



# CITY OF CAMPBELL PRIORITY DEVELOPMENT AREA



## TRANSPORTATION IMPROVEMENT PLAN

Prepared for  
**CITY OF CAMPBELL**

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### FINAL REPORT

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City of Campbell

**PRIORITY DEVELOPMENT AREA  
TRANSPORTATION IMPROVEMENT PLAN**

FINAL SUBMITTED IN FEBRUARY 2018



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## EXECUTIVE SUMMARY

### STUDY PURPOSE AND BACKGROUND

The Campbell Transportation Improvement Plan (TIP) has developed a suite of transportation and urban design projects to improve walking, bicycling, and transit access for the Downtown Campbell Priority Development Area (PDA). The PDA is the portion of downtown Campbell identified by the City of Campbell as transit-oriented site for future growth, as defined in *Plan Bay Area*, the regional transportation plan prepared by the Metropolitan Transportation Commission (MTC). The Campbell TIP presents projects in conceptual design form to enable the City of Campbell to compete for grant funding for design and construction.

### COMMUNITY ENGAGEMENT PROCESS

Throughout the development of the Campbell TIP, multiple rounds of stakeholder outreach were conducted to identify key areas of concern for the community and to garner feedback on recommended improvements. Separate rounds of outreach addressed the concerns of Downtown Campbell residents, businesspeople, and representatives of the bicycle and pedestrian community. Draft improvements were presented to the Campbell City Council, the City of Campbell Bicycle Pedestrian Advisory Committee, and to stakeholder groups from Downtown Campbell.

### EXISTING CONDITIONS

Several existing plans have addressed multimodal transportation in Downtown Campbell. The Campbell PDA boundaries are defined in two plans developed by the Metropolitan Transportation Commission (MTC) and other regional agencies with input from the City of Campbell: *Plan Bay Area* and the *Focusing Our Vision Program*. The Santa Clara Valley Transportation Authority (VTA) has developed a long-range countywide transportation plan, *Valley Transportation Plan (VTP) 2040*, which guides transportation funding priorities for Santa Clara County. As the primary transit operator for Santa Clara County, VTA is currently updating its *Short Range Transit Plan* through its *Next Network* project, which will determine the transit service provided in Downtown Campbell and throughout Santa Clara County. VTA is also in the process of updating its *Countywide Bicycle Plan*, which will identify corridors for cross-county travel, including Downtown Campbell and surrounding areas. The City of Campbell has prepared several plans and studies that provide guidance for improvements within the Campbell PDA. The Campbell General Plan

and Downtown Development Plan & Standards identify goals and policies to make Downtown Campbell a walkable, bike-friendly, and transit-oriented destination for Campbell residents, workers, and visitors. In response to resident and worker concerns about pedestrian safety in Downtown Campbell, City of Campbell staff prepared a report for City Council in April 2015. The findings from this staff report led the City to install pedestrian safety treatments and to apply for grants that funded additional treatments and studies, including the Campbell Transportation Improvement Plan.

Stakeholder input and existing data on infrastructure and traffic volumes were used to identify priority areas for observation during field visits, which were conducted in April 2016. During these visits, the project team noted continued high vehicle speeds and drivers failing to yield to pedestrians at unsignalized crossings of Orchard City Drive and Civic Center Drive, despite recent crossing improvements on these streets. Several other obstacles to walkability and bikeability were noted during the field visits, including sidewalk gaps, gaps in bicycle lanes on Campbell Avenue, long crossing distances for pedestrians at several locations, and locations where pedestrian crossings occur without marked crosswalks.

## SUMMARY OF RECOMMENDATIONS

The Campbell TIP identifies 13 infrastructure projects, located on the map shown on **Figure ES-1**. These projects are focused primarily on improving pedestrian and bicycle safety and access, and are described in detail along with their estimated costs in Chapter 5. Six of these projects were identified by the project team, City of Campbell staff, and stakeholders for more detailed exploration. For these six projects, conceptual designs were developed in AutoCAD to ensure that their designs could accommodate turning movements by VTA buses and trucks, as appropriate, and to develop better cost estimates. All thirteen projects were then compared to each other in terms of their potential safety benefits, order-of-magnitude costs, and likely feasibility. Chapter 6 presents a set of general infrastructure recommendations and ideas for policies and programs that would further improve walking, bicycling, access to transit, and parking utilization within the PDA.

## NEXT STEPS

All of the projects presented in this plan require additional design before they can be construction-ready. The project descriptions and illustrations presented in this plan provide a starting point for the City to develop grant applications that may generate funds for final design and construction. The City can also develop pilot programs and evaluate policies proposed in Chapter 6.

## Area Wide Improvements

- Add bicycle parking throughout downtown area
- Look for opportunities to develop parklets in partnership with downtown businesses
- Improve wayfinding to S. 1st Street garage

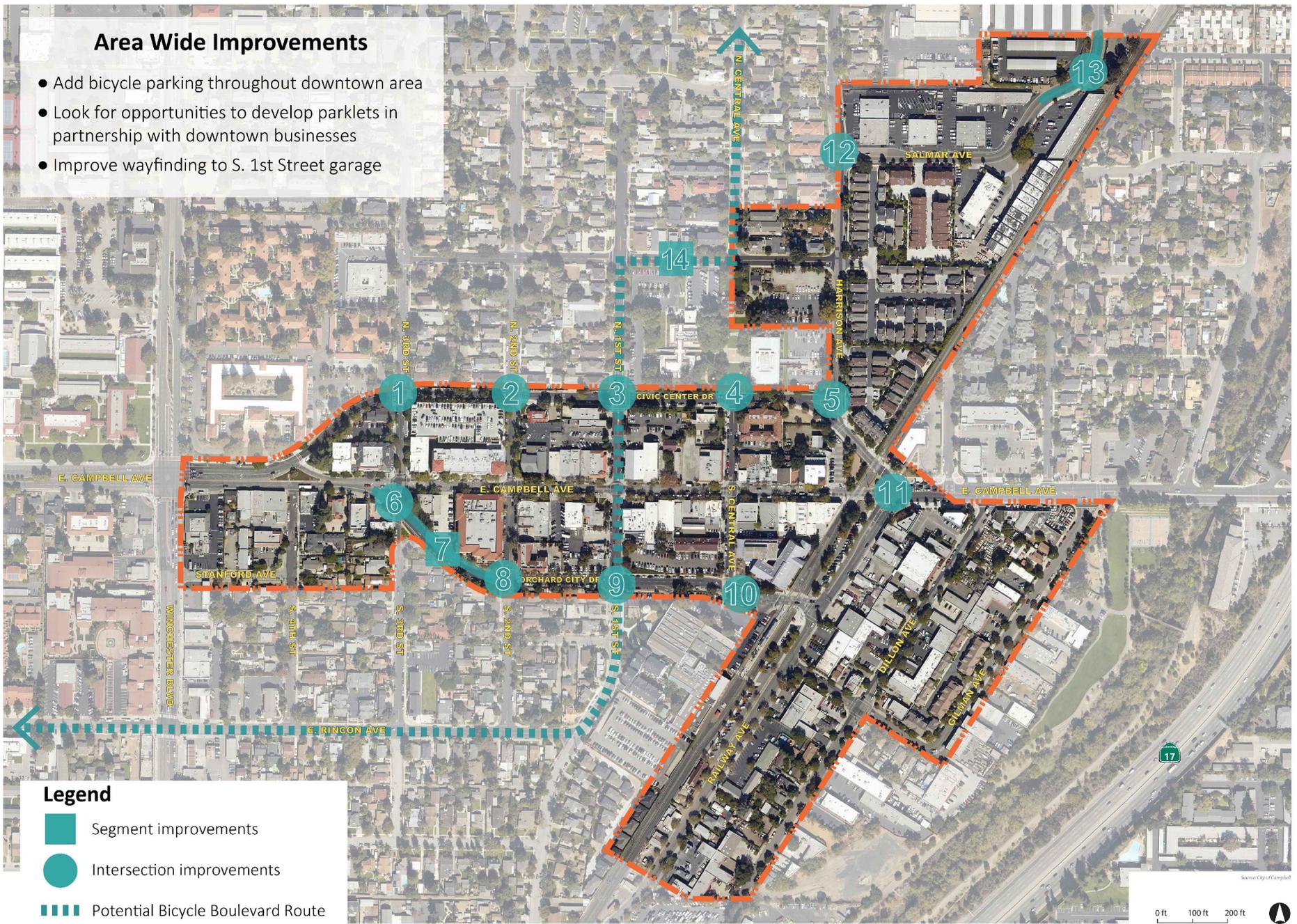


Figure E-1  
Summary Map of Potential Improvement Locations

## 1. INTRODUCTION

This report presents the results of the Transportation Improvement Plan for the portion of downtown Campbell that is within the priority development area (PDA) identified in *Plan Bay Area*, the regional transportation plan prepared by the Metropolitan Transportation Commission (MTC). The study area, including the PDA boundary, is shown on **Figure 1**.

### STUDY BACKGROUND AND PURPOSE

The City of Campbell has a walkable downtown area with restaurants, small retail businesses, and a civic center that includes City Hall, City offices, and Campbell's public library. It is served by one station on the VTA's Mountain View-Winchester light rail transit (LRT) line that can be used by residents and employees to travel to downtown San Jose and points throughout Santa Clara County. The downtown street system is centered on Campbell Avenue, a two-lane, two-way roadway with on-street parking and numerous pedestrian amenities, as the main street and a one-way loop road system with two-lane westbound Civic Center Drive and two-lane eastbound Orchard City Drive to the north and south. The loop roads are often viewed as pedestrian barriers because of their traffic volumes and speeds.

The Campbell Transportation Improvement Plan has developed a suite of transportation and urban design projects to improve walking, bicycling, and transit access within the Downtown Campbell PDA. The plan presents conceptual designs to enable the City of Campbell to compete for grant funding to design and construct the projects.

### STUDY SCOPE

The study area for the transportation improvement plan is generally bounded by Civic Center Drive to the north, Orchard City Drive to the south, Gilman Avenue to the east, and Winchester Boulevard to the west as shown on **Figure 1**.



 Project Site

Figure 1  
Campbell Transportation Improvement Plan Study Area

## 2. EXISTING CONDITIONS

This chapter describes the existing conditions of the roadway facilities, pedestrian and bicycle facilities, and transit service in the study area. First the planning documents that contain policies and planned improvements that were used to direct this study are discussed.

### SUMMARY OF RELEVANT PLANNING DOCUMENTS

Several existing plans have addressed multimodal transportation in Downtown Campbell. These plans and other related documents are described in this section, listed according to the lead agency that developed them.

#### **Metropolitan Transportation Commission and other Regional Agencies**

Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and federally designated metropolitan planning organization (MPO). MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

#### **Plan Bay Area**

Plan Bay Area is overseen by the MTC and the Association of Bay Area Governments (ABAG). It serves as the region's Sustainable Community Strategy (SCS) and the 2040 RTP, integrating transportation and land use strategies to manage greenhouse gas (GHG) emissions and plan for future population growth. The RTP and SCS include policies that call for shifting more travel demand to transit and accommodating growth along transit corridors in Priority Development Areas (PDAs). In July of 2013, Plan Bay Area was adopted by ABAG and the MTC. Major transit projects included in Plan Bay Area include a Bay Area Rapid Transit (BART) extension from Fremont to San José/Santa Clara, Caltrain electrification, enhanced service along Amtrak's Capitol Corridor, and improvements to local and express bus services.

### Focusing Our Vision Program: Priority Development Areas

Several Bay Area regional agencies (MTC, ABAG, the Bay Area Air Quality Management District [BAAQMD], and the San Francisco Bay Conservation and Development Commission) initiated the Focusing Our Vision (FOCUS) Program. The purpose of this program is to encourage growth and revitalization near transit facilities in existing communities. The program provides planning and construction funding for projects in PDAs with high transit accessibility and potential for redevelopment. In Campbell, the 195-acre PDA that extends south along the VTA light rail corridor, from the Hamilton station to the Winchester station, and west along Campbell Avenue to include the Campbell Community Center complex west of Winchester Boulevard (ABAG 2016) is the subject of the TIP.

### **Santa Clara Valley Transportation Authority**

The Santa Clara Valley Transportation Authority (VTA) serves two roles in Santa Clara County—first, as the primary transit operator, and second, as the Congestion Management Agency (CMA).

In its role as transit operator, VTA is responsible for development, operation, and maintenance of the bus and light-rail system within the County. VTA operates more than 70 bus lines and three light-rail lines, in addition to shuttle and paratransit service. It also provides transit service to major regional destinations and transfer centers in adjoining counties.

As the County's CMA, VTA is responsible for managing the County's blueprint to reduce congestion and improve air quality. VTA is authorized to set State and federal funding priorities for transportation improvements that affect the Santa Clara County Congestion Management Plan (CMP) transportation system. Priority projects are also eligible for the RTP. The CMP roadway network in Campbell includes all State highways, County expressways, and some principal arterials and intersections, while the transit network includes light rail service and selected bus service.

### Valley Transportation Plan (VTP) 2040

As the CMA for Santa Clara County, VTA is responsible for the development of a long-range countywide transportation plan, called Valley Transportation Plan (VTP) 2040. VTP 2040 provides programs, projects, and policies for roadways, transit, Intelligent Transportation Systems (ITS) and Systems Operations Management, bicycle and pedestrian facilities, and land use and transportation integration. VTP 2040 projects serve as VTA's recommendations for the RTP, Plan Bay Area. VTA 2040 was adopted by the VTA Board of Directors in September of 2014.

VTP projects that will affect the TIP include:

- *Vasona Corridor Light Rail Extension (T9)*: Adding a 1.6-mile extension from Winchester Station in Campbell to a new Vasona Junction Station in Los Gatos, including the construction of a second new station at Hacienda Avenue (Hacienda Station). This project has the potential to increase transit ridership between Campbell and Los Gatos and pedestrian traffic in downtown Campbell and along Hamilton Avenue, which are currently served by light rail.
- *East Campbell Avenue Portals Project – Bike Lanes on Campbell Avenue at SR 17 (B2)*: Widening north and south sides of Campbell Avenue to widen the bike lanes, providing pedestrian portal openings under the freeway overpass, and widening sidewalks. This project was completed in 2016.
- *Los Gatos Creek Trail Expansion on West Side (Hamilton to Campbell) (B71)*: Closing the gap in the west side trail between Hamilton Avenue and the north end of Poplar Avenue near Campbell Avenue. This project would improve pedestrian access to the trail from Downtown Campbell, and potentially bring more people to Downtown on foot and by bicycle.

#### Short-Range Transit Plan (SRTP) and Next Network Project

VTA's *Short-Range Transit Plan (SRTP)* is a federally mandated planning document that describes the plans, programs, and goals of VTA's transit service. It has a 10-year planning horizon and is updated annually. It focuses on the characteristics and capital needs of the existing system and on committed (funded) expansion plans. The current plan, adopted in 2010 for FY 2014 - FY 2023, proposes to keep bus and light-rail service at existing levels, expand community bus services (neighborhood-based circulator and feeder routes that travel within a limited area), continue to contribute monetarily to Caltrain service, and replace and expand the bus vehicle fleet.

As part of its Transit Ridership Improvement Program, a two-year study of transit services designed to identify ways to improve ridership, VTA is currently developing its Next Network project. The project has three goals: improve connectivity with the Milpitas and Berryessa BART stations (opening in Fall 2017), improve overall system ridership, and improve farebox recovery. To meet these goals, VTA and its consultant have identified three conceptual alternatives that provide different ratios of high-ridership service and high-coverage service. VTA circulated a proposed draft plan to committees and members of the public in early 2017 and is currently accepting input from the public. Changes identified in the Next Network project will be incorporated in VTA's next transit service plan.

### Other VTA Plans, Programs, and Guidelines

*Transit Passenger Environment Plan:* This plan, adopted in 2016, outlines VTA's approach to providing amenities at bus stops. It includes updated bus shelter design standards, classifies bus stops according to ridership to prioritize investments, and provides policies that clarify how cities and the public can work with VTA to improve bus stops.

*Complete Streets Program* (ongoing): VTA, in a collaborative effort with its member agencies and partner agencies, Caltrans, and the MTC, is in the process of developing a Complete Streets Program for Santa Clara County. The main objective of this program is to formulate a process for instituting incremental "complete streets" improvements in Santa Clara County. In early 2015, VTA initiated a new phase of its Complete Streets program by beginning a series of corridor studies to implement Complete Streets elements along select roadways. This planning effort is a partnership between VTA and its Member Agencies to transform select roadways into high-quality, multimodal streets that prioritize bicycle, pedestrian and transit travel while still serving motorists. In Spring 2015, VTA secured grant funding to conduct studies under this overall effort, which include the Bascom Corridor Complete Streets Study. This study includes the Bascom Avenue corridor through San Jose, unincorporated Santa Clara County, and Campbell, between I-880 to the north and SR 85 to the south. The goal is to develop a complete streets plan (including defined improvements and cross sections) that can be used by each jurisdiction, providing continuity for multi-modal users moving across the various jurisdictions.

*Pedestrian Access to Transit Plan* (in progress): VTA is currently developing a *Pedestrian Access to Transit Plan*, the first countywide pedestrian plan for Santa Clara County. VTA is working with community members and stakeholders to identify projects, such as pedestrian bridges, streetscape improvements, bicycle and pedestrian paths, street crossings, and sidewalks, that will improve the safety and comfort of those who ride VTA trains and buses. Ultimately, the plan will include a list of projects that can be funded through local, State, or federal funding. As of this writing, the draft project list does not include improvements specific to Campbell, but the improvements identified may make transit use more attractive to people traveling to and from Campbell by improving the pedestrian environment around transit stops and stations elsewhere in the County.

*Santa Clara Countywide Bicycle Plan Update* (in progress): The *Santa Clara Countywide Bicycle Plan* synthesizes other local and County plans into a comprehensive 20-year cross-County bicycle corridor network and expenditure plan. The long-range countywide transportation plan and the means by which projects compete for funding and prioritization are documented in Valley Transportation Plan (VTP) 2040. VTA adopted the *Santa Clara Countywide Bicycle Plan* in 2008, which includes a planned bicycle network with 16 routes of countywide or intercity significance. This plan is under update by the VTA, with an anticipated completion date of late 2017.

*Bicycle Technical Guidelines:* VTA's *Bicycle Technical Guidelines* (2012) provide best practices and optimal standards for bicycle facility design and bike-friendly streets. These guidelines are intended to promote consistent design across Santa Clara County.

*Pedestrian Technical Guidelines:* VTA's *Pedestrian Technical Guidelines* (2003) provide guidance for the design of streets, sidewalks, buildings, and open spaces. They are intended to provide more comfortable and attractive places to walk, improve pedestrian safety, shorten walking distances, and improve public space.

### **City of Campbell**

The City of Campbell has conducted several planning studies in the PDA that enhance the pedestrian and bicycle environments, provide attractive streetscapes, and encourage alternative mode use. These studies include East Campbell Avenue Master Plan, Feasibility Report for the East Campbell Avenue Portal Project, Downtown Campbell Development Plan and Standards, Winchester Boulevard Master Plan, and General Plan Circulation Element update. A list of improvements with fee estimates for consideration by the Planning Commission and City Council has been developed.

### **Campbell General Plan and Circulation Element**

The Campbell General Plan was adopted on November 6, 2001 with the Land Use and Transportation Element was updated and adopted on August 19, 2014. It acknowledges Campbell's regional context and how regional land use and transportation planning decisions affect Campbell and how local decisions affect regional facilities. It also acknowledges that Campbell is limited in its ability to influence travel demand that is generated outside of the City limits and that City policy needs to often conform to regional policies to qualify for state and federal funding. Campbell is currently conducting an update of its existing General Plan. Campbell will likely adopt an updated General Plan in 2018.

Campbell's 2001 General Plan includes several goals relating to transportation which provide guidance for the Campbell TIP. These goals, as well as policies and strategies identified to implement them in the 2001 General Plan, will be re-visited during the current General Plan Update. Relevant goals include:

- Goal LUT-2: To achieve a safe, balanced and functional multi-modal transportation network that accommodates all users.
- Goal LUT-7: Attractive, well-maintained and safe streets, public improvements and utilities.

- Goal LUT-11: A physically connected, efficient community with safe access and linkages throughout the city for a variety of transportation modes and users.
- Goal LUT-19: A vibrant community oriented Downtown that serves as the retail, service commercial, cultural and historic center of the city.

### Campbell Capital Improvement Plan

The City of Campbell prepares a Five-Year Capital Improvement Plan (CIP) that identifies projects greater than \$25,000. Transportation projects in the current CIP (2018 – 2022) include:

- Campisi Way Feasibility Study
- Citywide ITS enhancements
- ADA Transition Plan improvements
- Bike/pedestrian and traffic safety improvements
- Los Gatos Trail Feasibility Study
- Harriet Avenue Traffic Calming\*
- Eden Avenue Sidewalk Improvements\*
- Traffic Calming Improvements
- Sidewalk/Curb and Gutter Replacement  
*\*indicates project outside the study area*

### Downtown Pedestrian Safety – Staff Report and City Actions

In response to resident and worker concerns about pedestrian safety along Civic Center Drive and Orchard City Drive, City of Campbell staff prepared a report for City Council in April 2015. Based on the findings in this report, the City has installed a variety of treatments and has applied for several grants to install additional treatments and conduct additional studies, including this Transportation Improvement Plan (TIP).

As part of the staff report, the City performed pedestrian counts and observations, conducted a crosswalk analysis, and evaluated the 10-year crash history at downtown intersections. As a result, a downtown flashing beacon project was recommended with intermediate near-term striping enhancements at several intersections. Recommendations from this study have been incorporated into the TIP.

### Downtown Campbell Development Plan & Standards

This plan provides “a vision for Downtown Campbell and a framework for physical development, business development and preservation of the Historic Downtown” and “looks to position the downtown for success in the 21st Century, and to enhance its role as a community gathering place

and the heart of the City.” The transportation aspects of the plan are to maintain downtown as a walkable central business district, the light rail connection to San Jose (and beyond) and supportive land uses near the station.

