

# Improvement to Transit Access for Cyclists and Pedestrians

## Final Report



Submitted to the San Bernardino Associated Governments

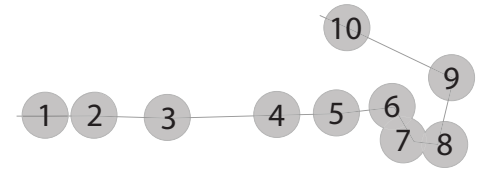
by Alta Planning+Design  
with Gruen Associates

November 2012



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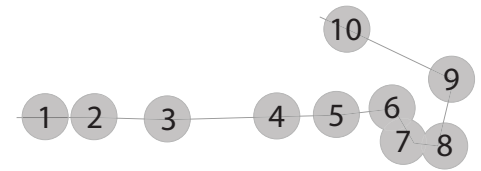




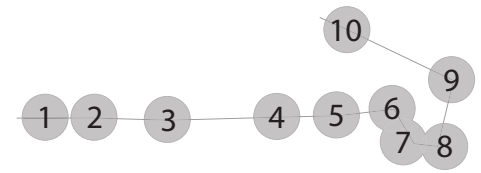
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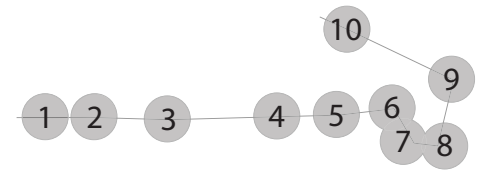
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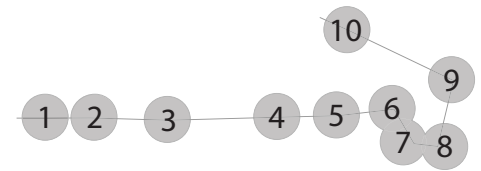
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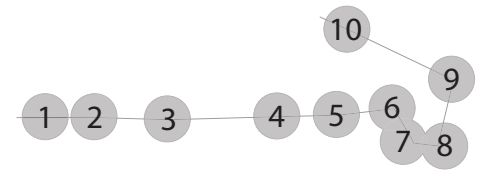




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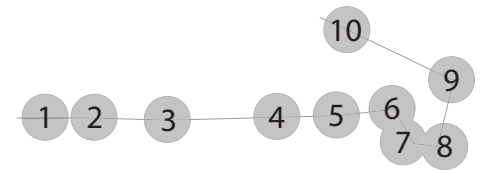
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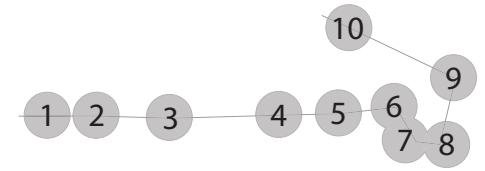
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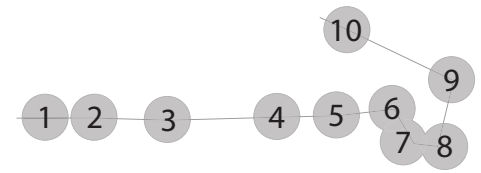


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# Executive Summary

## Plan Process

San Bernardino Associated Governments (SANBAG) undertook an effort to examine the ability of non-motorized users to access its regional transit network, including the six existing Metrolink Commuter Rail stations along the San Bernardino Line, and four under construction sbX Bus Rapid Transit (BRT) Stations in the cities of San Bernardino and Loma Linda. This year-long project sought to identify existing barriers to access, inform stakeholders of industry best practices relating to improving non-motorized circulation, and propose planning-level improvements in and around the selected stations. These improvements were based on existing conditions documentation, including fieldwork and Geographic Information Systems (GIS) analysis, industry research, extensive stakeholder consultation, public outreach efforts, and financial feasibility.

The project is designed to serve as a guiding document for cities looking to secure funding for transit station area improvements, implement the goals of the SANBAG Non-Motorized Transportation Plan, and improve access to and from these stations for local residents and commuters, thereby reducing parking demand and increasing transit ridership. A Project Development Team (PDT) was convened at the beginning of the project, and consisted of over three dozen members, ranging from City staff, SANBAG and SCAG representatives, local cycling advocates, community members, representatives from Metrolink and Omnitrans, and major employers in the region such as Cal State San Bernardino. The PDT met every two months for the duration of the project, and members were kept abreast of project progress via regular e-mail and phone communication.

## Existing Conditions

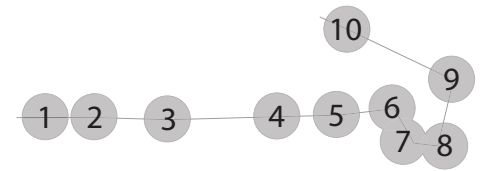
San Bernardino County has long been an auto-dominated environment. Roadways are typically laid out in a grid network, topography permitting, with a standard hierarchy of classifications. The Cities in the study area vary widely in their approach to implementing bicycle and pedestrian facilities, owing to a number of factors relating to circulation priorities, land use patterns, and transit station built environments. SANBAG completed its countywide Non-Motorized Transportation Plan, updated in Spring of 2011, which quantified the existing non-motorized network in the region. While it is difficult to generalize, the existing non-motorized network typically consists of a number of disconnected facilities for both cyclists and pedestrians. On-street facilities face challenges from vehicle speeds and volumes, substandard infrastructure, while off-street facilities (such as walking trails and bike paths) face challenges of a lack of funding for creating amenities and providing maintenance.

Despite these challenges, walking, bicycling, and transit usage throughout the study area remains high, and connecting non-motorized facilities to one another and to the people that use them is a key objective of this project.

## Best Practices

Chapter Three presents a number of industry best practices from throughout the country designed to improve access to and from transit stations. These examples served to inform the public and the PWG, and formed the basis of a series of recommendations in and around the transit station areas under study, including use of innovative new traffic control devices, bicycle facilities, wayfinding concepts, and other hardscape improvements.





## Public Outreach

This project featured a number of events and exercises designed to engage the public and solicit their opinions. An initial survey effort was conducted at each of the ten stations under study, designed to identify transit users' issues, challenges, and preferences relating to accessing their respective transit stations. These surveys took place over the course of two weeks, and resulted in over 200 completed surveys.

In addition, a total of four public workshops were held over the course of the project, which helped to solicit additional comments and educate the public about the proposed improvements found in Chapter Four.

Lastly, SANBAG maintained a project webpage on its website, which featured project materials such as deliverables and public notices for review and comment by the public. In addition, the webpage featured a project-specific e-mail address for community members to provide their comments on the project. This e-mail address was checked daily, and resulted in a number of unique suggestions which have been taken into consideration in the recommended improvements.

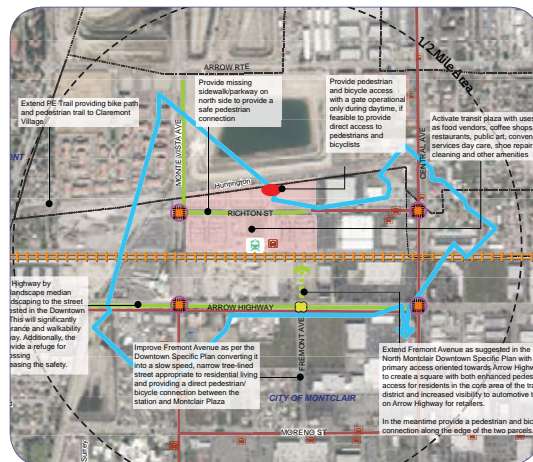
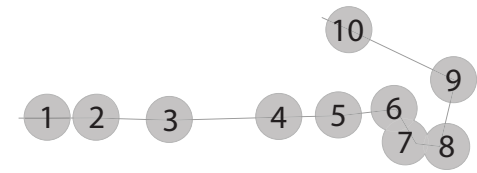
## Recommended Improvements

The project study area includes approximately 140 square miles of project catchment area, and recommends an “outside-in” approach, whereby the scale and scope of the proposed improvements become more specific and more detailed as they approach the respective station areas.

This methodology allows participating cities to use this project to identify priority non-motorized transit access corridors within their jurisdictions, helping them to implement the regional bicycle network in a manner that simultaneously improves direct, logical connections to transit facilities, closes gaps in the regional bicycle network, and improves cyclist safety and mobility.

Closer to the station, the recommendations become more specific and detailed, proposing improvements such as new sidewalks, enhanced pedestrian crossings, additional bicycle parking, street trees, or lighting elements, as well as general recommendations designed to help to create a “sense of place” in and around the station area. Highlights of the recommendations include:

- Over 70 miles of high-priority bicycle corridors providing safer, more direct access to transit stations
- Nearly 50 new or improved pedestrian crosswalks for commuters and residents
- Over 23 miles of new, ADA-compliant sidewalks



- Over 2,300 new pedestrian-scale lighting elements in and around station areas
- Over 1,700 new trees for shade and improved aesthetics

In addition to these specific improvements, the following general recommendations are proposed:

- Develop comprehensive wayfinding plan(s) for local residents, commuters, and visitors
- Prioritize roadway resurfacing on designated bikeways
- Increase the quality and amount of bicycle parking at stations and surrounding destinations

Phasing of the improvements identified will be site-specific and dependent on the goals and objectives of each of the participating cities, however, it is recommended that implementation measures occur in concert with not only one another, but with those of neighboring cities to maximize cost effectiveness, non-motorized network activity, and public enjoyment of the facilities.

## Funding and Implementation

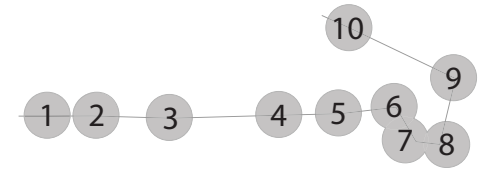
The consultant team understands the financial challenges currently facing the cities that participated in this project. Despite the difficult funding and implementation for non-motorized improvements, federal, state, local, and private grant funds are available from a number of targeted accounts. In addition to transportation funds, public health, air quality, and various grant sources allow for the design and construction of facilities like those identified in this report.

Chapter Five presents a listing of these sources and identifies the application process for cities and other governmental agencies to follow in order to secure monies for implementation.

## Lessons Learned

Over the course of the project, the effort was informed by a diverse stakeholder group, which was an invaluable resource in project development and overall knowledge of the various land use and transportation planning efforts underway throughout the study area cities and among transit operators. Future projects of this nature should make every effort to include as many agency and City stakeholders as possible, and should not exclude cycling and pedestrian advocates and organizations, such as the Friends of the Pacific Electric Trail.

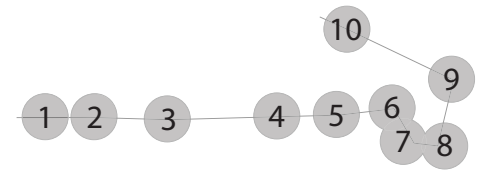
From a technical standpoint, when confronted with applying the 3-mile bicycle travel shed guideline developed by the FTA, municipalities should explore using FTA funds to implement their proposed bicycle network, particularly high-demand corridors and segments which directly serve transit facilities.



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# 1 Introduction and Existing Conditions

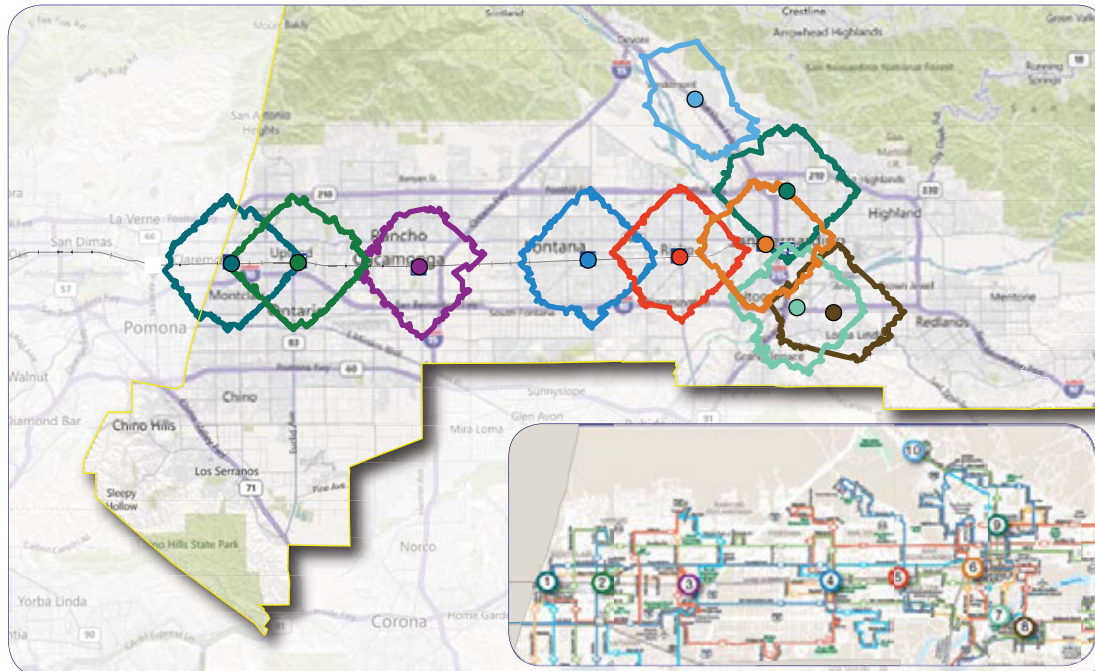
## Study Area Description

The project study area is located in the southwestern corner of San Bernardino County, primarily along the Metrolink Commuter Rail network and the Interstate 10 corridor, with a small number of stations along the Interstate 215 corridor. Fixed-route bus transit service is provided by Omnitrans, and as mentioned, Metrolink provides commuter rail service within the study area. San Bernardino County cities participating in the study include Montclair, Upland, Rancho Cucamonga, Fontana, Rialto, San Bernardino, and Loma Linda.

## Stations Selected for Analysis

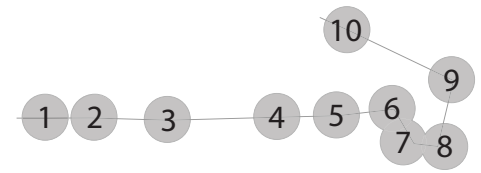
The Project Development Team (PDT) developed ten stations for analysis. The locations were selected for a number of reasons, including high levels of existing or planned transit service, proximity to transit-oriented subpopulations such as students or employees, and for some smaller stations, the opportunity to serve as a model for how to implement infrastructure improvements designed to best serve the needs of bicyclists and pedestrians at transit stations throughout the Inland Empire.

FIGURE 1.1 STUDY AREA LOCATIONS AND PROXIMITY BUFFERS





The following ten stations were selected for analysis:

1. Montclair Metrolink Station
2. Upland Metrolink Station
3. Rancho Cucamonga Metrolink Station
4. Fontana Metrolink Station
5. Rialto Metrolink Station
6. San Bernardino Metrolink Station
7. Hunts Lane (San Bernardino)/ sbX Bus Rapid Transit (BRT) Station
8. Anderson Street (Loma Linda) sbX Station
9. Highland Avenue (San Bernardino) sbX Station
10. Palm Avenue (San Bernardino) sbX Station








### 2009 SCAG General Plan Land Use Category

	Agriculture
	College or Universities
	General Commercial
	General Industrial
	Golf Course
	Heavy Industrial
	Hotel
	Institutions / Government
	K-12 Schools
	Light Industrial
	Military
	Misc. Commercial
	Misc. Industrial
	Office
	Open Space / Parks
	Other Retail
	Regional Commercial
	Residential
	Transportation
	Urban / Mixed Use
	Utilities

The land uses in each study vary greatly, and affect the nature of pedestrian and bicycle travel around each station

### Population per Acre (2010)

	None
	0.1 - 5
	5.1 - 10
	10.1 - 25
	Over 25

The more dense the population, the more potential for pedestrian and bicyclist access

## Project Catchment Areas and Distances

Frequently in transit access analyses, simple distance-based buffers are applied around the station location to comply with the Federal Transit Administration (FTA) guidelines of one-half mile for pedestrian access, and three miles for bicycle access. These distances are used to identify which projects within a city may be eligible for FTA transit access funding and fit the description found in the FTA *Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law*.

Increasingly, however, distance-based buffers are making use of sophisticated route finding software algorithms to better reflect the true travel distance from a station as reflected by the local street network. This method allows for planners to account for barriers and delays built into travel routing to develop a catchment area that is more reflective of the conditions on the ground than an area that is simply radial in nature.

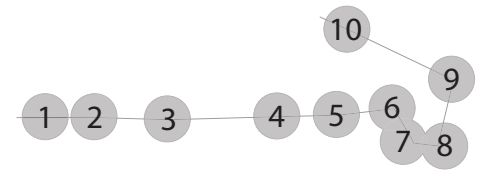
These barriers to travel may include having to alter one's route to access freeway, rail corridor, or river channel crossing points, cul-de-sacs, private drives, or other non-connected features of the built environment. Based on feedback from the Project Development Team, each station catchment area under study was refined to reflect this "true" travel distance, and complies with FTA guidelines.

This chapter is broken into ten sections, one for each transit station under study. Each station is assessed generally and specifically with regards to the pedestrian and bicycle environment present in each respective catchment area.

General assessment criteria include:

- Opportunities and Constraints bullet points as observed by the Project Working Group through fieldwork and other professional judgement criteria
- Nearby and adjacent land uses and their observed effects on transit access (see general legend at left)
- Population density figures as reported by the 2010 Census (see general legend at left)
- Overall level of existing and planned transit connectivity based on Omnitrans' route network (local Omnitrans Routes are shown in **ORANGE**, the E Street sbX BRT route is shown in **BLUE**)

In addition to these general observations, each station catchment area was specifically assessed for the level of its pedestrian and bicycle infrastructure networks. SANBAG and SCAG provided Geographic Information System (GIS) infrastructure data to the consultant team from their databases, and coordinated the data collection efforts between the participating cities. Alta Planning + Design and



Example of GIS-based distance buffer compared to radial distanced-based buffer



Unmaintained bike lane and non-ADA compliant sidewalk



Residential uses often do not connect to adjacent bikeway facilities

Gruen Associates used this data to confirm existing conditions as part of their fieldwork efforts in 2011. These findings are reported in a series of matrices following the general assessments of each respective station. Specific assessment criteria include:

### Bicycle Network

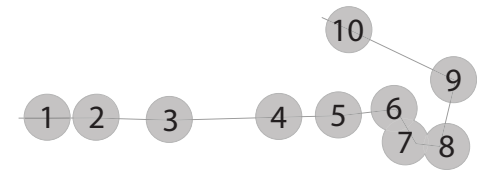
The bikeways recommended in this plan correspond to California Department of Transportation (Caltrans) standard designations. They include:

- **Class I Bikeway:** Typically called a “bike path”, a Class I Bikeway provides bicycle travel on a paved right-of-way completely separated from the street where vehicles travel.
- **Class II Bikeway:** Often referred to as a “bike lane”, a Class II Bikeway provides a striped, signed, and stenciled lane for one-way travel on a street or highway.
- **Class III Bikeway:** Generally referred to as a “bike route” a Class III Bikeway provides for shared use with bicycle or motor vehicle traffic and uses only signage identification.

The following are indicators of a supportive environment that fosters high bicycle accessibility and volumes:

- **Speed and Condition of Vehicular Traffic** - Class II and III bikeway facilities share the road right-of-way with automobiles, and their usage is often correlated with the speed and congestion of automobile traffic. Bicyclists who feel adjacent traffic is too congested or moving too fast may be unwilling to use these facilities.
- **Pavement Condition** - Roadway shoulders or bike lanes that are neglected, unmaintained, or in poor condition can be hazardous, and can discourage bicyclists from using the facility.
- **“Door Zone” and Driveway Conflicts** - Vehicles entering or exiting driveways frequently pose challenges to on-road cyclists, as do drivers exiting their vehicles from the driver’s side of a parallel parking space. The more parallel parking and driveways in a corridor, the greater possibility of these types of conflicts.
- **Transit Service and Waiting Environment Within Corridor** - Transit must be accessible and inviting to encourage use. Ample transit service with adequate waiting environments are key components of a well-used transit network for all users.
- **Amount of Trip Generators and Attractors** - The more attractions in an area, the greater the potential for bicycle traffic in and around the study area.





- **Amount of Bike Facility Striping or Signage** - Successful bicycle facilities should be well-signed for routefinding along the facility itself, and regional wayfinding to nearby destinations.

### Pedestrian Network

Providing safe, convenient and attractive sidewalks, pedestrian crossings and transit stops are imperative to ensuring transit riders have a positive experience. A safe, comfortable, and pleasant pedestrian environment encompasses the following:

- **Sidewalk/Parkway Width** - Sidewalk and Parkway width includes the landscape/furniture zone and the pedestrian zone. The Landscape/Furniture Zone is defined as the area between the roadway curb face and the front edge of the walkway. The recommended minimum width of this zone is 5 feet wide; six feet is better. This zone buffers pedestrians from the adjacent roadway. It is the appropriate location for street trees and landscaping and also the preferred location for street furniture, art, pedestrian lighting and other elements. The pedestrian zone is the area of the sidewalk that is specifically reserved for pedestrian travel.
- **Sidewalk Width** - Residential sidewalks are often four feet wide, but that should be considered an absolute minimum. In commercial areas, sidewalks should be a minimum five feet wide. Six feet or more is better, as it allows people travelling opposite direction to pass comfortably, and allows two people to walk abreast. Sidewalks that are too narrow encourage people to walk in the street, which is unsafe. Sidewalks widths should accommodate people in wheelchairs, parents with toddlers or pushing baby strollers, and a variety of other pedestrians.
- **Sidewalk Condition** - Sidewalks that are neglected, unmaintained, or in poor condition can be hazardous, and can discourage pedestrians from using the facility. Sidewalks with holes deeper than 1", loose gravel and high cracks with missing pieces are considered extremely unsafe.
- **Sidewalk and/or Parkway Location** - Trees in tree well/planting strips provide a buffer between pedestrians on the sidewalk and motor vehicle traffic. Planting strips require a minimum of five feet, although six feet or wider is more desirable, especially for larger trees.
- **Crosswalks** - Pedestrian crossings generally fall into two categories: controlled and uncontrolled. Controlled crossings include signalized locations and stop-controlled crossings. Uncontrolled crossings include both intersection and mid-block locations. Well-marked pedestrian crossings serve two purposes - 1.) they prepare drivers for the likelihood of encountering a pedestrian, and 2.) they create an atmosphere of walkability and accessibility for pedestrians. Marked crossings reinforce the location and legitimacy of a crossing.

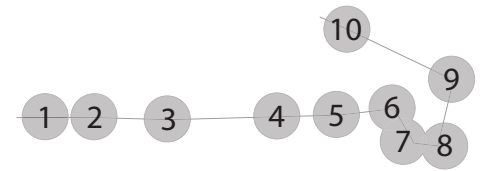
Caption



Unmaintained facilities discourage use and create hazards



Interactions with interstate-bound traffic are frequent and challenging in the study area



Accessing transit on foot or by bicycle often involves negotiating difficult street environments



Transit waiting environments can affect ridership

- **Curb Ramp** - Curb ramps provide critical access between the sidewalk and the street for people with mobility impairments. Without curb ramps, people who use wheelchairs cannot access the sidewalk. Curb ramps are most commonly found at intersections but also are required at midblock crossings and crossings of medians.
- **Street Tree Locations** - A row of trees on either side of the street, spaced 30 to 35 ft. apart, is considered ideal. In most situations shade trees located in parkway or tree wells next to the curb are recommended.
- **Raised Median** - A landscaped median reduces the perceived width of a wide street and makes it seem pedestrian-friendly and reduces motor vehicle crashes between opposing lanes of traffic.
- **Utility Poles** - Utility poles located within a sidewalk can obstruct pedestrian mobility and block views.
- **Lighting** - Pedestrian-scale lighting improves accessibility by illuminating sidewalks, crosswalks, curbs, curb ramps, and signs as well as barriers and potential hazards. On wide streets, pedestrian-scale lighting and motor vehicle-scale lighting should be provided to complement each other ensuring that both sidewalks and travel lanes are effectively illuminated.
- **Street Furniture** - Street furnishings, public art and other pedestrian and bicycle amenities are important elements that can create a comfortable, safe and attractive public realm. Examples of street furnishings include benches, litter and recycling receptacles, bike racks, multiple publication newsstands, water fountains, pedestrian scaled lighting and planters.
- **Wayfinding Signage** - An enhancement to the sidewalk network for pedestrians is wayfinding signage. The signs should consist of a distinctive logo and directional guidance to neighborhood destinations. The signs can be attached to separate poles or lampposts and located at decision points along the route network.

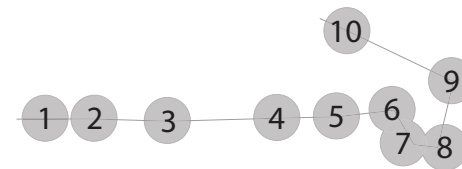
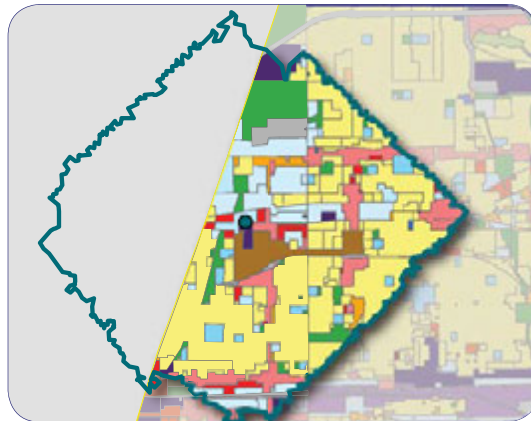


TABLE 1.2 **BICYCLE AND PEDESTRIAN SCORING CRITERIA**

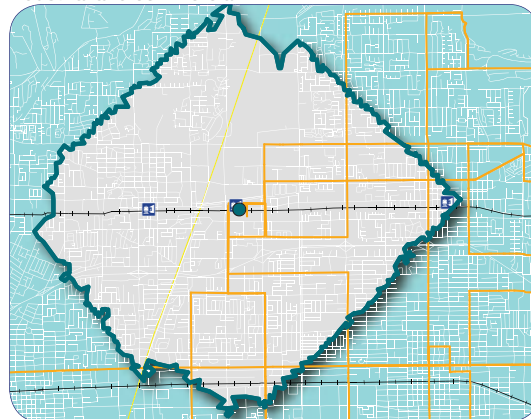
Matrix Item	Rating					
<b>Bicycle Environment</b>						
Speed and Conditions of Vehicular Traffic	Low speeds, free flow	Moderate speeds, free flow	Moderate speeds, some constrained flow	Moderately high or low speeds, constrained flow	Low speeds, failing flow, or excessively high speeds	
Pavement Condition	Excellent pavement conditions	Good pavement conditions	Average pavement conditions	Below average pavement conditions	Poor pavement conditions	
"Door Zone" and Driveway Conflicts	No conflicts	Few conflicts	Some conflicts	Many conflicts	Dangerous amount of conflicts	
Transit service and waiting environment within Corridor	Several bus routes, mostly enhanced or standard stop types	Several bus routes, mix of standard and sub-standard stop types	Some routes, mix of standard and sub-standard stop types	Few routes, mostly basic stop types	No routes, no stops	
Amount of Key Attractions Served	Several key attractions	Some key attractions	Few key attractions	Very few key attractions	No key attractions	
Amount of Bike Facility Striping or Signage	Ample signage and striping, good condition	Some signage and striping, good condition	Some signage and striping, fair condition	Little signage and striping, fair condition	No signage or striping	
<b>Pedestrian Environment</b>						
Sidewalk/Parkway Width	> 12 ft	10 ft	8 to 10 ft	5 to 10 ft	0 to 4 ft	
Sidewalk Width	> 6 ft	5 ft	4 to 5 ft	4 ft	0 to 3 ft	
Sidewalk Condition	Excellent sidewalk conditions	Good sidewalk conditions	Average sidewalk conditions	Below average sidewalk conditions	Poor sidewalk conditions	
Sidewalk and/or Parkway Location	Parkway planted with shade trees located next to the curb with sidewalk behind	Landscaped parkway planted with some trees located next to the curb with sidewalk behind	Landscaped parkway planted with no trees located next to the curb with sidewalk behind	Sidewalk next to the curb	No sidewalks	
Crosswalks	Continental markings /Decorative/Colored Concrete/Stamped crosswalks and curb extensions	Continental markings crosswalks	Crosswalks with parallel markings	Crosswalks with parallel markings in fair condition	No crosswalks	
Curb Ramp	ADA complaint with truncated dome; good condition	Curb ramp without truncated dome; good condition	ADA complaint without truncated dome; fair condition	ADA non-compliance	No curb ramp	
Street Trees Location	Double row of trees spaced 30 to 35 ft apart	Single row of trees spaced 30 to 35ft apart in parkway/tree wells located next to the curb	Shade trees spaced more than 40ft apart in parkway/tree wells located next to the curb	No trees in public right-of-way; adjoining trees on private property shading sidewalks	No trees	
Raised Median	14 ft or greater median with landscaping and large mature trees	10 ft to 14ft median with landscaping and large mature trees	10 to 14ft landscaped median with a few trees	Concrete median with no trees and/or landscaping	No raised median	
Utility Poles and wires	Underground	Located within Parkway allowing for street trees	Located within sidewalk with enough room for pedestrians and trees in parkway	Located within parkway with no room for trees	Located within sidewalk restricting pedestrian mobility	
Lighting	Street lights and pedestrian-scaled lights	Street lights and/or pedestrian-scaled lights	Street lights with double arms	Street lights with single arm	No lights	
Street Furniture	Benches/Bicycle Racks/Trash Receptacle/Public Art	Benches/Bicycle Racks/Trash Receptacle	Benches and Trash Receptacle	Benches or Trash Receptacle	None	
Wayfinding Signage in public realm	Ample pedestrian-scaled wayfinding signage; good condition	Some pedestrian-scaled wayfinding signage; good condition	Some pedestrian-scaled wayfinding signage; fair condition	Little pedestrian-scaled wayfinding signage; fair condition	No wayfinding signage	



View of Montclair Metrolink Station



Area immediately surrounding station area is primarily industrial and commercial



Transit service focuses on connections to commercial and residential areas (Omnitrans routes only. Foothill transit connections not shown)

## 1.1 Montclair Metrolink Station

The Montclair Metrolink Station serves as the western terminus of the Omnitrans fixed-route transit network, and provides connections to Los Angeles and Riverside County transit services. It is also a large commuter station for Metrolink services to Los Angeles County, and features a large parking area to accommodate “park-and-ride” transit users.



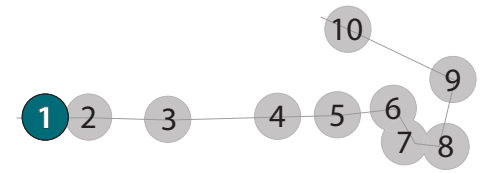
The station is surrounded by commercial, residential, and industrial uses, and is located just south of the Pacific Electric Rail Trail, a Class I facility running between Montclair and Fontana.

Most of the Montclair Metrolink Station catchment area is physically within Upland City limits, however the station itself is located in Montclair.

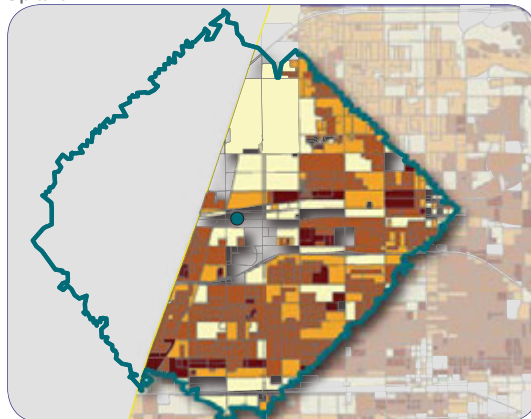
### Opportunities

- Pacific Electric Rail Line Trail provides for non-motorized access paralleling existing Metrolink alignment.
- Significant connections to wide range of transit services throughout the region are available
- Moderate density of existing and planned residential land uses nearby may create more interest in using alternative modes of transportation.
- Vacancy around the station may provide future attractive development.
- Ample space is available for bicycle parking facilities or other commuter facilities
- Montclair Transcenter is a major stop on the San Bernardino Metrolink line and is served by Foothill Transit, Omnitrans and RTA bus lines. In addition, the Transcenter acts as a Caltrans Park-and-Ride facility providing regional connectivity.
- Montclair Transcenter provides opportunities for the development of commuter-related facilities within its own site and is a key element in the transportation link between North Montclair, the Montclair Plaza and outlying cities.
- Improve access from Montclair Plaza, a major destination in the area, to the station.
- The *North Montclair Downtown Specific Plan* recognizes this and includes an overall vision to provide a viable and convenient connection between the Transcenter (Metrolink Station) and Plaza and proposes creating a mixed-use, transit-oriented district between the Transcenter and Plaza.”





Unimproved mid-block crossing at border of Montclair and Upland



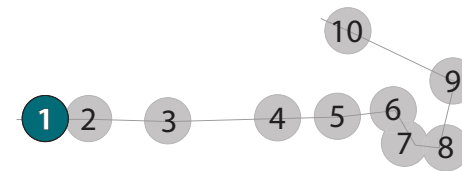
Residential density is concentrated to the south and east of the Metrolink Station

- Planned mixed-use and transit-oriented residential developments in the North Montclair Downtown Specific Plan will offer its residents convenient access to rail transit via Metrolink commuter rail service.
- The City will also be the eastern terminus of the Gold Line light rail, which will link the foothill communities of the San Gabriel Valley with Pasadena and Downtown Los Angeles.
- The Pacific Electric Bicycle Trail, connecting Montclair to Rialto, ends approximately 1300 feet south of Monte Vista Avenue; however, the Huntington right-of-way provides the opportunity to extend this bike path and pedestrian trail to Claremont Village.
- The Transit plaza could include a day-care center, restaurants, coffee shop, police substation, and other commuter-related facilities to re-energize the plaza.

## Constraints

- The City of Montclair has limited existing and planned bicycle facilities
- Off-street connections to regional bicycle facilities are limited
- High-speed, high-volume arterials generally deter people from walking and biking
- Commercial developments discourage pedestrian activity
- Currently, North Montclair is characterized by “super-block” development - blocks that are well over 800 to 1000 feet in length, and are oriented towards automobile movement. In large measure, this is the result of parcels that have not yet been improved, or are subdivided only as necessary to accommodate big box retail with surface parking.
- Richton Street is a wide four lane street with sidewalks next to the curb (no landscaping zone) making it unfriendly for pedestrians and bicycles alike.
- Sidewalks are missing on the north side of Richton Street between Monte Vista Avenue and the first entry/exit to the station park & ride lot
- Monte Vista Avenue is a wide street with a landscaped median and bike lanes; however, the street appears extremely pedestrian unfriendly north of Richton Street. Shade trees are missing along much of the sidewalk; utility poles are located within the narrow sidewalk on the east side limiting





pedestrian mobility; the median lacks enough trees to breakup this wide street. South of Richton Street: The sidewalk is missing on the east side between 8th Street and Richton Street limiting pedestrian access.

- Access from the south side of the platforms is limited to Monte Vista Avenue and Central Avenue which are approximately 2500 feet apart.

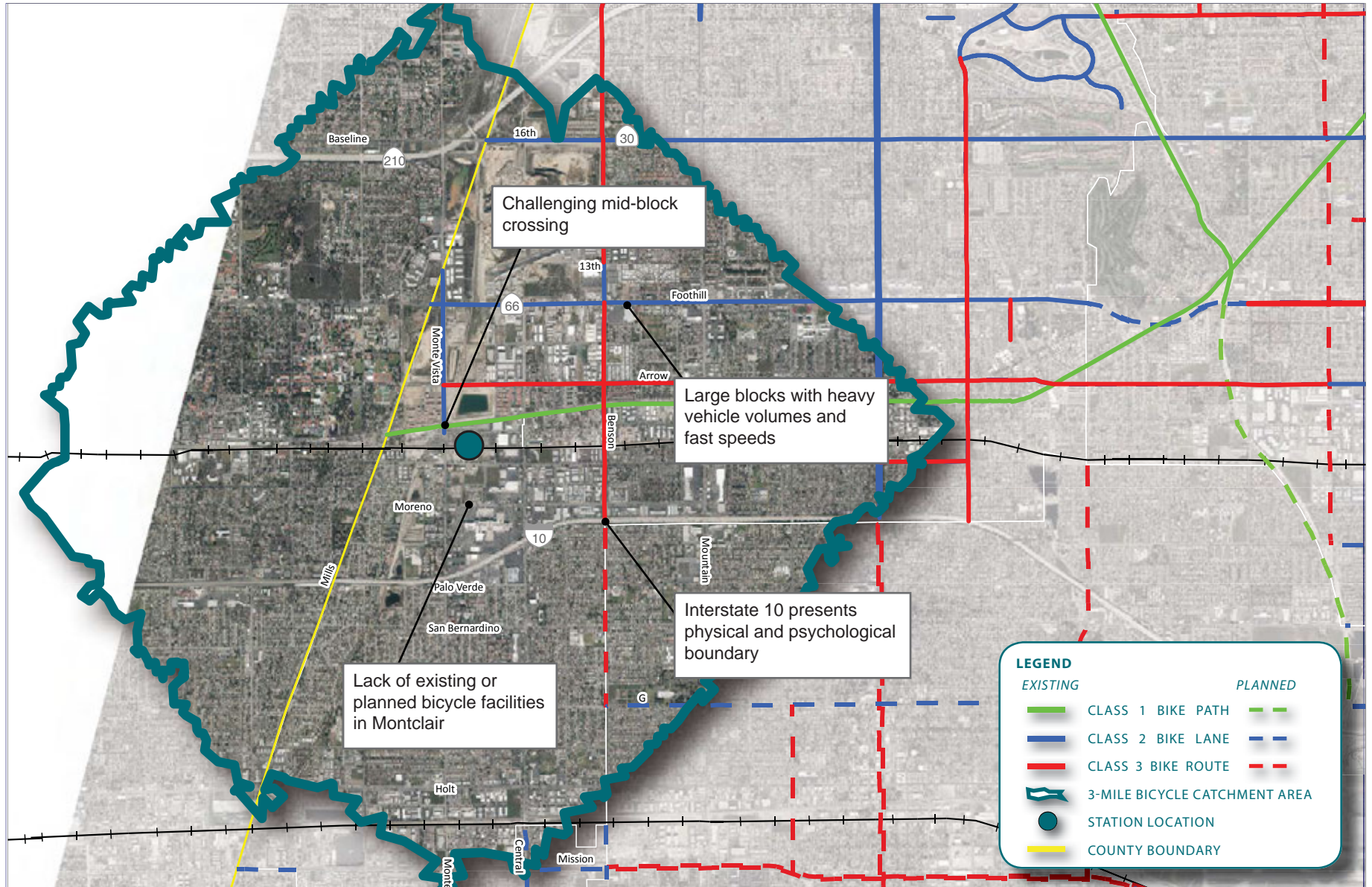


Illegal bicycle parking near tunnel to access Track 2.

