CITY OF MOUNTAIN VIEW

MEMORANDUM

Public Works Department

DATE: October 24, 2018

TO: City of Mountain View Bicycle/Pedestrian Advisory Committee
City of Los Altos Complete Streets Commission

FROM: Helen Kim, Transportation Planner
Ria Hutabarat Lo, Transportation Manager
Dawn S. Cameron, Assistant Public Works Director

SUBJECT: El Camino Real Streetscape Plan, Project 16-67

RECOMMENDATION

Receive public, City of Los Altos Complete Streets Commission, and City of Mountain View Bicycle/Pedestrian Advisory Committee (B/PAC) comments, on the draft preferred concept to be used in the development of the Draft El Camino Real Streetscape Plan.

BACKGROUND AND ANALYSIS

El Camino Real (State Route 82) is a State of California facility operated by Caltrans, with improvements within the public right-of-way subject to Caltrans approval. El Camino Real extends approximately four miles through the City of Mountain View, connecting the City of Sunnyvale to the southeast with the cities of Palo Alto and Los Altos to the northwest. It is an important spine of activity and transportation corridor for residents, workers, and visitors, connecting major shopping and employment destinations with freeways, neighborhood streets, and transit service.

The City of Mountain View 2030 General Plan identifies the El Camino Real corridor as a change area within the City and envisions the corridor as "a revitalized boulevard that connects rather than divides the City, and as an attractive place to work, live, and play." To support this vision, the 2014 El Camino Real Precise Plan (ECRPP) established mobility-related guidelines and principles that include wider sidewalks, interstitial pathways, shorter crossings, improved landscaping, buffered or protected bicycle facilities, transit signal priority, improved bus stops, no reductions in travel lanes, removal of on-street parking, and transit-oriented development. Caltrans also

identifies protected bicycle facilities on El Camino Real in Mountain View as a Tier 1 project in their 2018 District 4 Bike Plan.

The El Camino Real Streetscape Plan, currently under way, will develop design standards and options to achieve the mobility guidelines set forth in the ECRPP and the Caltrans District 4 Bike Plan. The design standards will be used by private developers and City capital improvement projects to improve mobility for all modes of travel (pedestrian, bicycles, transit, and motor vehicles) along the corridor and will ensure that a coherent and consistent streetscape for El Camino Real will emerge over time.

At its April 25, 2018 meeting, the B/PAC provided input on the draft existing conditions report and proposed preliminary design alternatives to be used in the development of the draft El Camino Real Streetscape preferred concept. The key differences between the two proposed alternatives were Class II buffered bike lanes for Alternative A and raised Class IV bicycle tracks for Alternative B.

Draft El Camino Streetscape Preferred Concept (Attachment 1)

The Draft El Camino Real Streetscape Preferred Concept (Preferred Concept) proposes to improve pedestrian, bicycle, and transit travel safety and experience, including three new signalized pedestrian crossings at Crestview Drive, Bonita Avenue, and Pettis Avenue as identified in the ECRPP.

The Preferred Concept retains the existing 104′ curb-to-curb width, 120′ public right-of-way, and 5′ median widths. In accordance with the ECRPP, the Preferred Concept allows for 5′ wide tree wells or landscaped strips; 12′ wide sidewalks (inclusive of a 4′ wide public right-of-way easement from private property owners); and curb bulb-outs on side streets. Additionally, the Preferred Concept does not affect the existing number of motor vehicle lanes on El Camino Real (three vehicle lanes in each direction).

The Draft Preferred Concept proposes the following key streetscape features:

- Widening the existing 8′ wide sidewalk to 12′, if a 4′ easement is granted by the adjacent property owners, as described in the ECRPP.

- Replacing the existing on-site parking with protected bike lanes where space allows and striped bike lane where space is constrained.

- Pedestrian and bicycle enhancements for four main intersection types along the corridor (cross-corridor intersections, four-way intersections, T-intersections, and side streets).

- Transit stop enhancement and treatments.

In order to ensure consistent bicycle facilities along both sides of the street for meaningful segments of the corridor, the Draft Preferred Concept proposes that installation of bicycle facilities to the northwest of Rengstorff Avenue be timed to occur at the same time that the City of Los Altos implements bike lanes along the south side of El Camino Real in their city. Until that time, the Preferred Concept proposes that cyclists not comfortable riding on El Camino Real use parallel routes along Latham Street in Mountain View and parallel streets in Los Altos.

On the southeast end of the corridor, the Preferred Concept proposes to terminate Mountain View's protected bike lanes at The Americana/Sylvan Avenue until the City of Sunnyvale implements buffered bike lanes up to the Sunnyvale/Mountain View City limits.

Process/Community Input

The El Camino Real Streetscape Plan process includes a robust strategy to engage the community and offer input opportunities at key points of the process through multiple methods, including the project Technical Advisory Committee (consisting of staff from the cities, Caltrans, and VTA), stakeholder meeting (consisting of the businesses and residences along El Camino Real), project website (www.mountainview.gov/ECRstreetscape), the City Council, and Bicycle/Pedestrian Advisory Committee (B/PAC) meetings. These serve as a forum to receive general community input through public comment.

Next Steps

The B/PAC's input on the Draft Preferred Concept will be provided to City Council as they deliberate on the Draft El Camino Real Streetscape Plan (Draft Plan). The Draft Plan is scheduled to be released in spring 2019. The Draft Plan will include project background, relationship to other policy documents, overview of community outreach, streetscape design recommendations, and cost estimates as well as an implementation plan that addresses phasing and segmenting of action items.

After finalizing the El Camino Real Streetscape Plan, the City will pursue implementation of the Streetscape Plan, including the bike lanes, through the Capital Improvement Program (CIP), redevelopment approvals, and coordination with Caltrans. Timing of implementation will be dependent on redevelopment opportunities for frontage improvements, options for replacing the on-street parking, and funding.

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915-10-24-18M

Attachment: 1. Draft El Camino Real Streetscape Preferred Concept
Appendix to Attachment 1 – Pedestrian Crossing Study

CITY OF MOUNTAIN VIEW

El Camino Real Preferred Concept

SUMMARY

October 17, 2018

Callander Associates Landscape Architecture

FEHR & PEERS

drake haglan AND ASSOCIATES

Alliance Engineering Consultants, Inc.

CITY OF MOUNTAIN VIEW

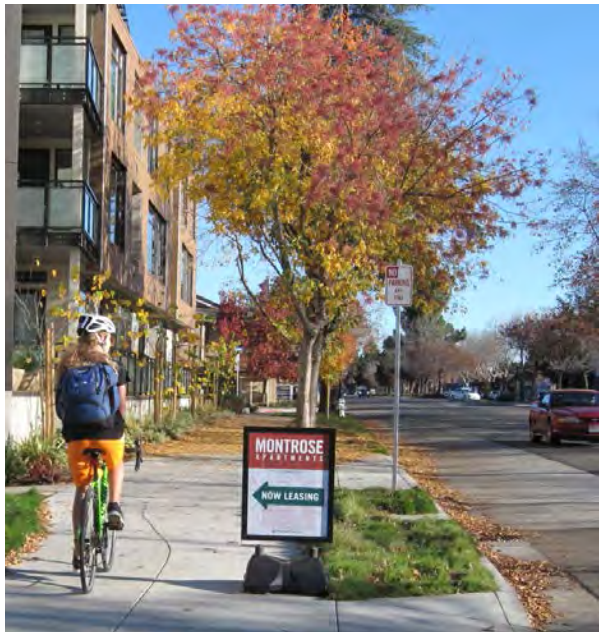


TABLE OF CONTENTS

INTRODUCTION

The Preferred Concept Summary provides a description of the proposed preferred streetscape concept along El Camino Real. The Preferred Concept is composed of a corridor plan showing the overall project, several enlargement plans showing improvements at specific locations, and cross sections showing typical conditions.

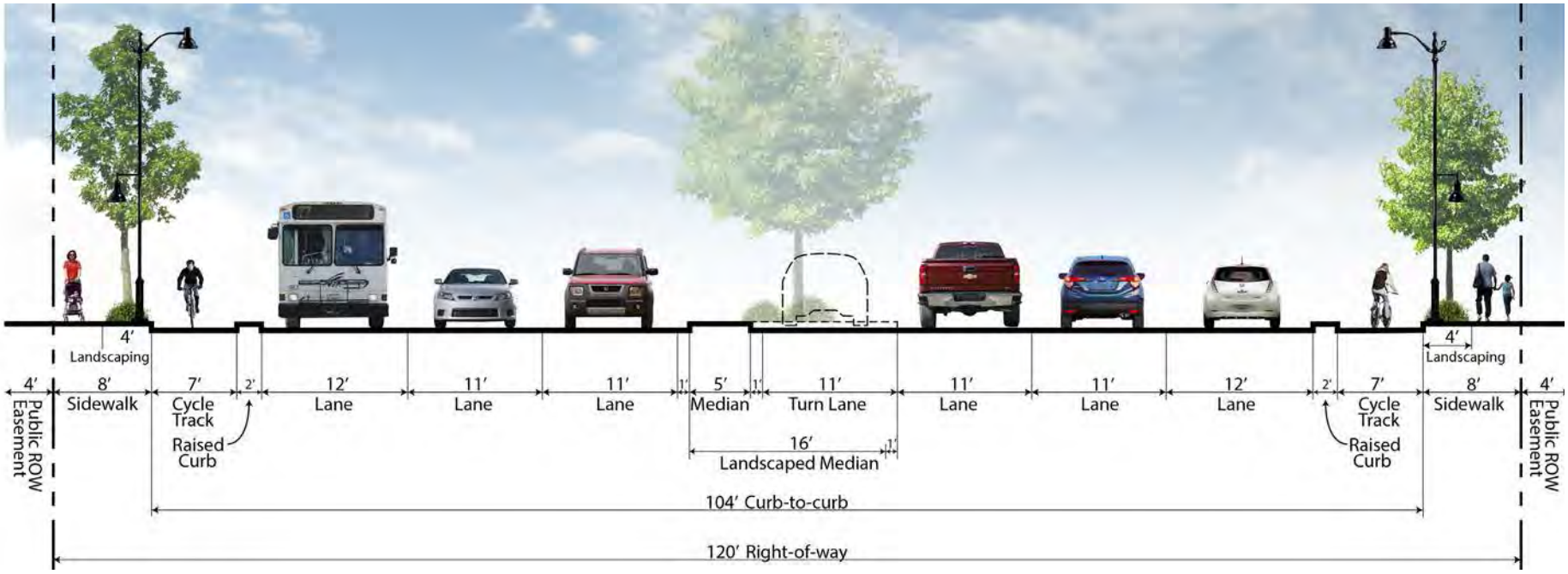
The purpose of the Preferred Concept Summary is to explain the design nuances not readily apparent in the preferred concept plan and section graphics. It is not meant as a comprehensive planning document for the project. A Streetscape Plan Report will be prepared that provides the project background, relationship to other policy documents, overview of the community outreach process, streetscape recommendations, project cost estimate, and implementation plan.

