1	A	0.004	-0.1
5	Castro Street/California Street	Signalized	AM	24.3	C	24.1	C	0.020	0.2
			MID	20.7	C	20.7	C	0.023	0.0
			PM	24.3	C	24.3	C	0.023	0.3
6	Castro Street/Villa Street	Signalized	AM	17.5	B	17.7	B	0.017	0.1
			MID	18.5	B	18.6	B	0.023	0.0
			PM	20.9	C	20.9	C	0.016	-0.1

#	Study Intersections	Control	Peak Hour	Baseline Conditions		Baseline plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
7	Castro Street/Central Expressway*	Signalized	AM	47.1	D	47.4	D	0.001	0.1
			MID	50.4	D	50.6	D	0.003	0.3
			PM	50.2	D	50.6	D	0.002	0.3
8	Hope Street/Church Street	All-Way Stop	AM	7.8	A	7.8	A	0.004	0.0
			MID	7.8	A	7.8	A	0.001	0.0
			PM	8.7	A	8.7	A	0.000	0.0
9	Franklin Street/Church Street	All-Way Stop	AM	7.9	A	8.1	A	0.038	0.2
			MID	7.8	A	8.0	A	0.034	0.2
			PM	8.9	A	9.1	A	0.013	0.2
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	44.6	D	44.9	D	0.003	0.6
			MID	39.6	D	39.7	D	0.002	0.0
			PM	63.9	E	65.4	E	0.006	1.6
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.4	C	22.5	C	0.004	0.5
			MID	25.6	C	26.6	C	0.009	1.3
			PM	26.7	C	27.5	C	0.012	0.9
12	Shoreline Boulevard/California Street	Signalized	AM	34.7	C	34.6	C	0.001	0.0
			MID	36.6	D	36.4	D	0.005	-0.4
			PM	34.7	C	34.7	C	0.004	0.2
13	Villa Street/Hope Street	All-Way Stop	AM	11.3	B	11.5	B	0.010	0.2
			MID	10.0	A	10.1	B	0.015	0.1
			PM	13.3	B	13.7	B	0.018	0.4
14	Evelyn Avenue/Hope Street	Signalized	AM	14.2	B	14.0	B	0.005	-0.1
			MID	19.0	B	18.6	B	0.001	-0.1
			PM	14.6	B	14.4	B	0.001	0.0
15	Church Street/Calderon Avenue	All-Way Stop	AM	10.9	B	11.0	B	0.001	0.1
			MID	9.5	A	9.5	A	0.001	0.0
			PM	14.9	B	14.9	B	0.001	0.0
16	Villa Street/Shoreline Boulevard	Signalized	AM	36.4	D	36.3	D	0.000	0.0
			MID	30.0	C	29.9	C	0.001	-0.1
			PM	29.7	C	29.7	C	0.000	0.0

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Change in critical volume to capacity ratio between Baseline and Baseline plus Project Conditions
4. Change in average critical movement delay between Baseline and Baseline plus Project Conditions
*CMP intersections with LOS E threshold. Assumed closure of Castro Street at the tracks and no through movements at this intersection. Non-CMP intersections with LOS D threshold



Legend

XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Roadway Segment Level of Service Analysis – Baseline plus Project Conditions

Table 9 below summarizes the study roadway segment operations under Baseline plus Project Conditions and includes facility type, maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS B or better.

Table 9. Roadway Segment Level of Service Analysis – Baseline plus Project Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	7,977	B
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	5,684	B
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	3,614	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,122	B
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	1,912	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

Background plus Project Conditions

This scenario is identical to Background Conditions, but with the addition of projected traffic from the proposed mixed-use development project.

Intersection Level of Service Analysis – Background plus Project Conditions

The intersection LOS analysis results for Background plus Project Conditions are summarized in **Table 10.** Detailed calculation sheets for Background plus Project Conditions are contained in **Appendix E**. All of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and

LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours under this scenario except at the intersection of Castro Street/Central Expressway, which operates at LOS F during the p.m. peak hour. There will be an increase in average critical delay by 2.2 seconds and an increase in the critical volume-to-capacity (V/C) ratio of 0.007.

Based on the City of Mountain View LOS standards, the project would not have any adverse effects at all the study intersections evaluated in this MTA.

Figure 17 displays projected peak hour turning movement volumes at all of the study intersections for Background plus Project Conditions.

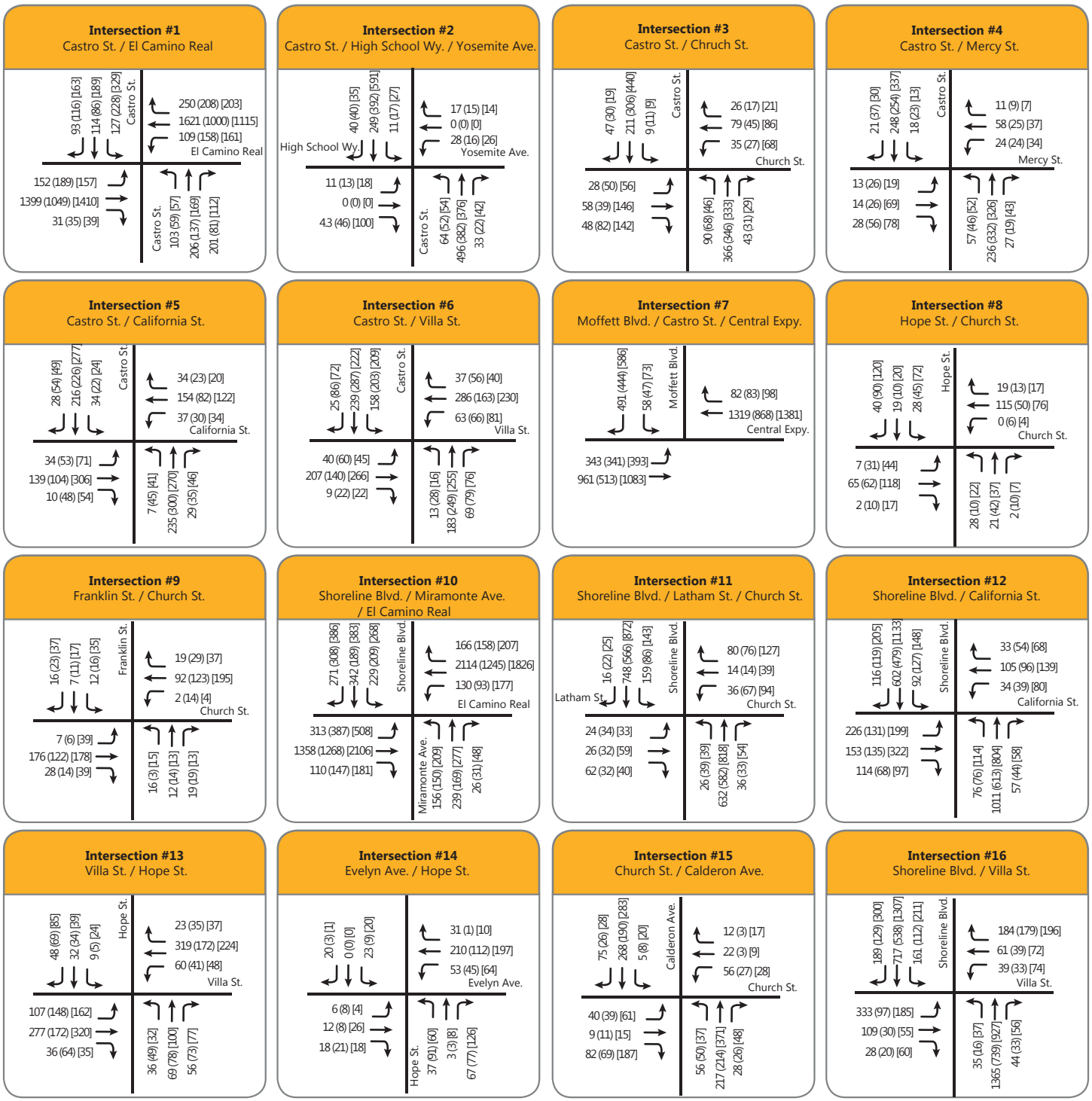
The results for Background Conditions are included for comparison purposes, along with the projected increases in critical delay and critical V/C ratios. It should be noted that some of the study intersections are estimated to show a decrease in intersection delay due to the addition of project trips to non-critical turn movements.

Table 10. Intersection Level of Service Analysis – Background plus Project Conditions

#	Study Intersections	Control	Peak Hour	Background Conditions		Background plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	32.0	C	32.6	C	0.016	1.0
			MID	33.7	C	34.2	C	0.010	0.5
			PM	36.4	D	36.9	D	0.008	0.4
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	19.0	C	20.1	C	0.000	0.0
			MID	17.1	C	17.8	C	0.000	0.0
			PM	30.7	D	33.1	D	0.000	0.0
3	Castro Street/Church Street	Signalized	AM	27.4	C	27.9	C	-0.002	0.1
			MID	25.7	C	28.0	C	0.022	2.6
			PM	32.7	C	34.0	C	0.036	1.4
4	Castro Street/Mercy Street	Signalized	AM	6.8	A	6.6	A	0.018	-0.3
			MID	6.4	A	6.3	A	0.012	-0.2
			PM	7.5	A	7.4	A	0.003	0.0
5	Castro Street/California Street	Signalized	AM	23.2	C	23.3	C	0.009	0.1
			MID	19.1	B	19.2	B	0.023	0.1
			PM	24.3	C	24.3	C	0.021	0.2
6	Castro Street/Villa Street	Signalized	AM	20.4	C	20.4	C	0.018	0.1
			MID	19.7	B	20.6	C	0.024	0.1
			PM	21.4	C	21.6	C	0.028	0.2
7	Castro Street/Central Expressway*	Signalized	AM	65.0	E	66.9	E	0.010	2.6
			MID	52.6	D	53.0	D	0.006	0.6
			PM	**80.5**	**F**	**81.9**	**F**	0.007	2.2

