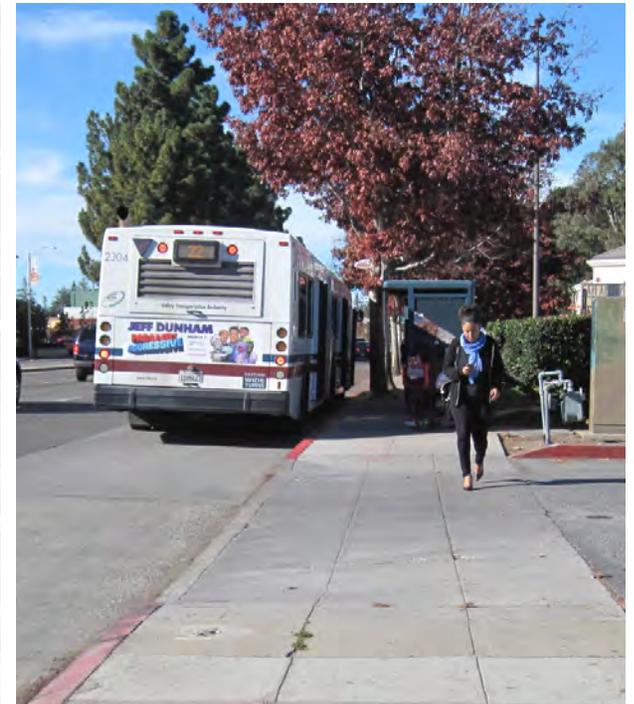


# EL CAMINO REAL STREETSCAPE PLAN

November 18, 2019

## FINAL





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# EXECUTIVE SUMMARY

The El Camino Real Streetscape Plan (Streetscape Plan) is a planning document that establishes design guidelines for multimodal transportation and streetscape improvements throughout the El Camino Real Corridor within the City of Mountain View. The plan identifies specific improvements to enhance the experience of pedestrians, bicyclists and public transit users as well as reinvigorate the historic highway. The plan provides recommendations consistent with the vision of El Camino Real as a grand boulevard that was set forth in the City’s General Plan and El Camino Real Precise Plan (ECRPP), which the City adopted in 2014.

The Streetscape Plan features design concepts that enhance the various modes of transportation along El Camino Real, while addressing design standards and requirements imposed by Caltrans, which has jurisdiction over El Camino Real. Pedestrian improvements include high visibility crosswalks, reduced curb radius, curb extensions, countdown signal heads, and curb ramps at intersections, landscape buffer strips between the sidewalk and roadway, and widening the sidewalk if an easement is granted by the adjacent property owner. Bicycle improvements include replacing the existing on-street parking with a Class IV protected bikeway to physically separate bicyclists from vehicular traffic, incorporating protected intersections at key locations, provision of bike detection, and increased visibility at intersections using green-colored pavement markings. Pedestrian and bicycle access across El Camino Real is enhanced through three new crossings at Pettis Avenue, Bonita Avenue, and Crestview Drive. Transit stop treatments include bus bulbs and bus islands to minimize potential pedestrian, bicyclist, and motorist conflicts. The plan maintains the overall system capacity for vehicular traffic. The plan also includes design guidelines for site furnishings that reflect the corridor’s historical identity, and guidelines for pedestrian and bicycle

amenities, transit stop amenities, lighting, street trees, green stormwater infrastructure, and a plant palette that improves the comfort and experience for users of the corridor. All streetscape improvements require Caltrans oversight and approval.

The Streetscape Plan summarizes the planning, community outreach, and design process, and is organized into six chapters:

Introduction outlines the plan context and goals for future improvements along El Camino Real.

Planning Process describes the planning process which includes a site assessment, community outreach, and coordination with local agencies.

Design Concept provides recommendations for improvements at intersections, pedestrian/bicycle crossings, transit stops, specific land uses, and other select locations to address the varied conditions along the corridor.

Streetscape Guidelines contains guidelines for streetscape improvements and amenities.

Implementation describes implementation elements and potential prioritization for various streetscape elements and roadway segments.

Appendices include technical reports used to verify the feasibility of proposed improvements, a detailed estimate of design and construction costs, and a copy of community outreach materials.

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# 1 INTRODUCTION

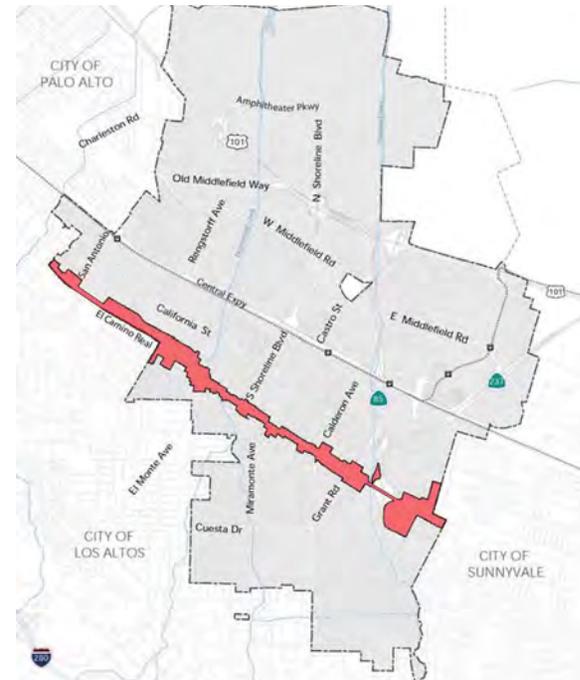
## BACKGROUND

El Camino Real is Spanish for ‘The Royal Road’ and is also referred to as ‘The King’s Highway.’ Historically, it was a 600-mile long critical route that connected the twenty-one Spanish missions across California and was used to transport people and goods across the state.

In Mountain View, El Camino Real extends approximately four miles connecting with the City of Sunnyvale to the southeast and with the Cities of Palo Alto and Los Altos to the northwest. El Camino Real is owned and operated by the State of California Department of Transportation (Caltrans). It is an important transportation corridor and spine of activity for residents, workers, and visitors, connecting major shopping and employment destinations with freeways, neighborhood streets, and transit service. Unlike State freeways where there is no access to adjacent land uses, El Camino Real is an urban thoroughfare that functions as a linear activity corridor, with many businesses and other land uses that require access by all modes of transportation. In addition to motor vehicles, the corridor has the highest-performing transit service routes in the Santa Clara Valley Transportation Authority (VTA) system and has substantial pedestrian and bicycle activity.

The Grand Boulevard Initiative (GBI) is a collaboration of cities, counties and local agencies with the intent to improve El Camino Real as a vibrant place for residents to live, work and play while balancing the need for vehicular transportation with transit, walking and biking. The GBI establishes a vision for future planning and development along El Camino Real and provides the collective cities along the peninsula a framework to improve the corridor as a whole.

The vision and principles of the GBI are reflected in the City of Mountain View’s El Camino Real Precise Plan (ECRPP) which was adopted in 2014. The purpose of the ECRPP was to provide design guidelines applicable to the development of private properties abutting the El Camino Real corridor and also offer preliminary recommendations regarding pedestrian, bicycle, and transit facilities along the corridor. The El Camino Real Streetscape Plan builds on the ECRPP and provides location-specific design guidelines to improve conditions for all modes of transportation and enhance the experience of those who live, work and visit along El Camino Real in the City of Mountain View.



**Figure 1-1: Location Map**

*(excerpted from City of Mountain View El Camino Real Precise Plan, 2014)*

# GOALS AND OBJECTIVES

The following are the key goals and objectives of the El Camino Real Streetscape Plan. These are intended to build upon the guiding principles outlined in the ECRPP with a focus on creating a corridor that supports all modes of transportation.

## Pedestrian Experience

- Establish consistent guidelines for pedestrian infrastructure that supports safe and enjoyable walking conditions.
- Identify features that promote a more walkable and lively corridor.
- Implement features to increase pedestrian safety and improve visibility and sight distance between drivers and pedestrians at street crossings.
- Implement new signalized bike/pedestrian crossings at Mariposa Avenue, Bonita Avenue, and Crestview Drive.

## Bicycle Circulation

- Provide for safe and effective bicycle facilities along the corridor and identify key connections with facilities that cross or run parallel to El Camino Real.
- Provide design concepts for bicycle facilities along and across the corridor.
- Develop phased approach for removing on-street parking to accommodate proposed bicycle facilities.

## Transit Experience

- Recommend treatments to reduce transit travel times and improve the transit user experience at stops along the corridor.
- Explore strategies to reduce bicycle and vehicular conflicts at transit stops.

## Vehicular Circulation

- Maintain overall system capacity.



*Intersection improvements would allow for a safer and more comfortable experience for pedestrians and bicyclists*

# 2 PLANNING PROCESS

## RELATIONSHIP TO OTHER POLICIES AND PLANS

The El Camino Real Streetscape Plan is aligned with the goals and policies of a number of prior planning documents.

### **Grand Boulevard Initiative Multimodal Transportation Corridor Plan (2011)**

The Grand Boulevard Initiative (GBI) is an inter-agency collaboration that was established in 2006 to focus on enhancement of the El Camino Real corridor between San José and Daly City. GBI's intent was to collectively improve the function and experience that the corridor offered the local community while strengthening the connection it had as a transportation network and thematic historic roadway across the region. The Streetscape Plan addresses GBI-recommended improvements of the corridor in Mountain View with special attention to Complete Streets implementation and connectivity to other cities at its borders, as well as improved safety, accessibility and livability along and across the corridor.

### **City of Mountain View 2030 General Plan (2012)**

The Mountain View 2030 General Plan designates El Camino Real corridor as one of the city's eight geographical 'planning areas' and one of five 'change areas' suitable for higher intensity and transit-oriented development. The plan identifies El Camino Real as a major automotive arterial, notes the barrier the roadway creates with multiple lanes and heavy traffic, and acknowledges the need to improve the pedestrian and bicycle environment both along and across the corridor. The plan establishes a vision for El Camino Real to be a multimodal transit corridor with diverse neighborhoods and mixed-use buildings that engage the street and create a vibrant, safe, convenient place where people want to be. The City encourages the use of alternative modes of transportation, such

as bus transit, bicycling, and walking, which have the additional beneficial effect of reducing consumption of non-renewable energy resources.

### **City of Mountain View El Camino Real Precise Plan (2014)**

In 2014, the Mountain View City Council adopted the El Camino Real Precise Plan (ECRPP), which provides development standards and design guidelines applicable to development of private properties abutting the El Camino Real corridor and also offers preliminary recommendations regarding pedestrian, bicycle, and transit facilities along the corridor.

### **City of Mountain View Pedestrian Master Plan (2014)**

The Pedestrian Master Plan documents existing pedestrian facilities and recommended pedestrian improvements throughout the City of Mountain View. The Plan identifies the intersections of El Monte Avenue/El Camino Real and Castro Street/El Camino Real as potential improvement locations.

### **City of Mountain View Bicycle Transportation Plan Update (2015)**

The Bicycle Transportation Plan (BTP) Update documents existing bicycle facilities and recommended bicycle improvements throughout Mountain View. There are no bicycle facilities currently on El Camino Real, and the document identifies EL Camino Real repeatedly as deficient in bicycle facilities. The collision map shows the intersections of San Antonio Road, El Monte Avenue, Shoreline Boulevard, and Sylvan Avenue to have each had more than four vehicle-bicycle collisions between 2009 and 2013. The plan shows improvements along EL Camino Real north of Calderon Avenue as 'undetermined', and recommends as a priority project that the segment to the south be improved as Class II bike lanes, buffered bike lanes, or Class IV protected bikeways (if width permits). It also recommends bicycle marking and turning improvements at the Escuela Avenue intersection.

## PLANNING PROCESS

The BTP also outlines a policy of prioritizing implementation of Class IV protected bikeways on roads with a posted speed limit of 30 mph or faster.

### **City of Mountain View San Antonio Center Precise Plan (2015)**

The City of Mountain View San Antonio Center Precise Plan guides development within the area between San Antonio Road and Showers Drive. The plan identifies principles that promote multi-family housing, intensification of current allowed building area, improved site access, creation of an internal circulation framework, and development of an open space framework.

### **Caltrans Strategic Management Plan (2015)**

The Caltrans Strategic Management Plan identified objectives to improve quality of life by providing mobility choice and access to all modes of transportation and creating corridors as livable public spaces. It established strategic targets of increasing non-auto mode share statewide by 2020 including tripling bicycle, and doubling pedestrian and transit mode share relative to 2010-2012.

### **City of Sunnyvale Draft El Camino Real Precise Plan (2016)**

The Sunnyvale Draft El Camino Real Precise Plan establishes a vision for transforming El Camino Real in Sunnyvale into a vibrant commercial and transportation spine. The Plan identifies the area near Mountain View at Bernardo Avenue as a node where high-density development is encouraged.

### **Caltrans District 4 Bike Plan (2018)**

The Caltrans District 4 Bike Plan identified the need for Class IV protected bikeways on El Camino Real in Mountain View and prioritized it as a top tier project.

### **City of Mountain View Multimodal Improvement Plan (2018)**

The Citywide Multimodal Improvement Plan (MIP) identifies measures to improve transportation conditions on the Congestion Management Program (CMP) network without widening roadways. The MIP identifies actions and policies for different modes of transportation that will improve systemwide mobility and regional air quality.

### **Santa Clara Valley Transportation Authority Countywide Bicycle Plan (2018)**

The Countywide Bicycle Plan establishes a vision for Santa Clara County to be served by a bicycle network that enables people of all ages to utilize as a typical and accepted way to travel. The plan categorizes El Camino Real as a route with the highest Level of Traffic Stress (LTS), due to the high speed limits, limited or non-existent bicycle lanes, and large distances to cross at intersections. It also includes El Camino Real on its list of unconstructed Cross County Bike Corridors (CCBCs), and recommends such facilities be designed as Class IV protected bikeways (or cycletracks) on roadways with a posted speed limit of more than 35 mph.

### **Santa Clara Valley Urban Runoff Pollution Prevention Program Green Infrastructure Handbook (2019)**

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) Green Infrastructure Handbook provides guidelines for integrating green infrastructure (GI) into public streets, parking lots, and parks in the Santa Clara Valley. Its guidelines for incorporating GI into principal arterials include narrowing travel lanes or removing on-street parking to provide space for GI measures such as rain garden and planting strips.

## SITE ASSESSMENT

El Camino Real is an arterial roadway that was designed primarily to function as a vehicular corridor with six lanes and posted speeds of 35 mph and 40 mph. The average daily traffic for the roadway in Mountain View is between 41,000 to 53,000 in both directions, the highest recorded volume for El Camino Real within the Santa Clara County. The Existing Conditions Street Cross Section (Figure 2-1) below illustrates the general roadway design which has three vehicular lanes and on-street parking in each direction plus eight-foot-wide sidewalks with four-foot-wide tree wells and roadway lighting. Trees along the sidewalk and in the center

median island generally have mature canopies. There is no existing bicycle infrastructure on El Camino Real, due to the on-street parking on both sides of the street.