CORRIDOR PLAN OVERVIEW

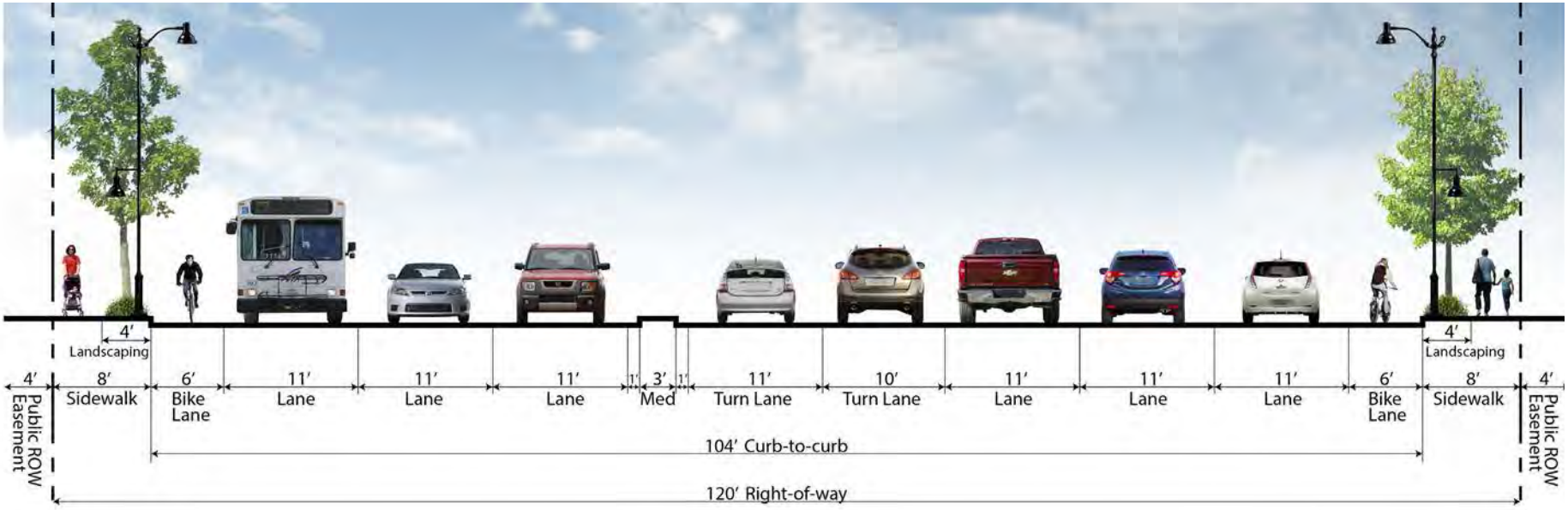
The corridor plan summarizes the recommended pedestrian, bicycle, transit, and streetscape improvements for the project area to serve a wider range of transportation modes. The plan will help guide implementation of the recommended improvements by identifying typical treatments as well as more spatially constrained locations that will require additional study. The plan represents conceptual-level design recommendations only. More detailed 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 protected bike lane, where space allows. An on-street parking utilization study is underway to determine current opportunities to replace parking versus areas that may need to wait for redevelopment. A two-foot wide raised concrete curb or other equivalent physical element that minimizes inadvertent or intentional vehicular intrusion into the protected bike lane should be provided. Where space is constrained, the parking would be replaced with a standard striped bike lane. The travel lane widths would be reduced to help accomplish this. The cross sections on the next page show the two typical conditions along the corridor. The streetscape plan also proposes 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 described in the 2014 El Camino Real Precise Plan.

PROTECTED BIKE LANE



BIKE LANE



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

CORRIDOR PLAN

The corridor plan is a conceptual study of the entire tract of El Camino Real throughout the City of Mountain View divided into three sections. The legend provides symbols that are indicated throughout the corridor, which represent specific conditions where typical design elements are proposed. These typical designs include types of intersections, pedestrian crossings, transit stops, and land uses, which are elaborated in more detail with enlargement plans further in the document. The corridor plan can be used as a key to locate the typical enlargement plans that are proposed at multiple locations along El Camino Real.

Mountain View's boundaries along the El Camino Real corridor do not provide convenient termini for the proposed streetscape treatments and bicycle lane. It is particularly undesirable to terminate a protected bike lane at a mid-block location. For this reason, the plan proposes a strategy to address the city limit transitions at both ends of El Camino Real with Los Altos and Palo Alto on the west side and Sunnyvale at the east side.

West End of El Camino Real

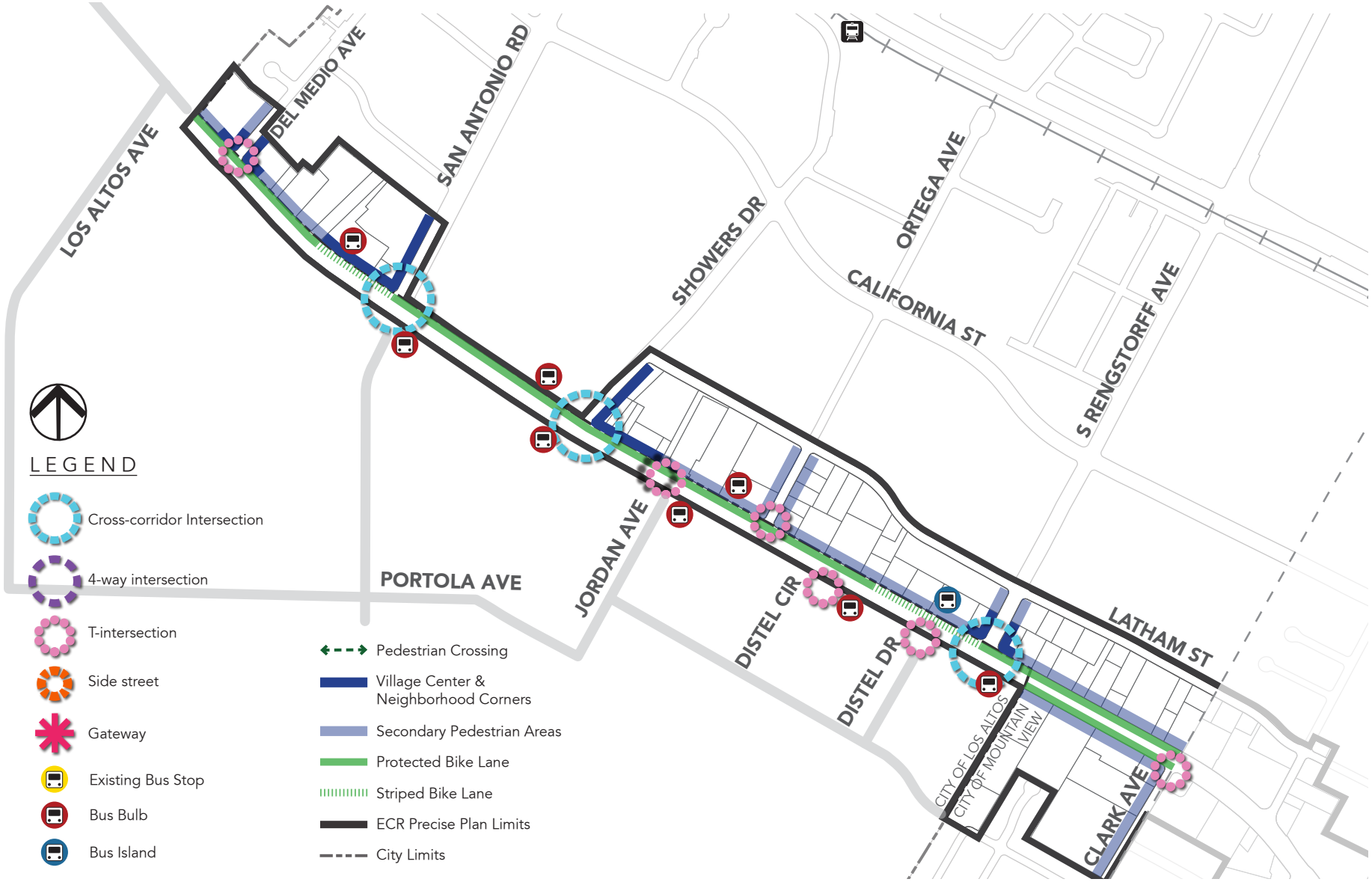
From a midblock location west of Del Medio Avenue to a midblock location east of Rengstorff Avenue, the area on the north side of El Camino Real is within the Mountain View city limits and the area on the south side is within the Los Altos city limits. In addition, the city limits boundary between Mountain 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 sync with any plans that the cities of Palo Alto and Los Altos have for a bikeway on El Camino Real, to ensure a continuous route to the nearest intersection for both directions of El Camino Real.

Should Mountain View, with Caltrans approval, desire to pursue a westbound only protected bike lane from Rengstorff Avenue on El Camino Real prior to any bikeway implementation by Palo Alto or Los Altos, it should be terminated at San Antonio Road. Enforcement against contra flow bicycle riding in the protected bike lane may be required due to the lack of a bike lane for the eastbound direction. In addition, signage should be considered for directing eastbound bicyclists not comfortable riding on El Camino Real without a bike lane to use parallel streets through Los Altos (e.g., using the Class III bike route from Los Altos Avenue to Portola Avenue – Jordan Avenue – Marich Way to connect to the bike lanes on El Camino at El Monte Avenue).