The plan identifies several goals and policies relating to circulation, parking, and transportation:

- Goal CPT-1: To improve vehicular and pedestrian circulation in the Downtown.
  - Policy CPT-1.1: Circulation Improvements: Circulation improvements shall be considered to enhance the perception of the Downtown beyond the loop streets.
  - Policy CPT-1.2: Vehicular/Pedestrian Interface: Employ methods to decrease vehicular speeds along the loop streets and provide a pedestrian environment and downtown feel.
- Goal CPT-2: To create attractive Gateways into the Downtown.
  - Policy CPT-2.1: Gateway Design: Develop and implement plans for the Downtown Gateways.
- Goal CPT-3: To provide adequate and accessible parking in the Downtown.
  - Policy CPT-3.1: Adequate Parking: Encourage the joint utilization of parking.
  - Policy CPT-3.2: Accessible Parking: Provide accessible parking in the Downtown.
- Goal CPT-4: Reduce parking demand in the Downtown.
  - Policy CPT-4.1: Light Rail: Encourage the use of light rail and other mass transit alternatives, as well as bicycles to reduce parking demand.

### East Campbell Avenue Master Plan

The East Campbell Avenue Master Plan was prepared to connect downtown Campbell to The Pruneyard through lane configuration changes along East Campbell Avenue, streetscape design concepts, improved bicycle and pedestrian access through the Highway 17 underpass, improved layout of the Railway/Campbell Avenue intersection, improved pedestrian and bicycle comfort on the East Campbell Avenue bridge over Los Gatos Creek, modified alignments of Page Street and Gilman Avenue, and development standards. The East Campbell Avenue Portals project and recommended roadway, streetscape, bicycle facility, and sidewalk improvements as a result of this study have been constructed.

## COMMUNITY ENGAGEMENT PROCESS

Throughout the development of the Campbell TIP, multiple rounds of stakeholder outreach were conducted to identify key areas of concern for the community and to garner feedback on recommended improvements. Separate rounds of outreach addressed the concerns of Downtown Campbell residents, businesspeople, and representatives of the bicycle and pedestrian community. Draft improvements were presented to the Campbell City Council, the City of Campbell Bicycle Pedestrian Advisory Committee, and to stakeholder groups from Downtown Campbell. This community engagement process is described further in Chapter 3.

## MULTIMODAL TRANSPORTATION ASSESSMENT

This section provides an overview of transportation facilities within the study area, including detailed analyses of collisions, bicycle conditions, pedestrian conditions, and transit service.

### Roadway Facilities Overview

Downtown Campbell is centered on Campbell Avenue, a historic main street with high-quality pedestrian amenities and on-street parking that carries two-way traffic. Campbell Avenue is bounded by two one-way streets, Civic Center Drive and Orchard City Drive, that provide a “loop road” system for downtown, allowing vehicle traffic to bypass Campbell Avenue. Although Civic Center Drive and Orchard City Drive provide a convenient alternative route for drivers passing through Downtown Campbell, high vehicle speeds and volumes on these streets can create a barrier for people walking in the downtown area, and make them inhospitable to bicyclists. Railway Avenue provides access to Downtown from neighborhoods to the south. The Downtown Campbell Light Rail Station is located on Railway Avenue. Harrison Avenue and Salmar Avenue connect the downtown area to neighborhoods to the north and to Hamilton Avenue, a major commercial corridor.

### Collision Analysis

To better understand conditions for people walking, bicycling, and driving downtown, a collision analysis was conducted. The results of the collision analysis were used to identify specific locations within the study area that could benefit from infrastructure improvements. Collision reports for 2012 through 2015 were obtained from the City of Campbell. The results are summarized on **Figure 2**; full data are presented in **Appendix B**.

A total of 40 collisions were reported within the study area between 2012 and 2015. Approximately two thirds of the collisions were vehicle-vehicle or vehicle-object; one third were pedestrian-vehicle or bicyclist-vehicle. All of the collisions took place on dry road surfaces in clear or cloudy weather. Of the accidents involving pedestrians, 60 percent occurred after dark or during twilight.

Between 2012 and 2015, eight collisions involved pedestrians and six involved bicyclists. All but three of the pedestrian-vehicle and bicyclist-vehicle collisions were the fault of the driver. Six of the eight pedestrian-vehicle collisions occurred because the vehicle driver failed to yield the pedestrian right-of-way while pedestrians were in the crosswalk. One of the pedestrian-vehicle collisions occurred because the vehicle driver was driving under the influence and backed into a pedestrian, and one of the pedestrian-vehicle collisions occurred when the pedestrian was not in a crosswalk.

Of the six collisions involving bicycles, four were bicycle-vehicle collisions. Two of these collisions were the fault of the driver, one due to improper turning and one due to unsafe speed. The one bicycle-bicycle collision was a rear-end collision caused by alcohol consumption.

For vehicle-vehicle and vehicle-object collisions, approximately one-third were the result of right-of-way violations, one-fourth involved someone driving under the influence of alcohol and/or drugs (DUI), and one-third were caused by either unsafe speeds, unsafe lane changes, or improper turning.



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-  Study Area
-  Vehicle Only
-  Bicyclist Involved
-  Pedestrian Involved

Figure 2  
Collisions

## Pedestrian Facilities

Campbell's downtown area is an attractive pedestrian destination, and many people walk to it from the surrounding neighborhoods, bus stops, and light rail station. The City of Campbell has recently invested in pedestrian infrastructure in the study area, adding curb extensions, benches, and pedestrian-scale lighting along Campbell Avenue east of downtown, and curb extensions, ladder-style crosswalks, and high-visibility pedestrian crossing signs at uncontrolled intersections along Orchard City Drive and Civic Center Drive.

### Existing Facilities

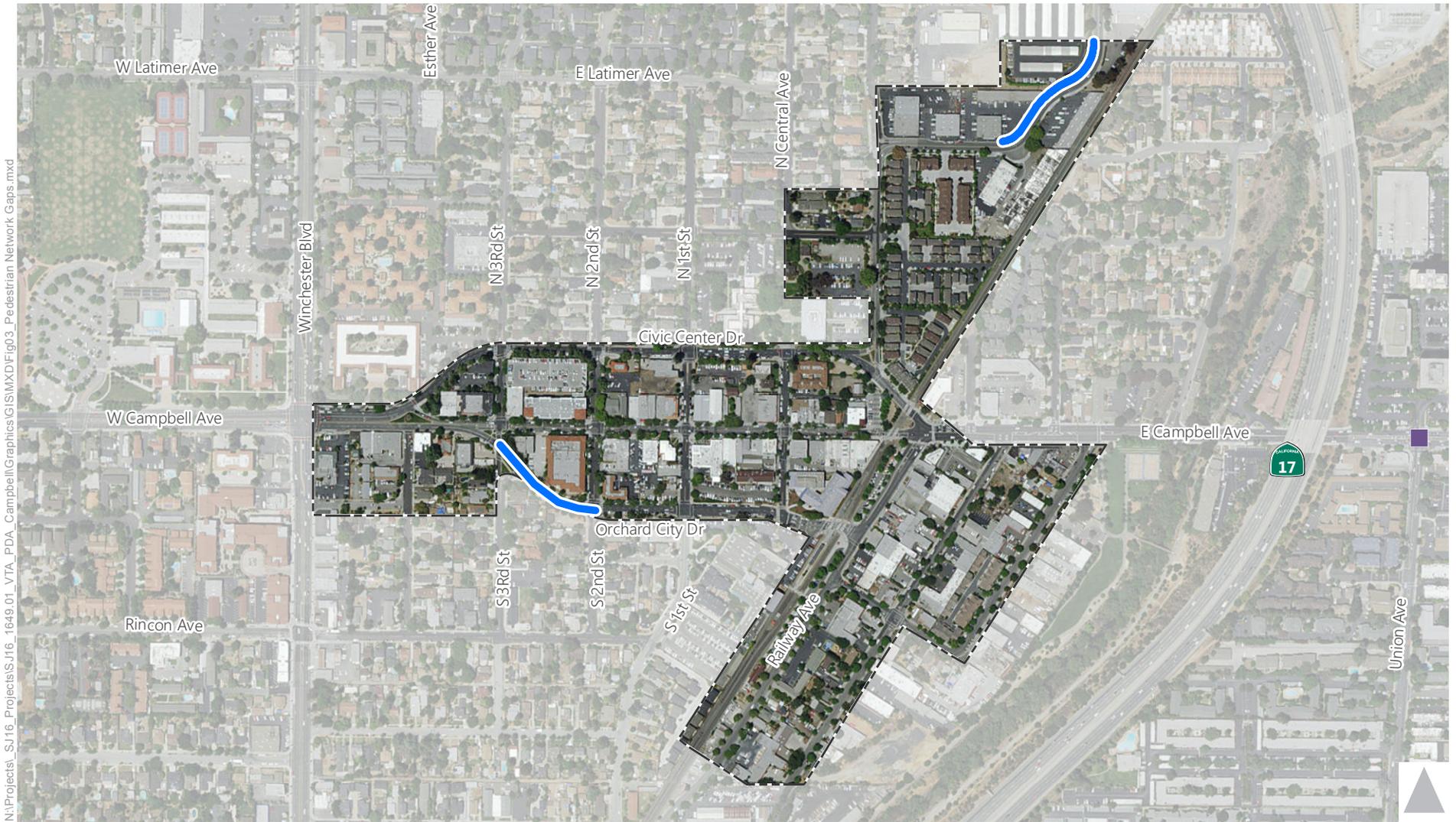
Within the study area, pedestrian facilities are generally complete, although there are sidewalk gaps in two locations, as shown on **Figure 3**. One gap is on the north side of Orchard City Drive, and the other is along the northwest side of Salmar Avenue south of Hamilton Avenue. Field visits, summarized below, identified additional challenges for people walking within the study area.

### Site Visit Findings

The project team made site visits to Downtown Campbell in April 2016 to observe transportation facilities and operating conditions. Several challenges were noted for people walking and using wheelchairs within the study area:

- **North 3<sup>rd</sup> Street / Civic Center Drive:** Curb ramps at this intersection are not fully compliant with the Americans with Disabilities Act (ADA). High vehicle speeds were observed. Some drivers were observed failing to yield to pedestrians who were entering the crosswalk.
- **North 2<sup>nd</sup> Street / Civic Center Drive:** High vehicle speeds were observed and recorded by a responsive speed sign. Curb ramps on the northwest and northeast corners are not fully ADA-compliant.
- **North 1<sup>st</sup> Street / Civic Center Drive:** Curb ramps at the northeast, northwest, and southeast corners are not fully ADA-compliant.
- **South 3<sup>rd</sup> Street / Orchard City Drive:** The driveway at Gridley Company exits onto the crosswalk on 3<sup>rd</sup> Street. High vehicle speeds were observed on Orchard City Drive.
- **Orchard City Drive between 3<sup>rd</sup> Street and 2<sup>nd</sup> Street:** There is a gap in the sidewalk on the north side of Orchard City Drive. High vehicle speeds were observed on Orchard City Drive; wide travel lanes may be contributory factors.

- **South 2<sup>nd</sup> Street / Orchard City Drive:** Curb ramps at this intersection are not fully ADA-compliant. High vehicle speeds were observed. Some drivers were observed failing to yield to pedestrians who were entering the crosswalk. Poor visibility of pedestrians was observed at the northwest corner of this intersection.
- **South 1<sup>st</sup> Street / Orchard City Drive:** Curb ramps at this intersection are not fully ADA-compliant.
- **North Central Avenue:** West side has steep driveways and multiple utility boxes are located in the sidewalk.
- **South Central Avenue / Orchard City Drive:** Curb ramps are not fully ADA-compliant. The intersection and crosswalks can be blocked by vehicles queuing and waiting to cross the railway tracks.
- **Railway Avenue / East Campbell Avenue / Civic Center Drive:** A “No Pedestrian Crossing” sign is located just to the east of the railway tracks on East Campbell Avenue. Marked pedestrian crosswalks are missing on the north and west legs of this intersection. A ladder-stripped crosswalk is also provided on the south leg. Long pedestrian wait times were observed.
- **Harrison Avenue / Salmar Avenue:** Crosswalks are not marked at this intersection.
- **Salmar Avenue between Harrison Avenue and Hamilton Avenue:** There is a gap in the sidewalk on the west side of Salmar Avenue. High vehicle speeds and poor visibility were observed along the large curve near Harrison Street.



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 Study Area  Sidewalk Gaps

Figure 3  
Pedestrian Facilities and Network Gaps

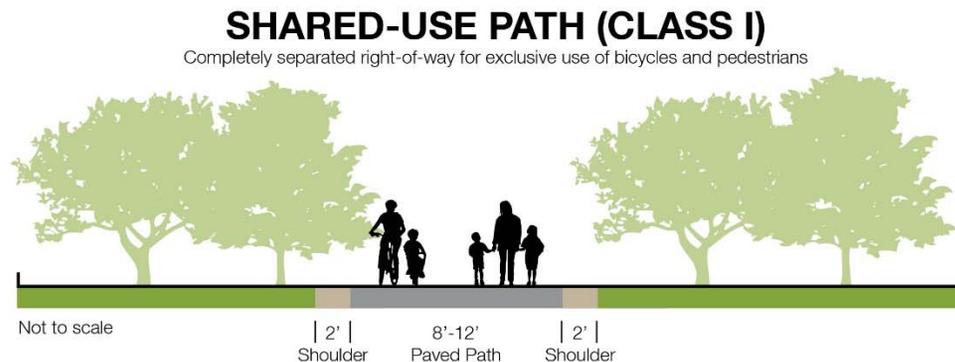
## Bicycle Facilities and Level of Traffic Stress

Bicycling is a popular way to get to Downtown Campbell, particularly on weekends when Campbell's Sunday Farmer's Market is open. There are no bicycle lanes within the study area, but low-traffic residential streets provide some access to Downtown. This section describes the types of bicycle facilities, identifies existing facilities within the study area, and provides an evaluation of how well the existing street system serves most bicycle riders.

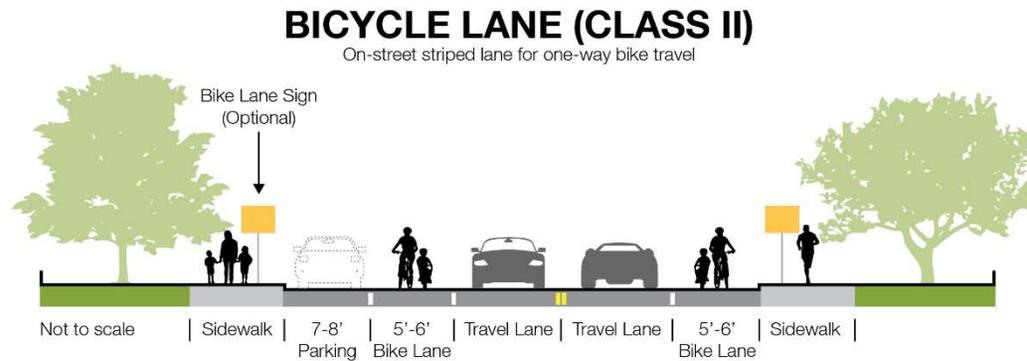
### Facility Types

Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the Highway Design Manual (Chapter 1000: Bikeway Planning and Design). Caltrans provides for four distinct types of bikeway facilities, as described below and shown in the accompanying figures.

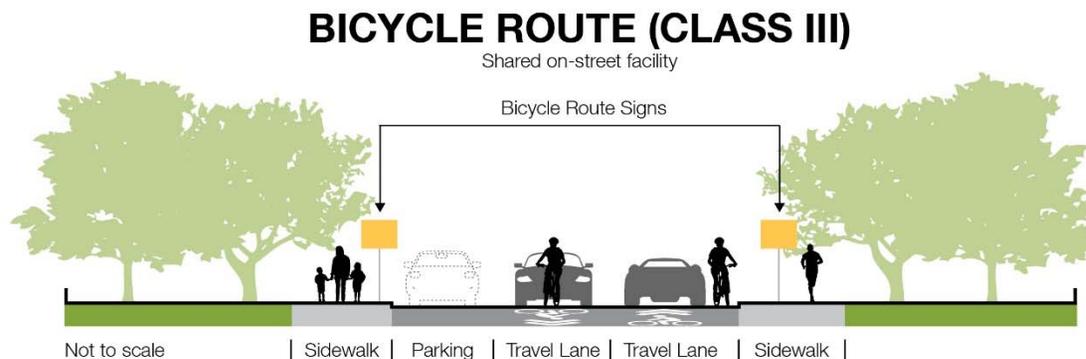
- Class I Bikeways (Shared-Use Path) provide a completely separate right-of-way and are designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors where on-street facilities are not feasible or where sufficient right-of-way exists to allow them to be constructed.



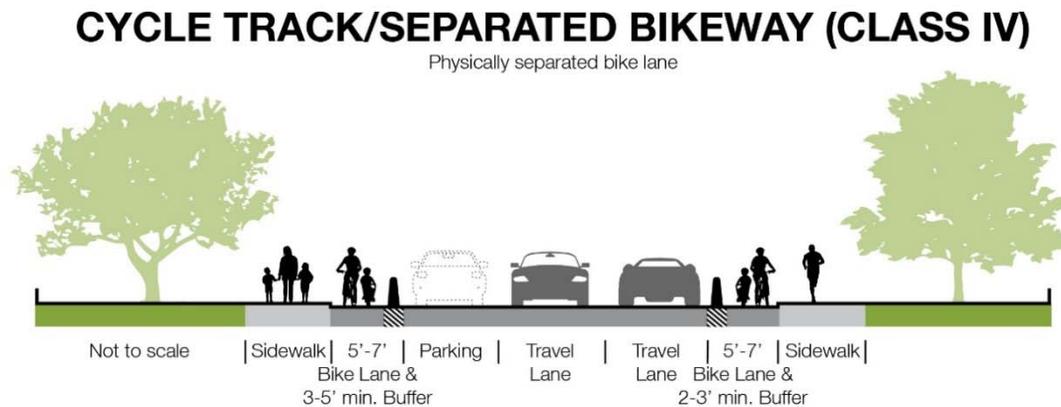
- Class II Bikeways (Bicycle Lanes) are dedicated lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are typically five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- Class III Bikeways (Bicycle Route) are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide a connection to other bicycle facilities where dedicated facilities are infeasible, or b) designate preferred routes through high-demand corridors.



- Class IV Bikeways (cycle tracks or “separated” bikeways) provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including, but not limited to, grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.



### Existing and Recommended Facilities

Access to the study area is provided by Class I, Class II, and Class III facilities, as shown on **Figure 4**. The following designated bicycle facilities serve Campbell’s downtown area:

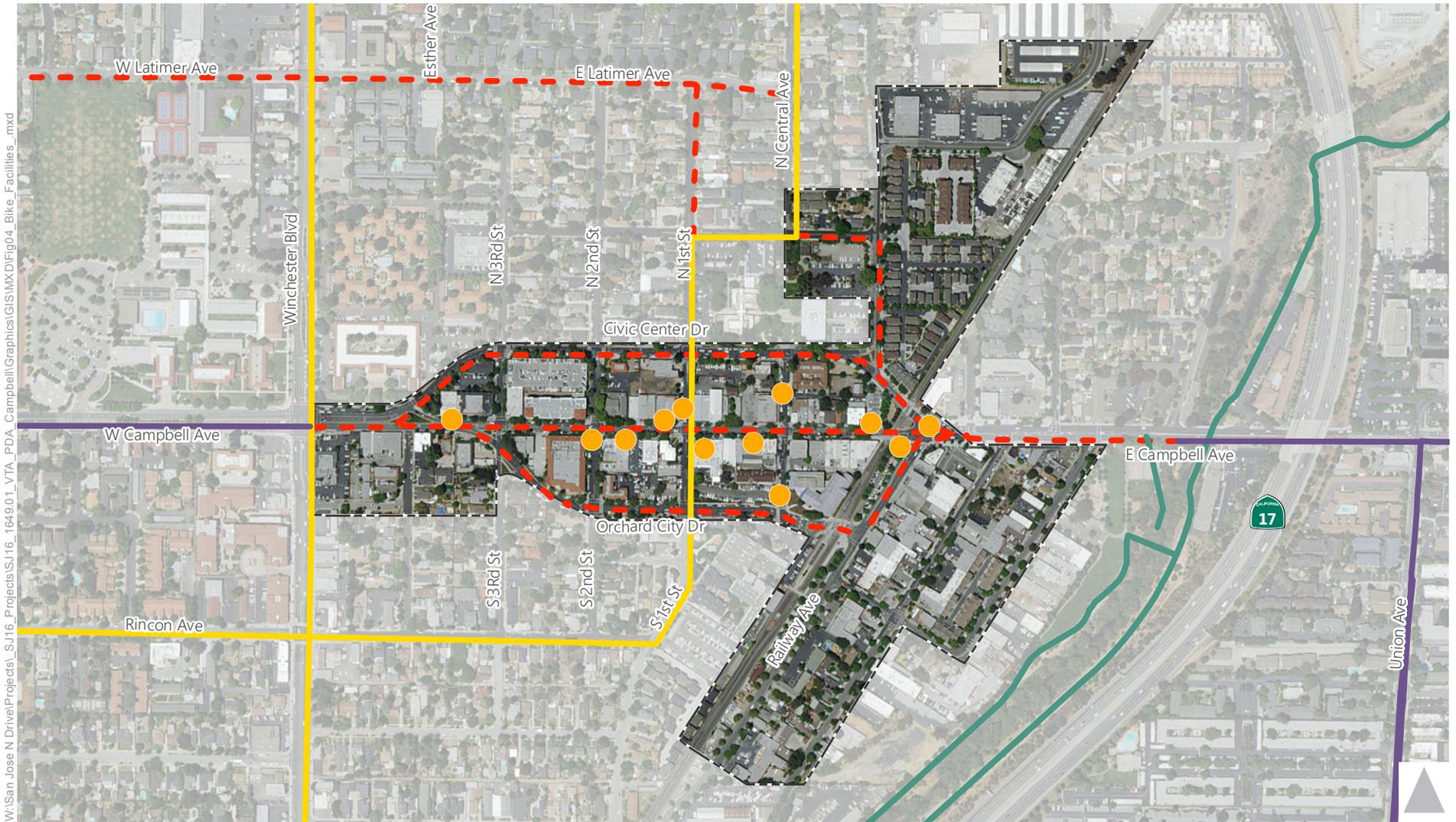
- The Los Gatos Creek Trail, a **Class I bike facility** and multi-use path, connects to East Campbell Avenue east of the study area.
- **Class II bike lanes** are provided on East Campbell Avenue east of its intersection with Railway Avenue and Civic Center Drive, and on West Campbell Avenue, west of Winchester Boulevard. There are no dedicated bicycle lanes on Campbell Avenue through the study area.
- A **Class III bicycle route** is provided on Rincon Avenue, which connects to North Central Avenue via 1st Street and Grant Street through the study area. Winchester Boulevard is also designated as a Class III bicycle route, although high traffic volumes and speeds may make it unappealing to most people riding bicycles.