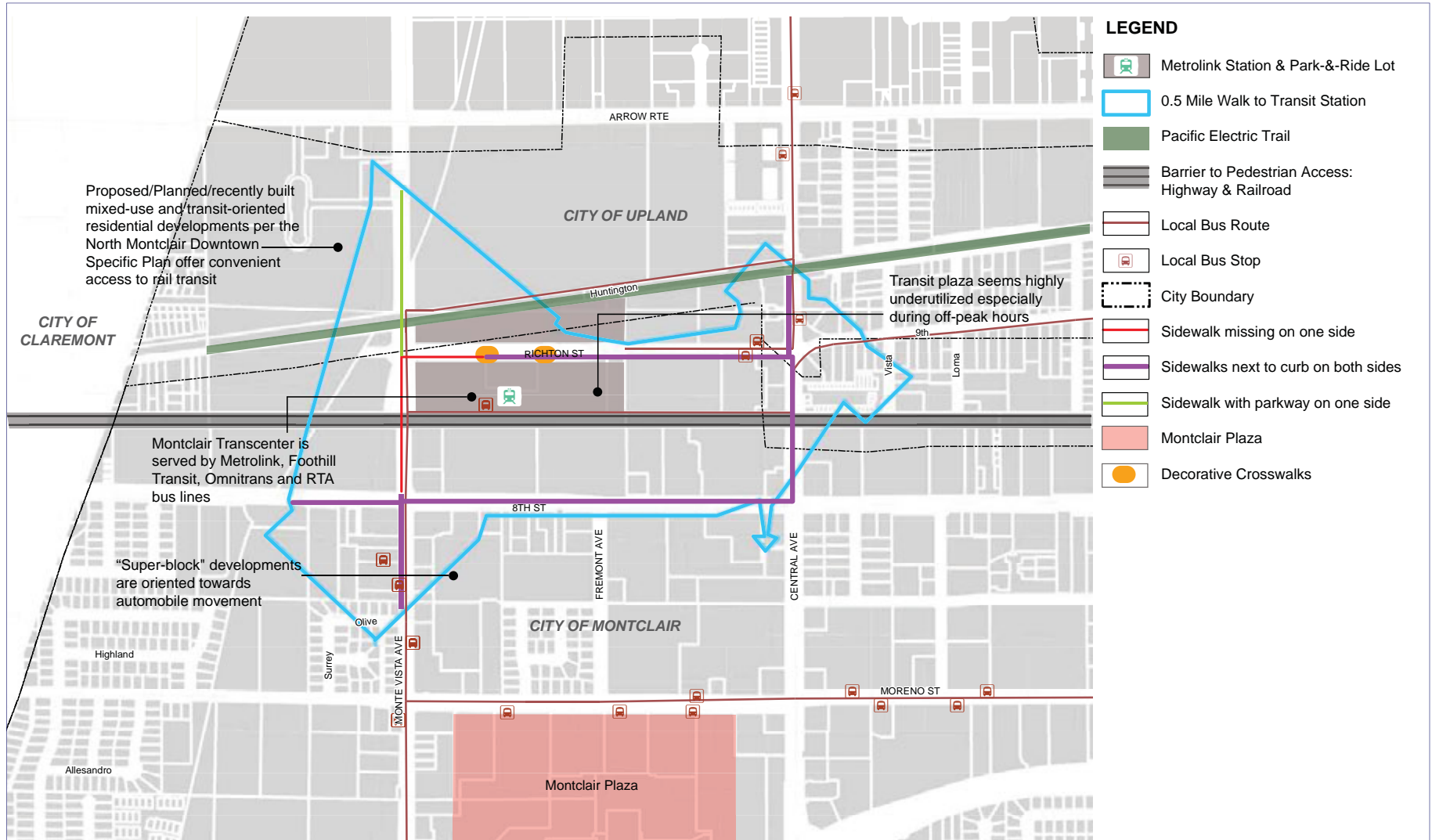


Adequate signage and utilities placed clear of sidewalks encourage facility use for users of all mobility levels

FIGURE 1.2 MONTCLAIR METROLINK STATION AND CATCHMENT AREA



**FIGURE 1.3 MONTCLAIR METROLINK STATION PEDESTRIAN ANALYSIS**



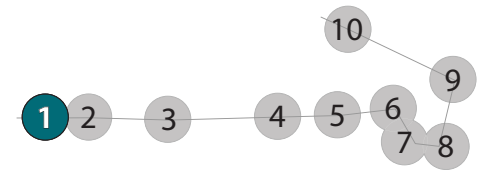


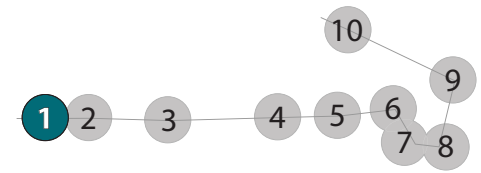
TABLE 1.2 EXISTING BICYCLE FACILITIES

Street	Monte Vista Ave	Pacific Electric Bike Trail	Baseline Rd	16th Street	Foothill Blvd	Benson Ave				Arrow Route	Arrow Hwy	Euclid Ave
Segment	South of Claremont Blvd to Richton St	Claremont Blvd to 5th Ave	Summer Ave to Hwy 210 Onramp	Hwy 210 Onramp to Columbia Wy	Monte Vista Ave to 3rd Pl	Murfield Ave to Birkdale Ave	Birkdale Ave to 13th St	13th St to Foothill Blvd	Foothill Blvd to 10 Fwy	Monte Vista Ave to Benson Ave	Benson Ave to 5th Ave	15th St to 10 Fwy
Existing Facility Type	Class II	Class I	Class II	Class II	Class II	Class I	Class III	Class II	Class III	Class III	Class III	Class II
Speed and Condition of Vehicular Traffic		N/A				N/A						
Pavement Condition												
"Door Zone" and Driveway Conflicts												
Transit Service and Waiting Environment in Corridor	N/A		N/A	N/A		N/A						
Amount of Key Attractions												
Amount of Bike Facility Striping or Signage												

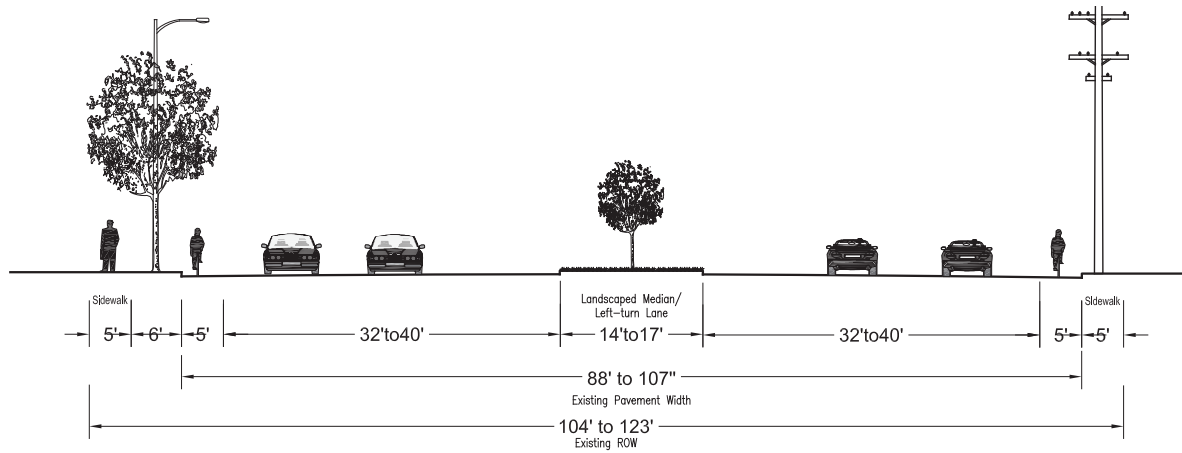
TABLE 1.3 EXISTING PEDESTRIAN FACILITIES

Street	Richton St	Monte Vista Ave		Central Ave	Arrow Hwy
Segment	Monte Vista Ave to Central Ave	North of Richton St	South of Richton St	Richton St to Arrow Hwy	Monte Vista Ave to Central Ave
Sidewalk/Parkway Width					
Sidewalk Width					
Sidewalk Condition					
Sidewalk and/or Parkway Location					
Crosswalks					
Curb Ramp					
Street Trees Location					
Raised Median					
Utility Poles and wires					
Lighting					
Street Furniture					
Wayfinding Signage in public realm					

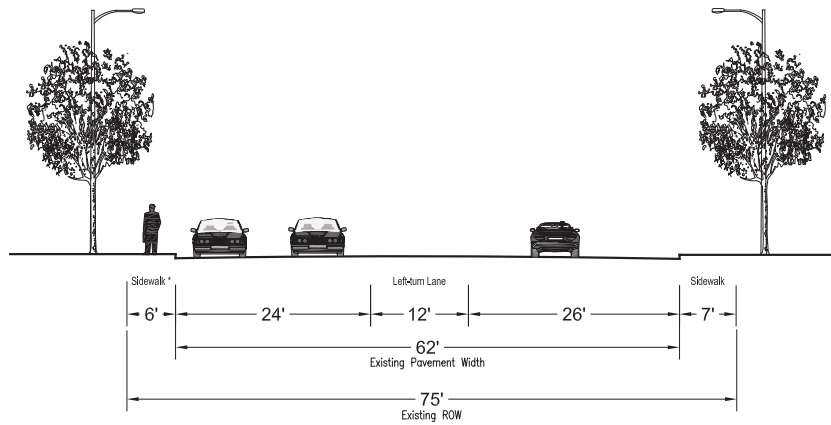




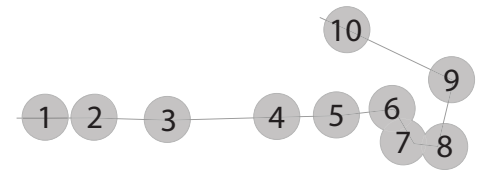
**FIGURE 1.4 TYPICAL SECTION - MONTE VISTA DRIVE**



**FIGURE 1.5 TYPICAL SECTION - RICHTON STREET**

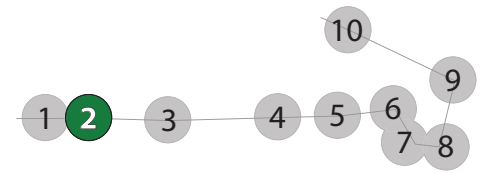


\* Sidewalk is missing between Monte Vista Avenue and the first entry/exit to the station park & ride

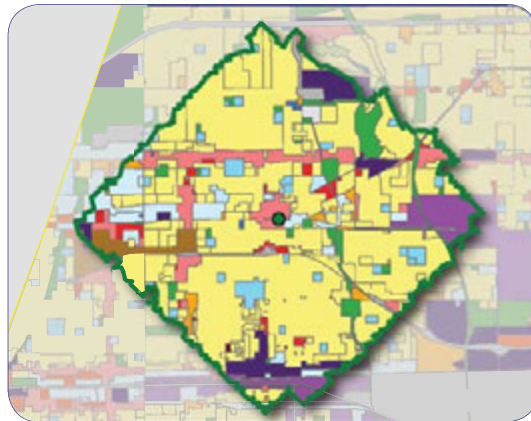


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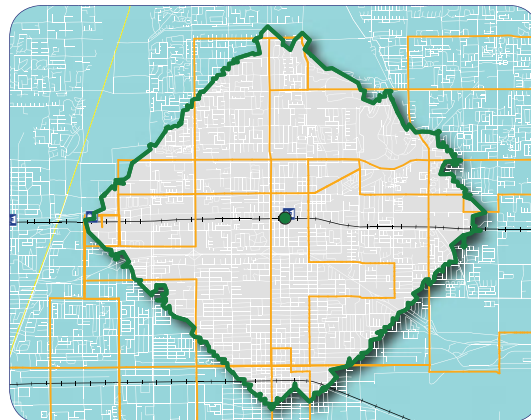
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View of Upland Metrolink Station



Residential is the dominant land use in the study area



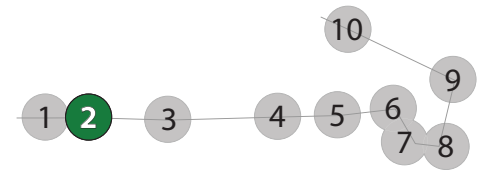
Station area is well-served by fixed route buses, although the station itself has limited direct connections to transit

## 1.2 Upland Metrolink Station

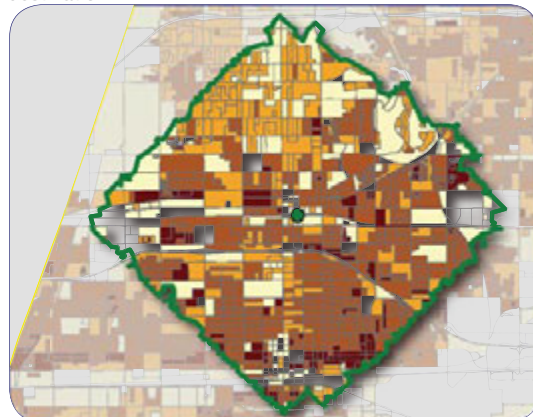
The Upland Metrolink Station is located in the center of Downtown Upland, and is well-connected to the adjacent pedestrian and bicycle network. The station is surrounded by older storefront commercial development, which is itself surrounded primarily by low-density residential land uses.

### Opportunities

- Excellent connection between the station and downtown Upland commercial and residential areas.
- Mature trees and pedestrian-scale storefronts invite pedestrian activity.
- Pacific Electric Trail is well-located and well-signed.
- Upland Metrolink Station is located within close proximity of the Downtown.
- Downtown Upland has wide sidewalks lined with widened landscaped sidewalks, street furniture, on-street parking in the center of the street, decorative crosswalks, pedestrian lighting and shops and small businesses oriented to the sidewalks.
- The *Historic Downtown Upland Specific Plan* (bounded by Arrow Highway to the north, 8th Street to the south, Campus Avenue to the east and Euclid Avenue in the west) has design standards and guidelines to improve pedestrian circulation, safety and activity and create a cohesive identity and environment for the Downtown.
- The *Historic Downtown Upland Specific Plan* includes working with the Southern California Regional Rail Authority and SANBAG to fund and construct a pedestrian bridge over the Metrolink tracks, working with Omnitrans to provide direct bus and shuttle service to the Upland Metrolink station and encouraging and supporting transit-oriented development near the Metrolink station, consisting of higher-density residential development that provides pedestrian access to public transit and nearby services.
- The *Historic Downtown Upland Specific Plan* identifies locations where sidewalks are needed or should be improved in Downtown.
- The Metrolink Station can be accessed via the City of Upland's adjacent Pacific Electric Trail project, which includes a series of paved walking and jogging paths that help to preserve the right-of-ways and provides convenient pedestrian access to the Metrolink station.



Downtown Upland promotes itself as a regional tourist destination



Residential density is concentrated to the south and east of the Metrolink Station

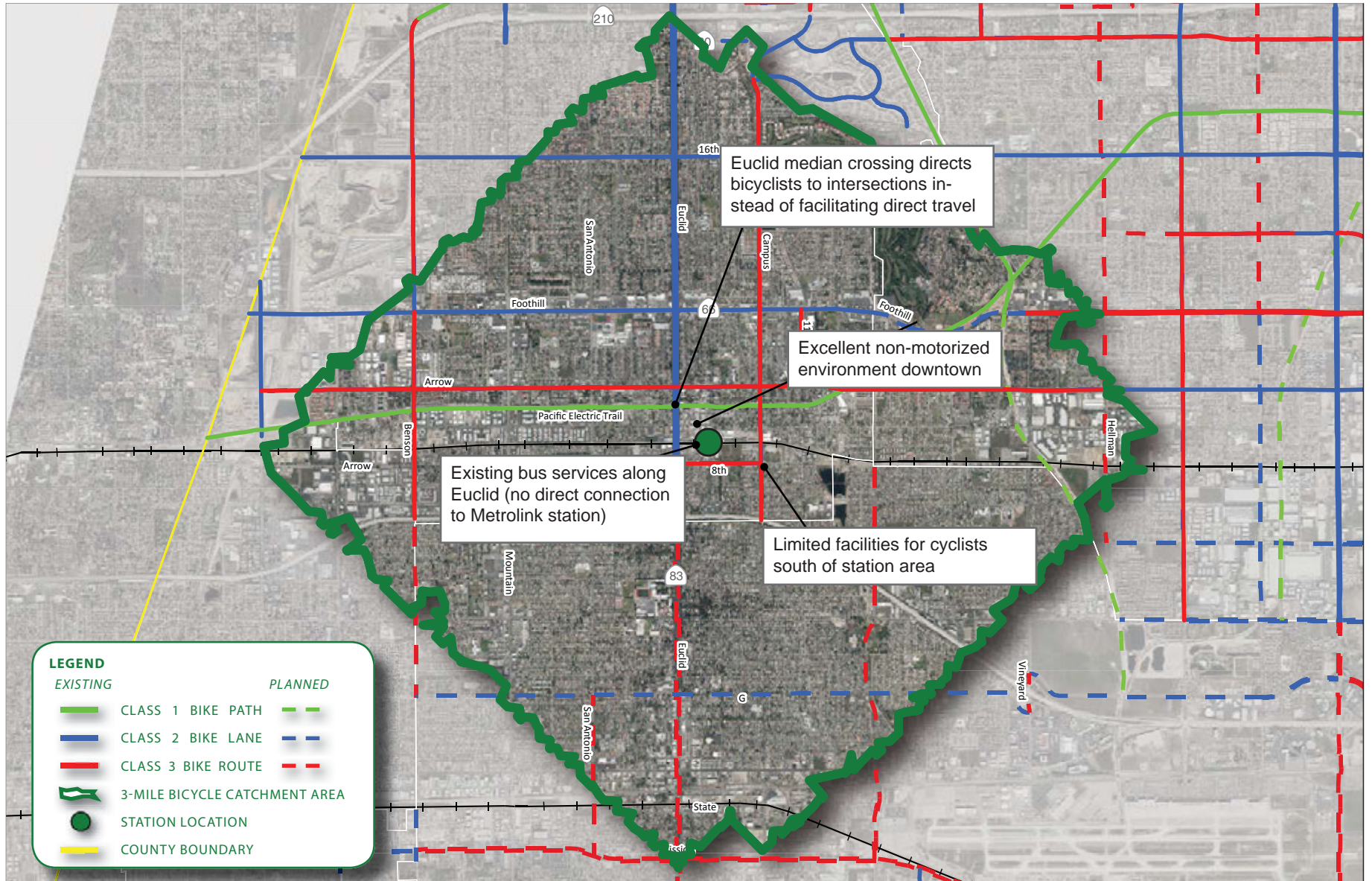
- The SANBAG Long Range Transit Plan recommends Bus Rapid Transit along Euclid Avenue.
- A vacant lot located at the northeast corner of Sultan Avenue and 8th Street represents an opportunity for transit-oriented uses and connecting the station to Olivedale Park.
- The grid pattern with tree-lined streets in the station vicinity is ideal for walking.
- A Street, the main access street to the Station, is a pedestrian-scaled street with one lane of traffic in each direction, parking on both sides, parkway/sidewalk and historic lights.
- Alleys in Downtown provide a great opportunity for pedestrian and public spaces by using such elements as pervious paving materials, potted plants and trees, park benches, lighting, allowances for outdoor café seating, and other amenities.

### Constraints

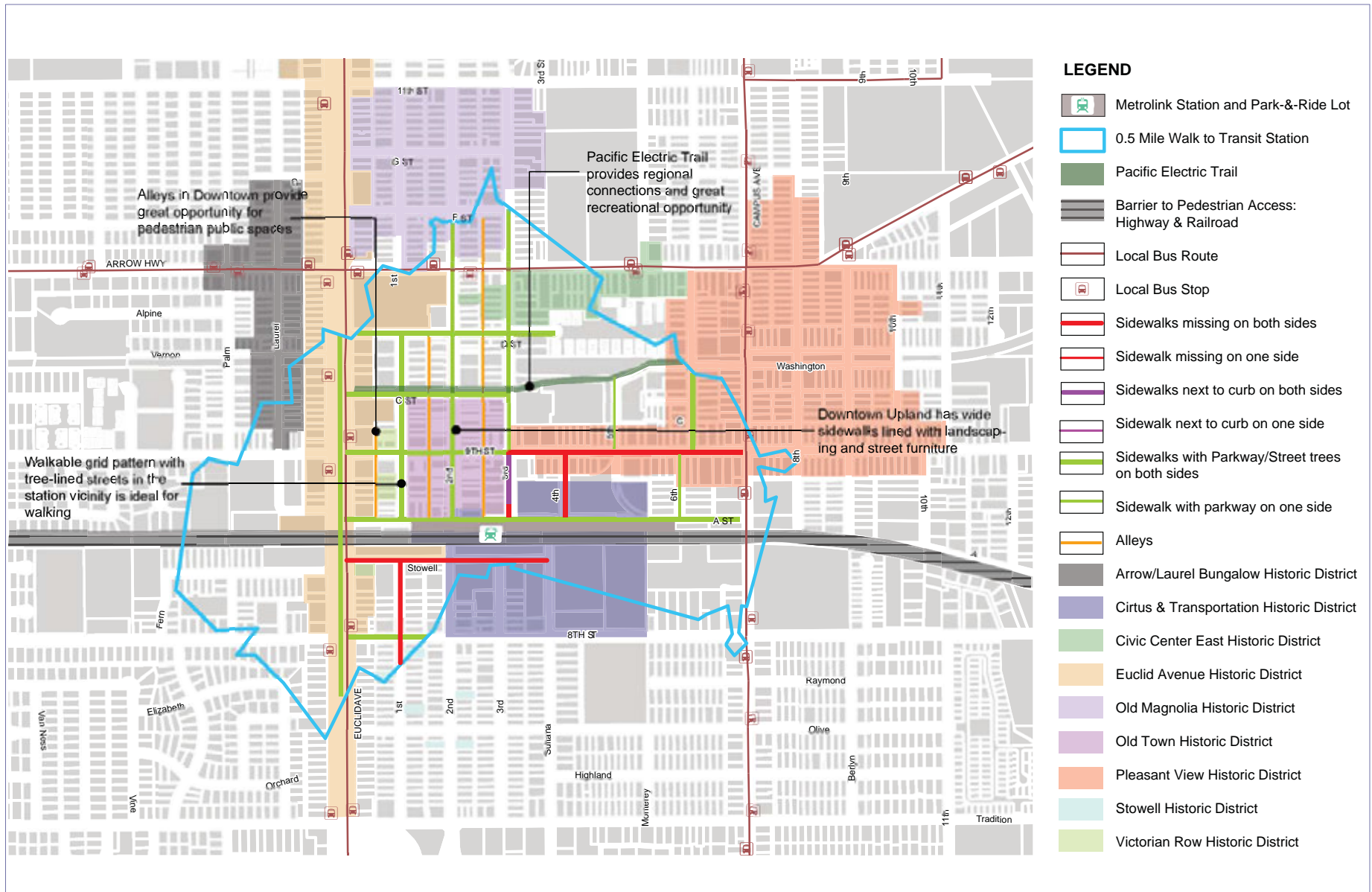
- Limited opportunities exist between station and Interstate 10.
- Arterials with landscaped medians often lack mid-block crossings for cyclists and pedestrians.
- Omnitrans does not directly serve the station, but runs route 83 along Euclid Avenue.
- 3rd Avenue lacks landscape improvements between A Street and 9th Street. Sidewalks are missing on the west side of 3rd Avenue at the intersection of 3rd Avenue and A Street. Also, shade trees are missing in this segment and there are no street lights.
- Pedestrian crossings connecting north and south sides of the station area are limited to 2nd Avenue and Campus Avenue.
- The existing Pacific Electric Trail, serving pedestrians and bicyclists, does not have a designated crossing at Euclid Avenue or any other streets in Downtown.



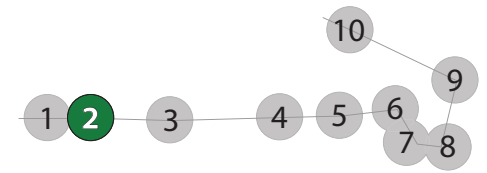
FIGURE 1.6 UPLAND METROLINK STATION AND CATCHMENT AREA



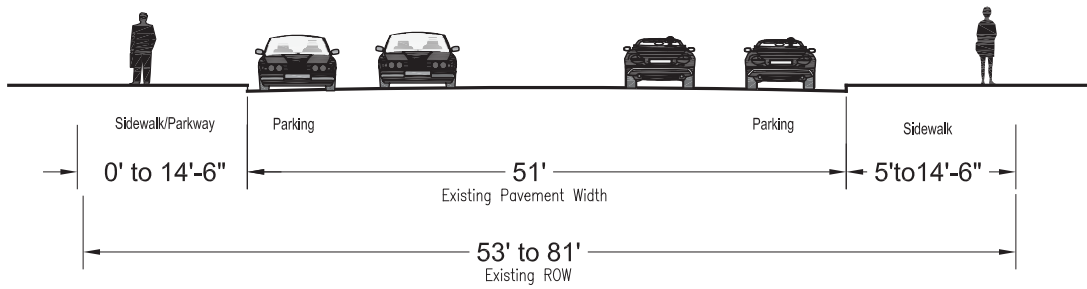
**FIGURE 1.7 UPLAND METROLINK STATION PEDESTRIAN ANALYSIS**



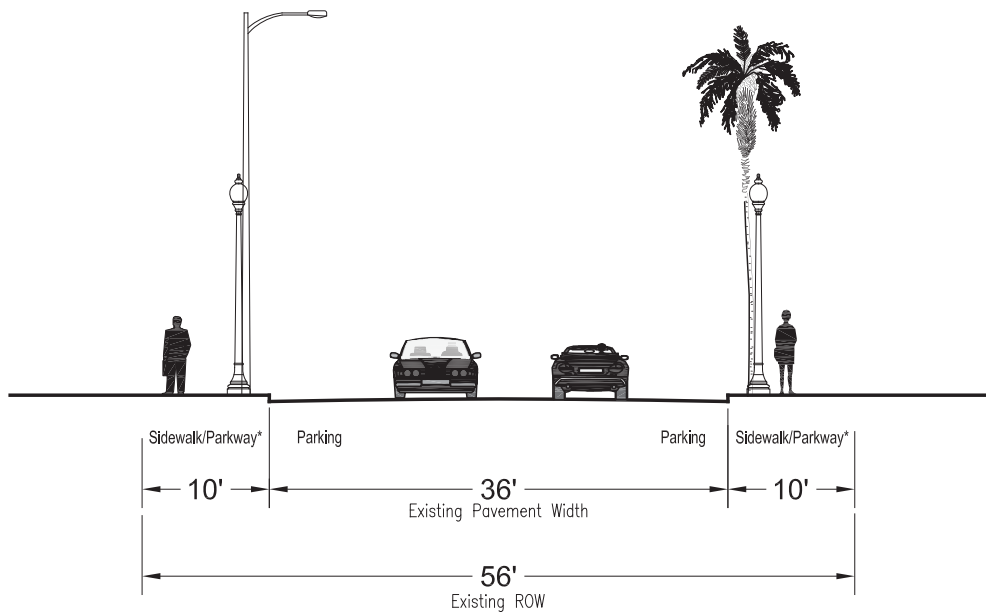




**FIGURE 1.8 TYPICAL SECTION - 3RD AVENUE (BETWEEN A STREET AND 9TH STREET)**



**FIGURE 1.9 TYPICAL SECTION - A STREET**



\* In some sections there is a 5ft parkway next to the curb whereas in some sections there are tree wells



Shade of mature trees provides a natural alternative to bus shelter



Identifying Metrolink connections along the Pacific Electric Bike Trail

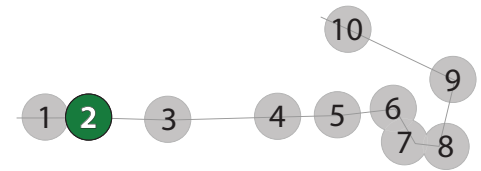


TABLE 1.4 EXISTING BICYCLE FACILITIES

Street	Foothill Blvd	16th Street	Baseline Rd	Mountain Ave	19th St	Campus Ave			Hwy 30	Colonies Pkwy
Segment	Monte Vista Ave to Grove Ave	Hwy 210 Onramp to Campus Ave	Campus Ave to Lion St	Hwy 210 to 19th St	Miramar St to East End	21st St to 20th St	Hwy 210 to Colonies Pkwy	Colonies Pkwy to 10 Fwy	Campus Ave to Channel	Campus Ave to Hwy 30
Existing Facility Type	Class II	Class II	Class II	Class II	Class II	Class III	Class II	Class III	Class II	Class II
Speed and Condition of Vehicular Traffic										
Pavement Condition										
"Door Zone" and Driveway Conflicts										
Transit Service and Waiting Environment in Corridor				N/A	N/A					N/A
Amount of Key Attractions										
Amount of Bike Facility Striping or Signage										

Street	Tanglewood Ave	8th Street	Cucamonga Creek	Pacific Electric Bike Trail	Benson Ave			Arrow Route		Arrow Hwy	20th St
Segment	Colonies Pkwy to Hummingbird Ln	Euclid to Campus	Hwy 210 to Foothill Blvd	Monte Vista Ave to Hellman Ave	18th St to 13th St	13th St to Foothill Blvd	Foothill Blvd to 10 Fwy	Monte Vista Ave to Benson Ave	Helman Ave to Archibald Ave	Benson Ave to Hellman Ave	Campus Ave to Campus Ave
Existing Facility Type	Class II	Class III	Class I	Class I	Class III	Class II	Class III	Class III	Class II	Class III	Class III
Speed and Condition of Vehicular Traffic			N/A	N/A							
Pavement Condition											
"Door Zone" and Driveway Conflicts											
Transit Service and Waiting Environment in Corridor	N/A		N/A	N/A							N/A
Amount of Key Attractions											
Amount of Bike Facility Striping or Signage											

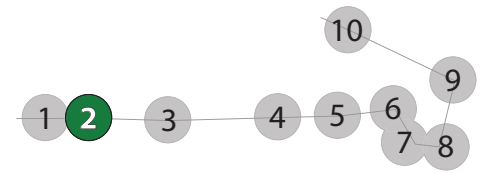
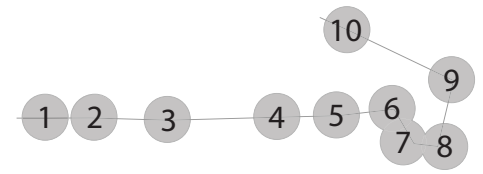


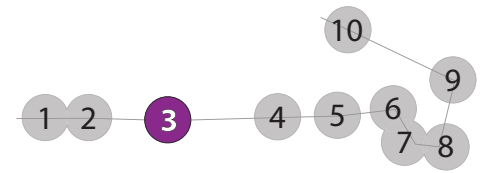
TABLE 1.5 EXISTING PEDESTRIAN FACILITIES

Street	A St	9 th St	C St	D St	Euclid Ave	1st St	2nd St	3rd St	4th St	5th St	6th St
Segment	Euclid Ave to 3rd St				D St to 8th St				A St to 9th St		
Sidewalk/Parkway Width											
Sidewalk Width											
Sidewalk Condition											
Sidewalk and/or Parkway Location											
Crosswalks											
Curb Ramp											
Street Trees Location											
Raised Median		N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
Utility Poles and wires											
Lighting											
Street Furniture											
Wayfinding Signage in public realm											

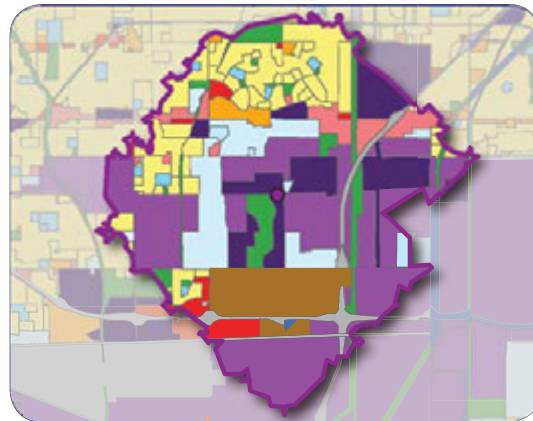


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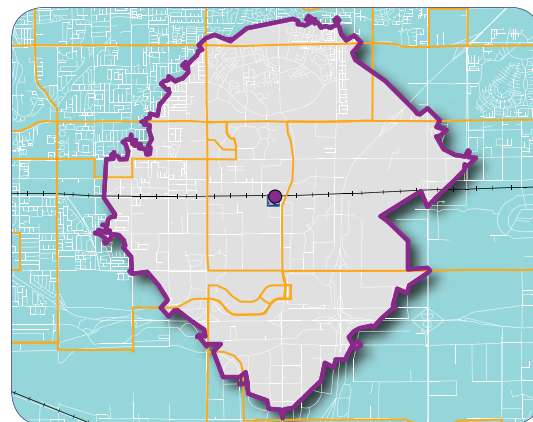
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View of Rancho Cucamonga Metrolink Station



Limited residential density in study area, primarily industrial



Fixed route bus service to station follows Milliken

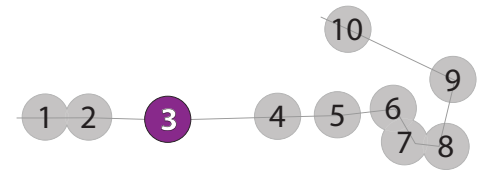
## 1.3 Rancho Cucamonga Metrolink Station



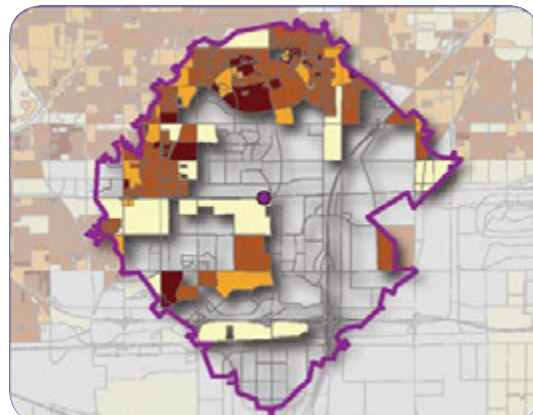
The Rancho Cucamonga Metrolink Station and catchment area are dominated by industrial land uses, although there are areas of low-density residential development in the northern part of the study area. The station is surrounded by large areas of free motor vehicle commuter parking, which are generally well-utilized during the workday. Roadways around the station are high-speed and high-volume, with significant truck traffic.

### Opportunities

- Excellent bicycle parking facilities (bikeLids®, bike lanes, and bike racks) for commuters and day users are located at the station.
- Extensive existing bikeway facilities are located throughout study area.
- Existing Class II/III facility along Milliken Avenue provides direct connection between Terra Vista and the Metrolink Station.
- Milliken Avenue is a major arterial with six lanes; however the landscaped median, bike lanes, sidewalks next to landscaped parkways, landscaped setbacks and street lights make it a pedestrian-friendly street.
- Rancho Cucamonga Metrolink Station plaza area has colored concrete, benches, pedestrian-scale lights, trees in tree wells and other pedestrian amenities.
- Omnitrans Route 81 serves the bus loop near the station platform.
- Newer higher density transit supportive land uses are located at the northwest and northeast corner of 6th Street and Milliken Avenue with landscaped sidewalks and direct pedestrian connections to the station.
- The golf course could be redeveloped as potential transit-supportive uses.
- Some industrial/business park uses could be intensified or converted into Transit-Oriented Developments.
- The Rancho Cucamonga General Plan Community Mobility Element recommends relocating the Metrolink Station to Haven Avenue to provide more convenient access to employment centers and



Wayfinding at station identifies City-sponsored bike lockers



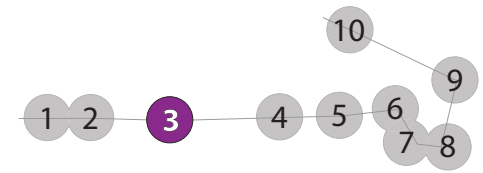
Extremely little residential development adjacent to station area discourages pedestrian access

to allow for coordination with bus transit, including a possible BRT route along Haven Avenue. The Plan also recognizes the need to increase bicycle, trail and pedestrian use and recommends policies to expand pedestrian, bicycle and trail networks.

## Constraints

- Industrial land uses limit pedestrian connectivity in and around station area.
- Conflicts with freeway traffic at Interstates 15 and 10 obstruct pedestrian and bicycle accessibility.
- There are limited Omnitrans fixed-route transit connections to station.
- Rancho Cucamonga Metrolink Station is surrounded by a large parking lot.
- Bike lockers are located on the far east side of the station boarding and ticketing area adding more travel time for bicyclist to park and board the train. There is enough room near the transit station ticketing area to accommodate these bike lockers closer to the boarding area.
- The transit plaza seems underutilized, especially during the off-peak period. It could be activated with food vendors, coffee shops and/or restaurants that not only cater to transit patrons, but also to commercial/industrial uses nearby.
- No direct pedestrian/bicycle access exists from the commercial/industrial developments on the north side to the station platform.
- No crosswalk exists at the intersection of Milliken Avenue and Azusa Court, limiting direct pedestrian and bicycle access to the station. Pedestrians and bicyclists have to either use crosswalks at Jersey Boulevard or 7th Street; these crosswalks are approximately 2500 feet apart.
- There is no direct access for pedestrians and bicyclists on the west sidewalk along Milliken Avenue until Azusa Ct. This forces pedestrians and bicyclists to walk an extra 500 ft. along the edge of the station park & ride lot to access the station.
- Street lights along Milliken Avenue are located within the parkway, approximately 18" from the curb.
- Existing zoning makes transit supporting land uses challenging.





- Wayfinding signage leading up to the station is missing along Milliken Avenue.
- Shade trees are missing along the north side parkway on Azusa Court.
- Auto-oriented, super-block development pattern is well established.
- Generally, Washingtonia Robusta (Mexican Fan Palms) is the major street tree on Sierra Avenue between Orange Way and Valencia Avenue. These trees offer a strong defining edge and add character to the street; however, they provide no shade. Accent shade trees could be added for pedestrian comfort.
- Within the study area, Juniper Street has narrow sidewalks located next to the curb. In some locations, utility poles are located within the sidewalk reducing pedestrian mobility.



Short-term and long-term bicycle parking facilities accommodate all users



Area north of station is undeveloped and lacks direct connection to station

FIGURE 1.10 **RANCHO CUCAMONGA METROLINK STATION AND CATCHMENT AREA**

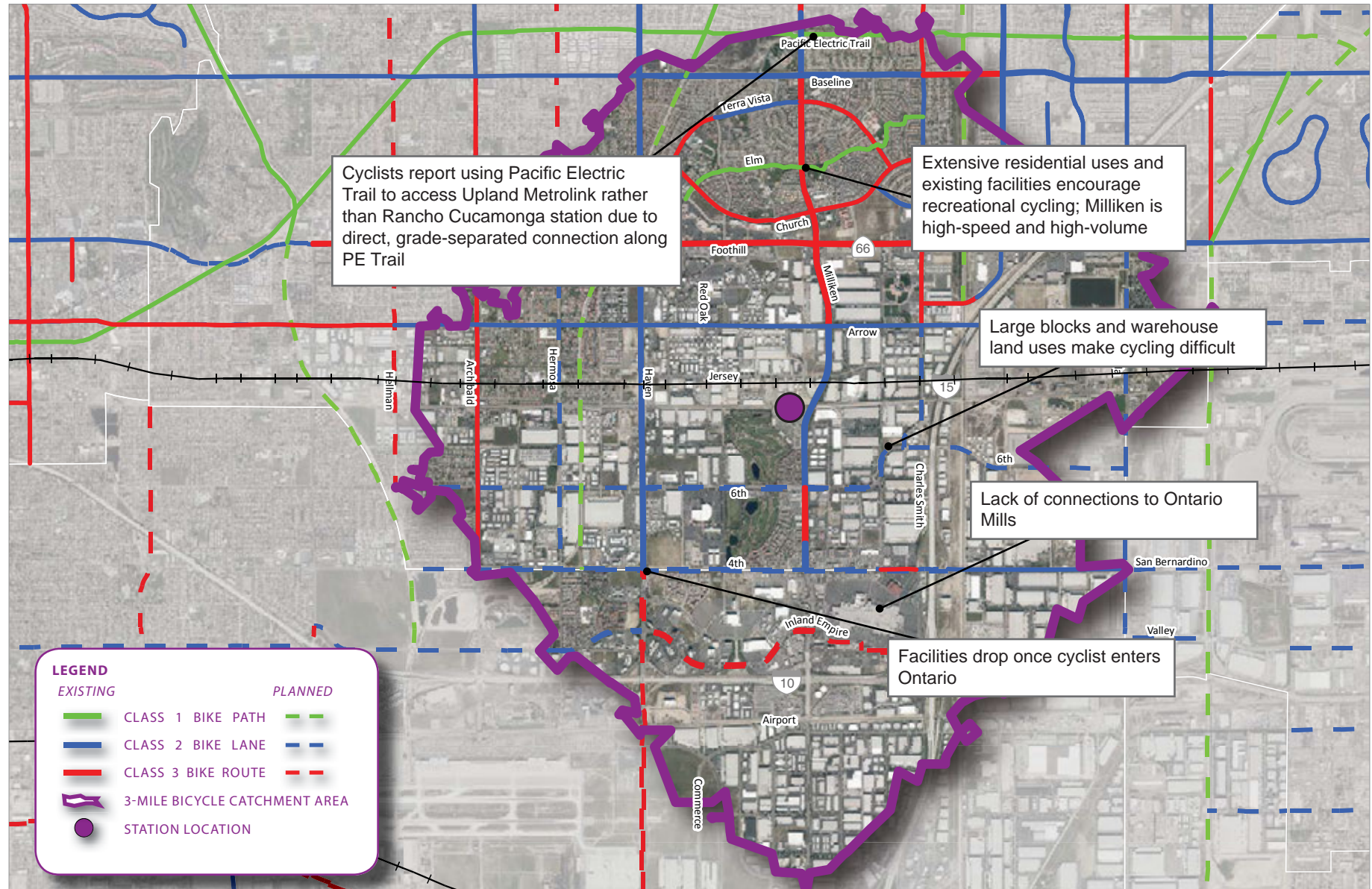
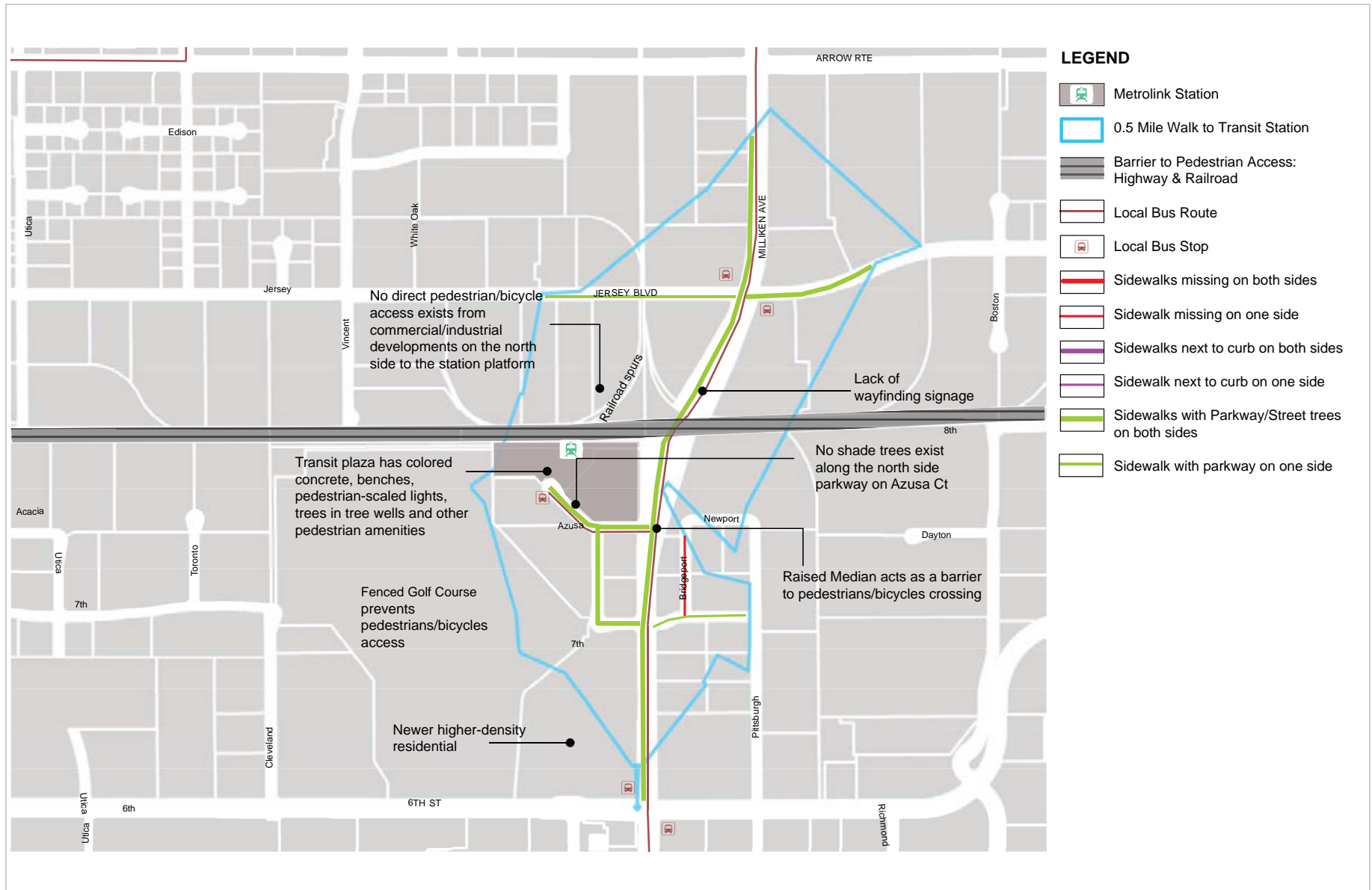
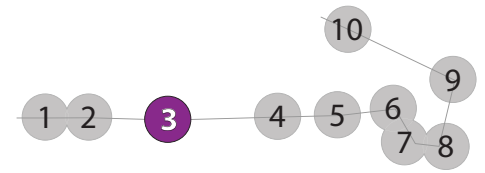
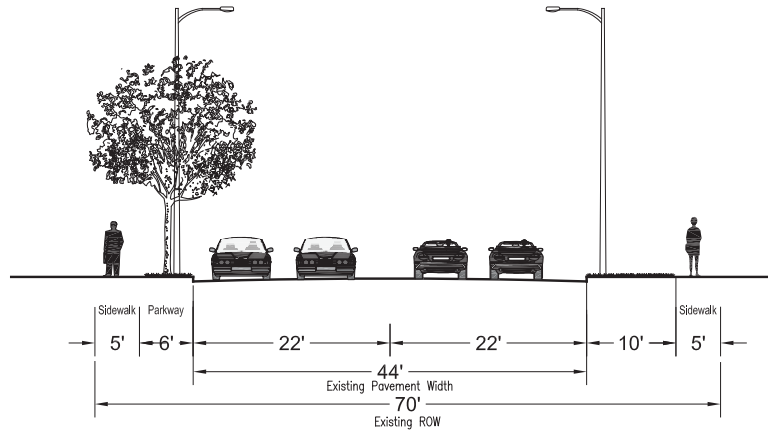


FIGURE 1.11 **RANCHO CUCAMONGA METROLINK STATION PEDESTRIAN ANALYSIS**

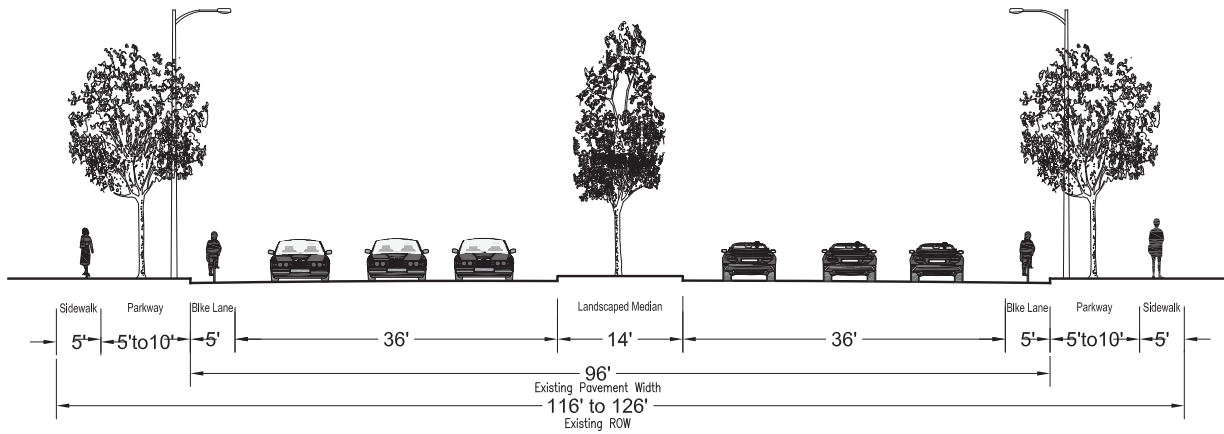




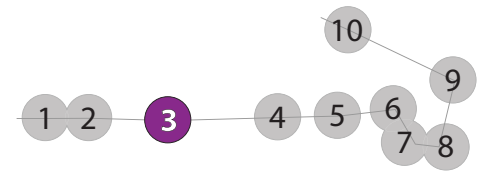
**FIGURE 1.12 TYPICAL SECTION - AZUSA COURT**



**FIGURE 1.13 TYPICAL SECTION - MILLIKEN AVENUE**







**TABLE 1.6 EXISTING BICYCLE FACILITIES**

Street	Victoria Park Ln Fairmont Wy	Victoria Park Ln Victoria Gardens Ln	Charleston St Alberta Pl Loyola Ct	Deer Creek Channel	Pacific Electric Bike Trail	Baseline Rd	Church St	Terra Vista Pkwy	Elm Ave Bike Path	Malaqa Dr
Segment	Charleston St to Victoria Windrows Loop	Barberry St to Day Creek Blvd	Deer Dreek Channel to Fairmont Wy	Hwy 210 to Baseline Rd	Archibald Ave to Etiwanda Ave	Amethyst Ave to Etiwanda Ave	Archibald Ave to Etiwanda Ave	Church St to Milliken Ave	Town Center Dr to Rochester Ave	Church St to Rochester Ave
Existing Facility Type	Class II	Class II	Class II	Class I	Class I	Class II	Class II III	Class II III	Class I	Class II
Speed and Condition of Vehicular Traffic				N/A	N/A				N/A	
Pavement Condition										
"Door Zone" and Driveway Conflicts										
Transit Service and Waiting Environment in Corridor				N/A	N/A		N/A	N/A	N/A	N/A
Amount of Key Attractions										
Amount of Bike Facility Striping or Signage										

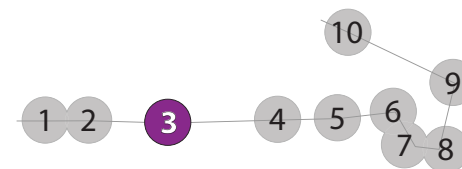


TABLE 1.6 EXISTING BICYCLE FACILITIES (CONTINUED)

Street	Arbor Ln	Day Creek Blvd ack Benny Dr	ack Benny Dr	Haven Ave	Foothill Blvd				Archibald Ave
Segment	Vintner Dr to Cultural Center Dr	Victoria Park Ln to South End of Bike Lanes	Rochester Ave to Bike Lanes East	Hwy 30 to th St	East of Vineyard Ave to Rochester Ave	Rochester Ave to 1 Fwy Onramp	1 Fwy Onramp to Etiwanda Ave	Etiwanda Ave to Cottonwood Ave	Pacific Electric Bike Trail to th St
Existing Facility Type	Class II	Class II	Class III	Class II	Class III	Class II	Class III	Class II	Class II
Speed and Condition of Vehicular Traffic									
Pavement Condition									
"Door Zone" and Driveway Conflicts									
Transit Service and Waiting Environment in Corridor	N/A								N/A
Amount of Key Attractions									
Amount of Bike Facility Striping or Signage									

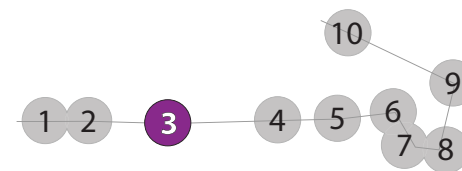
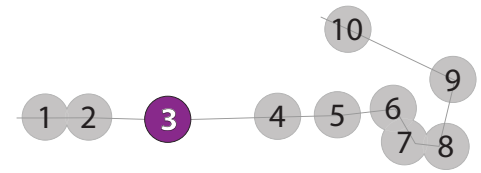


TABLE 1.6 EXISTING BICYCLE FACILITIES (CONTINUED)

Street	Milliken Ave								
Segment	Kenyon Wy to Fairmont Wy	Fairmont Way to Baseline Rd	Baseline Rd to Arrow Route	Arrow Route to 6th St	6th St to Beginning of Bike Lanes South of th	Beginning of Bike Lanes South of th St to th St	Victoria Park Ln to Baseline Rd	Baseline Rd to Foothill Blvd	Foothill Blvd to Arrow Route
Existing Facility Type	Class III	Class II	Class III	Class II	Class III	Class II	Class III	Class II	Class III
Speed and Condition of Vehicular Traffic									
Pavement Condition									
"Door Zone" and Driveway Conflicts									
Transit Service and Waiting Environment in Corridor									
Amount of Key Attractions									
Amount of Bike Facility Striping or Signage									





**TABLE 1.6 EXISTING BICYCLE FACILITIES (CONTINUED)**

Street	Etiwanda Ave	Arrow Route	th St	East Ave	San Sevaine Trail
Segment	Baseline Rd to Foothill Blvd	Vineyard Ave to Etiwanda Ave	Buffalo Ave to Etiwanda Ave	Miller Ave to Foothill Blvd	ortheast of Foothill Blvd to Foothill Blvd
Existing Facility Type	Class II III	Class III III	Class II III	Class III	Class I
Speed and Condition of Vehicular Traffic					N/A
Pavement Condition					
"Door Zone" and Driveway Conflicts					
Transit Service and Waiting Environment in Corridor	N/A			N/A	N/A
Amount of Key Attractions					
Amount of Bike Facility Striping or Signage					

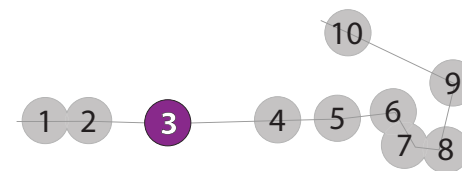
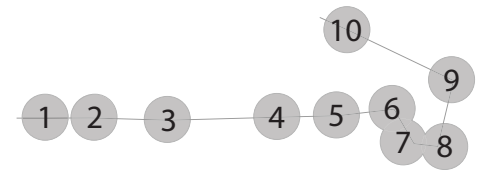


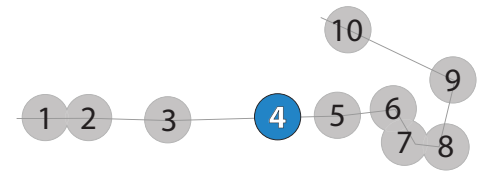
TABLE 1.7 EXISTING PEDESTRIAN FACILITIES

Street	Milliken Avenue			Azusa Ct	Jersey Blvd	Bridgeport
Segment	North of Jersey Blvd	Jersey Blvd to Azusa Ct	Azusa Ct to 6th St	Milliken Ave to Station Entry	Milliken Ave to White Oaks Ave	7th St to Newport Dr
Sidewalk/Parkway Width						
Sidewalk Width						
Sidewalk Condition						
Sidewalk and/or Parkway Location						
Crosswalks						
Curb Ramp						
Street Trees Location						
Raised Median				N/A		N/A
Utility Poles and wires						
Lighting						
Street Furniture						
Wayfinding Signage in public realm						

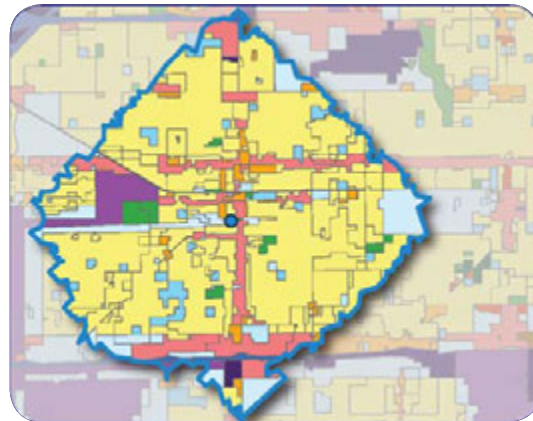


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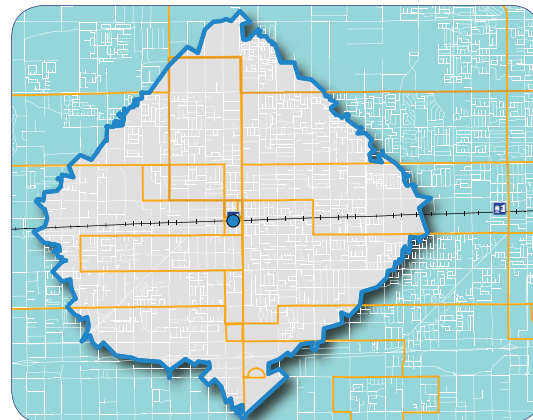
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View of Fontana Metrolink Station



Mix of residential and arterial commercial land uses



Extensive transit connections throughout study area

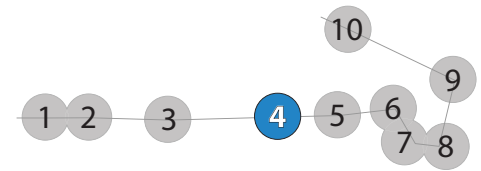
## 1.4 Fontana Metrolink Station

The Fontana Metrolink Station is located in Downtown Fontana, and serves as a Transit Center for area residents and visitors. It is surrounded by a mix of commercial, civic, and residential land uses. The Pacific Electric Bicycle Trail reaches its eastern terminus northeast of the station.