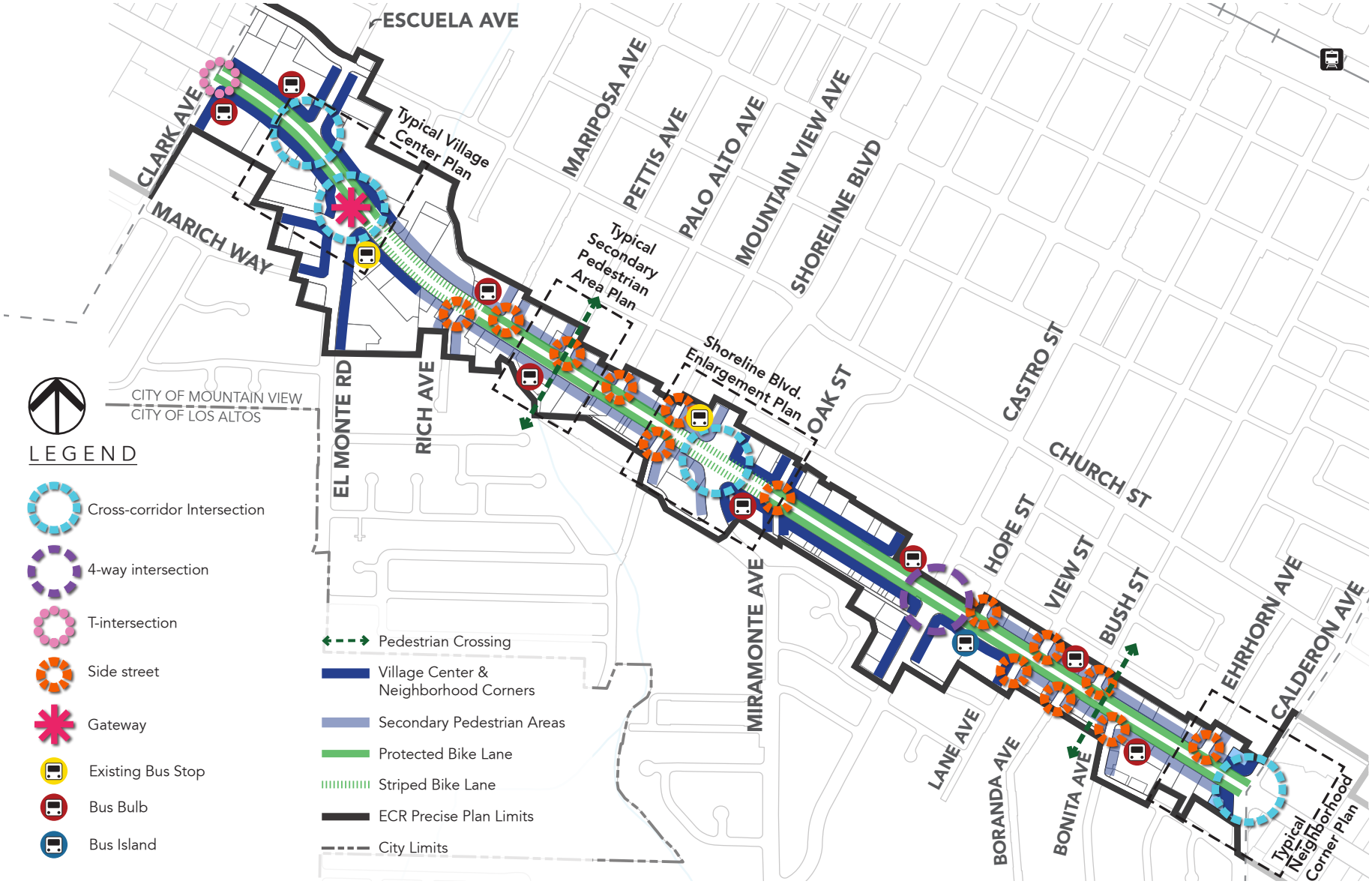
East End of El Camino Real

Mountain View's jurisdiction ends at a midblock location east of Crestview Drive on the south side and at a midblock location west of Crestview Drive on the north side. Until the City of Sunnyvale implements their planned buffered bike lanes along El Camino Real to the Sunnyvale/Mountain View city limits, Mountain View's protected bike lanes should terminate at the Americana/Sylvan Avenue intersection.

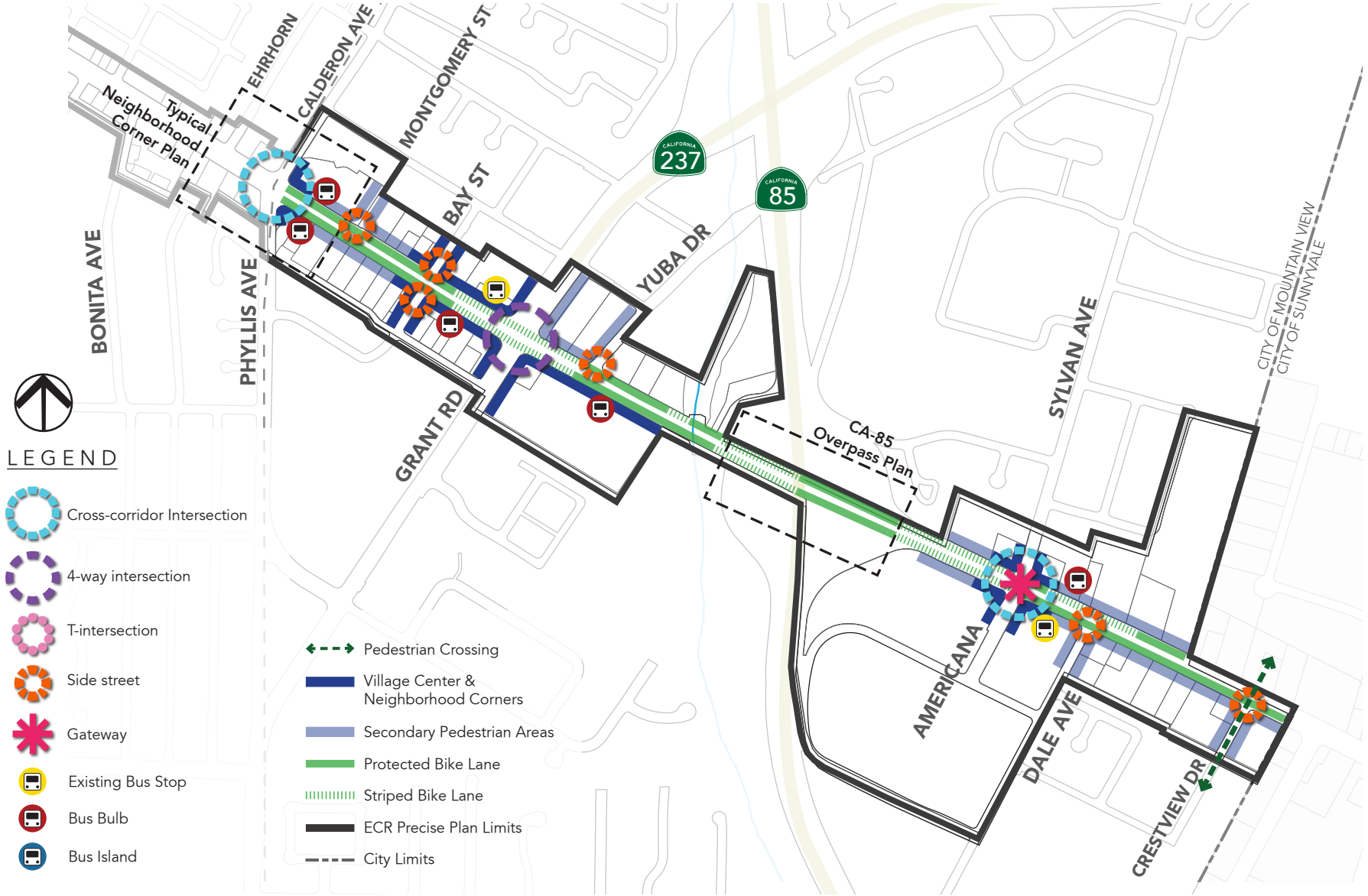
Del Medio Ave to Clark Ave



Clark Ave to Calderon Ave



Calderon Ave to Crestview Dr



CORRIDOR PLAN

Locations along the corridor are shown in more detail for the following conditions:

- Typical intersection enlargement plans: These plans show typical pedestrian and bicycle enhancements proposed for each of the four main intersection types along the corridor.

- Typical pedestrian crossing plans: These plans show the proposed mid-block crossing layout for the three locations identified in the El Camino Real Precise Plan: Pettis Avenue, Bonita Avenue, and Crestview Drive.

- Typical transit stop plans: These plans show the proposed typical layout at bus stops along the corridor. Three transit stop treatments have been identified, based on the existing right-of-way width.

- Typical land use enlargement plans: These plans show the typical streetscape treatments for the three different land uses identified in the El Camino Real Precise Plan: village centers, neighborhood corners, and secondary pedestrian areas. Each enlargement plan shows how streetscape elements like trees, lights, sidewalks, and protected bike lanes would look for each of the three land use areas. The village center plan is drawn based on the El Monte Avenue / Escuela Avenue location. The neighborhood corner enlargement plan is drawn based on the Calderon Avenue location. The secondary pedestrian area enlargement plan is drawn based on the Pettis Avenue location.

- Shoreline Boulevard and State Route 85 plans: These plans show location-specific improvements at Shoreline Boulevard and within the SR 85 State right-of-way, due to the unique site conditions at these locations.

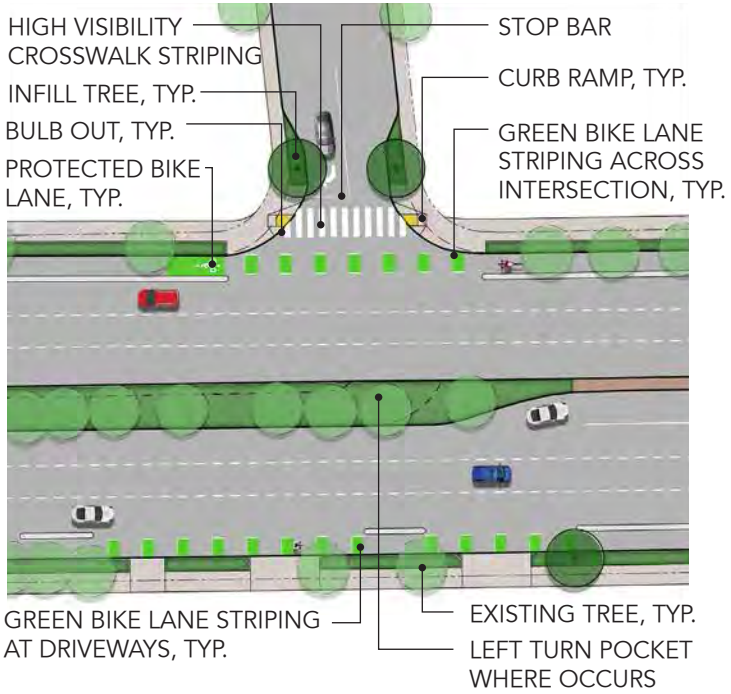
TYPICAL INTERSECTION PLANS

The following represents a palette of recommended standard treatments to improve pedestrian and bicycle access at intersections along El Camino Real.