These facilities are shown on **Figure 4**, along with the locations of on-street bicycle racks and recommended bicycle facilities. In VTA's 2008 *Santa Clara Countywide Bicycle Plan*, bicycle facilities are recommended for the entire length of Campbell Avenue and for Civic Center Drive and Orchard City Drive through the study area, continuing east via Union Avenue and Curtner Avenue and west via Campbell Avenue (Cross County Bicycle Corridor 14, Campbell / Curtner / Tully Corridor). The 2008 plan also identified a bicycle corridor on Winchester Avenue, immediately west of the study area (Cross County Bicycle Corridor 11, Calabazas Creek / Winchester Corridor). This corridor would have a spur through the study area, providing connections on neighborhood streets to destinations forth of Downtown Campbell. These recommended facilities may change with the forthcoming update to the plan.

### Site Visit Findings

The project team made site visits to Downtown Campbell in April 2016 to observe transportation facilities and operating conditions. Several challenges were noted for people riding bicycles within the study area:

- **Civic Center Drive, Orchard City Drive, and Salmar Avenue:** High vehicle speeds, which discourage people from riding bicycles, were noted on these streets.
- **Salmar Avenue and Orchard City Drive:** Poor sight conditions were observed around curves on southbound Salmar Avenue and eastbound Orchard City Drive. Since bicyclists are smaller than automobiles and therefore more difficult for drivers to see, this is likely to further discourage people from riding bicycles.
- **Railway Avenue / East Campbell Avenue / Civic Center Drive:** When approaching this intersection from the east, bicyclists must mix with two lanes of traffic and must merge into the left lane to continue straight onto East Campbell Avenue. This maneuver is challenging for all but the most experienced cyclists.
- **Campbell Avenue/Orchard City Drive:** When approaching this intersection from the west, bicyclist must mix with two lanes of traffic and must merge into the left lane to continue straight onto East Campbell Avenue.



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Data Source: City of Campbell, Santa Clara County

- Bicycle Facilities**
- Class I - Multi-Use Path
  Class III - Bike Route
  Bike Rack
  - Class II - Bike Lane
  Proposed Bicycle Facility
  Study Area

Figure 4  
Bicycle Facilities

## Level of Traffic Stress Analysis

Level of Traffic Stress (LTS) is a method that evaluates the level of comfort that a street provides for people riding bicycles. Streets are evaluated in terms of the number of traffic lanes, the presence and width of bicycle lanes, the speed limit or prevailing vehicle speed, and the presence or absence of on-street parking. In general, having more space dedicated to bicycles, fewer vehicle lanes, and lower vehicle speeds reduces the level of traffic stress experienced by people riding bicycles. Having less space for bicyclists, more vehicle lanes, and/or higher vehicle speeds increases the level of stress.<sup>1</sup> Bicycle paths (Class I facilities) are considered to be low-stress facilities.

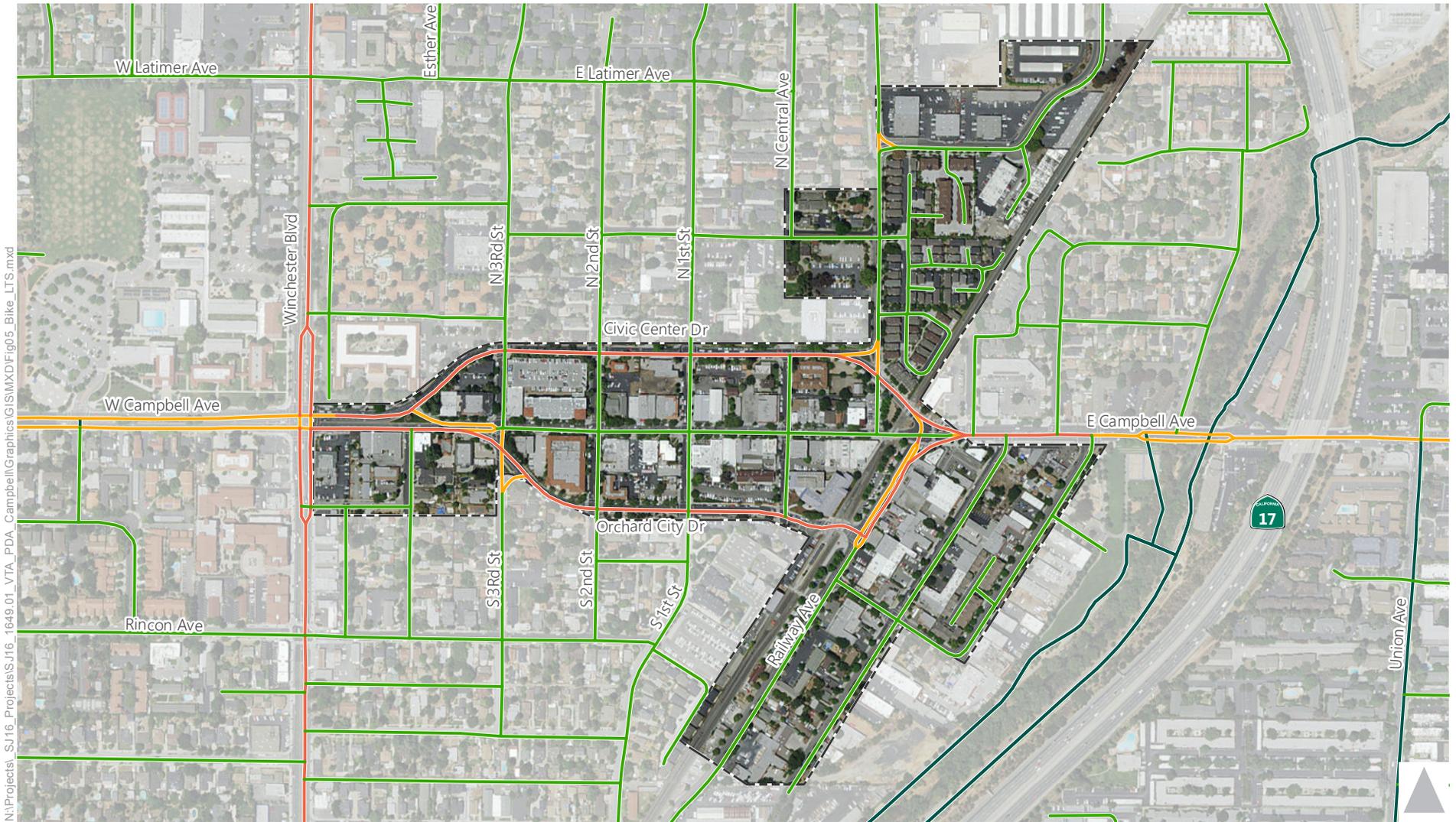
LTS categorizes bicycle facilities and streets into four categories according to how much stress people who ride bicycles will tolerate in different environments:

- LTS 1 (Very Good): Most children can tolerate LTS 1 and feel safe while bicycling. Bike paths and other Class I facilities are scored as LTS 1.
- LTS 2 (Good): This is the highest level of stress that the mainstream adult population will tolerate while still feeling safe.
- LTS 3 (Fair): Bicyclists who are considered “enthused and confident” but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling.
- LTS 4 (Poor): For bicyclists, this is tolerated only by those characterized as “strong and fearless”, which comprises a small percentage of the population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

Level of Traffic Stress for streets within and around the study area are shown on **Figure 5**. Several streets provide a high-stress experience for people riding bicycles and are shown in red. Orchard City Drive, Civic Center Drive, and the portions of East Campbell Avenue west of 3<sup>rd</sup> Street and east of Railway Avenue are all at LTS 4 (“poor”). Winchester Boulevard, a designated bicycle route but which has multiple travel lanes, relatively high vehicle speeds, and no dedicated bicycle facilities, also has an LTS of 4. Within downtown, East Campbell Avenue provides relatively low stress access (LTS 2). The bicycle route that connects Rincon Avenue to North Central Avenue via 1<sup>st</sup> Street provides fairly low-stress access (LTS 2) to and through downtown. Since actual speed data were not available, this analysis used posted speed limits, and may therefore underestimate the level of stress experienced by people riding bicycles on some streets.

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<sup>1</sup> The full LTS methodology is documented in Mekuria, M. et al. (2012). Low-Stress Bicycling and Network Connectivity. Mineta Transportation Institute, San Jose.



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 Project Site Existing Bicycle Level of Stress

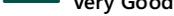
-  Poor
-  Fair
-  Good
-  Very Good

Figure 5  
Bicycle Level of Traffic Stress

## Transit Service

The Santa Clara Valley Transportation Authority (VTA) operates light rail transit and bus service in Santa Clara County.

### Existing Transit Service

VTA Local Bus Route 60 runs along Winchester Boulevard with two stops within the study area at Campbell Avenue. Weekday frequencies (headways) are 15 minutes during morning peak hours, 17 minutes during evening peak hours, and approximately every 30 minutes during off-peak hours. There are six additional bus Route 60 stops near the downtown area.

VTA Local Bus Route 26 operates along Campbell Avenue, Civic Center Drive and Orchard City Drive with 6 stops within the study area. Eastbound and westbound stops are located at the following intersections:

- Campbell Avenue at Winchester Boulevard (2 stops)
- Orchard City Drive at Central Avenue (1 stop)
- Campbell Avenue at Gilman Avenue (2 stops)
- Civic Center Drive at Harrison Avenue (1 stop)

Weekday frequencies (headways) are approximately every 18 minutes during peak AM and PM commute hours and approximately every 30 minutes during off-peak hours. There are two additional Route 26 stops near the downtown area.

### Next Network Proposed Changes

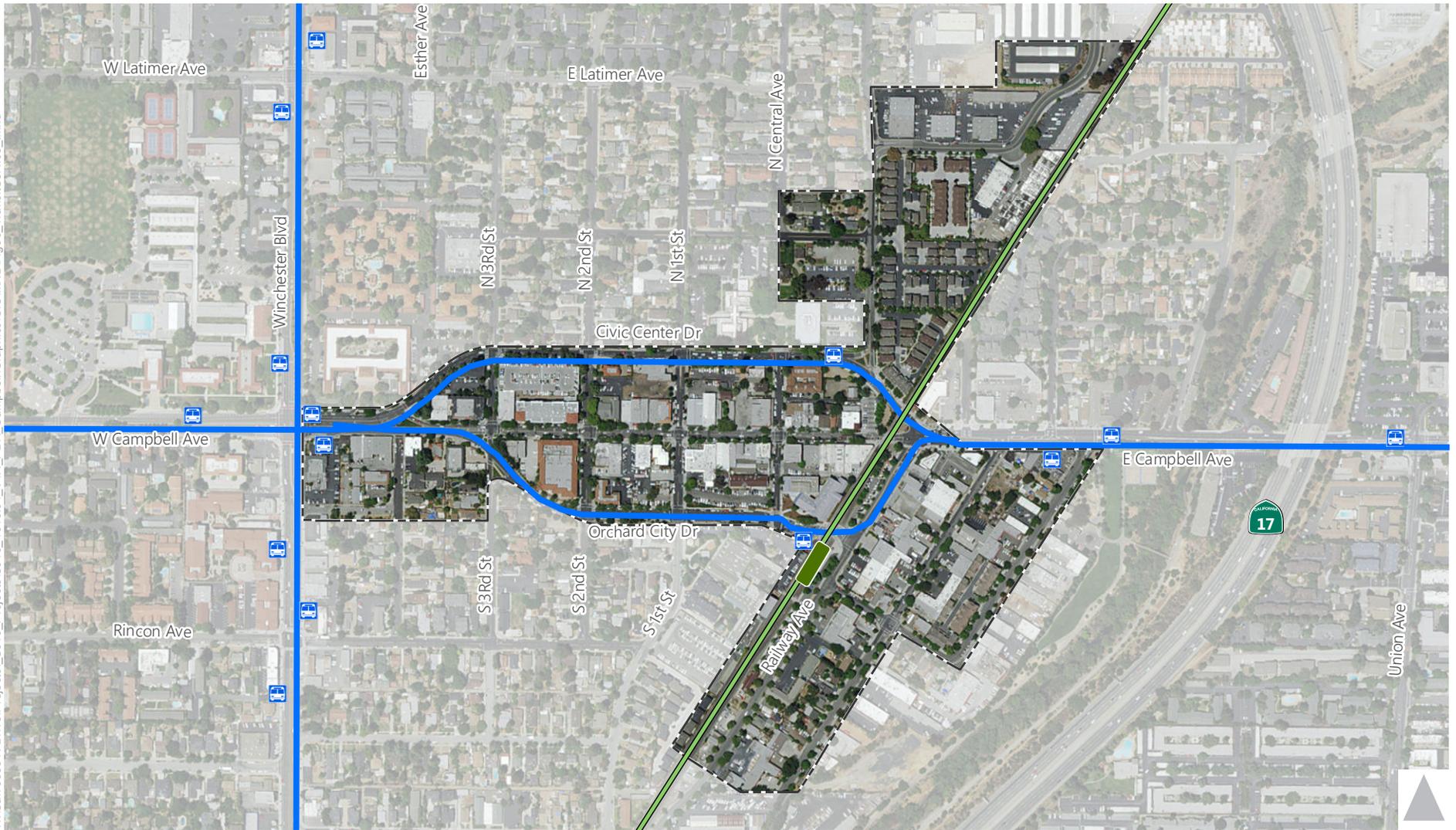
In 2016 and 2017, VTA redesigned its transit service plan through its Next Network project, which had three goals:

- Improve connectivity with the Milpitas and Berryessa BART stations (opening in Fall 2017),
- Improve overall system ridership, and
- Improve farebox recovery

The Next Network Plan, adopted in May 2017, includes several service changes which would affect the study area:

- **Local Bus Route 60** will be realigned and combined with Route 10 to create new Route 60 on Winchester Boulevard (immediately west of the study area), which will connect Downtown Campbell to Santana Row/Valley Fair, the Santa Clara Caltrain Station, Mineta San Jose International Airport and Milpitas BART. Weekend frequencies will be increased.
- **Local Bus Route 26** will be split into two separate routes. The revised Route 26 would connect West Valley College and Eastridge Transit Center via Campbell Avenue, with increased frequency on both weekdays and weekends. A new Route 56 would connect large employers in North Sunnyvale with the Tamien Caltrain Station in San Jose via Hamilton Avenue (north of the study area).

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Data Source: VTA

**Transit Service**

-  Local Bus Route
-  Local Bus Stop
-  Study Area
-  Light Rail: Mountain View-Winchester
-  Downtown Campbell Light Rail Station

Figure 6  
Existing Transit Service

### 3. COMMUNITY ENGAGEMENT

Throughout the development of the Campbell TIP, multiple rounds of stakeholder outreach were conducted to identify key areas of concern for the community and to garner feedback on recommended improvements. Separate rounds of outreach addressed the concerns of Downtown Campbell residents, businesspeople, and representatives of the bicycle and pedestrian community. Draft improvements were presented to the Campbell City Council, the City of Campbell Bicycle Pedestrian Advisory Committee, and to stakeholder groups from Downtown Campbell. This community engagement process is described further below.

#### INITIAL STAKEHOLDER INPUT

On April 20, 2016, three stakeholder meetings were held to gather input for the Transportation Improvement Plan. Representatives from the City of Campbell Public Library, the Downtown Campbell Business Association, the Campbell Chamber of Commerce, and the Downtown Campbell Neighborhood Association attended the first two meetings. Representatives from the Campbell Bicycle and Pedestrian Advisory Committee (BPAC) attended the last meeting. The meetings were organized by the City of Campbell Public Works Department and held at City Hall. All three meetings were attended by CD+A. The last meeting was also attended by Fehr & Peers.

During the meetings, the stakeholders noted key issues in the downtown area, including pedestrian safety, bicycle parking, and other pedestrian/bicyclist related issues.

Specific issues by topic area are summarized in **Table 1**.

**TABLE 1: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - STAKEHOLDER INPUT SUMMARY**

Category	Issue
Pedestrian Crossings and Safety	<ul style="list-style-type: none"> <li>• In general, unsignalized pedestrian crossings along Civic Center Drive and Orchard City Drive are dangerous/difficult/awkward for pedestrians.</li> <li>• The unsignalized crossing at South 2<sup>nd</sup> Street/Orchard City Drive is particularly dangerous for pedestrians (especially around sunset) due to poor visibility and high vehicle speeds.</li> <li>• The Civic Center Drive/Harrison Avenue pedestrian crossing is awkward for pedestrians.</li> <li>• Jaywalking across Orchard City Drive between South Central Avenue and Railway Avenue is a safety concern.</li> <li>• The East Campbell Avenue/Railway Avenue is another intersection of concern:               <ul style="list-style-type: none"> <li>○ Motorists are impatient with pedestrians.</li> <li>○ The walking/biking route is unclear for westbound pedestrians and bicyclists on the north side of the street.</li> <li>○ The pedestrian crossing demand is high on the west leg of this intersection east of the tracks. No crosswalk is provided on Civic Center Drive.</li> <li>○ Striping and pavement legends are also confusing to drivers.</li> </ul> </li> <li>• The business at Orchard City Drive/South 3<sup>rd</sup> Street has a driveway exiting onto the crosswalk.</li> </ul>
Pedestrian and Bicycle Connections	<ul style="list-style-type: none"> <li>• Walking routes to be studied include: 1) LRT to Library, 2) LRT to Pruneyard, 3) LRT to Downtown via Railway Avenue.</li> <li>• Sidewalks within the downtown area need to be continuous; the sidewalk gap along Salmar Avenue needs to be eliminated.</li> <li>• There is increasing foot and bicycle travel between the downtown and Pruneyard Shopping Center and multi-family housing located along East Campbell Avenue east of the tracks.</li> <li>• Some stakeholders expressed interest in building "Bicycle Boulevard" in the downtown area to provide direct access and low stress facility for commuter bicyclists, families, and children. Sharrows and other more visible signs could also be added to the "Bicycle Boulevard".</li> <li>• The parking garage on South 1<sup>st</sup> Street needs to be better connected to the downtown; many people do not realize that parking is available when the garage on Civic Center Drive is full.</li> </ul>

Bicycle Parking	<ul style="list-style-type: none"> <li>• There is not enough bicycle parking, which is evidenced by bikes locked in odd places.</li> <li>• Bike racks need to be located at places where bicycles can be “kept an eye on” from adjacent businesses and restaurants.</li> <li>• Bicycle parking spaces should be dispersed throughout the downtown area.</li> <li>• More bicycle parking is needed for large events.</li> <li>• East Campbell Avenue should be considered to add bike rental facilities, bike station, and more bike parking.</li> <li>• Additional bicycle parking spaces could be located at Ainsley Park and in the alley behind Blue Line Pizza during business hours.</li> <li>• Additional bicycle parking spaces could also be located in parking lanes in the form of bike corrals.</li> </ul>
Vehicle Traffic and Parking	<ul style="list-style-type: none"> <li>• The signage directing drivers to available parking needs to be enhanced to minimize circulation for parking.</li> <li>• The scarcity of parking is impediment for people who want to drive to the downtown and then walk.</li> <li>• East Campbell Avenue turns into a parking lot after 4 PM when many people try to access parking, shops, services, and restaurants.</li> <li>• Some stakeholders expressed interest in closing East Campbell Avenue to traffic on weekends (except for emergency services and loading activities) to alleviate the congestion on weekends. The street closure strategy has been successful in the past, but local businesses may oppose.</li> </ul>

## STAKEHOLDER AND CITY COUNCIL INPUT ON RECOMMENDED IMPROVEMENT DESIGNS

In June 2016 a round of draft recommended improvements were shared at a special meeting of Campbell’s Bicycle Pedestrian Advisory Committee (BPAC). BPAC members provided input on the design of improvements and identified additional improvements to consider.

In September 2016 the Campbell City Council held a study session to provide input and guidance on the development of projects for the Campbell TIP. Councilmembers provided input on the designs and identified additional considerations to address during the design of project concepts. The draft project concepts and conceptual designs presented in this report were revised based on Council feedback.

At City Council suggestion, an additional stakeholder meeting was held in October 2016. Representatives from the Downtown Campbell Neighborhood Association, the BPAC, and members of the public provided additional comments on a revised round of draft improvements. The draft project concepts and conceptual designs presented in this report incorporate changes made in response to these comments.

## 4. DESIGN APPROACH

### MULTIMODAL DESIGN APPROACH

The improvements recommended in this plan are focused on creating “complete streets” to better serve all travel modes in Downtown Campbell. Complete streets provide safe and comfortable access for people of all ages and abilities who are walking, riding bicycles, using transit, and driving. Downtown Campbell currently has high pedestrian demand and the potential for higher pedestrian, bicycle, and transit demand. Providing better accommodation for these modes will encourage Campbell’s downtown to remain an attractive destination without substantially increasing traffic congestion. Comprehensive facilities exist for automobiles but, as noted in Chapter 2, there are notable gaps in accommodation for pedestrians and bicycles. As a result, this study recommended improvements that will expand the access, safety, and comfort of people walking, riding bicycles, and accessing transit.