### Existing Lighting

A lighting study conducted to analyze the adequacy of existing light levels found that the average light levels along El Camino Real falls short of the street light level recommended by the Illuminating Engineering Society (IES) both below and between street lights. Light levels at intersections and

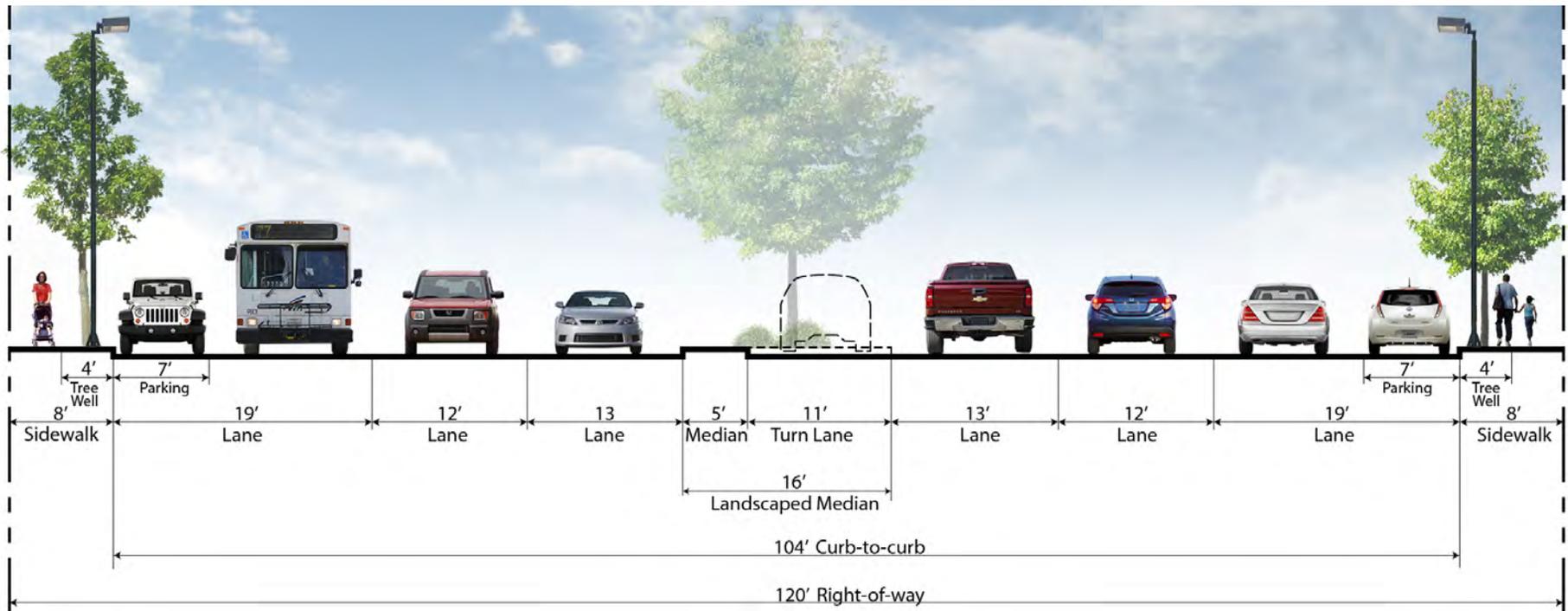


Figure 2-1: Existing Conditions Street Cross Section

at State Route 85 are below the IES recommendations but in compliance with light level requirements set by Caltrans, which owns and operates the corridor. The existing street light types vary throughout the 4-mile corridor. Along the north side of El Camino Real from the City of Palo Alto to Rengstorff Avenue, 87 watt LED fixtures are mounted on 30-foot round steel poles with 8-foot mast arms. Along the south side of the roadway, which is in the City of Los Altos, older high pressure sodium type fixtures are used. From Rengstorff Avenue to Route 85, “shoe box” shape induction fixtures are mounted on short arms to 30-foot square steel poles. The segment between Route 85 to the City of Sunnyvale features the 87 watt LED fixtures. Though it is preferred that street lights be replaced uniformly across the corridor, some lighting types have potential to be retrofitted to meet IES lighting recommendations.

### **Collision History**

Citywide collision analysis undertaken for the draft Vision Zero policy identified El Camino Real as the highest injury corridor in Mountain View. Collision data from the Mountain View Police Department indicates that there were 200 collisions along El Camino Real in Mountain View between January 1, 2013 and December 31, 2016. These collisions were associated with 242 severe injuries and two (2) fatalities. For 16 collisions involving pedestrians, there were 16 severe injuries and no fatalities between 2013 and 2016. For 18 collisions involving bicyclists, during the same period, there were 17 severe injuries and one (1) fatality.

### **Parking Evaluation**

A parking evaluation was conducted to understand the feasibility of removing or reducing on-street parking supply based upon the existing utilization of on-street and on-site (off-street) parking. A survey was conducted on different days of the week, and at different times of the day. Parking counts indicated low on-street parking utilization rates along El Camino Real in Mountain View during all observed time periods. The highest utilization rates were observed between El Monte Avenue and Calderon Avenue/Phyllis Avenue where peak on-street parking occupancy reached 37 percent during the parking utilization surveys. After accounting for on-site parking availability, only seven parcels along the entire four-mile stretch of El Camino Real within Mountain View had fewer available on-site parking spaces than utilized on-street spaces (see Figure 2-2 and 2-3). This suggests that for most parcels, people park on-street out of convenience rather than necessity.

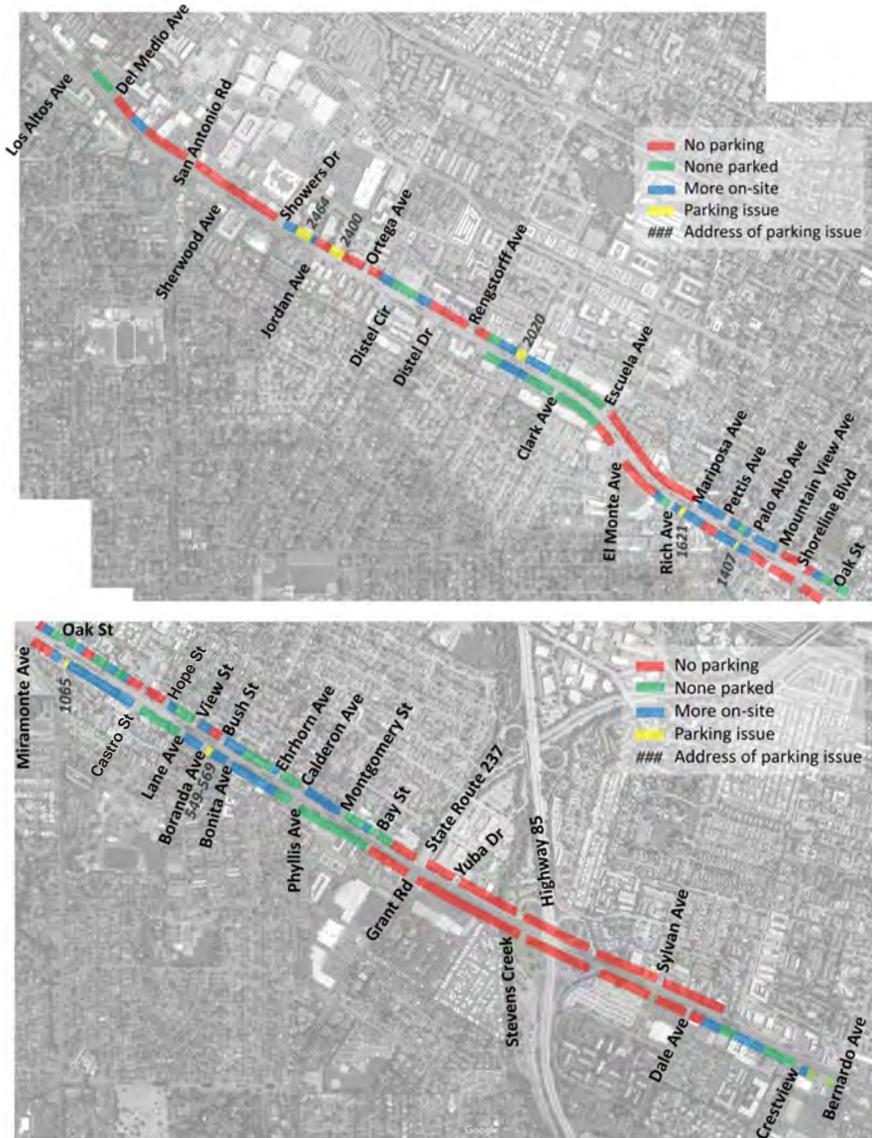


Figure 2-2: On-Street Parking Utilization Map

Segment	Address with Less On-Site Availability than On-Street Use	Land Use	Distance to Side Street Parking	Cars Parked On-Street	Parking Spaces On-Site	Time of Day of Availability Issue
<b>Adobe Creek to San Antonio Road</b> <i>(None in Mountain View jurisdiction)</i>						
<b>San Antonio Road to Rengstorff Avenue</b>	2464 West El Camino Real	Eating/Retail	>500'	4	40	Weekend midday and evening
	2400 West El Camino Real*	Residential	0-100'	5	17	Weekday and Weekend all day
<b>Rengstorff Avenue to El Monte Avenue</b>	2020 West El Camino Real	Eating	>500'	6	25	Weekend evening
<b>El Monte Avenue to Shoreline Boulevard</b>	1621 West El Camino Real**	Service	100'	2	8	Weekday afternoon, Weekend all day
	1407 West El Camino Real	Eating	470'	2	0	Weekday evening
<b>Shoreline Boulevard to Castro Street</b>	1065 West El Camino Real	Retail	>500'	2	1	Weekday night, Weekend all day
<b>Castro Street to Calderon Avenue</b>	549-569 West El Camino Real	Service	0'	4	7	Weekday and Weekend afternoon
<b>Calderon Avenue to Bernardo Avenue</b> <i>(None in Mountain View jurisdiction)</i>						

Source: City of Mountain View, 2018-2019. Fehr & Peers, 2018-2019.

\* Additional parking available for residents behind locked gates.

\*\* Temporary construction parking for a nearby property was noted during survey periods, so it is unclear how much of this on-street parking is associated with the land use at this property.

Figure 2-3: On-Street Parking Utilization Table

## COMMUNITY OUTREACH

Throughout the plan development process, multiple events were organized for stakeholders and the community to provide input on proposed streetscape improvements. City staff conducted door-to-door outreach to notify all properties immediately adjacent to El Camino Real within the City of Mountain View. Invitational postcards were delivered to all tenants, owners and businesses for properties within the El Camino Real Precise Plan area, inviting them to participate in the scheduled community and public meetings on three separate occasions. In addition, lawn signs, email blasts, newspaper notices, and announcements on the City website were used to publicize the project’s outreach events and encourage participation (see sample in Figure 2-4). Below are the events held to gather public feedback on the project:

- **April 25, 2018** - Community/Stakeholder Meeting
- **April 25, 2018** - Mountain View Bicycle/Pedestrian Advisory Committee
- **October 24, 2018** - Mountain View Bicycle/Pedestrian Advisory Committee and Los Altos Complete Streets Commission (Joint Meeting)
- **April 11, 2019** - Community/Stakeholder Meeting
- **May 13, 2019** - Council Transportation Committee (CTC) Meeting
- **June 18, 2019** - City Council Meeting
- **August 28, 2019** - Mountain View Bicycle/Pedestrian Advisory Committee
- **October 1, 2019** - City Council Meeting



Figure 2-4: Meeting Flyers

## AGENCY COORDINATION

A Technical Advisory Committee (TAC) was assembled to provide guidance and technical input for each phase of the project's progression. The TAC consisted of staff from agencies that had a stake in the El Camino Real Streetscape Plan including: City of Los Altos, City of Sunnyvale, City of Palo Alto, Santa Clara Valley Transportation Authority (VTA), and Caltrans District 4. The TAC members reviewed all presentation materials before they were shared with the public, providing input and contributing to discussions on how to address and elevate the vision for El Camino Real in Mountain View, consistent with the goals of each of these agencies.

### Neighboring Cities

El Camino Real transitions into the City of Sunnyvale to the southeast and into the Cities of Los Altos and Palo Alto to the northwest. Representatives from neighboring cities shared specific plans and streetscape plans in progress or already adopted and discussed linkages what was being proposed for Mountain View. The adjacent cities assisted in coordinating the vision for El Camino Real as a whole as well as providing precedents for bicycle and pedestrian improvements they have been implementing throughout their city. They also partook in the critical discussion of how the implementation of Mountain View's new streetscape infrastructure could transition at the cities' shared boundaries.

### Santa Clara Valley Transportation Authority (VTA)

As the county congestion management agency (CMA) and provider of El Camino Real's transit service, the VTA has been involved throughout the planning process to provide multimodal input and help improve the transit aspect of achieving a complete streets plan. Along with participating in TAC meetings, VTA provided comments for draft plans and worked closely to develop efficient and condition specific transit bus stops for the corridor. During the plan's development, VTA released a draft of the recommended design guidelines for bus stops, which influenced the streetscape design.

### Caltrans

Coordination with Caltrans played an integral role in developing the streetscape plan given that El Camino Real is a State of California facility and improvements proposed for the roadway will need Caltrans' approval. Caltrans participated as a member of the Technical Advisory Committee and provided input on materials during each phase of the project. At the preferred plan stage, a Caltrans review meeting was held with Caltrans District 4 staff where planning and engineering Caltrans staff members reviewed and provided feedback on the proposed improvements. Caltrans staff noted that the project's proposed improvements aligned with Caltrans' vision for bicycle and pedestrian transportation improvements.

### CONCEPT DEVELOPMENT

Preliminary design concepts were developed to address specific challenges within the corridor including the diverse types of intersections, new signalized pedestrian/bicycle crossing locations, streetscape amenities, transit facilities, and bicycle infrastructure. The preliminary concepts featured two alternatives with varying levels of improvements for a variety of the conditions. The alternatives described below focused on incorporating bicycle facilities, improving pedestrian access, enhancing transit stops, establishing sufficient planting areas, removing on-street parking and narrowing vehicular travel lanes.

- Alternative A featured 5-foot wide tree wells along the sidewalk and a 6-foot Class II bike lane with a 4-foot buffer between the bike lane and vehicular traffic. All traffic lanes in alternative A were narrowed to eleven feet wide.
- Alternative B featured 5-foot planting zones along the sidewalk back of curb and a six and a half foot wide Class IV cycle track that was raised 3-inches above street grade. The raised cycle track had a two and a half foot wide mountable curb separating it from vehicular traffic. Vehicular lanes nearest to the cycle track were 12-foot wide and all the rest reduced to 11-foot wide lanes.

In April 2018, the two alternatives were presented at outreach meetings to the community, local stakeholders and the Bicycle/Pedestrian Advisory Committee (B/PAC). Pin-up boards and a questionnaire were provided

for local stakeholders and a slideshow was presented during the B/PAC meeting on April 25, 2018. Participants were able to share their input on which design attributes were preferred within the alternatives and the site amenities they felt were higher priorities. Below are the main takeaways from the public meetings that helped determine the direction of the preferred concept in the following phase.

- Meeting attendees visit El Camino Real on a daily basis, on both weekdays and weekends, at a variety of locations, utilize the corridor for multiple purposes, and use a variety of transportation methods.
- The biggest concerns with the existing conditions along El Camino Real were the lack of bicycle facilities and challenges related to pedestrian safety and access convenience as they travel along and across the corridor.
- Other concerns related to bus stop treatments and how bicyclists will be accommodated, as well as transportation network companies and how their drop off and pick up patterns will be addressed.
- Alternative B, which proposes more intensive improvements of bicycle and pedestrian improvements, was the preferred option among the participants.
- Participants strongly favored Class IV protected bikeways over buffered Class II bike lanes (exemplified in Alternative A), but requested more substantial vertical elements than that offered by Alternative B.

The preferred concept was developed as a result of the combined input received from the local agency meetings and community outreach events about the preliminary alternatives. The preferred concept is a modified version of Alternative B, and features the following:

- Permanent Class IV bicycle infrastructure with a strong vertical element
- Comfortable pedestrian experience with improved amenities
- Intersection improvements for four distinct conditions
- Streetscape improvements for different land uses
- Transit stop treatments
- Pedestrian crossing treatments at new crossing locations
- Strategic transitions to neighboring cities

A second round of meetings was held to present the preferred concept that was developed based on the community and B/PAC input. During the joint B/PAC and Los Altos Complete Streets Commission meeting, members from both agencies supported the proposed concept and approved of its potential to increase efficiency and safety for bicyclists, pedestrians and transit riders along the corridor.



*The El Camino Real Bell Marker is a reminder of the historic significance of this roadway.*

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# 3 DESIGN CONCEPT

## OVERVIEW

Design concepts illustrate typical treatments as well as particular treatments for more spatially constrained locations. These treatments represent conceptual-level design recommendations only. More detailed traffic studies and engineering will be required to design improvements that meet the site-specific roadway geometry and Caltrans requirements.