Side Streets

These intersections generally have a lower volume stop-controlled side street with 2 travel lanes and on-street parking. Access onto and off of 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. Improvements to consider include:

- At unsignalized intersections, replace existing transverse double line crosswalk striping with higher visibility markings, such as the continental (ie. 'ladder') marking.
- Provide accessible curb ramp conforming to Caltrans Revised Standard Plan RSP A88A, if currently lacking. Case A typically is most applicable.
- 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 the crossing distance for and vehicular exposure of pedestrians. Curb extensions should be set back two feet from the edge of the traveled way. Curb extensions should be prioritized at bus stop locations and at side streets within village centers and neighborhood corners, where a higher level of pedestrian activity can be expected.
- Curb extension areas provide an opportunity to incorporate green streets / green stormwater infrastructure, if supported by existing roadway drainage patterns.



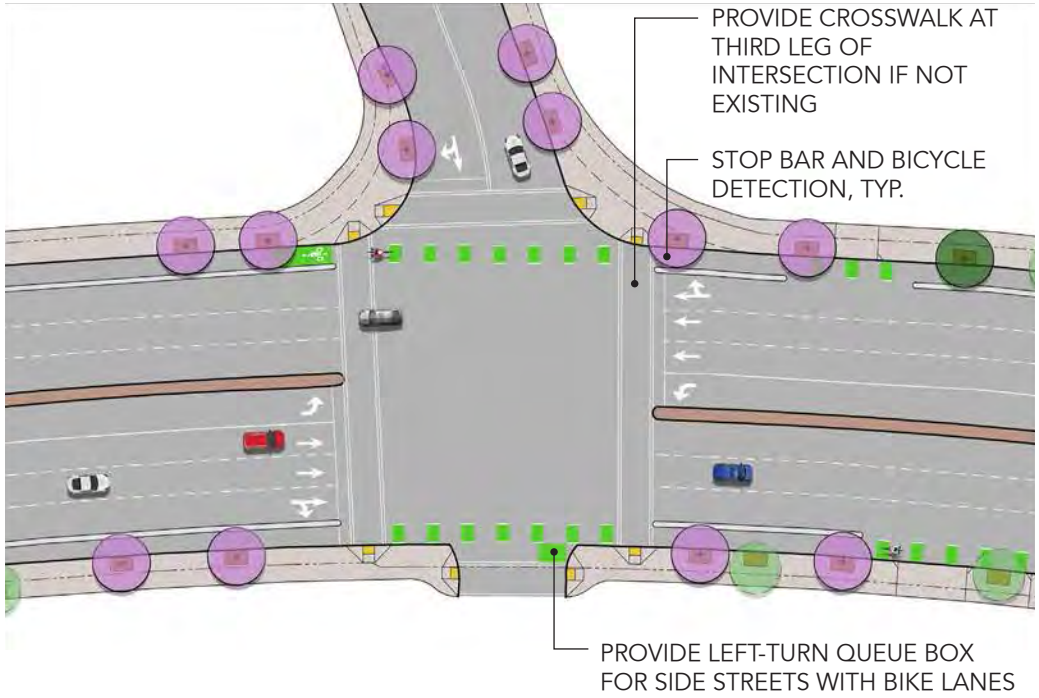
All improvements shown are conceptual and subject to further study and refinement.

- Provide green-colored dashed bike lanes across the intersection to increase visibility of cyclists to motorists at these higher-conflict areas.

T-intersections

These intersections generally have a moderate volume signal-controlled side street, with 2 to 5 travel lanes and on-street parking though a few are unsignalized. Bicycle facilities are provided at some locations. Improvements to consider include treatments noted above for side streets. In addition, the following should be considered:

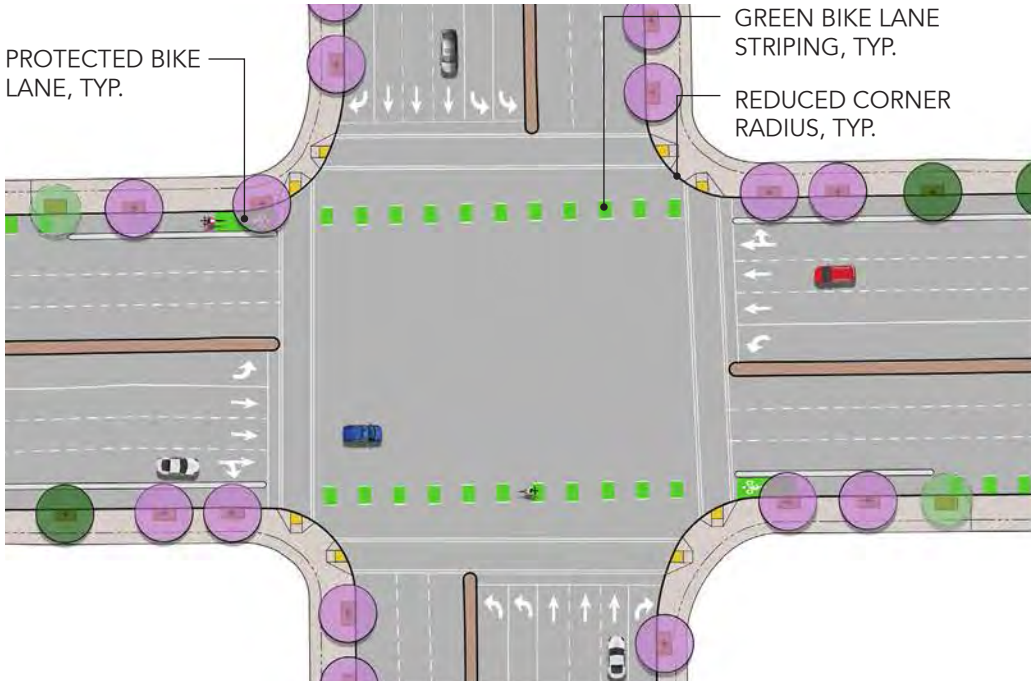
- Provide pedestrian signal heads with countdown timing and auditory warnings, as needed.
- Adjust signal timing to prioritize pedestrian and bicycle access (such as using a leading pedestrian interval) and ensure that timing is adequate for crossing, particularly since the crosswalk distances are long and the existing median nosing is too narrow to serve as a pedestrian refuge. Consider the use of pedestrian adaptive signal timing.
- Add a crosswalk to the third leg of the intersection, at intersections that currently have crosswalks at only two legs (only when signalized).
- Provide a stop bar for bicyclists on El Camino Real to minimize bicyclist encroachment into the crosswalk and pedestrian walk zone.
- Provide green-colored dashed bike lane extensions through the intersection to increase visibility of cyclists to motorists.
- Provide bicycle detection, bicycle detector pavement marking, and a bicycle push button.
- 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 may be required if the queue box is located in front of signalized driveways that acts as a fourth leg at the intersection.



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

Four-way Intersection

These are generally moderate to heavy volume signal-controlled roadways, with 4 to 9 travel lanes without on-street parking. 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 include treatments noted above for side streets and t-intersections. Vehicular right-turns-on-red restrictions from side streets onto El Camino Real can 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.

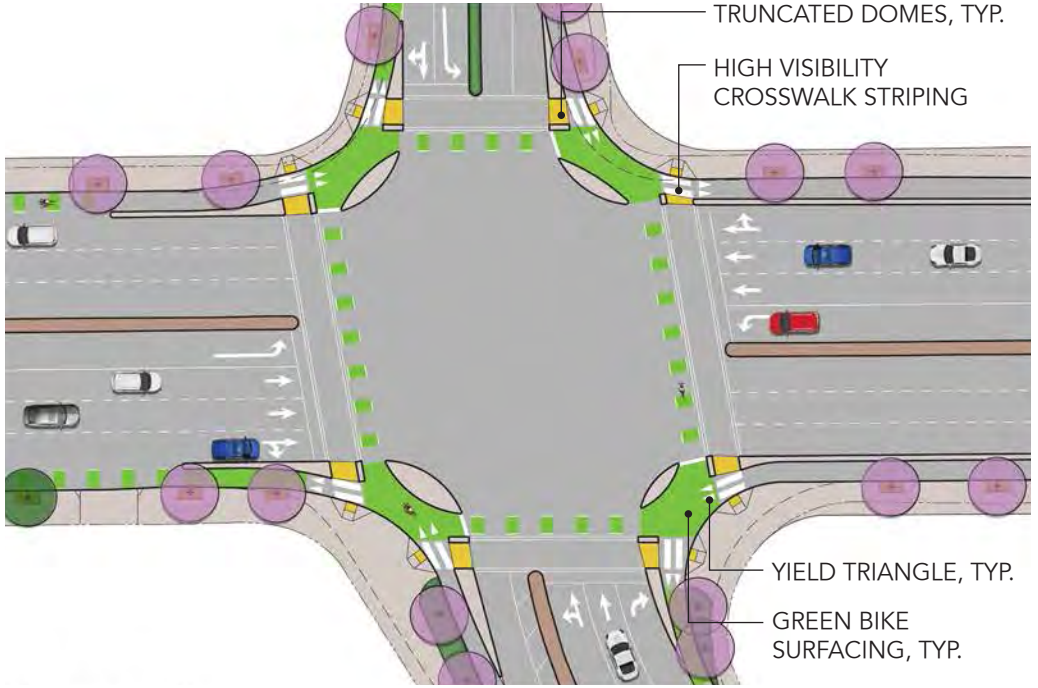


All improvements shown are conceptual and subject to further study and refinement.