#### **Complete Streets**

Complete Streets are streets that safely and comfortably accommodate people using all travel modes, including people traveling in automobiles, people riding and accessing transit, people riding bicycles, and people walking. In addition to accommodating all travel modes, complete streets accommodate people of all ages and abilities. Depending on local context, complete streets can vary widely in the infrastructure they provide for each travel mode while still allowing for safe and comfortable travel regardless of the travel mode people use.

#### **Pedestrian Facilities**

This plan proposes improvements to pedestrian facilities that are intended to improve pedestrian safety and to make walking easier and more comfortable within Downtown Campbell. A set of recommended design references is provided below.

## Design References

A variety of references are available for pedestrian facility design. Crosswalks are typically designed according to the *Manual on Uniform Traffic Control Devices* (MUTCD), which provides engineering design standards for roadways in the United States. California has adopted a modified version of the national MUTCD for use within the state (*California MUTCD*, 2014). Sidewalks are typically designed with reference to state and national standards, typically Caltrans' *Standard Plans* (2015) and *Highway Design Manual* (2016) and the *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities* (2004). To comply with the Americans with Disabilities Act (ADA), all new or improved pedestrian facilities should comply with standards published by the United States Access Board.

Within Santa Clara County, VTA's *Pedestrian Technical Guidelines* (2003) provide a suite of standards and improvements that exceed the standards laid out by state and national engineering guides published by Caltrans and AASHTO. Since Caltrans and VTA issued their most recent guidance on pedestrian design, the National Association of City Transportation Officials (NACTO) has released guidance for that is widely recognized as providing best practices for pedestrian facilities (*Urban Street Design Guide*, 2013). Some of the recommendations in the Urban Street Design Guide have been incorporated into VTA's *Pedestrian Access to Transit Plan* (forthcoming in 2017), which provides a landscaping and urban design toolkit to enhance pedestrian facilities around transit stops in Santa Clara County.

## Bicycle Facilities

This plan proposes improvements to bicycle facilities that are intended to improve safety and to make bicycling easier and more comfortable within and around Downtown Campbell. A set of recommended design references is provided below.

## Design References

Bicycle facilities are typically designed according to the *Manual on Uniform Traffic Control Devices* (MUTCD), which provides engineering design standards for roadways in the United States. California has adopted a modified version of the national MUTCD for use within the state (*California MUTCD*, 2014). Caltrans also provides guidance for locating and designing bicycle facilities on state highways in its *Highway Design Manual* (2016). Within Santa Clara County, VTA's *Bicycle Technical Guidelines* (2012) recommends that Caltrans standards be used as a minimum and provides supplemental information and guidance on when and how to better accommodate different types of bicyclists. Since Caltrans and VTA issued their most recent guidance on bikeway design, the National Association of City Transportation Officials (NACTO) has released guidance for that is widely

recognized as providing best practices for bikeway design (*Urban Street Design Guide*, 2013 and *Urban Bikeway Design Guide*, 2nd edition, 2014). VTA is currently in the process of updating its Bicycle Plan, and is expected to update the Bicycle Technical Guidelines

While the *VTA Bicycle Technical Guidelines*, *California MUTCD* and *Highway Design Manual* provide guidance for shared use paths, bike lanes, and sharrows (Class I, II and III facilities), they do not provide detailed guidance for the design of cycle tracks (Class IV facilities) and other recent bikeway design innovations. The NACTO guide provides guidance on cycle track design and on treatments that can enhance bicyclist visibility and safety at intersections and other areas with potential vehicle conflicts. These treatments are still considered experimental per Caltrans standards, and cities that wish to implement them while remaining in compliance with Caltrans standards are required to submit an experimentation request to the California Traffic Control Devices Committee. Within Santa Clara County, San Jose and Palo Alto are among the cities that have installed cycle tracks and green striping through conflict zones, which are officially experimental per Caltrans standards.

## URBAN DESIGN APPROACH

Complete Streets are designed to provide safety and comfort for all travelers, including people of all ages and abilities who are walking, bicycling, using transit, traveling with mobility aids, or driving automobiles or commercial trucks. Improvements frequently used in the context of Complete Streets, such as curb extensions, widened sidewalks, pedestrian refuges or the elimination of slip lanes, routinely include the opportunity to integrate streetscape treatments that further increase pedestrian safety and comfort and, if carefully designed, provide additional aesthetic, economic, ecological, and community identity related benefits.

The intention to integrate streetscape improvements into multimodal transportation improvements where appropriate, dovetails well with goals and objectives of past planning and implementation efforts, including the Downtown Campbell Development Plan and Standards (2006 and prior), East Campbell Avenue Master Plan, Civic Center Master Plan, Winchester Boulevard Master Plan.

### Contextual Urban Design Approach

Past and recent streetscape improvements in Campbell's historic Downtown, including along East Campbell Avenue, Civic Center Drive, Orchard City Drive and the cross streets located between them, have established a strong framework and base line for the design of future, supplemental streetscape improvements in Campbell's Priority Development Area (PDA). Based on the success of these improvements, the overall approach to streetscape and urban design related treatments recommended in this transportation improvement plan is contextual in nature and based on the

overarching goal to reinforce the already established visual quality and identity in the historic Downtown through expanding the use of existing amenities, treatments, and materials.

The following paragraphs describe the design approach and assumptions used to develop specific streetscape elements included in the project concepts and recommendations described in Chapter 6. Additional design references are provided where these are important for the future design development and implementation of the recommended streetscape improvements.

### Street Trees and Other Landscaping

Concepts that show the planting of new trees to supplement existing rows of trees assume that new trees will be of the same species found along other parts of the street along which the improvements are recommended. Both, the City Arborist's list of approved street trees and field-verified information about existing tree species at the project location should be used in making the final selection of appropriate street tree species.

New landscaped areas, other than green infrastructure (see below), such as buffer strips between roadway and sidewalk are recommended, the final plant palette should be selected using both the City of Campbell's Water Efficient Landscape Guidelines and the bay-friendly landscape guidelines (as published by StopWaste.org).

### Lighting

Concepts that include new pedestrian-scale, decorative light fixtures assume that the fixtures will match the make, model, and finish of the City standard, decorative "acorn-type" post top light fixtures and double-headed equivalent (where called for) already used along project-adjacent sections of East Campbell Avenue, Civic Center Drive, Orchard City Drive and other streets in the Priority Development Area.

### Pavement Treatments

Concepts that include new or widened sidewalks assume that new sidewalks will match existing decorative materials or surface treatments applied to sidewalk areas along other parts of the street where improvements are recommended. Where adjacent sidewalks are composed of standard, non-decorative concrete sidewalk, the use of standard concrete is assumed.

Concepts that include new curb extensions assume that decorative materials or surface treatments applied to existing curb extensions at the same intersection or in adjacent sidewalk surfaces will also be applied to recommended new curb extensions. Where existing curb extensions are composed of standard, non-decorative concrete sidewalk, the use of standard concrete is assumed.

The existing treatments and materials found throughout the Priority Development Area primarily go back to improvements developed on the basis of the Downtown Campbell Development Plan and Standards (2006 and prior) and the 2007 East Campbell Avenue Master Plan and East Campbell Avenue Improvement Project.

### Street Furnishings

While not shown in detail on the concept plans in Chapter 6, it is likely that final improvement plans for several of the recommended projects, will include street furnishings like trash receptacles, bicycle racks, and possibly benches. This is reflected in the cost estimates for the recommended projects with an allowance for these amenities. It is assumed that any amenities included in the final design of an improvement project will match the City's standard trash receptacles, bicycle racks, and benches installed in other parts of the historic Downtown area.

The existing amenities found throughout the Priority Development Area primarily go back to improvements developed on the basis of the Downtown Campbell Development Plan and Standards (2006 and prior) and the 2007 East Campbell Avenue Master Plan and East Campbell Avenue Improvement Project.

### Green Infrastructure

The City of Campbell is subject to the requirements of the Municipal Regional Stormwater Permit (MRP) for municipalities and agencies in the San Francisco Bay Area (Order R2-2015-0049). The MRP requires the city to develop and implement a long-term green infrastructure (GI) Plan for the inclusion of Low Impact Development (LID) measures, such as green infrastructure, in storm drain infrastructure on public and private lands, including streets. Green infrastructure is a new approach to creating sustainable public streets that provide multiple benefits, such as improved water quality, traffic calming, increased pedestrian and bicycle safety, enhanced urban forests, and reduced flooding.<sup>2</sup>

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<sup>2</sup> Information presented in this paragraph is paraphrased from a memorandum to the Campbell Mayor and City Council entitled Green Infrastructure Plan Framework, February 16, 2017.

From a range of potential green infrastructure elements, landscape-based "biotreatment" areas that use soil and plants to treat stormwater runoff, such as rain gardens, bioretention planters, and stormwater curb extensions, can readily be incorporated into the recommended intersection reconfigurations at the Civic Center Drive/Harrison Street (Location #5) and Orchard City Drive/3<sup>rd</sup> Street (Location #6) as illustrated in Chapter 6. Following is a brief definition of each of these potential green infrastructure elements:

**Rain gardens** are relatively shallow, vegetated depressions of variable size and shape that can be integrated with adjacent sidewalk, roadway and private property edge conditions, such as the left over spaces created by the recommended elimination of slip lanes at Civic Center Drive/Harrison and Orchard City Drive/3<sup>rd</sup> Street intersections.



**Green infrastructure: Rain garden**



**Green infrastructure: Bioretention planter**

**Bioretention planters** are narrow, linear landscape areas with vertical sidewalls that extend at least six inches above the surrounding sidewalk surface. Stormwater planters are designed to treat stormwater runoff that flows into the planter from adjacent sidewalk or roadway surfaces through curb inlets and covered drain channels.



**Green infrastructure: Stormwater curb extension**



**Built example of bioretention tree planter and swale on Hacienda Avenue.**

**Stormwater curb extensions** fulfill the functions of a standard curb extension (e.g. shorten the crossing distance), but also capture and treat stormwater runoff by directing water from the gutter into a landscaped bioretention area contained within the curb extension.

Pervious paving systems (e.g., interlocking concrete pavers, porous asphalt, and pervious concrete) that allow stormwater to soak into the ground could be incorporated into some of the recommended projects, but are a poor fit in light of the relatively small scale of these projects and because of the contextual urban design approach, which favors existing pavement treatments over the introduction of new pavement types.

Design references (best practices, guidelines, and standard details) available for the detailed design of green infrastructure elements include the Santa Clara Valley Urban Runoff Pollution Prevention Program's *C.3 Stormwater Handbook - Guidance for Implementing Stormwater Requirements for New Development and Redevelopment Projects* (2016), San Mateo County's *Sustainable Green Streets and Parking Lots Design Guidebook* (2009), the City of San Mateo's *Sustainable Streets Plan - Design Guidelines* (2015), and the San Francisco Public Utilities Commission's *Green Stormwater Infrastructure Typical Details* (2016).

In addition, the City of Campbell's first sustainable street project, the Hacienda Avenue Green Street Project, represents a local case study that can be used in the final plant selection and other details related to the implementation of a green infrastructure project in the City.

## 5. RECOMMENDED IMPROVEMENT PROJECTS

Based on previous plans, field observations, and input from City of Campbell staff, City Council members, and community stakeholders, a set of concept-level infrastructure improvements were developed for the study area. These improvements are described in **Table 2** and shown on **Figure 7**.

### PROJECT DESCRIPTIONS

All conceptual improvements are described in **Table 2**, with their locations shown on **Figure 7**. For each project, **Table 2** identifies its location, summarizes the recommended improvements, and lists an estimated cost to construct.

When the first round of recommended improvement projects were evaluated by the project team, City of Campbell staff, and community stakeholders, six projects were identified as warranting further exploration; this allows for better project definition and better developed cost estimates. These projects are shown on **Figures 8-11**. The project concepts shown on these figures have been designed to accommodate turning movements by VTA buses and trucks, where appropriate.

## Area Wide Improvements

- Add bicycle parking throughout downtown area
- Look for opportunities to develop parklets in partnership with downtown businesses
- Improve wayfinding to S. 1st Street garage

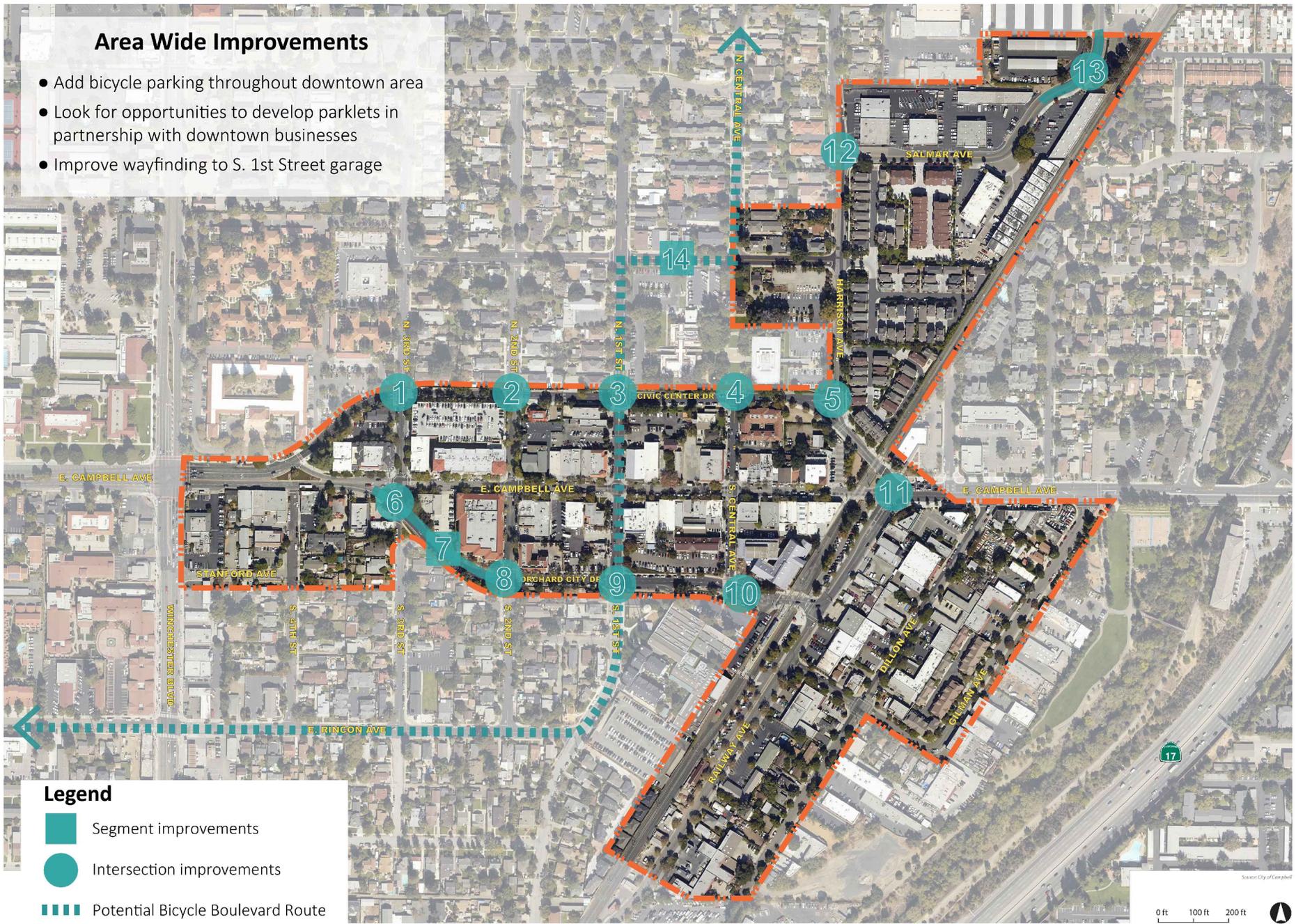


Figure 7  
Map of Potential Improvement Locations

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
1	N/A	N. 3 <sup>rd</sup> Street / Civic Center Drive	<ul style="list-style-type: none"> <li>Reconstruct NW curb with curb extension and ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>Reconstruct NE, SW, SE curbs with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>Stripe high-visibility crosswalks on 3<sup>rd</sup> St (N and S) legs</li> <li>Consider reconstructing existing traffic diverter at north leg, if reconstruction would still permit adequate access for vehicles entering and exiting driveway at NE corner (70 N. 3<sup>rd</sup> St)</li> <li>Suitable for pedestrian activated beacon installation per XWalk+ and existing volume data; noted in the April 21, 2015 City Council Report, Item 13: Downtown Pedestrian Safety</li> <li>Add decorative, pedestrian-scale lighting at new curb extensions</li> </ul>	\$268,000	Striping, painted curb extensions (potentially with movable planters)
2	N/A	N. 2 <sup>nd</sup> St / Civic Center Drive	<ul style="list-style-type: none"> <li>Reconstruct NE and NW curbs with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>Consider curb extensions at NW and NE corners to shorten pedestrian crossing distance and reduce turning vehicle speeds</li> <li>Stripe high-visibility on 2<sup>nd</sup> St (N and S) legs</li> <li>Suitable for pedestrian activated beacon installation per XWalk+ and existing volume data; noted in the April 21, 2015 City Council Report, Item 13: Downtown Pedestrian Safety</li> <li>Add decorative, pedestrian-scale lighting at new curb extensions</li> </ul>	\$239,000	Striping, painted curb extensions (potentially with movable planters)
3	N/A	N. 1 <sup>st</sup> St / Civic Center Drive	<ul style="list-style-type: none"> <li>Reconstruct NE, NW, and SE corners with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>Consider curb extensions, pending investigation of street grades and drainage, at NE, NW, and SE corners to shorten pedestrian crossing distance, reduce turning vehicle speeds, and eliminate right turns on red by drivers. This would increase delay for drivers but remove a source of auto and pedestrian conflicts.</li> <li>Stripe high-visibility crosswalks on all legs to enhance pedestrian visibility and create continuous treatment along corridor</li> <li>Add decorative, pedestrian-scale lighting at new curb extensions</li> </ul>	\$300,000	Striping, painted curb extensions (potentially with movable planters)

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
4	N/A	Central Ave/ Civic Center Drive	<ul style="list-style-type: none"> <li>• Stripe high-visibility crosswalks on all legs to enhance pedestrian visibility and create consistent treatment along corridor</li> <li>• Consider including decorative paving treatments in sidewalk on Civic Center side where crosswalks meet the sidewalk in order to highlight the northern terminus of the important pedestrian link along Central Avenue between Civic Center and rail stop</li> <li>• Consider future long-term project along North Central Avenue</li> </ul> <p>*NOT INCLUDED IN ESTIMATED COST: reconstruct driveways to reduce driveway ramp angles and increase pedestrian and handicapped access; re-grade portions of roadway to conform to reconstructed driveways</p>	\$7,000*	Striping, painted curb extensions (potentially with movable planters)
5	8	Harrison Ave/ Civic Center Drive	<ul style="list-style-type: none"> <li>• Eliminate unsignalized leg of the pedestrian crossing across westbound Harrison to slow turning vehicle speeds, shorten pedestrian crossing distance, and improve pedestrian safety by reducing exposure to vehicles</li> <li>• Replace existing two-stage crossing with consolidated crossing across Harrison and Civic Center Drive</li> <li>• Provide expanded landscaping adjacent to housing and create mini-park or green infrastructure along parking lot frontage (cost estimate reflects use of both green infrastructure and general landscaping in this area)</li> </ul>	\$1,349,000	N/A
6	9a 9b	S. 3 <sup>rd</sup> Street / Orchard City Drive	<ul style="list-style-type: none"> <li>• Add curb extension and incorporate mini-park or green infrastructure (cost estimate reflects use of green infrastructure) on existing southbound lane; maintain in/out access for existing business across raised driveway.</li> <li>• Expand use of pedestrian-scale, decorative light fixtures (City standard) to new sidewalk along mini-park or green infrastructure</li> <li>• Add high-visibility crossing with signage on south leg</li> <li>• Reconstruct southbound lane in space currently occupied by pedestrian refuge</li> </ul>	\$989,000 (for both projects 6 and 7)	N/A

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
7	9a 9b	Orchard City Drive between 3 <sup>rd</sup> Street and 2 <sup>nd</sup> Street	<ul style="list-style-type: none"> <li>• Traffic calming: curb extensions at 3<sup>rd</sup> Street to reduce turning vehicle speeds, narrow lanes</li> <li>• Add sidewalk on north side of street using existing ROW and add street trees where not in spatial conflict with large trees on private property</li> <li>• Extend line of pedestrian-scale, decorative light fixtures (City standard) along new sidewalk</li> <li>• Where sidewalk exists at NW corner of S. 2<sup>nd</sup> and Orchard City Drive, option to add planter strip, seating area, or parklet in unused ROW</li> </ul>	\$989,000 (for both projects 6 and 7)	Painted curb extensions with movable planters and trees
8	N/A	S. 2 <sup>nd</sup> Street / Orchard City Drive	<ul style="list-style-type: none"> <li>• Reconstruct curbs with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>• Add curb extensions on all corners to reduce pedestrian crossing distance and turning vehicle speeds</li> <li>• Add pedestrian-scale, decorative light fixtures (City standard) to illuminate crossing (see: <a href="http://www.pedbikeinfo.org/planning/facilities_streetscape_lighting.cfm">http://www.pedbikeinfo.org/planning/facilities_streetscape_lighting.cfm</a>)</li> <li>• Suitable for pedestrian activated beacon per XWalk+ and existing volume data; noted in the April 21, 2015 City Council Report, Item 13: Downtown Pedestrian Safety</li> </ul>	\$351,000	Painted curb extensions (potentially with movable planters)
9	N/A	S. 1 <sup>st</sup> Street / Orchard City Drive	<ul style="list-style-type: none"> <li>• Reconstruct corners with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>• Consider curb extensions at all corners to shorten pedestrian crossing distance and reduce turning vehicle speeds</li> <li>• Stripe high-visibility crosswalks on all legs to enhance pedestrian visibility and create continuous treatment along corridor</li> <li>• Add supplemental street trees and pedestrian-scale, decorative light fixtures (City standard) along 1<sup>st</sup> Street between Orchard City Drive and parking garage</li> <li>• Place new signage in strategic locations, such as on Campbell Avenue east and west of the Civic Center Drive/Orchard City Drive intersections, to guide drivers looking for parking to the 1<sup>st</sup> Street parking garage</li> </ul>	\$464,000	Striping, painted curb extensions (potentially with movable planters)