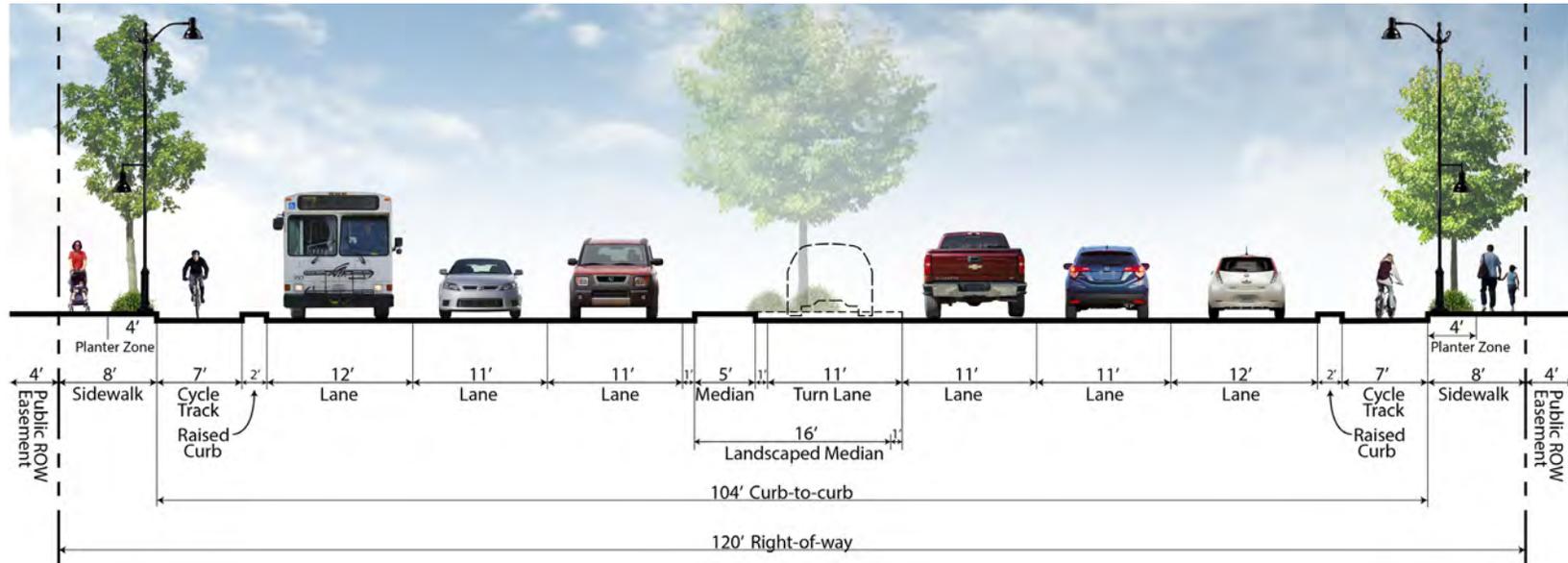
In general, the plan proposes the replacement of existing on-street parking with a Class IV protected bikeway, where space allows (see Figure 3-1). Narrowing lane widths helps accomplish this. An on-street parking utilization study has been completed to determine current opportunities to replace parking with the bikeway and identify areas along the corridor that may need to delay redevelopment. A two-foot wide raised concrete curb or other similar vertical element that minimizes inadvertent or intentional vehicular intrusion into the protected bikeway would be provided.

Where space is constrained, opportunities to create sufficient space to install Class IV bike facilities will be explored, or alternatively buffered Class II facilities could be installed. As a last resort, Class II bike lanes will be installed (see Figure 3-2). The cross sections in Figures 3-1 and 3-2 show the two typical conditions along the corridor. These include the widening of the existing eight-foot wide sidewalk to twelve feet, if a four-foot easement is granted by the adjacent property owner as part of a redevelopment process, as described in the 2014 El Camino Real Precise Plan.

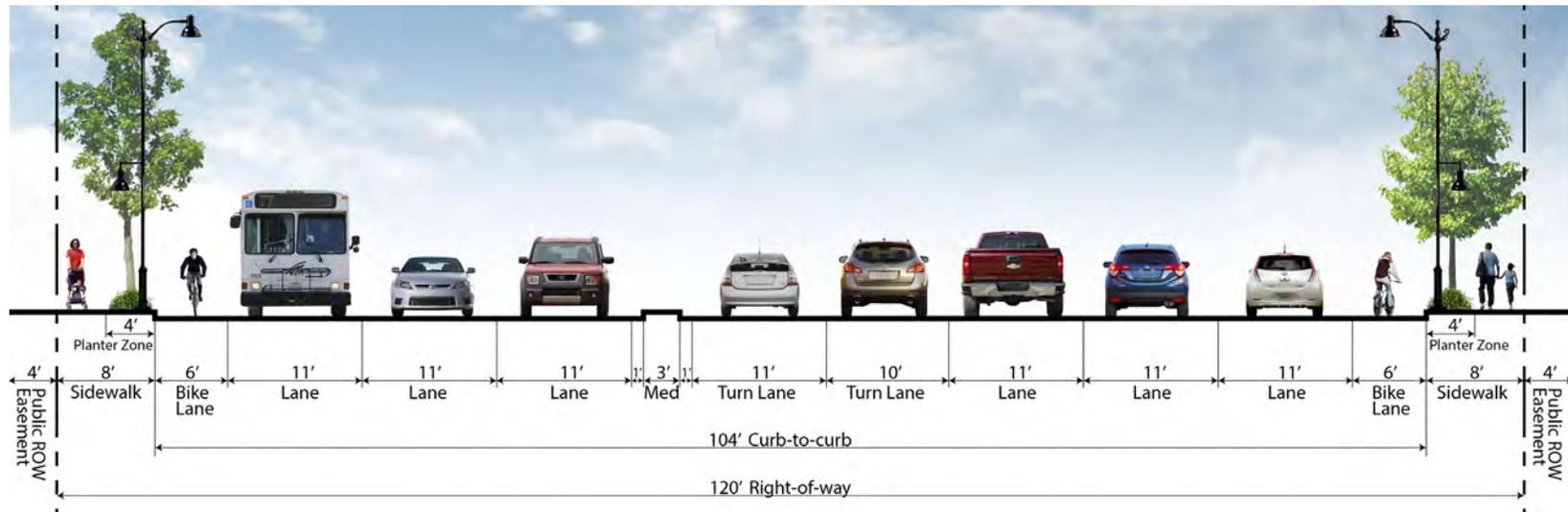


*Existing on-street parking would be removed to accommodate bicycle facilities.*

# DESIGN CONCEPT



**Figure 3-1: Typical Street Cross Section - Class IV Protected Bikeway**



**Figure 3-2: Typical Street Cross Section - Class II Bike Lane**

All improvements shown are conceptual and subject to further study and refinement.

Figures 3-3 through 3-5 provide locations of typical design treatments along El Camino Real corridor.

The following sections provide more detail on the following topics:

- **Typical intersections** include pedestrian and bicycle enhancements proposed for each of the four main intersection types along the corridor.
- **Pedestrian/bicycle crossings** include new layouts for crossing at the three locations identified in the 2014 El Camino Real Precise Plan: Pettis Avenue, Bonita Avenue, and Crestview Drive.
- **Typical transit stops** include treatments based on the existing right-of-way width.
- **Precise plan land use areas** include typical streetscape treatments for village centers, neighborhood corners, and secondary pedestrian areas including trees, lights, sidewalks, and protected bikeways at El Monte Avenue / Escuela Avenue, Calderon Avenue and Pettis Avenue.
- **Location-specific improvements** include treatments at Shoreline Boulevard and within the SR 85 State right-of-way.