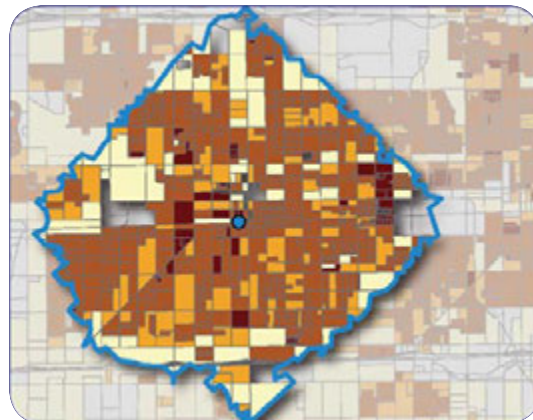


### Opportunities

- Improved downtown area along Sierra provides excellent pedestrian connectivity and a great walking environment.
- This station is the eastern terminus of existing Pacific Electric Bike Trail.
- The station is in close proximity to Downtown Fontana and various civic and public uses.
- Omnitrans maintains a transit center next to the station, which serves as a transfer point to various bus routes.
- Sierra Avenue is a pedestrian-friendly street with widened landscaped sidewalks, street furniture, curb extension, on-street parking, decorative crosswalks, pedestrian lighting and shops and small businesses oriented to the sidewalks and a landscaped median in some locations.
- The Pacific Electric Bicycle Trail with tree groves, open space, benches and landscaped areas provides an excellent opportunity for regional connectivity.
- Grid street pattern in the station area is ideal for walking.
- Most neighborhood streets such as Rosena, Bennett, Nuevo, Wheeler, Newport and Emerald have approximately 5 to 6' wide sidewalks located next to a 10' parkway with shade trees.
- A few newer and existing dense residential developments creates demand for pedestrian/bicycle-friendly neighborhoods.
- Decorative crosswalks and colored intersection occur at Orange Way and Arrow Boulevard intersections with Sierra Way.



Downtown features excellent wayfinding measures



Substantial residential density throughout study area

## Constraints

- Interstate 10 creates barriers for pedestrians and bicycle mobility.
- Generally, Washingtonia Robusta (Mexican Fan Palms) is the major Street tree on Sierra Avenue between Orange Way and Valencia Avenue. These trees offer a strong defining edge and add character to the street; however, they provide no shade. Another accent shade tree could be added for pedestrian comfort.
- Within the study area, Juniper Street has narrow sidewalks located next to the curb. In some locations, utility poles are located within the sidewalk reducing pedestrian mobility.



FIGURE. 1.14 FONTANA METROLINK STATION AND CATCHMENT AREA

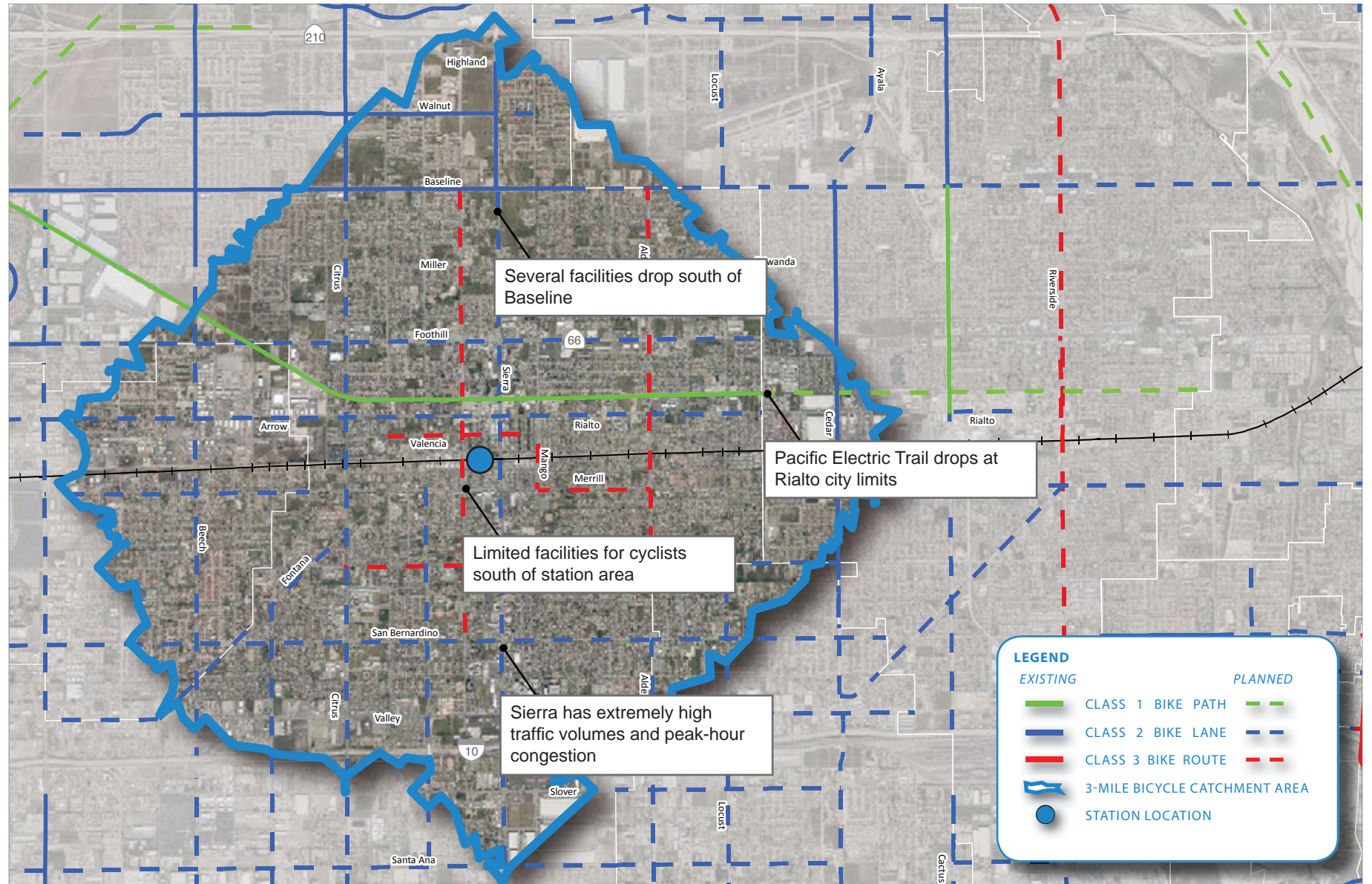
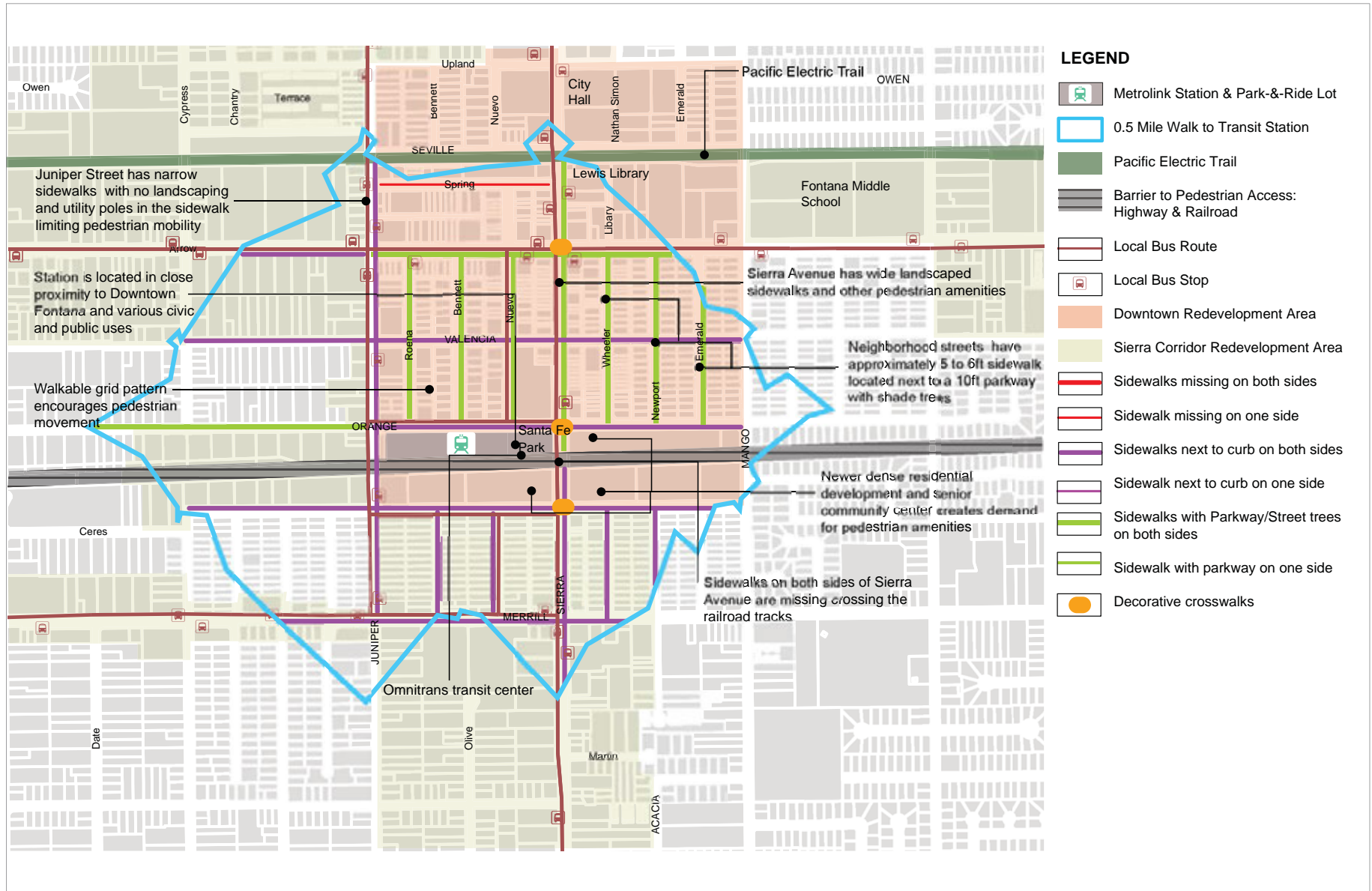
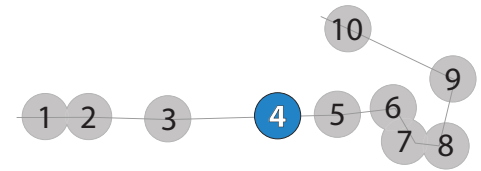
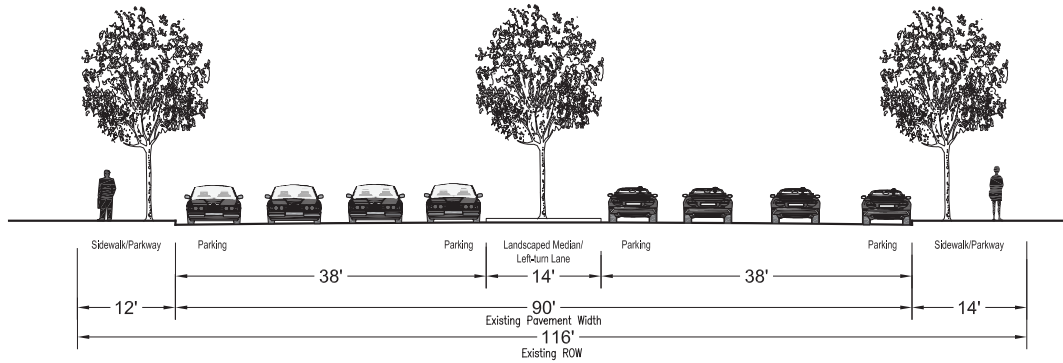


FIGURE 1.15 FONTANA METROLINK STATION PEDESTRIAN ANALYSIS



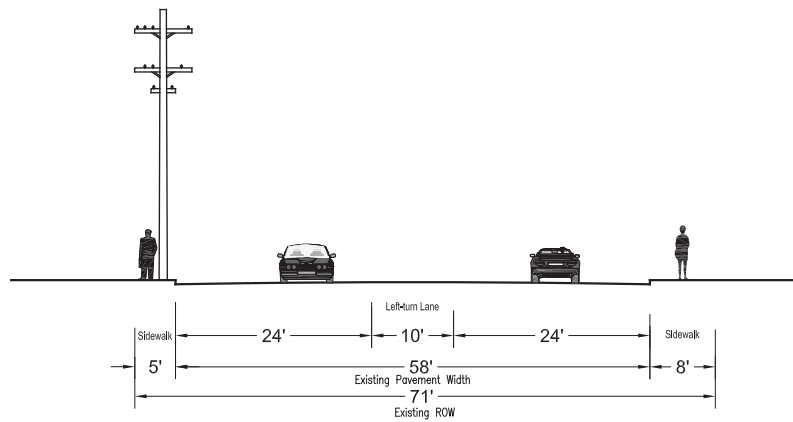


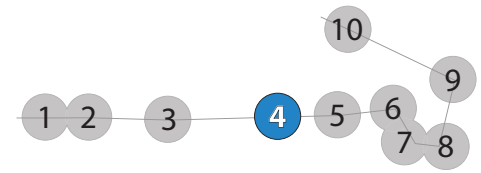
**FIGURE 1.16 TYPICAL SECTION - ARROW HIGHWAY**



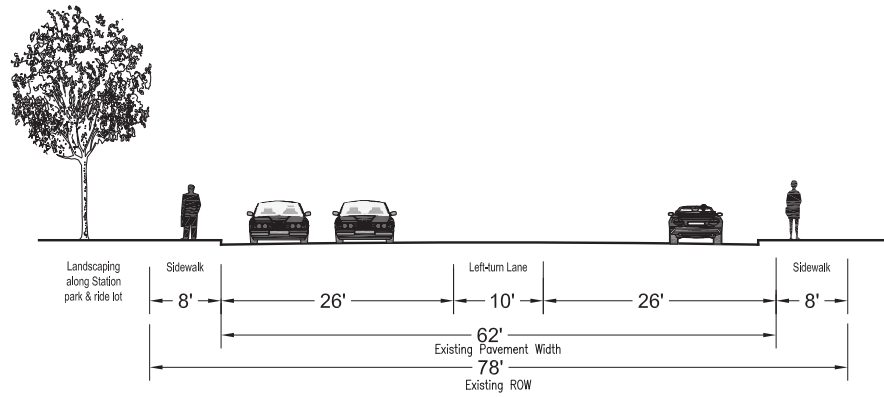
Street trees are sparsely placed along Arrow Blvd  
 Landscaped median is only between Palmetto and Juniper Avenues

**FIGURE 1.17 TYPICAL SECTION - JUNIPER**

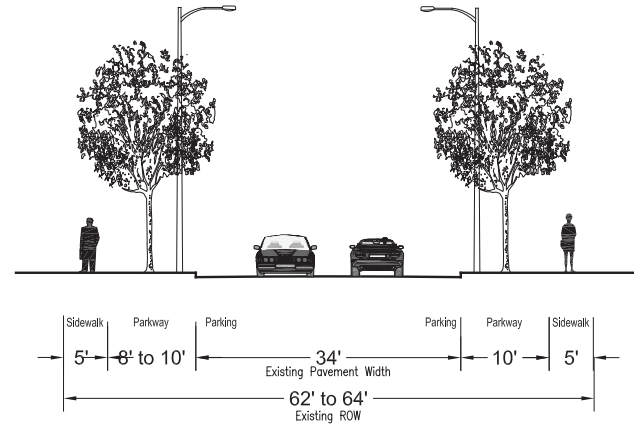




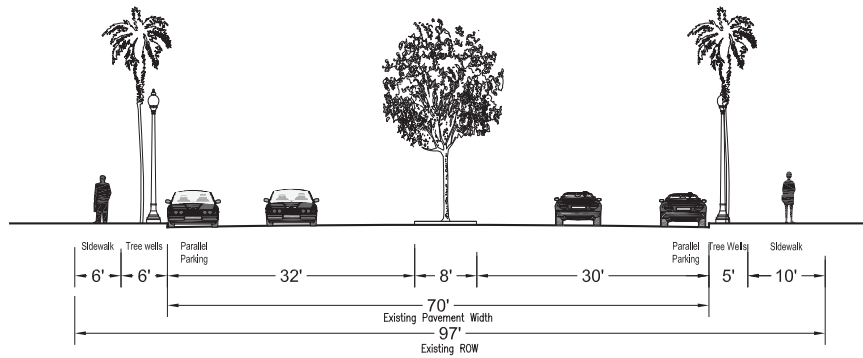
**FIGURE 1.18 TYPICAL SECTION - ORANGE WAY**



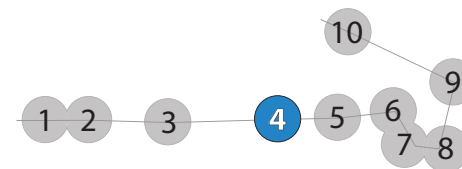
**FIGURE 1.19 TYPICAL SECTION - RESIDENTIAL STREET**



**FIGURE 1.20 TYPICAL SECTION - SIERRA AVENUE**



Between Valencia Avenue and Arrow Boulevard the major street is Ficus



**TABLE 1.8 EXISTING BICYCLE FACILITIES**

Street	Pacific Electric Bike Trail	Cedar Ave	Beech Ave	Citrus Ave	Sierra Ave	Walnut St	Baseline Rd
Segment	Almeria Ave to Palmetto Ave	Baseline Rd to Randall Ave	Walnut St to Miller Ave	210 Fwy to Baseline Rd	Highland Ave to Baseline Rd	Beech Ave to Sierra Ave	Live Oak Ave to Sierra Ave
Existing Facility Type	Class I	Class II	Class II	Class II	Class II	Class II	Class II
Speed and Condition of Vehicular Traffic	N/A						
Pavement Condition							
"Door Zone" and Driveway Conflicts							
Transit Service and Waiting Environment in Corridor							
Amount of Key Attractions							
Amount of Bike Facility Striping or Signage							



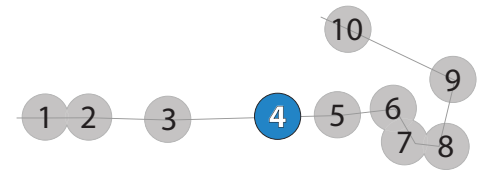
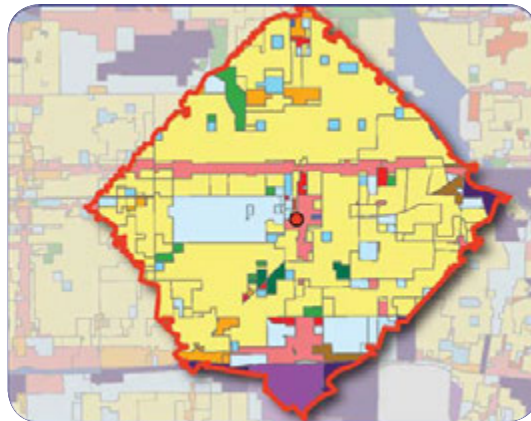


TABLE 1.9 EXISTING PEDESTRIAN FACILITIES

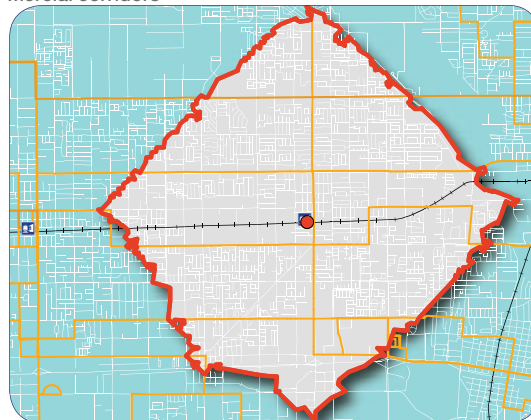
Street	Orange Way	Sierra Way	Valencia Ave	Arrow Blvd	Ceres Ave	Merrill Ave	Juniper Ave	Residential/Local Streets	
Segment	Sierra Way to Juniper Ave	Arrow Blvd to Merrill Ave	Sierra Way to Juniper Ave	Sierra Way to Juniper Ave	Sierra Way to Juniper Ave	Mango Ave to Juniper Ave	Arrow Blvd to Merrill Ave	North of Orange Way	South of Orange Way
Sidewalk/Parkway Width									
Sidewalk Width									
Sidewalk Condition									
Sidewalk and/or Parkway Location									
Crosswalks									
Curb Ramp									
Street Trees Location									
Raised Median								N/A	N/A
Utility Poles and wires									
Lighting									
Street Furniture									
Wayfinding Signage in public realm									



View of Rialto Metrolink Station



Residential land uses throughout study area, with commercial corridors



Study area has well-distributed transit service

## 1.5 Rialto Metrolink Station

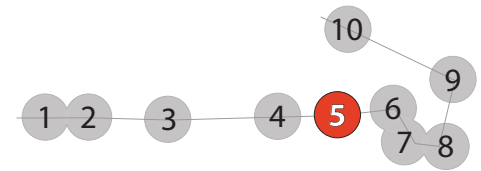
The Rialto Metrolink Station is located immediately west of Riverside Avenue in Downtown Rialto. As with the nearby Fontana station, the immediate station area is characterized by revitalized commercial and older residential neighborhoods.

Riverside Avenue features extensive pedestrian enhancements in the study area, including landscaped medians and pedestrian refuge islands, curb extensions and bulbouts, and crosswalk enhancements.

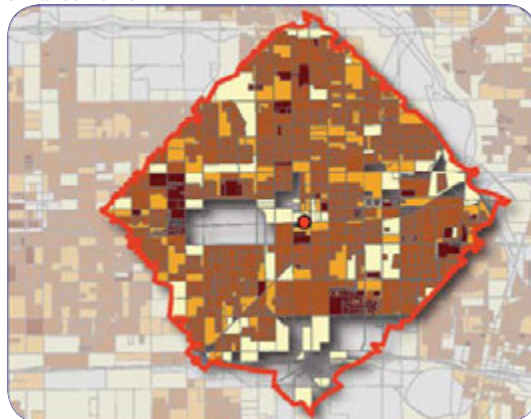


### Opportunities

- Central downtown location allows for pleasant non-motorized experience.
- The station is proximate to Downtown Rialto and major civic uses including the City Hall.
- Riverside Avenue (Downtown area) has an attractive and pedestrian-friendly streetscape with a wide landscaped median, widened landscaped sidewalks, street furniture, curb extensions, on-street parking, decorative crosswalks, pedestrian lighting and shops and small businesses oriented to the sidewalks.
- Generally large shade trees are prevalent in the study area.
- A walkable grid pattern street network exists in the vicinity of the station.
- The station area is well-integrated with Downtown.
- Most of the area around the Station is within the Rialto Downtown Redevelopment Area and is in the Downtown Specific Plan (also called the Central Area Specific Plan).
- Rialto Park and Margaret Todd Park are located within close proximity of the station.
- Vacant and underutilized properties in the station vicinity provide opportunities for potential Transit-Oriented Development (TOD) and/or intense transit supportive mixed-use development.
- Local Omnitrans bus service runs along Riverside Avenue and Merrill Avenue .
- The recently updated Rialto General Plan includes a Downtown Mixed Use designation to facilitate development of a complementary mix of retail and commercial, dining, entertainment, and residential uses within walking distance of each other and the nearby Metrolink station and Civic Center.



Downtown Rialto features extensive pedestrian enhancements



Study area is residential in nature throughout

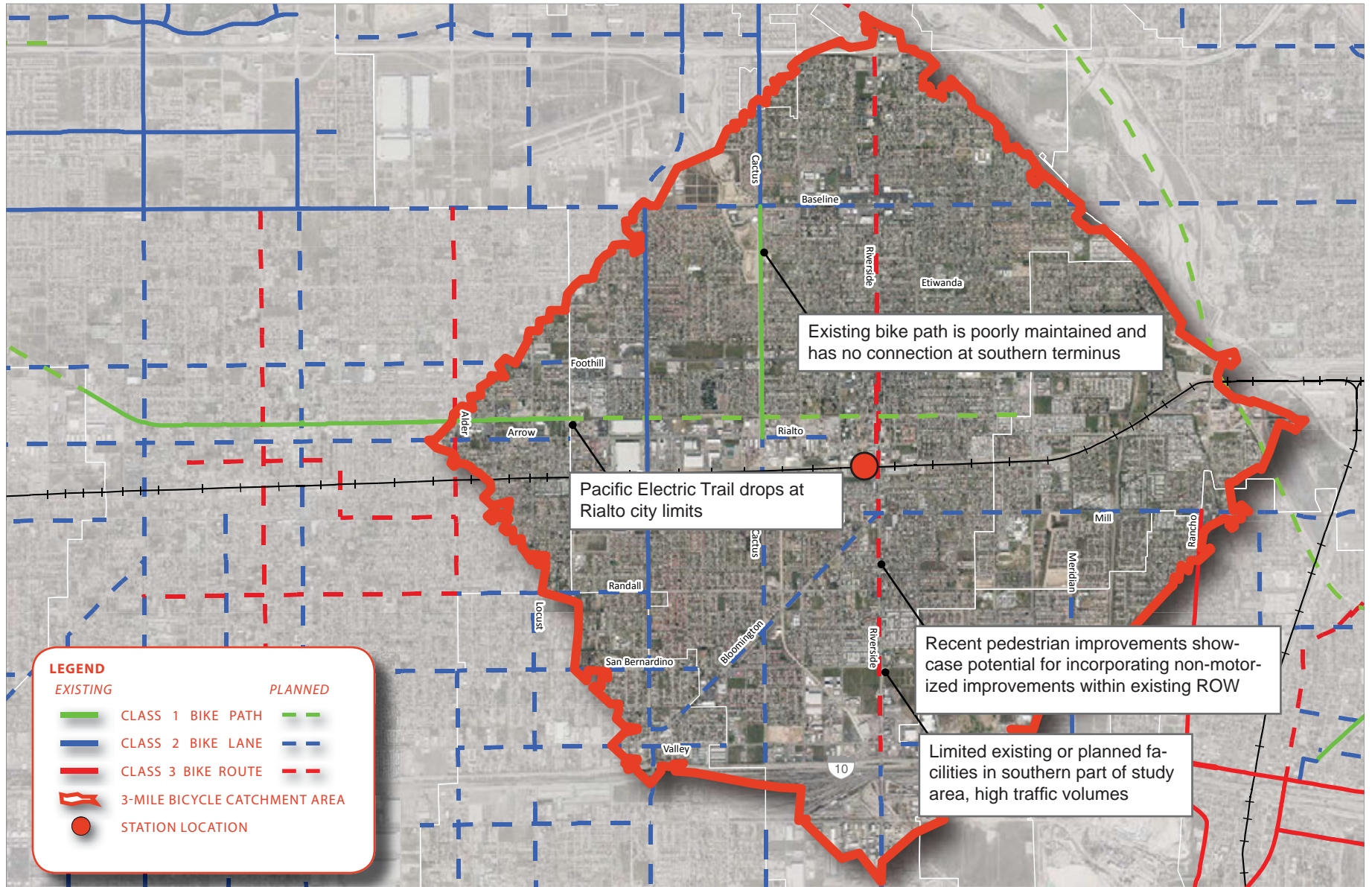
- The former Pacific Electric right-of-way offers opportunity for regional bikeway connection. The General Plan has a measure to pursue funding to construct the Pacific Electric Bicycle Trail and include amenities for bicyclists and pedestrian including lighting, seating areas, bicycle racks, landscaping, and related amenities.

### Constraints

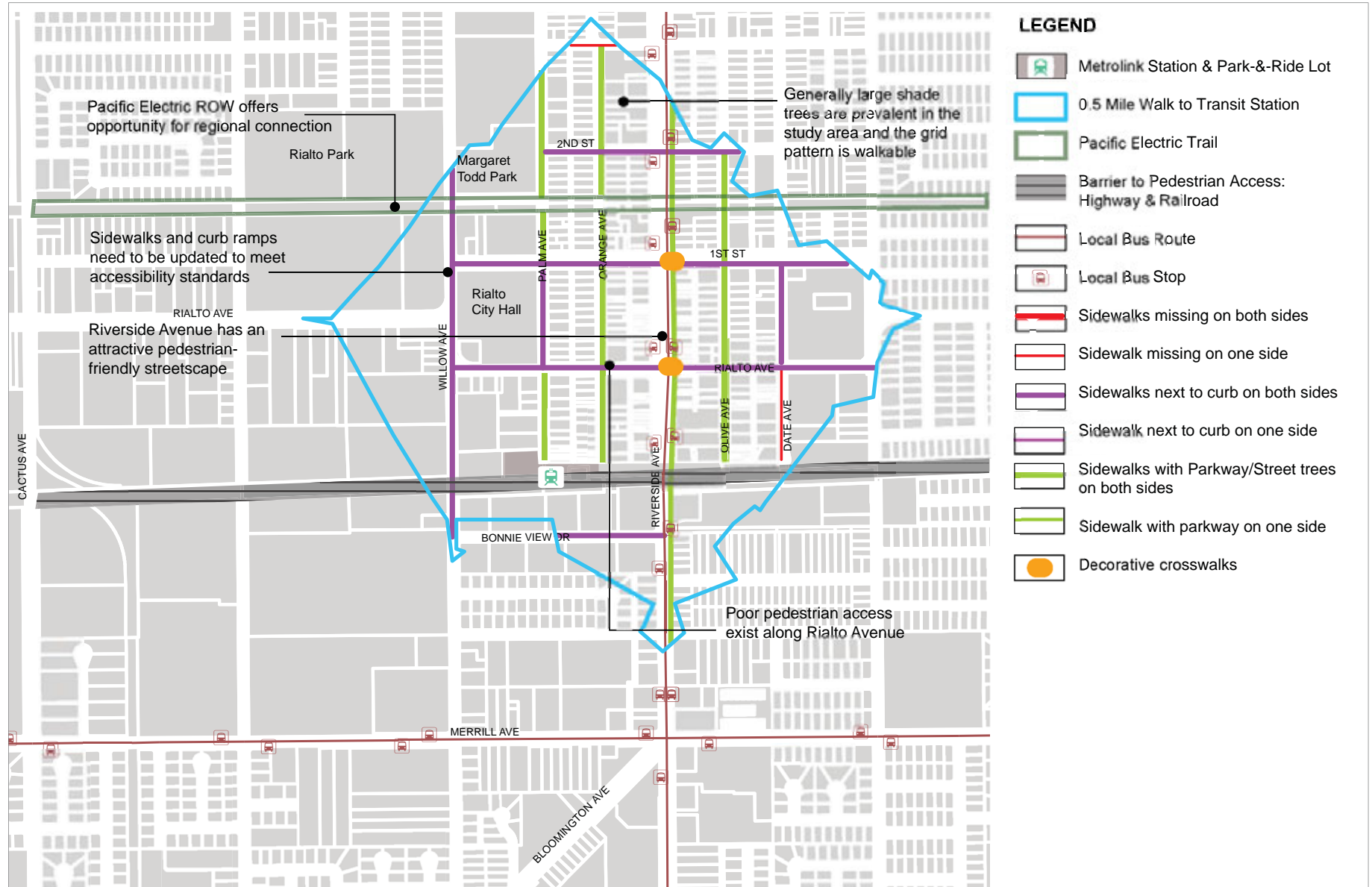
- Interstate 10 is a barrier to pedestrians and bicycle connectivity.
- Station is not visible from the main corridors.
- Foothill Blvd is high-speed and high-volume
- Limited existing bicycle facilities.
- Existing Class I facility along Cactus Avenue is isolated and under-utilized.
- Poor pedestrian access from Downtown along Rialto Avenue; Sidewalks are generally narrow with no landscaping and/or street trees; there are no pedestrian or street lights.
- Orange Avenue and Palm Avenue are main streets connecting the adjacent neighborhoods to the Metrolink Station and they lack the character of an inviting pedestrian-friendly street i.e. shade trees, street & pedestrian lights, street furniture etc.
- Along Willow Avenue, sidewalks and curb ramps are generally not ADA compliant.
- Unimproved sidewalks and parkways exist along the vacant and underutilized properties located within the vicinity of the station.
- Currently, the Pacific Electric right-of-way within City of Rialto is vacant and underutilized and not connected to the regional trail network.
- Most of the streets have sidewalks and parkways; however, there is a lack of maintenance and shade trees.
- Limited pedestrian crossing over the railroad isolates neighborhoods to the south of the station.



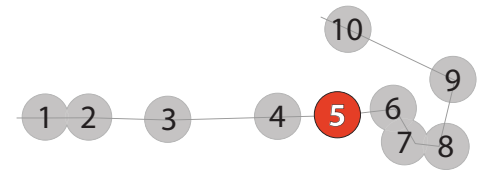
**FIGURE 1.21 RIALTO METROLINK STATION AND CATCHMENT AREA**



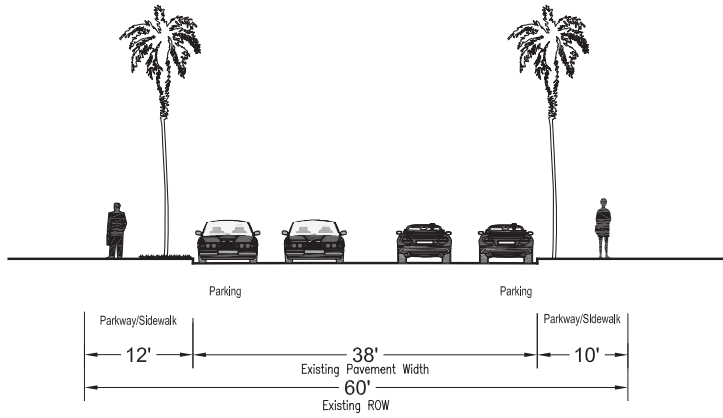
**FIGURE 1.22 RIALTO METROLINK STATION PEDESTRIAN ANALYSIS**



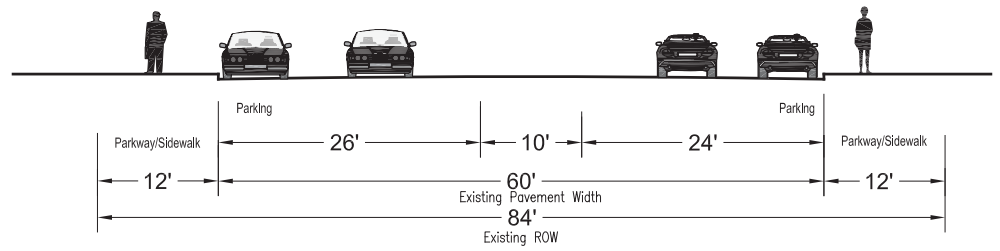




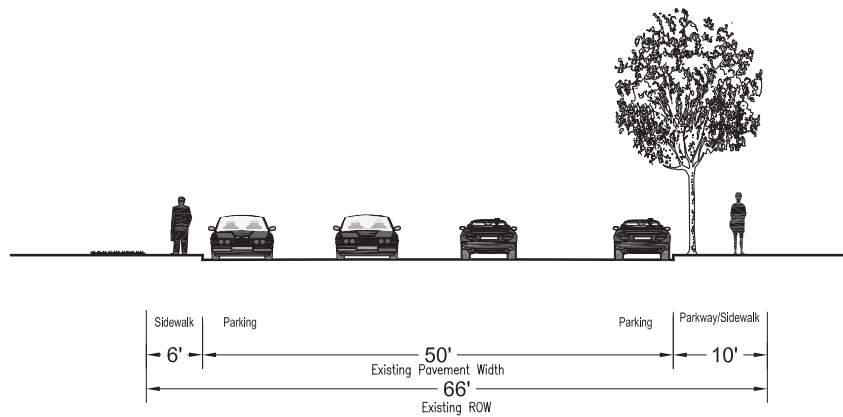
**FIGURE 1.23 TYPICAL SECTION - PALM AVENUE**



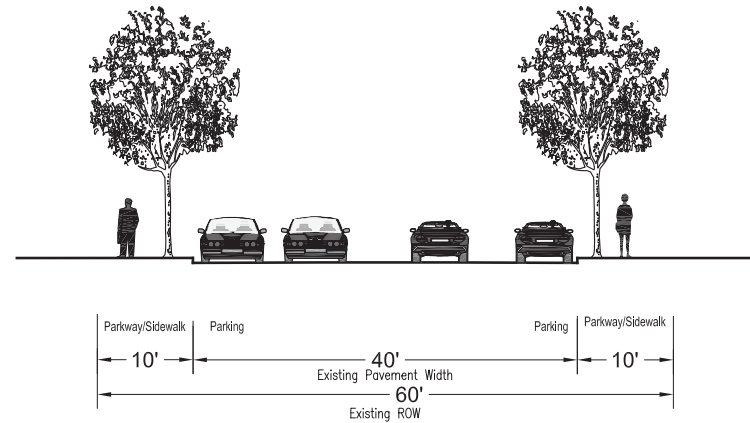
**FIGURE 1.25 TYPICAL SECTION - RIALTO AVENUE**

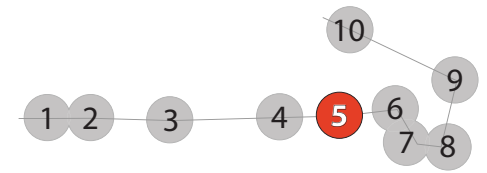


**FIGURE 1.24 TYPICAL SECTION - PALM AVENUE AND FIRST STREET**



**FIGURE 1.26 TYPICAL SECTION - RESIDENTIAL STREET**





**TABLE 1.10 EXISTING BICYCLE FACILITIES**

Street	Cactus Ave	Ayala Dr	Cedar Ave	Cactus Ave	San Bernardino Ave	Meridian Ave	Rancho Ave	Valley Blvd		
Segment	Mesa St to Baseline Rd	Casmalia St to Hwy 210	Baseline Rd to Randall Ave	Baseline Rd to Rialto Ave	Sycamore Ave to Pepper Ave	San Bernardino Ave to Valley Blvd	Mill St to 10 Fwy	Wildrose Ave to Pepper Ave	Pepper Ave to Hermosa Ave	0.0 mi West of Rancho Ave to 2nd St
Existing Facility Type	Class II	Class II	Class II	Class I	Class II	Class II	Class III	Class III	Class III	Class III
Speed and Condition of Vehicular Traffic				N/A						
Pavement Condition										
"Door Zone" and Driveway Conflicts										
Transit Service and Waiting Environment in Corridor	N/A	N/A		N/A		N/A	N/A			
Amount of Key Attractions										
Amount of Bike Facility Striping or Signage										

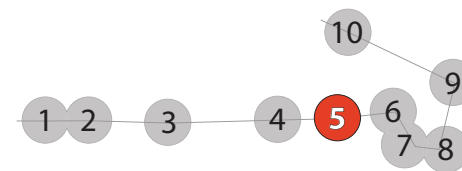
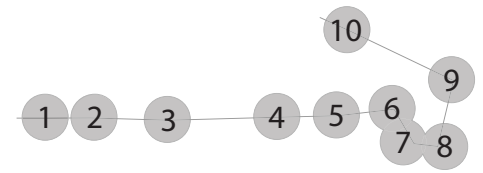


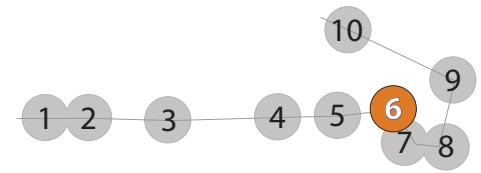
TABLE 1.11 EXISTING PEDESTRIAN FACILITIES

Street	Riverside Ave	Rialto Ave	1st St	2nd St	Willow Ave	Palm Ave	Orange Ave	Olive Ave	Date Ave	Bonnie View Dr
<b>Segment</b>	1st St to Bonnie View Dr	Willow Ave and Sycamore Ave		Palm Ave to Riverside Ave	2nd Ave to Bonnie View Dr	Station to 2nd St			Tracks to 2nd Ave	Riverside Ave to Willow Ave
<b>Sidewalk/Parkway Width</b>										&
<b>Sidewalk Width</b>										&
<b>Sidewalk Condition</b>										
<b>Sidewalk and/or Parkway Location</b>				&	&	&	&	&	&	
<b>Crosswalks</b>										
<b>Curb Ramp</b>										
<b>Street Trees Location</b>					&	&	&	&	&	
<b>Raised Median</b>										
<b>Utility Poles and wires</b>										
<b>Lighting</b>										
<b>Street Furniture</b>										
<b>Wayfinding Signage in public realm</b>										

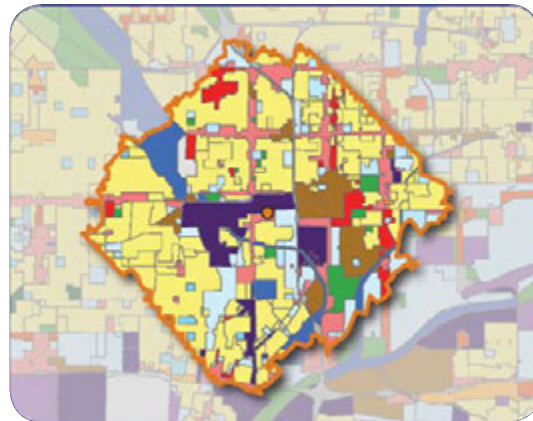


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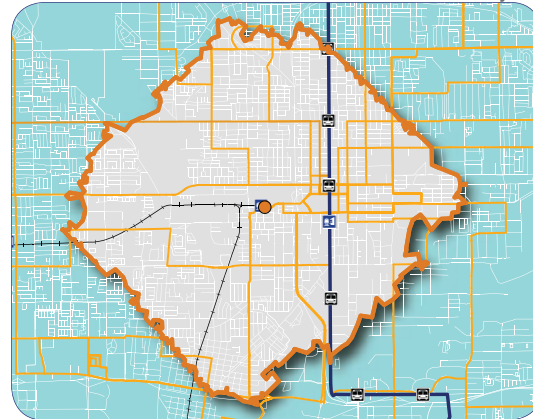
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View of San Bernardino Metrolink Station



Mix of residential and commercial uses near station, yet immediate area is industrial and has limited connectivity



Station area is well-served by all forms of transit, including Fourth Street Transit Mall at Carousel Mall

## 1.6 San Bernardino Metrolink Station



The San Bernardino Metrolink Station is a regional transit station serving the greater San Bernardino area. Transit services at the site include Metrolink commuter rail, Omnitrans local buses, and Mountain Area Regional Transit Authority (MARTA) bus service.