#	Study Intersections	Control	Peak Hour	Background Conditions		Background plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
8	Hope Street/Church Street	All-Way Stop	AM	7.8	A	7.8	A	0.004	0.0
			MID	7.8	A	7.8	A	0.001	0.0
			PM	8.7	A	8.7	A	0.000	0.0
9	Franklin Street/Church Street	All-Way Stop	AM	7.9	A	8.1	A	0.038	0.2
			MID	7.8	A	8.0	A	0.034	0.2
			PM	8.9	A	9.1	A	0.013	0.2
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	45.7	D	46.1	D	0.003	0.7
			MID	39.8	D	39.9	D	0.001	0.0
			PM	63.7	E	66.6	E	0.135	13.6
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.5	C	22.6	C	0.003	0.6
			MID	25.5	C	26.5	C	0.010	1.2
			PM	26.7	C	27.5	C	0.012	0.9
12	Shoreline Boulevard/California Street	Signalized	AM	34.7	C	34.6	C	0.001	-0.1
			MID	36.6	D	36.3	D	0.005	-0.4
			PM	34.7	C	34.7	C	0.004	0.2
13	Villa Street/Hope Street	All-Way Stop	AM	14.0	B	14.3	B	0.010	0.3
			MID	11.7	B	11.9	B	0.016	0.2
			PM	17.9	C	18.8	C	0.021	0.9
14	Evelyn Avenue/Hope Street	Signalized	AM	16.3	B	16.0	B	0.005	-0.2
			MID	20.3	C	20.1	C	0.001	-0.1
			PM	16.6	B	16.4	B	0.002	0.0
15	Church Street/Calderon Avenue	All-Way Stop	AM	10.9	B	11.0	B	0.001	0.1
			MID	9.5	A	9.5	A	0.001	0.0
			PM	14.9	B	14.9	B	0.001	0.0
16	Villa Street/Shoreline Boulevard	Signalized	AM	36.9	D	36.9	D	0.000	0.0
			MID	30.3	C	30.3	C	0.001	0.0
			PM	30.2	C	30.2	C	0.001	0.0

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Change in critical volume to capacity ratio between Background and Background plus Project Conditions
4. Change in average critical movement delay between Background and Background plus Project Conditions
*CMP intersections with LOS E threshold. Assumed closure of Castro Street at the tracks and no through movements at this intersection
Non-CMP intersections with LOS D threshold



Legend

XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Roadway Segment Level of Service Analysis – Background plus Project Conditions

Table 11 below summarizes the study roadway segment operations under Background plus Project Conditions and includes facility type, maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS B or better.

Table 11. Roadway Segment Level of Service Analysis – Background plus Project Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	9,697	B
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	7,364	B
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	3,614	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,122	B
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	1,912	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

5.6 Cumulative Conditions

This section details expected traffic conditions at the study intersections under Cumulative (No Project) Conditions. The Cumulative conditions reflect a five year horizon. As part of Castro Grade Separation project, Castro Street/Central Expressway will be closed and anticipated construction to begin within 5 years. The cumulative baseline traffic volumes were estimated based on the assumption of a two percent annual growth factor, compounded annually for 5 years, or a factor of 1.104, applied to the baseline traffic

volumes plus traffic expected to be generated by approved and pending developments in the study area that are not yet built or occupied.

Intersection Level of Service Analysis – Cumulative Conditions

The intersection LOS analysis results for Cumulative Conditions are summarized in **Table 12**. Detailed calculation sheets for Cumulative Conditions are contained in **Appendix E**. All of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours under this scenario except at the intersections of Castro Street/High School Way-Yosemite Avenue, Castro Street/Central Expressway, and Shoreline Boulevard/El Camino Real during the p.m. peak hour.

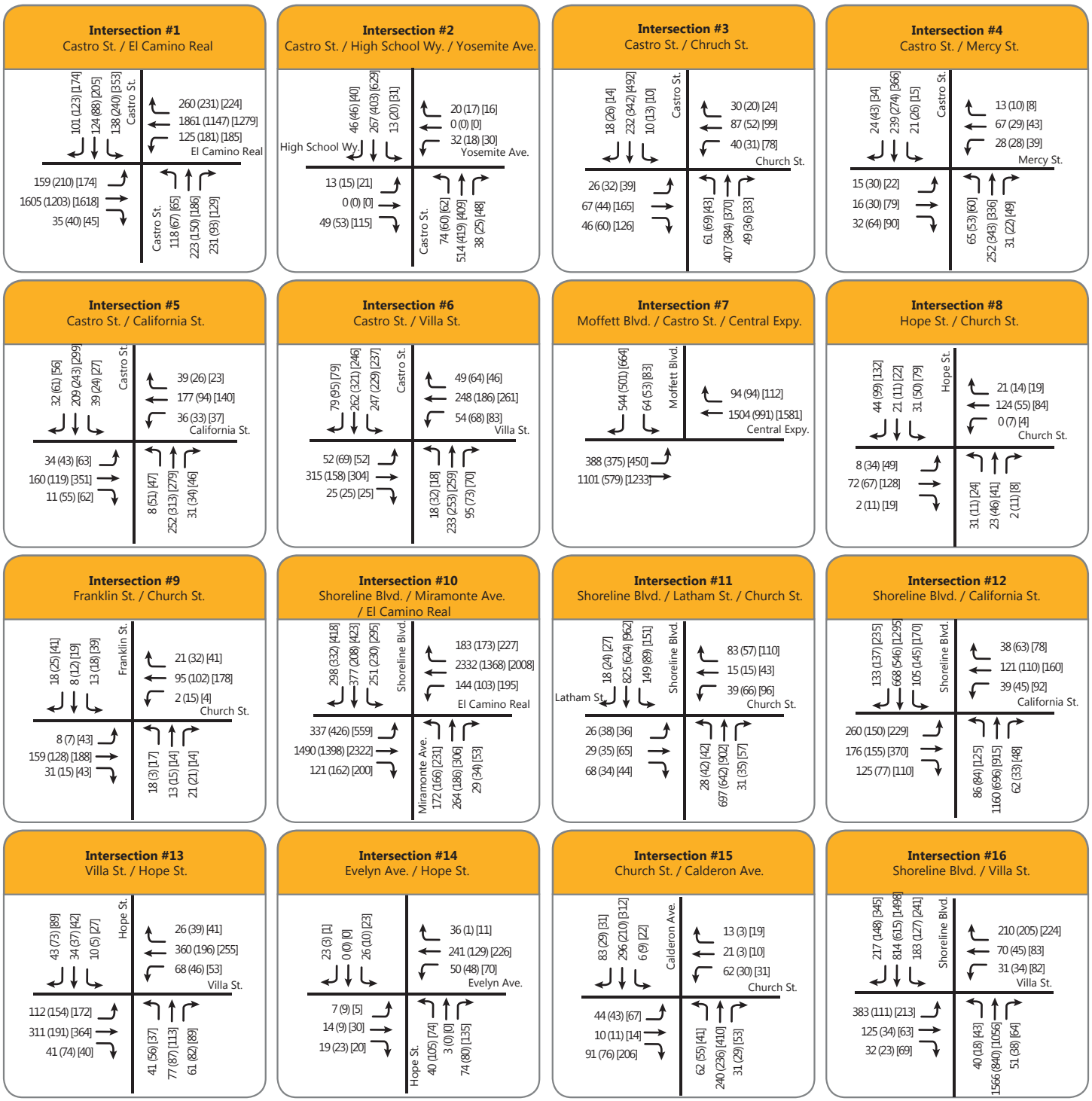
Figure 18 shows projected peak hour turning movement volumes at all of the study intersections for Cumulative Conditions.

Table 12. Intersection Level of Service Analysis – Cumulative Conditions

#	Study Intersections	Control	Peak Hour	Cumulative Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	35.9	D	0.844	40.2
			MID	35.1	D	0.662	37.9
			PM	39.1	D	0.781	41.8
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	22.7	C	0.000	0.0
			MID	19.9	C	0.000	0.0
			PM	**45.4**	**E**	0.000	0.0
3	Castro Street/Church Street	Signalized	AM	28.0	C	0.374	23.3
			MID	26.2	C	0.345	23.0
			PM	34.0	C	0.561	34.0
4	Castro Street/Mercy Street	Signalized	AM	7.1	A	0.233	7.8
			MID	6.7	A	0.269	5.8
			PM	7.8	A	0.314	6.9
5	Castro Street/California Street	Signalized	AM	23.9	C	0.408	25.2
			MID	19.6	B	0.378	22.2
			PM	25.3	C	0.548	25.9
6	Castro Street/Villa Street	Signalized	AM	22.2	C	0.619	23.0
			MID	21.3	C	0.572	22.0
			PM	22.4	C	0.639	23.6
7	Castro Street/Central Expressway*	Signalized	AM	76.6	E	1.122	107.7
			MID	62.4	E	0.916	75.9
			PM	**122.8**	**F**	**1.226**	**172.6**

#	Study Intersections	Control	Peak Hour	Cumulative Conditions			
				Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
8	Hope Street/Church Street	All-Way Stop	AM	7.9	A	0.176	7.9
			MID	8.0	A	0.189	8.0
			PM	9.0	A	0.301	9.0
9	Franklin Street/Church Street	All-Way Stop	AM	8.1	A	0.232	8.1
			MID	7.9	A	0.179	7.9
			PM	9.2	A	0.347	9.2
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	58.7	E	0.890	71.3
			MID	42.3	D	0.676	44.9
			PM	**94.8**	**F**	**1.097**	**104.4**
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.6	C	0.250	14.3
			MID	25.3	C	0.258	23.1
			PM	27.0	C	0.406	28.0
12	Shoreline Boulevard/California Street	Signalized	AM	35.3	D	0.535	34.6
			MID	36.7	D	0.392	37.6
			PM	36.1	D	0.626	34.1
13	Villa Street/Hope Street	All-Way Stop	AM	17.5	C	0.709	17.5
			MID	13.5	B	0.631	13.5
			PM	29.3	D	0.944	29.3
14	Evelyn Avenue/Hope Street	Signalized	AM	15.6	B	0.276	15.9
			MID	19.6	B	0.211	23.1
			PM	16.1	B	0.274	18.8
15	Church Street/Calderon Avenue	All-Way Stop	AM	12.0	B	0.540	12.0
			MID	10.0	A	0.419	10.0
			PM	18.5	C	0.781	18.5
16	Villa Street/Shoreline Boulevard	Signalized	AM	43.0	D	0.890	50.6
			MID	30.4	C	0.421	30.9
			PM	33.4	C	0.718	31.0

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Critical volume to capacity ratio
4. Critical movement delay
*CMP intersections with LOS E threshold. Assumed closure of Castro Street at the tracks and no through movements at this intersection. Non-CMP intersections with LOS D threshold



Legend

XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Roadway Segment Level of Service Analysis – Cumulative Conditions

Table 13 below summarizes the study roadway segment operations under Cumulative Conditions and includes facility type, maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS C or better.