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
10	10	S. Central Avenue / Orchard City Drive	<ul style="list-style-type: none"> <li>• Reconstruct curbs with ADA-compliant curb ramps (directional ramps with detectable warning strips)</li> <li>• Align curb ramps to crosswalk</li> <li>• Consider widening sidewalk, reconstructing bus duck-out and Water Tower Plaza driveway on south side of street between S. Central Ave and rail tracks. Coordinate with VTA to determine feasibility.</li> <li>• Consider adding curb extension, landscaping to south side of street between Water Tower Plaza driveway and rail tracks.</li> <li>• Add curb extension, landscaping (e.g. street trees), potentially seating to SW corner to shorten crossing distance and expand pedestrian waiting area. Extension would replace existing hatched areas on pavement.</li> <li>• Add signalized crosswalk west of railway tracks across Orchard City Drive</li> <li>• Stripe high-visibility crosswalk across driveway from EB Orchard City Drive; add "yield to pedestrians" sign.</li> <li>• Consider extending the new curb line and widened sidewalk on the south-side of Orchard City Drive to the corner of S.1st Street and eliminating the driveway and right turn lane from EB Orchard City Drive (not included in cost estimate).</li> <li>• Consider crosswalk improvements across rail tracks using colored pavement and/or striping, as well as pedestrian gates (pedestrian gates planned by VTA)</li> <li>• Stripe high-visibility crosswalks across Orchard City Drive and Railway Ave east of the rail tracks for consistency of all crosswalk striping in the area.</li> <li>• Add double-headed, decorative light fixtures near rail tracks (City standard) to highlight entry into historic Downtown</li> <li>• Extend use of pedestrian-scale, decorative light fixtures (City standard) into the area</li> </ul>	\$739,000	N/A

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
11	11a 11b	Railway Avenue/ E. Campbell Avenue/ Civic Center Drive	<ul style="list-style-type: none"> <li>• Stripe high-visibility crosswalks on N and W legs of intersection south and east of rail tracks (per East Campbell Avenue Master Plan)</li> <li>• Modify signal timing to provide pedestrian crossing on N and W legs of intersection (Civic Center Drive and E. Campbell Ave)</li> <li>• Add sidewalks (consistent with E. Campbell paving scheme) on NW corner between Civic Center Drive and E. Campbell Ave</li> <li>• Create pedestrian area on NW corner; relocate Downtown gateway sign (elevate/move back) and redesign decorative landscaping to be located behind and not in front of the gateway sign</li> <li>• Add pedestrian gates at new sidewalk crossings of rail tracks on north side of E. Campbell Ave</li> <li>• Add double-headed, decorative light fixtures (City standard) to highlight entry into historic Downtown</li> <li>• Continue E. Campbell bike facility as lanes or sharrows. Bike facility design must accommodate turning radius of VTA buses. <ul style="list-style-type: none"> <li>○ Completing bicycle lanes to Los Gatos Creek Trail would require removal of 8 on-street parking and bulb-outs east of Foote on the north side of E. Campbell Avenue. East of Dillon Avenue, completing bicycle lanes would require the removal of center left turn lanes, ROW taking on the south side of E. Campbell Avenue, or the removal of a through lane of vehicle traffic.</li> <li>○ In the near term, consider adding bike lane and green bike box on westbound approach to signal (across both lanes). (This treatment requires formal experimentation process.)</li> <li>○ In the near term, consider adding green-backed sharrows in east and westbound directions to establish a connection between Los Gatos Creek Trail, through Campbell/Railway intersection, and on Campbell Avenue west of intersection. (This treatment requires formal experimentation process.)</li> <li>○ Consider the possible relocation of bus stops just east of the PDA in conjunction with future development.</li> </ul> </li> </ul>	\$548,000 (does not include bike lanes east of Foote)	N/A

**TABLE 2: CAMPBELL TRANSPORTATION IMPROVEMENT PLAN - RECOMMENDED IMPROVEMENTS**

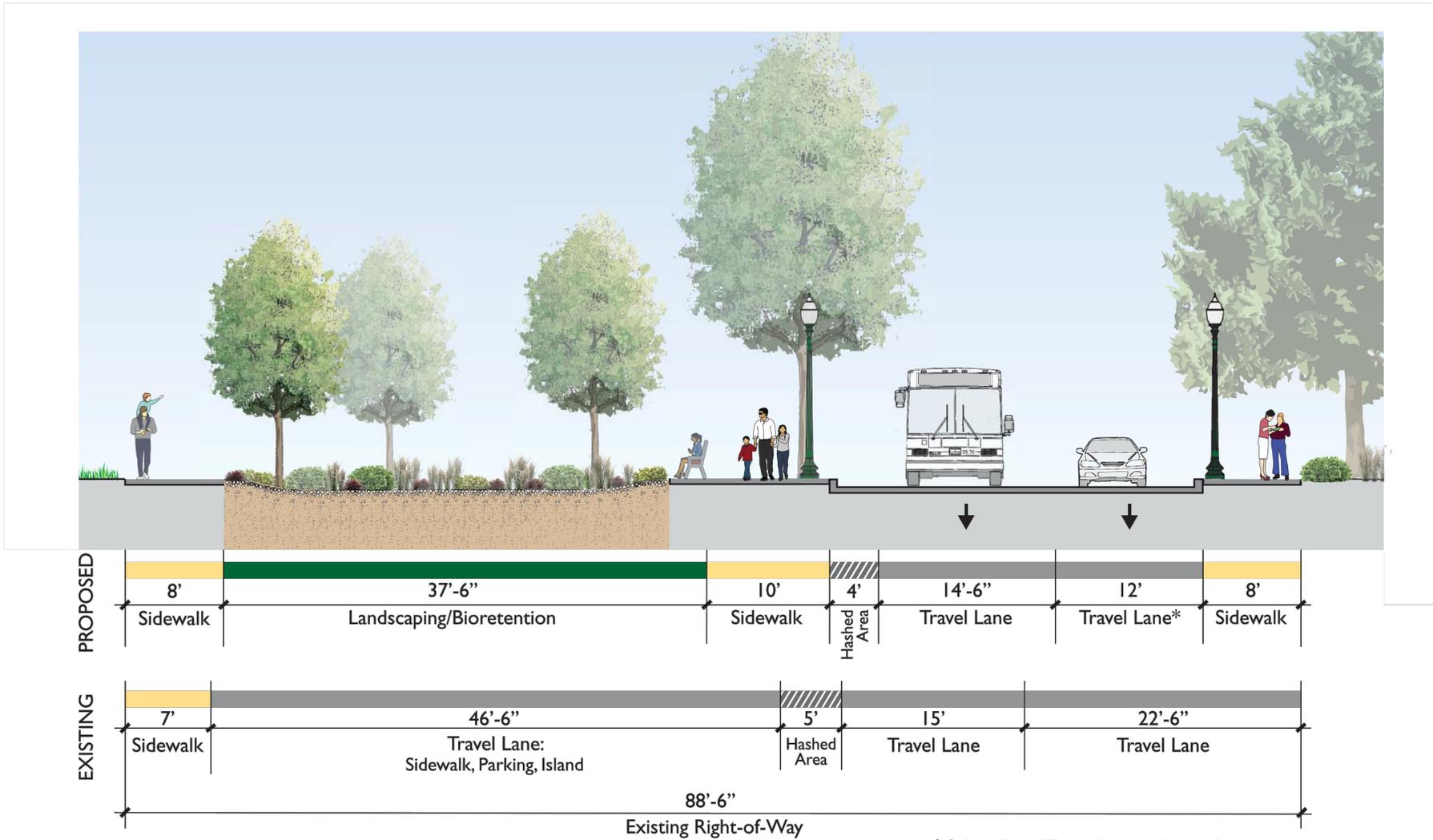
#	Figure	Location	Recommended Improvements	Estimated Cost (full build)	Potential Short-term Improvement
12	N/A	Harrison Avenue / Salmar Avenue	<ul style="list-style-type: none"> <li>• Add marked crossing at Harrison/Salmar – use crossing at Harrison/Civic Center for reference</li> <li>• Add curb ramp to the southeast corner</li> <li>• Explore feasibility (relative to truck turning movements) of modest expansion of raised island and incorporation of a “civic marker” that signals entry into Downtown area</li> </ul>	\$71,000	Striping
13	N/A	Salmar Avenue between Harrison and Hamilton	<ul style="list-style-type: none"> <li>• Narrow travel lanes south of Home Depot/Fry’s entrances</li> <li>• Widen striped center median</li> <li>• Add sidewalks along the northwest side of street as properties redevelop – use sidewalks and landscaping at 485 Salmar for reference</li> </ul>	\$2,569,000	N/A
14	N/A	(E. Rincon Ave.)/S. 1 <sup>st</sup> Street/N. 1 <sup>st</sup> Street/(Grant Street/N. Central Ave.)	<ul style="list-style-type: none"> <li>• Bicycle Boulevard striping and signage (including sharrows, bicycle boulevard route signage – signage could be “branded” by giving the bicycle boulevard a name and including an icon)</li> <li>• Crossing improvements: see Projects 3 and 9 (additional crossing improvements may be needed at the 1<sup>st</sup> Street and Campbell Avenue intersection and at intersections along the final bicycle boulevard route beyond the PDA boundaries)</li> </ul>	<i>No cost was developed for this project because a bicycle boulevard through the downtown would necessarily include improvements outside of the PDA. The implementation of this or other bicycle boulevards in Campbell therefore requires further study of desired alignments and details related to signage, striping, and crossing improvements.</i>	



Figure 8  
 Harrison Avenue/Civic Center Drive Recommended Improvements



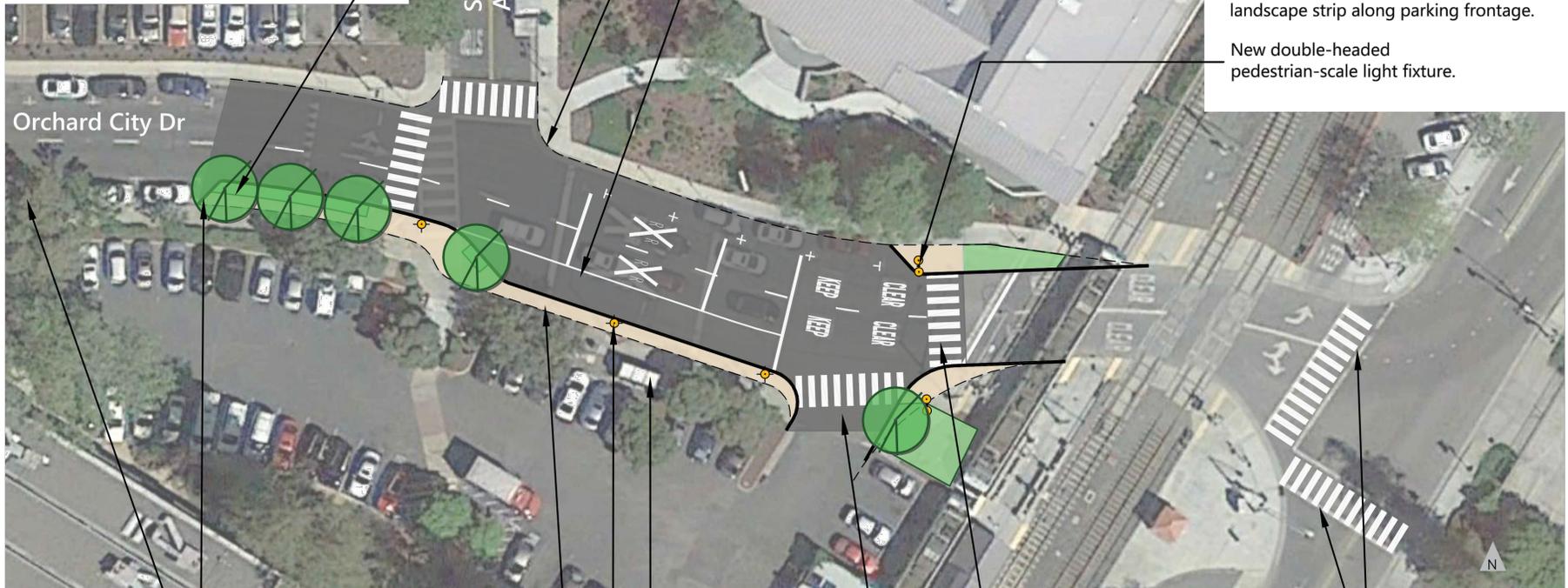
Figure 9a  
Orchard City Drive and South 3rd Street Recommended Improvements



\* Sidewalk and Travel Lane width can be variable along Orchard City Drive between 3<sup>rd</sup> St. and 2<sup>nd</sup> St. to accommodate merge from SB 3<sup>rd</sup> St.

Figure 9b - Cross-Section Orchard City Drive and 3rd Street Recommended Improvements, Facing West

Add curb extensions to NW and SW corners to shorten crossing distance. ADA-compliant curb ramps aligned to crosswalks. Curb extension provides opportunity for streetscape improvements



Existing curb  
 Reconstruct bus duck-out and expanded passenger waiting area.  
 Widened sidewalk presents opportunity landscape strip along parking frontage.  
 New double-headed pedestrian-scale light fixture.

Consider extending the new curb line and widened sidewalk on the south-side of Orchard City Drive to the corner of S.1st Street and eliminating the driveway and right turn lane from EB Orchard City Drive

Opportunity for upgraded bus stop amenities per VTA TPEP

Add new signalized crosswalk west of rail tracks

Modify existing crosswalks with high visibility striping

New pedestrian-scale light fixture

Reconstruct driveway and curbs. Add high visibility striping.

All shaded areas indicate sidewalk widening

Figure 10  
 Orchard City Drive/South Central Avenue Recommended Improvements

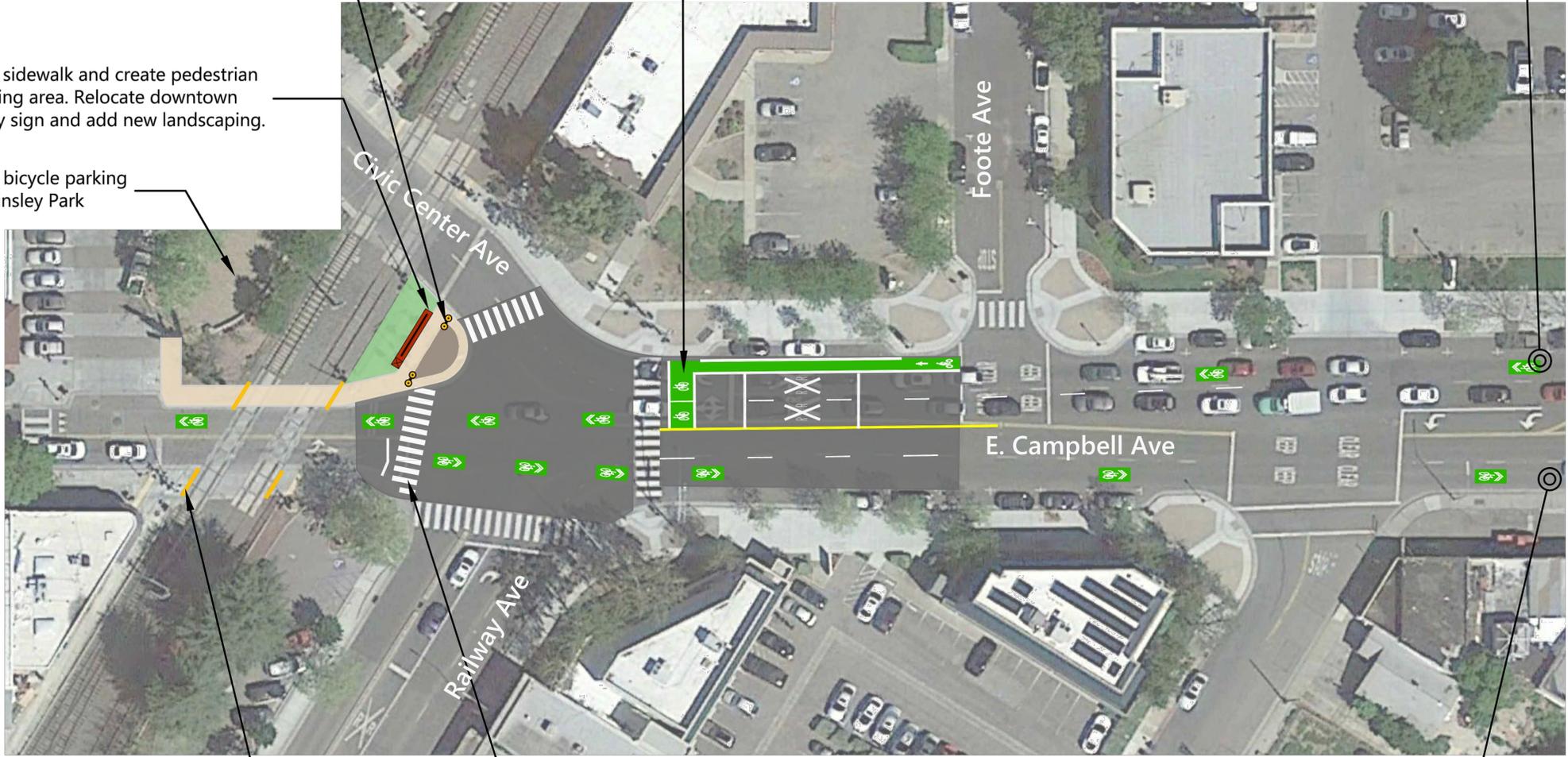
New double-headed pedestrian-scale light fixture

Consider the introduction of bike boxes

Consider adding green-backed sharrows in east and westbound directions to establish a connection between Los Gatos Creek Trail and Campbell Avenue west of intersection.

Add sidewalk and create pedestrian waiting area. Relocate downtown entry sign and add new landscaping.

Add bicycle parking at Ainsley Park



Add pedestrian gates at new sidewalk crossing of rail tracks

Add crosswalks across north and west legs of intersection, add pedestrian signal heads, modify signal timing to allow for pedestrian crossing.

Consider the possible relocation of bus stops just east of the PDA in conjunction with future development.

Figure 11a  
Campbell Avenue/Railway Avenue/Civic Center Drive Recommended Improvements

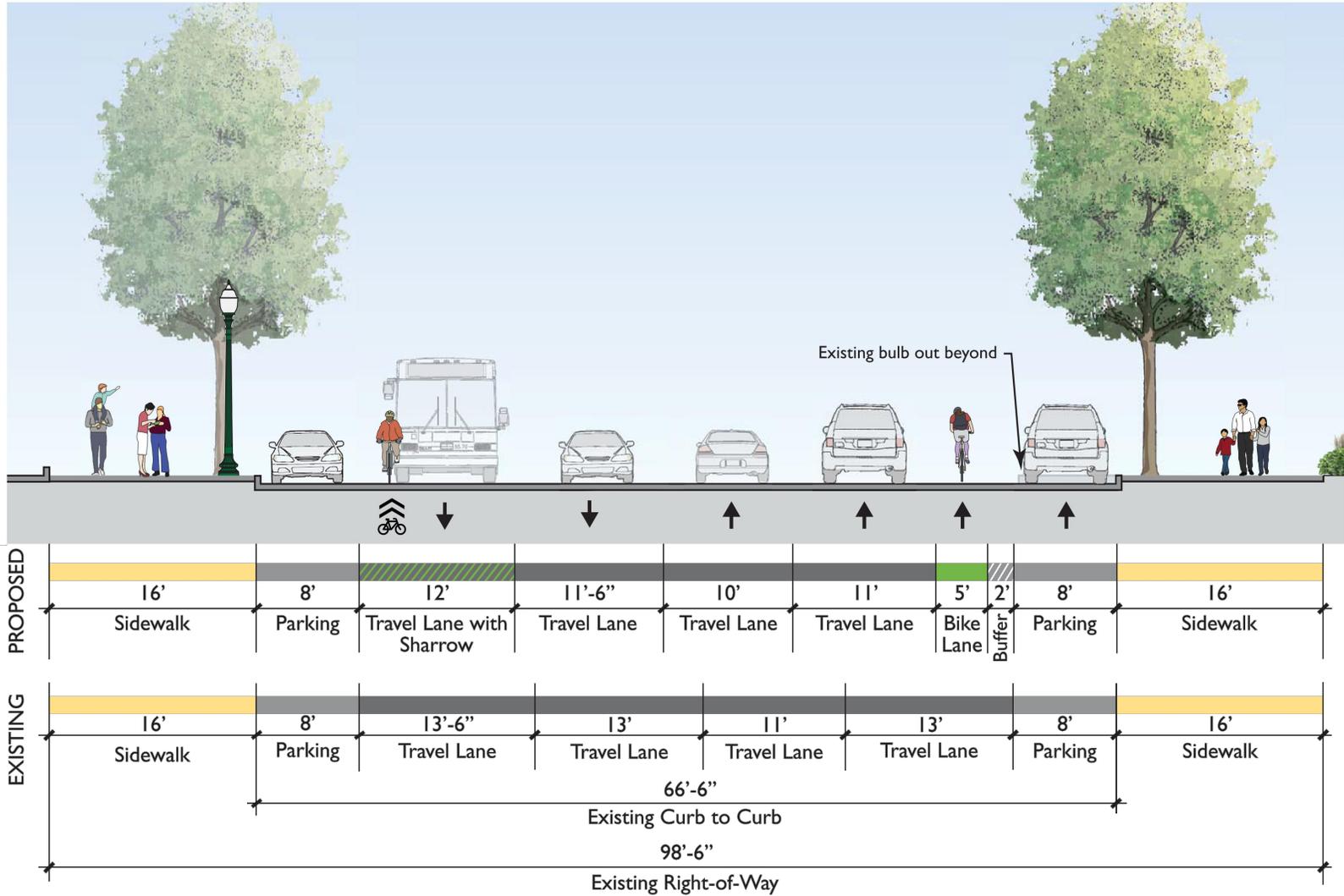


Figure 11b - Cross-Section  
Campbell Avenue/Railway Avenue/Civic Center Drive Recommended Improvements, Facing West

## PROJECT EVALUATIONS

This section presents a qualitative evaluation of all fourteen projects described in **Section 5 (Table 3)**. Six of these projects were identified as presenting substantial design challenges and have been evaluated in greater detail to compare their benefits and potential tradeoffs. Project-level summaries for five of these projects are provided in **Appendix D**. After initial further consideration, Project 4 was dropped from the list of projects for which conceptual site plans were prepared.