Amtrak service is available at the adjacent Santa Fe Depot, and the nearby Fourth Street Transit Mall at the Carousel Mall provides extensive connections to the regional Omnitrans fixed route network and under construction sbX corridor.

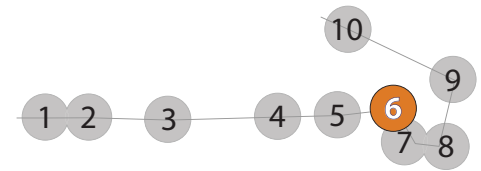
### Opportunities

- Strengthen the connection between the Metrolink Station and Omnitrans service at Carousel Mall.
- The grid street network provides routefinding flexibility.
- There are wide local streets.
- There are large amounts of nearby residential development.
- San Bernardino station serves as the eastern terminus for most Metrolink San Bernardino Line trains which originate from Los Angeles' Union Station and the northern terminus for some Inland Empire-Orange County Line trains providing regional connectivity.
- Planned Metrolink extension to Rialto/E Street will provide additional connectivity to Downtown San Bernardino, sbX E Street BRT Corridor and Redlands Passenger Rail Corridor.
- A walkable grid street pattern exists within station vicinity.
- Generally, adjacent residential neighborhoods' streets have sidewalks/parkways with shade trees.
- San Bernardino General Plan Land Use Element establishes a Santa Fe Depot Strategic Area with the main goal of integrating the Depot with surrounding neighborhoods through design, landscaping, entry features and pedestrian pathways.

### Constraints

- Interstate 215 and BNSF rail yard create physical and psychological barriers to connections with areas north and west of station.





Construction hinders walking and biking connections to Carousel Mall



Station area has dense, well-distributed population, but with barriers created by rail and freeway infrastructure

- Current construction along I-215 further discourages pedestrian and bicycle connections.
- Ample free parking may discourage accessing station by bike or on foot if other modes are available to the user.
- There is a lack of short-term bicycle parking.
- Major arterials are high-speed and high-volume San Bernardino Metrolink station acts as a barrier to pedestrian mobility from developments north of the station.
- No direct pedestrian access exists between the new Third Street Shopping Center and the Metrolink Station.
- 2nd Street has narrow sidewalks with little to no landscaping.
- Poor pedestrian access or wayfinding signage exists between the ticketing area on the west side of the station and the local bus stop located along 3rd Street stop.
- Sidewalks/parkways in adjacent neighborhoods are not well maintained.
- Neighborhood adjacent to the station is perceived to be unsafe.

FIGURE 1.27 SAN BERNARDINO METROLINK STATION AND CATCHMENT AREA

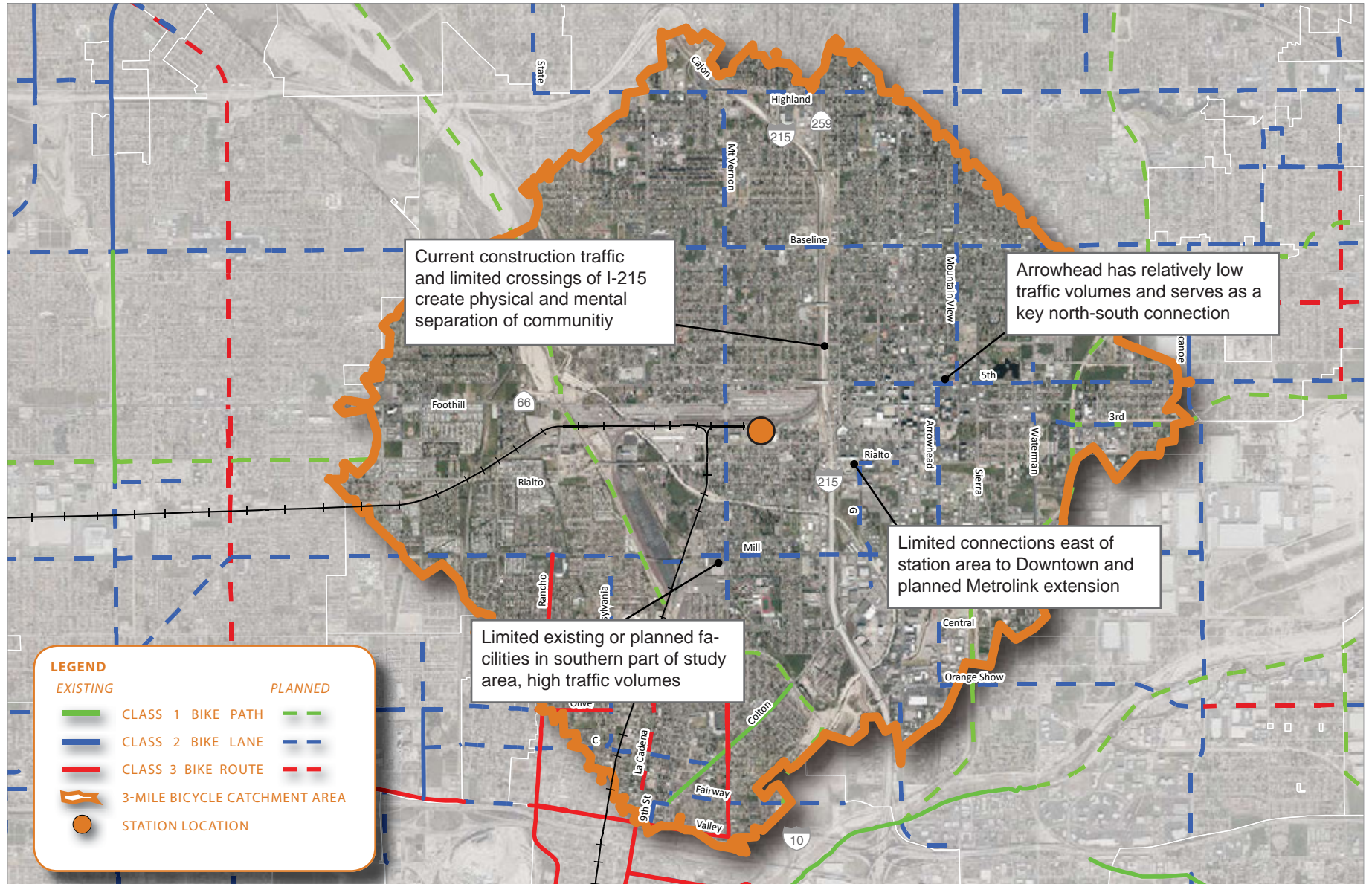
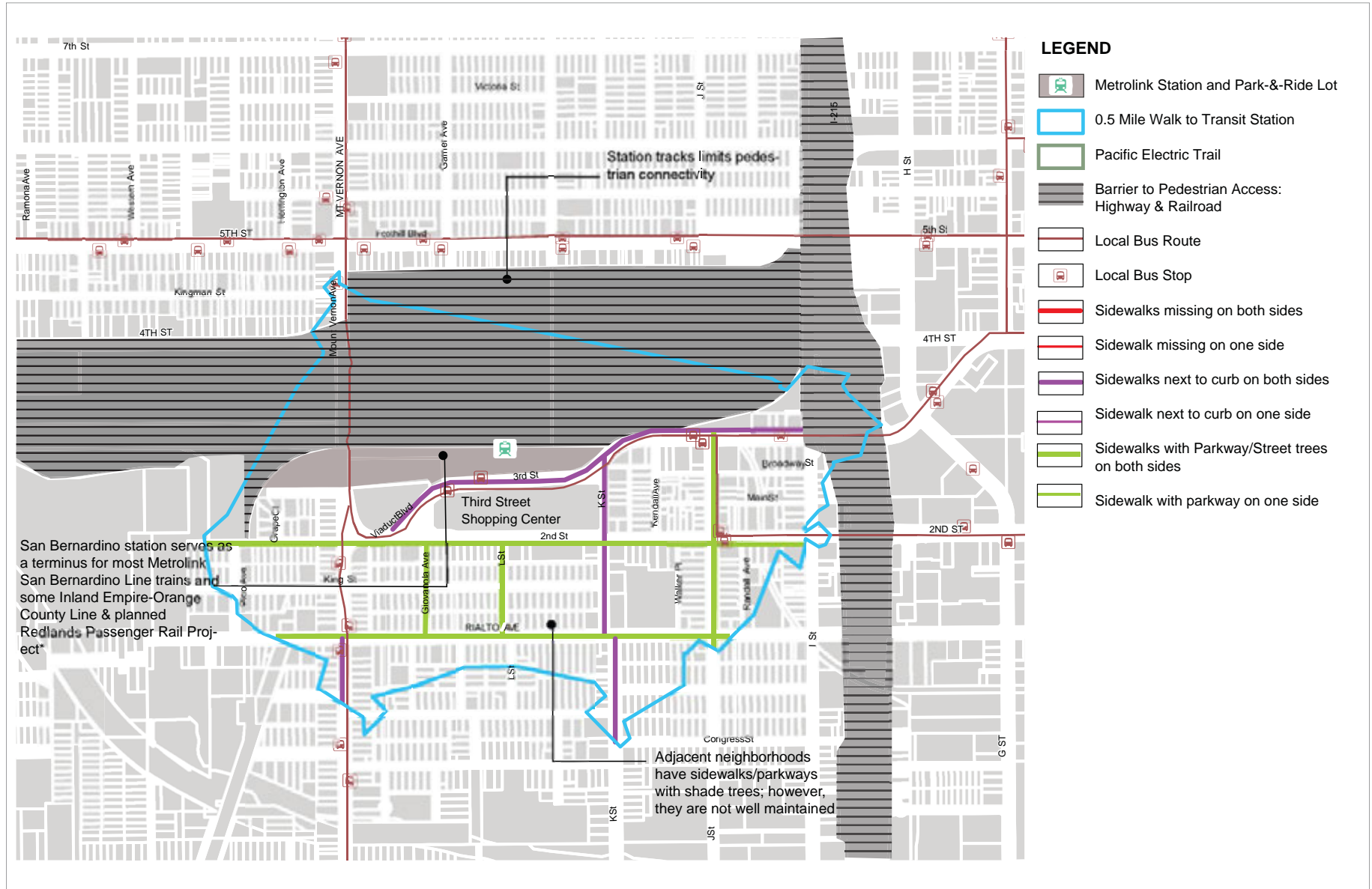
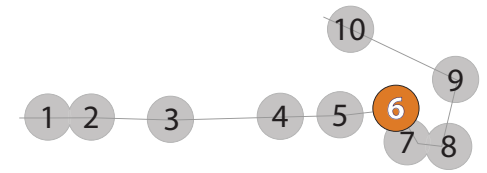


FIGURE 1.28 SAN BERNARDINO METROLINK STATION PEDESTRIAN ANALYSIS

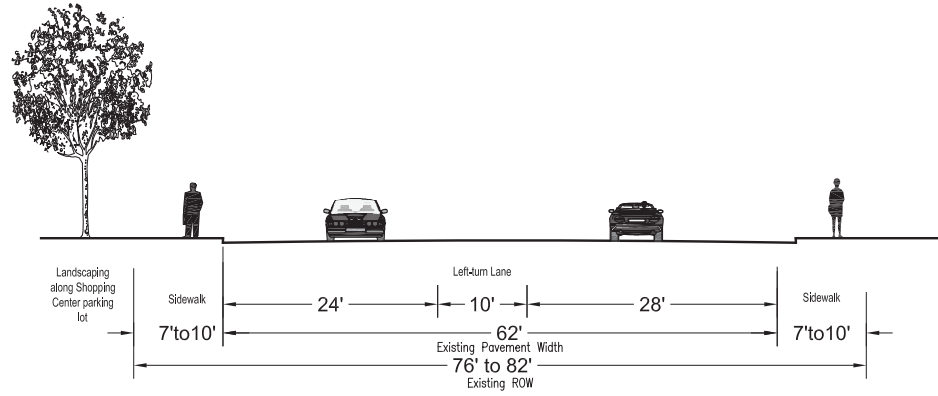


\* The San Bernardino Metrolink station / Santa Fe Depot will not be the terminus for Redlands Rail and Metrolink lines – it will be the San Bernardino Transit Center at E Street and Rialto Avenue in downtown San Bernardino, about 1 mile east of the Santa Fe Depot. The bus portion of the San Bernardino Transit Center will be open in January 2014, and the Metrolink line extension will be completed early 2015. At that time, Omnitrans Route 1 will move from 3rd Street down to 2nd Street because all bus-rail transfers will occur at the San Bernardino Transit Center.

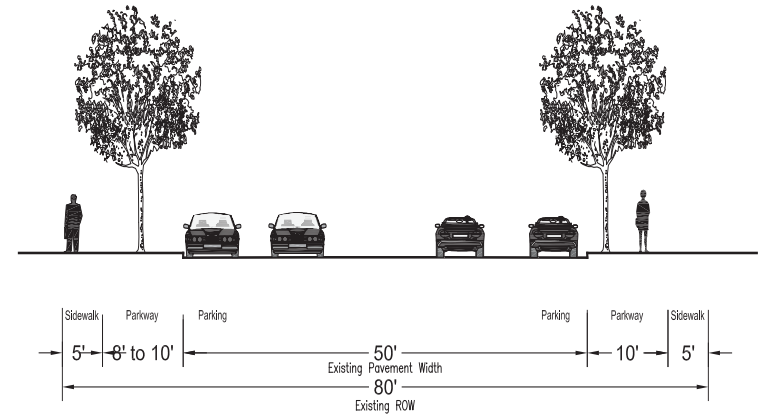




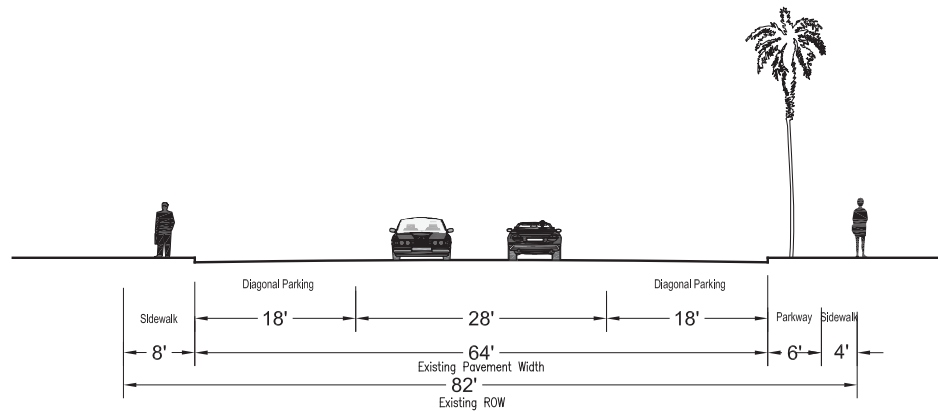
**FIGURE 1.29 TYPICAL SECTION - 2ND STREET**



**FIGURE 1.31 TYPICAL SECTION - RESIDENTIAL STREET**



**FIGURE 1.30 TYPICAL SECTION - 3RD STREET**



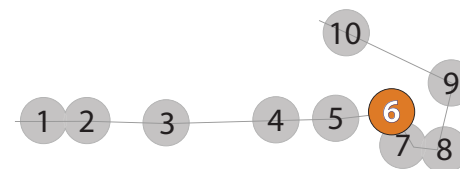


TABLE 1.12 EXISTING BICYCLE FACILITIES

Street	Mountain View Ave	Meridian St	Rancho Ave	San Bernardino Olive St	Valley Blvd	9th St	G St	Mt Vernon Ave	La Cadena Dr	Colton Ave Bike Path	Santa Ana River Trail
Segment	28th St to 23rd St	San Bernardino Ave to C St	Mill St to 10 Fwy	West of Rancho Ave to Pennsylvania	West of Rancho Ave to Mt Vernon Ave	G St to Valley Blvd	9th St to 10th St	Grant Ave to Valley Blvd	Valley Blvd to M St	G St to Wheeler Ln	Waterman Ave to Mt Vernon Ave
Existing Facility Type	Class II	Class II	Class III	Class III	Class III	Class II	Class II	Class III	Class III	Class I	Class I
Speed and Condition of Vehicular Traffic										N/A	N/A
Pavement Condition											
"Door Zone" and Driveway Conflicts											
Transit Service and Waiting Environment in Corridor	N/A				N/A					N/A	
Amount of Key Attractions											
Amount of Bike Facility Striping or Signage											



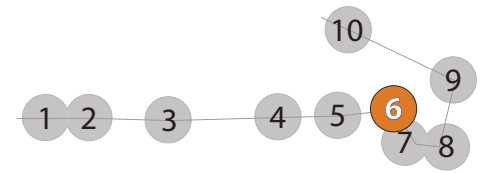
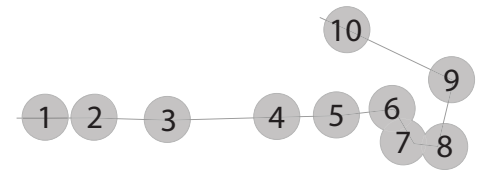


TABLE 1.3 EXISTING PEDESTRIAN FACILITIES

Street	3rd St	2nd St	Rialto Ave	Mt Vernon Ave	K St	Other Local/Residential Streets
Segment	K St to Mt Vernon Ave			5th St to Rialto Ave	Rialto Ave to 3rd St	
Sidewalk/Parkway Width						
Sidewalk Width						
Sidewalk Condition						
Sidewalk and/or Parkway Location						
Crosswalks						
Curb Ramp						
Street Trees Location						
Raised Median	N/A					
Utility Poles and wires						
Lighting						
Street Furniture						
Wayfinding Signage in public realm						

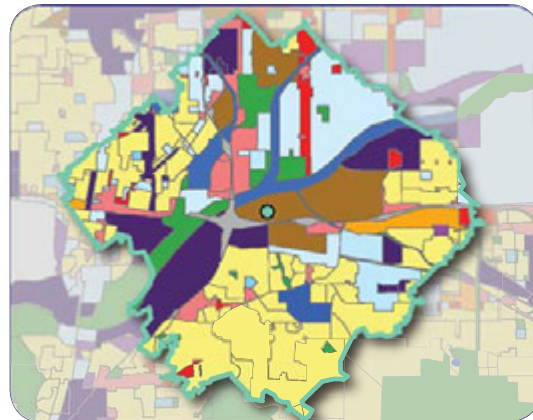


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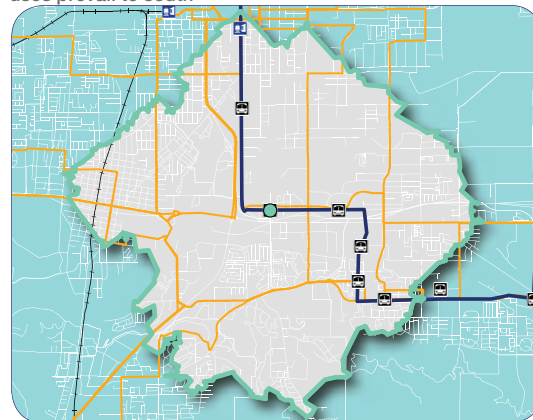
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Plan for Hunts Lane sbX Station



Commercial uses prevail adjacent to station, residential uses prevail to south



Area will be well-served by BRT service, potential for high commuter trip volumes

## 1.7 Hunts Lane sbX Station

The Hunts Lane sbX Station is located on Hospitality Lane immediately north of Interstate 10 and just east of Interstate 215. The land uses around the station area are generally non-residential, aside from an area south of Interstate 10. The station has a direct connection to the Santa Ana River Trail, located directly behind the Hall of Records. Automobile traffic is significant.



### Opportunities

- Access to Class I facility provides excellent connection to regional bicycle network.
- Station area provides mix of commercial uses and relatively dense office parks.
- The existing Santa Ana River trail provides regional connectivity and is a great recreational resource.
- sbX will improve the pedestrian environment along Hospitality Lane by reconfiguring the street to include a 6' wide parkway with street trees next to the curb and sidewalk behind.
- Underutilized industrial/business park area south of the I-10 Freeway can be redeveloped with high-intensity transit-supportive uses.

### Constraints

- There is limited residential land use north of station.
- There are several signalized, short-block intersections around station area.
- Station area ridership potential and access is constrained by major barriers – Santa Ana River, the I-10 Freeway and I-215 Freeway.
- Auto-oriented, super-block development pattern is well established.
- Poor pedestrian access exists into and through super-blocks.
- Hunts Lane is the only direct access to Santa Ana River Trail from Hospitality Lane and future sbX Station.
- Sidewalks and pedestrian lights are missing along Hunts Lane on both sides, north of Hospitality Lane.
- There is lack of direct pathway and wayfinding signage to Santa Ana River Trail from Hospitality Lane.

FIGURE 1.32 HUNTS LANE SBX STATION CATCHMENT AREA

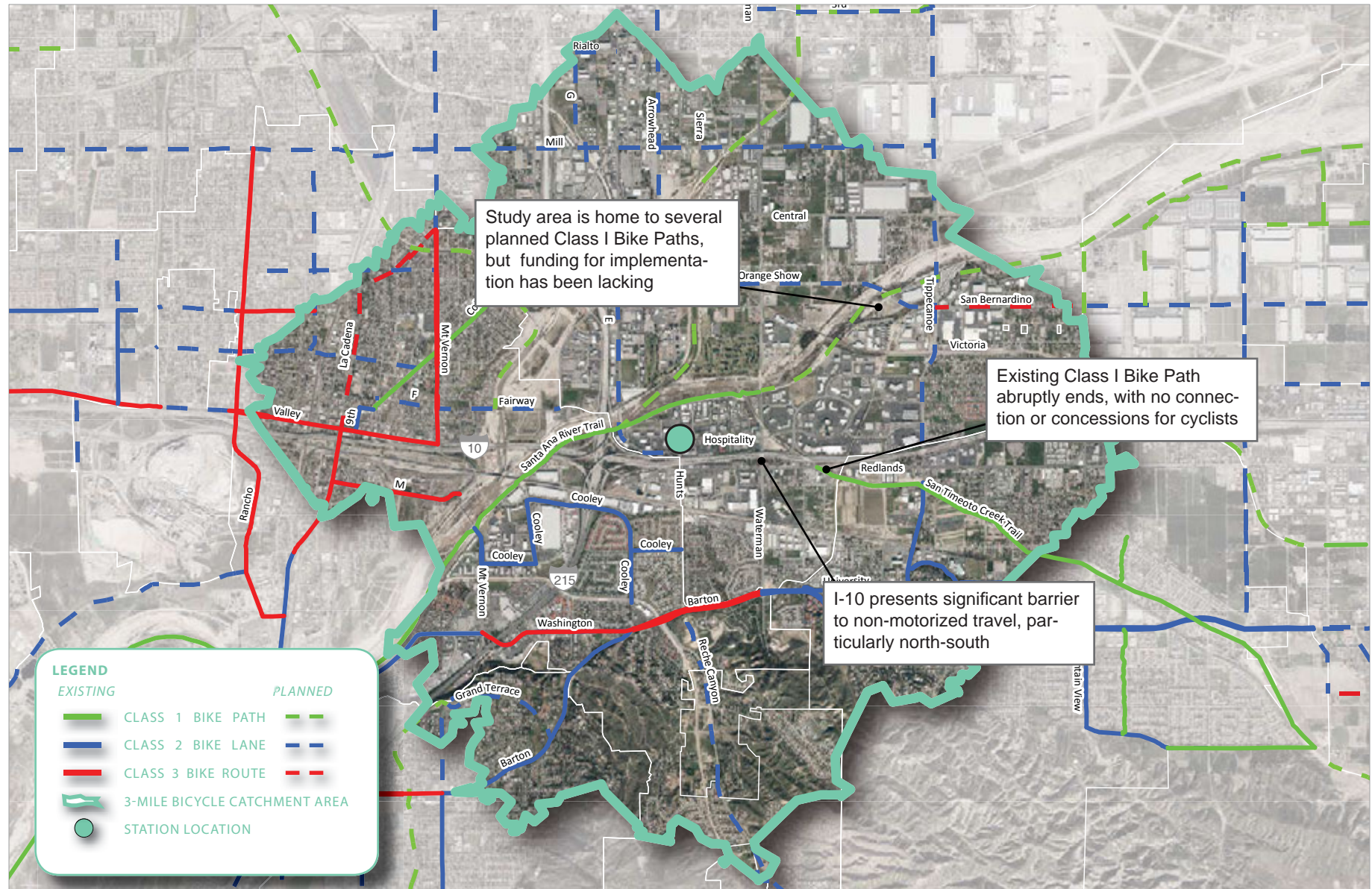
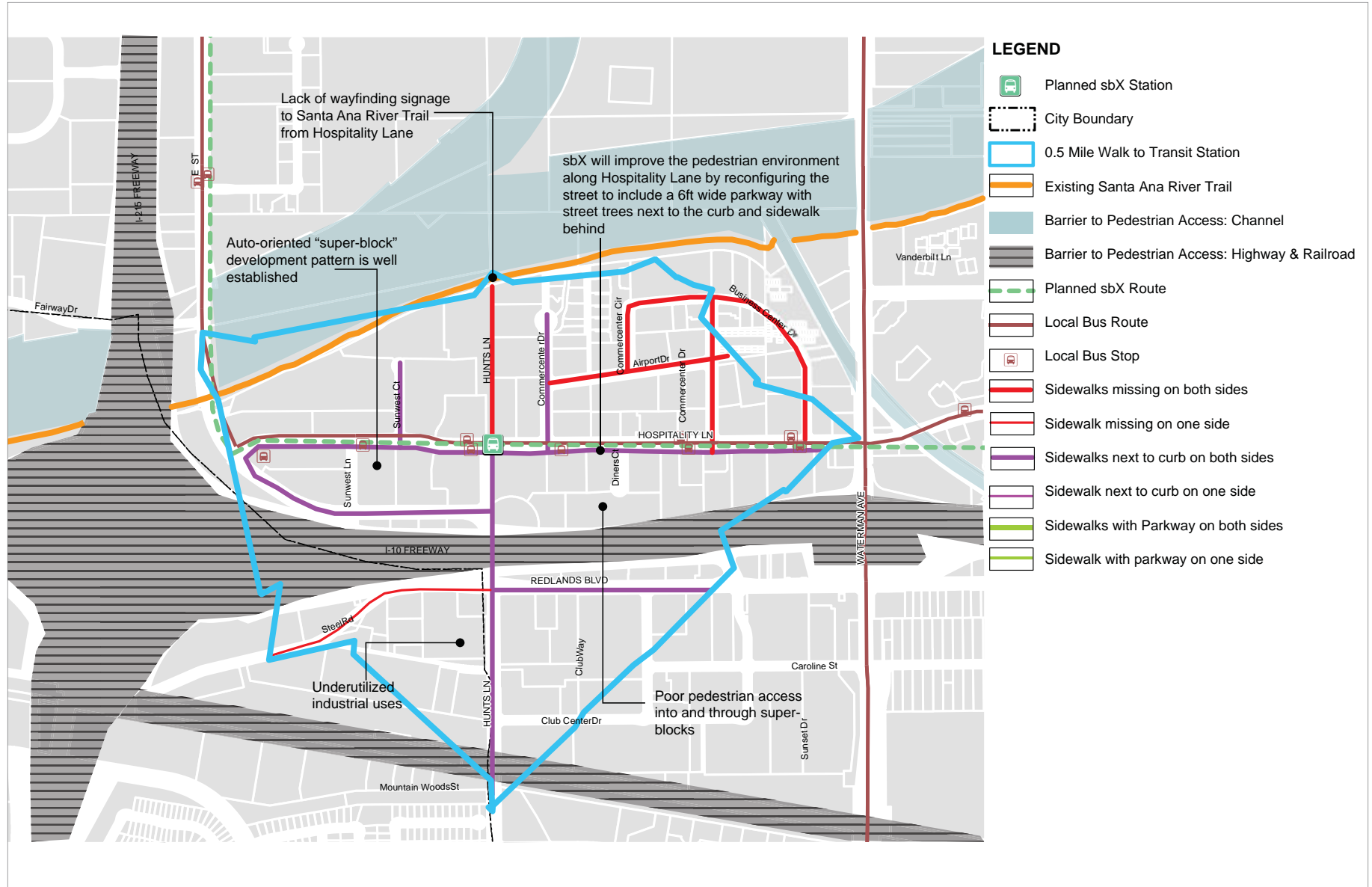




FIGURE 1.33 HUNTS LANE SBX STATION PEDESTRIAN ANALYSIS





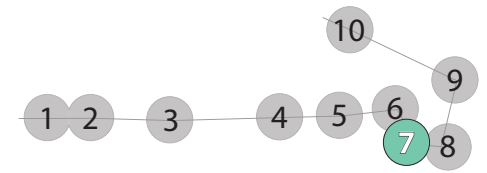
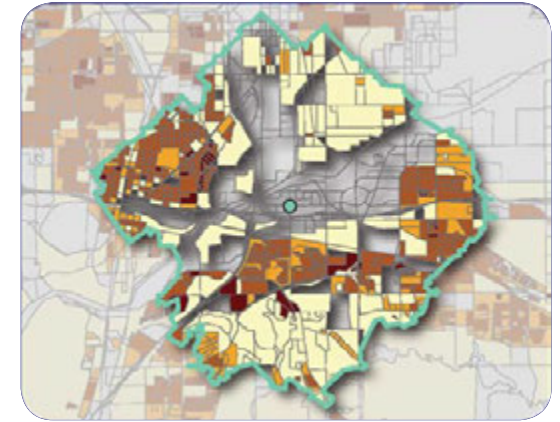
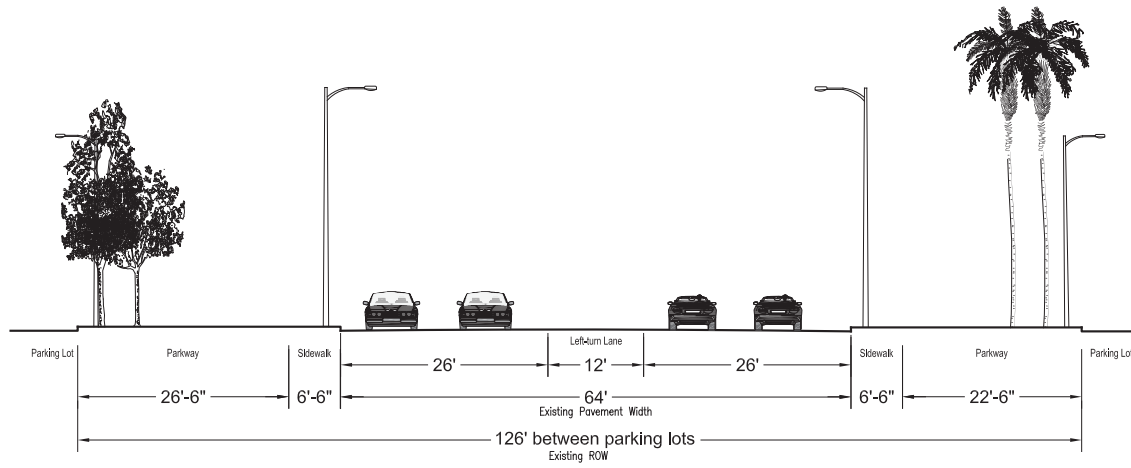
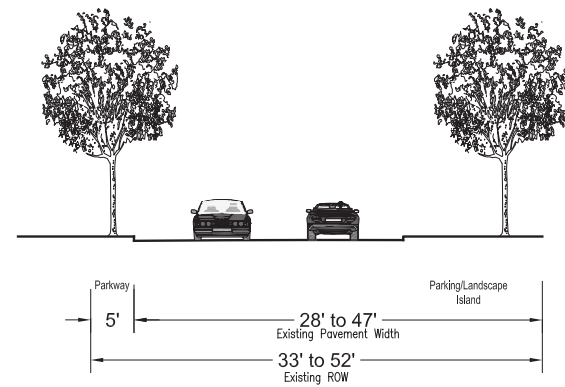


FIGURE 1.34 TYPICAL SECTION - HOSPITALITY LANE



Residential densities concentrated to south and west of study area

FIGURE 1.35 TYPICAL SECTION - HUNTS LANE NORTH OF HOSPITALITY LANE



Santa Ana River Trail Class I facility north of the Hall of Records

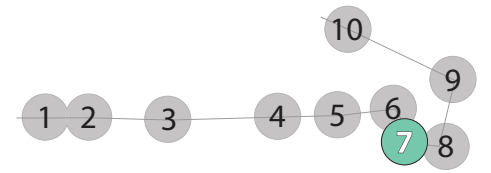


TABLE 1.14 EXISTING BICYCLE FACILITIES

Street	Rancho Ave	San Bernardino Olive St	Valley Blvd	9th St	G St	Colton Ave Bike Path	Mt Vernon Ave			La Cadena Dr	
Segment	Citrus St to La Cadena Dr	West of Rancho Ave to Pennsylvania	West of Rancho Ave to Mt Vernon Ave	G St to Valley Blvd	9th St to 10th St	G St to Wheeler Lm	Grant Ave to Valley Blvd	Santa Ana River Trail to Cooley Dr	Barton Rd to Cardinal St	Valley Blvd to M Bike Lanes	Start of Bike Lanes to Santa Ana River Trail
Existing Facility Type	Class III	Class III	Class III	Class II	Class II	Class I	Class III	Class II	Class II	Class III	Class II
Speed and Condition of Vehicular Traffic						N/A					
Pavement Condition											
"Door Zone" and Driveway Conflicts											
Transit Service and Waiting Environment in Corridor	N/A	N/A		N/A	N/A						
Amount of Key Attractions											
Amount of Bike Facility Striping or Signage											

Street	Santa Ana River Trail	M St	Washington St		Barton Rd			Cooley Dr			Cooley Dr W
Segment	La Canada Dr to Waterman Ave	La Cadena Dr to Mt Vernon Ave	Mt Vernon Ave to Barton Rd	Milano Way to Mt Vernon Ave	Cooley Dr E to Waterman Ave	Michican St to Mt Vernon Ave	Mt Vernon Ave to Washington St	Waterman Ave to Power Line Easement	Mt Vernon Ave to Cooley Ln	Cooley Dr W to Valley Woods St	Cooley Dr to Cooley Dr
Existing Facility Type	Class I	Class III	Class III	Class II	Class III	Class III	Class II	Class II	Class II	Class II	Class II
Speed and Condition of Vehicular Traffic	N/A										
Pavement Condition											
"Door Zone" and Driveway Conflicts											
Transit Service and Waiting Environment in Corridor									N/A	N/A	N/A
Amount of Key Attractions											
Amount of Bike Facility Striping or Signage											

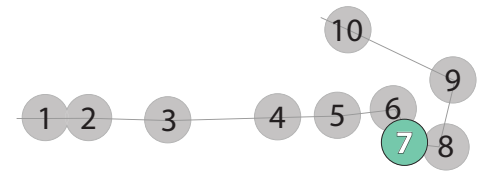


TABLE 1.14 EXISTING BICYCLE FACILITIES (CONTINUED)

Street	Cooley Dr E	Cooley Ln	University Ave	Anderson St	Shepardson Dr	Benton St	San Timoteo Creek Trail	Power Line Easement
Segment	Valley Woods St to Old Ranch Rd	Cooley Dr E to Hunts Ln	Barton Rd to Campus St	Court St to University Ave	Stewart St to Benton St	Shepardson Dr to Barton Rd	Redlands Blvd to Power Line Easement	North End to San Timoteo Creek Trail
Existing Facility Type	Class II	Class II	Class II	Class II	Class II	Class III	Class I	Class I
Speed and Condition of Vehicular Traffic							N/A	N/A
Pavement Condition								
"Door Zone" and Driveway Conflicts								
Transit Service and Waiting Environment in Corridor	N/A	N/A			N/A			N/A
Amount of Key Attractions								

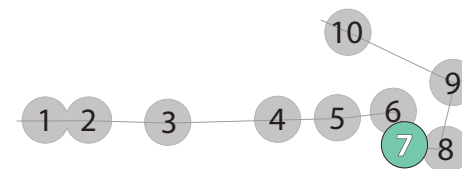
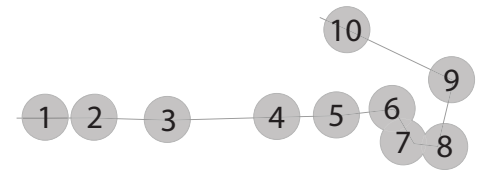


TABLE 1.15 EXISTING PEDESTRIAN FACILITIES

Street	Hospitality Ln	Hunts Ln		Redlands Blvd		Sunwest Ct	Airport Dr / Commercenter Cir/Commercenter Dr/Business Center Dr
Segment	E St to Diners Ct	North of Hospitality Ln	South of Hospitality Ln	East of Hunts Ln	West of Hunts Ln	North of Hospitality Ln	Hunts Ln to Business Center Dr
Sidewalk/Parkway Width							
Sidewalk Width							
Sidewalk Condition		N/A			N/A		N/A
Sidewalk and/or Parkway Location		N/A			N/A		N/A
Crosswalks		N/A			N/A		N/A
Curb Ramp		N/A			N/A		N/A
Street Trees Location							
Raised Median		N/A					N/A
Utility Poles and wires							
Lighting							
Street Furniture							
Wayfinding Signage in public realm							



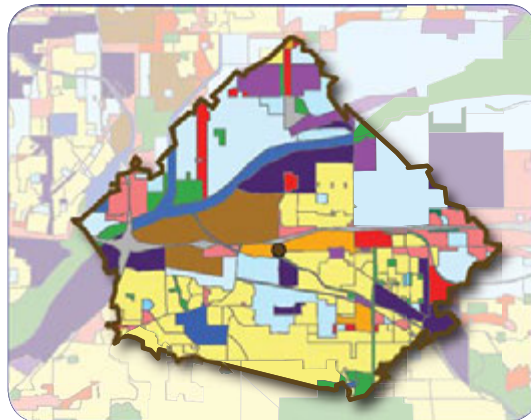
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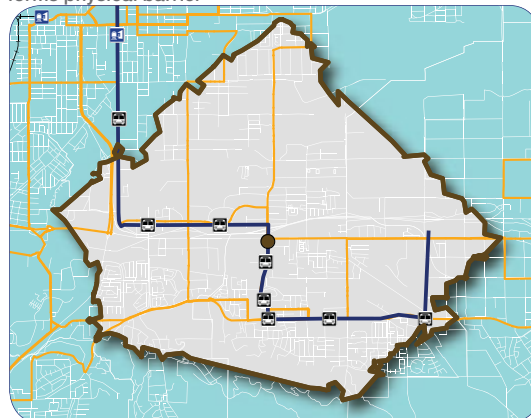




Plan for Anderson Street sbX Station



Residential uses are concentrated south of station, I-10 forms physical barrier



Transit concentrated around Loma Linda University and Medical Center

## 1.8 Anderson Street sbX Station



The Anderson Street sbX Station south of Redlands Boulevard was selected for study due to its close proximity to Loma Linda University and Medical Center and the nearby San Timoteo Creek Class I facility.

A well-developed access plan can attract a number of local students and non-student residents, as well as regional bicycle trips from the Class I facility.

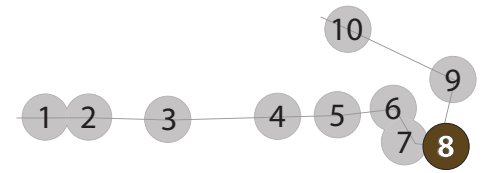
The area also possesses a fairly good mix of retail and residential uses nearby, and high-density commercial uses north of Interstate 10.

### Opportunities

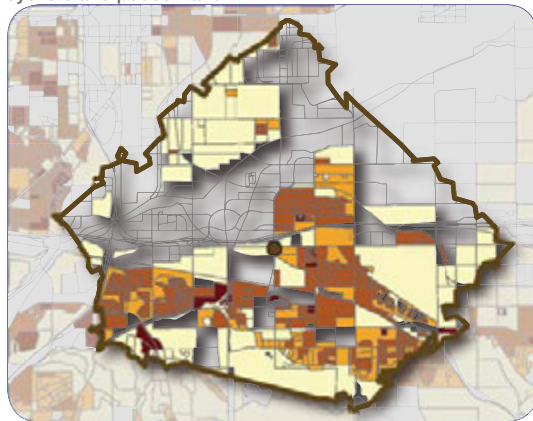
- Make a connection to the San Timoteo Class I facility.
- The campus setting and student population are comfortable with cycling for transportation.
- The major activity center is the Loma Linda Academy immediately south of the station.
- Bike lanes exist along Anderson Street.
- Planned San Timoteo Creek Trail will provide regional connectivity.
- sbX park & ride lot provides opportunities for the development of commuter-related facilities within its own site.
- Congestion from I-10 freeway to and from Anderson Boulevard is moderate to severe today due to limited through street options making it unsafe for pedestrians; however, the proposed I-10 freeway and Anderson Boulevard interchange would improve traffic conditions to and from I-10 freeway.

### Constraints

- High-speed arterials throughout study area.
- Interstate 10 creates physical barrier and challenging crossings.
- There are limited north-south connections.



Site of sbX station is frequently congested and difficult for cyclists and pedestrians



Residential density is concentrated to the south and immediate northeast of station

- Nearby barriers to pedestrian access to transit include I-10 and San Timoteo Creek.
- North of Redlands Boulevard and east of Tippecanoe Avenue, there are generally no sidewalks and curbs existing within the residential neighborhoods, limiting pedestrian safety and activity from these neighborhoods. West of Tippecanoe Avenue, the office park and commercial development along Harriman Place have sidewalks buffered by landscaping providing some pedestrian amenity but the area has large blocks with few interconnected streets and poor pedestrian connectivity.
- South of Redlands Boulevard and east of Anderson Boulevard there are many vacant and undeveloped parcels with few interconnected streets and poor pedestrian connectivity. West of Anderson Boulevard, Loma Linda Academy dominates this area. Narrow sidewalks located next to the curb connect this Academy to the station limiting pedestrian activity.