Table 13: Roadway Segment Level of Service Analysis – Cumulative Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	10,389	C
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	7,836	B
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	3,692	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,557	B
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	2,196	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

Cumulative plus Project Conditions

This scenario is identical to Cumulative Conditions, but with the addition of projected traffic from the proposed mixed-use development project. Trip generation and distribution for the proposed project are identical to that assumed under Baseline plus Project Conditions.

Intersection Level of Service Analysis – Cumulative plus Project Conditions

The intersection LOS analysis results for Cumulative plus Project Conditions are summarized in **Table 14**. Detailed calculation sheets for Cumulative plus Project Conditions are contained in **Appendix E**. All of the study intersections operate at acceptable service levels (LOS D or better for non-CMP intersections and LOS E or better for regionally significant and CMP intersections) during a.m., midday and p.m. peak hours under this scenario except at the intersections of Castro Street/High School Way-Yosemite Avenue, Castro Street/Central Expressway, and Shoreline Boulevard/El Camino Real which operates at LOS F during p.m. peak hour.

- Castro Street/High School Way-Yosemite Avenue: This intersection is stop controlled. Peak hour signal warrant criteria are not met. Based on the City of Mountain View LOS standards, the project would not have any adverse effects at this study intersection.
- Castro Street/Central Expressway: At this intersection, there will be an increase in average critical delay by 2.7 seconds and an increase in the critical volume-to-capacity (V/C) ratio of 0.006 during the p.m. peak hour. Based on the City of Mountain View LOS standards, the project would not have any adverse effects at this study intersection.
- Shoreline Boulevard/El Camino Real: At this intersection, there will be an increase in average critical delay by 2.7 seconds and an increase in the critical volume-to-capacity (V/C) ratio of 0.007 during the p.m. peak hour. Based on the City of Mountain View LOS standards, the project would not have any adverse effects at this study intersection.

Figure 19 displays projected peak hour turning movement volumes at all of the study intersections for Cumulative plus Project Conditions.

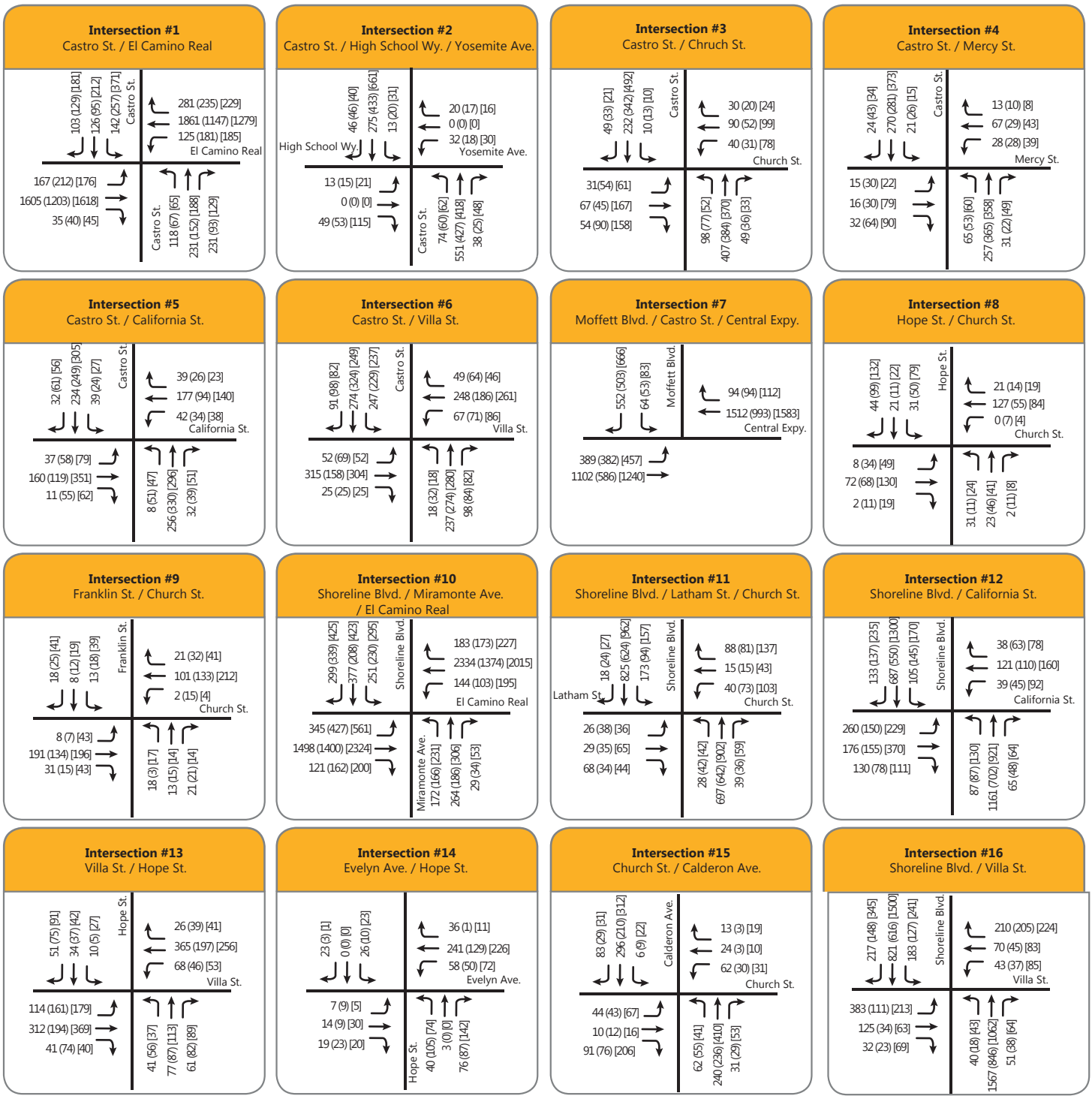
The results for Cumulative Conditions are included for comparison purposes, along with the projected increases in critical delay and critical V/C ratios. It should be noted that some of the study intersections are estimated to show a decrease in intersection delay due to the addition of project trips to non-critical turn movements.

Table 14. Intersection Level of Service Analysis – Cumulative plus Project Conditions

#	Study Intersections	Control	Peak Hour	Cumulative Conditions		Cumulative plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
1	Castro Street/El Camino Real	Signalized	AM	35.9	D	36.9	D	0.017	1.5
			MID	35.1	D	35.6	D	0.009	0.5
			PM	39.1	D	39.8	D	0.008	0.5
2	Castro Street/High School Way-Yosemite Avenue	Two-Way Stop	AM	22.7	C	24.2	C	0.000	0.0
			MID	19.9	C	20.8	C	0.000	0.0
			PM	**45.4**	**E**	**50.2**	**F**	0.000	0.0
3	Castro Street/Church Street	Signalized	AM	28.0	C	28.6	C	-0.003	-0.1
			MID	26.2	C	28.3	C	0.023	2.4
			PM	34.0	C	35.4	D	0.037	1.5
4	Castro Street/Mercy Street	Signalized	AM	7.1	A	6.9	A	0.019	-0.3
			MID	6.7	A	6.6	A	0.013	-0.2
			PM	7.8	A	7.7	A	0.004	-0.1
5	Castro Street/California Street	Signalized	AM	23.9	C	24.0	C	0.010	0.2
			MID	19.6	B	19.7	B	0.023	0.1
			PM	25.3	C	25.5	C	0.020	0.3
6	Castro Street/Villa Street	Signalized	AM	22.2	C	22.6	C	0.009	0.4
			MID	21.3	C	21.4	C	0.024	0.2
			PM	22.4	C	22.7	C	0.023	0.3
7	Castro Street/Central Expressway*	Signalized	AM	76.6	E	79.2	E	0.009	3.7
			MID	62.4	E	63.2	E	0.006	1.1
			PM	**122.8**	**F**	**124.5**	**F**	**0.006**	**2.7**
8	Hope Street/Church Street	All-Way Stop	AM	7.9	A	8.0	A	0.004	0.1
			MID	8.0	A	8.0	A	0.000	0.0
			PM	9.0	A	9.0	A	0.001	0.0
9	Franklin Street/Church Street*	All-Way Stop	AM	8.1	A	8.3	A	0.039	0.2
			MID	7.9	A	8.1	A	0.035	0.2
			PM	9.2	A	9.5	A	0.014	0.3
10	Shoreline Boulevard/El Camino Real*	Signalized	AM	58.7	E	59.4	E	0.003	1.3
			MID	42.3	D	42.5	D	0.002	0.0
			PM	**94.8**	**F**	**96.7**	**F**	**0.007**	**2.7**
11	Shoreline Boulevard/Latham Street-Church Street	Signalized	AM	21.6	C	25.6	C	0.069	13.1
			MID	25.3	C	26.2	C	0.009	1.1
			PM	27.0	C	27.7	C	0.012	0.9
12	Shoreline Boulevard/California Street	Signalized	AM	35.3	D	35.3	D	0.001	0.0
			MID	36.7	D	36.5	D	0.005	-0.3
			PM	36.1	D	36.2	D	0.004	0.2