Cross-corridor Intersections

These are generally heavy volume signal-controlled roadways, with 4 to 8 travel lanes, most without on-street parking on the side street. 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 include treatments noted above for side streets and t-intersections. 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 of five-foot to ten-foot areas will likely be required to achieve the desired protected intersection geometry.
- Provide green pavement markings at the protected intersection to denote bicycle queuing and travel areas.
- Provide green-colored dashed bike lane "crosswalk" through the intersection, separate from pedestrian crosswalks.
- Restricting vehicular right-turns-on-red should be considered, depending on the volume of right-turning vehicles that need to be accommodated.



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

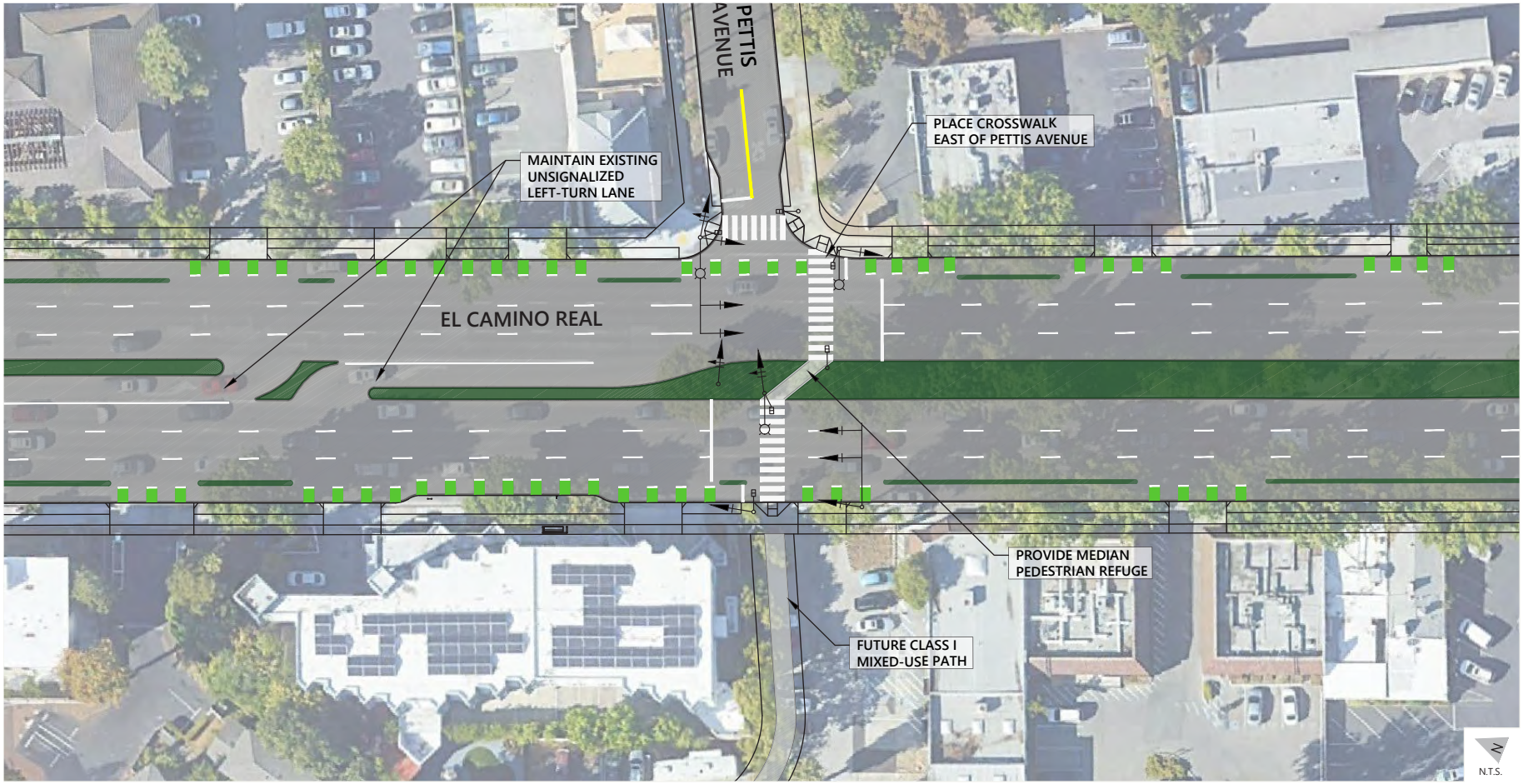
Other Recommendations

- Provide bike parking areas at village centers and neighborhood corners and cross-corridor routes. Consider providing large enough spaces to support a bike share program.
- Provide green colored bike lanes at high conflict transition areas, including bike through lane pockets and at driveways. Bike lanes at driveways and bus stops should be dashed.
- Driveways are high conflict areas, and consolidation of and reduction in the number of driveways should be considered when the opportunity arises. Reduce width of reconstructed driveways to the minimum where feasible, to reduce pedestrian exposure to vehicles. Maintain four-feet of sidewalk across the driveway and maximize the transition slope to slow down vehicles turning off of El Camino Real.
- Transportation network companies (TNCs) shall be restricted from using El Camino Real as pick up and drop off locations. TNCs will be required to utilize parking areas, which shall be provided on side streets or private lots in order to avoid conflict with bicycle facilities along El Camino Real.
- Consider the provision of additional mid-block 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.

TYPICAL PEDESTRIAN CROSSING PLANS

These crossings should be pedestrian-activated and require traffic to come to a complete stop, through the use of a pedestrian hybrid beacon or full signalized intersections. Synchronize signals with adjacent intersections to improve traffic flow.

Pettis Avenue



LEGEND

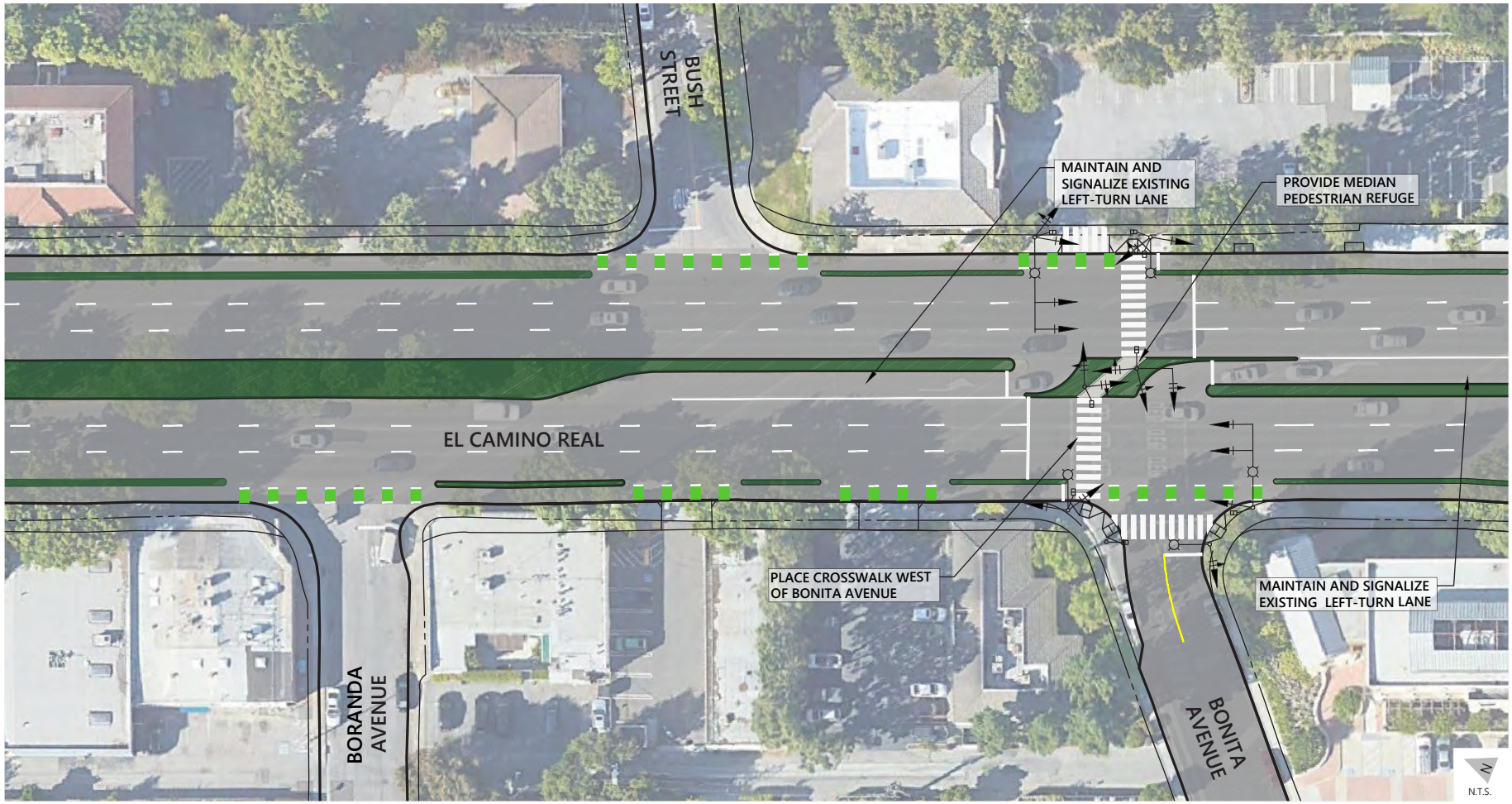
- PROPOSED SIGNAL POLE
- PROPOSED SIGNAL POLE WITH LUMINAIRE
- PROPOSED SIGNAL MAST ARM
- PROPOSED SIGNAL MAST ARM WITH LUMINAIRE
- PROPOSED SIGNAL
- PROPOSED PERMISSIVE TURN SIGNAL
- PROPOSED PEDESTRIAN SIGNAL

CONCEPTUAL - NOT FOR CONSTRUCTION, DETAILED ENGINEERING DESIGN REQUIRED

Figure 2
Pedestrian Crossing Conceptual Layout
El Camino Real at Pettis Avenue

Bonita Avenue

If traffic counts indicate a low volume of left-turning vehicles onto Bonita, then a protected turn signal should be considered.