FIGURE 1.36 ANDERSON STREET SBX STATION CATCHMENT AREA

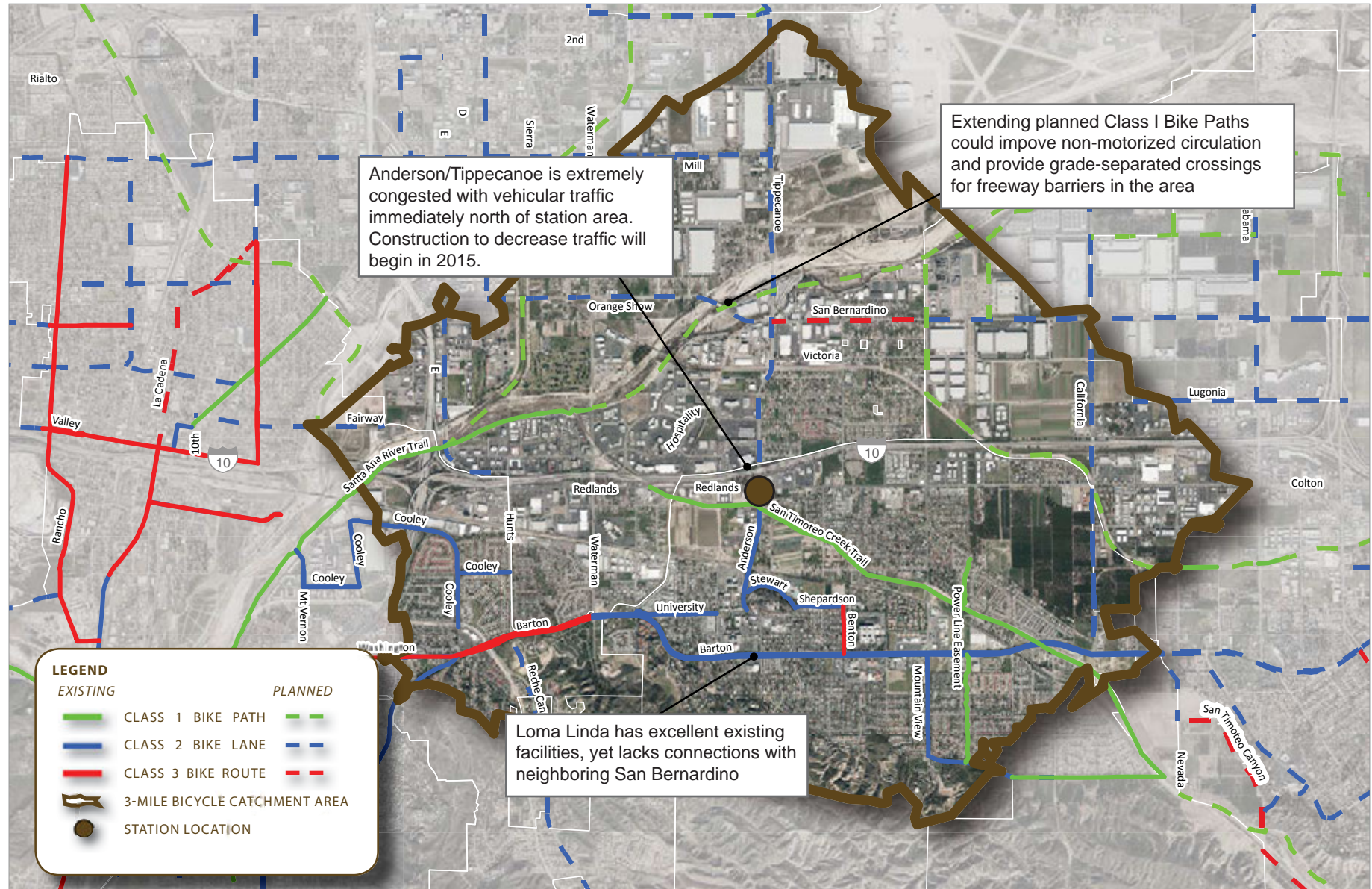
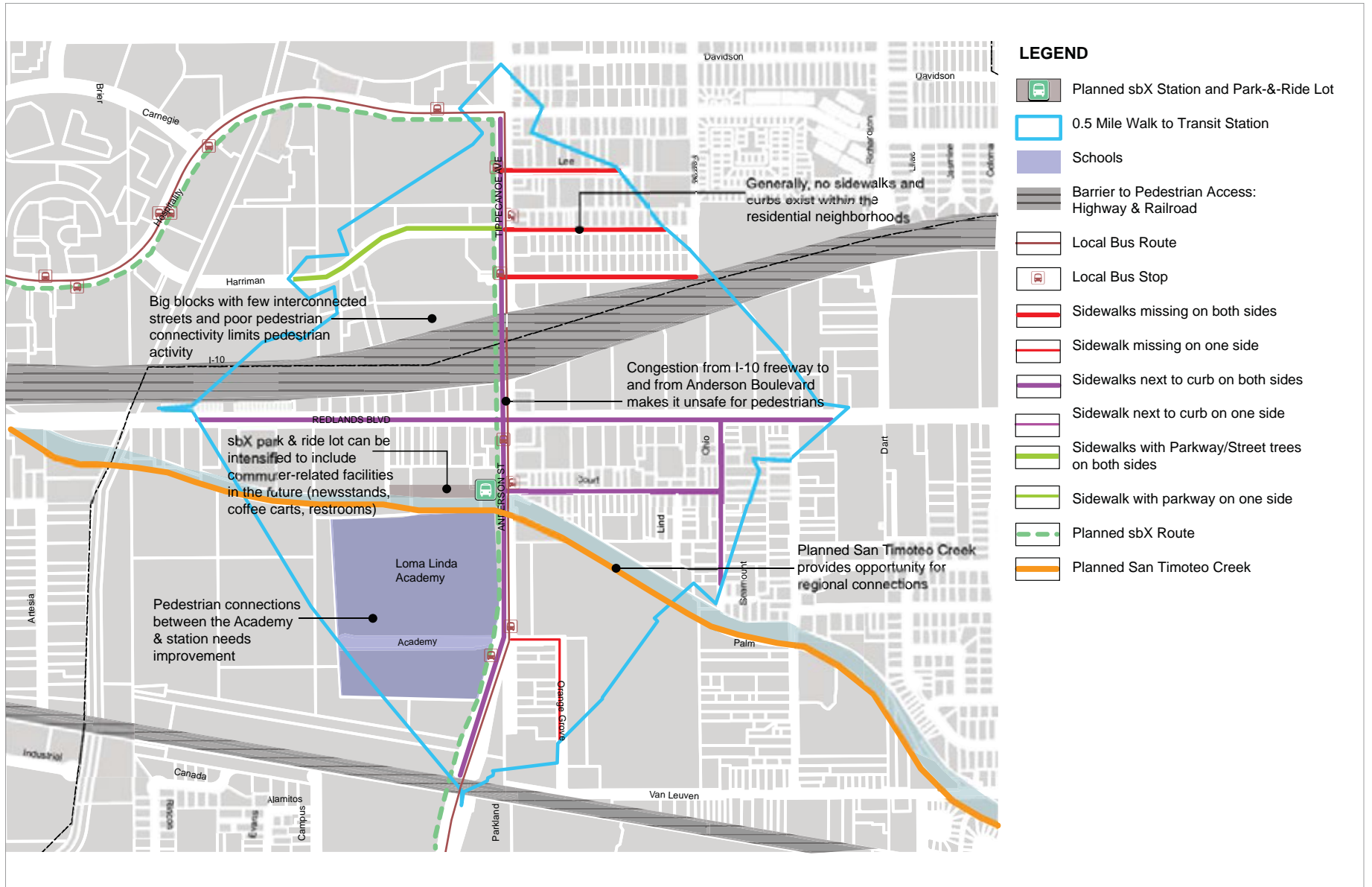
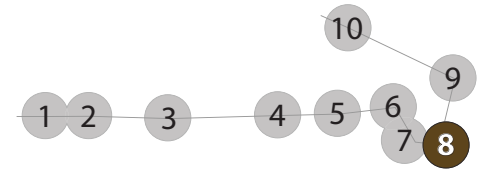
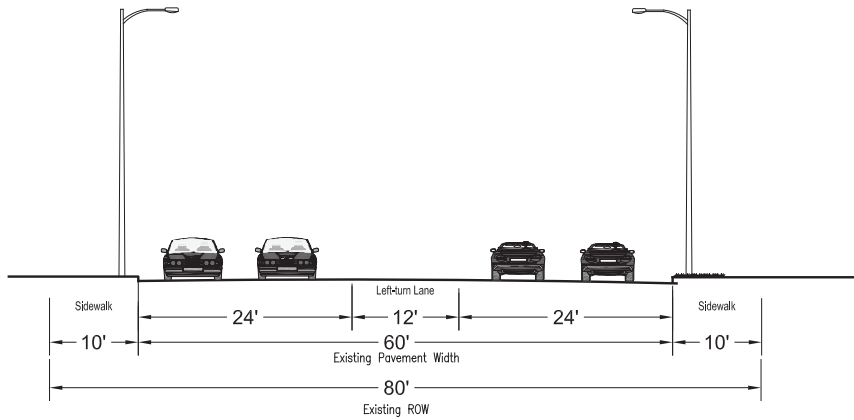


FIGURE 1.37 ANDERSON STREET SBX STATION PEDESTRIAN ANALYSIS



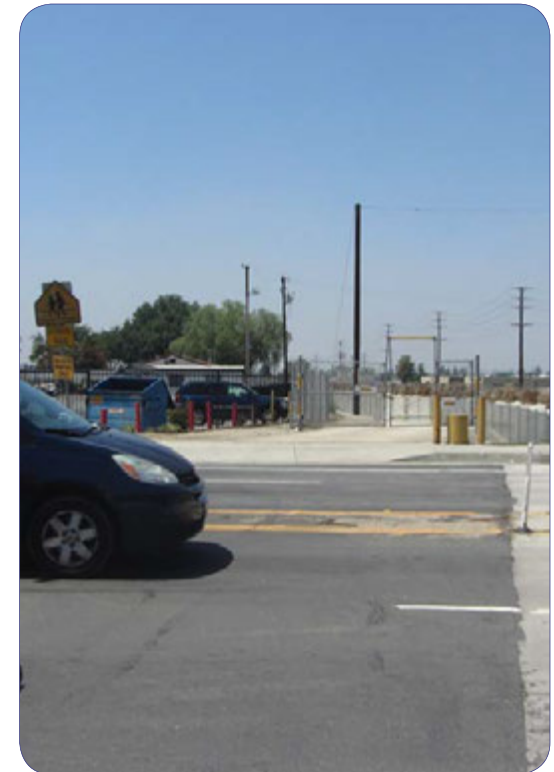
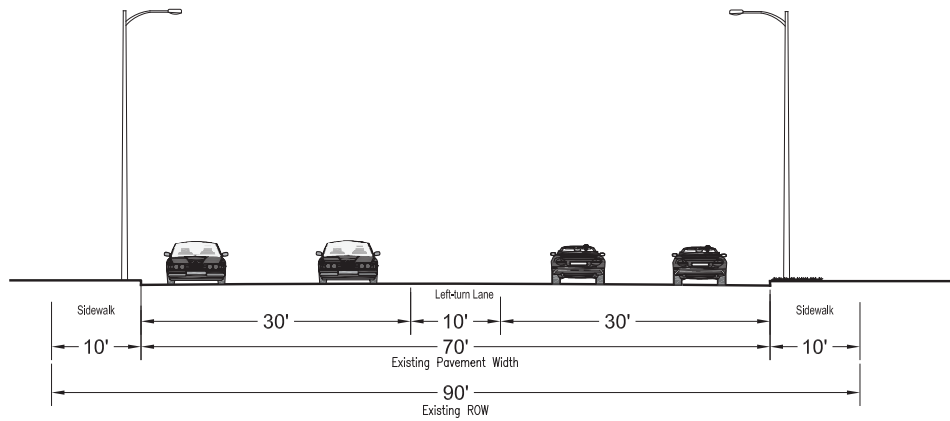


**FIGURE 1.38 TYPICAL SECTION - ANDERSON STREET**



Existing Class I facility currently terminates east of Anderson

**FIGURE 1.39 TYPICAL SECTION - REDLANDS BOULEVARD**



Class I facility will resume west of Anderson, crosswalk improvements may be needed



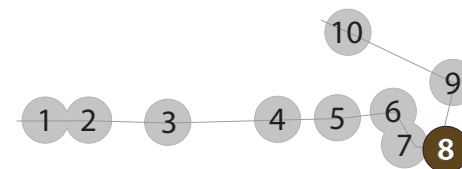


TABLE 1.16 **EXISTING BICYCLE FACILITIES**

Street	Washington St		Barton Rd			niversity Ave	Cooley Dr		Cooley Dr W
Segment	Theatre Rd to Mt Vernon Ave	Mt Vernon Ave to Barton Rd	Cooley Dr E to Waterman Ave	Waterman Ave to San Timoteo Canyon Rd	Preston St to Cooley Dr E	Barton Rd to Campus St	Mt Vernon Ave to Cooley Ln	Cooley Dr W to Valley Woods St	Cooley Dr to Cooley Dr
Existing Facility Type	Class II	Class III	Class III	Class II	Class II	Class II	Class II	Class II	Class II
Speed and Condition of Vehicular Traffic									
Pavement Condition									
"Door Zone" and Driveway Conflicts									
Transit Service and Waiting Environment in Corridor							N/A	N/A	N/A
Amount of Key Attractions									
Amount of Bike Facility Striping or Signage									

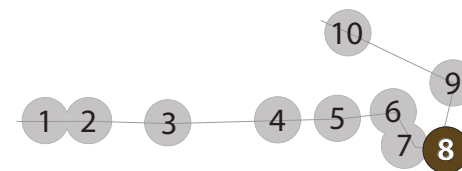


TABLE 1.16 **EXISTING BICYCLE FACILITIES (CONTINUED)**

Street	Cooley Dr E	Cooley Ln	Mt Vernon Ave	Mountain View Ave	Beaumont Ave		Anderson St
Segment	Valley Woods St to Old Ranch Rd	Cooley Dr E to Hunts Ln	Santa Ana River Trail to Cooley Dr	Barton Rd to Beaumont Ave	Mountain View Ave to Whittier Ave	Whittier Ave to San Timeoteo Creek Trail	Court St to niversity Ave
Existing Facility Type	Class II	Class II	Class II	Class II	Class II	Class I	Class II
Speed and Condition of Vehicular Traffic						N/A	
Pavement Condition							
"Door Zone" and Driveway Conflicts							
Transit Service and Waiting Environment in Corridor	N/A	N/A	N/A	N/A	N/A	N/A	
Amount of Key Attractions							
Amount of Bike Facility Striping or Signage							

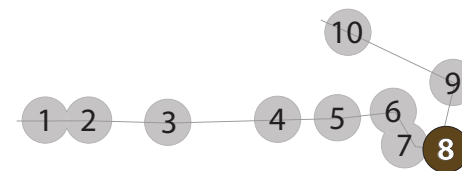


TABLE 1.16 **EXISTING BICYCLE FACILITIES (CONTINUED)**

Street	Shepardson Dr	Benton St	San Timoteo Creek Trail	Power Line Easement		Citrus Ave	Colton Ave Bike Path	Santa Ana River Trail
Segment	Stewart St to Benton St	Shepardson Dr to Barton Rd	Redlands Blvd to Beaumont Ave	North End to San Timoteo Creek Trail	Barton Rd to Beaumont Ave	Evada St to Iowa St	Vista Way to Wheeler Ln	Mt Vernon Ave to Waterman Ave
Existing Facility Type	Class II	Class III	Class I	Class I	Class I	Class I	Class I	Class I
Speed and Condition of Vehicular Traffic			N/A	N/A	N/A	N/A	N/A	N/A
Pavement Condition								
"Door Zone" and Driveway Conflicts								
Transit Service and Waiting Environment in Corridor	N/A			N/A	N/A	N/A	N/A	
Amount of Key Attractions								
Amount of Bike Facility Striping or Signage								

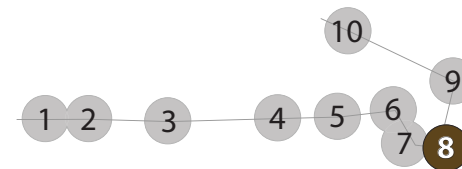
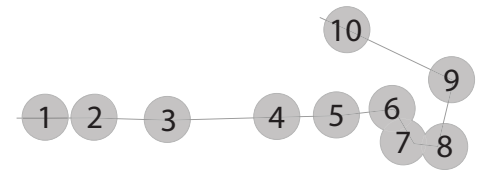


TABLE 1.17 EXISTING PEDESTRIAN FACILITIES

Street	Redlands Blvd	Anderson St	Tippecanoe Ave	Court St	Ohio St	Lee/Laurelwood Dr/Rosewood Dr	Harriman Pl	Orange Grove St
Segment	Gage Canal to Richardson St	I-10 to Court St	Hospitality Ln to I-10	Anderson St to Ohio St	Redlands St to Gage Canal	Tippecanoe Ave to Ferree St	Tippecanoe Ave to Orchard Dr	Academy St to Van Leuven St
Sidewalk/Parkway Width								
Sidewalk Width								
Sidewalk Condition								
Sidewalk and/or Parkway Location								
Crosswalks								N/A
Curb Ramp								N/A
Street Trees Location								
Raised Median				N/A	N/A	N/A		N/A
Utility Poles and wires								
Lighting								
Street Furniture								
Wayfinding Signage in public realm								



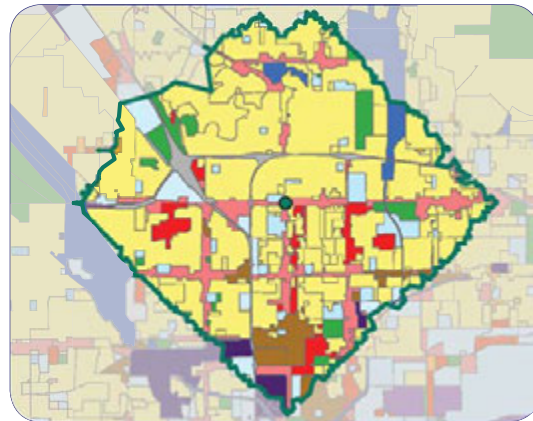
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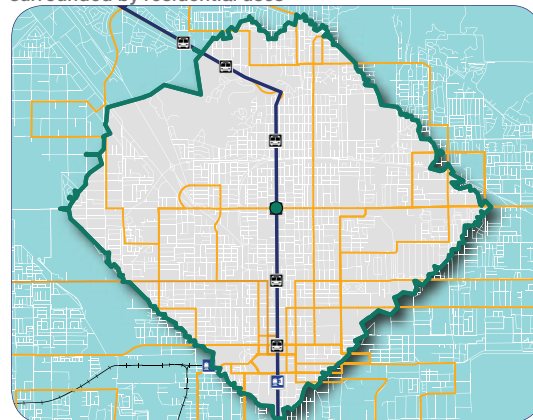




Plans for Highland Ave sbX Station



Key north-south and east-west commercial corridors are surrounded by residential uses



Commercial area is well-served by transit

## 1.9 Highland Avenue sbX Station

The Highland Avenue sbX Station is located in the heart of San Bernardino. The site will feature station platforms at opposite corners of Highland Avenue and E Street. Residential and commercial uses dominate the area, and the immediate vicinity is home to two schools, Arrowview Middle School and San Bernardino High School.



### Opportunities

- Destinations within the station vicinity include Arrowview Middle School immediately west of the station and San Bernardino High School to the south.
- A walkable grid street pattern exists in the station catchment area.
- Large shade trees in parkways provide a pleasant pedestrian-friendly environment within the neighborhoods north of Highland Avenue along E Street.
- Sidewalks are in good condition near the station.
- Good pedestrian activity along both E Street and Highland Avenue and the walkable grid street pattern in the vicinity support walking.
- Existing east-west transit connections along Highland Avenue and planned BRT system along E Street provide additional mobility choices.
- D Street is a four lane street with approximately 20' curb lanes offering opportunity to accommodate bike lanes paralleling E Street.

### Constraints

- Highland Avenue is not a pedestrian-friendly street, especially east of E Street, as it is a four lane street with painted left-turn lane and 9' sidewalks located next to the curb with little to no landscaping.
- Generally sidewalks and curb ramps are not ADA compliant.

FIGURE 1.40 HIGHLAND AVENUE SBX STATION CATCHMENT AREA

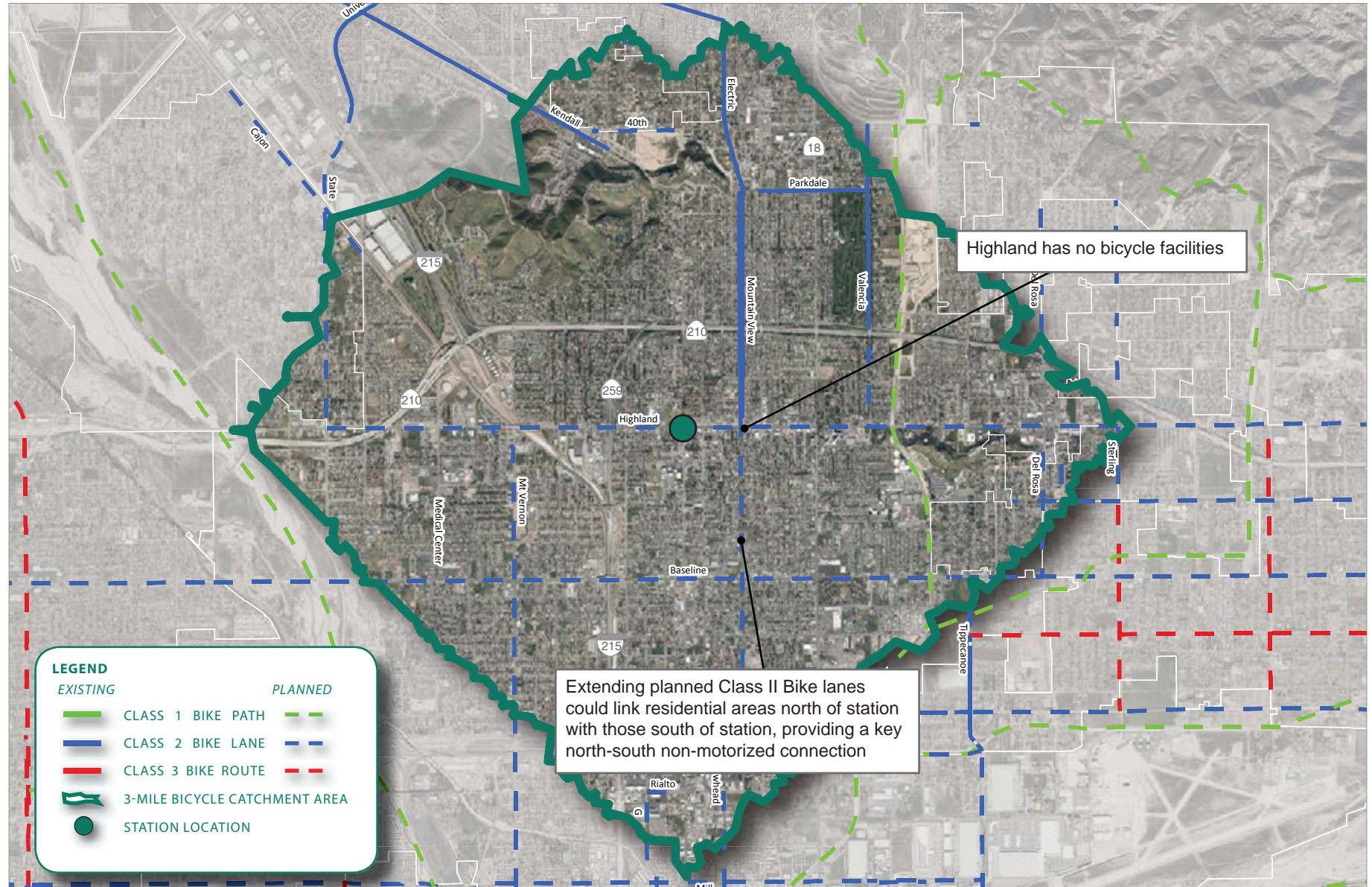
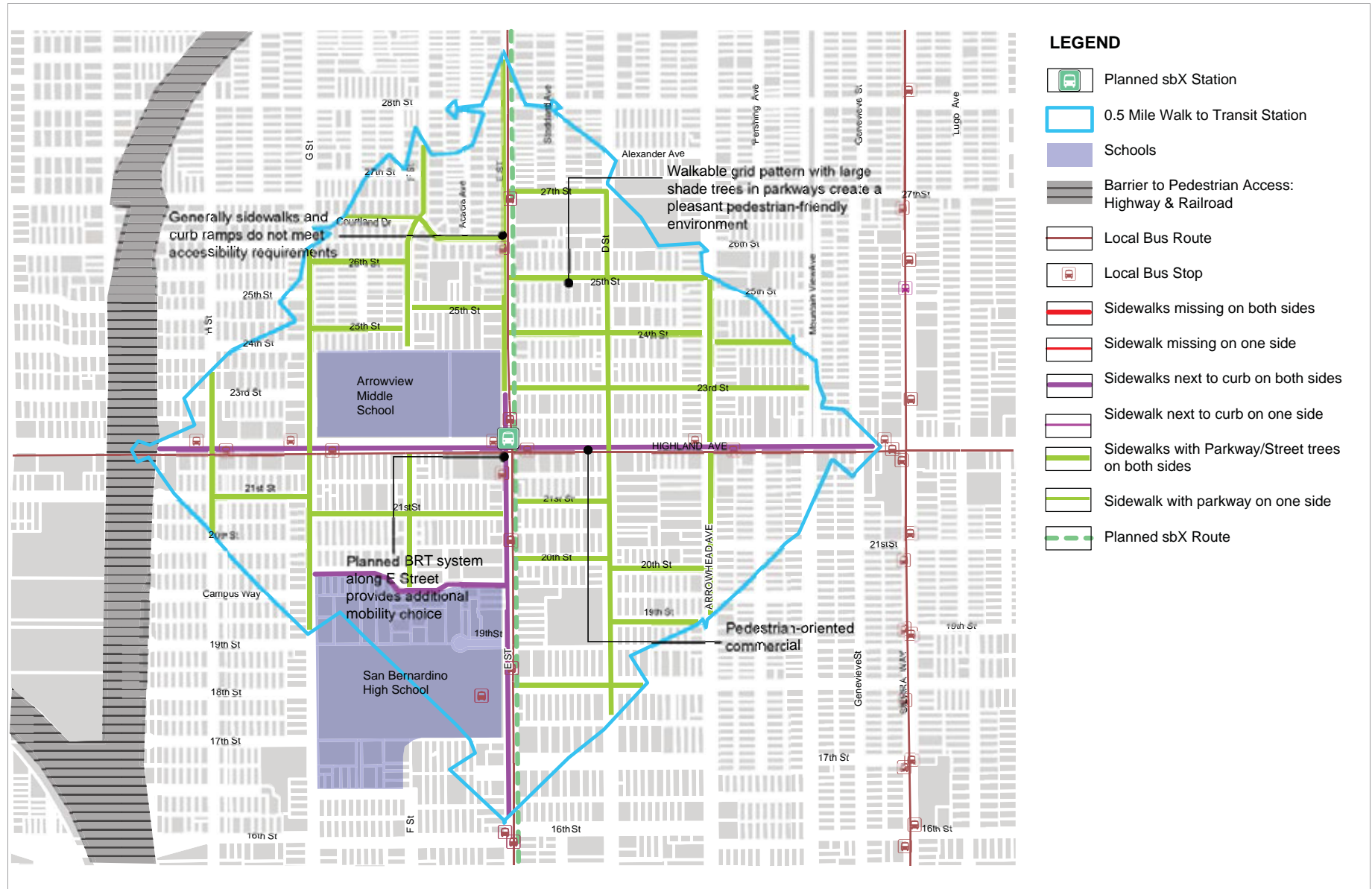


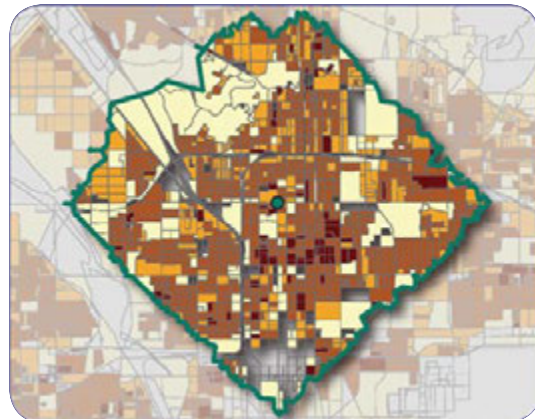


FIGURE 1.41 **HIGHLAND AVENUE SBX STATION PEDESTRIAN ANALYSIS**





Several schools can be found within study area



Residential density is significant throughout study area

FIGURE 1.42 TYPICAL SECTION - HIGHLAND AVE

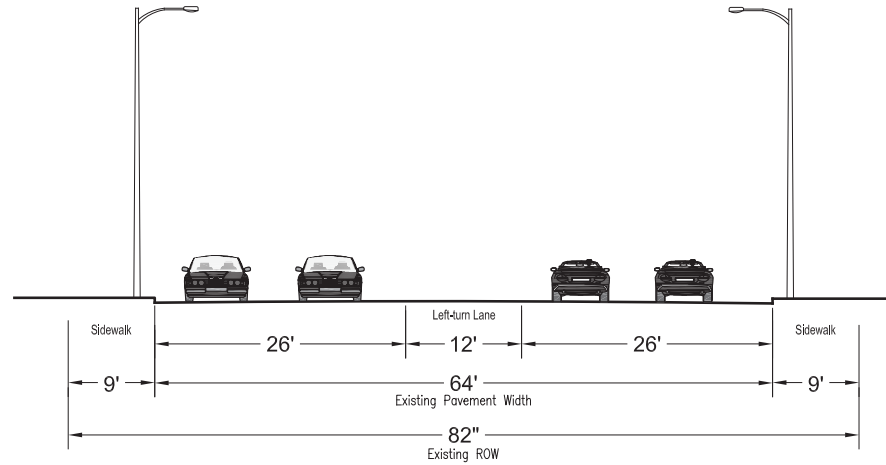


FIGURE 1.43 TYPICAL SECTION - D STREET

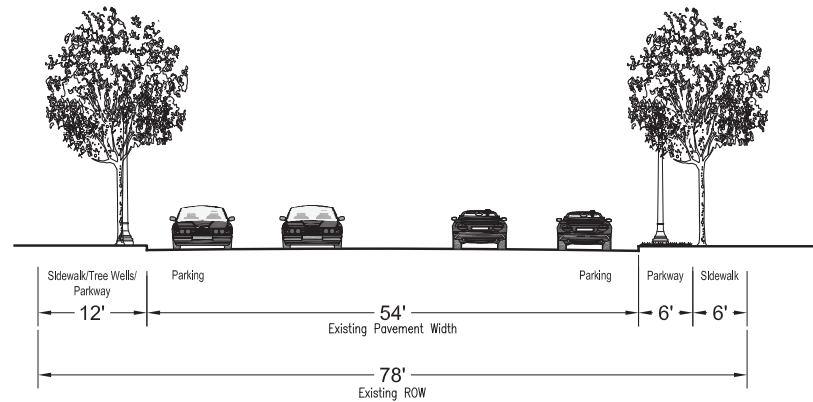


FIGURE 1.44 TYPICAL SECTION - RESIDENTIAL STREET

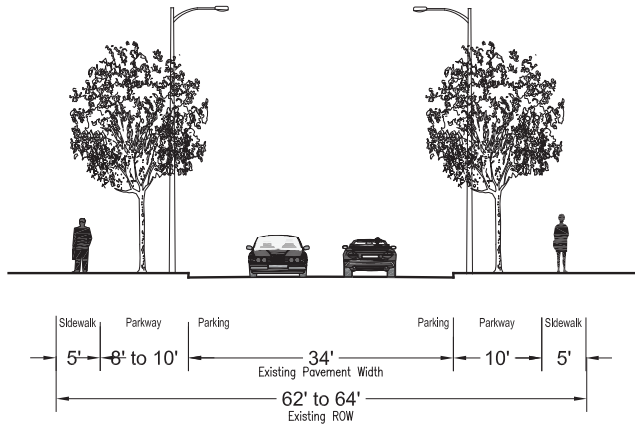
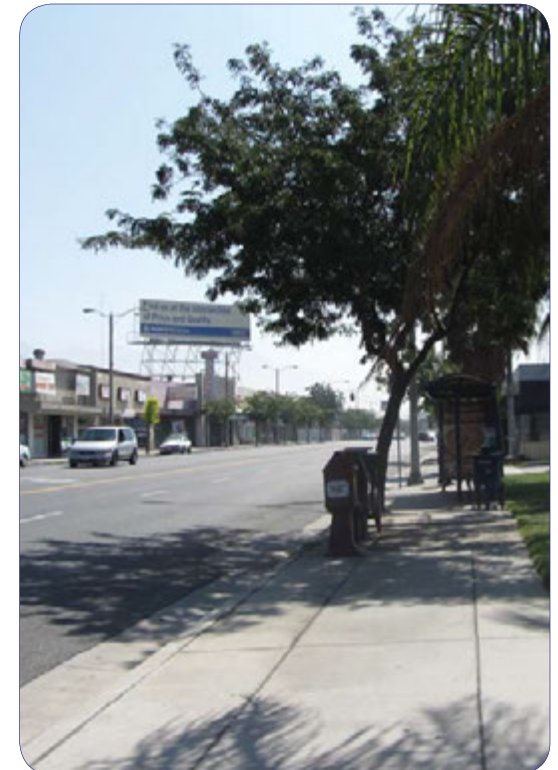


TABLE 1.18 EXISTING BICYCLE FACILITIES

Street	Kendall Dr	orthpark Blvd	Electric Ave Mountain View Ave	Parkdale Dr	Valencia Ave
Segment	Brookfield St to Shandin Hills Cir	Mountain Dr to Electric Ave	orthpark Blvd to 23rd St	Sierra Way to Valencia Ave	0th St to 30th St
Existing Facility Type	Class II	Class II	Class II	Class II	Class II
Speed and Condition of Vehicular Traffic	◐	◑	◐	◐	○
Pavement Condition	◐	○	◐	◐	○
"Door Zone" and Driveway Conflicts	○	○	○	◐	○
Transit Service and Waiting Environment in Corridor	◐	◐	◐	N/A	N/A
Amount of Key Attractions	◐	◐	◐	◐	◐
Amount of Bike Facility Striping or Signage	◐	◑	○	◐	○



Example of a standard unimproved crosswalk



Highland Avenue commercial area pedestrian environment



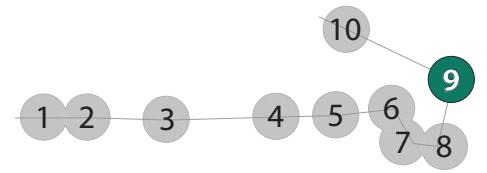
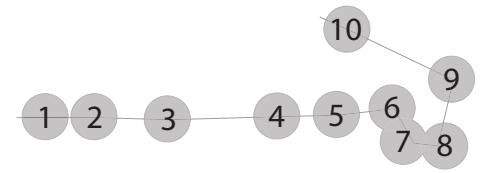


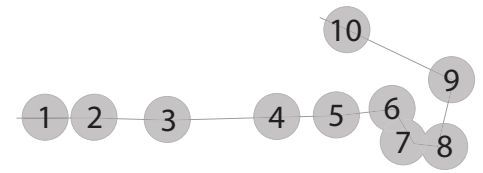
TABLE 1.19 EXISTING PEDESTRIAN FACILITIES

Street	E Street		Highland		D Street	Arrowhead Avenue	G Street	H Street	Residential Streets	
	North of Highland Avenue	South of Highland Avenue	East of E Street	West of E Street	28th St to 16th St	26th to 18th St	27th St to 18th St		North of Highland Avenue	South of Highland Avenue
Sidewalk/Parkway Width										
Sidewalk Width										
Sidewalk Condition										
Sidewalk and/or Parkway Location										
Crosswalks										
Curb Ramp										
Street Trees Location										
Raised Median									N/A	N/A
Utility Poles and wires										
Lighting										
Street Furniture										
Wayfinding Signage in public realm										



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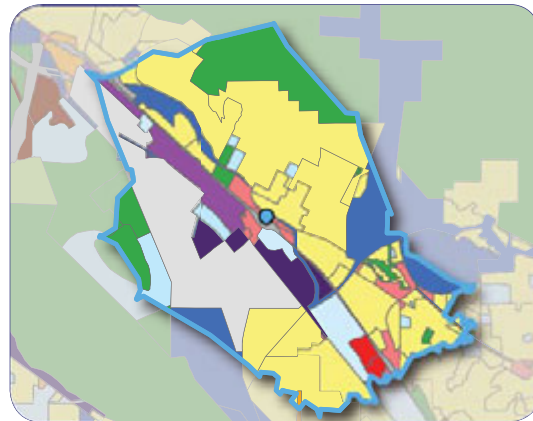


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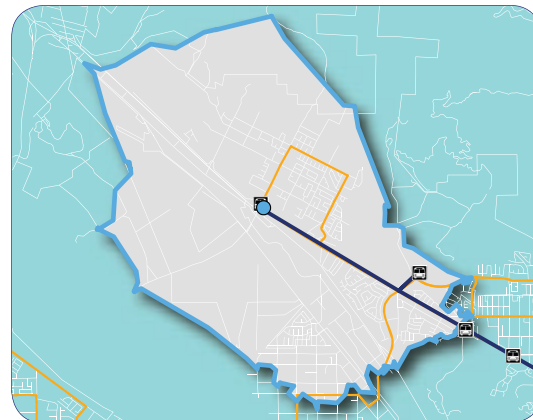
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Plan for Palm Avenue sbX Station



Residential land uses are separated by Interstate 215



Limited existing and planned transit service, "end of line" sbX facility

## 1.10 Palm Avenue sbX Station

The Palm Avenue sbX Station is located immediately southwest of a newer residential development. On the opposite side of the station and the adjacent Interstate 15 freeway are a number of low-density heavy industrial uses. Interstate 15 effectively bisects the study area, and creates a barrier for accessing the station from a second area of residential development at the southern end of the study area.

The station is designed to be the northern terminus of the E Street sbX line, and when completed, will feature an off-street facility with bus bays, waiting areas, and a small passenger parking lot.

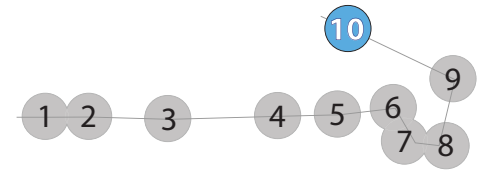


### Opportunities

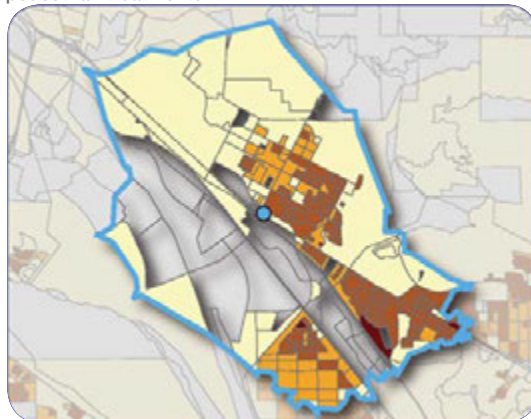
- Existing Class I facility runs through the center of the residential district.
- Planned Class I facility along flood channel would connect to greater San Bernardino.
- Limited existing development around station area provides "blank canvas" for station-area improvements and appropriate design guidelines.
- sbX station and improvements under construction offer an opportunity to improve pedestrian connections.
- Existing Chestnut Trail provides recreational opportunities.
- Two vacant parcels near the station are slated for mixed-use developments.

### Constraints

- Interstate 215 presents physical and psychological barrier to access to and from residential area southeast of the station.
- Industrial land uses south of Interstate 215 employ relatively few people at present, meaning non-motorized access to station may be peak-only and one-directional.
- Nearby barriers to pedestrian access to transit include the I-215 Freeway, a drainage channel and steep topography.



Newer residential development features ADA-compliant pedestrian treatments

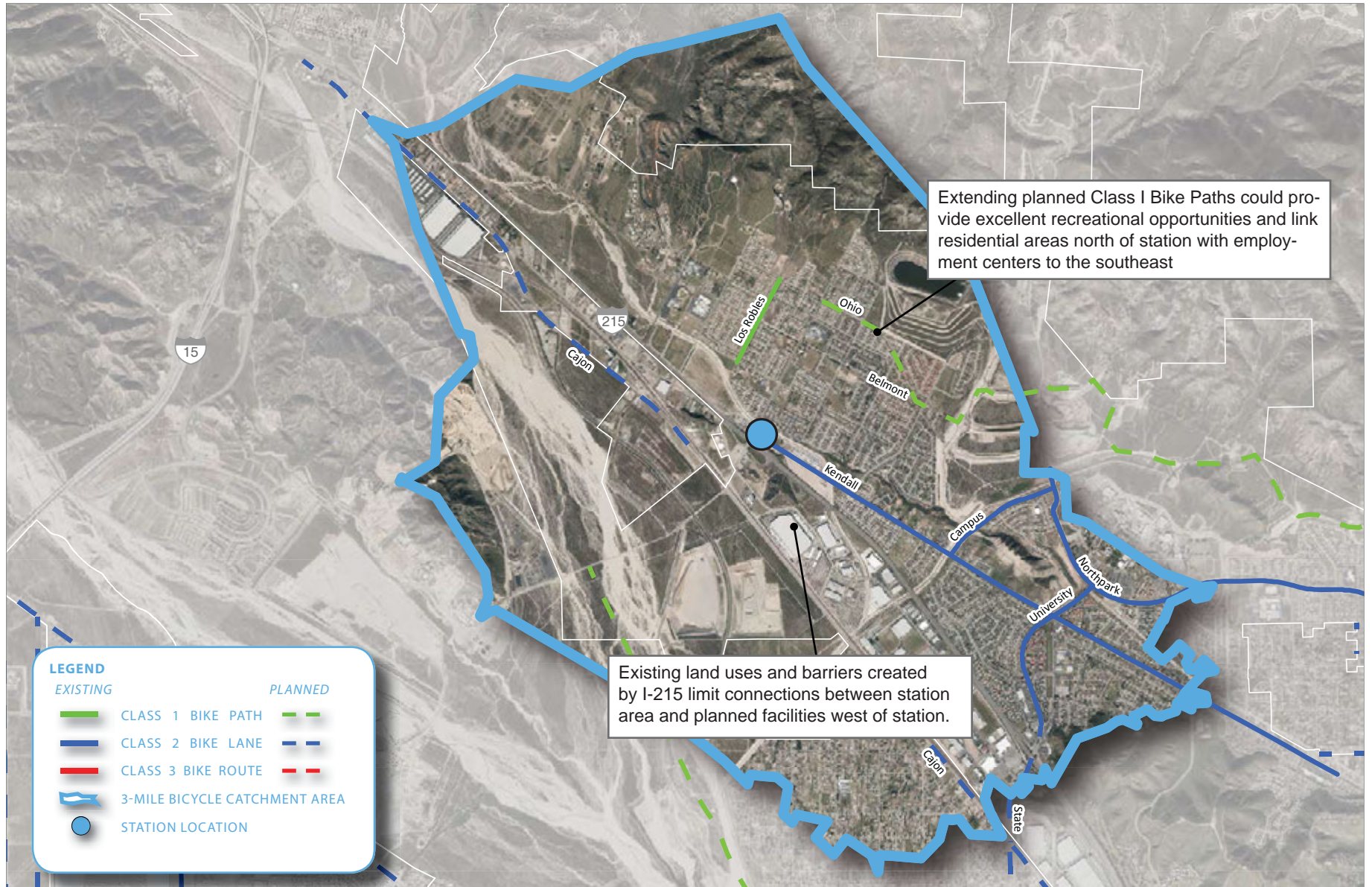


Interstate creates physical barrier to access for residents south of station

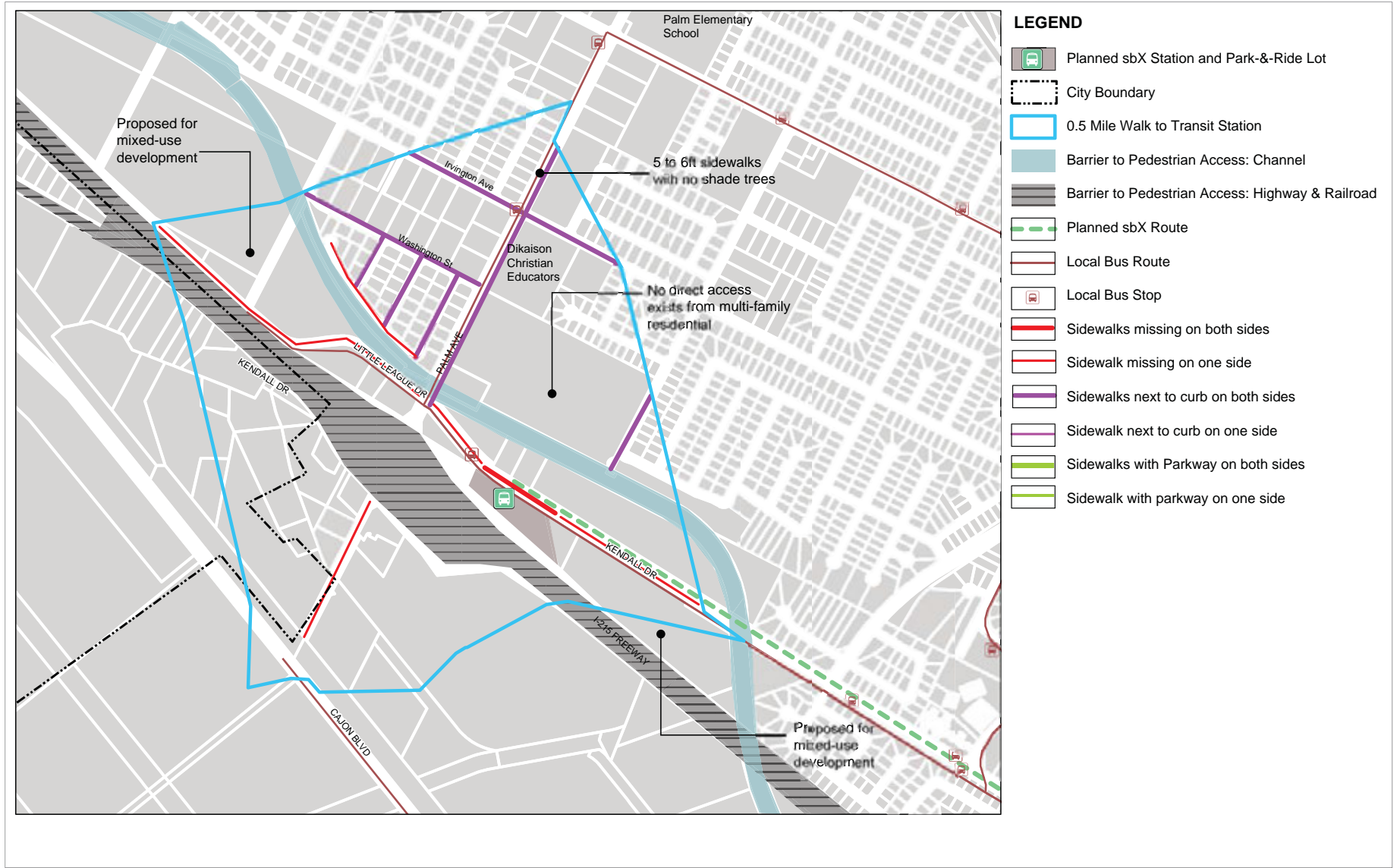
- North of Kendall Drive newer residential areas have 5 to 6' sidewalks leading to the stations; however, no landscaping and/or shade trees are located next to the curb to protect and/or shade pedestrians.
- Incomplete sidewalks exist along Kendall Drive, near the sbX station and park & ride lot and near the intersection of Kendall Drive and Palm Avenue.
- There is significant congestion at Palm/Kendall Drive.
- A major “Park n Ride” is being constructed as part of sbX.