#	Study Intersections	Control	Peak Hour	Cumulative Conditions		Cumulative plus Project Conditions		*Change in*	
				Delay[1]	LOS[2]	Delay[1]	LOS[2]	Critical V/C[3]	Critical Delay[4]
13	Villa Street/Hope Street	All-Way Stop	AM	17.5	C	18.0	C	0.011	0.5
			MID	13.5	B	13.8	B	0.017	0.3
			PM	29.3	D	31.8	D	0.024	2.5
14	Evelyn Avenue/Hope Street	Signalized	AM	15.6	B	15.4	B	0.004	-0.2
			MID	19.6	B	19.3	B	0.001	0.0
			PM	16.1	B	16.0	B	0.001	-0.1
15	Church Street/Calderon Avenue	All-Way Stop	AM	12.0	B	12.1	B	0.001	0.1
			MID	10.0	A	10.0	A	0.000	0.0
			PM	18.5	C	18.6	C	0.001	0.1
16	Villa Street/Shoreline Boulevard	Signalized	AM	43.0	D	42.9	D	0.000	0.0
			MID	30.4	C	30.4	C	0.001	-0.1
			PM	33.4	C	33.5	C	0.000	0.0

Notes:
AM – morning peak hour, MID - Midday peak hour, PM – evening peak hour
1. Delay – Whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop – controlled intersections.
2. LOS – Level of Service
3. Change in critical volume to capacity ratio between Cumulative and Cumulative plus Project Conditions
4. Change in average critical movement delay between Cumulative and Cumulative plus Project Conditions
*CMP intersections with LOS E threshold. Assumed closure of Castro Street at the tracks and no through movements at this intersection.
Non-CMP intersections with LOS D threshold



Legend

XX(XX)[XX] AM(MID)[PM] Peak Hour Traffic Volumes

Roadway Segment Level of Service Analysis – Cumulative plus Project Conditions

Table 15 below summarizes the study roadway segment operations under Cumulative plus Project Conditions and includes facility type, maximum daily volumes, number of lanes, daily volumes and LOS information for each study roadway segment. All the study roadway segments are expected to be operating at a satisfactory LOS D or better.

Table 15. Roadway Segment Level of Service Analysis – Cumulative plus Project Conditions

#	Roadway Segment	Facility Type	Maximum Daily Volumes[1]	Number of Lanes/Divided-Undivided	Daily Volumes	Level of Service[2]
1	Castro Street, between Church Street and El Camino Real	Arterial	21,240	2-Lane Undivided	10,819	C
2	Castro Street, between Church Street and Mercy Street	Arterial	21,240	2-Lane Undivided	8,161	C
3	Church Street, between Franklin Street and Castro Street	Collector	15,480	2-Lane Undivided	4,092	B
4	Church Street, between Castro Street and Hope Street	Collector	15,480	2-Lane Undivided	3,582	B
5	Mercy Street, between Castro Street and Franklin Street	Collector	15,480	2-Lane Undivided	2,196	A

Notes:
[1]Maximum Daily Volumes are based on Appendix B Table IV.C-3
[2]LOS – Level of Service

5.7 CMP Conformance Requirements

As per the MTA Handbook (CMP Conformance Requirements, Page 28), a CMP analysis is required for land use projects that generate 100 peak hour trips or more. Studies should assess the effects of Project traffic on the designated CMP roadway system using the current version of the VTA Transportation Impact Analysis (TIA) Guidelines, the VTA Traffic Level of Service Analysis Guidelines and MTA Handbook. The following are the CMP conformance requirements:

Intersections:

A CMP intersection shall be included in a TIA if it meets any one of the following conditions:

1. The proposed development project is expected to add 10 or more peak hour vehicles per lane to any intersection movement, or
2. The intersection is adjacent to the project, or
3. Based on engineering judgement, Lead Agency staff determines that the intersection should be included in the analysis. Study intersection should be selected without consideration for jurisdictional boundaries. The 10 or more vehicles per lane requirement applies to any intersection movement (left turn, through, or right turn).

For the 590 Castro Street study, two CMP intersections i.e Castro Street/Central Expressway and Shoreline Boulevard/El Camino Real meet the CMP conformance requirements 1 and 3 for intersections. The proposed project is expected to add 14 peak hour trips to the northbound approach at the Castro Street/Central Expressway intersection. Similarly, the project is expected to add 16 peak hour trips to the eastbound approach at Shoreline Boulevard/El Camino Real intersection. These intersections were evaluated under all scenarios using the current version of the VTA Transportation Impact Analysis Guidelines, the VTA Traffic Level of Service Analysis Guidelines, and the MTA Handbook. No adverse effect on the designated CMP roadway system is expected to occur as a result of the project.

Freeway Segments:

As per the MTA Handbook, a freeway segment shall be included in a TIA if it meets any one of the following conditions:

1. The proposed development project is expected to add traffic equal to or greater than 1 percent of the freeway segment's capacity, or
2. The proposed development project is adjacent to one of the freeway segment's access or egress points, or
3. Based on engineering judgment, Lead Agency staff determines that the freeway segment should be included in the analysis.

The project does not meet any of the freeway segments requirements. Hence, this MTA does not include the freeway segment analysis.

5.8 Queuing Analysis

Left-Turn and Right-Turn Storage Analysis

TJKM conducted a vehicle queuing and storage analysis for all exclusive left and right turn storage lanes (pockets) at selected signalized study intersections where project would add measurable traffic under Baseline plus Project Conditions. The 95th percentile (maximum) queues were analyzed using the HCM 2000 Queue methodology contained in TRAFFIX software. Detailed calculations are included in the LOS appendices corresponding to each analysis scenario. **Table 16** summarizes the 95th percentile queue lengths at selected study intersections under Baseline and Baseline plus Project Conditions scenarios.

At Castro Street/El Camino Real, the queue lengths for the northbound through left turn, southbound left turn, southbound through left turn, and southbound through right turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one vehicle (1 vehicle = 25 feet) to the average design queue length. Queues will be cleared within a few cycles at the intersection.

At Castro Street/Church Street, the queue lengths for the southbound shared through right turn, and eastbound shared through right turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of two vehicles (2 vehicles = 50 feet) to the average design queue length. Queue overflow can be reduced with signal timing improvements at this intersection.

At Castro Street/California Street, the queue lengths for the northbound through right turn, southbound through left turn, eastbound through left turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one vehicle (1 vehicle = 25 feet) to the average design queue length.

At Castro Street/Villa Street, the queue lengths for the northbound through right turn, and southbound through right turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one to two vehicles (2 vehicles = 50 feet) to the average design queue length. Queue overflow can be reduced with signal timing improvements at this intersection.

At Castro Street/Central Expressway, the queue lengths for the northbound left turn, eastbound right turn, and westbound left turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one vehicle (1 vehicle = 25 feet) to the average design queue length.

At Shoreline Boulevard/El Camino Real, the queue lengths for the southbound right turn, and eastbound left turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one vehicle (1 vehicle = 25 feet) to the average design queue length.

At Shoreline Boulevard/Latham Street-Church Street, the queue lengths for the southbound left turn, and westbound right turn would overflow the available storage length in the dedicated lane or lanes during one or more peak hours. However, the overflows exist under baseline conditions and the project would add a maximum of one to two vehicles (1 vehicle = 25 feet) to the average design queue length.

Table 16. 95th Percentile Queues at Turn Pockets Affected by Project Traffic

#	Study Intersections	Lane Group	Storage Length (ft.)	Baseline Conditions			Baseline plus Project Conditions			Change		
				AM	MD	PM	AM	MD	PM	AM	MD	PM
1	Castro Street/El Camino Real	NBTL	305	**475**	275	**350**	**500**	275	**350**	25	0	0
		SBL	160	**200**	**225**	**375**	**225**	**250**	**375**	25	25	0
		SBTL	160	**200**	**225**	**375**	**225**	**250**	**375**	25	25	0
		SBTR	160	**200**	**225**	**350**	**225**	**250**	**375**	25	25	25
3	Castro Street/Church Street	SBTR	55	**200**	**325**	**450**	**250**	**300**	**475**	50	-25	25
		EBTR	125	**175**	**150**	**375**	**200**	**200**	**425**	25	50	50
5	Castro Street/California Street	NBTR	120	**175**	**200**	**250**	**175**	**225**	**275**	0	25	25
		SBTL	70	**175**	**150**	**250**	**200**	**150**	**250**	25	0	0
		EBTL	65	**175**	**150**	**325**	**200**	**175**	**350**	25	25	25
6	Castro Street/Villa Street	NBTR	160	**200**	**200**	**250**	**200**	**250**	**275**	0	50	25
		SBTR	240	200	**275**	**250**	225	**275**	**250**	25	0	0
7	Castro Street/Central Expressway*	NBL	140	**275**	**175**	**275**	**275**	**200**	**275**	0	25	0
		EBR	220	**225**	**325**	**350**	**250**	**325**	**350**	25	0	0
		WBL	200	**325**	**500**	**475**	**350**	**500**	**475**	25	0	0
10	Shoreline Boulevard/El Camino Real*	SBR	450	**500**	**550**	**875**	**500**	**575**	**875**	0	25	0
		EBL	185	**425**	**400**	**650**	**450**	**400**	**650**	25	0	0
11	Shoreline Boulevard/Latham Street-Church Street	SBL	140	**200**	**150**	**225**	**250**	**150**	**250**	50	0	25
		WBR	50	**125**	**75**	**150**	**125**	**125**	**200**	0	50	50

Notes:
*CMP intersections
Storage length and 95th percentile queue is expressed in feet per lane
AM-Morning Peak Hour; MD-Midday peak Hour; PM-Evening Peak Hour
Bold indicates overflow

5.9 Unsignalized Intersection Traffic Control

Signal Warrant Analysis at Unsignalized Intersections

WARRANT 3, PEAK HOUR VEHICULAR VOLUME

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

TJKM performed peak hour signal warrant analysis at the following unsignalized study intersections:

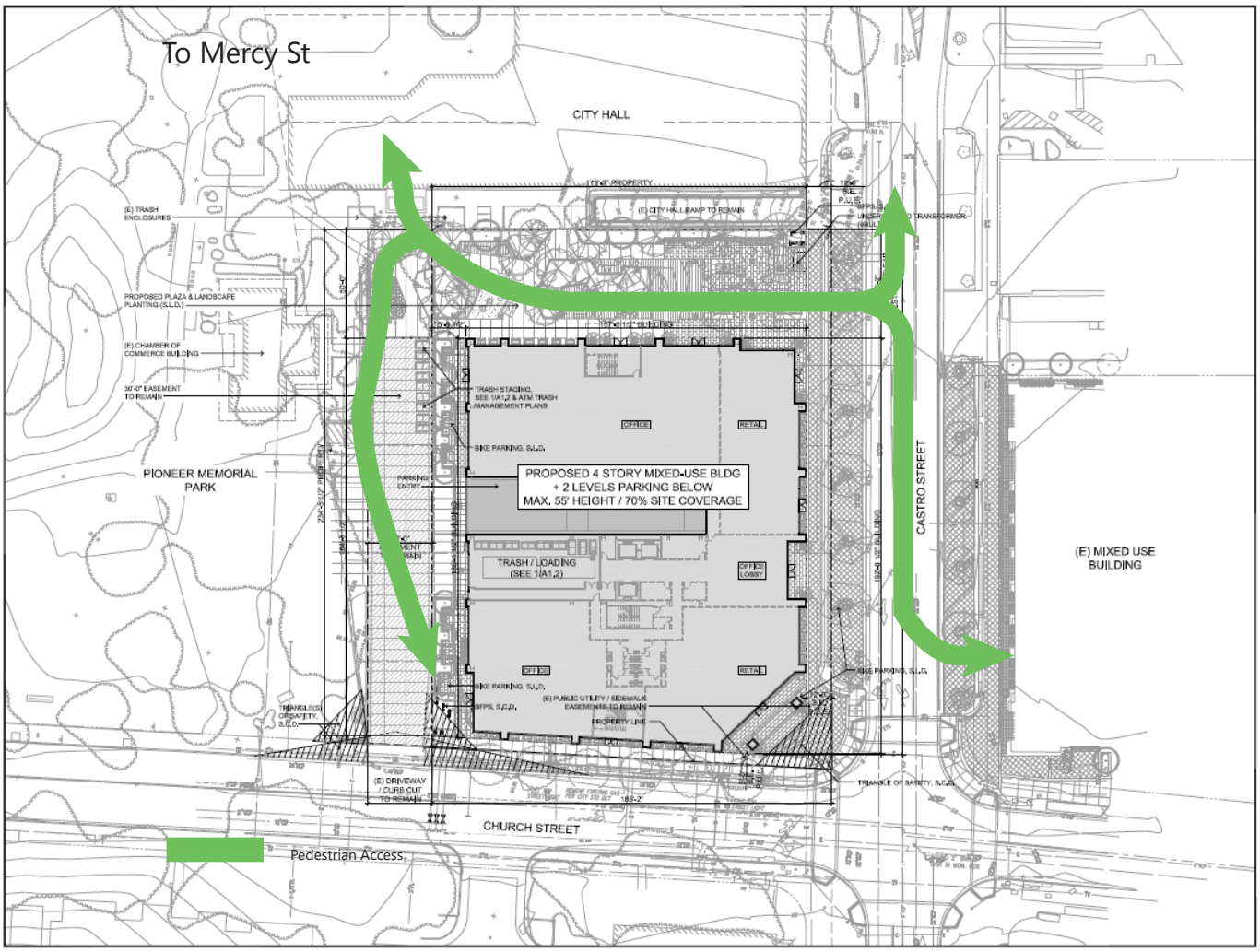
- Castro Street/High School Way-Yosemite Avenue
- Hope Street/Church Street
- Franklin Street/Church Street
- Villa Street/Hope Street
- Church Street/Calderon Avenue

Based on the 2014 California MUTCD warrant criteria, none of the unsignalized intersections warrant a traffic signal under Baseline, Background, and Cumulative Conditions with and without the project Conditions for the a.m., midday, or p.m. peak hours. Peak hour signal warrant worksheets are provided in **Appendix E**.

6. TRAFFIC CALMING AND NEIGHBORHOOD INTRUSION

6.1 Pedestrian Access to Open Space

The project proposes to provide a plaza at the northern section of the project site, just south of the City Hall parking garage ramp. The plaza design breaks the paseo into 4 rooms as the paseo transitions from Castro Street to Pioneer Memorial Park. These transitions allow for a variety of usable spaces through the paseo, including an Urban Plaza, a Wood Deck Terrace and a Woodland Plaza. The Woodland Plaza makes way to the Pioneer Memorial Park Connection Space. This area functions as a link from the paseo to the park as well as to the Chamber of Commerce Building. The plaza can be accessed directly from the sidewalk on the west side of Castro Street or by using the crossing locations at the intersection of Castro Street and Church Street. Project site can also be accessed through an existing mid-block crossing approximately 200 feet north of the plaza access point. Alternatively, the plaza can be accessed via the Pioneer Memorial Park entrance located on Church Street. **Figure 20** shows the pedestrian access to the plaza based on the proposed project site plan.


To Mercy St
CITY HALL
(E) TRASH ENCLOSURES
PROPOSED PLAZA & LANDSCAPE PLANTING (S.L.D.)
(E) CHAMBER OF COMMERCE BUILDING
30'-2" EASEMENT TO REMAIN
PIONEER MEMORIAL PARK
TRASH STAGING, SEE 1/A1.2 & ATM TRASH MANAGEMENT PLANS
OFFICE
RETAIL
BIKE PARKING, S.L.D.
PROPOSED 4 STORY MIXED-USE BLDG
+ 2 LEVELS PARKING BELOW
MAX. 55' HEIGHT / 70% SITE COVERAGE
TRASH / LOADING
(SEE 1/A1.2)
OFFICE LOBBY
CASTRO STREET
(E) MIXED USE BUILDING
(E) PUBLIC UTILITY / SIDEWALK EASEMENTS TO REMAIN
PROPERTY LINE
TRIANGLE OF SAFETY, S.C.D.
(E) DRIVEWAY / CURB CUT TO REMAIN
CHURCH STREET
Pedestrian Access

6.2 Potential Traffic Calming Needs

Speed humps and traffic circles are common traffic calming devices in the City of Mountain View. Existing speed humps and traffic circles in the vicinity of the project site are listed in **Tables 17 and 18**, respectively.

Table 17. Existing Speed Humps in Proposed Project Vicinity

Street	From	To	Number of Speed Humps
Church Street	El Ranchito Way	Fairhaven Court	1
	Fairhaven Court	Olive Court	1
	Olive Court	Calderon Avenue	2
	Calderon Avenue	Ehrhorn Avenue	1
	Ehrhorn Avenue	Anza Street	1
	Anza Street	Bush Street	1
W Dana Street	Calderon Avenue	Houghton Street	2
	Houghton Street	Bush Street	1
View Street	Church Street	Mercy Street	2
	Mercy Street	California Street	1

Table 18. Existing Traffic Circles in Proposed Project Vicinity

Street	Cross Street
View Street	California Street
	Church Street
	Mercy Street
	Yosemite Avenue

Most streets in the study areas are classified as "Downtown Street" as per the City's General Plan, which is defined as a "mixed-use and pedestrian-oriented neighborhood street[14]" that encourages low speeds for all modes of transportation and embraces high-quality facilities for non-motorized modes. Based on the assumed vehicular trip distribution, Castro Street, Church Street, Mercy Street, Villa Street, and Evelyn Avenue are potentially used by project generated trips. Based on the study of the proposed site plan, there is no proposed traffic calming devices on public right-of-way.

[14] 2030 General Plan, City of Mountain View, July 10, 2012, pages 106-108

6.3 Feasibility of Additional Traffic Calming Devices

In addition to existing traffic calming devices, additional devices were considered for this project. The traffic calming devices considered for this project were additional lighting, bulb outs and additional raised mid-block crosswalk improvements. The following evaluation discusses the factors and feasibility of additional devices.

Lighting

Along the block face of the project on Castro Street there are three existing pedestrian scaled light standards, one pedestrian scaled light standard and a roadway light on the corner of Castro Street and Church Street, and no existing lighting along the block face of the project on Church Street. Exterior lighting is integrated into recessed panels on the ground floor columns. This exterior lighting will enhance the lighting and atmosphere surrounding the project at night. Fifteen pedestrian scaled lighting will also be installed at the project's pedestrian plaza.

Bulb outs

Bulb outs (also called curb extensions) extend the sidewalk into the parking lane to narrow the roadway and provide additional pedestrian space at key locations; they can be used at corners and at mid-block locations. Curb extensions enhance pedestrian safety by increasing pedestrian visibility, shortening crossing distances, slowing turning vehicles, and visually narrowing the roadway.

Bulb outs are not feasible with the existing travel lane configuration on Church Street, as the vehicle lane does not have on-street parking on the approach to the intersections. A bulb could be added if the eastbound left turn pocket was removed. This would have adverse vehicle delay impacts.

Bulb outs are already provided at the Castro Street portion of the intersection adjacent to the project, with the sidewalk extending about 16 feet into the parking lane.

Midblock Crosswalk Improvements

Midblock crosswalks facilitate crossings to places that people want to go. There is an existing mid-block crossing approximately 200 feet north of the site. The existing mid-block crossing connects the Kaiser Permanente Medical Offices and Mountain View City Hall. Pedestrian improvements such as striping, signage, and lighting should be considered at an existing mid-block crossing. The design would include striping, signing and lighting. Another enhancement to be considered would be to include a median refuge island for pedestrians. Along Castro Street, there are pedestrian refuge islands for the crosswalks located at Mercy Street, California Street and the two mid-block crosswalks between Church Street and California Street. Sidewalks exist on both side of Castro Street within the study area and widths of sidewalks vary between 10 to 30 feet; however, there are street furniture, lighting, decorative concrete planters, landscaping, bicycles, outdoor seating for restaurants, and other fixtures that occupy the

pedestrian realm. There are 13 marked crosswalks across Castro Street in the study segment (including the ones at El Camino Real and California Street). Three of them are mid-block uncontrolled crossings. Pedestrians using existing mid-block crossings on Castro Street were not collected as part of the project study. It is noted that the project will add pedestrian activity but is not solely responsible for generating all pedestrian volume in the area.

7. PEDESTRIAN OPERATIONS

7.1 ADA Compliance

The project's site plan proposes to retain sidewalks at the project frontages along Castro Street and Church Street. The sidewalks will be lined with planter boxes and street trees. The improvements will comply with ADA requirements and provide adequate and appropriate facilities for safe pedestrian mobility.