### Evaluation Criteria

Based on input from stakeholders and the City Council, two main criteria were used to evaluate the benefits and feasibility of each project: Multimodal Safety and Feasibility. Both criteria were applied to each project using a qualitative scale of 1 to 3 marks, as follows:

- **Multimodal Safety:** Projects that address specific issues noted by stakeholders or during field observations were marked higher than those that address safety generally. Projects that improve multiple travel modes were marked higher than projects that improve a single travel mode.
- **Feasibility:** Projects that would require coordination with private landowners or other public agencies were marked lower (less feasible) than projects that could be completed by the City of Campbell acting solely within its own right of way.

A third criterion reflected in Table 3 is the concept level cost of each project. By clustering the projects into three cost categories, Table 3 provides a sense of how projects might be funded. The cost thresholds used to categorize the projects ~~is~~ are based on the City's past experience in funding or obtaining funding for transportation and streetscape improvement projects.

- **Cost:** Based on the estimated cost of the full buildout of the projects (see **Table 2** and **Appendix C**), **Table 3** projects are sorted into the following three cost categories: **\$** for projects costing under \$100,000, **\$\$** for projects costing between \$100,000 and \$300,000, and **\$\$\$** for projects costing more than \$300,000. Projects in the lowest cost category are considered to have the potential to be funded through the City's CIP program or other City-controlled funding sources. Projects in the \$100,000-\$300,000 category are deemed to require a combination of City funds and funds from one or several potential grant funding sources. Projects in the highest cost category are considered as having to be funded primarily through outside funding sources, such as the MTC's One Bay Area grant program.

**Table 3** presents the qualitative evaluation of all fourteen projects described in **Section 5**. The three criteria outlined above (multimodal safety, feasibility, and cost) are indicated by + signs and \$ symbols. The table does not establish a ranking of the projects but rather is intended to assist City staff and stakeholders in understanding the comparative benefits and implementation-related feasibility and funding-related aspects of the projects.

**TABLE 3: PROJECT EVALUATION MATRIX**

Location	Project Description	Transportation Benefits	Urban Design Features	Other Factors/Tradeoffs	Qualitative Assessment		
					Safety	Feasibility	Cost
1 N. 3 <sup>rd</sup> Street / Civic Center Drive	Crossing improvements and curb extensions, lighting enhancements	Improved visibility, access, and shorter crossings for pedestrians	Pedestrian-scale lighting		++	+++	\$
2 N. 2 <sup>nd</sup> Street / Civic Center Drive	Crossing improvements and curb extensions, lighting enhancements	Improved visibility, access, and shorter crossings for pedestrians	Pedestrian-scale lighting		++	+++	\$
3 N. 1 <sup>st</sup> Street / Civic Center Drive	Crossing improvements and curb extensions, lighting enhancements	Improved visibility, access, and shorter crossings for pedestrians	Pedestrian-scale lighting		++	+++	\$
4 Central Avenue /Civic Center Drive	Crossing improvements and curb extensions, streetscape and lighting enhancements	Crosswalk striping enhancements at signalized intersection	Future visual enhancement of entry point into Civic Center		+	+++	\$\$

**TABLE 3: PROJECT EVALUATION MATRIX**

Location	Project Description	Transportation Benefits	Urban Design Features	Other Factors/Tradeoffs	Qualitative Assessment		
					Safety	Feasibility	Cost
5 Harrison Avenue/ Civic Center Drive	Consolidated pedestrian crossing, new mini-park / green infrastructure, streetscape and lighting enhancements	Improved safety and shorter crossings for pedestrians	Mini park/green infrastructure, enhanced aesthetic of entry point to Downtown area		++	++	\$\$\$
6 S. 3rd Street / Orchard City Drive	Curb extension, new mini-park/green infrastructure, crossing improvements	Improved visibility for pedestrians	Mini park/green infrastructure	Altered access to adjacent property presents challenges	+	+	\$\$
7 Orchard City Drive between 3rd Street and 2nd Street	Traffic calming, curb extensions, closed sidewalk gap, streetscape and lighting enhancements	Complete pedestrian network, slow vehicle speeds	Enhanced streetscape and lighting		++	+++	\$\$
8 S. 2nd Street/ Orchard City Drive	Crossing improvements and curb extensions, streetscape and lighting enhancements	Improved visibility, access, and shorter crossings for pedestrians	Pedestrian-scale lighting		++	+++	\$
9 S. 1st Street/ Orchard City Drive	Crossing improvements and curb extensions, lighting enhancements	Improved visibility, access, and shorter crossings for pedestrians	Pedestrian-scale lighting		++	+++	\$\$

**TABLE 3: PROJECT EVALUATION MATRIX**

Location	Project Description	Transportation Benefits	Urban Design Features	Other Factors/Tradeoffs	Qualitative Assessment		
					Safety	Feasibility	Cost
10 S. Central Avenue/ Orchard City Drive	Curb extensions, realigned pedestrian path across driveway, widened sidewalks and bus stop area, added signalized crosswalk, streetscape and lighting enhancements Consider elimination of high-speed parking lot entry	Improved crosswalk and enhanced pedestrian visibility, improved transit passenger environment, enhanced pedestrian comfort (wider sidewalk and buffering)	Enhanced streetscape and lighting	Requires coordination with VTA	++	+	\$\$
11 Railway Avenue/ E. Campbell Avenue/ Civic Center Drive	New signalized crosswalks, new bicycle facilities, pedestrian gates at rail tracks, streetscape and lighting enhancements	Add signalized crosswalks, close gap in bicycle facilities	Enhanced aesthetic of entry point to Downtown	Requires coordination with VTA	+++	+	\$\$
12 Harrison Avenue/ Salmar Avenue	Crossing improvements, potential civic marker to signal entry into Downtown	Improved crosswalk	Potential enhanced entry point		++	+++	\$
13 Salmar Avenue between Harrison and Hamilton	Traffic calming, closed sidewalk gap	Complete pedestrian network, slow vehicle speeds			++	+++	\$\$\$

**TABLE 3: PROJECT EVALUATION MATRIX**

Location	Project Description	Transportation Benefits	Urban Design Features	Other Factors/Tradeoffs	Qualitative Assessment		
					Safety	Feasibility	Cost
14 (E. Rincon Ave.)/S. 1 <sup>st</sup> Street/N. 1 <sup>st</sup> Street/(Grant Street/N. Central Ave.)	Bicycle Boulevard Signage and Striping on n. and S. 1 <sup>st</sup> Street (for crossing improvements see Projects 3 and 9)	Improved bicycle safety and access	If “branded” signage is used: enhancement of Downtown’s identity		<i>The project was not evaluated at this time as it requires further definition and includes improvements outside of the PDA.</i>		

## 6. POTENTIAL FUTURE IMPROVEMENTS AND POLICIES

This chapter presents several general recommendations for improvements to sidewalks, bicycle facilities, parking, and roadways within the study area. Potential policies and programs for future consideration are described as well. These recommendations are provided for additional consideration by City of Campbell staff, advisory committees, and City Council, and have not been evaluated in detail.

### INFRASTRUCTURE RECOMMENDATIONS

#### Pedestrian Improvements

- Look for opportunities to widen sidewalks throughout the study area. Wider sidewalks have the potential to support increased pedestrian volumes and make walking a more prominent mode throughout downtown.
- Explore feasibility of reconstructing driveways along the west sidewalk on North Central Avenue to increase access and comfort for pedestrians and persons with disabilities.

#### Bicycle Improvements

- Add bicycle racks throughout downtown, in locations such as:
  - New bike racks on the lawn area of Ainsley Park;
  - Bike corrals in on-street parking spaces, if there is support from adjacent businesses;
  - New bicycle racks on existing curb bulbs along Campbell Avenue, Orchard City Drive, and Civic Center Drive. Consider relocating some existing benches to adjacent furniture zones to accommodate new bicycle racks.
- Further study and finalize the alignment of Project 14 (Bicycle Boulevard) in the context of potential additional bicycle boulevards in Campbell. Define, conceptualize, and cost traffic calming and crossing improvements as well other bicycle boulevard elements, such as (“branded”) signage, for the route of Project 14 in- and outside of the PDA (including 1st Street, East Rincon Avenue, Grant Street, North Central Avenue).
- Improve existing north/south bicycle routes on Central Avenue and 1st Street with green-backed sharrows and more visible “Bicycle Route” signs.

- Consider continuing the bicycle lanes on East Campbell Avenue as green-backed sharrows through the downtown area.

### **Parking Access Improvements**

- Improve the wayfinding system to the South 1st Street parking garage through signage and other urban design features.
- Introduce time limits (2-3 hours) on lower levels of the garage located near 2nd Street/Civic Center Drive.
- Investigate adding electronic signage with real-time parking occupancy data at entrances to the downtown area.

## **POLICY AND PROGRAM RECOMMENDATIONS**

- Consider increased weekend closures for East Campbell Avenue, allowing pedestrian, bicycle, and emergency vehicle traffic only within limited hours.
- Create a pilot parklet program that would include the following elements:
  - Sponsor PARKing days when local businesses and residents can sponsor conversion of on-street parking spaces on a temporary basis into public parklets, bicycle corrals, outdoor seating, etc. to explore options for these community resources;
  - If temporary conversions are successful, create a program for permanent conversions similar to San Jose and San Francisco's existing parklet programs;
  - Develop maintenance agreements for parking spaces converted to private use.
- Consider creating a pilot local bicycle sharing program for the greater downtown area, drawing on the recent experiences of nearby cities including Palo Alto, San Mateo, and San Jose.

## **APPENDIX A: STAKEHOLDER AND COMMUNITY ENGAGEMENT SUMMARIES**

**CAMPBELL TRANSPORTATION IMPROVEMENT PLAN – APRIL 2016 STAKEHOLDER INPUT SUMMARY**

<p><b>Meeting</b></p>	<p>Stakeholder Kickoff Meetings                  April 20, 2016, Campbell City Hall                  Attended by representatives and members of:</p> <ul style="list-style-type: none"> <li>• City of Campbell Public Library</li> <li>• Downtown Campbell Business Association</li> <li>• Campbell Chamber of Commerce</li> <li>• Downtown Campbell Neighborhood Association</li> <li>• Campbell Bicycle and Pedestrian Advisory Committee (BPAC)</li> <li>• City of Campbell Staff</li> <li>• Consultant team (Community Design + Architecture, Fehr &amp; Peers)</li> </ul>
<p><b>Category</b></p>	<p><b>Issues</b></p>
<p>Pedestrian Crossings and Safety</p>	<ul style="list-style-type: none"> <li>• In general, unsignalized pedestrian crossings along Civic Center Drive and Orchard City Drive are dangerous/difficult/awkward for pedestrians.</li> <li>• The unsignalized crossing at South 2nd Street/Orchard City Drive is particularly dangerous for pedestrians (especially around sunset) due to poor visibility and high vehicle speeds.</li> <li>• The Civic Center Drive/Harrison Avenue pedestrian crossing is awkward for pedestrians.</li> <li>• Jaywalking across Orchard City Drive between South Central Avenue and Railway Avenue is a safety concern.</li> <li>• The East Campbell Avenue/Railway Avenue is another intersection of concern:                         <ul style="list-style-type: none"> <li>○ Motorists are impatient with pedestrians.</li> <li>○ The walking/biking route is unclear for westbound pedestrians and bicyclists on the north side of the street.</li> <li>○ The pedestrian crossing demand is high on the west leg of this intersection east of the tracks, where no crosswalk is currently provided. No crosswalk is provided on Civic Center Drive.</li> <li>○ Striping and pavement legends are also confusing to drivers.</li> </ul> </li> <li>• The business at Orchard City Drive/South 3rd Street has a driveway exiting onto the crosswalk.</li> </ul>

**CAMPBELL TRANSPORTATION IMPROVEMENT PLAN – APRIL 2016 STAKEHOLDER INPUT SUMMARY**

Category	Issues
Pedestrian and Bicycle Connections	<ul style="list-style-type: none"> <li>• Walking routes to be studied include: 1) LRT to Library, 2) LRT to Pruneyard, 3) LRT to Downtown via Railway Avenue.</li> <li>• Sidewalks within the downtown area need to be continuous; the sidewalk gap along Salmar Avenue needs to be eliminated.</li> <li>• There is increasing foot and bicycle travel between the downtown and Pruneyard Shopping Center and multi-family housing located along East Campbell Avenue east of the tracks.</li> <li>• Some stakeholders expressed interest in building “Bicycle Boulevard” in the downtown area to provide direct access and low stress facility for commuter bicyclists, families, and children. Sharrows and other more visible signs could also be added to the “Bicycle Boulevard”.</li> <li>• The parking garage on South 1st Street needs to be better connected to the downtown; many people do not realize that parking is available when the garage on Civic Center Drive is full.</li> </ul>
Bicycle Parking	<ul style="list-style-type: none"> <li>• There is not enough bicycle parking, which is evidenced by bikes locked in odd places.</li> <li>• Bike racks need to be located at places where bicycles can be “kept an eye on” from adjacent businesses and restaurants.</li> <li>• Bicycle parking spaces should be dispersed throughout the downtown area.</li> <li>• More bicycle parking is needed for large events.</li> <li>• East Campbell Avenue should be considered to add bike rental facilities, bike station, and more bike parking.</li> <li>• Additional bicycle parking spaces could be located at Ainsley Park and in the alley behind Blue Line Pizza during business hours.</li> <li>• Additional bicycle parking spaces could also be located in parking lanes in the form of bike corrals.</li> </ul>
Vehicle Traffic and Parking	<ul style="list-style-type: none"> <li>• The signage directing drivers to available parking needs to be enhanced to minimize circulation for parking.</li> <li>• The scarcity of parking is impediment for people who want to drive to the downtown and then walk.</li> <li>• East Campbell Avenue turns into a parking lot after 4 PM when many people try to access parking, shops, services, and restaurants.</li> <li>• Some stakeholders expressed interest in closing East Campbell Avenue to traffic on weekends (except for emergency services and loading activities) to alleviate the congestion on weekends. The street closure strategy has been successful in the past, but local businesses may oppose.</li> </ul>

**CAMPBELL TRANSPORTATION IMPROVEMENT PLAN – SEPTEMBER 2016 CITY COUNCIL STUDY SESSION FEEDBACK SUMMARY**

<b>Meeting</b>	City Council Study Session September 6, 2016, Campbell City Hall
<b>Location</b>	<b>Comment</b>
Civic Center/Harrison	Harrison/Civic Center: entrance into Downtown from freeway; losing the southbound right-turn sweeping on-ramp approach could back up traffic on Harrison
Orchard City/Central	Proposed crosswalk to intercept LRT jaywalkers could help
Orchard City east of Central	Bus duck-out length needs to accommodate articulated buses (any VTA bus)
Orchard City/Third	EB RT at Second Street increases speeds
Civic Center/Central	WB LTs illegal on red; cutting corner (relates to possible relocation of on-street parking on Civic Center east of Central)
Campbell Avenue east of Railway	Providing bike lanes to Los Gatos Creek Trail is important, a tradeoff to on-street parking or are there other options?
Civic Center/2nd and Civic Center/3rd	Support for yield lines and signs
Orchard City east of Central	Support for proposed signalized crosswalk
Campbell/Railway	Support for proposed crosswalks on north and west legs
Civic Center/Harrison	Support for parklet and slowing down WB RTs
Civic Center	Speed on street needs to be controlled
Civic Center/Harrison	WB RT needs to be slowed down, but corner turn may be too sharp
Orchard City/Third	EB RT corner turn may be too sharp
Campbell/Railway	Monument sign area is a "no man's land" for pedestrians; need to work around railroad gates; relocate crosswalk to west of tracks and create entrance to Ainsley Park; not a fan of pedestrian gates, "gizmos"
Orchard City/Third	EB RT tight corner may lead to rear-end crashes
Orchard City east of 3rd	Support for proposed sidewalk on north side, but City may not own land at Orchard/Campbell/Third
Orchard City/Second	Not in favor of RRFBs

Location	Comment
Orchard City east of 3rd	Relocate on-street parking from south side to north side
General	Document why stop signs are not recommended (shows that City at least considered stop signs)
Orchard City east of Central	Duckout to Water Tower driveway creates a high-speed entrance; add parklet east of driveway near tracks
General	Curb and gutter compliance with ADA depends on whether they were built prior to ADA enactment; concerned that ADA retrofits are expensive and have drainage implications
Campbell Avenue east of Railway	Bike lanes to Los Gatos Creek Trail are needed
Campbell/Railway	Support for crosswalks on north and west legs; west of tracks okay, interested in connecting to Ainsley Park
Ainsley Park	Support for bike racks in park
Campbell Avenue	Try bike parking in parking lanes on Campbell Avenue on experimental/pilot basis; Sanchez lot could be the trade-off
Orchard City/Second	Support for RRFBs, keeping both crosswalks crossing Orchard City
Orchard City east of Central	VTA bus lines may be reduced; if yes, have VTA redo bus stop on Orchard City Drive
General	Not a supporter of parklets; Mountain View and San Jose parklets not well-maintained in long-term, drainage issues

**CAMPBELL TRANSPORTATION IMPROVEMENT PLAN – OCTOBER 2016 SPECIAL BPAC MEETING FEEDBACK SUMMARY**

Meeting	Special BPAC Meeting – Review of Initial Concepts and Evaluation Criteria October 26, 2016 Campbell City Hall
<b>Location/Topic</b>	<b>Comment</b>
Criteria	Safety should be a high priority criterion
Campbell/Railway	Crosswalks and bike box
Criteria	Prioritize by collisions
Orchard City Drive	Bad from Third to Railway
Campbell Avenue	Crosswalks
Central south of Civic Center	Make Central one-way?
Criteria	Traffic volumes (weekends especially)
Criteria	Low-hanging fruit (low-cost) but also phased improvements and costing (e.g., Civic Center/Harrison first, then Civic Center/Central)
Loop streets	Keep the door open for bike lanes (e.g., cross-section for Orchard City Drive; bike lanes as an option for use of roadway space next to sidewalk addition)
Criteria	Controlling traffic outweighs adding pedestrian walkway on north side of Orchard City Drive
General	Provide bike racks closer to destinations (as opposed to remote location like Ainsley Park); replace on-street parking with bike corral next to Orchard Valley Coffee

## **APPENDIX B: COLLISION DATA**

Campbell PDA  
Vehicle Collisions, 2012-2015

OBJECTID	PRIMARYRD	SECONDRD	CASEID	POINT_X	POINT_Y	YEAR_	LOCATION	DAYWEEK	CRASHSEV	VIOLCAT	KILLED	INJURED	WEATHER1	MCCOL	TRUCKCOL	ETOH	TIMECAT	MONTH_	CRASHTYP	INVOLVE	PED
61	CIVIC CENTER DR	CENTRAL AV	4612011	-121.9435930	37.287865	2010	4302	Friday	4	3	0	0	1 C				1800	1	Rear-End	C	A
289	SOUTH WINCHESTER BL	E CAMPBELL AV	4777445	-121.9498640	37.287300	2010	4302	Monday	4	1	0	0	1 A			Y	2100	5	Overtaken	J	A
60	CIVIC CENTER DR	CENTRAL AV	4821527	-121.9435930	37.287865	2010	4302	Thursday	4	8	0	0	2 A				1800	7	Head-On	C	A
334	WINCHESTER BL	CAMPBELL AV	4870937	-121.9498630	37.287045	2010	4302	Friday	4	12	0	0	2 A				1200	7	Broadside	C	A
345	WINCHESTER BL	CAMPBELL AV	5052809	-121.9498619	37.286949	2010	4302	Wednesday	4	3	0	0	1 C				1800	12	Rear-End	C	A
290	SOUTH WINCHESTER BL	CAMPBELL AV	5122524	-121.9498500	37.287040	2011	4302	Saturday	4	12	0	0	3 A				2400	3	Broadside	C	A
79	E CAMPBELL AV	DILLON AV	5148513	-121.9406900	37.287050	2011	4302	Tuesday	4	8	0	0	1 A				1800	4	Broadside	C	A
62	CIVIC CENTER DR	1ST ST	5256370	-121.9449996	37.287845	2011	4302	Tuesday	3	1	0	0	1 A			Y	300	8	Hit Object	I	A
63	CIVIC CENTER DR	2ND ST	5507256	-121.9460630	37.287845	2012	4302	Friday	2	0	0	0	1 A				1500	1	Broadside	C	A
172	ORCHARD CITY DR	2ND ST	5683898	-121.9465818	37.286296	2012	4302	Monday	3	0	0	0	1 B				1800	6	Other	E	A
65	CIVIC CENTER DR	3RD ST	5690937	-121.9473031	37.287855	2012	4302	Wednesday	4	3	0	0	1 A				1500	6	Rear-End	C	A
64	CIVIC CENTER DR	N 2ND ST	5838984	-121.9460630	37.287845	2012	4302	Friday	4	9	0	0	1 A				1800	9	Broadside	C	A
174	ORCHARD CITY DR	2ND ST	5900996	-121.9460631	37.286215	2012	4302	Wednesday	4	9	0	0	3 C				1500	12	Broadside	C	A
47	CAMPBELL AV	WINCHESTER BL	5923545	-121.9487733	37.287030	2012	4302	Monday	3	0	0	0	1 C				900	12	Hit Object	I	A
66	CIVIC CENTER DR	N 2ND ST	6042209	-121.9460630	37.287845	2013	4302	Monday	4	9	0	0	1 B				2100	4	Broadside	C	A
293	SOUTH WINCHESTER BL	CAMPBELL AV	6081367	-121.9498634	37.287130	2013	4302	Friday	4	1	0	0	1 A			Y	300	5	Hit Object	I	A
74	E CAMPBELL AV	N 3RD ST	6202076	-121.9469249	37.287028	2013	4302	Friday	4	8	0	0	1 A	Y		Y	2100	8	Broadside	C	A
43	CAMPBELL AV	SOUTH WINCHESTER BL	6288352	-121.9498630	37.287045	2013	4302	Thursday	3	9	0	0	3 A				1200	11	Broadside	C	A
337	WINCHESTER BL	SANFORD AV	6317179	-121.9498530	37.286195	2013	4302	Friday	2	1	0	0	1 C			Y	2400	12	Hit Object	I	A
185	SALMAR AV	HARRISON AV	6509190	-121.9414416	37.290025	2014	4302	Thursday	3	3	0	0	2 A				2400	5	Hit Object	E	A
76	E CAMPBELL AV	FOOTE AV	6527752	-121.9412029	37.287055	2014	4302	Monday	4	9	0	0	1 A				1800	4	Broadside	C	A
59	CIVIC CENTER DR	N 2ND ST	7030836	-121.9460630	37.287845	2015	4302	Friday	4	9	0	0	1 A				1800	7	Broadside	C	A
55	CAMPBELL AV	RAILWAY AV	7072524	-121.9416152	37.287055	2015	4302	Friday	4	1	0	0	1 A			Y	2400	8	Rear-End	E	A
173	ORCHARD CITY DR	1ST ST	7089819	-121.9447221	37.286223	2015	4302	Thursday	4	3	0	0	1 A				2100	9	Rear-End	C	A
179	RAILWAY AV	ORCHARD CITY DR	7136654	-121.9422958	37.286384	2015	4302	Thursday	2	1	0	0	1 A	Y		Y	1800	11	Overtaken	-	A
78	E CAMPBELL AV	RAILWAY AV	7142309	-121.9418731	37.287055	2015	4302	Wednesday	4	7	0	0	1 B				1200	12	Sideswipe	C	A