FIGURE 1.45 PALM AVENUE SBX STATION CATCHMENT AREA



**FIGURE 1.46 PALM AVENUE SBX STATION PEDESTRIAN ANALYSIS**





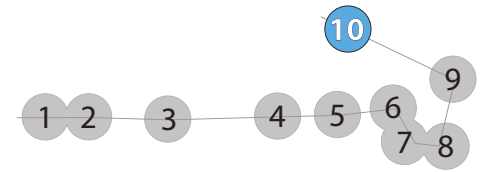


FIGURE 1.47 TYPICAL SECTION - KENDALL AVENUE

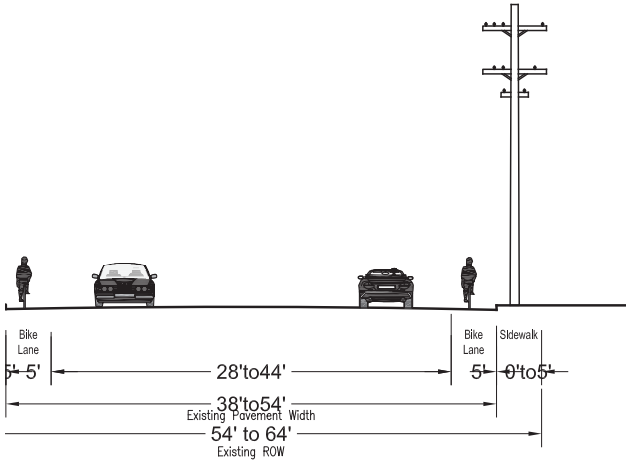
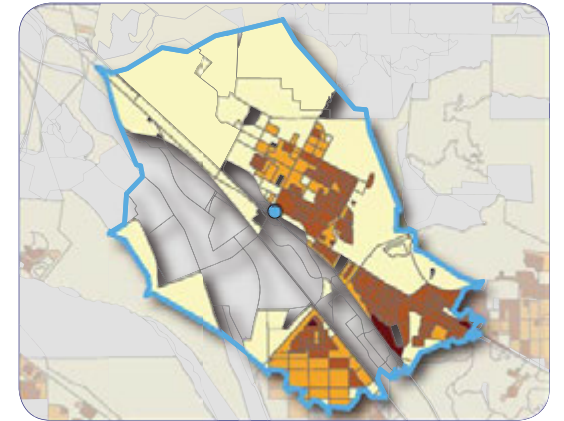
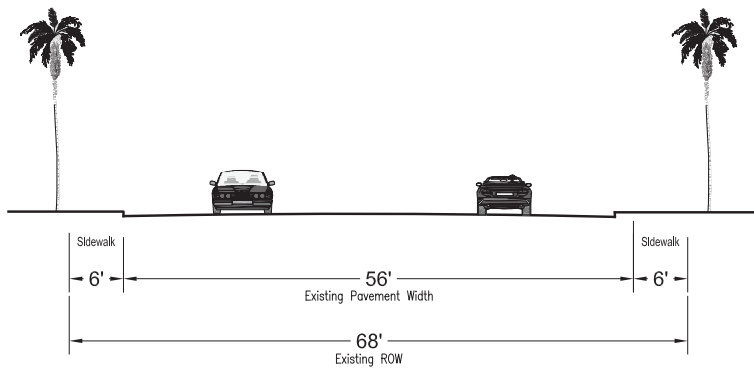
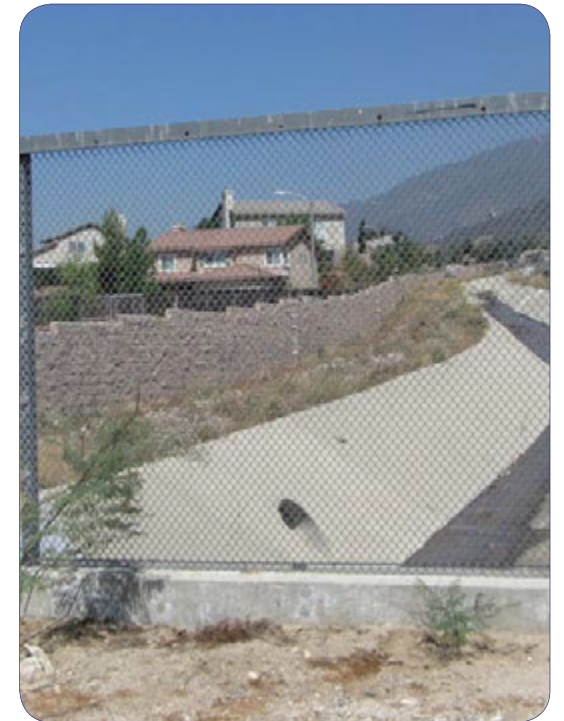


FIGURE 1.48 TYPICAL SECTION - PALM AVENUE



Interstate creates physical barrier to access for residents south of station



Site of planned Class I facility north of station area

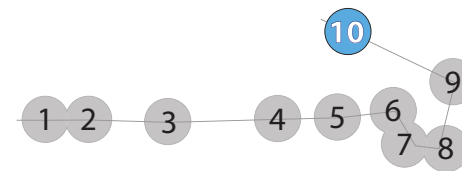


TABLE 1.20 EXISTING BICYCLE FACILITIES

Street	Chesnut Ave Path	Kendall Dr	Campus Pkwy	Devils Canyon Rd orthpark Blvd	niversity Pkwy
Segment	Ohio Ave to rvington Ave	Palm Ave to Little Mountain Dr	Kendall Dr to Devils Canyon Rd	Ben Canyon Rd to Westwind Dr	orthpark Blvd to State St
Existing Facility Type	Class I	Class II	Class II	Class II	Class II
Speed and Condition of Vehicular Traffic	N/A				
Pavement Condition					
"Door Zone" and Driveway Conflicts					
Transit Service and Waiting Environment in Corridor	N/A				
Amount of Key Attractions					
Amount of Bike Facility Striping or Signage					

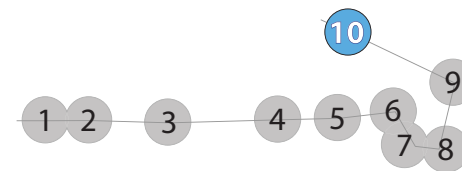
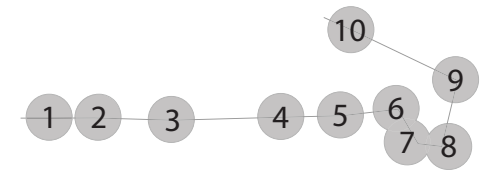


TABLE 1.21 EXISTING PEDESTRIAN FACILITIES

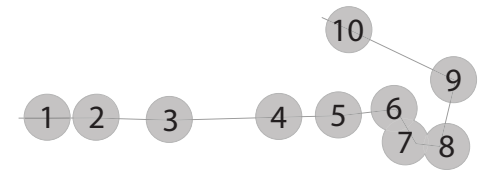
Street	Kendall Dr	Palm Ave		Livingston Ave	Washington St	Other Residential Streets
Segment		North of Kendall Dr	South of Kendall Dr			
Sidewalk Parkway Width						
Sidewalk Width						
Sidewalk Condition						
Sidewalk and or Parkway Location						
Crosswalks						N/A
Curb Ramp						
Street Trees Location						
Raised Median				N/A	N/A	N/A
Utility Poles and wires						
Lighting						
Street Furniture						
Wayfinding Signage in public realm						





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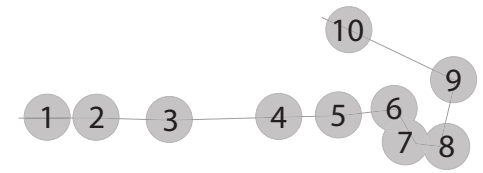


## 2 Best Practices

This chapter presents best practices designed to improve the attractiveness of non-motorized transportation facilities within station catchment areas. The elements presented in this section seek to create environments in which bicycling and walking to transit stops and stations are convenient transportation options and where non-motorized transportation is safe and comfortable.

This chapter is organized as a toolkit with the following sections:

- ▶ 2.1 Sidewalks - Sidewalk width, street furniture, landscaping, driveways, and street lighting
- ▶ 2.2 Intersections - Crosswalks, curb extensions, curb ramps, median crossing islands, triangular median islands, pedestrian push button, pedestrian countdown signal, bicycle detection, intersection crossing markings, bike box, and advance stop bar / yield line
- ▶ 2.3 Traffic Calming - Curb radii reduction, landscaped medians, speed humps / speed tables, chicanes / chokers, speed feedback signs
- ▶ 2.4 Bicycle Facilities - Bicycle paths, bicycle lanes, bicycle routes, bicycle boulevards, on-street parking, wayfinding signage, bicycles on transit, roadway hazards, undercrossings / overcrossings, and bicycle signals
- ▶ 2.5 Transit Stops and Stations - Shelter, seating, trip information, trash container, bicycle storage, security, and wayfinding signage



## 2.1 Sidewalks

The following section presents best practices in sidewalk design and maintenance to improve access to transit stops and stations by walking.



Sidewalks should be wider than four feet in areas with high pedestrian volumes.

### Sidewalk Width and Clear Pathways

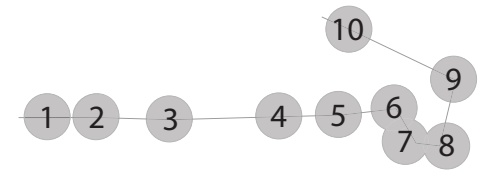
A continuous and well-connected sidewalk network creates a safe and more comfortable environment for pedestrians. Sidewalks should be at least four feet wide and wider in areas with high pedestrian volumes. Obstructions such as utility boxes and newspaper racks should be located outside of the path of travel to provide access for persons with disabilities. Sidewalks can be constructed from concrete or decorative pavers, such as bricks, which creates a more aesthetically pleasing streetscape. Concrete sidewalks cost approximately \$90 per linear foot to install and the cost to install sidewalks using decorative pavers varies by material.



Street furniture on sidewalks acts as a buffer between pedestrians and vehicular traffic.

### Street Furniture

Providing street furniture on sidewalks acts as a buffer between pedestrians and vehicular traffic. Benches, water fountains, and bicycle parking racks are recommended types of street furniture because they address needs that a pedestrian may have, such as a place to rest. Street furniture should be placed outside of the walking zone as to not create a hazard to pedestrians. The cost to install street furniture varies by type and among vendors.



Street trees can provide shade for people walking and gathering on the sidewalk.



Driveways with a “right-in right-out” design reduce the number of conflict points between automobiles and pedestrians.



Pedestrian scale lighting creates a more comfortable walking environment.

## Landscaping

Installing sidewalk landscaping also creates a buffer between pedestrians and vehicular traffic. Landscaping can make a streetscape more visually appealing and street trees can provide shade for people walking and gathering. Costs of sidewalk landscaping include additional water and maintenance, which can be a challenge for implementation. Drought tolerant plants can reduce maintenance costs because they require less water.

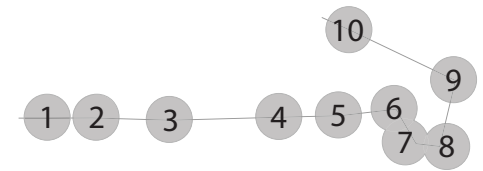
## Driveways

Improving the design and minimizing the frequency of driveways can reduce conflicts between vehicles and pedestrians. Reducing driveway width and tightening curb radii causes motorists to drive more slowly. Converting driveways to a “right-in right-out” design reduces the number of conflict points between automobiles and pedestrians. Providing a level sidewalk across driveways improves access for persons with disabilities.

## Street Lighting

Street lighting improves streetscapes by increasing security for pedestrians and increasing visibility for both bicyclists and pedestrians. Streetlights should be installed on both sides of the street and the level of lighting should be consistent throughout the segment. Providing pedestrian scale lighting creates a more aesthetically pleasing and comfortable environment to walk in. Intersections often require additional lighting to allow motorists to see pedestrians crossing.





## 2.2 Intersections

The following section presents best practices for intersection design to improve safety and convenience in walking and bicycling to transit stops and stations.



Marked crosswalks indicate to motor vehicles where pedestrians have right-of-way and where to yield.

### Crosswalks

Installing crosswalks helps pedestrians to identify ideal locations at which to cross a street. Marked crosswalks also indicate to motorists where pedestrians have right-of-way and where to yield. Crosswalks should be highly visible to both drivers and pedestrians and can be installed with basic striping or decorative pavers. The cost of striping a typical high visibility crosswalk is approximately \$600 per crosswalk. The cost of installing decorative crosswalks varies by size and materials. Crosswalks can also be supplemented with in-pavement flashing lights or freestanding beacons to increase visibility, which is particularly important for mid-block crossings.

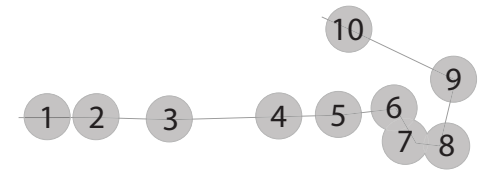


Curb extensions can have decorative pavers and landscaping.

### Curb Extensions

A curb extension is a portion of the sidewalk that is extended into the parking lane at intersections. This reduces the distance that pedestrians need to walk to cross the street, makes pedestrians more visible to motor vehicles, and causes drivers to reduce speeds by narrowing the roadway. Curb extensions must be installed with curb ramps that comply with ADA standards (see following page). Curb extensions are typically constructed with concrete, but can have decorative pavers and landscaping, as well.





Curb ramps should be installed at each crossing approach.

## Curb Ramps

Curb ramps allow persons in wheelchairs, with walkers, with strollers, and with disabilities convenient access to the sidewalk from the street. The Americans with Disabilities Act (ADA) requires curb ramps to be installed at all locations where pedestrians cross. Curb ramps for each crossing approach are recommended rather than one curb cut per corner so that visually impaired persons have better orientation. Warning strips should be installed on all ramps. Curb ramps cost approximately \$5,000 each to construct.



Median crossing islands allow pedestrians to focus on crossing one direction of traffic at a time.

## Pedestrian Refuge Islands

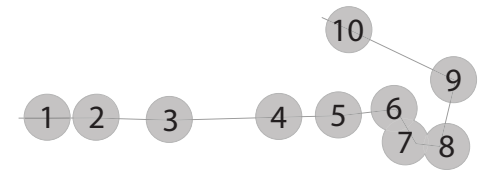
Medians are elevated barricades that divide the roadway down the center. Pedestrian refuge islands can provide a protected space for pedestrians crossing the street and allow pedestrians to focus on crossing one direction of traffic at a time. They are especially recommended for wide streets and arterials that pedestrians may have trouble crossing before the end of the signal phase. The cost to construct a pedestrian refuge island is approximately \$20,000.



Triangular median islands allow pedestrians to cross right turn slip lanes and wait in the median until they have the right-of-way to cross.

## Triangular Median Islands

Installing triangular or “porkchop” median islands provides increased safety and convenience for pedestrians crossing right turn slip lanes. Pedestrians can cross the slip lane and wait in the median until they have the right-of-way to cross the street. Striping crosswalks in combination with triangular median islands increases the visibility of pedestrians to motorists. The cost to construct triangular medians depends on the size of the island.



Pedestrian push buttons allow pedestrians to trigger the signal when motor vehicles are not present.



Pedestrian countdown signals display to pedestrians crossing the street how much time is left until the signal phase changes.



Bicycle detection at signalized intersections can be managed using bicycle loop detectors.

## Pedestrian Push Button

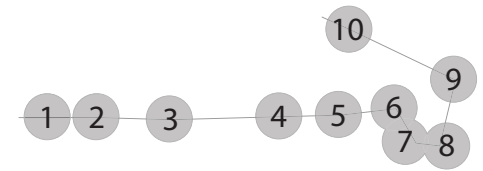
Installing pedestrian push buttons at signalized intersections allows pedestrians to trigger the signal when motor vehicles are not present. Push buttons are appropriate for arterial and congested streets because they can allot more time to pedestrians only when they are present and thus reduce vehicular delay. Push buttons can be enhanced with audible messages for visually impaired persons.

## Pedestrian Countdown Signal

Pedestrian countdown signals display to pedestrians crossing the street when they have enough time to enter the crosswalk and how much time they have left to cross the street. Countdown signals improve pedestrian safety by helping pedestrians to finish crossing before the end of the signal phase. Countdown signals cost approximately \$10,000 to install.

## Bicycle Detection

Bicycle detection at signalized intersections allows bicyclists to trigger the signal when motor vehicles are not present. Detection can be in the form of bicycle loop detectors or video detection with higher sensitivity. Bicycle loop detectors cost approximately \$3,000 each to install. If a City already uses video detection for vehicular traffic, increasing the sensitivity may not require additional costs.



Intersection crossing markings help bicyclists with proper lane positioning.



Bike boxes allow bicyclists to position themselves in front of the traffic queue during red signals.



Advance stop bars should be installed with accompanying signage.

## Intersection Crossing Markings

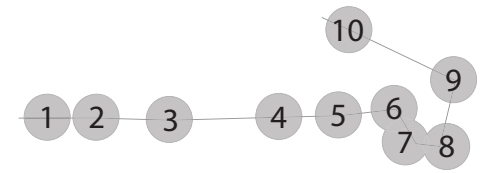
Pavement markings through intersections help bicyclists with proper lane positioning and alert motorists to the presence and path of bicyclists. Since intersection crossing markings make bicyclist movements more predictable, they also have the potential to reduce collisions between bicyclists and motorists. The cost to stripe intersection crossing markings is approximately \$3,500 each.

## Bike Box

Bike boxes allow bicyclists to position themselves in front of the traffic queue during red signals. When the signal changes to green, bicyclists can move first into the intersection and thus reduce conflicts with vehicles turning right. The cost to stripe a bike box depends on the size of the box and whether or not the box is painted a “fill color.” Striping costs approximately \$2 per linear foot.

## Advance Stop Bar / Yield Line

Advance stop bars or yield lines are installed up to 50 feet prior to marked crosswalks. Striping advance stop bars and yield lines helps show motorists where they should stop in relation to the crosswalk to provide pedestrians with increased safety while crossing the street. They also make pedestrians crossing more visible to drivers. Both treatments should be installed in combination with signage to make motorists more aware of crosswalks. Advance stop bars and yield lines cost approximately \$1,000 to \$2,000 to install.

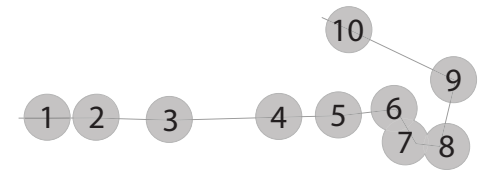


Bicycle signals provide a bicycle only signal phase for bicyclists to enter and exit bicycle facilities without conflicts with motor vehicles.

## Bicycle Signals

Bicycle signals can be installed where bicycle facilities with high volumes of bicyclists intersect other roadways, such as at the terminus of a bicycle path. Bicycle signals provide a bicycle only signal phase so that bicyclists can enter and exit the bicycle facility without conflicts with motorized vehicles and provide adequate timing for bicyclists to cross an intersection.





## 2.3 Traffic Calming

This section provides best practices in traffic calming treatments to create safer environments for bicyclists and pedestrians.



Reducing the curb radius at intersections causes motorists to lower speeds when initiating a turn.

### Curb Radii Reduction

Wide curb radii can often result in motorists traveling at high speeds when initiating turns. Reducing the curb radius at intersections causes motorists to slow down, minimizes the distance pedestrians must cross, increases the visibility of pedestrians to drivers, and reduces the risk of right hook collisions between bicyclists and vehicles. Depending on the location's conditions, reconstructing a curb radius can cost between \$5,000 to \$30,000 at each corner.

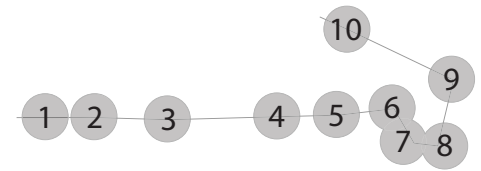


Landscaped medians lead to reduced speeds and create a more aesthetically pleasing streetscape.

### Landscaped Medians

Medians are elevated barricades that divide the roadway down the center. They have the potential to reduce speeds by narrowing the visual width of the roadway. This effect is enhanced by the addition of landscaping, such as trees and bushes, which also creates a more aesthetically pleasing streetscape. Medians should be constructed without obstructing pedestrian and bicycle access. Costs of landscaping include additional water and maintenance, which can be a challenge for implementation. Drought tolerant plants can reduce maintenance costs because they require less water.





Crosswalks can be installed on speed tables to reduce speeds and make pedestrians more visible to drivers.



Chokers can reduce vehicle speeds by visually narrowing the roadway and requiring vehicles to shift their positions horizontally.



Speed feedback signs display a driver's speed as compared to the posted speed limit.

## Speed Humps / Speed Tables

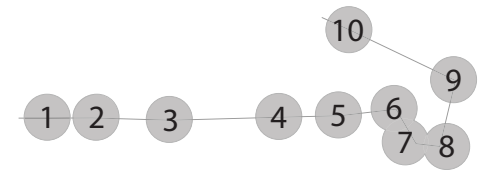
Speed humps and speed tables are raised, paved portions of the street that extend from curb to curb and are intended to slow vehicle speeds. Speed tables have flat tops and can be used as raised crosswalks, which both slow traffic speeds, make pedestrians more visible to drivers, and remove the need to install curb ramps. Speed humps and speed tables can be constructed with asphalt, concrete, or decorative pavers. Alternative colored pavers provide the motorist with advanced precaution to slow down before they approach the speed humps or tables. The cost to install speed humps and speed tables varies by size and material.

## Chicanes / Chokers

Chicanes and chokers are curb extensions that alternate from one side of the street to the other. These treatments can reduce vehicle speeds by visually narrowing the roadway and requiring vehicles to shift their positions horizontally. If supplemented with landscaping, chicanes and chokers can also create a more pleasant walking environment and a buffer between the sidewalk and the street. The cost to install chicanes and chokers depends on their size, the site conditions, and the decision to install landscaping.

## Speed Feedback Signs

Speed feedback signs display a driver's speed as compared to the posted speed limit on a particular segment. By showing when motorists are exceeding the posted speed limit, speed feedback signs can cause drivers to slow their speeds. A typical speed feedback sign costs approximately \$10,000 to install.



Traffic circles slow the flow of vehicular traffic into intersections.



Traffic circles slow the flow of vehicular traffic into intersections.

## Traffic Circles & Roundabouts

Traffic circles are circular islands in the center of intersections that control the flow of traffic. Drivers that enter the traffic circle must travel in a counter clockwise direction around the island to get to the other side. Intersections with traffic circles can be signalized, stop-controlled, or yield-controlled. Traffic circles slow the flow of vehicular traffic into intersections, which creates a more safe and comfortable environment for bicyclists and pedestrians. Studies have shown traffic circles improve air quality and roadway circulation by eliminating the stop-and-start movements associated with a four-way stop. The cost to construct a traffic circle varies by size and materials. Landscaped traffic circles are generally more expensive because of maintenance costs.

## Reverse Angled Parking

Due to poor sight distances as drivers back out of spaces, traditional head-in parking disrupts the flow of traffic. Reverse of back-in angled parking allows for the same vehicle capacity while reducing the time it takes to leave the space. It also provides better sight to the driver and reduces the potential for conflicts with pedestrians or bicyclists.



## 2.4 Bicycle Facilities

The following section presents best practices in bicycle facilities and treatments that enhance safe and convenient bicycle travel.



Bicycle paths should have safe and convenient connections to transit stops and stations.

### Bicycle Paths

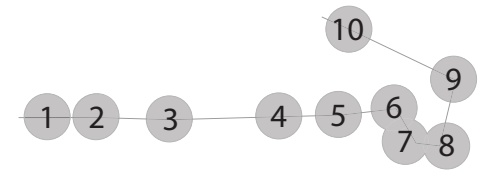
Bicycle paths provide a completely separated right-of-way for exclusive use by bicyclists and pedestrians with cross-flow traffic minimized. Bicycle paths should provide safe and convenient connections to other existing facilities and to transit stops and stations. Wayfinding at decision points and intersecting facilities can help bicyclists and pedestrians know when to exit the paths and to navigate the network (see page 17). Bicycle paths cost approximately \$800,000 per mile to construct.



Bicycle lanes can be located adjacent to a curb or on-street parking.

### Bicycle Lanes

Bicycle lanes are one-way striped travel lanes for exclusive use by bicyclists on a street or highway. Bicycle lanes should be at least five feet wide and can be located adjacent to a curb or on-street parking. Bicycle lanes should be kept clear of debris and well-maintained to increase safety of bicyclists. The cost to install bicycle lanes is approximately \$40,000 per mile.



Shared lane markings can create a safer bicycling environment by alerting motorists to the presence of bicyclists.



Bicycle boulevards are bicycle routes enhanced with traffic calming to increase safety for both bicyclists and pedestrians.



On-street parking should be in the form of parallel parking or back-in angled parking.

## Bicycle Routes

Bicycle routes are low volume streets that are shared with motor vehicles. Shared lane markings and “Share the Road” signage is recommended to create a safer bicycling environment by alerting motorists to the presence of bicyclists. Shared lane markings also help bicyclists with proper lane positioning when on-street parking is present. Bicycle routes without shared lane markings cost approximately \$15,000 per mile and bicycle routes with shared lane markings cost approximately \$25,000 per mile to install. Additional signage costs approximately \$500 per sign.

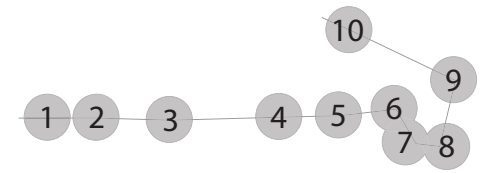
## Bicycle Boulevards

Bicycle boulevards are bicycle routes that are enhanced with traffic calming to increase safety for both bicyclists and pedestrians. They are typically located on neighborhood streets that are parallel to an arterial street that provides access to the same destinations. Bicycle boulevards should be well-connected for convenient travel. Bicycle boulevards cost approximately \$30,000 per mile to construct, but can cost significantly more depending on the level of traffic calming treatments applied.

## On-street Parking

Streets with bicycle facilities should be designed to enhance the comfort and safety of bicyclists. On-street parking should be in the form of parallel parking or back-in angled parking to reduce conflicts between bicyclists and motor vehicles. Typical head-in diagonal parking creates potential conflicts as it is challenging for drivers to see bicyclists when backing out of spaces. Converting parking space orientation costs approximately \$2 per linear foot.





Wayfinding signage can help guide both bicyclists and pedestrians to key destinations.



Trains can supply bicycle storage areas in specific cars and can maximize space utilization by hanging bicycles vertically.



Sewer grates should be clearly marked so that bicyclists have time to avoid them.

## Wayfinding Signage

Wayfinding signage can help guide bicyclists, pedestrians, and other road users to key destinations, such as transit stops and stations, and can orient bicyclists with the bicycle network. Wayfinding signage should be placed at decision points and intersecting facilities, and should be highly visible and consistent throughout the jurisdiction. To ease navigation at night, wayfinding signage should also be appropriately reflective. The cost to install wayfinding signage is approximately \$500 per sign.

## Bicycles on Transit

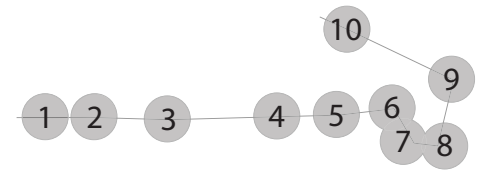
Combining bicycling and transit trips can offer a high level of mobility that is comparable to travel by automobile. In order to increase the feasibility of combining trips, transit providers should allow bicycles onboard transit vehicles. Buses often provide bicycle racks on the front of the vehicles and trains can supply bicycle storage areas in specific cars.

Omnitrans will have three bike racks on all 40' fixed routes buses by 2013 and sbX vehicles will have capacity for eight bicycles on board. Metrolink has added Bike Cars to accommodate bikes on select trains. Each train car is designed to hold three bikes. Special Bike Cars are designed to hold up to 18 bikes on the lower level.

## Roadway Hazards

When trash and debris collect on the roadway, it increases the risk of bicyclists falling and getting injured. In order to minimize hazards to bicyclists, streets should be paved and swept regularly. Sewer grates should be clearly marked so that bicyclists have time to avoid them or be installed with bicycle friendly designs that bicycle tires do not get trapped in. Utility covers should be installed outside of bicyclists' path of travel. Railroad tracks should be enhanced with treatments to allow bicyclists to cross at 90 degree angles.





Overcrossings can provide access over railroad tracks for a more direct path of travel.

## Overcrossings / Undercrossings

Overcrossings and undercrossings can provide separated rights-of-way for bicyclists and pedestrians where roadway widths are constrained or there are barriers to travel, such as railroad tracks. These facilities reduce conflicts with vehicles and provide more direct paths of travel. Both types of crossings must be properly designed to encourage their use. Overpassings should be convenient so that bicyclists and pedestrians utilize them and undercrossings need to be well lit and free of graffiti to create a sense of security. Both facilities are recommended as a last resort due to the high cost of construction, which varies depending on the site conditions.

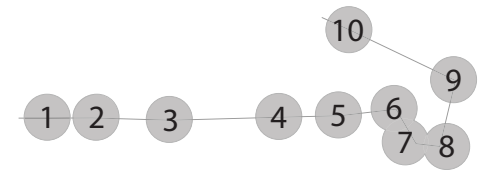
Implementing Agency: City



Maps and information is a great way to inform people about what types of facilities are available.

## Bicycle Route Maps/Information

One of the most effective ways to encourage people to bike and walk is through the use of maps and guides. Maps illustrate the existing infrastructure, they demonstrate how easy it is to access different parts of the city by bike or on foot, and highlight unique areas, shopping districts or recreational areas. Biking and walking maps can be used to promote tourism to an area, to encourage residents to walk, or to promote local business districts. Maps can be citywide, district-specific, or neighborhood/ family-friendly maps.



## 2.5 Transit Stop and Station Design

The following section presents best practices in bicycle and pedestrian access to transit stops and stations, including design and circulation considerations.



Shelter should be provided at all transit stops and stations to protect commuters from sun and inclement weather.

### Shelter

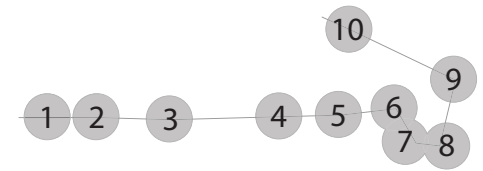
Providing a shelter at all transit stops and stations allows commuters protection from sun and from inclement weather. Shelters should be established outside of the pedestrian walking zone and with sufficient room for bus wheelchair lifts to load and unload passengers. If there is not adequate space to install a dedicated shelter, there should be awnings or overhangings on the surrounding buildings for commuters to stand beneath.



Seating should be located within visual range of the transit driver and under the provided shelter.

### Seating

Benches or seats should be provided at all transit stops and stations for commuters to rest while waiting for the bus or train. Elderly and disabled passengers often have difficulty standing for long periods. Seating should be installed within close proximity of transit stops and stations and under the provided shelter if feasible.



Transit providers should install timetables and maps at transit stops and stations.



Providing trash containers creates a sense of security at transit stops and stations.



Short- and long-term bicycle parking should be provided at transit stops and stations to increase convenience of combining trips.

## Trip Information

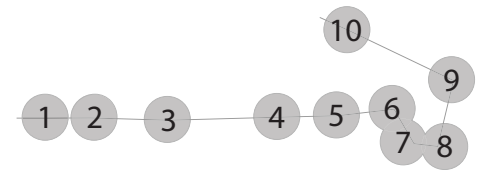
At a minimum, all transit stops and stations should provide signage displaying the route number. Providing timetables and maps are recommended to increase convenience for commuters with transfers and those that are less familiar with the network, such as a bicyclist with a flat tire in an unfamiliar location. For major transit stations and terminals, providing passengers with real time information on arriving transit vehicles is a valuable customer service improvement.

## Trash Container

Clean transit stops and stations increase the sense of security that commuters feel when waiting for a bus or train and reduce the likelihood of litter in the area. Providing ample trash containers gives riders and others a place to put their trash to keep waiting areas well-maintained.

## Bicycle Storage

Providing bicycle storage at transit stops and stations allows commuters to combine their trips with greater convenience. Short-term bicycle racks are appropriate for bus stops where storage space in the public right-of-way is limited. Long-term storage facilities, such as lockers or enclosed storage rooms, should be provided at train stations in addition to bicycle racks for commuters that require all-day storage. Both short- and long-term parking facilities should be located near loading zones and, when possible, in view of station attendants. Racks cost approximately \$200 per rack and lockers cost approximately \$2000-\$3000 per locker to install.



Lighting can increase commuters' sense of security at transit stops and stations.



Wayfinding signage at transit stops and stations can help users locate bicycle storage areas and loading zones.

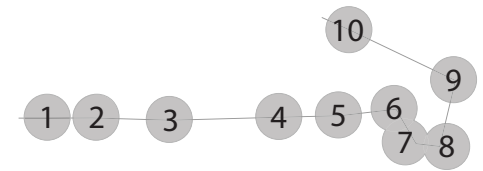
## Security

Installing lighting at transit stops and stations can increase the sense of security that commuters feel when waiting for buses and trains. Lighting should be located as close as possible to the waiting areas without blocking pedestrian access. In addition to lighting, video surveillance cameras and emergency phones can also be installed to improve security.

## Wayfinding Signage

Wayfinding signage at transit stops and stations helps users navigate the area and locate amenities, such as bicycle storage areas and passenger loading zones. Providing passengers with this information improves access to transit by removing barriers of potential users.





## 3 Public Outreach

### 3.1 Intercept Surveys

As part of the public outreach process, SANBAG and the consultant team conducted intercept surveys at each of the ten stations in the study to learn which bicycling and walking improvements commuters would like to see implemented. Students from Cal State San Bernardino were hired as surveyors through the University's careers website, as well as through communications with professors in the transportation, urban planning, and geography departments.

On September 9, 2011, students attended a training session with the consultant team to learn how to conduct the intercept surveys and determine a schedule at peak A.M and P.M times. Students conducted the majority of the surveys in September 2011, but interviewed additional commuters in October at stations that lacked an adequate number of responses. Two students were placed at each station, at least one of which was bilingual in English and Spanish. Survey forms were also written in both languages.

Student surveyors noted that at Metrolink Stations commuters sat in their cars until the train arrived, making it difficult to interview them. At the San Bernardino station in particular, commuters sat in the train because it was the start of the line. At the Hunts bus stop, people were mostly exiting the bus and thus didn't want to stop to talk. At the Palm Avenue stop, there were very few people to interview since it serves Cal State San Bernardino, but school had not yet started for the year.

Students interviewed a total of 250 commuters at the 10 stations. Figure 3.1 shows the number of respondents from each station. Table 3.1 displays the breakdown of responses by station, as well as the mode commuters used to arrive at each station. The Rancho Cucamonga Metrolink Station had the highest number of commuters willing to answer a survey, while the Palm bus station had the lowest number of respondents. The most common way respondents arrived at the stations was by motorized vehicle, either driving themselves (35 percent), getting dropped off (20 percent), or taking the bus (20 percent). Another 20 percent of commuters walked to the station, while only four percent of people rode bicycles.



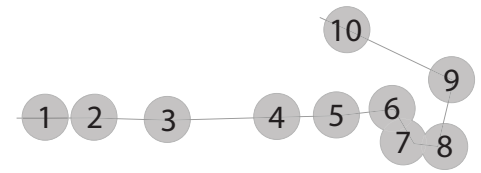
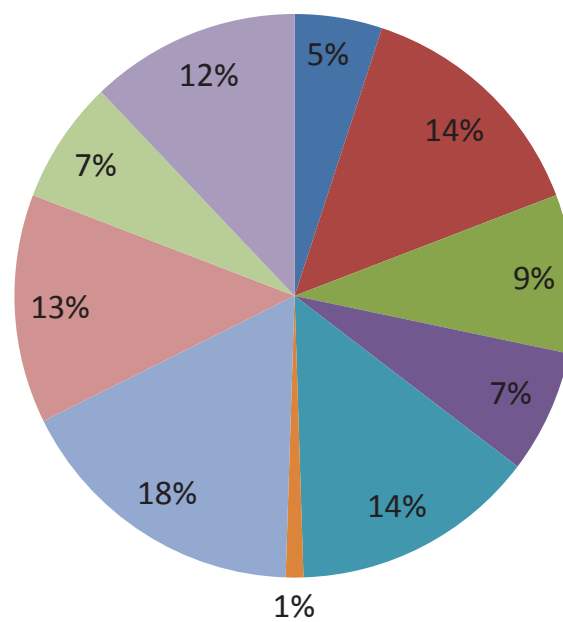
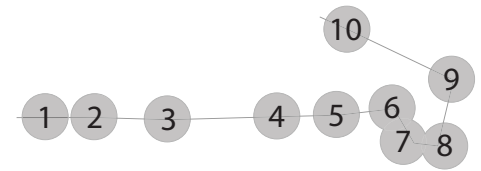


FIGURE 3.1: TOTAL SURVEY RESPONDENTS



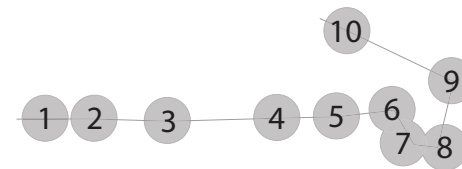
- Anderson
- Fontana
- Highland
- Hunts
- Montclair
- Palm
- Rancho Cucamonga
- Rialto
- San Bernardino
- Upland



**TABLE 3.1 : SURVEY RESPONDENT COMMUTE MODE TO STATION**

STATION	LOCATION	MODE						TOTAL RESPONDENTS
		BIKE	WALK	BUS	DROVE	DROPPED OFF	OTHER	
Anderson Street sbX Station	Anderson Street and Redlands Blvd		13					13
Fontana Metrolink Station	Orange Way and Bennett Avenue		2	16	7	6	3	34
Highland Avenue sbX Station	Highland Avenue and E Street		16	6				22
Hunts Lane sbX Station	Hunts Lane and Hospitality Lane		7	8		3		18
Montclair Metrolink Station	Richton Street and Monte Vista Avenue			6	26	1	2	35
Palm Avenue sbX Station	Palm Avenue and Kendall Drive		3					3
Rancho Cucamonga Metrolink Station	Miliken Avenue and Azusa Court	2		7	25	9		43
Rialto Metrolink Station	Palm Avenue and Rialto Avenue	2	4	2	10	14	1	33
San Bernardino Metrolink Station	3rd Street and Metrolink Way			5	9	4		18
Upland Metrolink Station	2nd Avenue and A Street	6	2		11	12		31

In addition to asking how respondents arrived at the stations, surveyors asked how many would consider biking or walking to the stations (if they did not already) and why/why not. Table 3.2 presents this information. More respondents would consider walking/biking than would not consider it. The main reasons for both considering and not considering walking/biking is proximity; respondents either live close enough or live too far away. Many commuters also noted the need for additional bicycle and pedestrian facilities to influence their decisions.



**TABLE 3.2 : PRIMARY REASONS RESPONDENTS WOULD/WOULD NOT CONSIDER WALKING/BIKING**

STATION	% RESPONDENTS WOULD CONSIDER WALKING/BIKING	PRIMARY REASONS	% RESPONDENTS WOULD NOT CONSIDER WALKING/BIKING	PRIMARY REASONS
Anderson	100%	The bike trail	0%	-
Fontana	27%	Exercise, when it is not as hot, live close to station	73%	Too far, health issues, lack of secure bike parking
Highland	59%	If there were bike facilities, if it was more convenient	41%	Too old, too far, health issues
Hunts	36%	-	64%	Too far
Montclair	26%	If there were bike lanes, if there was secure bike parking	74%	No changing facilities at work destinations, health issues, too far, not enough time
Palm	100%	Live close to stop	0%	-
Rancho Cucamonga	30%	If lived closer	70%	Too far, o changing facilities at work destinations, too old, lack of facilities, too cold
Rialto	45%	Less expensive, health, if lived closer to station	55%	Too far, not convenient, doesn't work with schedule
San Bernardino	28%	Save money, if there were more facilities, if there was more lighting	72%	Too far
Upland	55%	Save money, close enough to home, health, if had the right clothes, save gas, don't have a car	45%	Too hot, nice clothes, too far, not convenient, rain

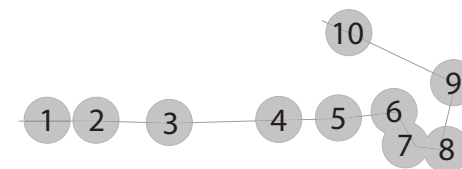
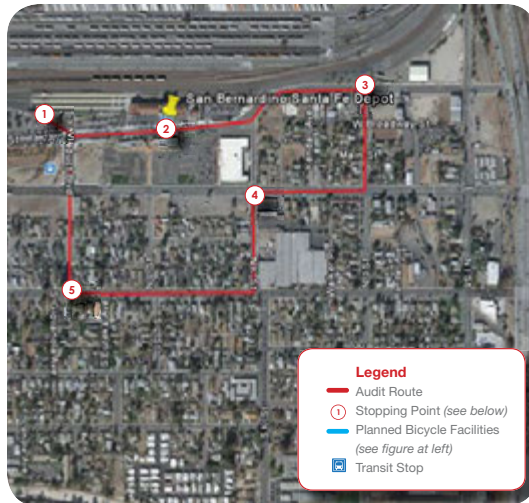
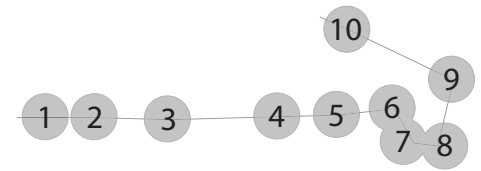


Table 3.3 displays non-motorized transportation improvements that survey respondents identified as desirable at each station. The most common improvements listed include bike lanes, clean stops/stations, increased bus service, and more shade.

**TABLE 3.3 : RESPONDENT-IDENTIFIED IMPROVEMENTS**

IMPROVEMENTS	ANDERSON	FONTANA	HIGHLAND	HUNTS	MONTCLAIR	PALM	RANCHO CUCAMONGA	RIALTO	SAN BERNARDINO	UPLAND
<b>ROUTE IMPROVEMENTS</b>										
More / better sidewalks					X			X		
Crosswalks								X		X
Bike lanes	X	X		X	X		X	X	X	X
Street maintenance / road conditions	X			X				X	X	X
Sidewalk quality										X
Lighting			X	X				X	X	X
Fountains								X		
Bike parking		X		X					X	X
More sidewalks					X					X
Clean stop / station		X	X	X	X	X				
Delay alerts / automated displays		X			X					
Shelter / shade	X	X	X	X	X	X	X	X	X	X
Traffic signals		X					X			
Station attendant		X								
<b>GENERAL IMPROVEMENTS</b>										
More bus stops		X	X		X		X	X	X	X
More bus service	X	X	X	X	X	X	X	X	X	X
Access to shopping centers								X		
More sidewalks		X						X	X	X
Trails / paths	X						X		X	
Seating areas										X
Information on Alternative Trans.					X					
More room for bikes on buses					X					



## 3.2 Walking and Bicycling Audits

The consultant team organized a series of walking and bicycling “audits” as part of this effort. These exercises were conducted over the course of two days in and around the Upland and San Bernardino Metrolink Stations.

Led by the consultant team, participants from the study area cities, Omnitrans, Metrolink, and other stakeholders toured the station areas, identified non-motorized network deficiencies, brainstormed solutions, and documented other barriers to non-motorized access to the transit stations.

Combined with independent fieldwork conducted at each of the stations, the findings formed the basis for a number of existing conditions observations. A full documentation of the audit forms completed as part of this project will be available as an Appendix to the project Final Report.