7.2 Plan Consistency and Pedestrian Orientation

Plan Consistency

The proposed project is consistent with the General Plan, the Pedestrian Master Plan, and the Downtown Precise Plan in terms of goals, objectives, policies, and planned projects.

Pedestrian Orientation

The project is within walking distance of many destinations and will add a mix of both office and retail that will allow internal trips to be captured in Downtown. The project is also in close proximity to transit, less than a mile from Downtown Mountain View Caltrain Station. Sidewalks exist that are complete and well-maintained. A landscaped buffer is also provided between the sidewalk and traffic. There will be minimal driveway cuts along the project site to minimize interruptions to the pedestrian space.

In front of the existing building on Church Street, the sidewalk width is approximately 9 feet, with the effective width of walkway of 4 feet due to utility and signal poles. On Castro Street, the sidewalk width is generally 8 feet which opens up to 25 feet at the intersection of Church Street and Castro Street. Based on the proposed site plan, five feet of the public easement will be retained on Church Street, in which the sidewalk can potentially be widened.

The proposed project meets all guidance as listed in the MTA Handbook with regard to assessing pedestrian orientation.

7.3 Pedestrian Network Facilities

The location of fire hydrants, streetlight poles, traffic signal cabinets and boxes do not have an adverse effect on the pedestrian travel paths. The proposed project would not have any adverse effect in relation to the City's Vision Zero policy.

Within the project vicinity pedestrians are able to easily access bus lines, light rail, and Caltrain. There are two bus stops in the immediate vicinity of the project site. All the bus stops are located on Castro Street. One bus stop is at Mercy Street in front the Civic Center and the other at the intersection of Castro Street and Yosemite Avenue. Both bus stops are accessible via existing sidewalks. The project site is in close proximity to the City of Mountain View Transit Center and is accessible via existing sidewalks and crosswalks along Castro Street.

7.4 PQOS Evaluation

The proposed project is required to meet a pedestrian quality of service (PQOS). The proposed project is a large sized project and requires a PQOS assessment. Because the proposed project is not anticipated to drastically affect speed and motor vehicle traffic, crossing conditions and the number of motor vehicle travel lanes, the assessment uses the PQOS map in Appendix F of Mountain View's Multi-modal Transportation Analysis Handbook to evaluate PQOS scores for Mountain View streets. Both Castro Street and Church Street directly adjacent to the project area have a PQOS score of 1, which corresponds to the best pedestrian quality of service. Between the project site and the Downtown Mountain View Caltrain Station, the QOS is 1 and 2 suggesting a high quality level of pedestrian service. No adverse conditions are anticipated related to an increase in vehicle trips.

7.5 Adverse Pedestrian Effects

No adverse pedestrian effects are anticipated from the proposed project as it does not disrupt existing pedestrian facilities. In fact, the project is anticipated to enhance connectivity downtown by providing a pedestrian plaza that connects Castro Street to Pioneer Memorial Park.

The proposed project will not result in any impact to or inconsistencies with existing or planned pedestrian facilities, polices, guidelines, or standards in the immediate vicinity of the project. Therefore, no adverse effect on pedestrian facilities.

7.6 Needed Pedestrian Improvements

No additional needed pedestrian improvements are anticipated in the project's vicinity.

8. BICYCLE OPERATIONS

8.1 Plan Consistency, Bicycle Parking and Facilities

The proposed project is consistent with the General Plan, the Bicycle Transportation Plan Update, and the Downtown Precise Plan's plans and policies, including the provision of bicycle parking. The Mountain View Downtown Precise Plan requires bicycle parking in the same general location where vehicle parking is to be provided. The number of bicycle parking spaces provided is required to be, at a minimum, five percent of the total number of required vehicle parking spaces as per City of Mountain View Municipal Code (Sec.36.32.50). The project would require 16 bicycle parking spaces. For retail land uses, 20% of provided bicycle parking is to be long-term (Class I) bicycle parking and 80% is to be short-term (Class II/III) bicycle parking. For business and professional office land uses, 80% of provided bicycle parking is to be long-term (Class I) bicycle parking and 20% is to be short-term (Class II/III) bicycle parking.

As per the proposed plans, the project will provide a total of 40 short-term bicycle parking spaces and approximately 16 long-term (secured enclosure) bicycle parking spaces. Bicycle parking is consistent with City standards and VTA Bicycle Technical Guidelines. The bicycle parking will be well-lit and well-positioned near building entrances.

8.2 Bicycle Network Facilities

Bicycle access to the project site will be facilitated by existing bicycle infrastructure; there are Class III bike routes on View Street, California Street, Bush Street, Dana Street, Calderon Avenue, and Church Street. Class II bicycle lanes are located on California Street, Shoreline Boulevard, Evelyn Avenue, and Calderon Avenue. Bicycle access to and from the project will be facilitated by these bikeways. Bicyclists can access the proposed short-term bicycle parking facilities from the driveway on Church Street without having to dismount. Major vehicle or pedestrian conflicts are not anticipated, as clear lines of sight are provided. The project does not propose any other bicycle facilities other than bicycle parking.

8.3 BLTS Evaluation

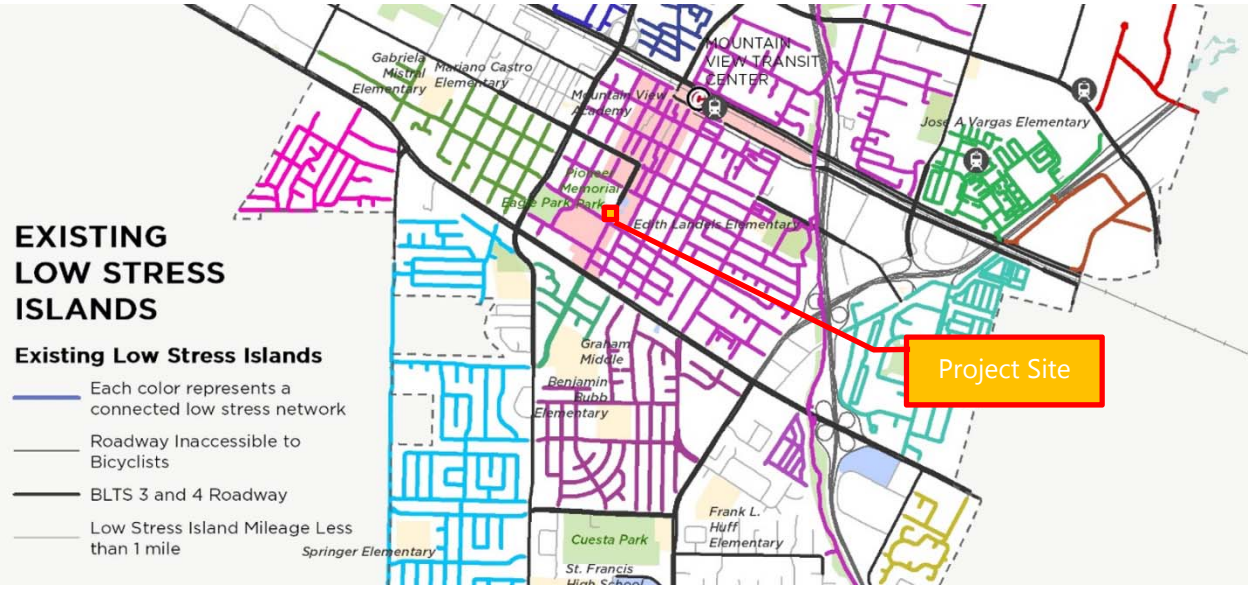
The proposed project is required to provide an evaluation of Bicycle Level of Traffic Stress (BLTS). BLTS refers to the perceived comfort and safety of roads and bikeway facilities that scores facilities from 1 to 4, with LTS 1 and 2 being "low stress" and 3 and 4 being "high stress." Because the proposed project is not anticipated to drastically affect speed and motor vehicle traffic and the number of motor vehicle travel lanes, the Mountain View BLTS Map (2020) in Appendix G of the MTA Handbook was used to evaluate BLTS in the vicinity of the proposed project[15]. The evaluation concludes that no adverse BLTS conditions are anticipated related to an increase in vehicle trips.

[15] Multi-Modal Transportation Analysis Handbook, Version 1.0, February 2021, Appendix G.

8.4 Access to Low Stress Streets

Low stress streets are streets with BLTS 2 or below (**Figure 21**)[16].

Figure 21. Existing Low Street Islands in Proposed Project Vicinity



Both Castro Street and Church Street directly adjacent to the proposed project site are at BLTS 2, which corresponds to a low stress bikeway. Between the project site and the Downtown Mountain View Transit Center, Castro Street deteriorates to BLTS 3 just north of the project due to lack of bicycle facilities, which suggests only somewhat confident cyclists may feel comfortable riding on this facility.

Low Stress Routes to Mountain View Transit Center. Alternative and low stress bicycle routes are available to connect bicyclists to the Mountain View Transit Center via, e.g., Church, Franklin, Hope, View, and Villa Streets.

Low Stress Routes to San Antonio Shopping Center. The Latham-Church Street corridor is considered a low stress bicycle route that provides connection between the San Antonio Shopping Center and the proposed project site.

Low Stress Routes to City south of El Camino Real. Castro Street south of El Camino Real has Class IV cycle track providing a low stress connection to the southern part of the city from the proposed project site. Alternatively, Phyllis Avenue, through Calderon Avenue, is another nearby low stress bicycle routes connecting the City south of El Camino Real to the proposed project site.

[16] AccessMV, City of Mountain View's Comprehensive Modal Plan.

Low Stress Routes to Stevens Creek Trail. Of all the nearby trail access points, including Evelyn Avenue, Dana Street, and Yuba Drive, there are currently no bicycle routes considered low stress to the proposed project site.

Note that Shoreline Boulevard, Rengstorff Avenue, Showers Drive, and El Camino Real are major "break points" of the low stress islands (connected low-stress bicycle network). It was mentioned in AccessMV, the City of Mountain View's Comprehensive Modal Plan that it is envisioned that Shoreline Boulevard, Rengstorff, and Showers Drive be joined as part of the low stress network which would create a fairly large and safe low stress bicycle network in future terms[17].