DESIGN CONCEPT

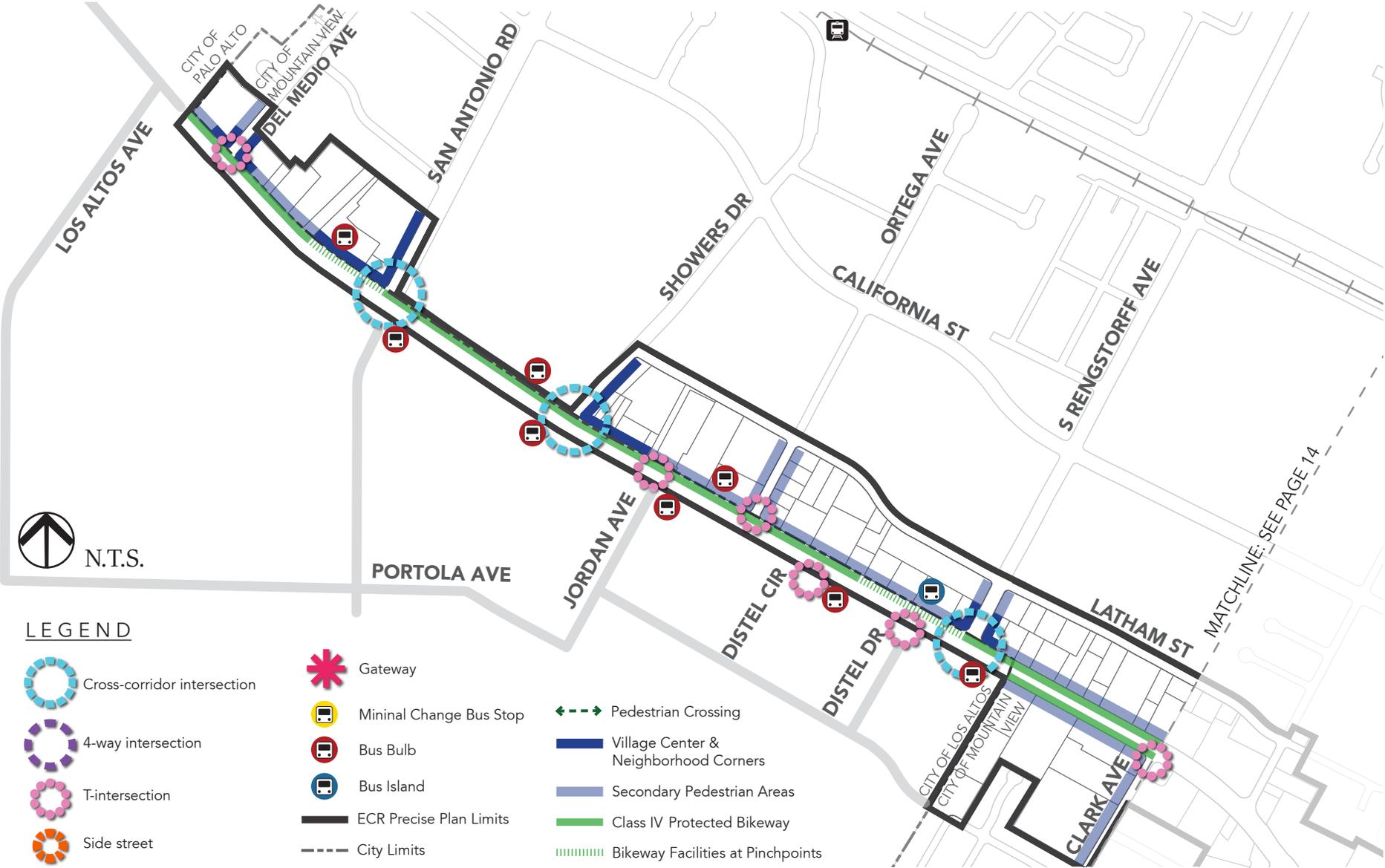


Figure 3-3: Corridor Streetscape: Del Medio Avenue to Clark Avenue

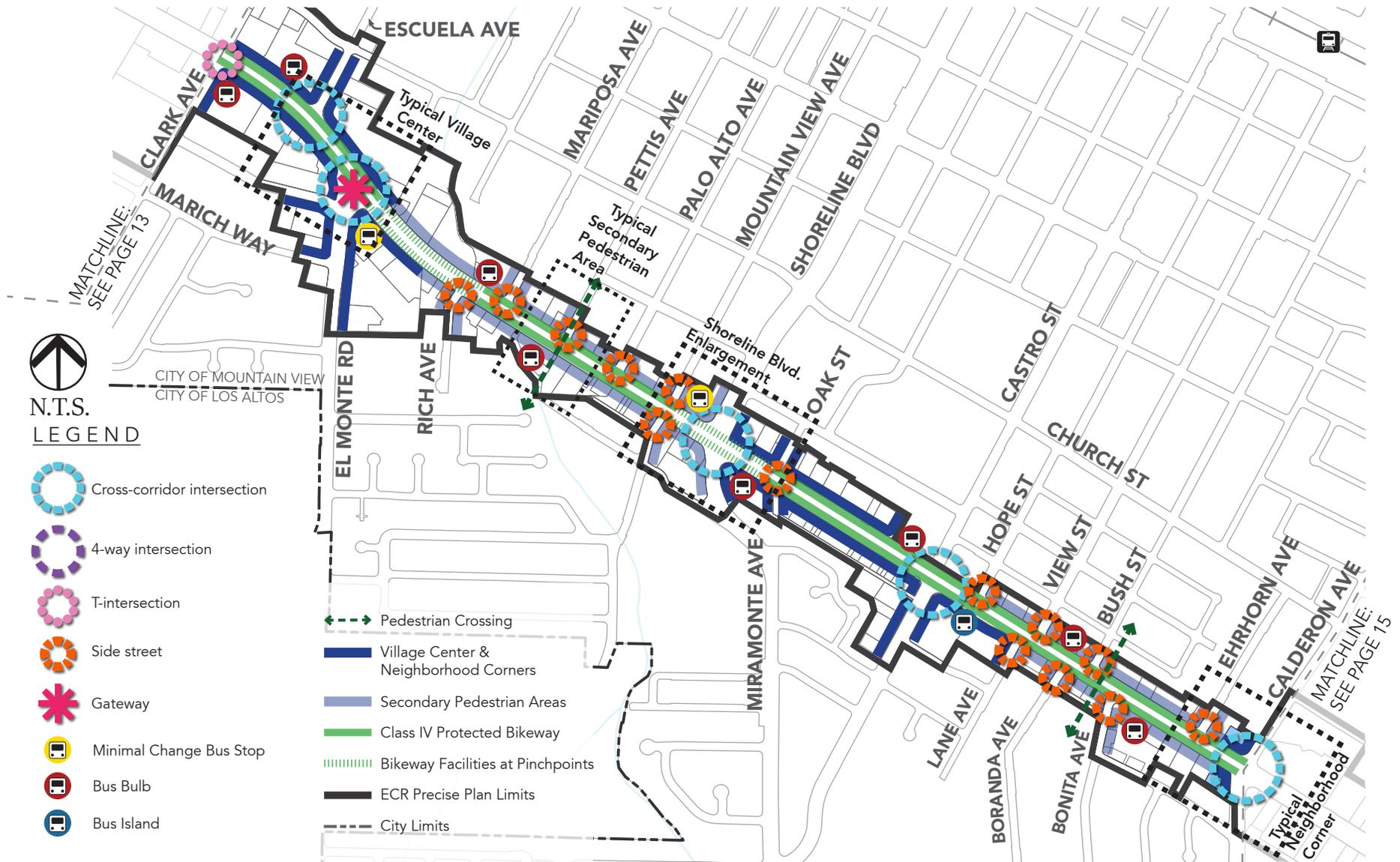


Figure 3-4: Corridor Streetscape: Clark Avenue to Calderon Avenue

DESIGN CONCEPT

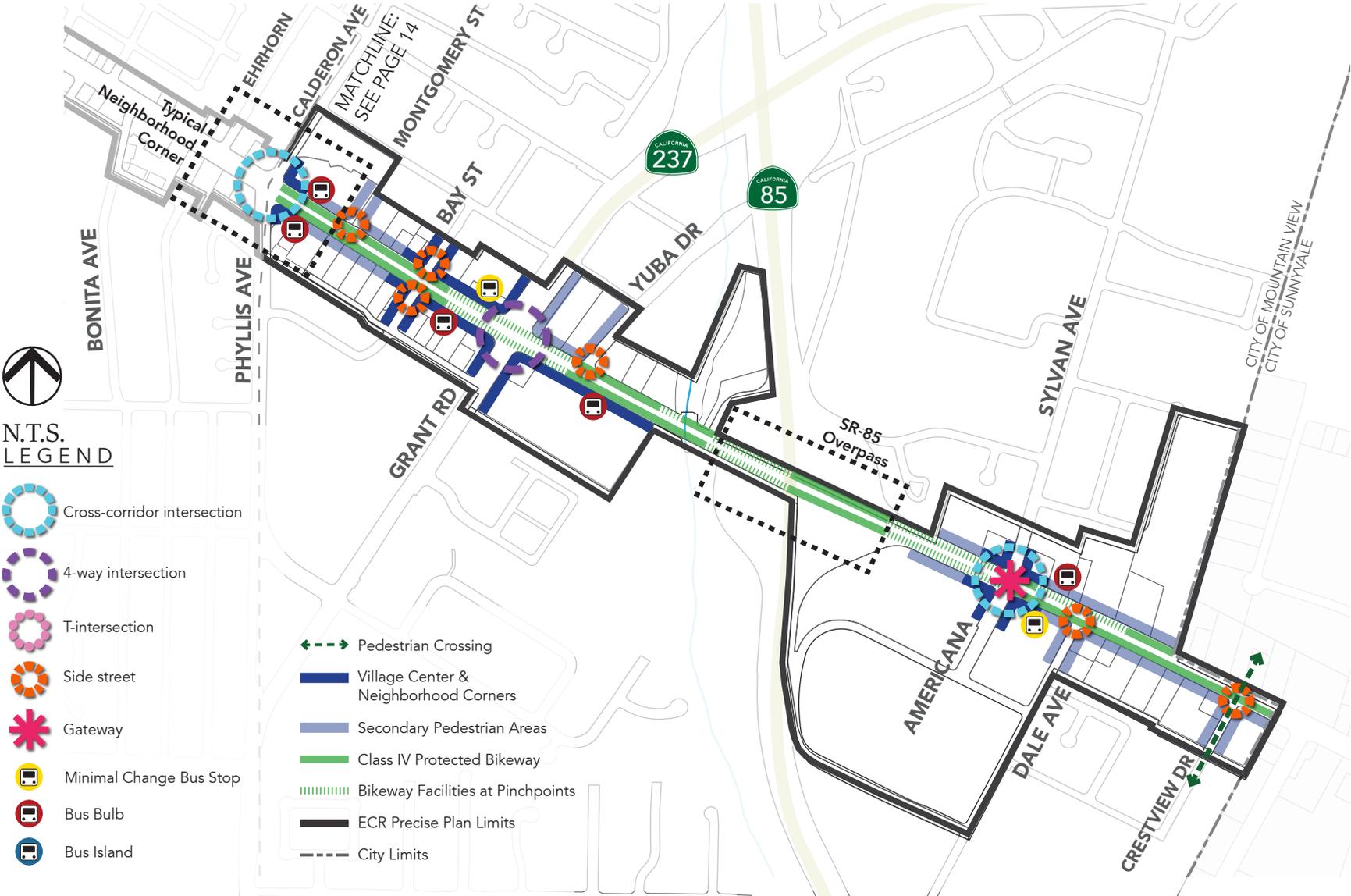
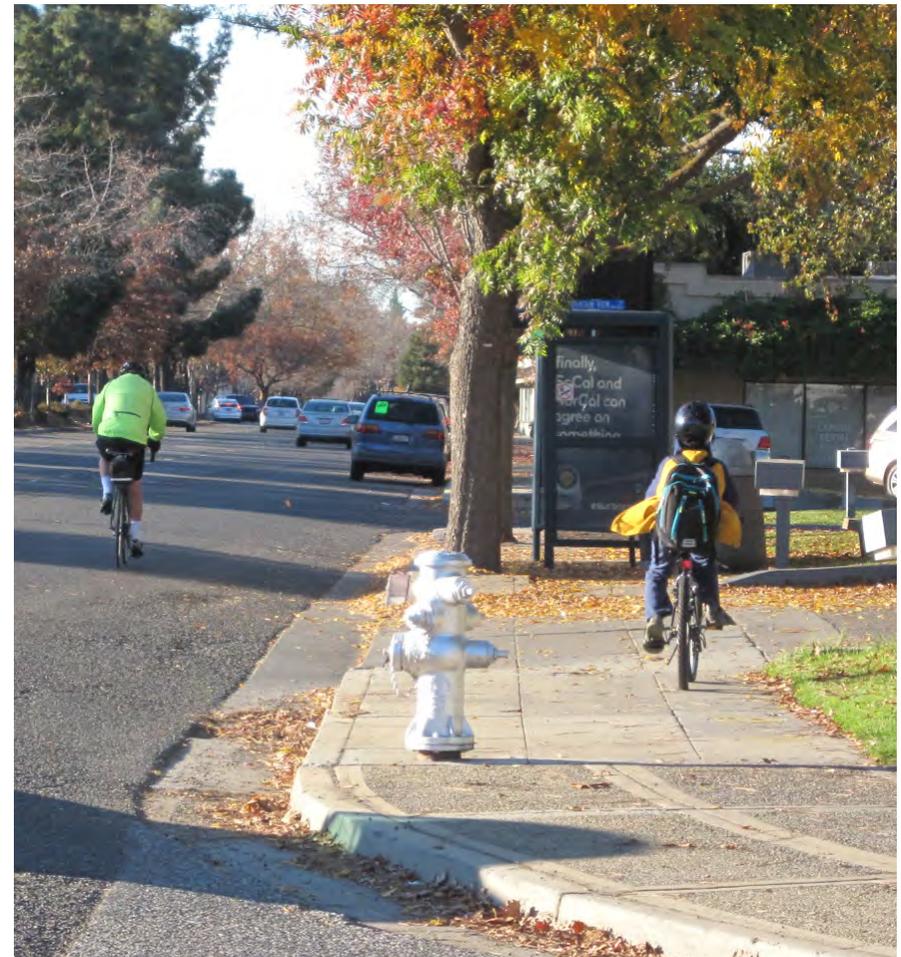


Figure 3-5: Corridor Streetscape: Calderon Avenue to Crestview Drive

## TYPICAL INTERSECTIONS

The intersection enlargement graphics (see Figures 3-6 through 3-10) illustrate a palette of recommended standard treatments to improve pedestrian, bicycle and transit access at intersections along El Camino Real. The four typical intersections are representative of the locations listed below:

- **Side Streets** are non-signalized streets that intersect and only allow right turns onto El Camino Real. Side streets include Rich Avenue, Mariposa Avenue, Pettis Avenue, Palo Alto Avenue, Mountain View Avenue, Oak Street, Hope Street, Lane Avenue, View Street, Boranda Avenue, Bush Street, Bonita Avenue, Ehrhorn Avenue, Montgomery Street, Bay Street, Yuba Drive, Dale Avenue and Crestview Drive.
- **T-intersections** are three-way signal-controlled or pedestrian hybrid beacon (PHB)-controlled intersections that have proposed bicycle infrastructure across El Camino Real. T-intersections include Del Medio Avenue, Jordan Avenue, Ortega Avenue, Distel Circle, Distel Drive and Clark Avenue.
- **Four-way intersections** are four-way signalized intersections that have proposed bicycle infrastructure along the El Camino Real leg of the intersection. Four-way intersections include Grant Road.
- **Cross-corridor intersections** are three- or four-way signalized intersections with bicycle infrastructure along all legs of the intersection. Cross-corridor intersections include San Antonio Road, Showers Drive, Rengstorff Avenue, Escuela Avenue, Shoreline Boulevard, Castro Street, Calderon Avenue and Sylvan Avenue.



*Bicyclists currently utilize sidewalks or share the road with vehicles*

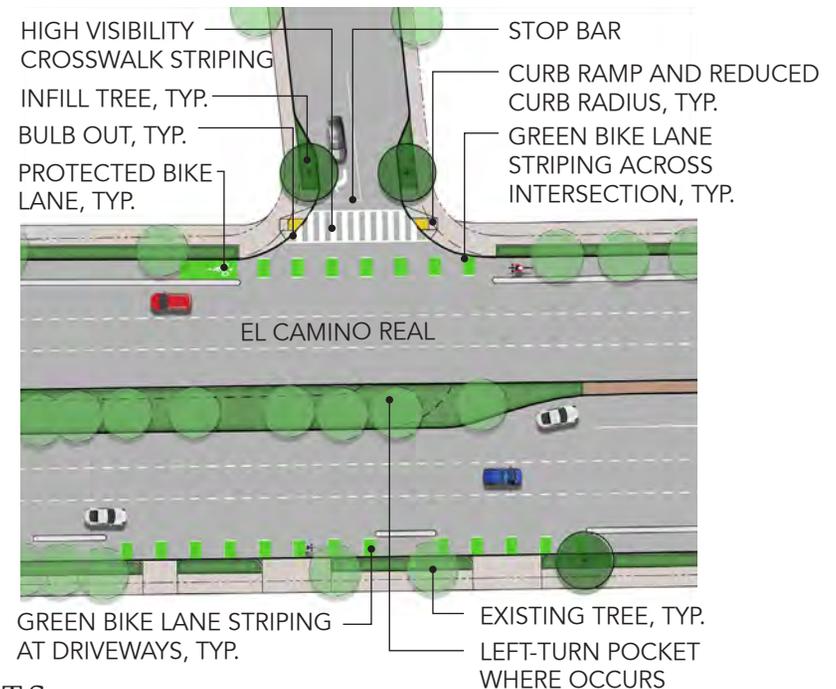
## Side Streets

These intersections (see Figure 3-6) generally have a lower volume stop-controlled side street with two travel lanes and on-street parking. Access on and off El Camino Real is generally limited to right-in/right-out movements, though some locations also allow left turns from El Camino Real onto the side street. Bicycle facilities are not provided on the side street. There are no bus routes on any side streets though multiple bus stops are located on El Camino Real near the corner of side streets.

Improvements to consider, subject to feasibility and Caltrans approval, include:

- Replace existing transverse double line crosswalk striping with higher visibility markings, such as a ladder marking.
- Provide accessible curb ramps conforming to Caltrans Revised Standard Plan RSP A88A, or the most current standard.
- Provide stop bar to indicate location where vehicles should stop, to minimize vehicular encroachment into the crosswalk and pedestrian walk zone.
- Reduce the curb return radius to slow the speed of turning vehicles, particularly those turning from El Camino Real onto the side street. Curb return radii of fifteen feet provide the greatest traffic calming benefits, but actual radii should be determined based on design vehicle requirements and the geometry of the roadway.
- Where parking is allowed on the side street, provide curb extensions to reduce pedestrian crossing distance and vehicular exposure. Curb extensions should be set back two feet from the edge of the traveled way (i.e. thirteen feet from the road centerline for an eleven-foot wide lane). Curb extensions should be prioritized at village centers and neighborhood corners, where a higher level of pedestrian activity can be expected.

- Incorporate green streets and green stormwater infrastructure into curb extension areas, if supported by existing roadway drainage patterns.
- Provide green-colored dashed bike lanes across the intersection to increase visibility of cyclists to motorists at conflict points.



N.T.S.

**Figure 3-6: Typical Side Street**

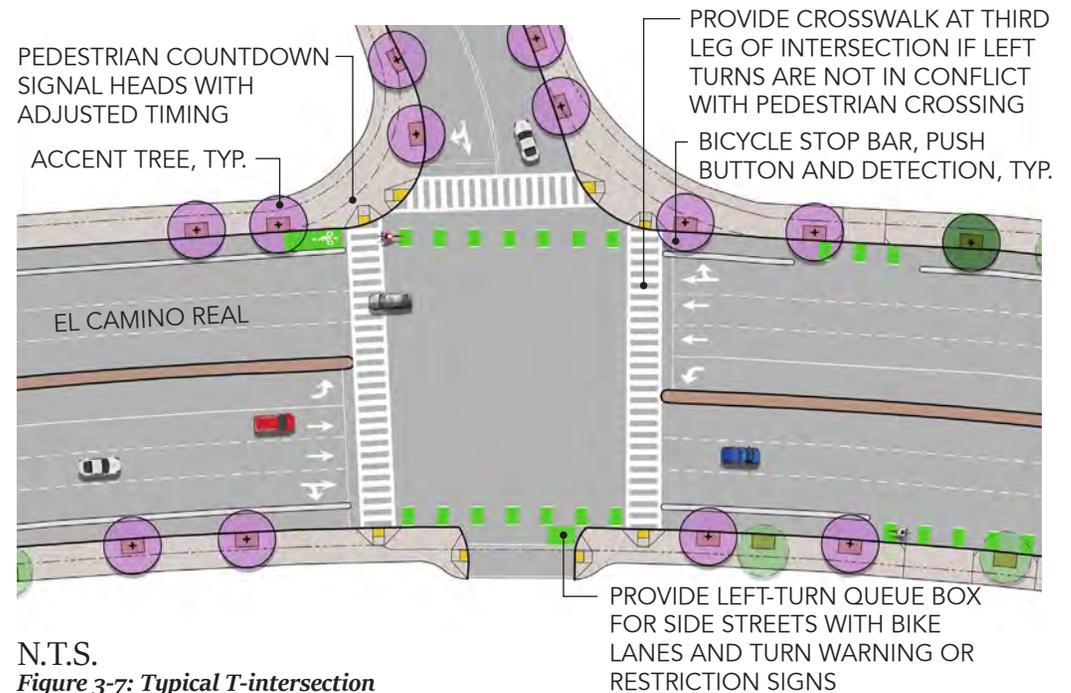
*All improvements shown are conceptual and subject to further study and refinement.*

## T-intersections

These intersections (see Figure 3-7) generally have a moderate volume signal-controlled or PHB controlled side street, with two to five travel lanes and on-street parking. A few are unsignalized. Bicycle facilities are provided at some T-intersection locations. There are no bus routes along T-intersection streets though multiple bus stops are located near the corner of T-intersections.

Improvements to consider, subject to feasibility and Caltrans approval, include treatments noted previously for side streets including:

- High visibility crosswalk markings, such as ladder crosswalks
- ADA accessible curb ramps
- Advanced stop bar
- Reduced curb radius
- Curb extensions
- Green streets and green stormwater infrastructure
- Green-colored dashed bike lanes at intersections



**Figure 3-7: Typical T-intersection**

*All improvements shown are conceptual and subject to further study and refinement.*

## DESIGN CONCEPT

In addition, the following should be considered for T-intersections:

- Provide pedestrian signal heads with countdown timing and auditory warnings, as needed.
- Adjust signal timing to prioritize pedestrian and bicycle access (such as using a leading pedestrian interval) and ensure that timing is adequate for crossing, particularly since the crosswalk distances are long and the existing median nosing is too narrow to serve as a pedestrian refuge. Consider the use of pedestrian adaptive signal timing.
- Provide mid-crossing pedestrian refuge islands where there is sufficient median width
- Where bike lanes are provided on the side street and where space allows, provide a green-colored left-turn queue box to facilitate left turns from the side street onto El Camino Real. Right-turn-on-red restrictions or signage that directs vehicles to yield when bicyclists are present (see Figure 3-8) may be required if the queue box is located in front of signalized driveways that acts as a fourth leg at the intersection.
- Provide an advanced stop bar for motorists on El Camino Real if loop detectors are being replaced.

- Add a crosswalk to the third leg of the intersection at signalized intersections that currently have crosswalks at only two legs, provided the left turns are not in conflict with the pedestrian crossing.
- Provide a stop bar for bicyclists on El Camino Real to minimize bicyclist encroachment into the crosswalk and pedestrian walk zone.
- Provide bicycle detection, bicycle detector pavement marking, and a bicycle push button to enhance access along the corridor.



*Figure 3-8: Right-turn Restriction Signage*

## Four-way Intersection

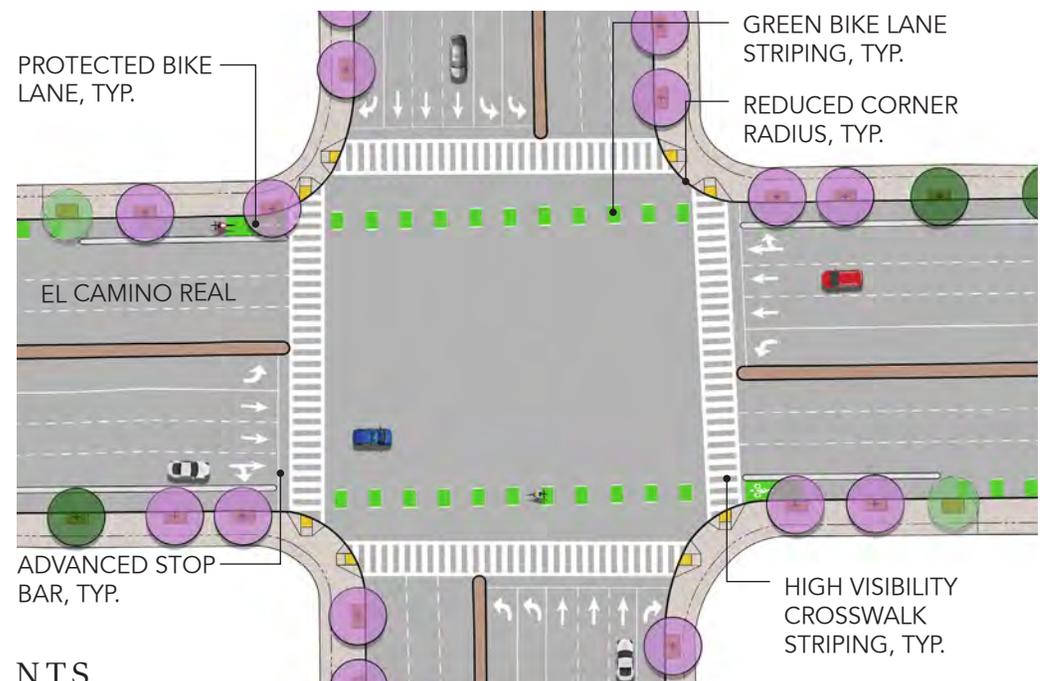
These are generally moderate to heavy volume signal-controlled roadways, with four to nine travel lanes without on-street parking (see Figure 3-9). Bicycle facilities are not provided on the side street, but should be considered in the future as recommended by the 2015 Bicycle Transportation Plan.