## 3.3 Public Workshops

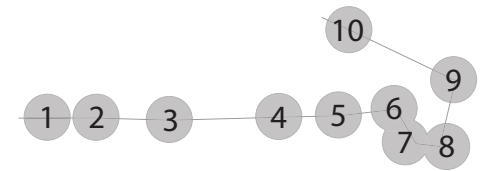
A total of four public workshops were held over the course of this project. Two of the workshops were held early in the process in Fontana and Rancho Cucamonga to solicit comments from the public regarding their opinions bicycling and walking issues in and around the station areas. Later in the process, workshops were held in San Bernardino and Upland to present the proposed improvements in the East and West Valley portions of the study area, respectively.

Notice of the workshops was given over a month in advance, and advertised on City and SANBAG websites, local community and senior centers, as well as several other local sources depending on location.

The most common theme expressed at each of these workshops was a desire for additional bicycle facilities throughout the study area, particularly Class I bike paths and additional high-quality bicycle parking. Participants also expressed a desire for safer pedestrian environments around the transit stations, through greater lighting and enhanced security patrols.

A full documentation of public comments compiled as part of this project will be available as an Appendix to the project Final Report.





### 3.4 Website Comments

In addition to the above measures, project documents were posted on the SANBAG website, stakeholders and visitors were encouraged to make use of a project-specific e-mail address to submit their comments on the project documents, as well as general comments related to non-motorized transportation in the study area.

The e-mail address was monitored daily, and specific requests for infrastructure improvements were incorporated into the project recommendations, including audible pedestrian countdown timers for visually-impaired residents, new or improved mid-block crossings along the Pacific Electric Trail, and the creation of cycletracks and buffered bike lanes throughout study area communities.

### San Bernardino Associated Governments

*Improving Transit Access for Bicyclists and Pedestrians*

**Join us for a Biking and Walking Tour!**

The San Bernardino Associated Governments (SANBAG) is working on improving access to buses and trains throughout the Inland Empire. The project will guide the development of bicycle facilities and programs in the area over the next several years.

You are invited to join us for a half-day of active touring and research to provide input on biking in the study area and to help identify locations where bicycle facilities are most needed.

**When**

Thursday, November 3, 2011  
10:00am - 3:00pm

**Where**

Montclair Metrolink Station

Meet here

Our bike route will take us to the Upland Metrolink Station via a mix of Class I, II, and III facilities. The ride will be approximately 6 miles in length and will last 2 hours. See the attached handout for more details.

We will break for lunch in Downtown Upland, and will conduct our walk audit through Downtown Upland from 1-3:00pm. You will have to secure your bike during the walk audit.

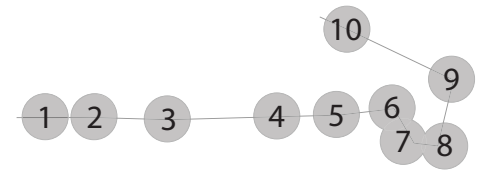
There are several Metrolink trains available shortly after the conclusion of the tour to transport you back to Montclair or other Metrolink destinations (check published schedules for details).

**Please bring a working bike, bike lock, and helmet - They are required to participate!**

**Contacts**

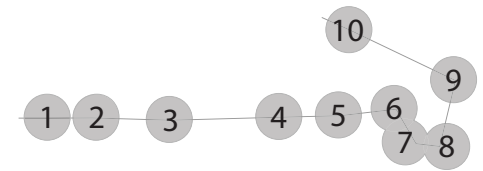
<p>Consultant Task Manager</p> <p>Brian Gaze Alta Planning + Design (919) 269-5962 brgaze@altaplanning.com</p>	<p>SANBAG Project Manager</p> <p>Joe Walock SANBAG (909) 884-8276 jwalock@sanbag.ca.gov</p>
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## 4 Recommended Improvements

This chapter presents proposed facility improvements on specific corridors leading to the Metrolink stations. These recommended improvements are intended to make non-motorized access to transit more comfortable and accessible for all skill levels and trip purposes. Each station has a description of the recommended improvements for cyclists and pedestrians, a visual with “call-out” boxes explaining where each improvement should be made, and a cost estimate of implementing the recommended improvements.

### General/Regional Improvements

#### Develop a Comprehensive Wayfinding Plan

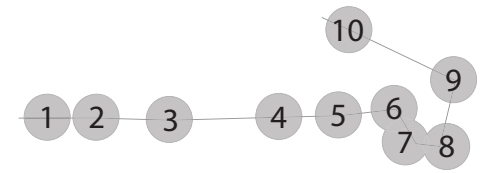
Wayfinding is a cost-effective and highly visible treatment that can improve the walking and bicycling environment. Wayfinding signs and pavement markings identify routes to pedestrians, bicyclists and motorists, provide destination and distance information, and act as a passive marketing tool that increases awareness of the walking and bicycling network.

Signs are typically placed at key locations leading to and along pedestrian and bicycle routes, including where multiple routes intersect and at key “decision points.” Wayfinding signs also visually cue motorists that they are driving along a pedestrian or bicycle route and should correspondingly use caution and be courteous. In its placement of signs, cities must be aware of “sign clutter” that can diminish the effectiveness of signage overall.

Wayfinding can also be virtual by providing digital applications (apps) and websites that help display time and distances. Phone applications such as googlemaps provide times and distances for biking and walking. Cities may also provide information on their websites by including interactive maps and downloadable PDF’s.

#### Pavement Markings

A variety of pavement marking techniques can be employed to enhance the bicycle network. Markings reinforce to bicyclists that they are on a designated route and also remind motorists to drive courteously. Shared Roadway Bicycle Markings (or “sharrows”) can be used on streets where dedicated bicycle lanes are desirable but not feasible due to width constraints. Shared Roadway Bicycle Markings are approved by the CA MUTCD for use in travel lanes adjacent to on-street parallel parking. A number of other innovative pavement markings are in use in cities around the U.S. These take a variety of forms, such as small bicycle symbols placed every 600-800 feet along a linear corridor (used on Portland, Oregon’s Bicycle Boulevard



network) to larger-scale “BIKE BLVD” stencils used in Berkeley, California.

#### **Prioritize Roadway Resurfacing on Designated Bikeways**

While implementing bikeway facilities is important, keeping them in good condition is equally important. When the surface of a bicycle lane becomes deteriorated, not only is it a safety hazard to the bicyclist, but cyclists may be forced to ride in the motor vehicle lane. Poor roadway conditions can contribute to crashes and deter potential cyclists unwilling to risk flat tires and other mechanical problems. Roadway resurfacing should be prioritized for designated bikeways. In addition, ongoing maintenance of the on-street bikeway network should include street sweeping and periodic checks to identify areas where bike lane striping, stencils, and signs have been worn or damaged. Any signage that is missing should be replaced and any striping or stenciling that has become well worn should be refreshed. Maintenance activities should be incorporated into current road checks and by maintenance requests from the public.



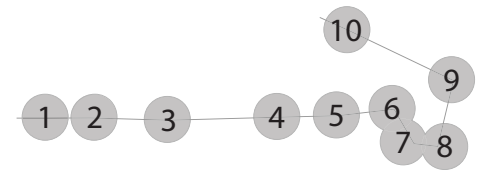
#### **More Bike Parking at Stations and Surrounding Destinations**

Bicycle parking is an important feature of the bicycle network that gives bicyclists a dedicated location to store their bicycle when they reach the station or surrounding destination. Bicycle racks are the most common way to secure bicycles for a short period and can be installed within the furnishing zone of a sidewalk. Bicycle “corrals” utilize on-street space for bicycle parking in areas otherwise used for vehicular loading or parking. Bike corrals typically provide space for 4 to 10 bicycle racks and can park between 8 and 20 bicycles. They are best located in areas with high demand for bicycle parking and can be installed in parallel, perpendicular or diagonal configurations. For longer durations, some cyclists will want fully secure parking that protects the entire bicycle and all its accessories. Examples of long-term secure bicycle parking include bike lockers, bikestations, monitored parking, restricted access parking, and personal storage.



#### **Pedestrian Improvements**

Perhaps no access improvement offers a greater immediate return on investment than pedestrian improvements. In addition to straightforward hardscape mobility improvements compliant with ADA regulations, steps should be taken to emphasize pedestrian measures in the areas adjacent to the study area stations. These can include measures consistent with the Best Practices outlined in the report, but should also include “softer” elements- things like placemaking and increasing the desirability of the station areas through public art, small-scale retail operations, and safety enhancements such as additional pedestrian-scale lighting and gathering spaces, which encourage “eyes on the street,” further mitigating the perception found at several stations of an unsafe environment.



## Network Improvements, Route Selection and Prioritization

In assessing the existing conditions of a large study area such as this one, it is helpful to utilize the latest in analysis tools to identify not just specific segments of the bicycle and pedestrian network, but larger, less-defined areas of non-motorized activity.

By assessing the suitability of a particular area of the community for bicycling and walking, city staffs can better target potential non-motorized infrastructure improvements, programs, and other support facilities.

This section summarizes the inputs and analysis process of Alta's Bicycle and Bicycle Suitability Index (BSI) tool.

The Bicycle and Pedestrian Suitability Index uses a quantitative modeling approach discussed in detail in this report to identify and prioritize bicycle corridors by overlaying GIS data pertinent to a regional-level study.

The BSI model was developed to evaluate current and future activity levels in the project study area. The model essentially use a two-pronged approach to understanding activity levels in a community: a demand analysis, which includes where people live, work, play and access transit- and a supply analysis, which includes a look at roadway quality and supportive non-motorized infrastructure.

This type of analysis helps to:

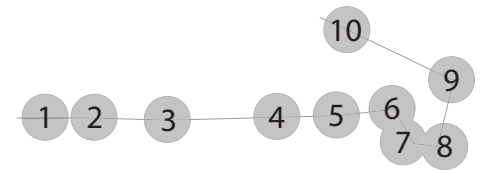
- Quantify factors that impact bicycle and pedestrian activity
- Provide for a geographically informed project list
- Identify bicycle and pedestrian network gaps and corridors as potential projects
- Guide community leaders and the public on the project prioritization process
- Guide the development of new pedestrian and bicycle trip demand tools that enhance the user experience
- Maximize bikeability and walkability

In short, the BSI helps to identify areas where non-motorized activity is most likely to be. The analysis assigns values to available GIS datasets based on their relative impact on cycling and walking. It also assigns values based on the density of features to which people are likely to bike and/or walk. Whenever possible given the dataset, this technique also assigns scores to the roadway network and can therefore be used to prioritize projects.

The metrics fall into categories of trip generators and attractors but are further categorized into the criteria of live, work, play, and transit/roadway quality. These metrics play key roles in influencing activity, and







illustrate the potential for the development of successful facilities.

Using these datasets, a composite model may be developed which combines the density of intersections, presence or lack of bicycle facilities and selected roadway characteristics such as speed limits and number of lanes to identify areas highly-suited to improvements.

The analysis is based on land use and demographic data obtained from SANBAG, SCAG, and Census Bureau sources. Data was selected based on its availability, distance, and significance to non-motorized transportation.

As mentioned previously in this report, when dealing with a study area of this size, it becomes important to develop an “outside-in” approach to network recommendations. Key corridors targeted for improvements were identified initially based on public comment and professional judgement for their ability to close gaps in the regional bicycle network and connect transit facilities to key activity centers.

By applying an additional, quantitative analysis using GIS, the project team was able to refine the project recommendations, target improvements, and maximize limited capital improvement funds to projects and corridors that would provide the greatest return on investment to influence non-motorized travel to and from the selected stations.

The figures on the following pages present a graphical interpretation of the selected inputs, model weights, and resulting GIS analysis designed to identify areas of significant potential for successful non-motorized transportation facilities.

Following the regional BSI results, a detailed breakdown of specific improvements in and around each station area is presented.

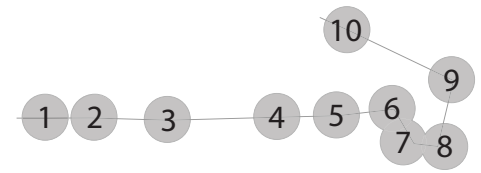
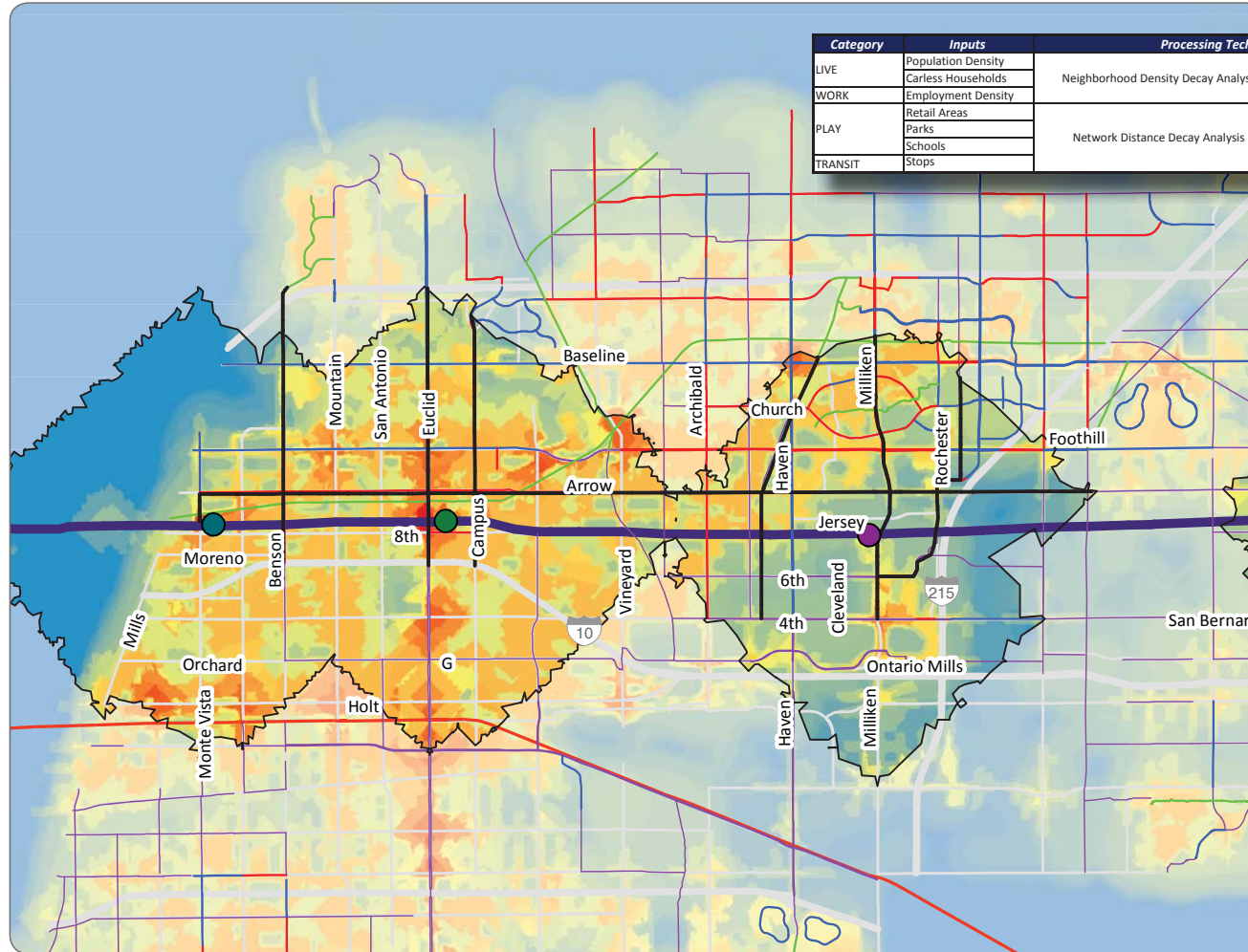


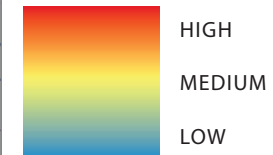
FIGURE 4.1: ALTA BICYCLE SUITABILITY INDEX (BSI) FOR WEST VALLEY STATIONS

**BSI MATRIX LAND USES AND SCORING**

Category	Inputs	Processing Technique	Base Score	Weighting
LIVE	Population Density	Neighborhood Density Decay Analysis (.5 mile neighborhoods)	1 - 5	x1
	Carless Households			x2
WORK	Employment Density	Network Distance Decay Analysis (.25 and .5 mile "sheds")	.25 miles = 5; .5 miles = 3	x2
	Retail Areas			.25 miles = x2; .5 miles = x1
PLAY	Parks	Network Distance Decay Analysis (.25 and .5 mile "sheds")	.25 miles = 5; .5 miles = 3	.25 miles = x1.5; .5 miles = x1.25
	Schools			.25 miles = x3; .5 miles = x2.5
TRANSIT	Stops			.25 miles = x3; .5 miles = x2.5



**COMPOSITE BSI INDEX**



**LEGEND**

- CLASS 1 BIKE PATH
- CLASS 2 BIKE LANE
- CLASS 3 BIKE ROUTE
- PLANNED SANBAG NETWORK
- IDENTIFIED PRIORITY CORRIDORS
- METROLINK ALIGNMENT
- STATIONS UNDER STUDY
- COMBINED CATCHMENT AREAS



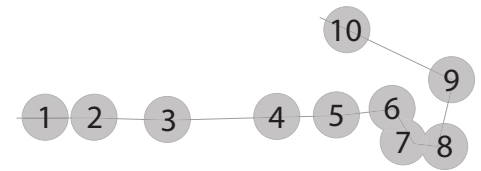
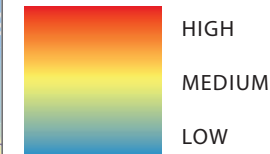


FIGURE 4.2: ALTA BICYCLE SUITABILITY INDEX (BSI) FOR EAST VALLEY STATIONS

BSI MATRIX LAND USES AND SCORING

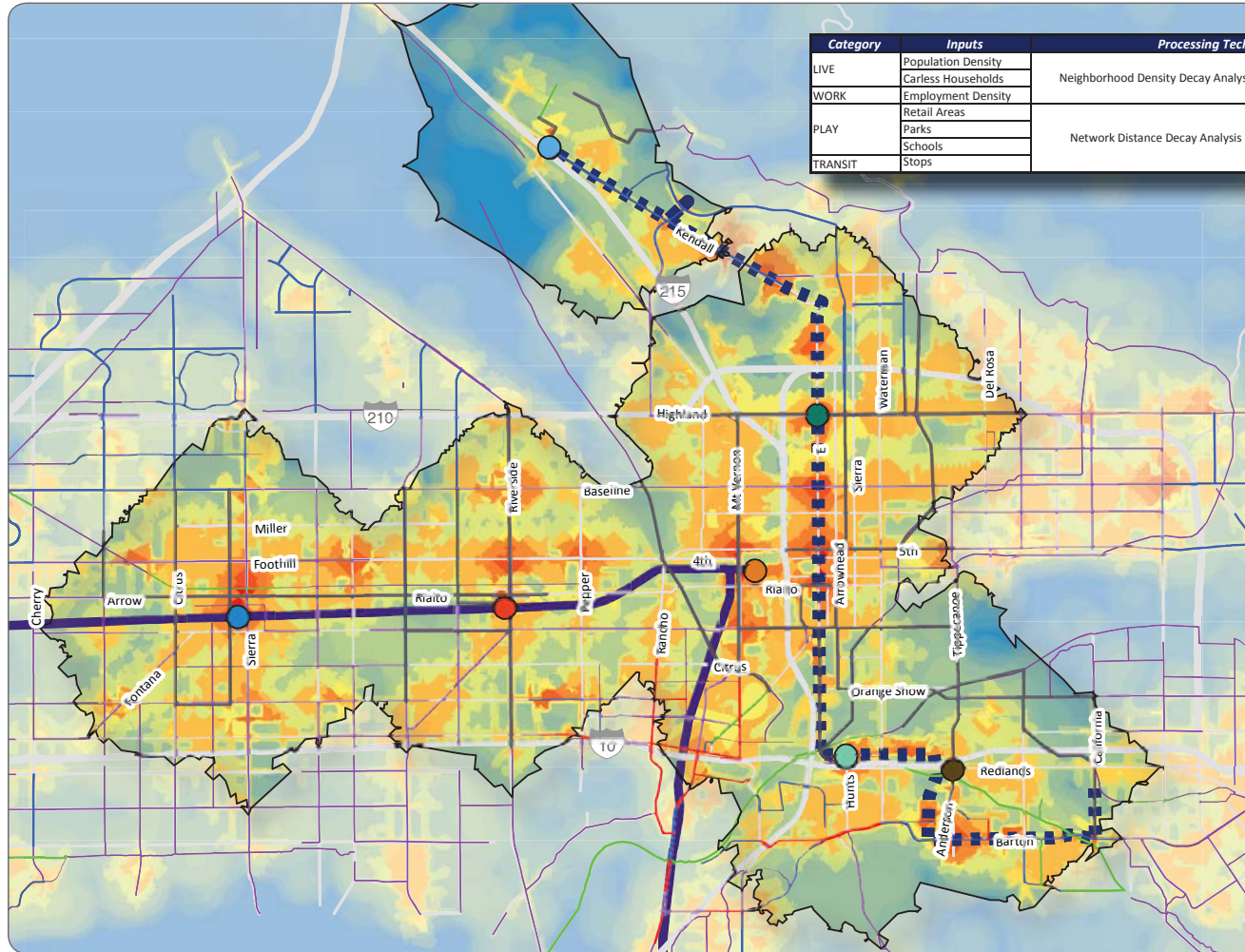
Category	Inputs	Processing Technique	Base Score	Weighting
LIVE	Population Density	Neighborhood Density Decay Analysis (.5 mile neighborhoods)	1 - 5	x1
	Carless Households			x2
WORK	Employment Density	Network Distance Decay Analysis (.25 and .5 mile "sheds")	.25 miles = 5; .5 miles = 3	x2
	Retail Areas			.25 miles = x2; .5 miles = x1
PLAY	Parks	Network Distance Decay Analysis (.25 and .5 mile "sheds")	.25 miles = 5; .5 miles = 3	.25 miles = x1.5; .5 miles = x1.25
	Schools			.25 miles = x3; .5 miles = x2.5
TRANSIT	Stops			.25 miles = x3; .5 miles = x2.5

COMPOSITE BSI INDEX

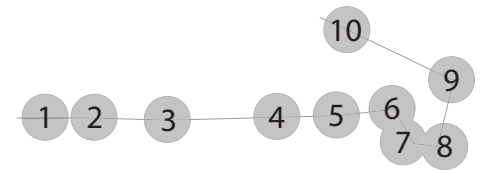


LEGEND

- CLASS 1 BIKE PATH
- CLASS 2 BIKE LANE
- CLASS 3 BIKE ROUTE
- PLANNED SANBAG NETWORK
- IDENTIFIED PRIORITY CORRIDORS
- METROLINK ALIGNMENT
- SBX BRT ALIGNMENT
- STATIONS UNDER STUDY
- COMBINED CATCHMENT AREAS







## Cost Assumption

This section presents the unit costs utilized in developing the cost estimates presented in the following section. Unit costs for bike paths, bike lanes, bike routes, and roadway widening are from the San Bernardino County Non-Motorized Transportation Plan, which are based on a review of construction averages for the State of California. All other unit costs are based on Southern California averages.

It should be noted that these unit costs are at the planning level and thus do not take into consideration site-specific costs, such as grading or striping removal, unless otherwise noted. They are intended to provide an “order of magnitude” opinion for each project cost, so that further steps can be taken, including soliciting funding, preliminary and final design.

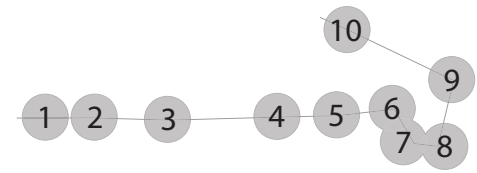
In general, priority bicycle corridor recommendations were not costed beyond the per-mile unit cost assumptions below. Therefore, site-specific enhancements identified in the series of proposed bicycle network improvement figures (wayfinding, intersection improvements, etc.) are not figured into the cost totals. As they represent a more immediate opportunity to improve non-motorized access adjacent to station areas, detailed, site-specific estimates for improvements within the half-mile pedestrian catchment areas were developed.

Based on consultation with City staffs and and professional judgement, a series of specific station area projects were developed for each station area, and detailed standalone project cost estimates for these improvements were developed in an effort to assist in further design and construction.



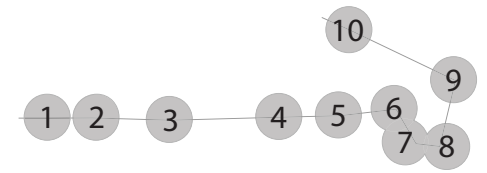
**TABLE 4.1: COST ASSUMPTION**

IMPROVEMENT	COST	UNIT
Bicycle Facilities		
Class I Bike Path	\$1,000,000	Mile
Class II Bike Lanes	\$50,000	Mile
Buffered Bike Lanes	\$80,000	Mile
Class III Bike Route (signage only)	\$30,000	Mile
Shared Lane Markings	\$2,000	Mile
Bicycle Boulevard (Local Bike Street)	\$40,000	Mile

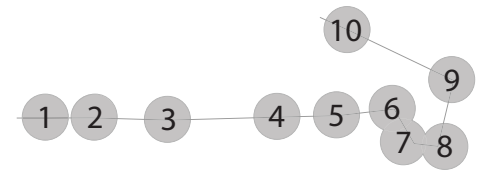


IMPROVEMENT	COST	UNIT
Parking Lane	\$10,000	Mile
Bicycle/Pedestrian Overcrossing	\$1,000,000	Each
<b>Bicycle Intersection Treatments</b>		
Colored Pavement (for conflict zones, bike lanes)	\$65	Square Yard
Intersection Crossing Markings	\$3,500	Each
Flashing Beacons	\$20,000	Each
Median Refuge Island	\$20,000	Each
Railroad Crossing Treatment	\$50,000	Each
Thermoplastic Bicycle Symbol	\$1.00	Each
<b>Bicycle Support Facilities</b>		
Bicycle Racks	\$200	Each
Bicycle Lockers	\$3,000	Each
Bike Sharing/Rental Shop	\$1,000,000	Each
Signage (MUTCD supplemental signage)	\$200	Each
Signage (Wayfinding)	\$500	Each
<b>Pedestrian Facilities</b>		
High Visibility Crosswalk	\$600	Each
Crosswalk with Decorative Concrete	\$3,000	Each
Curb Extensions	\$50,000	Each
Curb Ramp	\$5,000	Each
Sidewalk Installation	\$3.80	Square Foot
In-Pavement Flashers	\$50,000	Each
Thermoplastic Strip	\$1.50	Lineal Foot
Multi-Use Path	\$3.80	Square Foot
Textured Pedestrian Zone	\$4.00	Square Foot
Single Unit Pedestrian Gate	\$20,000	Each
Automatic Gate Arm	\$1,000,000	Each
<b>Pedestrian Amenities</b>		
Landscaping	\$25	Square Foot
Street Trees	\$600	Each
Tree Grate	\$1,000	Each
Trash Receptacles	\$8,000	Each
Benches	\$1,000	Each



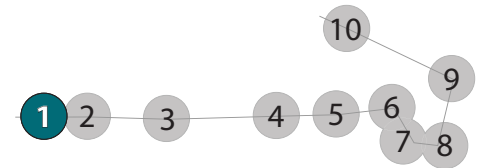


IMPROVEMENT	COST	UNIT
Pedestrian Scale Lighting	\$3,500	Each
Roadway Widening		
Level Terrain (Type 1)	\$150,000	Mile
Moderate Terrain (Type 2)	\$350,000	Mile
Rugged Terrain (Type 3)	\$700,000	Mile
Roadway Reconstruction (Type 4)	\$500,000	Mile
Other		
Curb and Gutter	\$25	Lineal Foot
Asphalt Removal	\$20	Lineal Foot
Concrete Romoval	\$3.80	Square Foot
Irrigation	\$3.00	Square Foot
Parking Asphalt	\$3.50	Square Foot



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## 4.1 Montclair Metrolink Station Improvements



### Overview

The City of Montclair was not an active stakeholder in this project, and has limited existing bicycle facilities. The bicycle network improvements fall under the jurisdiction of Upland, which has implemented a majority of its planned network in the area. Priority corridors for enhancement of existing facilities include Arrow Highway and Benson Avenue, and upgrades to wayfinding, intersection improvements, and at-grade crossings with the Pacific Electric Trail.

The immediate station area is characterized by a large parking lot for transit passengers and long block lengths. Improvements are designed to improve the station area and “activate” the transit plaza with vendors, public art, and an increase sense of place.

### Recommended Pedestrian Catchment Area Improvements

- Sidewalk construction
- Median improvements
- Tree plantings
- Mid-block access improvements

### Recommended Bicycle Catchment Area Improvements

- Additional bicycle parking at station
- Pacific Electric Trail crossing improvements
- Upgrades to Existing Class II and III facilities north of station area
- Improved access to station from Monte Vista

### Additional Improvements from the Project Development Team

- Restrooms for the public and for transit employees
- Upgraded secure bicycle parking

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	*
General Improvements in Pedestrian Catchment Area	\$1,226,000
<b>TOTAL</b>	<b>\$1,226,000</b>

*\*No general priority bikeways corridor improvements identified, all planned facilities serving station are currently constructed*

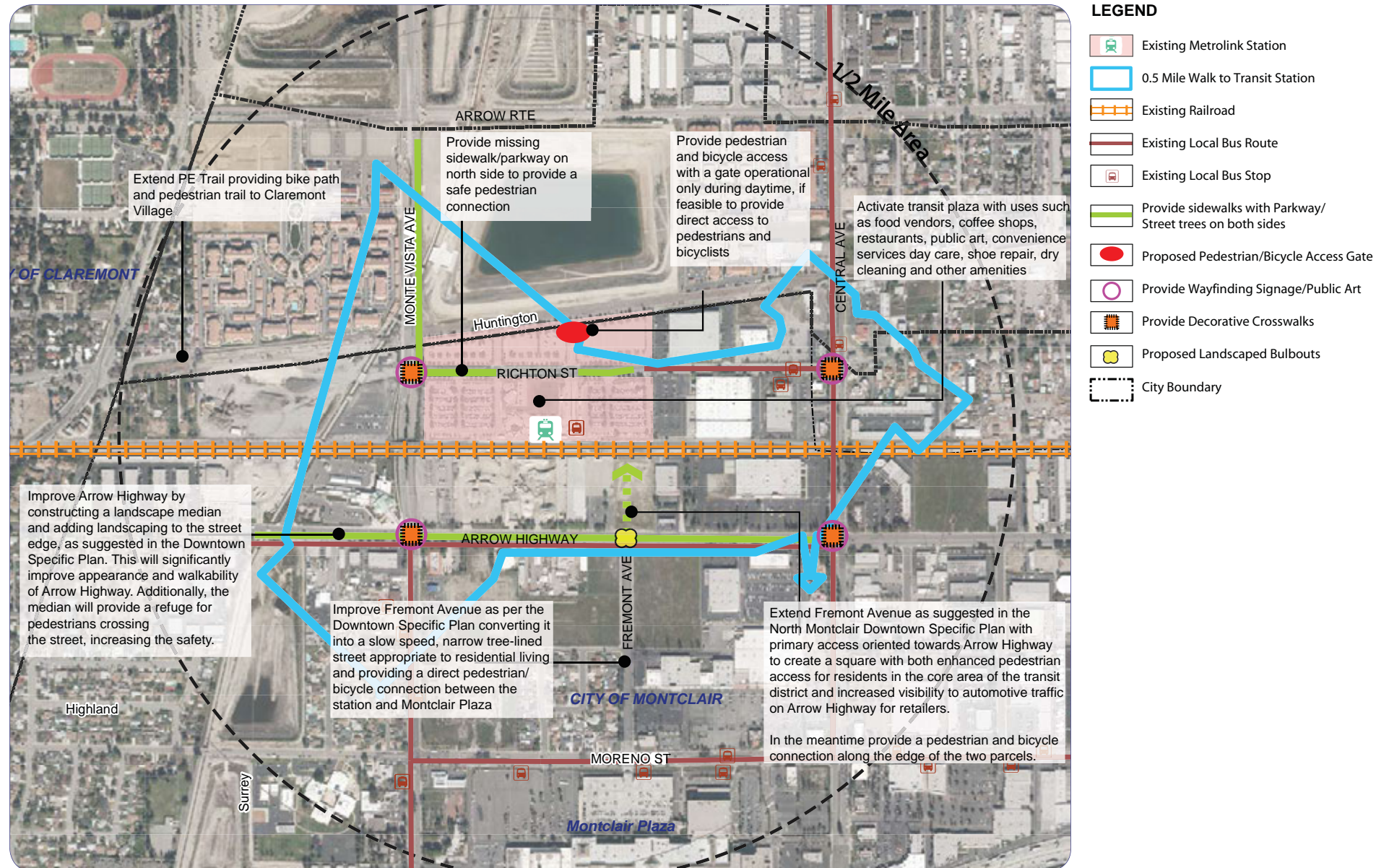


Wide arterials along the Pacific Electric Trail do not encourage cyclists or pedestrians



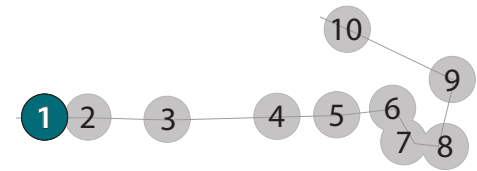
Improvements can include high-visibility crosswalks, rectangular rapid flashing beacons (RRFB), or other traffic control devices

FIGURE 4.3: MONTCLAIR METROLINK STATION PROPOSED PEDESTRIAN IMPROVEMENTS





## Montclair Station: Pedestrian/Bicycle Connection between Metrolink Station underpass and development south of the tracks and Montclair Plaza



### Project Description

The North Montclair Downtown Specific Plan proposes extending existing Freemont Avenue north of Arrow Hwy to provide direct vehicular connection, as the properties north of Arrow Hwy are developed.

In the mean time a direct pedestrian/bicycle path should be provided with 5ft landscaping on each side between the south station underpass/platform and development south of the tracks and Montclair Plaza, as shown in the plan. City needs to coordinate with the private property owner(s) to obtain easement(s) to develop this pedestrain connection.

Also, install wayfinding signage to direct users to the Metrolink Station underpass from the adjacent uses and Montclair Plaza.

### Cost Estimate

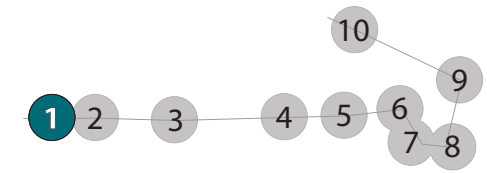
- Sidewalk: 6,000 @ \$3.80 SF
- Landscaping: 6000 @ \$25 SF
- Trees: 30 @ \$600 EA
- Irrigation: 6000 @ \$3 SF
- Wayfinding signage: 2 @ \$500 EA

Total cost: \$210,000

NEAR-TERM	MID-TERM	LONG-TERM





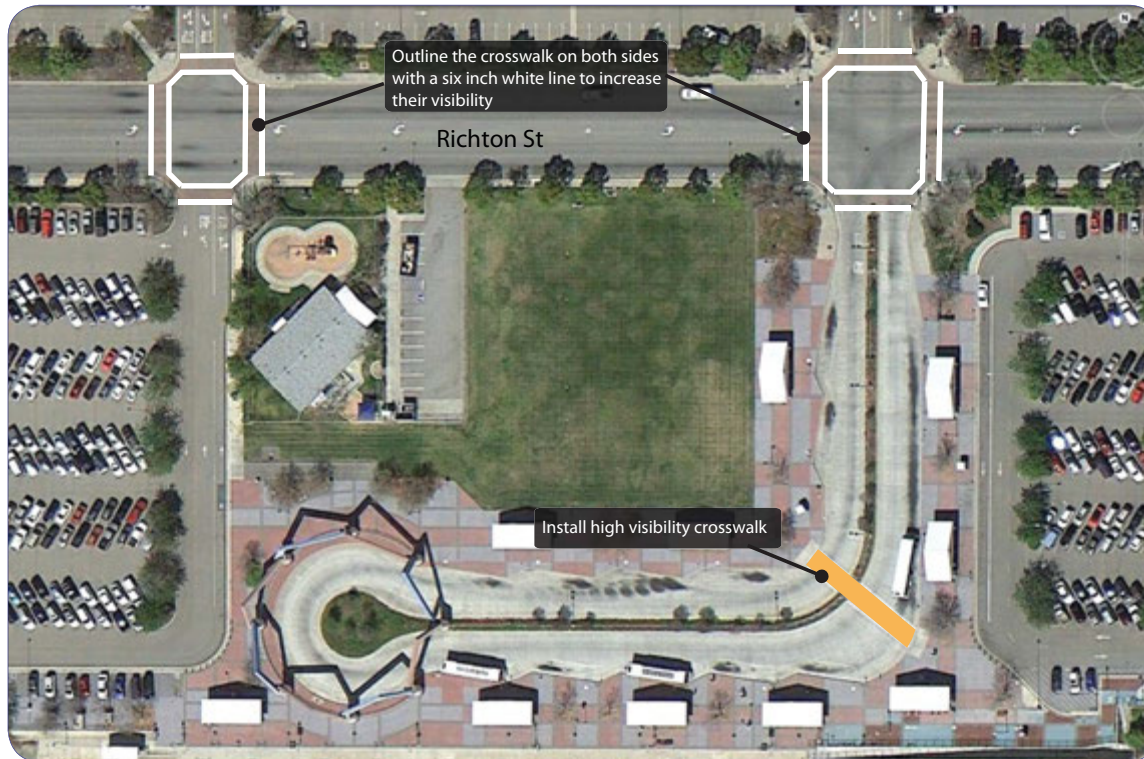


## Montclair Station: Install high visibility crosswalks

### Project Description

Along Richton Street, outline the crosswalk on both sides with a six inch white line to increase visibility and mark station entry, as shown below.

Also, install a high visibility crosswalk to provide a safe pedestrian crossing of the busway at the bend to ensure safety of pedestrians.



ThermoPrint or Duratherm are special thermoplastic products that produce highly reflective patterns

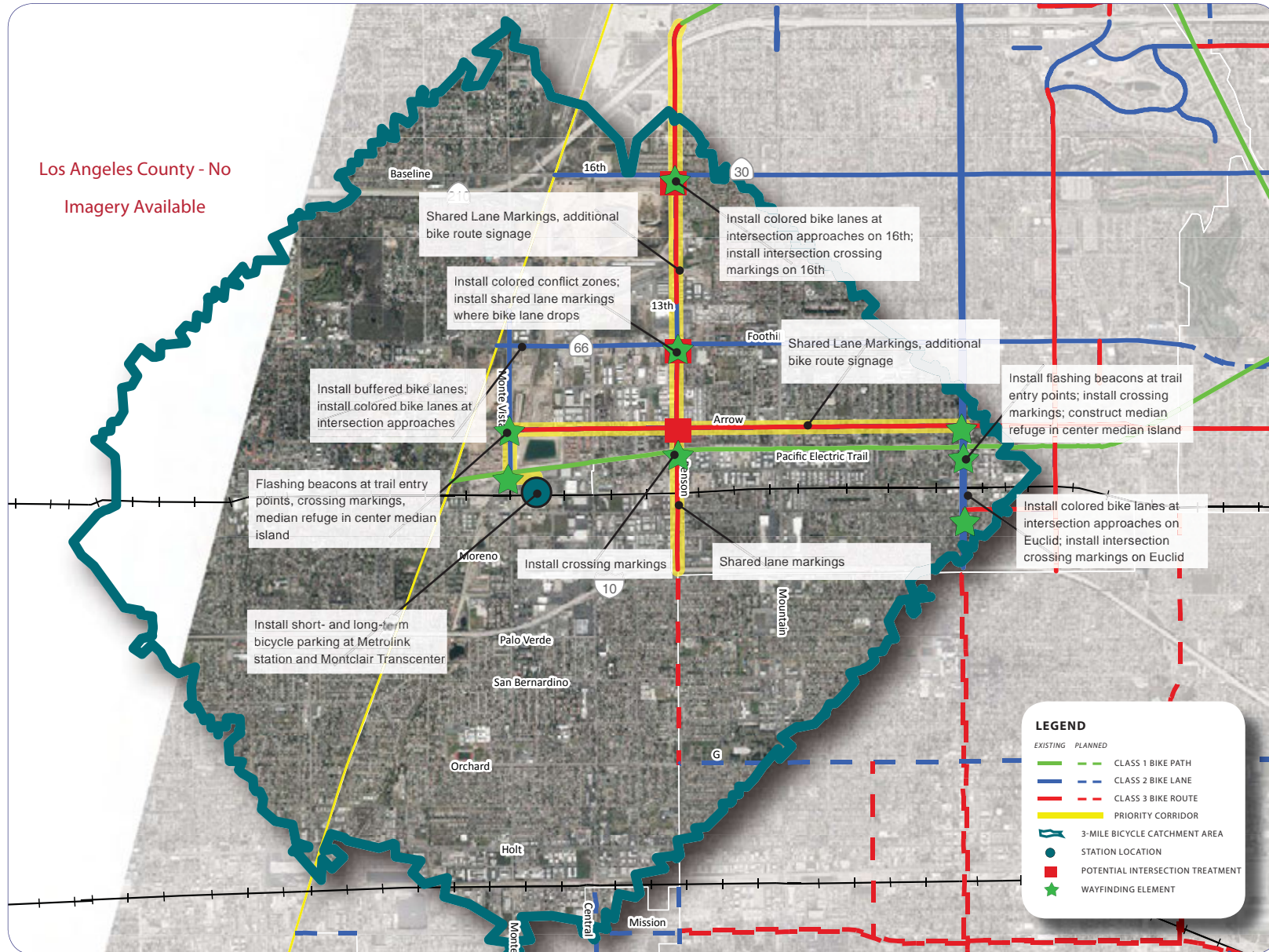
### Cost Estimate

- Thermoplastic: 800 @ \$3.80 LF
- High Visibility Crosswalk: 1 @ \$600

Total cost: \$3,700

NEAR-TERM	MID-TERM	LONG-TERM

FIGURE 4.4: **MONTCLAIR METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS**



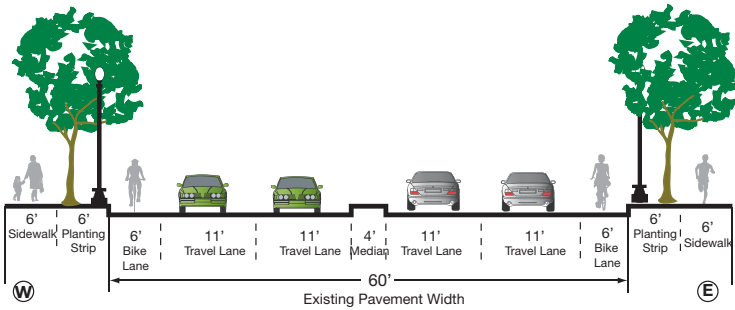


## Montclair Station: Pacific Electric Trail Crossings

### Project Description

The Pacific Electric Trail approaches Montclair Station from the west, providing a protected route for pedestrians and bicyclists. Because of the proximity to a signalized crossing, a rectangular rapid flashing beacon is proposed at Monte Vista Avenue. Other crossings should be improved with median refuge islands and signs.

Benson Avenue at Pacific Electric Trail



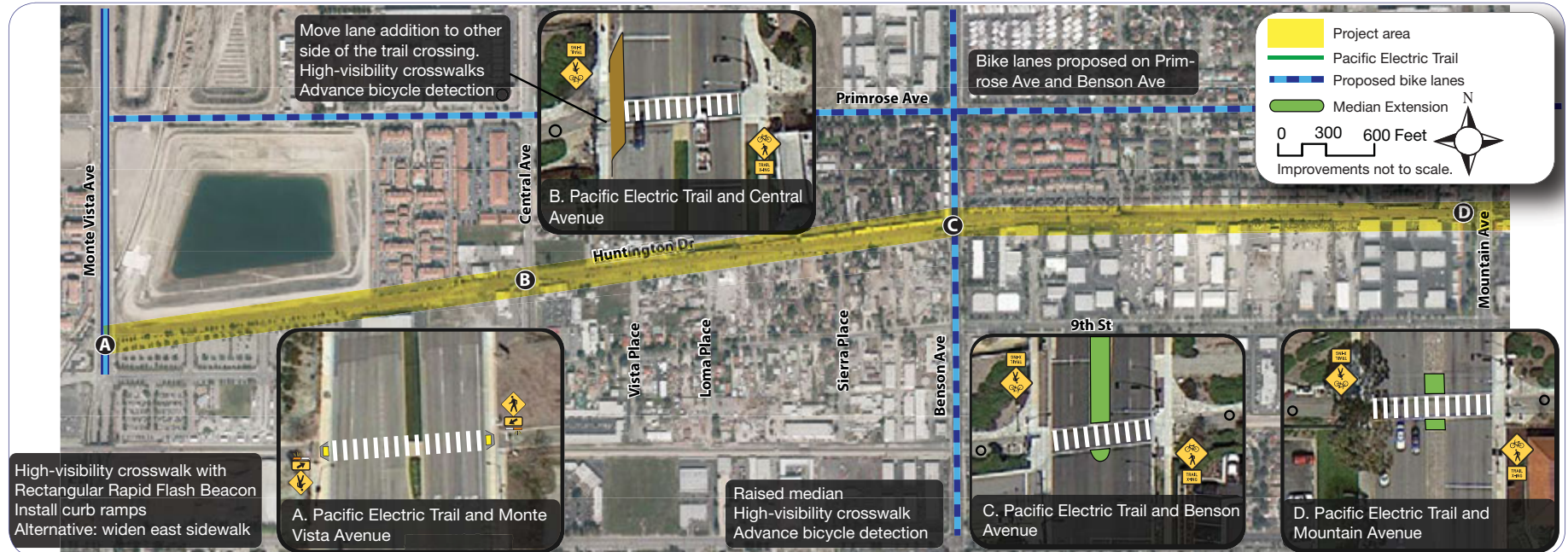
Rectangular rapid flashing beacons will increase driver compliance, providing more frequent crossing opportunities.