8.5 Adverse Bicycle Effects

An impact to bicyclists occurs if the proposed project disrupts existing bicycle facilities, conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies, or standards as per the City of Mountain View bicycle impact criteria. No adverse bicycle affects are anticipated from the project.

The proposed project is expected to generate few additional bicycle trips on existing and planned bicycle facilities. The project does not conflict with existing and planned bicycle facilities; therefore, no adverse effect on bicycle facilities is expected to occur as a result of the project.

8.6 Needed Bicycle Improvements

No additional needed bicycle improvements are anticipated in the project vicinity.

[17] AccessMV, City of Mountain View's Comprehensive Modal Plan.

9. TRANSIT OPERATIONS

9.1 Plan Consistency and Transit Orientation

The proposed project is consistent with all adopted transit plans and policies, including the General Plan policies on encouraging transit-orientated development.

The proposed project is less than a quarter mile from El Camino Real, a high-quality transit corridor as defined in AccessMV. It is also within walking distance to major transit stops, including bus stops along El Camino Real and the Mountain View Transit Center.

The proposed project will increase land use density and diversity in comparison to the existing Wells Fargo Bank by providing 97,213 square feet, multi-story office space with 7,000 square feet of retail that would serve downtown patrons locally. Last-mile travel between the project site and transit nodes can be completed on foot as pedestrian infrastructure is well-maintained.

9.2 Transit Facilities and Services

Transit services with route schedules are described in detail below. The existing transit services and facilities in the study area include Caltrain, VTA and shuttle services. COVID-19 has disrupted many of these agencies schedules, service may increase or decrease in the future depending on budgets and ridership. **Table 19** provides a summary of route operations.

Caltrain runs every 30 minutes during the weekday; this is a reduced schedule as a result of COVID-19. More frequent service may happen in the future.

Based on the regular service plan adopted in 2019, Routes 21, 52, 51 and the Mountain View Community Shuttle operate at the two stops on Castro Street providing regional and local services. Note that the VTA's 2021 Transit Service Plan has proposed to shorten service span (from 7:00 a.m. - 9:00 p.m. to 7:00 a.m. - 6:30 p.m.) or fully discontinue Route 52. In its 70% Plan, Route 51 is proposed to end early at 6:30 p.m. (7:00 p.m. per 2019 Service Plan) and Route 21 is proposed to have reduced midday frequency.

Routes 22 and 522 along El Camino Real provide local and rapid regional bus service, respectively, between Palo Alto and San Jose. The bus stops are within walking distance of the proposed project site.

Table 19. Transit Operations Summary

Services in the Proposed	Approximate Distance to Proposed Project	Service Type	Route Character	Service Span	Peak Period Headway (Minutes)	Off-Peak Headway (Minutes)	High-Quality Transit Service?
Caltrain	½ mile	Caltrain	Rapid	4 am to 2 am	24	60	N
VTA Orange Line	½ mile	Light Rail	Local	5 am to 10 pm	15	30	Y
VTA Route 21	<1,000 feet	Bus	Local	8 am to 8 pm	30	30	N
VTA Route 22	1,000 feet	Bus	Local	5 am to 10 pm	15	30	N
VTA Route 52	<1,000 feet	Bus	Local	8 am to 6 pm	25	60	N
VTA Route 51	<1,000 feet	Bus	Local	8 am to 6 pm	24	60	N
VTA Route 522	1,000 feet	Bus	Rapid	5 am to 10 pm	10	30	Y
Mountain View Community Shuttle – Red/ Gray	300 feet	Shuttle	Local	10 am to 6 pm	30	60	N
MVgo Route A*	½ mile	Shuttle	Local	10 am to 6 pm	15	-	N
MVgo Route B*	½ mile	Shuttle	Local	10 am to 6 pm	15	-	N
MVgo Route C*	½ mile	Shuttle	Local	10 am to 6 pm	15	-	
MVgo Route D*	½ mile	Shuttle	Local	10 am to 6 pm	15	-	

* MVgo Services have resumed with reduced service levels.

9.3 Transit Travel Time (Transit Delay)

The potential delay on transit operations is aligned with the delay on vehicular traffic at the study intersections.

9.4 Adverse Transit Effects

No adverse transit effects are anticipated from the project. The project density, diversity of uses, design and distance to transit stops are expected to increase transit ridership.

9.5 Needed Transit Improvements

No additional needed transit improvements is anticipated in the project vicinity.

10. PARKING

10.1 Parking Facilities

This section discusses vehicle parking for the proposed project and includes an assessment of whether the proposed parking supply is adequate. The amount of parking needed for a retail/office development is based on a number of factors including the employee density, the availability of transit services near the site, the existence of Transportation Demand Management (TDM) measures, and the location of the site relative to other uses and destinations.

As per the City of Mountain View Municipal Code section 36.32.50 and Downtown Precise Plan Table II-1, office buildings are to provide one space per each 333 square feet of gross floor area and retail buildings are to provide one space for every 300 square feet of gross floor area. A total of 287 automobile parking spaces are required for the office land use and 22 automobile spaces are required for the retail land use, resulting in a required 309 parking spaces. According to the Downtown Precise Plan [18]on page 18, a 5 percent reduction in required parking may be approved for office uses provided the developers or building owner agrees to implement and maintain trip reduction programs. A Transportation Demand Management (TDM) plan has been prepared for the project (Reference: Hexagon transportation Consultants, Inc.). This results in 295 parking spaces required (**Table 20**).

Table 20. Downtown Precise Plan Required Parking vs. Proposed Parking

Land Use	**Gross SF**	**Required Rate (1 Space/x SF)**	**Required Spaces**	**Proposed**	**Difference (deficit)**
Office	95,688	333	287		
Office Parking Reduction (5%)			-14		
			273	236	37
Retail	6,646	300	22	19	3
Total			**295**	**255**	**40**

While providing adequate parking is essential to the economic vitality of a downtown, providing too much parking can be counter to many of Mountain View's goals, such as reducing congestion, increasing transit ridership, creating a walkable environments and encouraging successful infill development.

[18] Downtown Precise Plan, City of Mountain View, June 2019, page 18

A report[19] has documented similar studies for office land use in downtown and/or transit-oriented settings similar to the proposed project. In order to allow motorists to find available spaces, it is typical to provide about 10% more spaces than the maximum parking demand. Therefore, based on the proposed project, Hexagon recommends a parking ratio of 2.2 spaces per 1,000 square feet (KSF) for office space in downtown Mountain View. **Table 21** presents the research in comparison to the proposed parking.

Table 21. Parking Demand vs. Proposed Parking

Land Use	Parking Ratio (Spaces/KSF) for Office Use
Transit-Oriented Locations	2.03
Transit-Oriented Locations within Downtown Areas	1.82
Transit-Oriented Office Developments	1.97
Hexagon Study Recommendation	2.20
Proposed Office (95,688 SF)	2.85
Proposed Project (Office + Retail) (102,334 SF)	2.88

The proposed project is expected to build a two level subterranean parking structure, which would provide parking for the office and retail land uses. A total of 255 automobile parking stalls are proposed by the project, 19 of these spaces would be for the retail portion of the project, leaving 236 for the office development. This results in a parking ratio of at least 2.85 spaces per KSF for the office space. This is less than the City's requirement but more than the average of office buildings in transit orientated downtowns near Caltrain and even larger than the maximum parking ratio of similar sites, suggesting the parking should be more than adequate to meet demand.

10.2 Parking Recommendations

Parking Survey. It is recommended based on the MTA Handbook that the project applicant conduct parking occupancy and turnover studies before implementing the project and within six months after the project is occupied as a condition of approval. The study area should include, at a minimum, block faces along the following street segments:

- Castro Street between Yosemite Avenue and Mercy Street;

[19] Parking Study for Sobrato's Office Building at Church Street and Castro Street in Mountain View, CA, September 23, 2021, Hexagon Transportation Consultants, Inc.

- Church Street between Oak Street to Castro Street; and
- Franklin Street between Mercy Street and Church Street;

The City of Mountain View will consider parking strategies based on the results of the parking studies to prevent potential parking spillovers. Potential strategies include a City-initiated Residential Parking Permit Program (RPP), parking signs, parking management plan or other management strategies.

A parking study by Hexagon has been conducted. While Hexagon's data suggests that the proposed parking will be adequate, parking is very site specific and can vary greatly based on how a Transportation Demand Management (TDM) plan is implemented and on specific tenant and employee demographics.

Parking Reduction. It is recommended based on the MTA Handbook and Hexagon's parking study that the City of Mountain View Planning Division review and approve applicant's request for a parking reduction as outlined in their Business and Operations Description Statement, Parking Reduction Justification Letter, and TDM strategies documentations. The applicant has provided these.

Attendant Assist Parking Operations:

Monthly (Office Tenant) Parkers

Early arriving parkers are able to drive into the facility and fill self-park stalls on levels P1 and P2, shown in yellow on Figure 22. Where tandem spaces occur, the first parker pulls in all the way forward. The second parker can then pull behind and leave their keys with the attendant. After the self-park spaces are full, attendants will direct parkers into tandem stalls and they will leave their keys with the attendant. When the tandem spaces are full, vehicles are then directed by the attendant to park in the drive aisles. Keys are left for vehicles that block other vehicles. When a parker leaves their keys with the attendant they receive a receipt and the attendant places the key in a secure box. The key is stored in case the tandem or aisle-parked vehicle needs to be moved.

Generally, it is assumed that there will be one zone attendant and one rover per level of parking. Rover attendants assist in guiding parkers to the correct lanes for aisle or tandem parking. The rover will guide vehicles and accept keys from the parker, issuing a ticket in return. At the end of the day, rovers will move aisle or tandem parked vehicles so that self-parked vehicles can exit. The rover will then move the tandem or aisle-parked vehicle into the open stall and return the keys to the zone attendant. Zone attendants are responsible for vehicle keys stored in the locked key box. In addition, they will move any vehicles during the slower periods of the regular work day. Rovers are only necessary during peak periods. There will be 1 key box location per parking level located near the parking shuttle elevators.