LEGEND

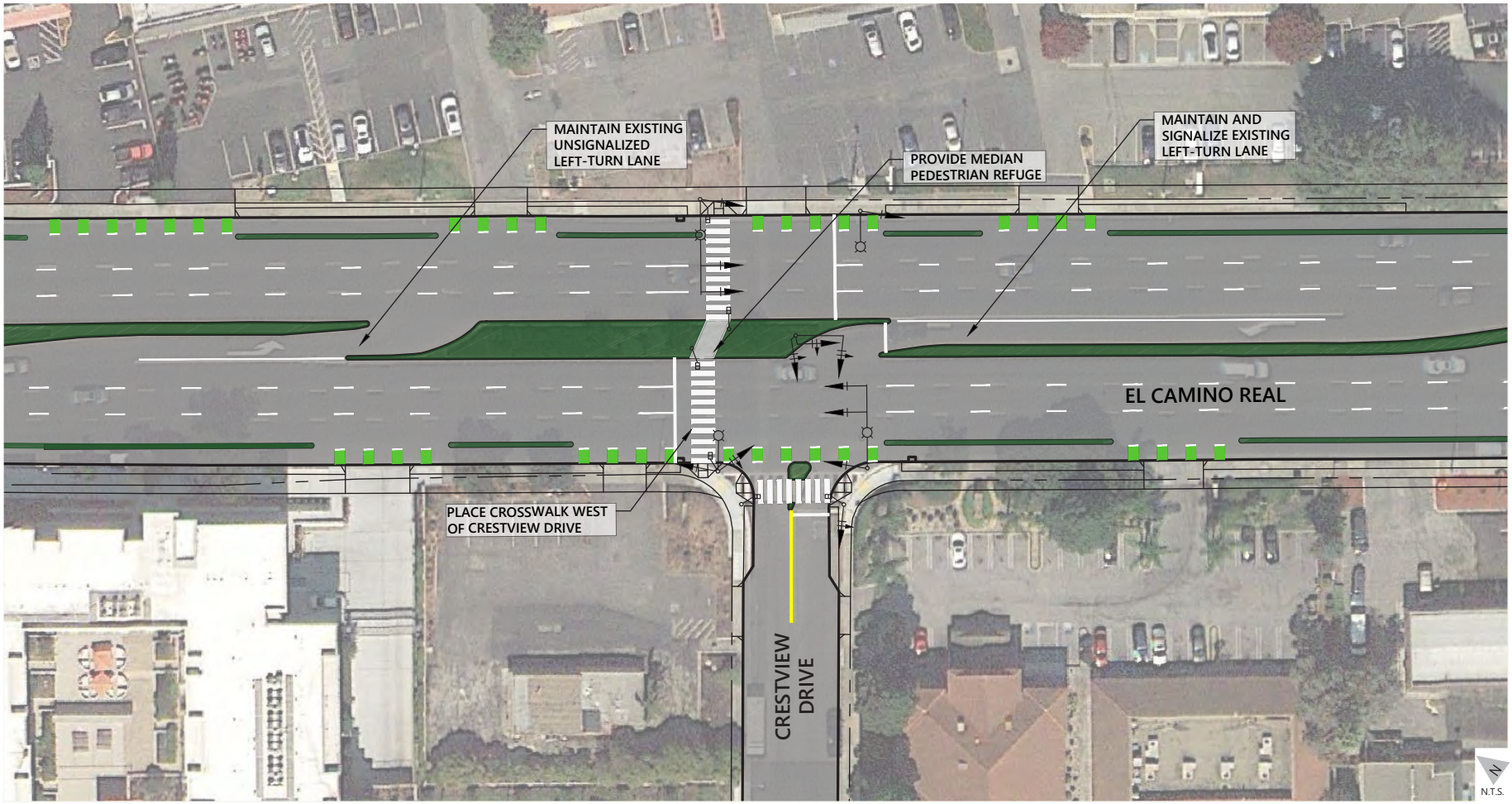
- PROPOSED SIGNAL POLE
- PROPOSED SIGNAL POLE WITH LUMINAIRE
- PROPOSED SIGNAL MAST ARM
- PROPOSED SIGNAL MAST ARM WITH LUMINAIRE
- PROPOSED SIGNAL
- PROPOSED PERMISSIVE TURN SIGNAL
- PROPOSED PEDESTRIAN SIGNAL

CONCEPTUAL - NOT FOR CONSTRUCTION, DETAILED ENGINEERING DESIGN REQUIRED

Figure 3
Pedestrian Crossing Conceptual Layout
El Camino Real at Bonita Avenue

Crestview Drive

If traffic counts indicate a low volume of left-turning vehicles onto Crestview, then a protected turn signal should be considered.



LEGEND

- PROPOSED SIGNAL POLE
- PROPOSED SIGNAL POLE WITH LUMINAIRE
- PROPOSED SIGNAL MAST ARM
- PROPOSED SIGNAL MAST ARM WITH LUMINAIRE
- PROPOSED SIGNAL
- PROPOSED PERMISSIVE TURN SIGNAL
- PROPOSED PEDESTRIAN SIGNAL

CONCEPTUAL - NOT FOR CONSTRUCTION, DETAILED ENGINEERING DESIGN REQUIRED

Figure 4
Pedestrian Crossing Conceptual Layout
El Camino Real at Crestview Drive


DEL MEDIO AVE
SAN ANTONIO RD
SHOWERS DR
CALIFORNIA ST
RENGSTORFF AVE
EL CAMINO REAL
LATHAM ST
ESCUELA AVE
EL MONTE RD
SHORELINE BLVD
CASTRO ST
CHURCH ST
CALDERON AVE
MIRAMONTE AVE
PHYLLIS AVE
GRANT ROAD
SYLVAN AVE
CRESTVIEW DR
22
522
21
34
35
40
52
51
81
85
237
LEGEND
Express Bus Route
Community Bus Route
Local Bus Route
Free Shuttles to Light Rail Stations
VTA's Next Network Route

TYPICAL TRANSIT STOP PLANS

El Camino Real's transit service is provided by Santa Clara Valley Transportation Authority (VTA). Line 22 and Rapid 522, which run along ECR 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 route plan provides all existing bus routes that run along or intersect El Camino Real. It also includes VTA's Next Network Route which will be incorporated following the implementation of BART improvements.

There are three proposed bus stop treatments along the corridor, 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 Passenger Facility Standards 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 minimum two feet from face of curb, measured to the closest element. Adequate pedestrian lighting should be provided to and at each transit stop, including the back of each transit stop condition.

The first treatment reflects existing conditions: eight-foot wide sidewalk with no change in curb layout. This occurs where the existing curb-to-curb distance and travel lane configuration do not allow for further improvements.

The second treatment is a bus bulb. 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 walkway width despite the 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.

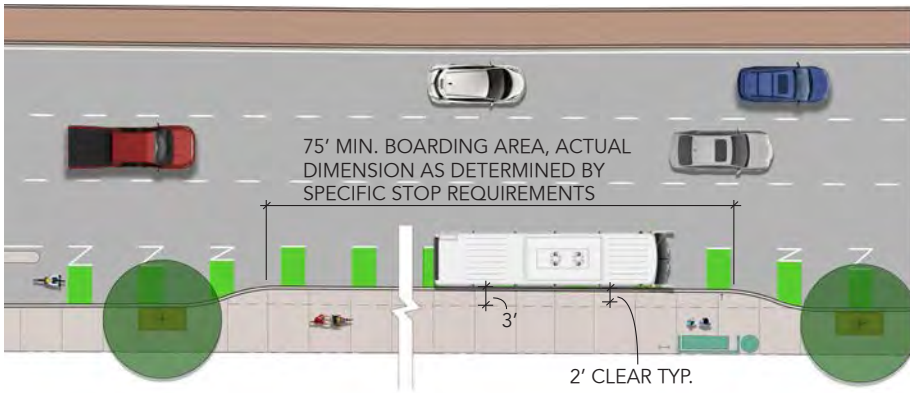
The third treatment is a bus island. This occurs where the existing roadway has already been widened and provides sufficient space to allow for a raised bus boarding island to be located between the travel lane and the bike lane. The island provides an area dedicated to transit users waiting to board. 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 pedestrian walkway and located within the bus island, promoting efficiency and clearance along the sidewalk.

Existing Bus Stop Treatment

- Necessary where right-of-way and curb-to-curb space is limited
- VTA bus stop amenities constrain pedestrian walkway
- Bicyclists must wait when bus is present at stop
- Bus pulls completely out of travel lane into bicycle lane

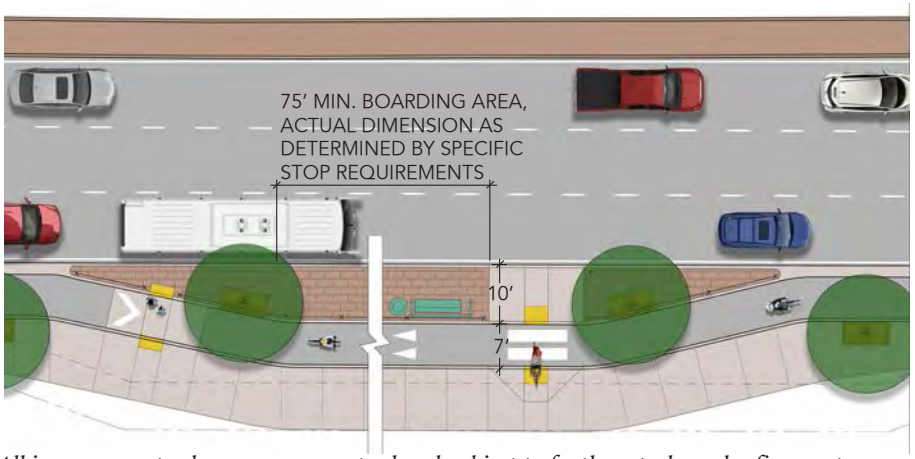
Bus Bulb Treatment

- Bus bulb provides wider pedestrian walkway with addition to VTA bus stop amenities
- Bicyclists must wait when bus is present at stop or merge into travel lane
- Bus pulls partially out of vehicular travel lane at stops



Bus Island Treatment

- VTA amenities do not interfere with pedestrian walkway
- Through bicycle route is available whether or not bus is present at stop
- Bus stays in outside travel lane at stop
- Requires additional right-of-way to accommodate width of bus island