Improvements to consider, subject to feasibility and Caltrans approval, include treatments previously noted including:

- High visibility crosswalk markings, such as ladder crosswalks
- ADA accessible curb ramps
- Advanced stop bar
- Reduced curb radius
- Curb extensions
- Green streets and green stormwater infrastructure
- Green-colored dashed bike lanes at intersections
- Pedestrian signal heads
- Adjusted signal timing
- Pedestrian refuge islands where there is sufficient median width
- Green-colored left-turn queue box
- Bicycle detection and push button

In addition, vehicular right-turn-on-red restrictions should be considered to help minimize conflicts between bicyclists

making a through movement and right-turning vehicles. The restriction should be utilized if a bicycle signal is utilized to separate the movements, or if a leading bicycle interval is used. The restriction has a potential to increase traffic congestion if the volume of right-turn vehicles is sufficiently high. Obtaining traffic counts to determine these locations will be required. If the volume of right-turn vehicles is sufficiently high, terminating the protected bike lane in advance of the intersection and adding a mixing zone for cyclists and motorists may be required.



N.T.S.

**Figure 3-9: Typical Four-way Intersection**

*All improvements shown are conceptual and subject to further study and refinement.*

## Cross-corridor Intersections

These are generally heavy volume signal-controlled roadways, with four to eight travel lanes, mostly without on-street parking on the side street (see Figure 3-10). Bicycle facilities are provided on the side street and represent key opportunities for improving connectivity to El Camino Real from the surrounding neighborhoods.

Improvements to consider, subject to feasibility and Caltrans approval, include treatments noted previously:

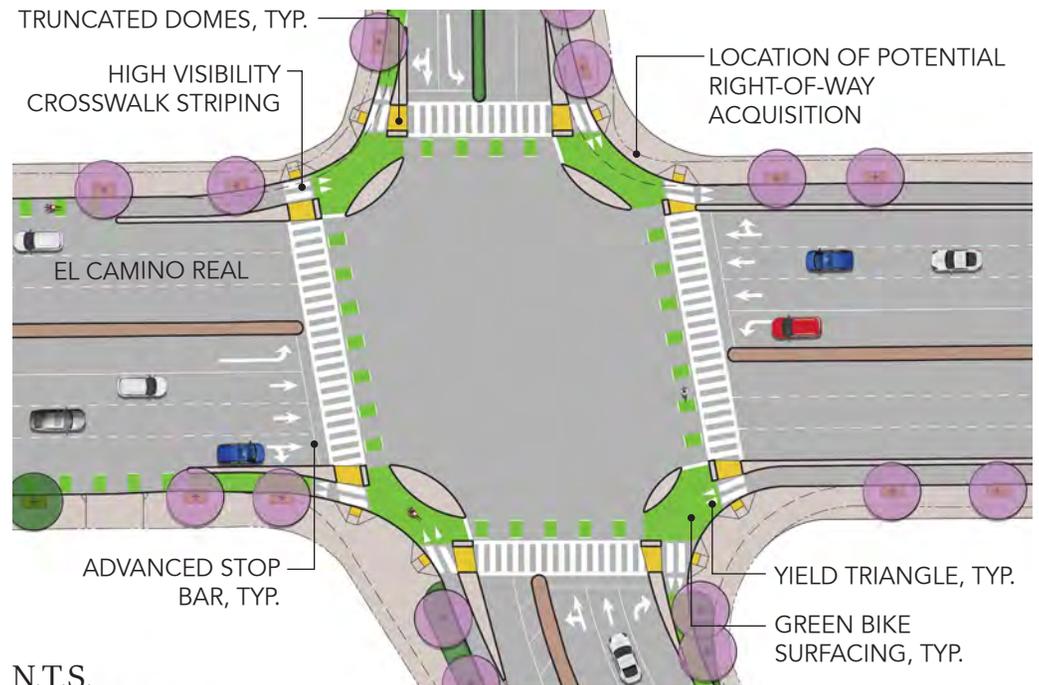
- High visibility crosswalk markings, such as ladder crosswalks
- ADA accessible curb ramps
- Advanced stop bar
- Reduced curb radius
- Curb extensions
- Green streets and green stormwater infrastructure
- Green-colored dashed bike lanes at intersections
- Pedestrian signal heads
- Adjusted signal timing
- Pedestrian refuge islands where there is sufficient median width
- Green-colored left-turn queue box
- Bicycle detection and push button
- Right turn-on-red restrictions

In addition, the following should be considered:

- Provide a protected intersection treatment with raised islands to provide pedestrians and bicyclists waiting at the

intersection a protected place to queue, to improve the visibility of pedestrians and bicyclists to turning vehicles, and to reduce vehicular speeds of turning vehicles. Right-of-way acquisition may be required to achieve the desired protected intersection geometry. These intersections include, but are not limited to: Shoreline Boulevard, Calderon Avenue and Sylvan Avenue.

- Provide green pavement markings at the protected intersection to denote bicycle queuing and travel areas.



N.T.S.

**Figure 3-10: Typical Cross-corridor Intersection**

*All improvements shown are conceptual and subject to further study and refinement.*

## Other Recommendations

In addition to the previous recommendations, the following elements are recommended:

- At village centers, neighborhood corners and cross-corridor routes, provide bike parking areas with large enough spaces to support a bike share program.
- At conflict points, such as bike through lane pockets, driveways and bus stops, provide green colored bikeways.
- Consolidate and reduce the number of driveways when the opportunity arises to reduce pedestrian exposure to vehicles. Maintain four feet of sidewalk width across the driveway and maximize the transition slope to slow down vehicles turning into driveways from El Camino Real.
- Require transportation network companies (TNCs) to utilize parking areas on side streets or private lots for pick up and drop off locations in order to avoid conflict with bicycle facilities along El Camino Real.
- Consider the provision of additional crossing locations to aid in crossing El Camino Real, if redevelopment will bring concentrated pedestrian activity to an area, such as through a new shopping center.

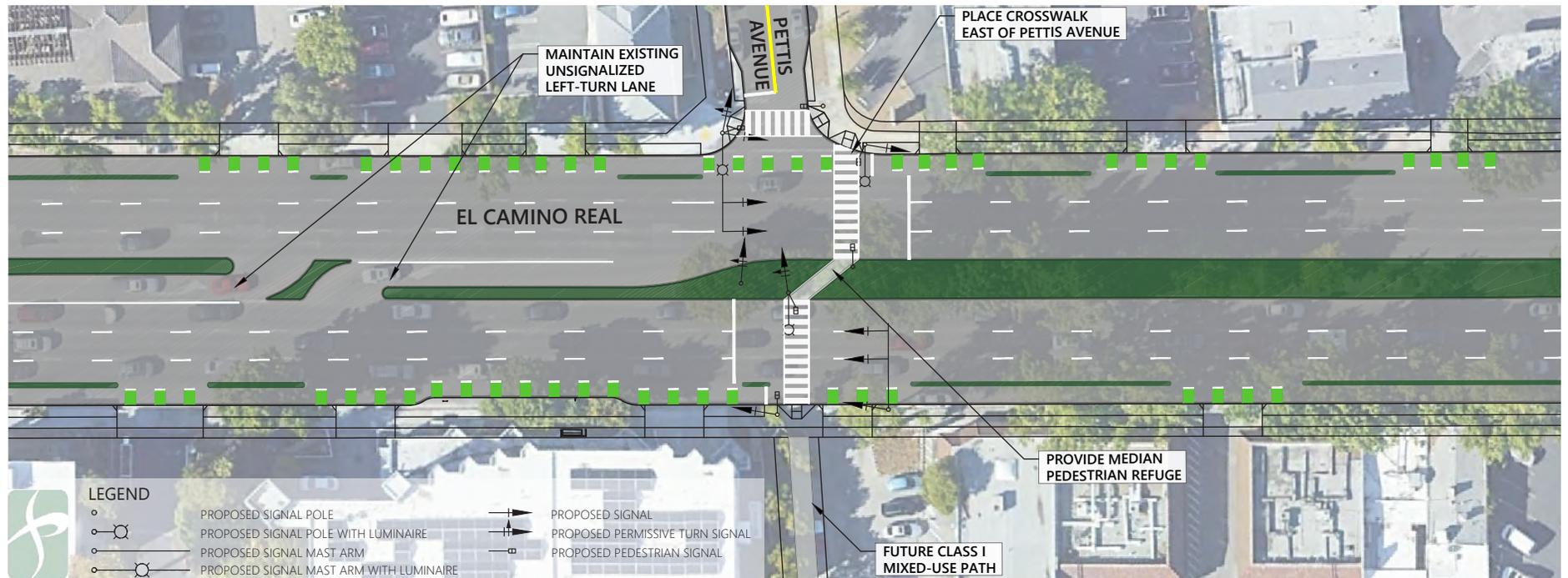


*A pedestrian and bicyclist sharing the sidewalk, which also accommodates other amenities*

## PEDESTRIAN/BICYCLE CROSSINGS

In order to improve connectivity and increase safety for pedestrians and bicyclists, three new pedestrian/bicycle crossings are proposed along the corridor at the following cross streets: Pettis Avenue, Bonita Avenue and Crestview Drive (see Figures 3-11 through 3-13). These locations were determined in the 2014 ECRPP by identifying midpoints of segments along El Camino Real with a gap of at least 2,000 feet between existing pedestrian crossings. Locating the crossings at these locations with signalized treatments will allow for safe and efficient travel opportunities for pedestrians and bicyclists.

Pedestrian/bicycle crossings should include pedestrian-activation and require traffic to come to a complete stop, through the use of a pedestrian hybrid beacon or full signalized intersection. If traffic counts indicate a low volume of left-turning vehicles onto Bonita Avenue or Crestview Drive, then a protected turn signal should be considered. Traffic signals should be synchronized with adjacent intersections to improve traffic flow. The pedestrian refuge in the median should be angled to orient pedestrians toward oncoming traffic before leaving the refuge. Crossings should also include high-visibility crosswalk markings, advanced stop signage and



**Figure 3-11: Pedestrian/Bicycle Crossing - Pettis Avenue**  
 All improvements shown are conceptual and subject to further study and refinement.

N.T.S.

## Pettis Avenue

striping, and should also consider curb extensions and adequate nighttime lighting. Landscaping along the sidewalk and in the center median should be located to maintain required sight distance.

As shown in Figure 3-11, recommended improvements at Pettis Avenue include:

- Pedestrian-activated hybrid beacon or full traffic signals for pedestrians and bicyclists
- Synchronized traffic signals
- Angled pedestrian refuge
- High-visibility crosswalk markings
- Advanced stop signage and striping
- Curb extensions
- Adequate nighttime lighting



**Figure 3-12: Pedestrian/Bicycle Crossing - Bonita Avenue**

All improvements shown are conceptual and subject to further study and refinement.

N.T.S.

## DESIGN CONCEPT

### Bonita Avenue

As shown in Figure 3-12, recommended improvements at Bonita Avenue include:

- Pedestrian-activated hybrid beacon or full traffic signals for pedestrians and bicyclists
- Protected turn signal
- Synchronized traffic signals
- Angled pedestrian refuge
- High-visibility crosswalk markings
- Advanced stop signage and striping
- Curb extensions
- Adequate nighttime lighting

### Crestview Drive

As shown in Figure 3-13, recommended improvements at Crestview Drive include:

- Pedestrian-activated hybrid beacon or full traffic signals for pedestrians and bicyclists
- Protected turn signal
- Synchronized traffic signals
- Angled pedestrian refuge
- High-visibility crosswalk markings
- Advanced stop signage and striping
- Curb extensions
- Adequate nighttime lighting

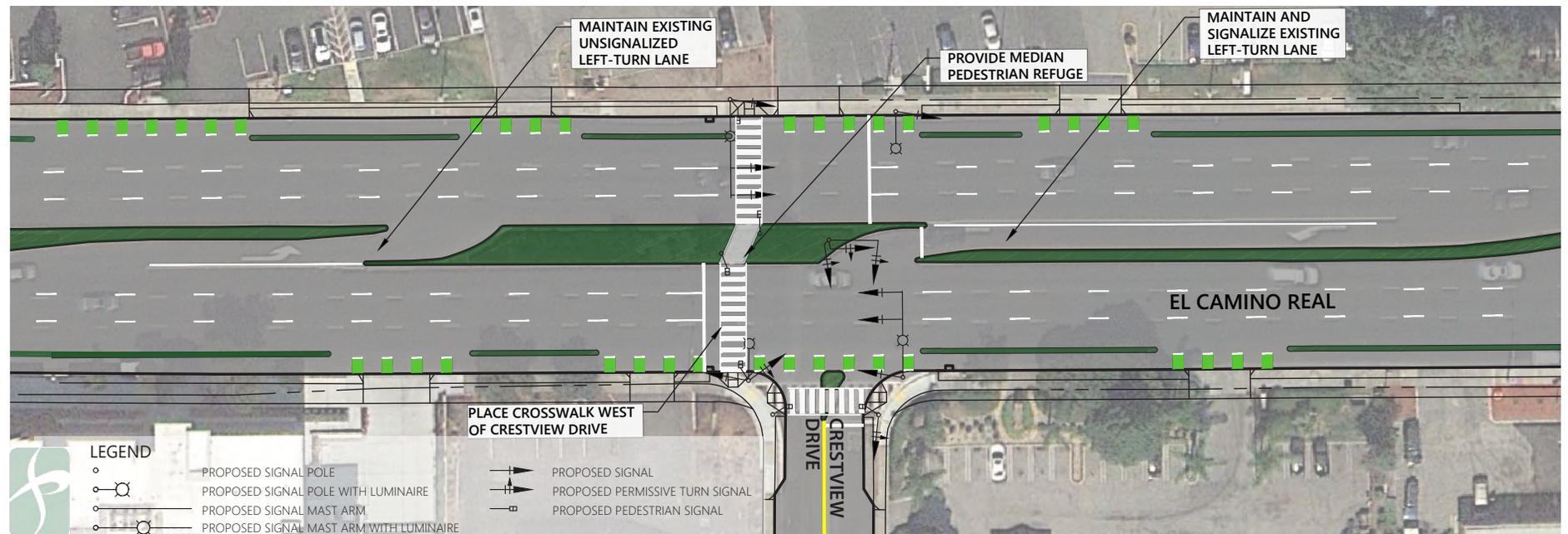


Figure 3-13: Pedestrian/Bicycle Crossing - Crestview Drive

All improvements shown are conceptual and subject to further study and refinement.

N.T.S.

## TYPICAL TRANSIT STOPS

The transit service in Santa Clara County is provided by Santa Clara Valley Transportation Authority (VTA). Line 22 and Rapid 522, which run along El Camino Real across the City of Mountain View, have the highest combined ridership in the VTA system. Within the City, the two lines account for 1400 weekday boardings. The transit service and routes (see Figure 3-15) illustrates bus routes that run along or intersect El Camino Real according to VTA's 2019 New Transit Service Plan, which will be incorporated following the implementation of BART service to Santa Clara County.

There are three proposed bus stop treatments along the corridor (see Figure 3-14), based on the existing curb-to-curb distance across El Camino Real. These conditions assume an existing sidewalk width of eight feet because redevelopment and widening to twelve feet may not be possible, depending on the location along the corridor. All transit stops should be designed to VTA's Bus Stop and Passenger Facility Standards, which were developed in 2018, and provide a safe and efficient experience for passengers and bus drivers alike. Branches of trees that are located in and around the transit stop should be no lower than thirteen feet above the curb and trees and light fixtures should be a minimum two feet from face of curb, measured to the closest element. Adequate pedestrian lighting should be provided at each transit stop, including the back of each transit stop condition. Bus shelters should be clear of sidewalks wherever transit stop location allows, especially at areas with high pedestrian traffic and where a concrete pad has been, or could be, provided for a bus shelter (e.g. El Camino Real/Shoreline Boulevard and Castro Street/El Camino Real).

**Minimal Change Treatment:** This occurs where the existing curb-to-curb distance and travel lane configuration do not allow for further improvements.

**Bus Bulb Treatment:** This occurs where the existing curb-to-curb distance and travel lane configuration provides sufficient space to allow for the curb and sidewalk to be extended or 'bulbed-out' by three feet. This allows the bus to pull over and merge into the bike lane, without entirely exiting the travel lane, which then allows the bus to merge back into the travel lane more easily. The additional walkway width that the bulb provides allows pedestrians to utilize a consistent eight foot minimum walkway width despite the presence of additional VTA stop amenities as well as transit users waiting for the bus. Cyclists would need to stop behind buses that have pulled over, or merge into traffic to bypass or 'leapfrog over' the bus.