At the end of the day those parkers that left keys with an attendant will pick up keys and be directed to where their vehicle is parked. An attendant will move any car out of the way if it blocks another vehicle. The driver will then drive their car out of the building.

Dedicated Transient (Retail and Visitor) Parker Area

A dedicated retail and visitor parker area that is self-parked will be provided on the P1 level, shown in blue in Figure 23, to minimize interaction between the short term transient parkers and the long term daily parkers. Hours for retail and monthly visitors will be posted at the main entry. These visitors will have access through the elevators to the main lobby.

Figure 22. B1 Level Plan

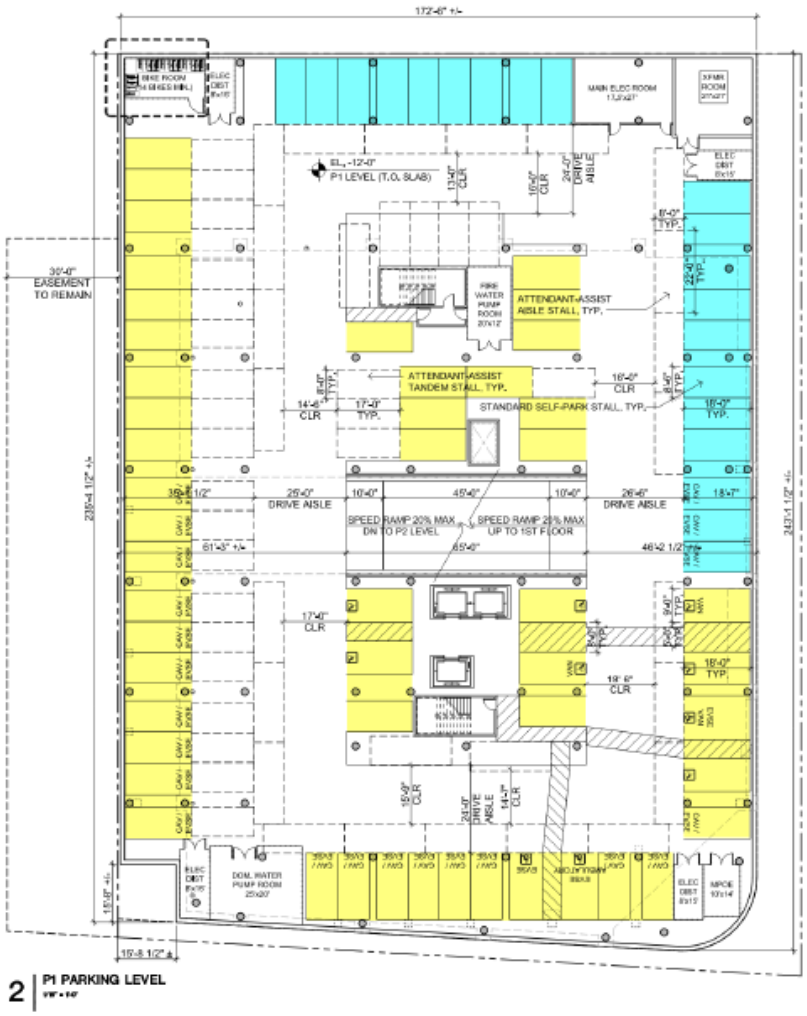
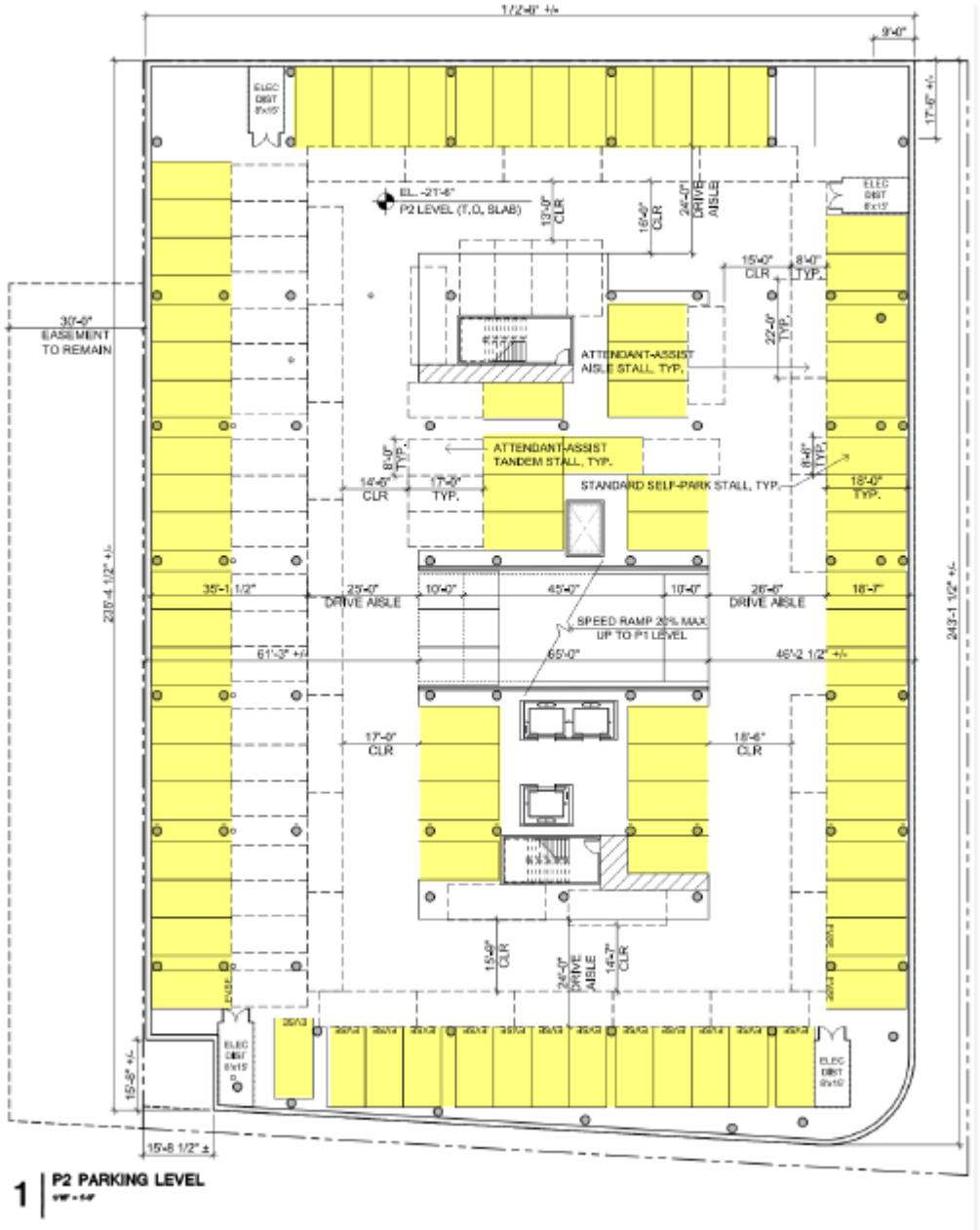


Figure 23. B2 Level Plan



10.3 Bicycle Parking

The Mountain View Downtown Precise Plan also requires bicycle parking where vehicle parking is provided. The number of bicycle parking spaces provided should be, at a minimum, five percent of the total number of required parking spaces. The Project would require 16 bicycle parking spaces. As per the proposed plans, the project will provide a total of 40 short term bicycle parking spaces and 16 long-term (secured enclosure) bicycle parking spaces.

11. CONCLUSIONS

The potential impacts of the project were evaluated in accordance with the standards set forth in the MTA Handbook by the City of Mountain View. A California Environmental Quality Act Vehicle-Miles Traveled Analysis is not required.

City Policy Conformance

The proposed project does not meet the parking requirements as required in the Downtown Precise Plan. However, the project applicant provides justifications that TJKM has assessed. Based on that assessment, TJKM recommends that the City consider approving the project conditionally with some parking management strategies that would monitor and ensure parking supply in Downtown meets demand and does not build too much new parking which could result in increased VMT. The reasoning and recommended parking strategies are detailed in the Parking section of this report.

Multi-Modal Impacts

Motor Vehicle Intersection and Roadway Segment LOS

All study intersections and roadway segments operate at acceptable level of service under all six scenarios.

Queuing Analysis for Left-Turn and Right-Turn Movements

The proposed project does not create significant impact by itself on the expected left-turn and right-turn queues at the study intersections under Baseline and Baseline plus Project Conditions. Overflow can be reduced over multiple signal cycles and/or signal timing improvements at the study intersections.

Impact on Pedestrian and Bicycle Infrastructure and Operations

The proposed project does not disrupt existing pedestrian or bicycle facilities. There is no adverse pedestrian or bicycle effects anticipated from the proposed project. The proposed project will not result in any impact to or inconsistencies with existing or planned pedestrian or bicycle polices, guidelines, or standards in the immediate vicinity of the project.

Impact on Transit Operations

Transit operational delay was considered the same as motor vehicle operational delay at the study intersections and along roadway segments. There is no significant impact on transit operations under any of the four scenarios.

Parking

The proposed vehicular parking provision is 40 spaces less than the parking requirements set forth in the Downtown Precise Plan. The project applicant submitted a justification letter which entails several site surveys in similar land use settings in the San Francisco Bay Area and found that the parking provision is

greater than the average of office developments in transit-oriented downtowns near Caltrain and even greater than the maximum ratio of similar sites, suggesting that the parking as proposed is adequate to meet the demand.

TJKM verified the justification letter and recommends that the City require the project applicant, as a condition of approval, to conduct parking occupancy and turnover studies before and after project implementation in the "prime" parking spots near the project site.

TJKM also recommends that the City set a condition of approval for the project for the applicant to allow the development's parking to be open for public use during non-office hours such as weekends and after 6 p.m. on weekdays. This will utilize the site parking to the benefit of the public.

As proposed by the project applicant, the underground parking will be in operation to provide an attendant assist parking operations program during business hours. TJKM recommends that the City require, as a condition of approval, that the after-hour parking spaces be clearly designated to avoid confusion by the public.