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

TYPICAL LAND USE PLANS

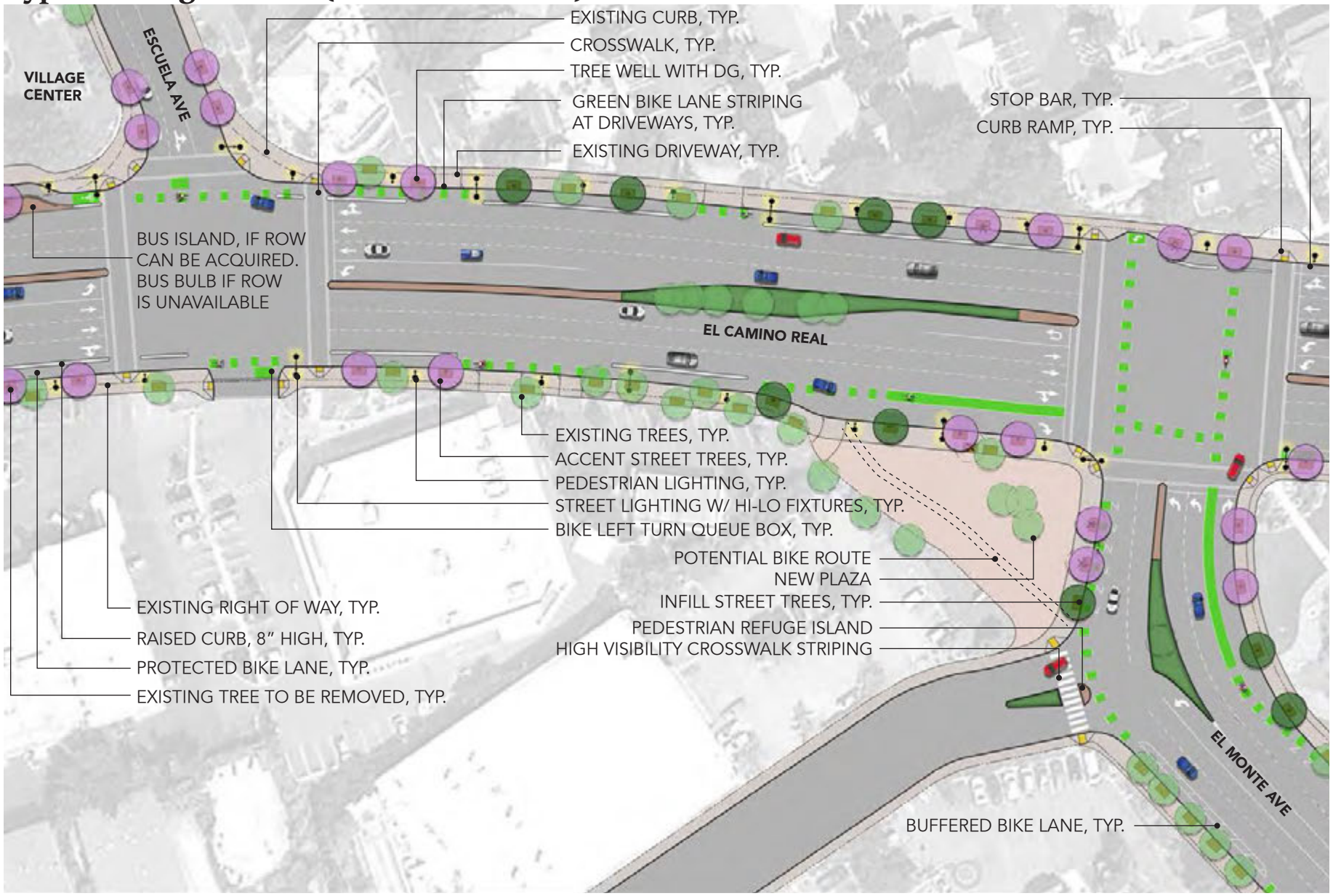
Village Centers & Neighborhood Corners

- Both of these zones 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 be 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.
- 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. Accent trees should be spaced at thirty-foot to forty-foot on center. Large shade trees should be placed at forty-foot to forty-five-foot on center spacing or to infill gaps between the existing scarlet oaks.
- Benches and bike racks should be provided mid-block on blocks that are 1,000 feet or longer and near intersections at public/private plazas.
- Trash receptacles should be located near benches.
- Mid-block cut-throughs and public pathways from Church and Latham should be signed and provide other visual cues in the public right-of-way that encourage pedestrians to utilize them.
- Where a driveway is wider than the minimum required, consider striping high visibility ‘ladder’ style crosswalks across the driveway.
- Pedestrian-scale lights should be provided in addition to street lights
- Light level targets to be sufficient to support high levels of pedestrian activity, while also achieving dark sky compliance.

Secondary Pedestrian Area

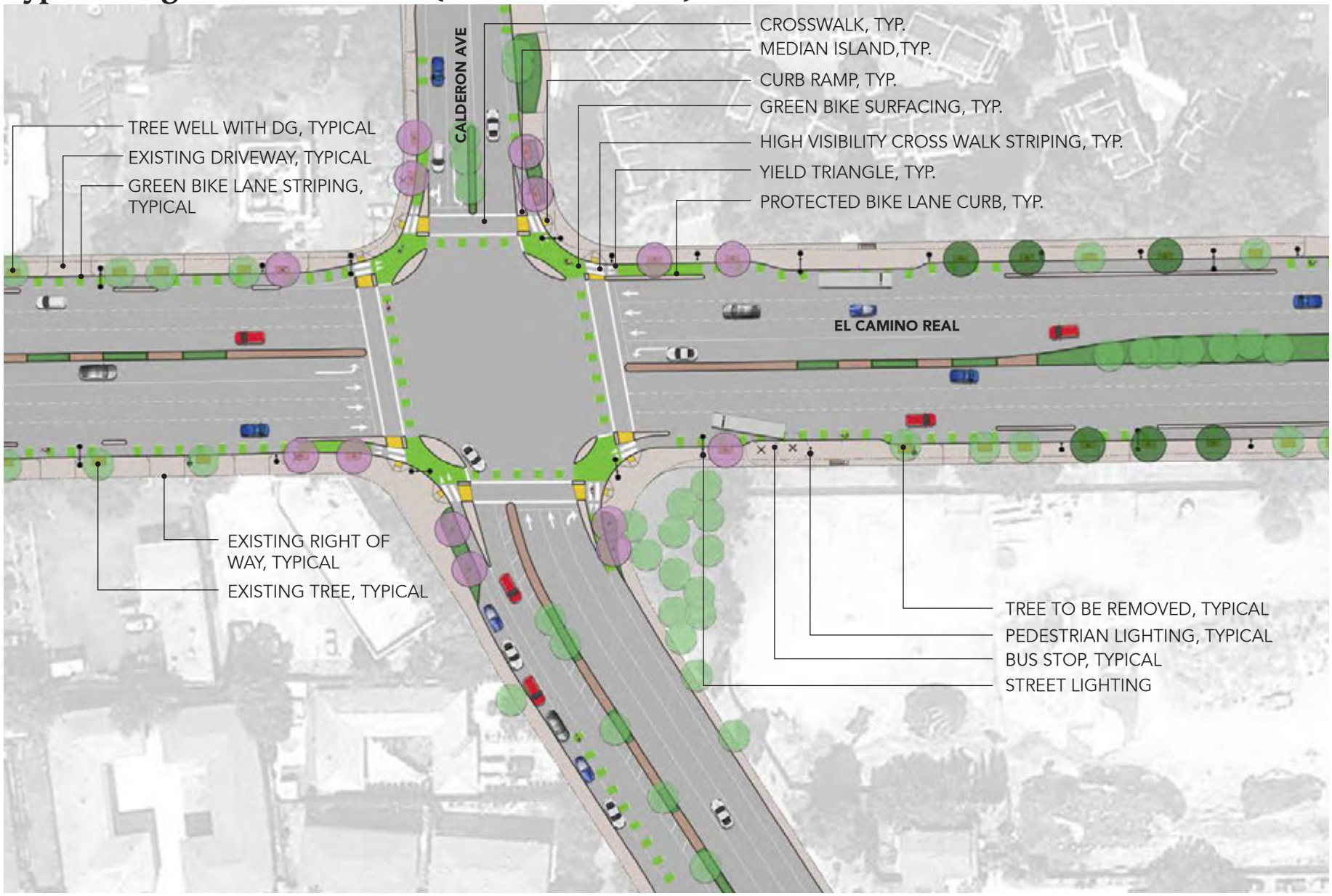
- This zone is expected to have low to medium intensity pedestrian activity and should have amenities that support lower levels of pedestrian activity.
- Trees should be placed in landscaped parkways that are five feet in width, where the sidewalk width is twelve feet. Trees should have root barriers at the sidewalk and curbside edges.
- Additional scarlet oaks should be placed at forty-foot to forty-five-foot on center spacing or to infill gaps between the existing scarlet oaks.
- Pedestrian-scale lights should be provided in addition to street lights. Light level targets can be lower and appropriate for residential areas.