**Bus Island Treatment:** This occurs where the existing curb-to-curb distance has already been widened and provides sufficient space to allow for a raised bus boarding island to be located between the travel lane and the bike lane. The island provides an area dedicated to transit users waiting to board. The island allows cyclists to continue their journey without disruption, while the bus is stopped at the island. The bus does not need to pull in and out of the travel lane in order to pick up and drop off passengers, making the stops more efficient as well as avoiding conflict with vehicles when merging. All VTA stop amenities along with waiting transit users are clear of the sidewalk and are located within the bus island, promoting efficiency and clearance along the sidewalk.

Recommended improvements for each bus stop treatment (see Figure 3-14) are described on the next page.

### Minimal Change Treatment

At minimal change treatments:

- The right-of-way and curb-to-curb space is limited and cannot accommodate more enhanced treatment options
- VTA bus stop amenities (shelter, seating, trash receptacle) constrain pedestrian walkway; relocate to a pad behind sidewalk where possible
- Bicyclists must wait when bus is present at stop
- Bus pulls completely out of travel lane into bicycle lane

### Bus Bulb Treatment

At bus bulb treatments:

- Wider sidewalks are provided with the addition of VTA bus stop amenities
- Bus stop amenities are placed on a pad behind sidewalk where possible
- Bicyclists must wait when bus is present at stop or merge into travel lane
- Buses pull partially out of vehicular travel lane at stops

### Bus Island Treatment

At bus island treatments:

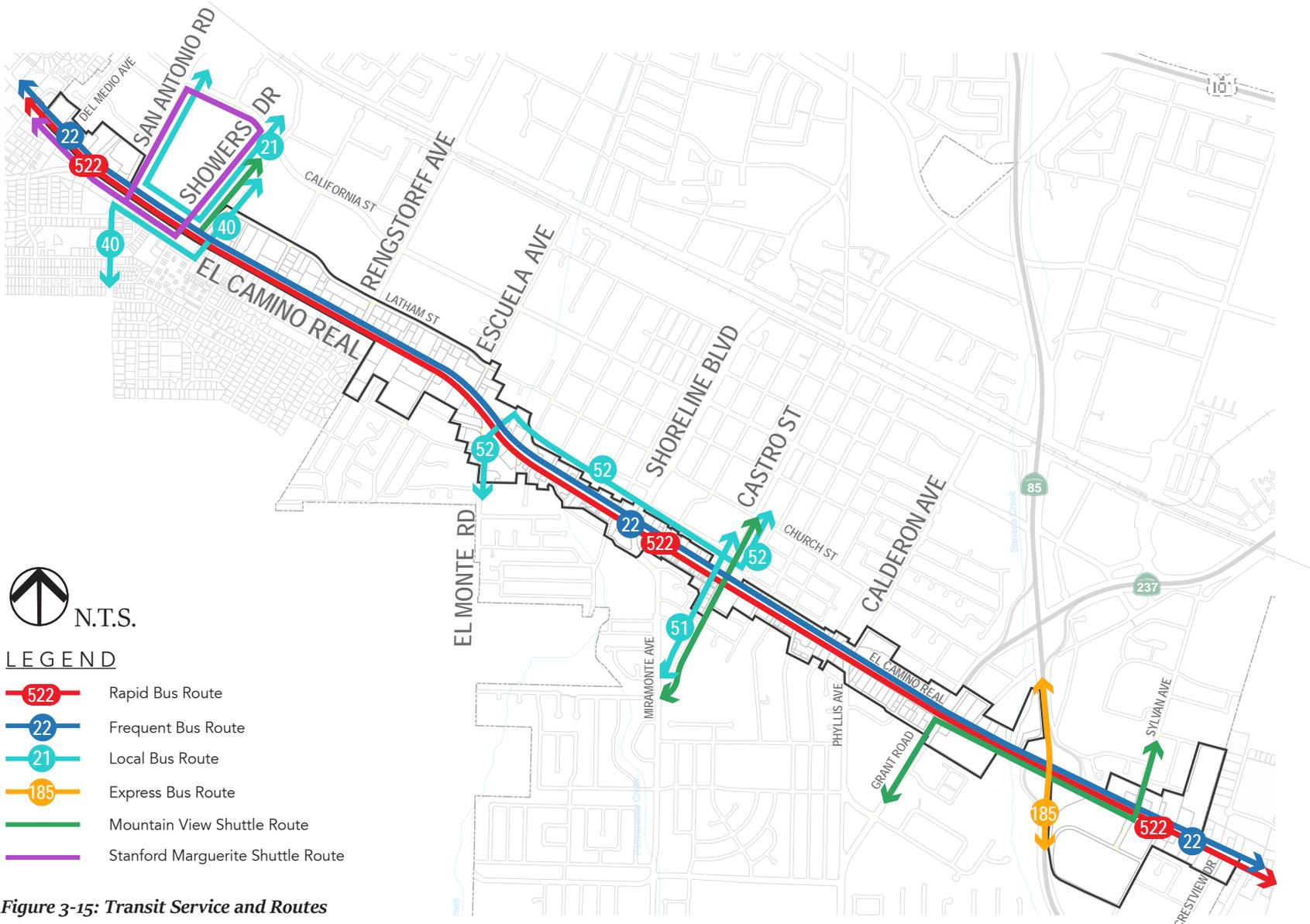
- VTA amenities do not interfere with the sidewalk
- A through bicycle route is available whether or not bus is present at stop
- Buses stay in the outside travel lane at the stop and do not need to merge into/out of traffic
- Additional right-of-way is required to accommodate the width of the bus island



N.T.S.

**Figure 3-14: Typical Bus Stop Treatments**

*All improvements shown are conceptual and subject to further study and refinement.*



N.T.S.

**LEGEND**

- 522 Rapid Bus Route
- 22 Frequent Bus Route
- 21 Local Bus Route
- 185 Express Bus Route
- Mountain View Shuttle Route
- Stanford Marguerite Shuttle Route

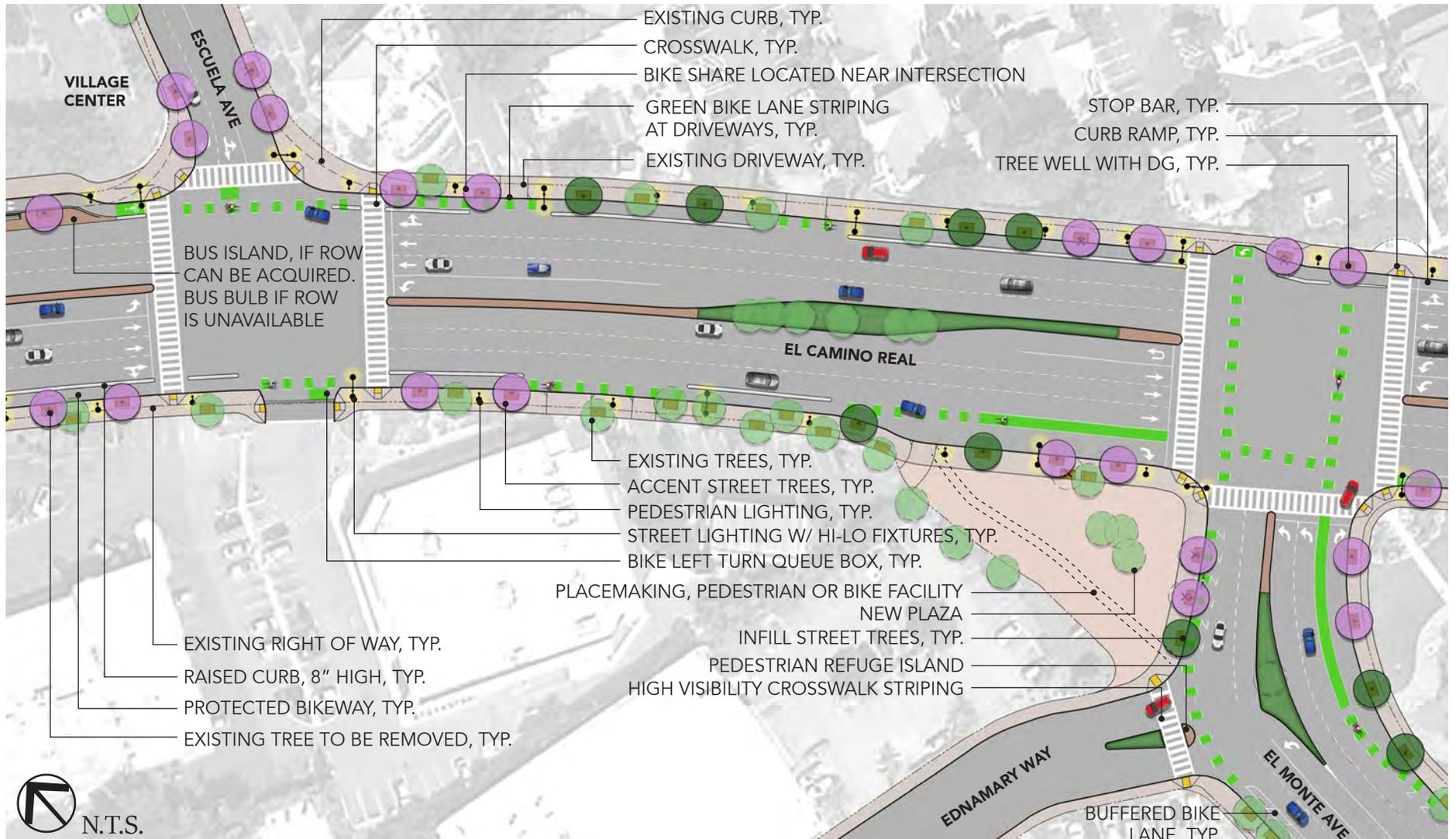
Figure 3-15: Transit Service and Routes

## PRECISE PLAN LAND USE AREAS

### Village Centers & Neighborhood Corners

Village Centers and Neighborhood Corners are areas identified in the ECRPP and shown in Figures 3-3 through 3-5. In these areas, ground floor commercial spaces will support pedestrian activity and create opportunities for vibrant public spaces. Streetscape elements to be incorporated within Village Centers (see Figure 3-16) and Neighborhood Corners (see Figure 3-17) are outlined further in Chapter 4. Key considerations for Village Centers and Neighborhood Corners include the following:

- Village centers and Neighborhood Corners are primary pedestrian areas and should have amenities that support high levels of pedestrian activity.
- Tree wells should be four feet wide by eight feet long where the sidewalk width must remain eight feet. Tree wells should be enlarged to five feet wide by eight feet long where the sidewalk width is twelve feet. Tree wells should have a stabilized decomposed granite surface with root barriers at the perimeter.
- Green infrastructure should be installed to the extent possible in locations such as landscaping strips, curb extensions, sidewalks and the future public plaza created by slip lane closure at El Monte Ave. Green infrastructure includes permeable paving, bioswales, and rain gardens.
- In general, existing mature trees should be retained. Smaller, more colorful accent trees should replace the existing scarlet oaks at intersections to differentiate the primary pedestrian areas and provide seasonal color. Utilize different species throughout the corridor to improve species diversity of the urban forest, be consistent with General Plan policies regarding use of native species (INC 5.5 and POS-12), and complement those already on-site (see Chapter 4). Accent trees should be spaced at thirty feet to forty feet intervals. Larger street trees should be placed at forty feet to forty-five feet intervals or to infill gaps between the existing street trees.
- Benches, bike racks and trash receptacles should be provided mid-block on blocks that are 1,000 feet or longer and near intersections at public/private plazas. They should be located by the curb while maintaining a minimum of five feet clear pedestrian walk zone or be located within the building setback. Bike and/or scooter share stations should be placed near intersections in the amenity zone (see Figure 3-18), preferably near transit stops, public plazas, and other destinations.
- Mid-block cut-throughs and public pathways from Church Street and Latham Street should be signed and provide other visual cues in the public right-of-way that encourage pedestrians to utilize them.
- Street lights should be located approximately 130' feet apart with a pedestrian light attached to each post. An additional pedestrian light should be located in between each street light. Light level should be sufficient to support high levels of pedestrian activity, while also achieving dark sky compliance. The recommended light levels for roadways in Primary Pedestrian Areas is 1.3 foot-candles.



**Figure 3-16: Typical Village Center - El Monte Avenue**  
 All improvements shown are conceptual and subject to further study and refinement.

DESIGN CONCEPT

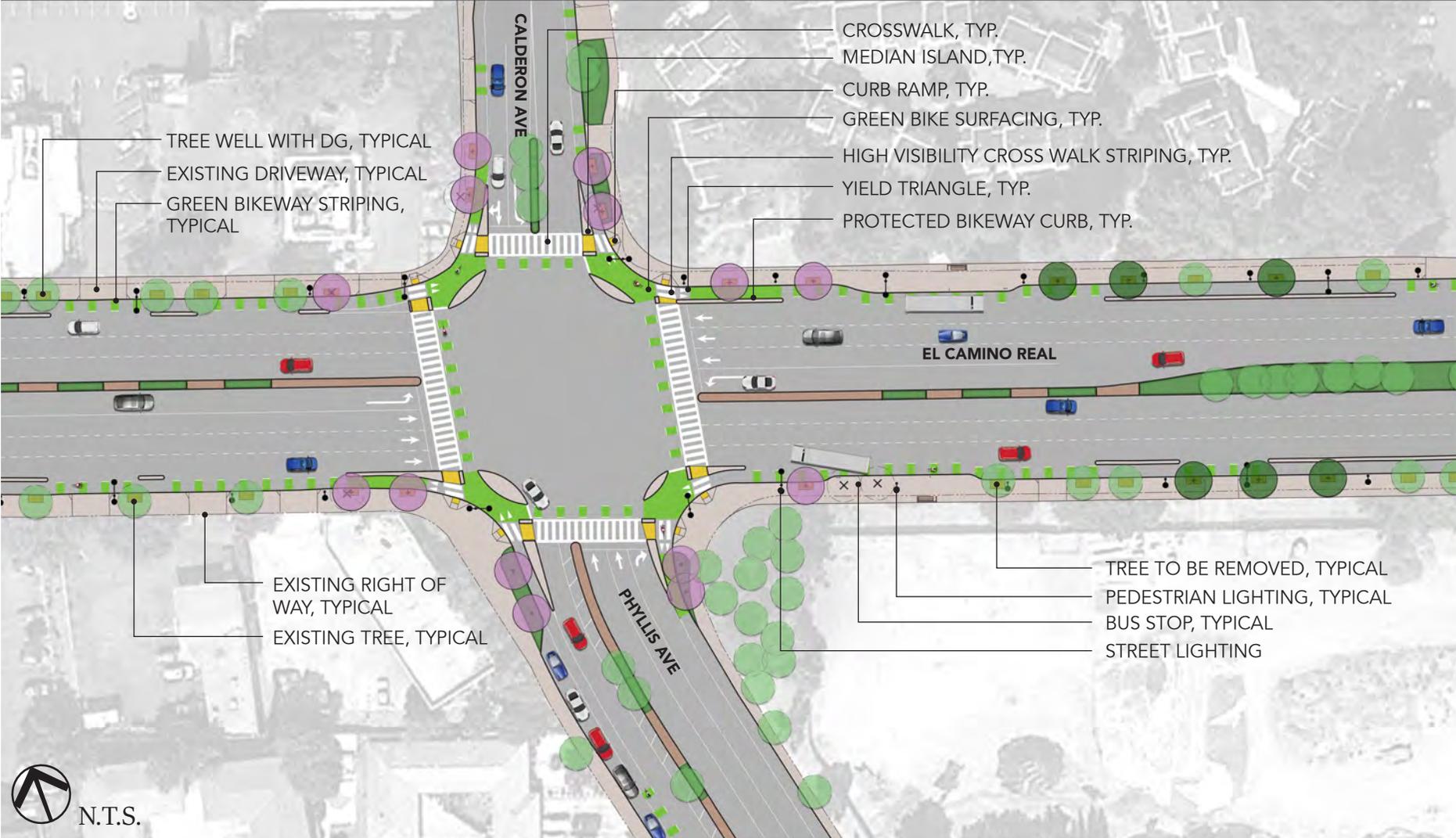
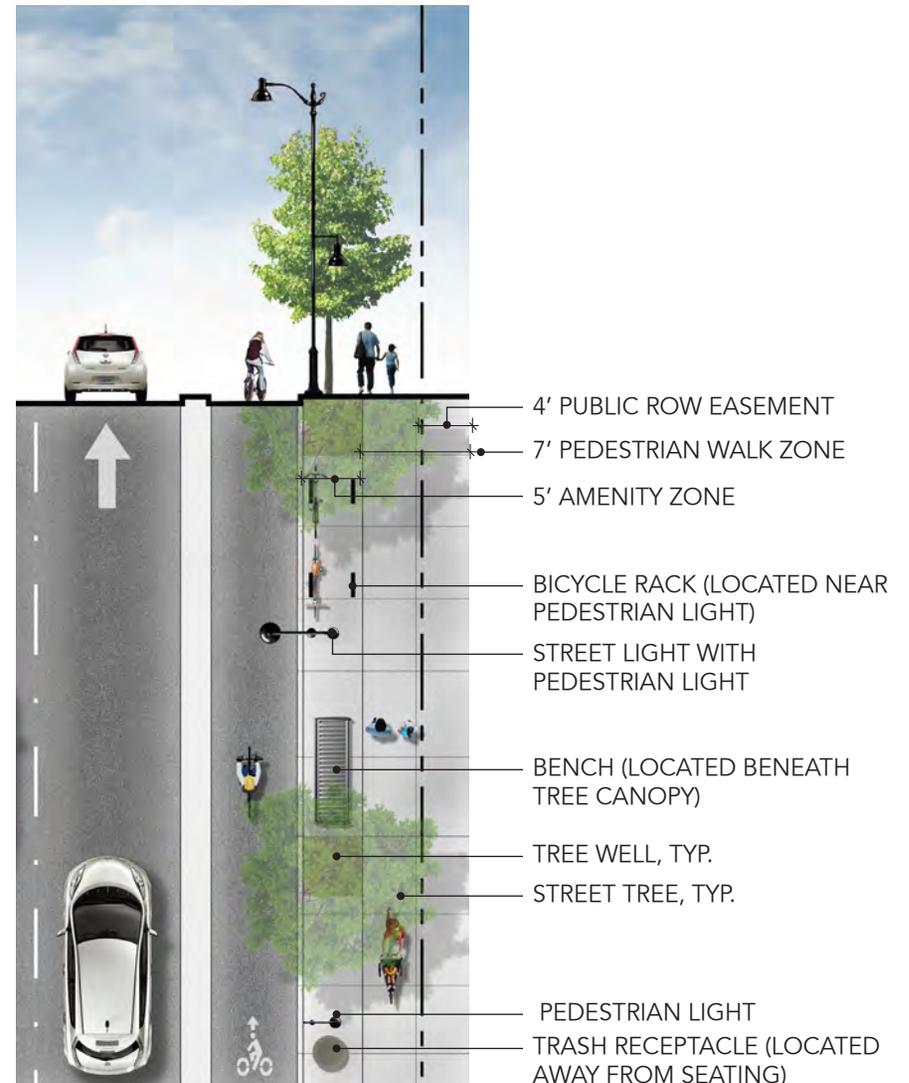