Campbell PDA  
Pedestrian Collisions, 2012-2015

OBJECTID	CASEID	YEAR_	LOCATI	CHPTYPE	DAYWEEK	CRASHSEV	VIOLCAT	KILLED	INJURED	WEATHI	PEDCOL	BICCOL	MCCOL	TRUCKC	ETOH	TIMECA	MONTH	CRASHTYP	INVOLVE	PED	PRIMARYR	SECONDRI	DISTANCE	DIRECT	INTERSECT	PROCDATE
6	4870666	2010	4302	0	Sunday	3		10	0	1	A	Y				1200	8	Broadside	B	B	CAMPBELL WINCHEST		0	Y	40770	
7	5239077	2011	4302	0	Saturday	2		12	0	2	A	Y		Y		300	5	Vehicle/Pedestrian	B	B	CAMPBELL 2ND ST		0	Y	41079	
11	5479504	2012	4302	0	Wednesda	3		17	0	1	A	Y				900	1	Vehicle/Pedestrian	B	B	CAMPBELL WINCHEST		0	Y	41452	
9	5751902	2012	4302	0	Saturday	3		10	0	1	A	Y				1200	7	Vehicle/Pedestrian	B	B	CAMPBELL CENTRAL A		0	Y	41573	
15	6081375	2013	4302	0	Saturday	3		11	0	1	A	Y		Y		2400	5	Vehicle/Pedestrian	B	D	CIVIC CENT HARRISON		0	Y	41692	
30	6317127	2013	4302	0	Sunday	3		1	0	2	A	Y		Y		300	12	Vehicle/Pedestrian	B	F	ORCHARD CENTRAL A	6 W	N	41792		
12	6657630	2014	4302	0	Monday	3		10	0	1	A	Y				1500	9	Vehicle/Pedestrian	B	B	CAMPBELL CENTRAL A		0	Y	41955	
280	6882639	2015			Wednesday				0	1								Ped R/W Violation			AINSLEY P/ HARRISON AVE					
32	7115405	2015	4302	0	Thursday	3		0	0	2	A	Y				1500	10	Vehicle/Pedestrian	B	B	S 1ST ST ORCHARD	7 N	N	42320		
345	7188402	2016			Friday				0	1								Ped R/W Violation			CAMPBELL CENTRAL AVE					

Campbell PDA  
Bicycle Collisions, 2012-2015

OBJECTID	CASEID	YEAR_	LOCATION	CHPTYPE	DAYWEEK	CRASHSEV	VIOLCAT	KILLED	INJURED	WEATHER1	PEDCOL	BICCOL	MCCOL	TRUCKCOL	ETOH	TIMECAT	MONTH_	CRASHTYP	INVOLVE	PED	PRIMARYR	SECONDRD	DISTANCE	DIRECT	INTERSECT	PROCDATE
57	5139184	2011	4302	0	Wednesda	3	8	0	1	A		Y				2100	4	Broadside	G	A	RAILWAY A ORCHARD (		197	N	N	41050
66	5274823	2011	4302	4	Tuesday	2	8	0	1	A		Y				900	7	Overturnec	G	A	SAN TOMA HAMILTON		545	N	N	41243
20	5923553	2012	4302	0	Friday	4	8	0	1	B		Y				1500	12	Sideswipe	G	A	CAMPBELL FOOTE AVE		144	W	N	41650
59	6128489	2013	4302	0	Sunday	4	1	0	2	A		Y				2100	5	Rear-End	G	A	SALMAR A\ HARRISON		100	E	N	41702
22	6242017	2013	4302	0	Wednesda	4	0	0	1	A		Y				900	9	Rear-End	G	A	CAMPBELL WINCHEST		410	E	N	41743
265	6756229	2014			Friday			0	1												WINCHEST CAMPBELL AVE					
12	6789627	2014	4302	0	Sunday	4	3	0	1	A		Y				1200	12	Vehicle/Pe	G	A	CAMPBELL GILMAN A\		0		Y	42044

## **APPENDIX C: COST ESTIMATES**

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #1 (N. 3rd Street and Civic Center Drive)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>										
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0	\$ -					
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	560	\$ 3,920					
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -					
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -					
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -					
6	Roadway Excavation	CY	\$ 130.00	25	\$ 3,250					
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	1420	\$ 14,200					
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0	\$ -					
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -					
9	Concrete (Curb & Gutter)	LF	\$ 55.00	172	\$ 9,460					
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	1530	\$ 15,300					
11	Curb Ramp	EA	\$ 7,500.00	5	\$ 37,500					
12	Hot Mix Asphalt	Ton	\$ 280.00	25	\$ 7,000					
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0	\$ -					
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -					
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	0	\$ -					
16	Sign	EA	\$ 600.00	0	\$ -					
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	2	\$ 21,000					
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -					
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	5	\$ 1,500					
20	Traffic Signal Modification	LS	\$ -	0	\$ -					
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	2	\$ 16,000					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 129,130</b>					
<b>GREEN INFRASTRUCTURE</b>										
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -					
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -					
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -					
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -					
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -					
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>					
<b>GENERAL LANDSCAPING</b>										
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0	\$ -					
30	New Tree	EA	\$ 600.00	0	\$ -					
31	Tree Grate	EA	\$ 1,500.00	0	\$ -					
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0	\$ -					
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ -</b>					
Notes:  All thermoplastic costs include remove existing Movable planters assumed every 10'					<b>SUBTOTAL</b>	<b>\$ 129,130</b>				
					5%	Water Pollution Control & Suppl	\$ 6,457			
					10%	Traffic Control	\$ 12,913			
					10%	Mobilization	\$ 12,913			
					<b>TOTAL</b>					<b>\$ 161,413</b>
					25%	Contingency	\$ 32,283			
					<b>TOTAL CONSTRUCTION</b>					<b>\$ 194,000</b>
					3%	Scoping	\$ 5,820			
					5%	Environmental (CEQA)	\$ 9,700			
					15%	Design	\$ 29,100			
15%	Construction Eng/Admin	\$ 29,100								
<b>TOTAL COST ESTIMATE</b>					<b>\$ 268,000</b>					
					3%	Maintenance	\$ 5,820			

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate  
**Location:** Location #2 (North 2nd Street/Civic Center Drive)  
**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>										
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0	\$ -					
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	546	\$ 3,822					
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -					
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -					
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -					
6	Roadway Excavation	CY	\$ 130.00	34	\$ 4,420					
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	780	\$ 7,800					
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	1	\$ 1,000					
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -					
9	Concrete (Curb & Gutter)	LF	\$ 55.00	100	\$ 5,500					
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	1000	\$ 10,000					
11	Curb Ramp	EA	\$ 7,500.00	4	\$ 30,000					
12	Hot Mix Asphalt	Ton	\$ 280.00	15	\$ 4,060					
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	1	\$ 6,000					
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -					
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	3	\$ 2,400					
16	Sign	EA	\$ 600.00	0	\$ -					
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	2	\$ 21,000					
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -					
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	10	\$ 3,000					
20	Traffic Signal Modification	LS	\$ -	0	\$ -					
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	2	\$ 16,000					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 115,002</b>					
<b>GREEN INFRASTRUCTURE</b>										
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -					
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -					
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -					
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -					
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -					
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>					
<b>GENERAL LANDSCAPING</b>										
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0	\$ -					
30	New Tree	EA	\$ 600.00	0	\$ -					
31	Tree Grate	EA	\$ 1,500.00	0	\$ -					
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0	\$ -					
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ -</b>					
Notes:  All thermoplastic costs include remove existing Movable planters assumed every 10'					<b>SUBTOTAL</b>	<b>\$ 115,002</b>				
					5%	Water Pollution Control & Suppl	\$ 5,750			
					10%	Traffic Control	\$ 11,500			
					10%	Mobilization	\$ 11,500			
					<b>TOTAL</b>					<b>\$ 143,752</b>
					25%	Contingency	\$ 28,751			
					<b>TOTAL CONSTRUCTION</b>					<b>\$ 173,000</b>
					3%	Scoping	\$ 5,190			
					5%	Environmental (CEQA)	\$ 8,650			
					15%	Design	\$ 25,950			
15%	Construction Eng/Admin	\$ 25,950								
<b>TOTAL COST ESTIMATE</b>					<b>\$ 239,000</b>					
					3%	Maintenance	\$ 5,190			

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate  
**Location:** Location #3 (North 1st Street/Civic Center Drive)  
**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>										
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0	\$ -					
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	1100	\$ 7,700					
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -					
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -					
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -					
6	Roadway Excavation	CY	\$ 130.00	51	\$ 6,630					
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	1170	\$ 11,700					
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	1	\$ 1,000					
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -					
9	Concrete (Curb & Gutter)	LF	\$ 55.00	150	\$ 8,250					
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	1500	\$ 15,000					
11	Curb Ramp	EA	\$ 7,500.00	6	\$ 45,000					
12	Hot Mix Asphalt	Ton	\$ 280.00	17.4	\$ 4,872					
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	1	\$ 6,000					
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	1	\$ 1,200					
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	1	\$ 800					
16	Sign	EA	\$ 600.00	0	\$ -					
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -					
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -					
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	15	\$ 4,500					
20	Traffic Signal Modification	LS	\$ 8,000.00	1	\$ 8,000					
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	3	\$ 24,000					
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 144,652</b>					
<b>GREEN INFRASTRUCTURE</b>										
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -					
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -					
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -					
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -					
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -					
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>					
<b>GENERAL LANDSCAPING</b>										
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0	\$ -					
30	New Tree	EA	\$ 600.00	0	\$ -					
31	Tree Grate	EA	\$ 1,500.00	0	\$ -					
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -					
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -					
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0	\$ -					
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ -</b>					
Notes:  All thermoplastic costs include remove existing Movable planters assumed every 10'					<b>SUBTOTAL</b>	<b>\$ 144,652</b>				
					5%	Water Pollution Control & Suppl	\$ 7,233			
					10%	Traffic Control	\$ 14,465			
					10%	Mobilization	\$ 14,465			
					<b>TOTAL</b>					<b>\$ 180,815</b>
					25%	Contingency	\$ 36,163			
					<b>TOTAL CONSTRUCTION</b>					<b>\$ 217,000</b>
					3%	Scoping	\$ 6,510			
					5%	Environmental (CEQA)	\$ 10,850			
					15%	Design	\$ 32,550			
15%	Construction Eng/Admin	\$ 32,550								
<b>TOTAL COST ESTIMATE</b>					<b>\$ 300,000</b>					
					3%	Maintenance	\$ 6,510			

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #4 (Central Ave/Civic Center Drive, Fig 10)

**Date:** March 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0 \$	-
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	439 \$	3,074
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0 \$	-
4	Thermoplastic Marking (Bike Lane Symbol, Sharrow)	EA	\$ 110.00	0 \$	-
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0 \$	-
6	Roadway Excavation	CY	\$ 130.00	0 \$	-
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	0 \$	-
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0 \$	-
8	Concrete (Curb)	LF	\$ 40.00	0 \$	-
9	Concrete (Curb & Gutter)	LF	\$ 55.00	0 \$	-
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	0 \$	-
11	Curb Ramp	EA	\$ 7,500.00	0 \$	-
12	Hot Mix Asphalt	Ton	\$ 280.00	0 \$	-
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0 \$	-
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0 \$	-
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	0 \$	-
16	Sign	EA	\$ 600.00	0 \$	-
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0 \$	-
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0 \$	-
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0 \$	-
20	Traffic Signal Modification	LS	\$ 13,000.00	0 \$	-
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	0 \$	-
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 3,074</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0 \$	-
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0 \$	-
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0 \$	-
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0 \$	-
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0 \$	-
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0 \$	-
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0 \$	-
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0 \$	-
30	New Tree	EA	\$ 600.00	0 \$	-
31	Tree Grate	EA	\$ 1,500.00	0 \$	-
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0 \$	-
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0 \$	-
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0 \$	-
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ -</b>
				<b>SUBTOTAL</b>	<b>\$ 3,074</b>
Notes:				5% Water Pollution Control & Suppl	\$ 154
All thermoplastic costs include remove existing				10% Traffic Control	\$ 307
Movable planters assumed every 10'				10% Mobilization	\$ 307
Irrigation System 2 includes drip/subsurface emitters and connections to existing water meter and controller.				<b>TOTAL</b>	<b>\$ 3,842</b>
				25% Contingency	\$ 768
				<b>TOTAL CONSTRUCTION</b>	<b>\$ 5,000</b>
				3% Scoping	\$ 150
				5% Environmental (CEQA)	\$ 250
				15% Design	\$ 750
				15% Construction Eng/Admin	\$ 750
				<b>TOTAL COST ESTIMATE</b>	<b>\$ 7,000</b>
				3% Maintenance	\$ 150

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #5 (Harrison Ave/ Civic Center Drive, Fig 14)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	472	\$ 1,886
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	558	\$ 3,906
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	135	\$ 17,550
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	2663	\$ 26,630
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0	\$ -
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	116	\$ 6,380
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	2834	\$ 28,339
11	Curb Ramp	EA	\$ 7,500.00	4	\$ 30,000
12	Hot Mix Asphalt	Ton	\$ 280.00	177	\$ 49,560
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0	\$ -
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	4	\$ 3,200
16	Sign	EA	\$ 600.00	4	\$ 2,400
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal	LS	\$ 150,000.00	1	\$ 150,000
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 10,000.00	8	\$ 80,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 399,851</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	2600	\$ 91,000
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	5	\$ 1,500
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	260	\$ 18,200
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)*	SF	\$ 12.00	2600	\$ 31,200
26	Irrigation System ( NOTE: Does not include cost for new water meter)	CY	\$ 130.00	340	\$ 44,200
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	2600	\$ 15,600
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ 201,700</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	1300	\$ 19,500
30	New Tree	EA	\$ 600.00	12	\$ 7,200
31	Tree Grate	EA	\$ 1,500.00	0	\$ -
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	1300	\$ 7,800
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ 15,000.00	1	\$ 15,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 49,500</b>
Notes:  All thermoplastic costs include remove existing Concept assumes one third of landscaped area is executed as general landscaping and two thirds as green infrastructure Irrigation System 2 includes drip/subsurface emitters and connections to existing water meter and controller.			<b>SUBTOTAL</b>		<b>\$ 651,051</b>
			5%	Water Pollution Control & Suppl	\$ 32,553
			10%	Traffic Control	\$ 65,105
			10%	Mobilization	\$ 65,105
			<b>TOTAL</b>		<b>\$ 813,814</b>
			25%	Contingency	\$ 162,763
			<b>TOTAL CONSTRUCTION</b>		<b>\$ 977,000</b>
			3%	Scoping	\$ 29,310
			5%	Environmental (CEQA)	\$ 48,850
			15%	Design	\$ 146,550
15%	Construction Eng/Admin	\$ 146,550			
<b>TOTAL COST ESTIMATE</b>		<b>\$ 1,349,000</b>			
3%	Maintenance	\$ 29,310			

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #6 (S. 3rd Street/Orchard City Drive, Fig 11)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	475	\$ 1,899
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	235	\$ 1,646
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	15	\$ 120
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	233	\$ 30,290
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	2810	\$ 28,095
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	2	\$ -
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	648	\$ 35,640
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	5906	\$ 59,060
11	Curb Ramp	EA	\$ 7,500.00	3	\$ 22,500
12	Hot Mix Asphalt	Ton	\$ 280.00	59	\$ 16,520
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	2	\$ 12,000
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	3	\$ 2,400
16	Sign	EA	\$ 600.00	4	\$ 2,400
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal Modification	LS	\$ -	0	\$ -
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	12	\$ 96,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 308,570</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	1653	\$ 57,838
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	1	\$ 300
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	14	\$ 980
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	1653	\$ 14,873
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	179	\$ 23,270
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	1653	\$ 19,830
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ 117,091</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	725	\$ 10,875
30	New Tree	EA	\$ 600.00	10	\$ 6,000
31	Tree Grate	EA	\$ 1,500.00	7	\$ 10,500
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	725	\$ 8,700
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ 15,000.00	1	\$ 15,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 51,075</b>
			<b>SUBTOTAL</b>	<b>\$</b>	<b>476,736</b>
Notes:			5%	Water Pollution Control & Suppl	\$ 23,837
All thermoplastic costs include remove existing			10%	Traffic Control	\$ 47,674
			10%	Mobilization	\$ 47,674
Irrigation System 1 includes drip/subsurface emitters, main line connection, controller, backflow preventer, and water meter.			<b>TOTAL</b>		<b>\$ 595,921</b>
			25%	Contingency	\$ 119,184
Irrigation systems for Green Infrastructure and General Landscaping share same controller and water meter.			<b>TOTAL CONSTRUCTION</b>		<b>\$ 716,000</b>
			3%	Scoping	\$ 21,480
			5%	Environmental (CEQA)	\$ 35,800
			15%	Design	\$ 107,400
			15%	Construction Eng/Admin	\$ 107,400
			<b>TOTAL COST ESTIMATE</b>		<b>\$ 989,000</b>
			3%	Maintenance	\$ 21,480

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate  
**Location:** Location #8 (South 2nd Street/Orchard City Drive)  
**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0 \$	-
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	0 \$	-
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0 \$	-
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0 \$	-
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0 \$	-
6	Roadway Excavation	CY	\$ 130.00	68 \$	8,840
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	1560 \$	15,600
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	2 \$	2,000
8	Concrete (Curb)	LF	\$ 40.00	0 \$	-
9	Concrete (Curb & Gutter)	LF	\$ 55.00	200 \$	11,000
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	2000 \$	20,000
11	Curb Ramp	EA	\$ 7,500.00	8 \$	60,000
12	Hot Mix Asphalt	Ton	\$ 280.00	23 \$	6,440
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	2 \$	12,000
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0 \$	-
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	0 \$	-
16	Sign	EA	\$ 600.00	0 \$	-
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	2 \$	21,000
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0 \$	-
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	20 \$	6,000
20	Traffic Signal Modification	LS	\$ -	0 \$	-
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	3 \$	24,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 186,880</b>
<b>GREEN INFRASTRUCTURE</b>					
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0 \$	-
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0 \$	-
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0 \$	-
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0 \$	-
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0 \$	-
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0 \$	-
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0 \$	-
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
<b>GENERAL LANDSCAPING</b>					
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0 \$	-
30	New Tree	EA	\$ 600.00	0 \$	-
31	Tree Grate	EA	\$ 1,500.00	0 \$	-
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0 \$	-
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0 \$	-
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ 10,000.00	1 \$	10,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 10,000</b>
<b>SUBTOTAL</b>					<b>\$ 196,880</b>
Notes:					
All thermoplastic costs include remove existing					
Movable planters assumed every 10'					
5% Water Pollution Control & Suppl					\$ 9,844
10% Traffic Control					\$ 19,688
10% Mobilization					\$ 19,688
<b>TOTAL</b>					<b>\$ 246,100</b>
25% Contingency					\$ 49,220
<b>TOTAL CONSTRUCTION</b>					<b>\$ 296,000</b>
3% Scoping					\$ 8,880
5% Environmental (CEQA)					\$ 14,800
15% Design					\$ 44,400
15% Construction Eng/Admin					\$ 44,400
<b>TOTAL COST ESTIMATE</b>					<b>\$ 409,000</b>
3% Maintenance					\$ 8,880