Typical Village Center (El Monte Avenue)



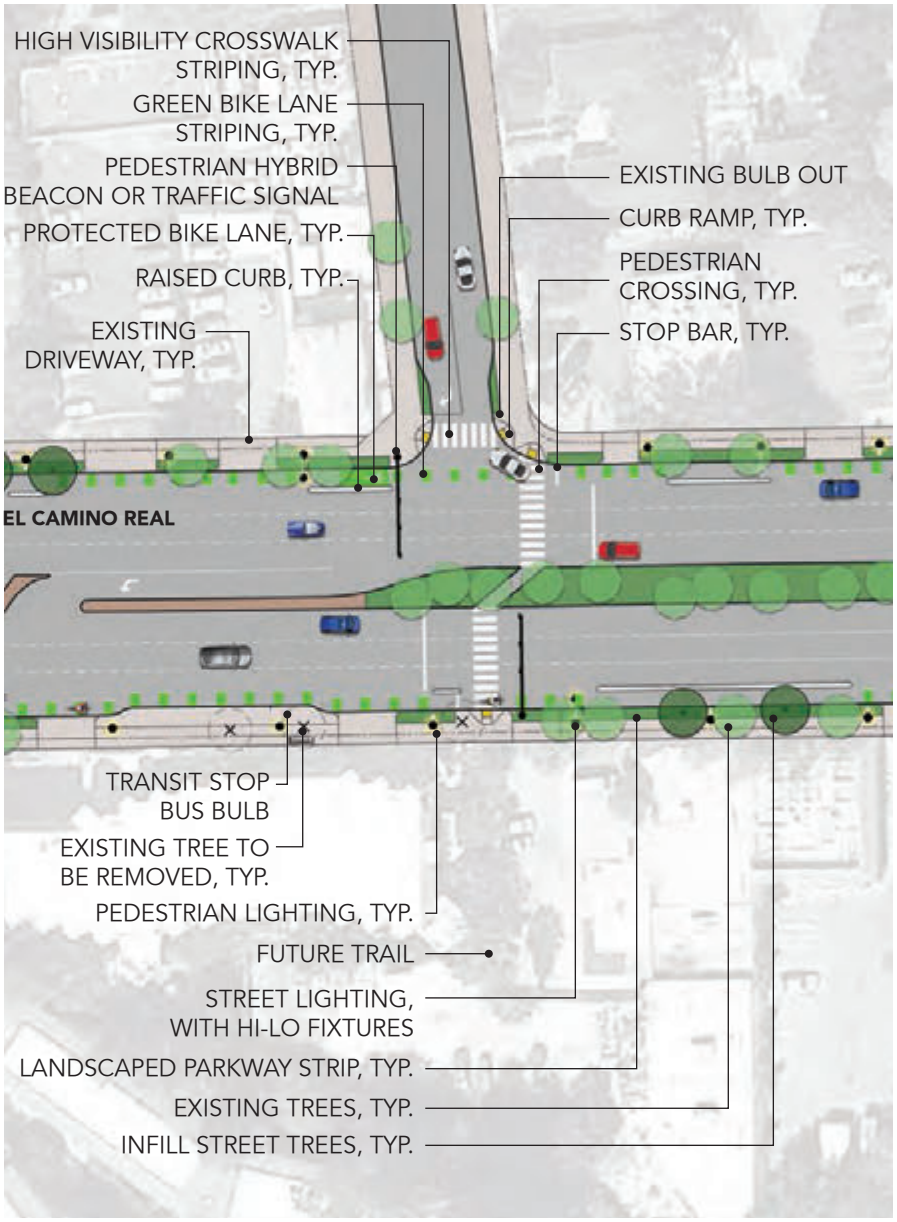
All improvements shown are conceptual and subject to further study and refinement.

Typical Neighborhood Corner (Calderon Avenue)



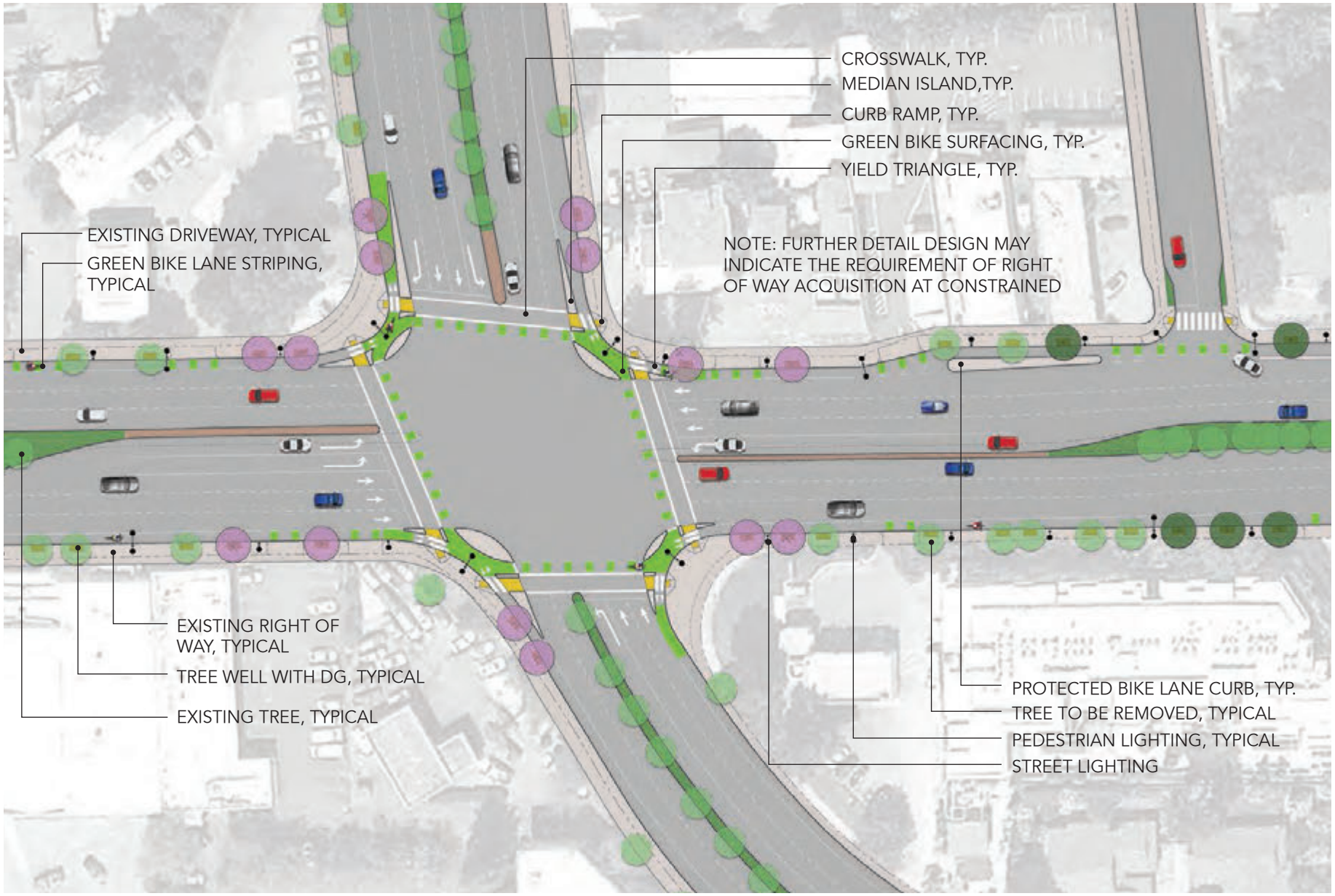
All improvements shown are conceptual and subject to further study and refinement.

Typical Secondary Pedestrian Area (Pettis Avenue)



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

Shoreline Boulevard



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

State Route 85 Plan

Specific bicycle and pedestrian improvements include:

- Widen bridge to accommodate 10-foot wide sidewalks with 4-foot wide tree wells and pedestrian scale lights.
- Reduce speed limit 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.
- Reconfigure on-ramp to prioritize pedestrians and bicyclists by eliminating free right turns.
- Reconfigure roadway to accommodate minimum 6-foot wide bike lane (9-foot wide protected bike lane preferred)
- Reconfigure exit to prioritize pedestrians and bicyclists by eliminating free right turns.

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

PEDESTRIAN & BIKE AMENITIES

Protected Bike Lane

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

2-Stage Queue Box

Allows a cyclist to make a left turn at an intersection through a two-stage movement (similar to pedestrians crossing two legs of an intersection) by providing an area for cyclists to queue that is outside of the bike lane, travel lane, and crosswalk.

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.

Bike Detection

Used to alert the intersection signal controller to change traffic signals to give a cyclist the right-of-way. The detection can be accomplished automatically (such as through an in-ground bike lane pavement loops) or manually, by a cyclist activating a push button.

High Visibility Crosswalk

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

Curb Ramp

A ramped transition between the sidewalk and the roadway pavement.

PEDESTRIAN & BIKE AMENITIES

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 Hybrid Beacon

A pedestrian-activated traffic control device that helps pedestrians cross roadways by warning motorists to slow down and requiring a complete stop through a red signal indication.

Sidewalk Landscape Strip

A planted area along a sidewalk that serves as a buffer between pedestrians and motorists.

SITE FURNISHINGS

Trash Receptacle

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

Bike Rack

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

Bench - Backed

Manufacturer:
DuMor
Model:
Bench 160 with center armrest
Color/Finish:
Powdercoat-Sudan

Bench - Backless

Manufacturer:
DuMor
Model:
Bench 164 with center armrest
Color/Finish:
Powdercoat-Sudan

Street Lights

Manufacturer:
Philips
Model:
Luminaire: DOS-SG
Mounting: VR6
Pole: RTA906
Color/Finish:
Textured Bronze

Pedestrian Lights

Manufacturer:
Philips
Model:
Luminaire: DMS50-SCB
Pole: SSM8
Color/Finish:
Textured Bronze

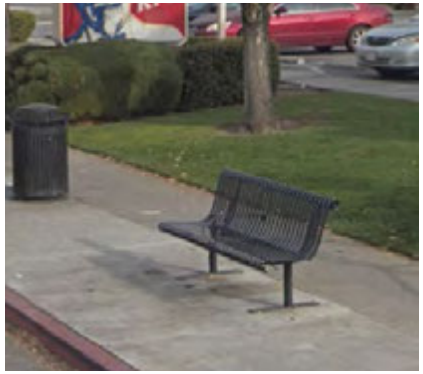
TRANSIT AMENITIES

VTA's Transit Passenger Environment Plan recommends the amenities that should be provided at a bus stop, based on ridership. VTA's 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.

Trash Receptacle

Signage

Bench



Shelter

PLANT MATERIAL

Street Trees

Quercus coccinea
Scarlet oak

Platanus x *acerifolia*
London planetree

Acer rubrum 'October glory'
Red maple

Pistacia chinensis
Chinese Pistache

Ulmus parvifolia
Chinese Evergreen Elm

PLANT MATERIAL

Accent Trees

Chionanthus retusus
Chinese Fringe Tree

Jacaranda mimosifolia
Jacaranda

Pyrus kawakamii
Evergreen Pear

Koelreuteria integrifolia
Chinese Flame Tree

PLANT MATERIAL

Shrubs

Penstemon heterophyllus
'Margarita Bop'
Foothill Penstemon

Baccharis hybrid
'Starn Thompson'
Starn Coyote Brush

Muhlenbergia rigens
Deer Grass

Salvia 'Allen Chickering'
California Blue Sage

Iris douglasiana
Douglas Iris

APPENDIX

- Pedestrian Crossing Study