Figure 3-17: Typical Neighborhood Corner - Calderon Avenue  
 All improvements shown are conceptual and subject to further study and refinement.

## Minimum Sidewalk Layout Guidelines

New development along the corridor will be required to follow these guidelines for their frontage as a minimum and expected to further enhance the pedestrian comfort and experience along the corridor with their on-site design. Examples of complementary on-site design elements include covered walkways, shade trees at back of sidewalk, permeable paving and enhanced green infrastructure.



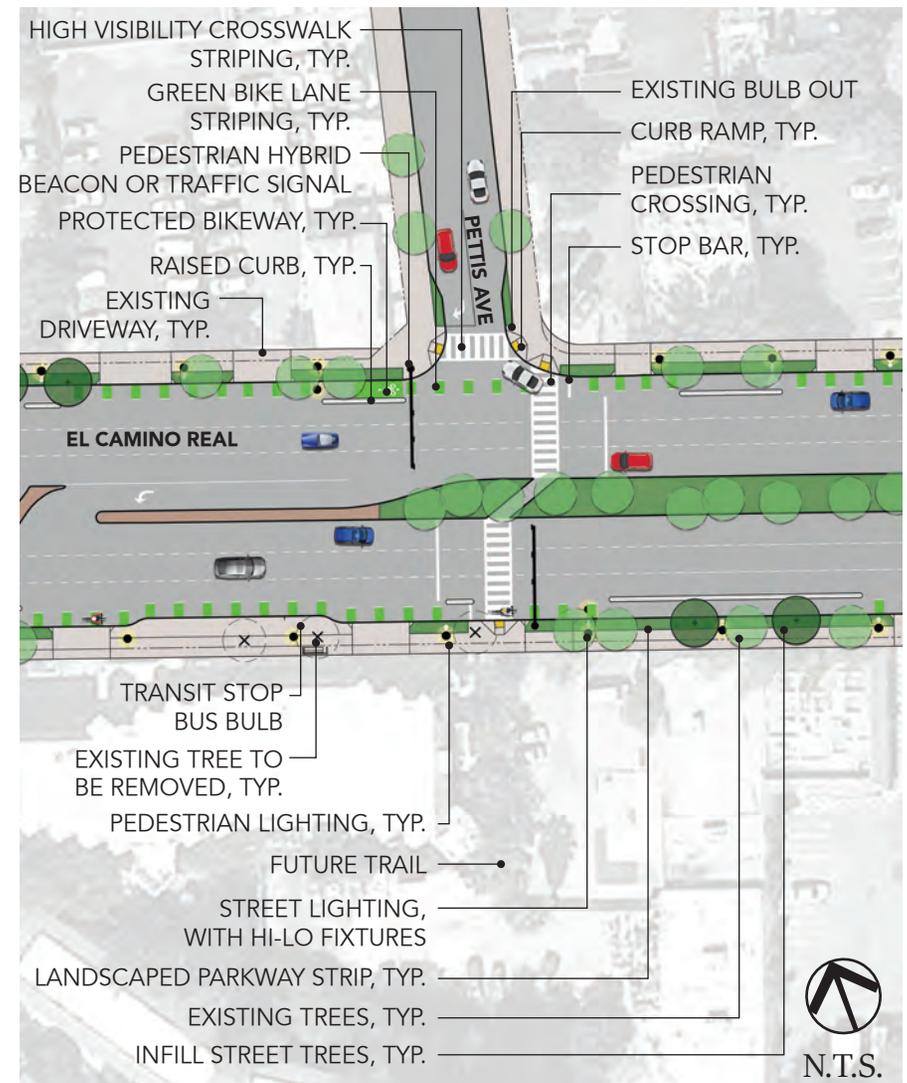
**Figure 3-18: Typical Sidewalk Layout**

*All improvements shown are conceptual and subject to further study and refinement.*

## Secondary Pedestrian Areas

Secondary Pedestrian Areas were identified in the ECRPP as lower intensity use areas, with less ground floor commercial space requirements and include most residential properties along the corridor. The locations of these areas are shown in Figures 3-3 through 3-5. Streetscape elements to be incorporated within Secondary Pedestrian Areas are displayed in Figure 3-19 and outlined further in Chapter 4. Key considerations for Secondary Pedestrian areas include the following:

- This zone is expected to have low to medium intensity pedestrian activity and should have amenities that support lower levels of pedestrian activity.
- Trees should be placed in landscaped parkways that are five feet in width, where the sidewalk width is twelve feet. Trees should have root barriers at the sidewalk and curbside edges.
- Additional street trees should be placed at forty feet to forty-five feet intervals or to infill gaps between the existing street trees.
- Pedestrian-scale lights should be provided in addition to street lights. The recommended light levels for roadways in Secondary Pedestrian Areas is 0.9 foot-candles.



**Figure 3-19: Typical Secondary Pedestrian Area - Pettis Avenue**  
 All improvements shown are conceptual and subject to further study and refinement.

## LOCATION SPECIFIC IMPROVEMENTS

### State Route 85

The State Route 85 overpass (see Figure 3-20) is among the most stressful segments for pedestrians and bicyclists on El Camino Real in Mountain View. The vehicular speed limit increases from 35 mph to 40 mph and multiple merging locations are present on both sides of the corridor.



Figure 3-20: State Route 85

Specific bicycle and pedestrian improvements for the SR 85 overpass include:

- Widening the bridge to accommodate 10-foot wide sidewalks with 4-foot wide tree wells and pedestrian scale lights.
- Working to reduce speed limits from 40 mph to 35 mph to create more comfortable bike and pedestrian environment and reduce extent of geometric design constraints and plant palette limitations.

- Reconfiguring on-ramps and exits by eliminating free right turns and squaring up ramps to reduce turning speeds and prioritize pedestrians and bicyclists.
- Reconfiguring roadway to accommodate a 9-foot wide protected bikeway (or at minimum, a 6-foot bike lane)

The above recommendations are consistent with the alternatives studied in the Caltrans 2012 Project Study Report, particularly the alternative to convert the existing cloverleaf interchange to a signalized, modified two-quadrant cloverleaf (L-8) interchange (see Figure 3-21) on the south side of El Camino Real, including replacement of the bridge over SR 85 with a longer and wider structure.

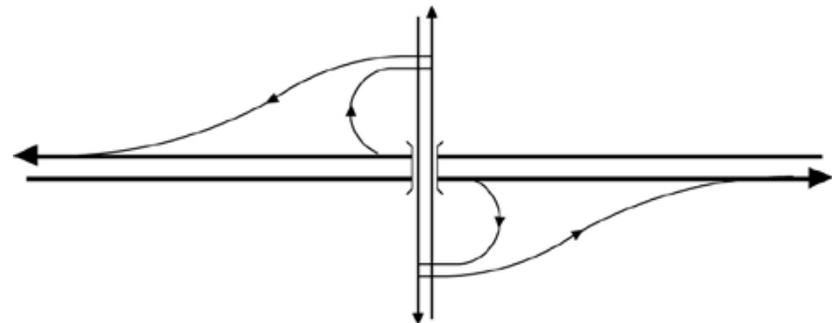
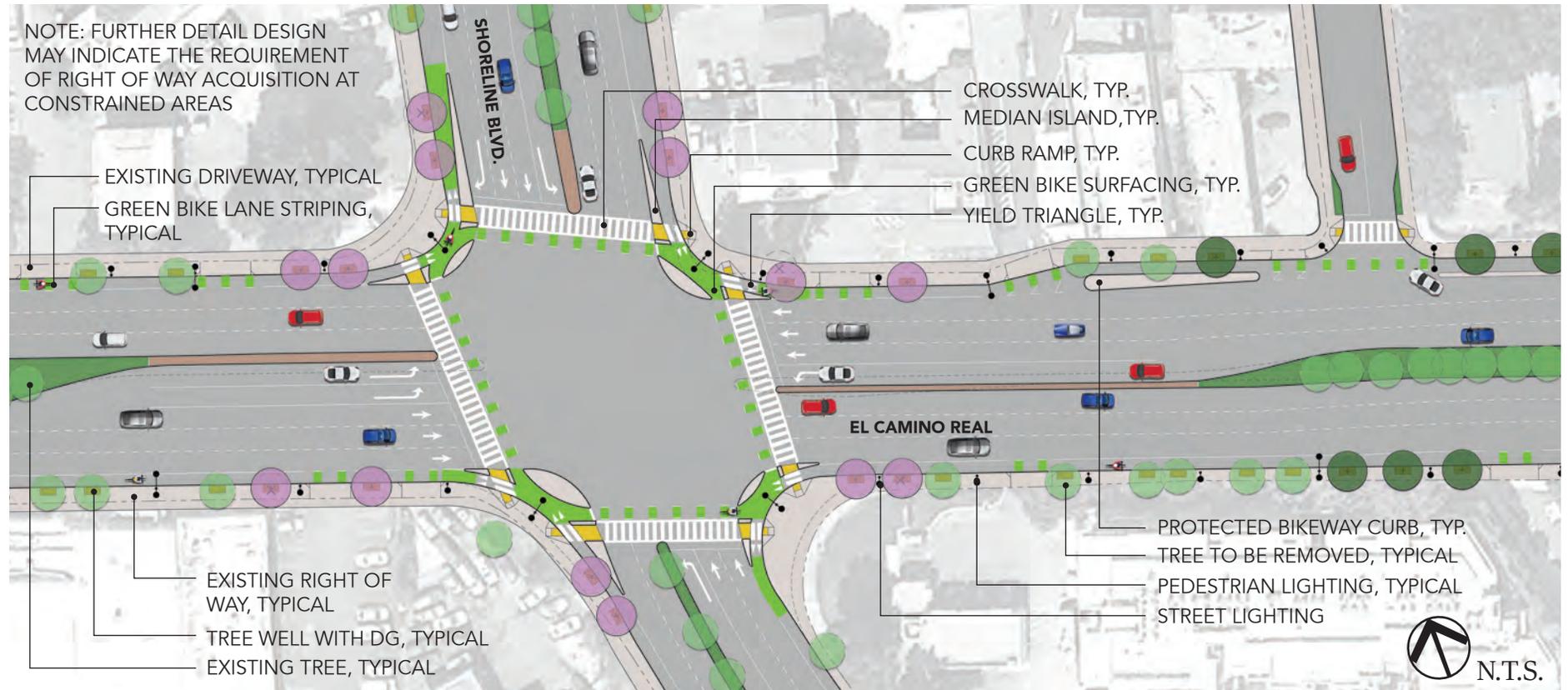


Figure 3-21: L-8 Interchange

## Shoreline Boulevard

Shoreline Boulevard is one of the largest intersections along El Camino Real in Mountain View and is described by the ECRPP as a cross corridor facility with a critical network gap. As shown in Figure 3-22, the Streetscape Plan proposes Shoreline Boulevard to have a cross corridor protected intersection design with improvements that will increase the safety of pedestrians and bicyclists.



**Figure 3-22: Shoreline Boulevard Improvements**

*All improvements shown are conceptual and subject to further study and refinement.*

# 4 STREETScape GUIDELINES

## PEDESTRIAN AND BICYCLE AMENITIES

This chapter establishes standards for future improvements proposed by the design concepts described in Chapter 3. It provides specific recommendations for amenities, furnishings and plant species proposed along the corridor. The guidelines are provided in order to form a consistent and united identity for El Camino Real as different segments and elements are implemented along the four-mile corridor. The following include pedestrian and bicycle improvements to enhance safety and circulation throughout El Camino Real.



### Class IV Protected Bikeway

A bikeway that is physically separated from the adjacent travelway through the use of a raised concrete curb or other equivalent vertical element that minimizes inadvertent or intentional vehicular intrusion into the bikeway.



### 2-Stage Bike Queue Box

A painted area for cyclists to queue that is outside of the bikeway, travel lane, and crosswalk and that allows cyclists to make a left turn at intersections through a two-stage movement (similar to pedestrians crossing two legs of an intersection)



### Green Bike Lane

A pavement marking of high friction surface treatment in the color green that helps increase the visibility of cyclists to motorists and delineates the areas where cyclists are expected to travel through intersections or other conflict points such as across driveways.



### Bike Detection

Mechanism used to alert the intersection signal controller to change traffic signals to give a cyclist the right-of-way which may include automatic pavement inductive loops, video sensing, or manual button activated systems.



### Pedestrian High Visibility Crosswalk

Pavement markings that increase the awareness of motorists to pedestrian crossing areas through the use of ladder style markings.



### **Pedestrian Curb Extension**

An extension or widening of the sidewalk into the parking lane that helps calm traffic by narrowing the roadway, reduces pedestrian crossing distances and increases the visibility of pedestrians to motorists.



### **Pedestrian Curb Ramp**

A ramped transition between the sidewalk and the roadway pavement that should be oriented toward the associated crosswalk.



### **Pedestrian Hybrid Beacon (PHB)**

A pedestrian-activated traffic control device that helps pedestrians cross roadways by requiring motorists to make a complete stop through a red signal indication. PHBs are also known as High Intensity Activated Crosswalks (HAWKS).



### **Angled Pedestrian Refuge**

A median refuge for pedestrians that orients them toward the direction of oncoming vehicles to encourage pedestrian awareness of oncoming traffic and motorist eye contact with pedestrians.



### **Landscape Strip**

A planted area along a sidewalk that serves as a buffer between pedestrians and motorists. The landscape strip should be 4-foot wide for an 8-foot sidewalk, and 5-foot wide for a 12-foot sidewalk. Maximize use of green infrastructure elements in landscape strip.



### **Green Stormwater Infrastructure**

Strategies designed to reduce and treat urban stormwater by encouraging percolation through soil and uptake by plants. Strategies include rain gardens, permeable paving, bioswales and street tree planting.