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate  
**Location:** Location #9 (South 1st Street/Orchard City Drive)  
**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0	\$ -
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	1126	\$ 7,882
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	68	\$ 8,840
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	1560	\$ 15,600
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	3	\$ 3,000
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	200	\$ 11,000
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	2000	\$ 20,000
11	Curb Ramp	EA	\$ 7,500.00	8	\$ 60,000
12	Hot Mix Asphalt	Ton	\$ 280.00	23	\$ 6,440
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	3	\$ 18,000
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	3	\$ 2,400
16	Sign	EA	\$ 600.00	0	\$ -
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	20	\$ 6,000
20	Traffic Signal Modification	LS	\$ -	0	\$ -
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	10	\$ 80,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 239,162</b>
<b>GREEN INFRASTRUCTURE</b>					
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
<b>GENERAL LANDSCAPING</b>					
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0	\$ -
30	New Tree	EA	\$ 600.00	4	\$ 2,400
31	Tree Grate	EA	\$ 1,500.00	0	\$ -
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ 10,000.00	1	\$ 10,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 12,400</b>
<b>SUBTOTAL</b>					<b>\$ 251,562</b>
Notes:					
All thermoplastic costs include remove existing					
Movable planters assumed every 10'					
Irrigation: new trees are established by truck watering					
5% Water Pollution Control & Suppl					\$ 12,578
10% Traffic Control					\$ 25,156
10% Mobilization					\$ 25,156
<b>TOTAL</b>					<b>\$ 314,452</b>
25% Contingency					\$ 62,891
<b>TOTAL CONSTRUCTION</b>					<b>\$ 378,000</b>
3% Scoping					\$ 11,340
5% Environmental (CEQA)					\$ 18,900
15% Design					\$ 56,700
15% Construction Eng/Admin					\$ 56,700
<b>TOTAL COST ESTIMATE</b>					<b>\$ 522,000</b>
3% Maintenance					\$ 11,340

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #10 (S. Central Avenue/ Orchard City Drive, Fig 12)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	272	\$ 1,088
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	1408	\$ 9,856
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	242	\$ 1,936
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	103	\$ 13,390
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	920	\$ 9,200
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	4	\$ 4,000
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	385	\$ 21,185
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	2005	\$ 20,050
11	Curb Ramp	EA	\$ 7,500.00	10	\$ 75,000
12	Hot Mix Asphalt	Ton	\$ 280.00	59	\$ 16,520
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	4	\$ 24,000
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	1	\$ 800
16	Sign	EA	\$ 600.00	7	\$ 4,200
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	2	\$ 100,000
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal Modification (Pedestrian Signal)	LS	\$ 17,000.00	1	\$ 17,000
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	5	\$ 40,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 358,226</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	900	\$ 13,500
30	New Tree	EA	\$ 600.00	5	\$ 3,000
31	Tree Grate	EA	\$ 1,500.00	1	\$ 1,500
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	900	\$ 5,400
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ 10,000.00	1	\$ 10,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 33,400</b>
<b>SUBTOTAL</b>					<b>\$ 391,626</b>
Notes:					
All thermoplastic costs include remove existing					
Rail Road Pedestrian Gate is for each sidewalk crossing location, both sides of tracks					
Irrigation System 2 includes drip/subsurface emitters and connections to existing water meter and controller.					
5% Water Pollution Control & Suppl					\$ 19,581
10% Traffic Control					\$ 39,163
10% Mobilization					\$ 39,163
<b>TOTAL</b>					<b>\$ 489,533</b>
25% Contingency					\$ 97,906
<b>TOTAL CONSTRUCTION</b>					<b>\$ 588,000</b>
3% Scoping					\$ 17,640
5% Environmental (CEQA)					\$ 29,400
15% Design					\$ 88,200
15% Construction Eng/Admin					\$ 88,200
<b>TOTAL COST ESTIMATE</b>					<b>\$ 812,000</b>
3% Maintenance					\$ 17,640

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #11 (Railway Avenue/ E. Campbell Avenue/ Civic Center Drive, Fig 13)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	604	\$ 2,417
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	645	\$ 4,518
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	154	\$ 1,232
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	15	\$ 1,650
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	1515	\$ 16,668
6	Roadway Excavation	CY	\$ 130.00	10	\$ 1,300
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	315	\$ 3,150
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0	\$ -
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	130	\$ 7,150
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	1499	\$ 14,989
11	Curb Ramp	EA	\$ 7,500.00	2	\$ 15,000
12	Hot Mix Asphalt	Ton	\$ 280.00	19	\$ 5,320
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0	\$ -
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	2	\$ 1,600
16	Sign	EA	\$ 600.00	3	\$ 1,800
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	3	\$ 150,000
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal Modification (Pedestrian Signal)	LS	\$ 15,000.00	1	\$ 15,000
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	2	\$ 16,000
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 257,794</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	644	\$ 9,659
30	New Tree	EA	\$ 600.00	0	\$ -
31	Tree Grate	EA	\$ 1,500.00	0	\$ -
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	644	\$ 3,864
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0	\$ -
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 13,523</b>
			<b>SUBTOTAL</b>	<b>\$</b>	<b>271,317</b>
Notes:			5%	Water Pollution Control & Suppl	\$ 13,566
All thermoplastic costs include remove existing			10%	Traffic Control	\$ 27,132
Rail Road Pedestrian Gate is for each sidewalk crossing location, both sides of tracks			10%	Mobilization	\$ 27,132
Irrigation System 2 includes drip/subsurface emitters and connections to existing water meter and controller.			<b>TOTAL</b>		<b>\$ 339,147</b>
			25%	Contingency	\$ 67,829
			<b>TOTAL CONSTRUCTION</b>		<b>\$ 407,000</b>
			3%	Scoping	\$ 12,210
			5%	Environmental (CEQA)	\$ 20,350
			15%	Design	\$ 61,050
			15%	Construction Eng/Admin	\$ 61,050
			<b>TOTAL COST ESTIMATE</b>		<b>\$ 562,000</b>
			3%	Maintenance	\$ 12,210

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #12 (Harrison Avenue/Salmar Avenue)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	0	\$ -
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	592	\$ 4,144
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	90	\$ 720
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	3	\$ 390
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	390	\$ 3,900
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0	\$ -
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	50	\$ 2,750
10	Concrete (Sidewalk, Driveway)	SF	\$ 10.00	390	\$ 3,900
11	Curb Ramp	EA	\$ 7,500.00	1	\$ 7,500
12	Hot Mix Asphalt	Ton	\$ 280.00	7	\$ 1,960
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0	\$ -
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	0	\$ -
16	Sign (Yield to Peds)	EA	\$ 600.00	3	\$ 1,800
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal Modification	LS	\$ -	0	\$ -
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	0	\$ -
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 27,064</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	0	\$ -
30	New Tree	EA	\$ 600.00	0	\$ -
31	Tree Grate	EA	\$ 1,500.00	0	\$ -
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
34	Furnishings (allowance for potential "Civic Marker")	LS	\$ 10,000.00	1	\$ 10,000
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 10,000</b>
				<b>SUBTOTAL</b>	<b>\$ 37,064</b>
Notes:				5%	Water Pollution Control & Suppl \$ 1,853
All thermoplastic costs include remove existing				10%	Traffic Control \$ 3,706
Movable planters assumed every 10'				10%	Mobilization \$ 3,706
Irrigation system includes drip/subsurface emitters, main line connection, backflow preventer, and controller.				<b>TOTAL</b>	<b>\$ 46,329</b>
				25%	Contingency \$ 9,266
				<b>TOTAL CONSTRUCTION</b>	<b>\$ 56,000</b>
				3%	Scoping \$ 1,680
				5%	Environmental (CEQA) \$ 2,800
				15%	Design \$ 8,400
				15%	Construction Eng/Admin \$ 8,400
				<b>TOTAL COST ESTIMATE</b>	<b>\$ 78,000</b>
				3%	Maintenance \$ 1,680

**Mark Thomas & Company / Community Design + Architecture / Fehr & Peers**

**Project:** Campbell PDA TIP - Planning Level Cost Estimate

**Location:** Location #13 (Salmar Avenue between Harrison and Hamilton)

**Date:** August 28, 2017

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS</b>					
1	Thermoplastic Striping (4"-8" Lane Line, Parking Stalls)	LF	\$ 4.00	6000	\$ 24,000
2	Thermoplastic Striping (12" Limit Line, Crosswalks)	LF	\$ 7.00	0	\$ -
3	Thermoplastic Marking (Arrow Symbols and Words)	SF	\$ 8.00	0	\$ -
4	Thermoplastic Marking (Bike Lane Symbol, Sharrows)	EA	\$ 110.00	0	\$ -
5	Thermoplastic Marking (Green bike areas)	SF	\$ 11.00	0	\$ -
6	Roadway Excavation	CY	\$ 130.00	8161	\$ 1,060,930
7	Remove Concrete (Sidewalk, Driveway, Curb & Gutter, Median)	SF	\$ 10.00	0	\$ -
8	Remove Drainage Inlet & Grate	EA	\$ 1,000.00	0	\$ -
8	Concrete (Curb)	LF	\$ 40.00	0	\$ -
9	Concrete (Curb & Gutter)	LF	\$ 55.00	0	\$ -
10	Concrete (Sidewalk, Driveway, Median)	SF	\$ 10.00	6813	\$ 68,130
11	Curb Ramp	EA	\$ 7,500.00	0	\$ -
12	Hot Mix Asphalt	Ton	\$ 280.00	101	\$ 28,280
13	Drainage Inlet, Grate and Pipe	EA	\$ 6,000.00	0	\$ -
14	Drainage Grate Only (Bicycle Safe)	EA	\$ 1,200.00	0	\$ -
15	Adjust Utilities to Grade (Box, Cover, Manhole)	EA	\$ 800.00	8	\$ 6,400
16	Sign (For Median)	EA	\$ 600.00	10	\$ 6,000
17	Rapid Flashing Beacon (RRFB)	EA	\$ 10,500.00	0	\$ -
18	Rail Road Pedestrian Crossing Gate	EA	\$ 50,000.00	0	\$ -
19	Movable Planters (Short-Term Improvement)	EA	\$ 300.00	0	\$ -
20	Traffic Signal Modification	LS	\$ -	0	\$ -
21	Lighting (Pedestrian Scale Every 50 feet or supplemental to existing)	EA	\$ 8,000.00	0	\$ -
<b>ROADWAY, SIDEWALK, CROSSWALK, SIGNAL, AND LIGHTING ITEMS TOTAL</b>					<b>\$ 1,193,740</b>
22	Landscaping (Green Infrastructure Vegetation and Soil Matrix)	SF	\$ 35.00	0	\$ -
23	Overflow Curb Cuts every 50' (Green Infrastructure)	EA	\$ 300.00	0	\$ -
24	Concrete (Deep Curb around Green Infrastructure Planters)	LF	\$ 70.00	0	\$ -
25	Subdrain, Overflow Drains and Connection to Storm Drain System (Green Infrastructure)	SF	\$ 9.00	0	\$ -
26	Roadway Excavation (Green Infrastructure)	CY	\$ 130.00	0	\$ -
27	Irrigation System 1 - New Standalone System	SF	\$ 12.00	0	\$ -
28	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	0	\$ -
<b>GREEN INFRASTRUCTURE TOTAL</b>					<b>\$ -</b>
29	Landscaping (General Low Level Planting and Soil)	SF	\$ 15.00	900	\$ 13,500
30	New Tree (in new sidewalk)	EA	\$ 600.00	8	\$ 4,800
31	Tree Grate	EA	\$ 1,500.00	8	\$ 12,000
32	Irrigation System 1 - New Standalone System	SF	\$ 12.00	900	\$ 10,800
33	Irrigation System 2 - Connection to Existing System	SF	\$ 6.00	900	\$ 5,400
34	Furnishings (allowance for potential Bench, Bike Rack, Trash Receptacle)	LS	\$ -	0	\$ -
<b>GENERAL LANDSCAPING TOTAL</b>					<b>\$ 46,500</b>
			<b>SUBTOTAL</b>	<b>\$ 1,240,240</b>	
Notes:			5%	Water Pollution Control & Suppl	\$ 62,012
Asphalt replaced with concrete for new sidewalk on north side of Salmar Avenue			10%	Traffic Control	\$ 124,024
			10%	Mobilization	\$ 124,024
			<b>TOTAL</b>	<b>\$ 1,550,300</b>	
			25%	Contingency	\$ 310,060
			<b>TOTAL CONSTRUCTION</b>	<b>\$ 1,861,000</b>	
			3%	Scoping	\$ 55,830
			5%	Environmental (CEQA)	\$ 93,050
			15%	Design	\$ 279,150
			15%	Construction Eng/Admin	\$ 279,150
			<b>TOTAL COST ESTIMATE</b>	<b>\$ 2,569,000</b>	
			3%	Maintenance	\$ 55,830

## **APPENDIX D: CUT SHEETS OF SELECTED IMPROVEMENTS**

## HARRISON AVENUE / CIVIC CENTER DRIVE IMPROVEMENTS

### Project Description

Streetscape and pedestrian improvements at Harrison Avenue and Civic Center Drive would include the following elements:

- Eliminate unsignalized leg of the pedestrian crossing across westbound Harrison to slow turning vehicle speeds, shorten pedestrian crossing distance, and improve pedestrian safety by reducing exposure to vehicles
- Replace existing two-stage crossing with consolidated crossing across Harrison and Civic Center Drive
- Expanded landscaping/mini-park adjacent to housing and along parking lot frontage

### Transportation Benefits

- Shortened pedestrian crossing of Harrison Avenue
- Reduced pedestrian exposure to turning vehicles due to consolidated crossing
- Slower vehicle turning speeds due to tightened curb radius
- Improved pedestrian visibility (provided by curb extensions and ladder crosswalks)

### Urban Design Improvements

- Ladder crosswalks and curb extensions provide visual continuity along Civic Center Drive Curb
- New curb extensions and landscaping expand the public space available to resident and visitors
- Enhanced aesthetic of entry point to Downtown area

### Estimated Cost to Construct

\$1,349,000

## PROJECT CONCEPT ILLUSTRATION: HARRISON AVENUE / CIVIC CENTER DRIVE



## S. 3RD STREET / ORCHARD CITY DRIVE IMPROVEMENTS

### Project Description

Streetscape and pedestrian improvements at S. 3rd Street / Orchard City Drive would include the following elements:

- Added curb extension and parklet on existing southbound lane
- Add high-visibility crossing with signage on south leg
- Reconstruct southbound lane in space currently occupied by pedestrian refuge
- Traffic calming: add curb extensions at 3<sup>rd</sup> Street to reduce turning vehicle speeds, narrow lanes
- Add sidewalk on north side of street using existing ROW and extend line of pedestrian-scale lights along new sidewalk
- Where sidewalk exists at NW corner of S. 2<sup>nd</sup> and Orchard City Drive, add planter strip, seating area, or parklet in unused ROW

### Transportation Benefits

- Higher pedestrian visibility due to added curb extensions
- Reduced pedestrian exposure to turning vehicles due to consolidated crossing
- Slower vehicle turning speeds due to tightened curb radii at S. 3<sup>rd</sup> Street
- Close gap in sidewalk between S. 3<sup>rd</sup> Street and S. 2<sup>nd</sup> Street

### Urban Design Improvements

- New curb extensions and landscaping expand the public space available to residents and visitors
- Create continuity along Orchard City Drive by extending sidewalk

### Estimated Cost to Construct

\$989,000

## PROJECT CONCEPT ILLUSTRATION: S. 3RD STREET / ORCHARD CITY DRIVE



## S. CENTRAL AVENUE / ORCHARD CITY DRIVE IMPROVEMENTS

### Project Description

Streetscape and pedestrian improvements at S. Central Avenue/ Orchard City Drive would include the following elements:

- Reconstruct curbs with ADA-compliant curb ramps (directional ramps with detectable warning strips), align curb ramps to crosswalk
- Add curb extension, landscaping (i.e. street trees), potentially seating to SW corner to shorten crossing distance and expand pedestrian waiting area. Extension would replace existing hatched areas on pavement.
- Restripe ladder crosswalk across driveway from EB Orchard City Drive; add "yield to pedestrians" sign.
- Add signalized crosswalk west of railway tracks across Orchard City Drive
- Widened sidewalk, reconstructed bus duck-out and Water Tower Plaza driveway on south side of street; added curb extension, landscaping between Water Tower Plaza driveway and rail tracks
- Consider extending the new curb line and widened sidewalk on the south-side of Orchard City Drive to the corner of S.1st Street and eliminating the driveway and right turn lane from EB Orchard City Drive (not included in cost estimate).
- **Potential:** Crosswalk improvements across rail tracks using colored pavement and/or striping, along with pedestrian gates planned by VTA and construction of a raised curb that delineates the northern crosswalk edge between the two western tracks (curb also acts as edge detection for the visually impaired of the space located between the two strips of truncated domes).

### Transportation Benefits

- Higher pedestrian visibility due to added curb extension ladder crosswalks, and signage
- Improve safety for pedestrians crossing east of rail tracks
- Improved ADA access due to reconstructed curb ramps

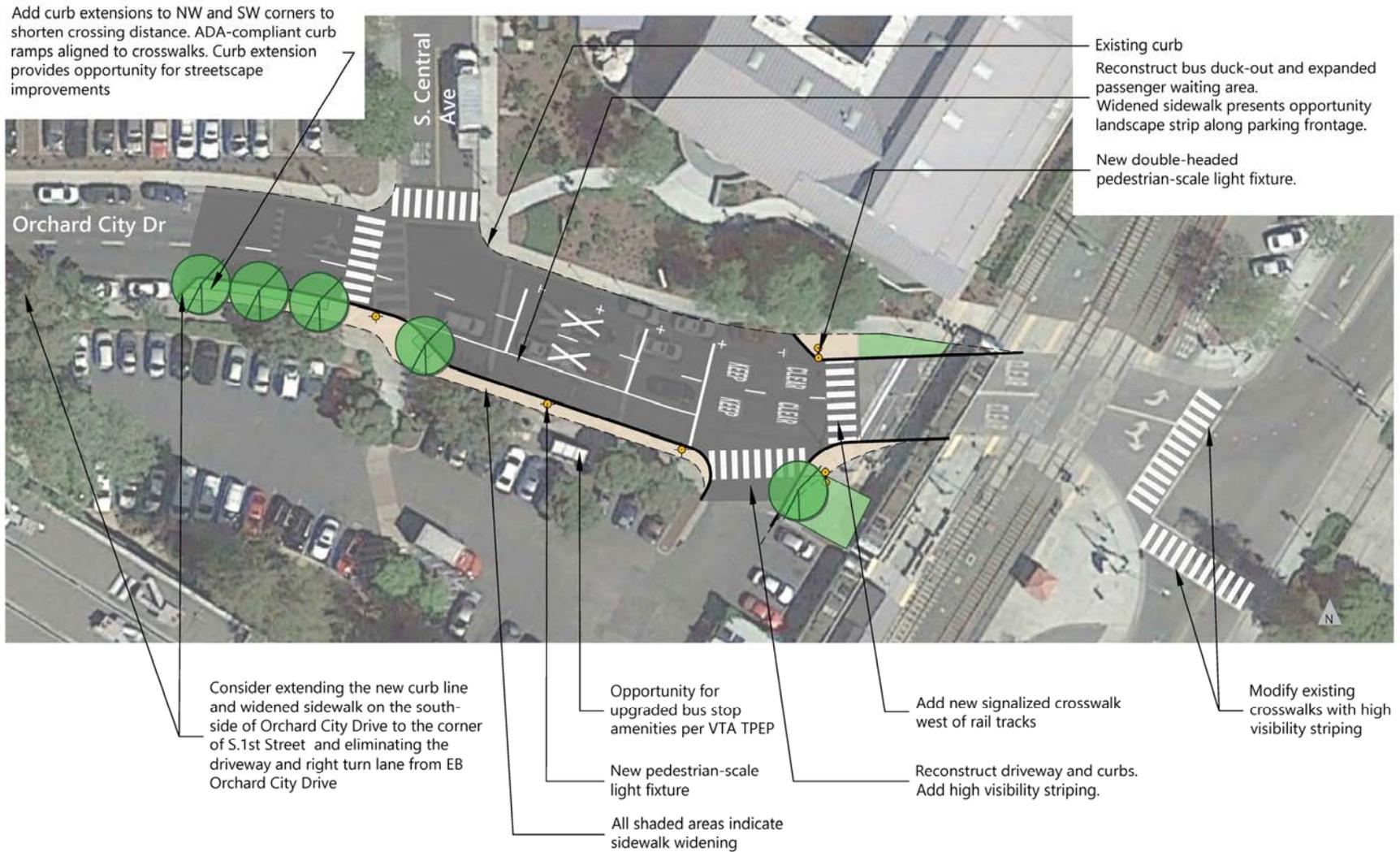
### Urban Design Improvements

- New curb extensions and landscaping expand the public space available to residents and visitors
- Create continuous path to light rail station by adding crosswalks and curb extensions

### Estimated Cost to Construct

\$739,000

## PROJECT CONCEPT ILLUSTRATION: S. CENTRAL AVE / ORCHARD CITY DRIVE



## RAILWAY AVE / E. CAMPBELL AVE / CIVIC CENTER DRIVE

### Project Description

Streetscape and transportation improvements at S. 3rd Street / Orchard City Drive would include the following elements:

- Add ladder crosswalks, pedestrian signal heads on N and W legs of intersection (south and east of rail); add sidewalks Create pedestrian waiting area on NW corner; relocate and redesign decorative landscaping at Downtown gateway sign
- Add pedestrian gates at new sidewalk crossings of rail tracks on north side of E. Campbell Ave
- Create pedestrian waiting area on NW corner; relocate and redesign decorative landscaping at Downtown gateway sign
- **Near term improvement:** Add bike lane and green bike box on westbound approach to signal. Add green-backed sharrows in east and westbound directions to establish a connection between Los Gatos Creek Trail, through Campbell/Railway intersection, and on Campbell Avenue west of intersection. (These treatments require formal experimentation process.)
- **Potential Long-term improvement:** Continue E. Campbell bike facility as lanes or sharrows. Completing bicycle lanes to Los Gatos Creek Trail would require removal of 8 on-street parking spaces and bulb-outs east of Foote on the north side of E. Campbell Avenue. East of Dillon Avenue, completing bicycle lanes would require the removal of center left turn lanes, ROW taking on the south side of E. Campbell Avenue, or the removal of a through lane of vehicle traffic.

### Transportation Benefits

- Improved safety for pedestrians crossing N and W legs of intersections east of rail tracks
- Close gap in bicycle lanes on East Campbell Avenue

### Urban Design Improvements

- Enhanced aesthetic of entry point to Downtown

### Estimated Cost to Construct

\$548,000

## PROJECT CONCEPT ILLUSTRATION: RAILWAY AVE/ E. CAMPBELL AVE / CIVIC CENTER DRIVE