## SITE FURNISHINGS

The suggested palette of site furnishing selections aim to capture the historical identity of El Camino Real while introducing a modern edge to represent the renewal and reinvigoration of the corridor. It features furnishings with durable materials, timeless aesthetics, and recommended colors that allow for flexibility. The proposed light fixtures emulate the form of the mission bell markers yet display a more contemporary style. The palette should be used as a guideline to establish consistency in the furnishings used along El Camino Real in Mountain View.



### Trash Receptacle

Manufacturer: Forms+Surfaces  
Model: Dispatch Litter Receptacle  
Color/Finish: Black



### Bike Rack

Manufacturer: DuMor  
Model: Bike Rack 290  
Color/Finish: Powdercoat-Black



### Bench

Manufacturer: DuMor  
Model: Backed Bench 160  
Backless Bench 164  
(both with center armrest)  
Color/Finish: Black or  
Textured Black



### Street Lights

Manufacturer: Philips  
Model: DOS-SG Luminaire, VR6  
Mounting, RTA906 Pole  
Color/Finish: Black  
Height: 30'  
Spacing: ~130' on-center, coordinated  
with spacing of street trees  
Color Temperature: 3000K (warm)



### Pedestrian Lights

Manufacturer: Philips  
Model: DMS50-SCB Luminaire,  
SSM8 Pole  
Color/Finish: Black  
Height: 12'  
Spacing: ~65' on-center, coordinated  
with spacing of street trees  
Color Temperature: 3000K (warm)

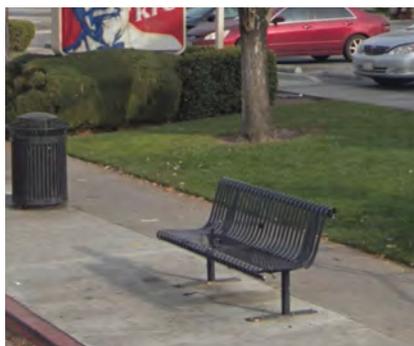
## TRANSIT AMENITIES

VTA's Transit Passenger Environment Plan recommends the amenities that should be provided at a bus stop, based on ridership. VTA's 2018 Bus Stop Passenger Facilities Standards provide standards for placement and design of bus shelters, trash cans, benches and other amenities. VTA will generally maintain amenities that follow the Bus Stop Design Standards. Custom amenities are maintained by the City. Listed below are standard transit amenities provided by VTA. On the right are additional amenities featured in the proposed bus stop improvements.

### Trash Receptacle



### Bench



### Signage



### Shelter



### Bus Island Pavers

Manufacturer: Calstone  
 Model: Mission  
 Color: Tan Red Charcoal  
 Pattern: Pinwheel 6



### Bus Island Fencing

Ornamental Metal Fence  
 Height: 3'-0"  
 Color: Black

## PLANT MATERIAL

The plant material palette recommended for El Camino Real aims to capture characteristics such as being drought tolerant, low maintenance, providing substantial shade, seasonal color and appropriate variety to the existing established landscape. The plant palette should also facilitate biodiversity and pollination through the use of native pollinator species. A number of plants found in the palette are selected to match the existing palette along the corridor while others are meant to supplement it with a variety of size and color. Plant material should be located as required to maintain site distances. All landscaped areas should be provided with an automatic irrigation system.

*\*Large tree suitable only in locations where a tree well of 6' by 8' or larger is available*

*\*\*Small tree suitable for more constrained locations*

*(N) California native species*

### Street Trees



*Acer macrophyllum (N)*  
Big Leaf Maple



*Acer rubrum 'October glory'*  
Red Maple



*Quercus agrifolia\** (N)  
Coast Live Oak

## STREETSCAPE GUIDELINES



*Quercus coccinea*  
Scarlet Oak



*Platanus x acerifolia*  
London Plane



*Quercus lobata\** (N)  
Valley Oak



*Ulmus parvifolia*  
Chinese Evergreen Elm



*Pistacia chinensis*  
Chinese Pistache

**Accent Trees**



*Arbutus marina* (N)  
Marina Madrone



*Heteromeles arbutifolia*\*\* (N)  
Toyon



*Chionanthus retusus*  
Chinese Fringe Tree



*Jacaranda mimosifolia*  
Jacaranda



*Cercis occidentalis*\*\* (N)  
Western Redbud



*Koelreuteria integrifolia*  
Chinese Flame Tree

STREETSCAPE GUIDELINES



*Pyrus kawakamii*  
Evergreen Pear

**Shrubs**



*Arctostaphylos 'Emerald Carpet'* (N)  
Emerald Carpet Manzanita



*Ceanothus centennial* (N)  
California Lilac



*Asclepias speciosa* (N)  
Showy Milkweed



*Epilobium canum* (N)  
California Fuchsia



*Baccharis hybrid* (N)  
'Starn Thompson'  
Starn Coyote Brush



*Iris douglasiana* (N)  
Douglas Iris

STREETSCAPE GUIDELINES



*Juncus patens* 'Elk Blue' (N)  
California Gray Rush



*Salvia Bee's Bliss* (N)  
Bee's Bliss Sage



*Penstemon heterophyllus* (N)  
'Margarita Bop'  
Foothill Penstemon



*Salvia 'Allen Chickering'* (N)  
California Blue Sage

# 5 IMPLEMENTATION

## IMPLEMENTATION ELEMENTS

Implementation will likely occur in four elements: sidewalk and streetscape, Class IV protected bikeways, intersections, and pedestrian/bicycle crossings. These four elements are driven by different implementation factors and best observed separately in terms of phasing.

### Sidewalk and Streetscape

Sidewalk and streetscape improvements including streetlights, benches, bike racks and trash receptacles (see Figure 5-1) will be implemented along with the redevelopment of adjacent parcels. The timeline of installation will depend on the redevelopment of properties along El Camino Real.

### Class IV Protected Bikeway and Intersections

The implementation of the proposed bikeway facilities and intersection improvements is dependent upon the removal of on-street parking along El Camino Real. The improvements also require Caltrans oversight and approval. A survey of parking utilization and availability concluded that seven parcels along the entire corridor within Mountain View had more

cars parked on the street than empty spaces on-site. Therefore, for these seven properties, there could be a parking impact if on-street parking was to be removed. Initial implementation phases focus on segments expected to have minimal or no parking impact. Bikeway implementation was analyzed by segment (see Figure 5-2) as described below:

### City Limit/Del Medio Avenue to Rengstorff Avenue

For this segment, additional interjurisdictional coordination with the Cities of Los Altos and Palo Alto will be necessary to create a successful bikeway system across city limits. On-street parking removal will also impact two properties between Rengstorff Avenue and Showers Drive. To allow time for inter-city coordination, bikeway facilities across this segment are recommended to be implemented at a later time.

### Rengstorff Avenue to Shoreline Boulevard

Three properties in this segment will be impacted by on-street parking removal. Implementation of the protected bikeway in this segment is



Figure 5-1: Implementation Element 1 - Sidewalk and Streetscape

## IMPLEMENTATION

therefore recommended for a later phase to align with redevelopment of the parcels or implementations of mitigations such as the Pettis Avenue crossing.

### Shoreline Boulevard to Calderon Avenue

Two properties will be impacted by on-street parking removal within this segment. One is located at a side street with ample on-street parking immediately adjacent to the property. The other has an on-site garage that is not being used for parking. Based on the parking evaluation, parking removal along the rest of this segment is not expected to result in parking impacts. Early implementation of bicycle facilities will therefore be prioritized between Castro Street and Calderon Avenue, where little to no parking impact is expected.

### Calderon Avenue to Sylvan Avenue

Early implementation of bicycle facilities will be prioritized for this segment. Much of the existing roadway already prohibits on-street parking and on-site parking was observed to be adequate during all parking survey periods. The current speed limit of 40mph also results in a critical infrastructure gap for motorized scooters, which are not permitted by state law to ride on sidewalks.

### Sylvan Avenue to Crestview Drive/City Limit

Additional interjurisdictional coordination with the neighboring City of Sunnyvale will be necessary. For this reason, implementation is recommended at a later time.

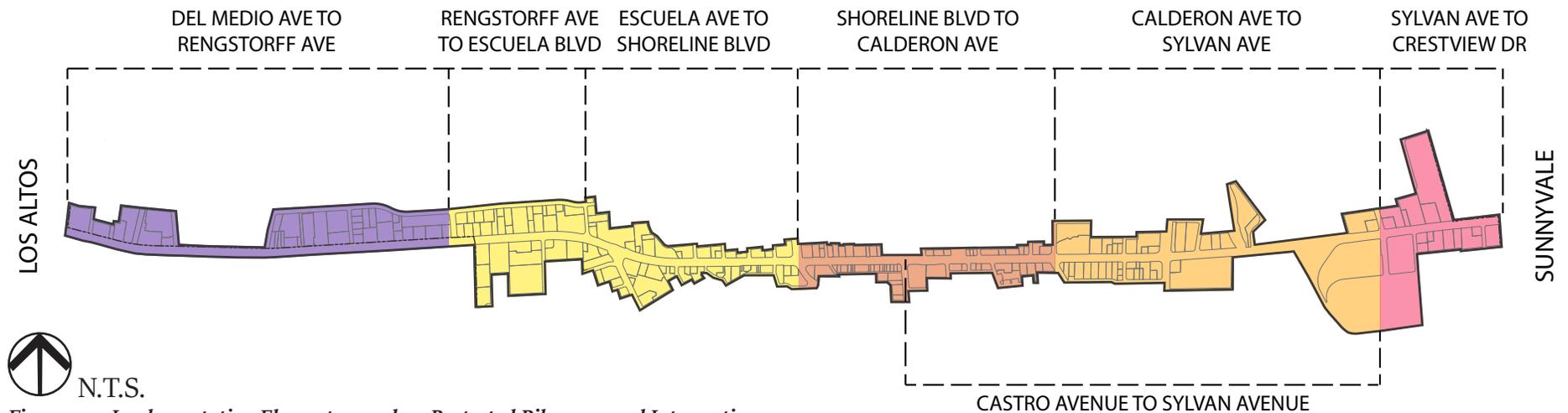


Figure 5-2: Implementation Elements 2 and 3 - Protected Bikeways and Intersections

### Pedestrian Crossings and Other Improvements

The pedestrian and bicycle crossings occur at select locations (see Figure 5-3) and can be implemented with or without the implementation of surrounding improvements. The Bonita Avenue crossing falls within the early implementation segment and can be installed along with surrounding improvements.

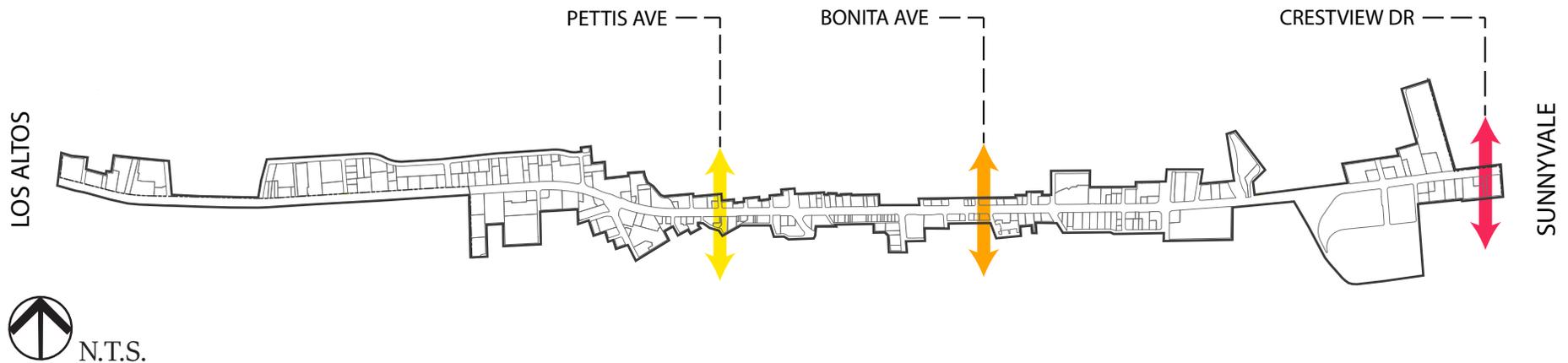


Figure 5-3: Implementation Element 4 - Pedestrian/Bicycle Crossings

### NEIGHBORING CITY TRANSITIONS

It is important for proposed bikeways along El Camino Real within the City of Mountain View to safely and comfortably transition into bike facilities in neighboring cities. Below is the proposed strategy to address the city limit transitions at both ends of El Camino Real with Los Altos and Palo Alto on the northwest side and Sunnyvale at the southeast side.

#### **Northwest End of El Camino Real**

From a midblock location west of Del Medio Avenue to a midblock location east of Rengstorff Avenue, the land uses and sidewalk on the north side of El Camino Real are within the Mountain View city limits and the roadway on the south side is within the Los Altos city limits. In addition, the city limits boundary between Mountain View and Palo Alto on the north side is at a midblock location just west of Del Medio Avenue. Installing a bike lane between west of Del Medio Avenue and the Rengstorff Avenue/Clark Avenue area would ideally be implemented in conjunction with any plans that the cities of Palo Alto and Los Altos have for a bikeway on El Camino Real and would ensure a continuous route to the nearest intersection and perpendicular bike routes for both directions of El Camino Real.

Should Mountain View, with Caltrans approval, pursue a northwestbound-only Class IV protected bikeway from Rengstorff Avenue on El Camino Real prior to bikeway implementation on the Los Altos (southeast bound) side of the road, it should be terminated at a logical location such as San Antonio Road. Enforcement against contra flow bicycle riding in the Class IV protected bikeway may be required due to the lack of a bikeway for the southeastbound direction. In addition, signage should be considered to direct southeastbound bicyclists who are not comfortable riding on El Camino Real without a bikeway to use parallel streets through Los Altos (e.g., Los Altos Avenue - Portola Avenue - Jordan Avenue - Marich Way - El Monte Avenue to connect to the bikeway on El Camino Real).

#### **Southeast End of El Camino Real**

At the Sunnyvale border, Mountain View's jurisdiction ends at a midblock location 200 feet east of Crestview Drive on the south side of the road and at a midblock location 400 feet west of Crestview Drive on the north side. Until bike facilities are implemented along El Camino Real on the Sunnyvale side of the border, Mountain View's Class IV protected bikeway should terminate at the Americana/Sylvan Avenue intersection.

# COST ESTIMATE

A cost estimate has been developed for each segment of the corridor based on 2019 dollar values. The estimates include some costs that will be reduced if project elements can be integrated into the planned Caltrans repaving project, or undertaken as part of private development projects on adjoining or nearby properties. The cost estimate is based on typical

costs for design and construction of design concepts described in prior chapters. The values in the cost estimate were developed to represent the cost of implementation for each corridor section and not for individual elements.

<b>DRAFT</b>		<b>Planning Level Cost Estimate (in 2019 Dollars)</b>				
City of Mountain View		<b>El Camino Streetscape Plan CIP 16-67</b>				
<b>Segment Number</b>	<b>Description</b>	<b>Sidewalk and Streetscape (Private Development)</b>	<b>Class IV Protected Bikeways</b>	<b>Intersections*</b>	<b>Pedestrian/ Bicycle Crossings</b>	<b>TOTAL (Design &amp; Construction)</b>
1	Del Medio to Escuela**	\$14,461,000	\$8,104,000	\$8,925,000	\$0	\$31,490,000
2	Escuela to Shoreline	\$5,998,000	\$2,584,000	\$3,080,000	\$702,000	\$12,364,000
3	Shoreline to Calderon	\$6,352,000	\$3,430,000	\$3,200,000	\$712,000	\$13,694,000
4	Calderon to Sylvan	\$8,889,000	\$4,246,000	\$3,086,000	\$0	\$16,221,000
5	Sylvan to Crestview	\$2,813,000	\$3,590,000	\$496,000	\$676,000	\$7,575,000
	<b>TOTAL (Design &amp; Construction)</b>	<b>\$38,513,000</b>	<b>\$21,954,000</b>	<b>\$18,787,000</b>	<b>\$2,090,000</b>	<b>\$81,344,000</b>

\* Costs for intersection between the segments is entirely included in costs for the segment to its west. For example, cost for Del Medio to Escuela includes cost of entire Escuela intersection.

\*\* Del Medio to Escuela segment includes \$9.6M for westbound improvements in Los Altos.

Figure 5-4: Cost Estimate

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# 6 APPENDICES

*(In a separate document)*

## **A. Technical Reports**

1. Pedestrian Crossing Study
2. Parking Study
3. Lighting Study

## **B. Cost Estimates**

1. Estimate of Probable Construction Costs
2. Annual Operation and Maintenance Estimate

## **C. Outreach Materials**

1. Notification Materials
2. Meeting Presentation Boards
3. Questionnaire