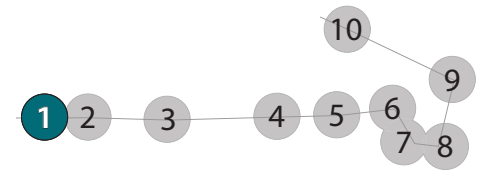
### Cost Estimate

- 2 median extensions @ \$15,000
- Curb extension on Central Avenue @\$30,000
- 4 trail crossings with high-visibility crosswalks and signs @\$10,000
- 2 rectangular rapid-flash beacons at Monte Vista Avenue @\$15,000

Total Cost: \$160,000

NEAR-TERM	MID-TERM	LONG-TERM





## Montclair Station: Monte Vista Avenue

### Project Description

Monte Vista Avenue provides a connection between Montclair Station and the Montclair Shopping Plaza. Traffic volumes are low relative to the capacity of the roadway, suggesting that a lane could be removed in each direction to provide buffered bike lanes without adversely impacting motor vehicle traffic.



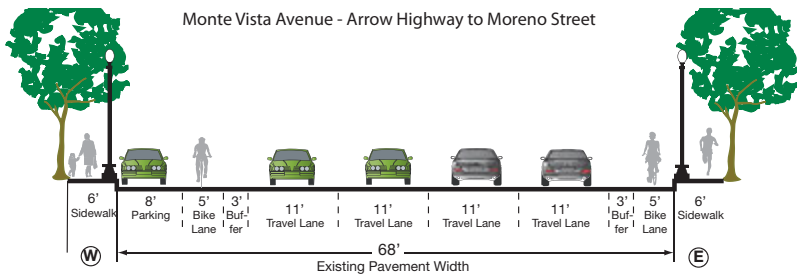
Buffered bike lanes and intersection markings would improve bicyclists' comfort and safety along Monte Vista Avenue.

### Cost Estimate

- Buffered bike lanes: 0.70 miles @ \$80,000 per mile
- Green paint: 40 yards @ \$650/SY
- 4 High-visibility crosswalks and bicycle left turn lane at S. Montclair Plaza Lane @\$3000
- Refuge Island on Arrow Highway @\$20,000

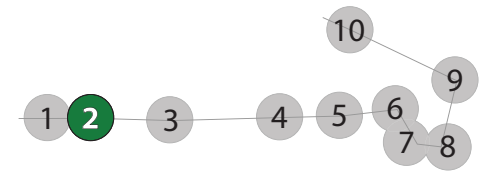
Total Project Cost: \$105,000

NEAR-TERM	MID-TERM	LONG-TERM



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## 4.2 Upland Metrolink Station Improvements



### Overview

The Upland Station is located in Downtown Upland, and is well-connected to local attractions by a grid street network. Existing bicycle and pedestrian facilities are ample and adequate. Interestingly, Omnitrans does not currently serve the Metrolink Station, instead serving passengers one block to the west along Euclid Avenue

Project improvements focus on improving existing Class II and III bicycle facilities in the study area, and creating a connection to the planned transit-oriented development immediately southeast of the station.

### Recommended Pedestrian Catchment Area Improvements

- Activate alleyways as “found” public space
- Pedestrian overpass
- Additional wayfinding and public art
- Relocate transit stops
- Improve sidewalks

### Recommended Bicycle Catchment Area Improvements

- Additional signage and intersection markings along Class II and III facilities at Arrow, Euclid, and Campus
- Mid-block crossing improvements along the Pacific Electric Trail
- Additional bicycle parking options at station area

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	*
General Improvements in Pedestrian Catchment Area	\$2,693,000
<b>TOTAL</b>	<b>\$2,693,000</b>

*\*No general priority bikeways corridor improvements identified, all planned facilities serving station are currently constructed*

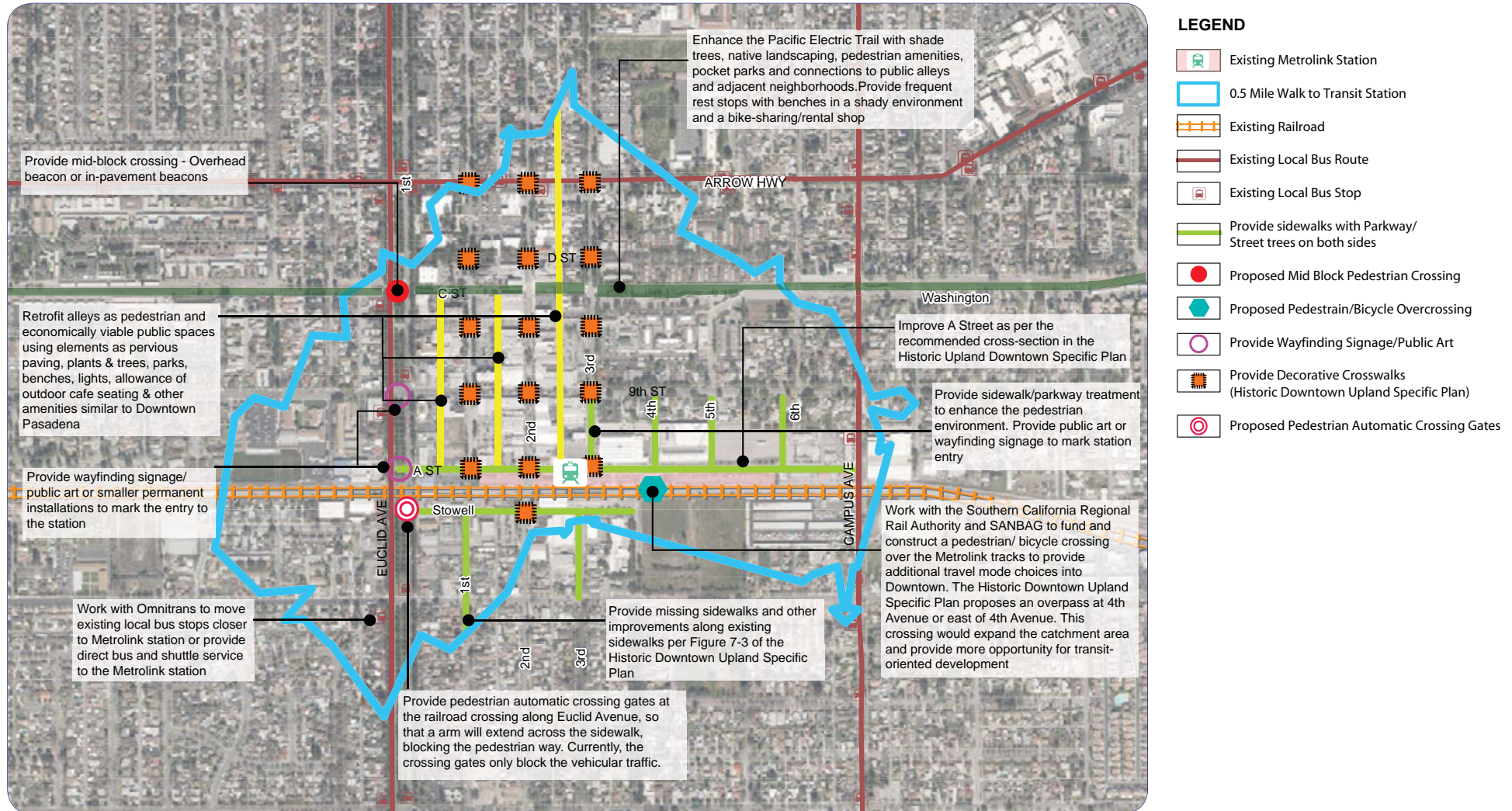


Existing Class II bike lanes in Upland provide adequate utility for cyclists, but are not always noticed by motorists

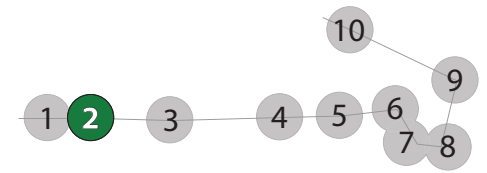


Example of colored bike lane concept on Euclid Avenue in Upland to increase visibility (Plan recommends colored conflict zones at intersections)

FIGURE 4.5 UPLAND METROLINK STATION PROPOSED PEDESTRIAN IMPROVEMENTS







## Upland Station: Install Mid-Block Crossing at Euclid Avenue

### Project Description

Provide mid-block crossing with overhead beacon or in-pavement beacons at Euclid Avenue and Pacific Electric Trail for pedestrians and bicyclists.



Overhead beacons provide flashing yellow lights rather than a full green-yellow-red cycle. Pedestrians and/or cyclists activate the signal by pressing a push-button located on the signal pole, as they would at an intersection crosswalk. Once this is done, the overhead lights begin flashing and continue to flash until the pedestrian and/or cyclist cross the intersection.



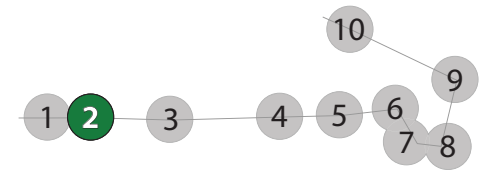
In-pavement beacons are light-emitting diode (LED) lights embedded in the pavement. These treatments are highly visible and the stutter flashing of the in-pavement flashers sufficiently alerts motorists of a pedestrian within the crosswalk.

### Cost Estimate

- Crosswalk Installation: 2 @ \$600 EA
- Curb Ramp: 2 @ 500 EA
- In-Pavement Flashing : 2 @ \$20,000 EA
- Overhead Beacons: 2 @ \$20,000 EA

Total cost: \$82,200

NEAR-TERM	MID-TERM	LONG-TERM



## Upland Station: Improve the Pedestrian Environment along A Street

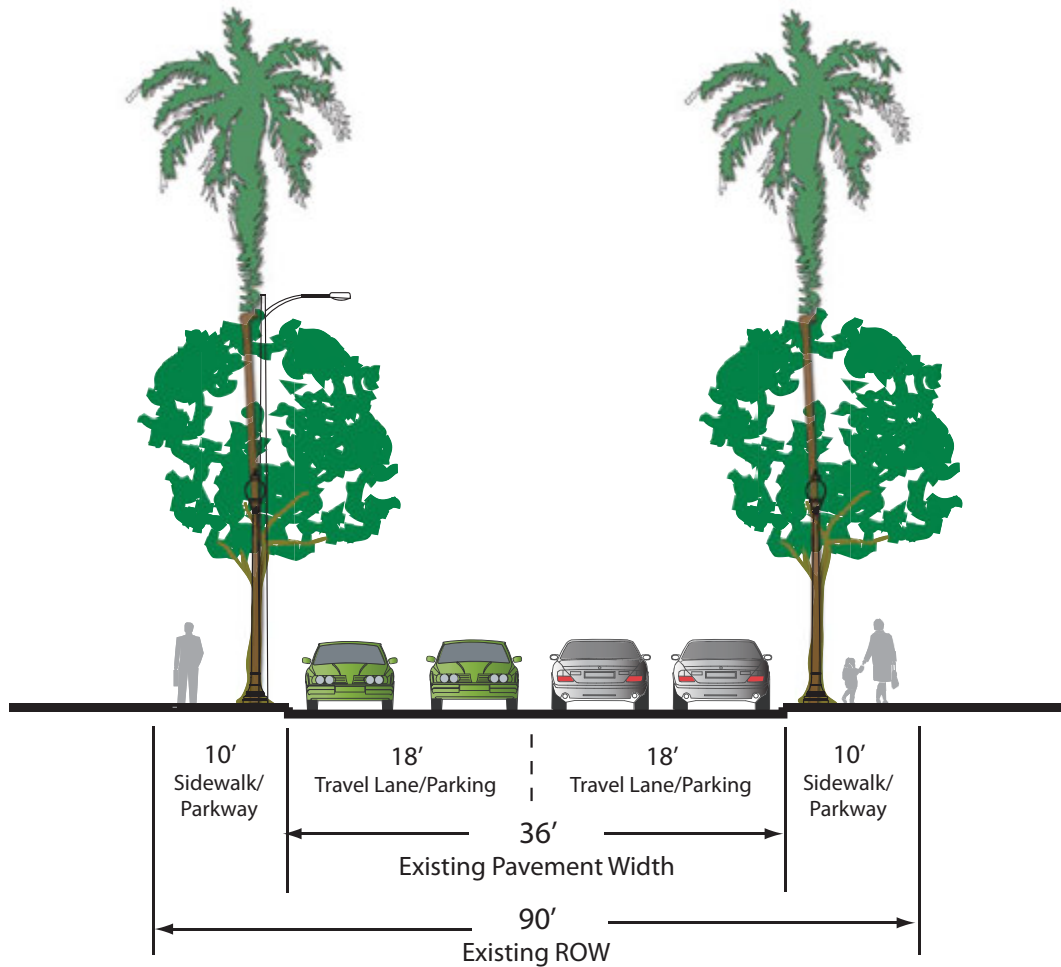
### Project Description

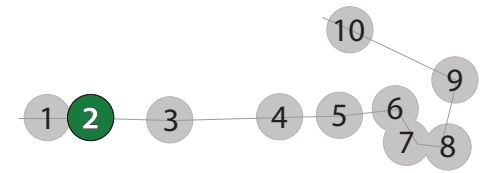
Improve/enhance pedestrian environment along A Street by installing canopy trees alternating with existing palm trees to provide shade and a comfortable pedestrian environment and a consistent landscape treatment.

### Cost Estimate

- Trees: 60 @ \$600 EA
- Total cost: 36,000

NEAR-TERM	MID-TERM	LONG-TERM





## Upland Station: Install Pedestrian Automatic Gate

### Project Description

Provide pedestrian automatic gates at the railroad crossing of Euclid Avenue, so the arm will extend along the sidewalk to provide a physical barrier preventing individuals from encroaching on the tracks. Pedestrian automatic gates are the same as standard automatic crossing gates except that the gate arms are shorter. When they are activated by an approaching train, the automatic gates are used to physically prevent pedestrians from crossing the tracks.



### Cost Estimate

- Pedestrian automatic gate arm: 2 @ \$1,000,000 EA
- Single Unit Pedestrian gate: 2 @ \$20,000 EA

Total cost: \$2,040,000

NEAR-TERM	MID-TERM	LONG-TERM

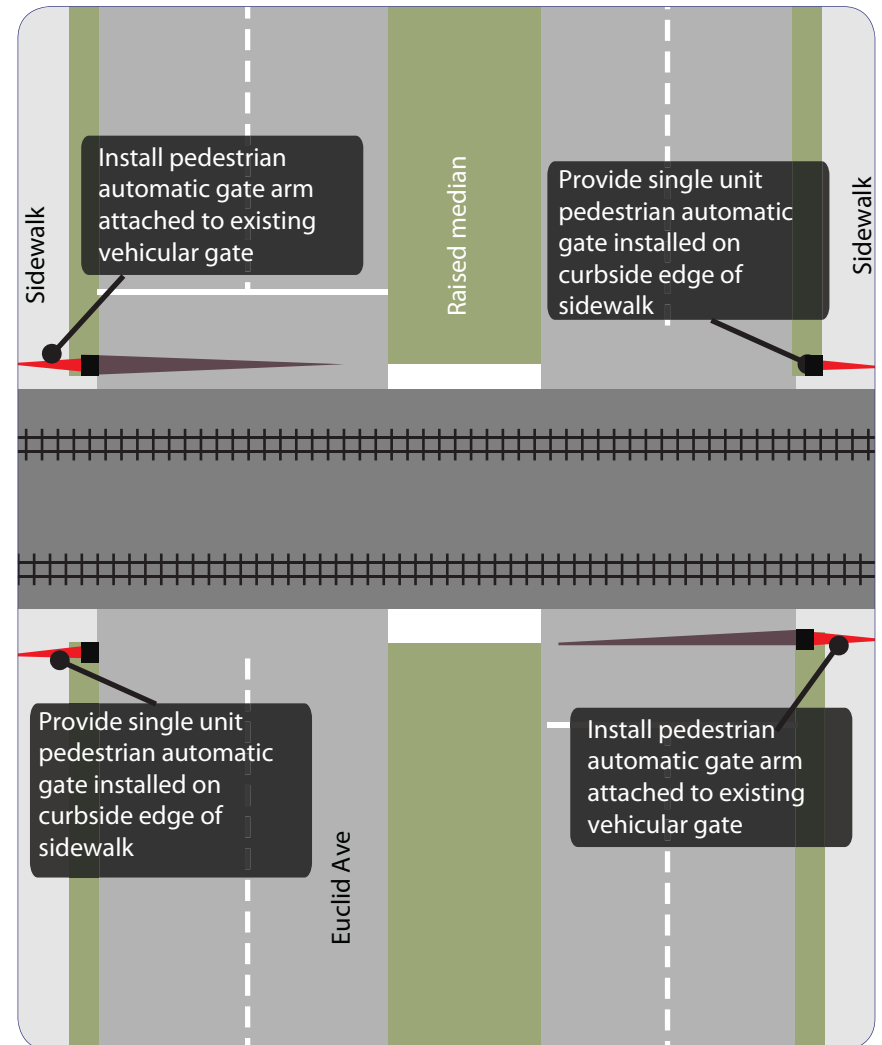
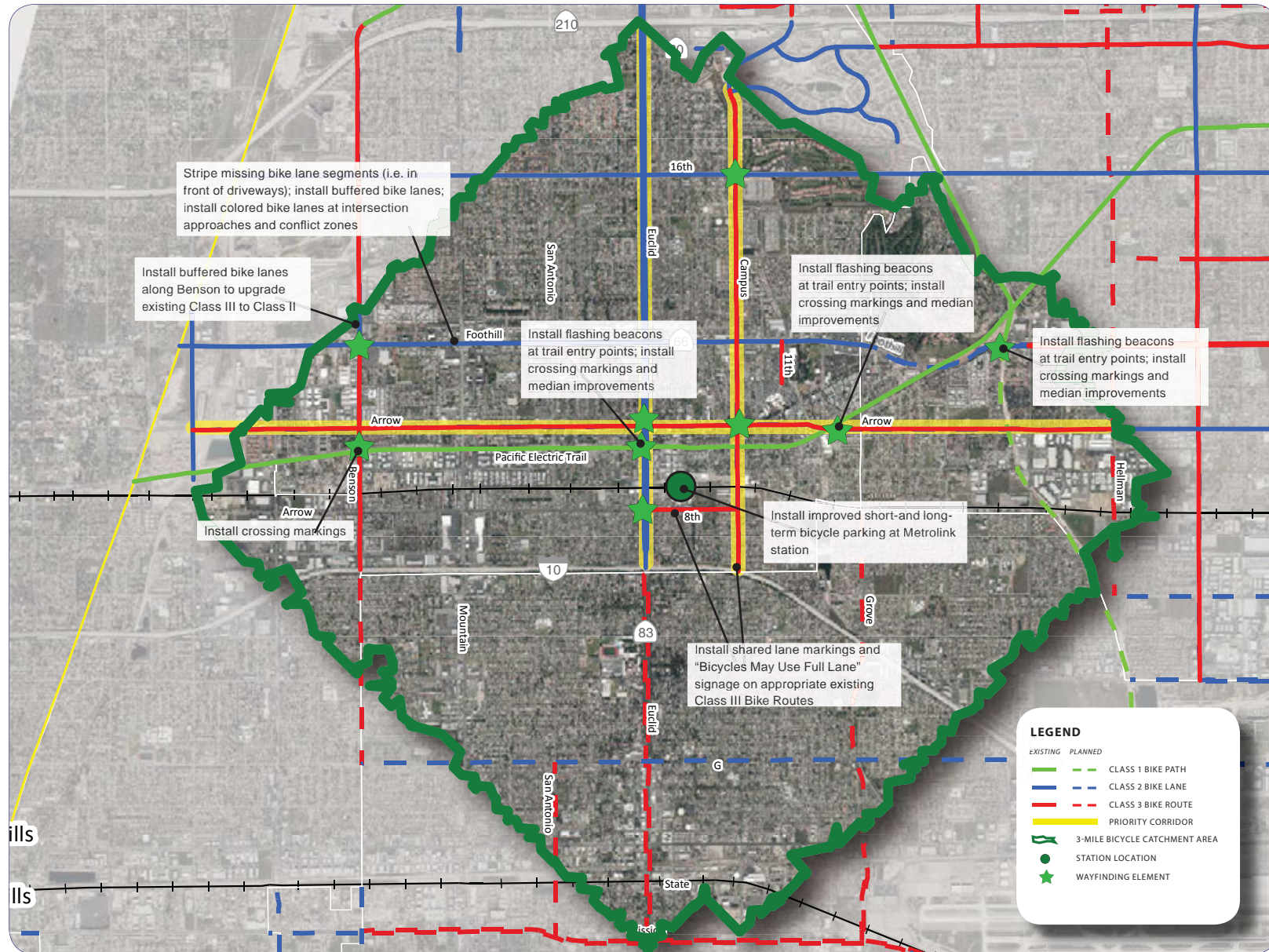




FIGURE 4.6 UPLAND METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS

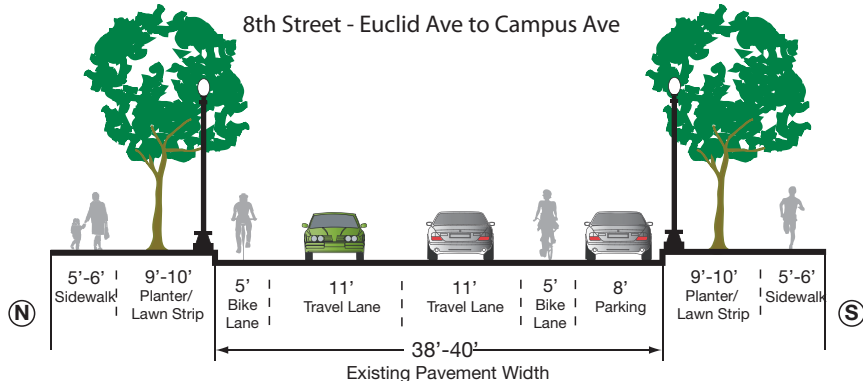




## Upland Station: E 8th Street and Pacific Electric Trail Crossings

### Project Description

Bike lanes can be striped on E. 8th Street with the removal of parking on one side of the street. Enhanced street crossings along the Pacific Electric Trail will facilitate Upland Station access from the east and west.



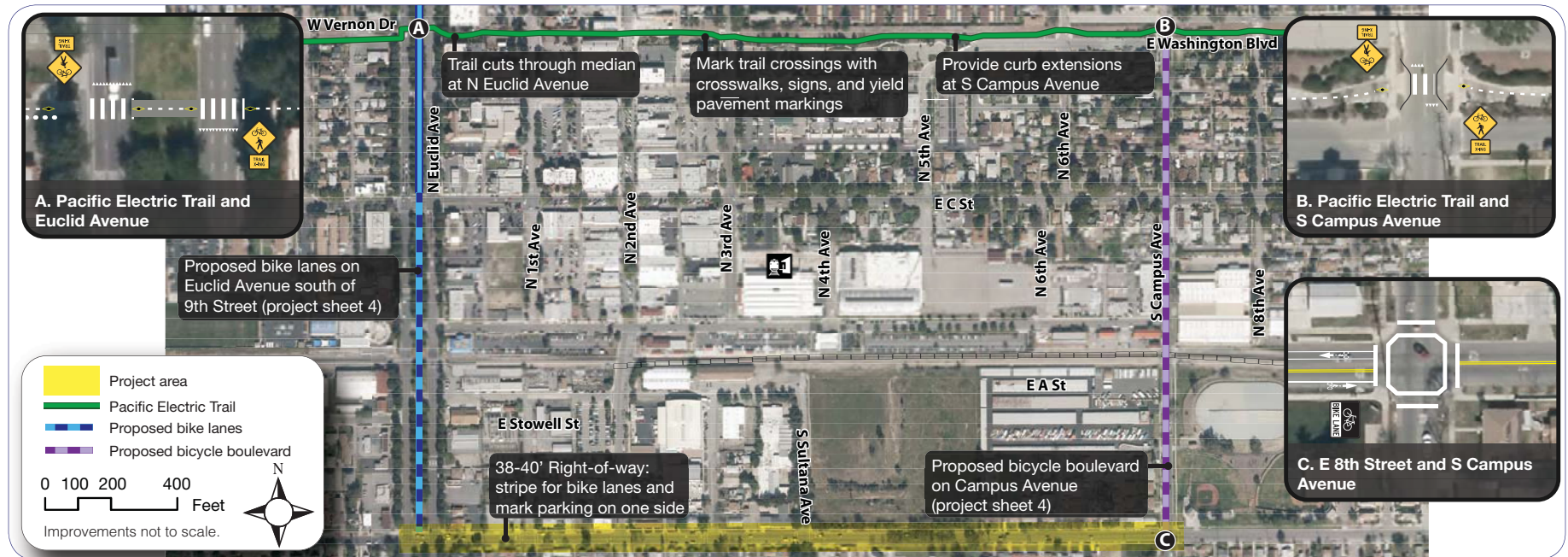
Pacific Electric Trail crossings should be high visibility, with marked crosswalks, signs, and yield pavement markings to improve safety for trail users.

### Cost Estimate

- Class II Bike lanes: 0.54 mile @ \$50,000/mile
- 6 Trail crossings (marked crosswalks and signs on all, curb extensions at S Campus Ave): \$53,000
- Pacific Electric Trail crossing enhancements: \$53,000

Total Cost: \$133,000

NEAR-TERM	MID-TERM	LONG-TERM

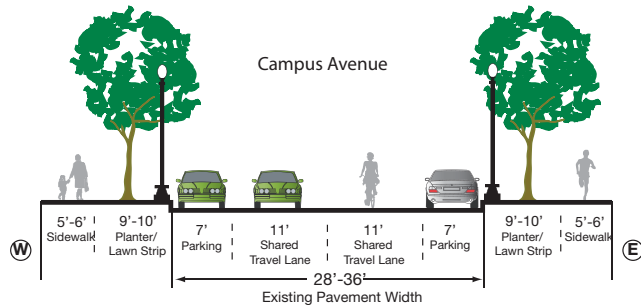




# Upland Station: Campus and Euclid Avenues from E Foothill Boulevard to Interstate 10

## Project Description

To designate Campus Avenue as a bicycle boulevard, reduce posted speed to 25 mph and add signs and pavement markings. On Euclid Avenue, the bike lanes should be extended south of N 9th Street and intersection markings used to increase visibility at conflict areas.



Campus Avenue has low motor vehicle volumes and can accommodate bicyclists as a bicycle boulevard if speeds are reduced. Monitor speeds and volumes to evaluate if additional treatments are necessary.

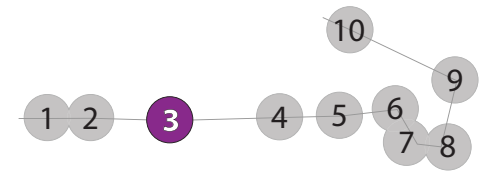
## Cost Estimate

- Class II bike lanes: 1.37 mile @ \$50,000 mile
- Class II bike lanes: 0.6 mile @ \$50,000 mile
- Colored pavement (at Foothill Boulevard, Arrow Highway, 1st, 9th, and 7th Streets): 562 yards @ \$65/sq yard
- Campus Avenue bicycle boulevard: \$41,000
- Euclid Avenue bike lanes and crossing enhancements: \$55,000

NEAR-TERM	MID-TERM	LONG-TERM

Total Cost: \$231,000





## 4.3 Rancho Cucamonga Metrolink Station Improvements



### Overview

The Rancho Cucamonga station is located in an area of industrial and residential land uses. Block lengths are some of the longest and most challenging in the study area. Several multi-lane, high-speed arterials are found in the immediate station area.

Pedestrian and cyclist amenities are adequate and ample, owing to the relatively new construction in the area. Several planned Class I Bike Path facilities are found in the study area.

Improvements were developed to close gaps in the non-motorized facility network and improve on some of the circuitous paths of travel created by the long blocks, major roadways, and limited points of access.

### Recommended Pedestrian Catchment Area Improvements

- Improve pedestrian level lighting
- Improve directional signage/wayfinding
- Create additional points of access
- Improve condition of crosswalks
- Promote public art or design gateway features

### Recommended Bicycle Catchment Area Improvements

- Convert existing Class III segments to Class II to minimize conflicts with motor vehicles
- Provide low-speed option for north-south access along Rochester
- Develop Deer Creek and Day Creek Channels for planned Class I Bike Paths
- Relocate existing bicycle parking closer to station area

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$6,233,000
General Improvements in Pedestrian Catchment Area	\$872,000
<b>TOTAL</b>	<b>\$7,105,000</b>



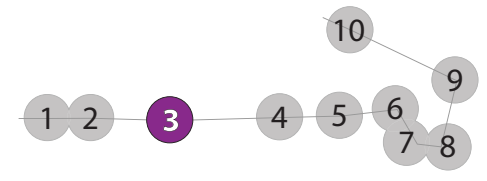
Existing wayfinding monument along Pacific Electric Trail.



Improved wayfinding monument with City logo and Metrolink destination.





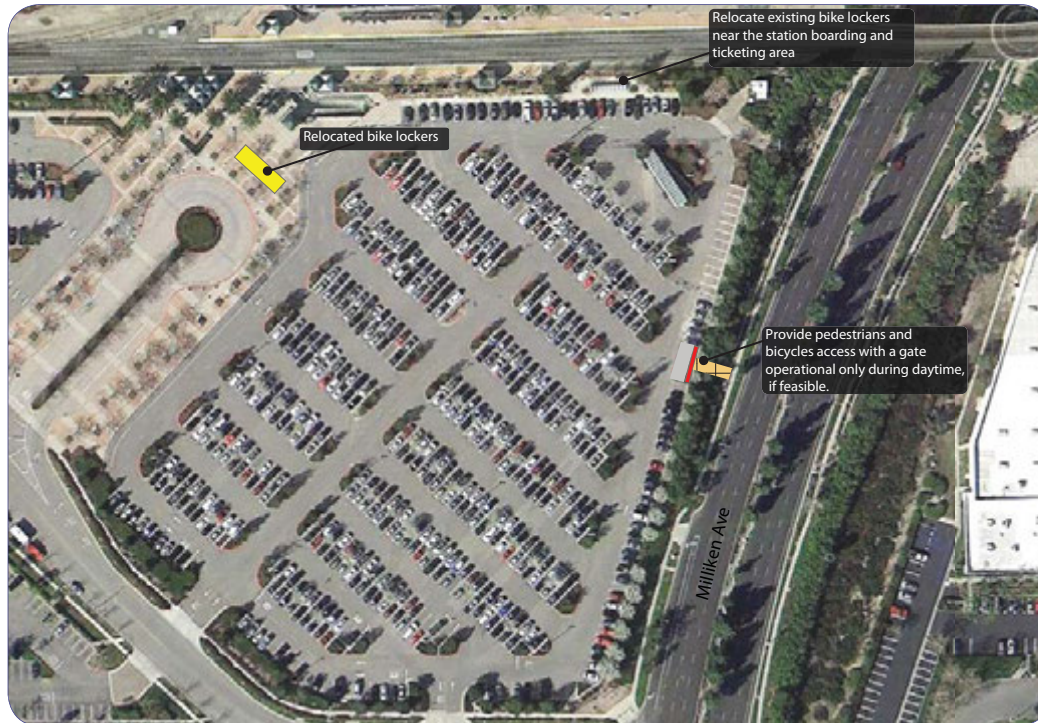


## Rancho Cucamonga: Provide pedestrian and bicycle access gate & relocate bike lockers

### Project Description

Provide pedestrian and bicycle access with a gate operational only during daytime, if feasible, to provide direct access to pedestrians and cyclists travelling along Milliken Avenue.

Relocate the existing bike lockers closer to the station boarding and ticketing area.



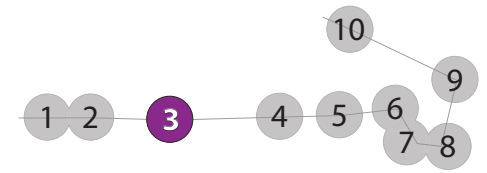
### Cost Estimate

- Pedestrian gate: \$20,000
- Relocating bike lockers: \$10,000

Total cost: \$30,000

NEAR-TERM	MID-TERM	LONG-TERM



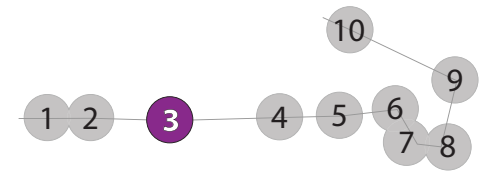


## Rancho Cucamonga: Provide Gateway Marker and Wayfinding Signage

### Project Description

Provide a large-scale signature/bold gateway signage to create a dramatic first impression of the entry to the Metrolink Station.





## Rancho Cucamonga: Gateway Marker Option 2



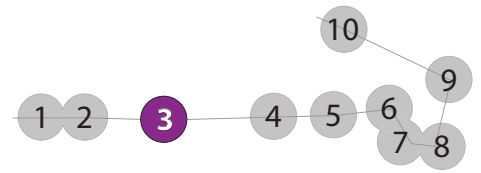
### Cost Estimate

- Varies

NEAR-TERM	MID-TERM	LONG-TERM



## Rancho Cucamonga: Example of a Wayfinding Signage at Milliken and Jersey Boulevard

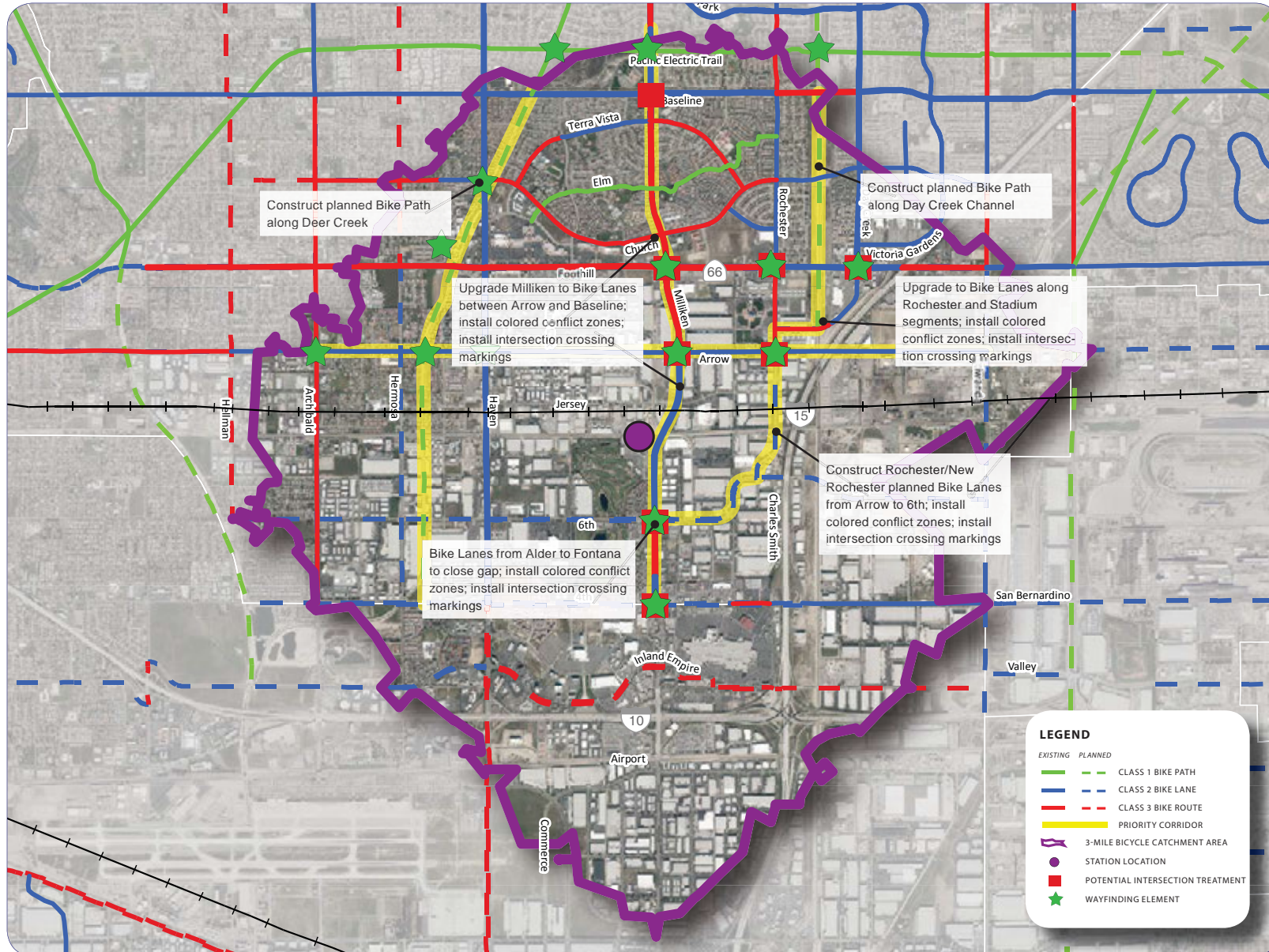


Provide attractively designed directional or wayfinding signage to direct motorists, pedestrians, and bicyclists to the Metrolink Station, especially at the intersection of Milliken Avenue and Jersey Boulevard and Milliken Avenue and 7th Street.



NEAR-TERM	MID-TERM	LONG-TERM

FIGURE 4.8: **RANCHO CUCAMONGA METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS**



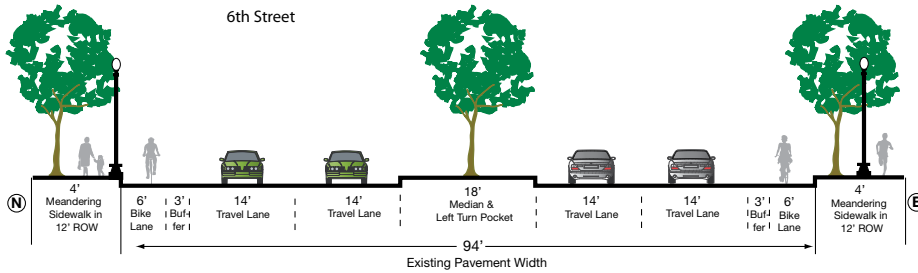


## Rancho Cucamonga: 6th Street/Rochester Avenue between proposed trails

### Project Description

This project connects the proposed Deer Creek Channel and Day Creek Channel Trails along 6th Street and provides access to the Station facilities like bike lanes on Milliken Avenue.

Bike lanes can be striped between the proposed Deer Creek Trail and Haven Avenue, while buffered bike lanes can be accommodated from Haven Avenue to Arrow Route through a road diet treatment.



Buffered bike lanes will provide a more comfortable bicycling environment for bicyclists traveling between the Rancho Cucamonga Station and the proposed Deer Creek Channel and Day Creek Channel Trails.

### Cost Estimate

- Class II bike lanes (Haven Avenue to Beech Street): 2.92 mile @ \$50,000/mile
  - Buffered bike lanes (Beech Street to Lime Avenue): 0.38 mile @ \$80,000/mile
  - Green paint: 100 yards @ \$65/SY
- Total Cost: \$152,500**

NEAR-TERM	MID-TERM	LONG-TERM



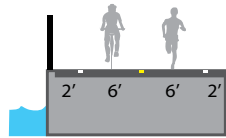
## Rancho Cucamonga: Deer Creek Channel and Day Creek Channel Trails

### Project Description

Two trails in the Rancho Cucamonga station area could be developed by opening existing creek channel maintenance roads to the public, creating low-stress connections to the station from the north.

The projects should improve crossings of major streets to improve visibility and provide crossing gaps for trail users. These crossings include Base Line Road, Church Street, Foothill Boulevard, Arrow Route and local streets between Arrow Route and 6th Street. Treatments may include pavement markings, signs, bollards, and offset intersections with median paths.

Day Creek Channel Path



Enhancing crossings and opening these existing canal maintenance roads is a low-cost opportunity to provide off-street facilities.

### Cost Estimate

- Deer Creek Channel Trail: 3.18 miles @ \$1,000,000/mile

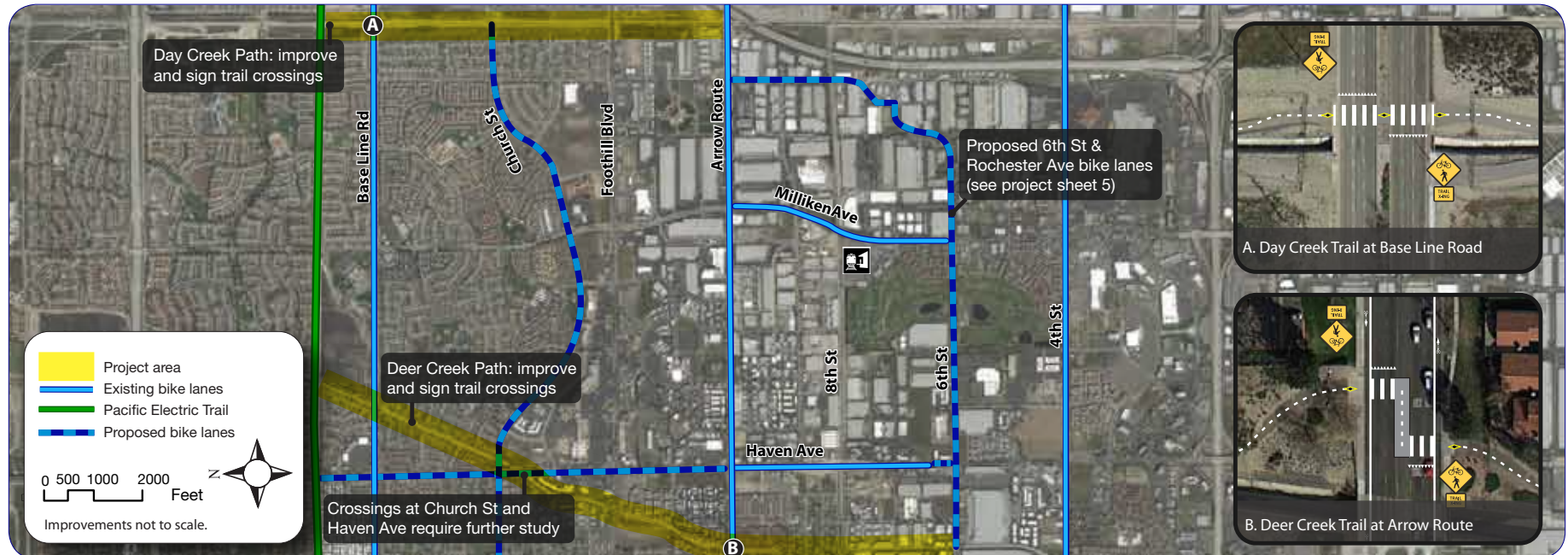
- Day Creek Channel Trail: 2.90 miles @ \$1,000,000/mile

#### Total Cost:

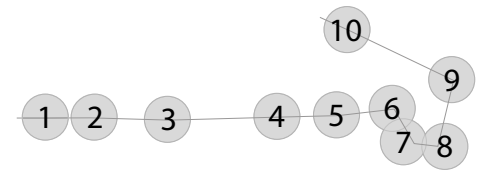
- Deer Creek Channel Trail: \$3,180,000

- Day Creek Channel Trail: \$2,900,000

NEAR-TERM	MID-TERM	LONG-TERM

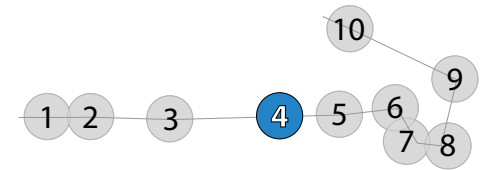






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## 4.4 Fontana Metrolink Station Improvements



### Overview

The Fontana Metrolink Station is located in downtown Fontana, and provides excellent access to nearby commercial and residential land uses. Sierra Avenue has recently been improved by a series of improvements, and the pedestrian environment adjacent to the station area is pleasant and well-designed. Aside from the nearby Pacific Electric Trail, dedicated bicycle facilities are largely nonexistent.

Improvements to the area focus on additional shade trees, lighting enhancements, a more active Santa Fe Park, bicycle parking, and the implementation of key corridors of the regional bicycle network designed to directly connect to the station.

### Recommended Pedestrian Catchment Area Improvements

- Lighting
- Trees
- Curb extensions
- Crosswalk and sidewalk improvements

### Recommended Bicycle Catchment Area Improvements

- Additional bicycle parking options at station
- Key bicycle corridor development along Arrow, Citrus, and Juniper
- Mid-block crossing improvements along the Pacific Electric Trail

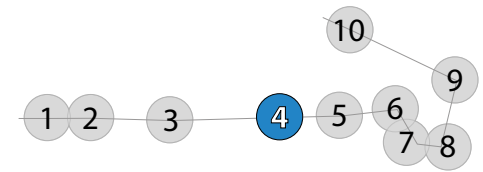
IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$656,000
General Improvements in Pedestrian Catchment Area	\$5,351,000
<b>TOTAL</b>	<b>\$6,007,000</b>



Along the Pacific Electric Trail, cities have often not improved mid-block crossings. This example is in Upland.



Signage and pavement markings can make crossings easier to navigate (example based on Upland Crossing above)

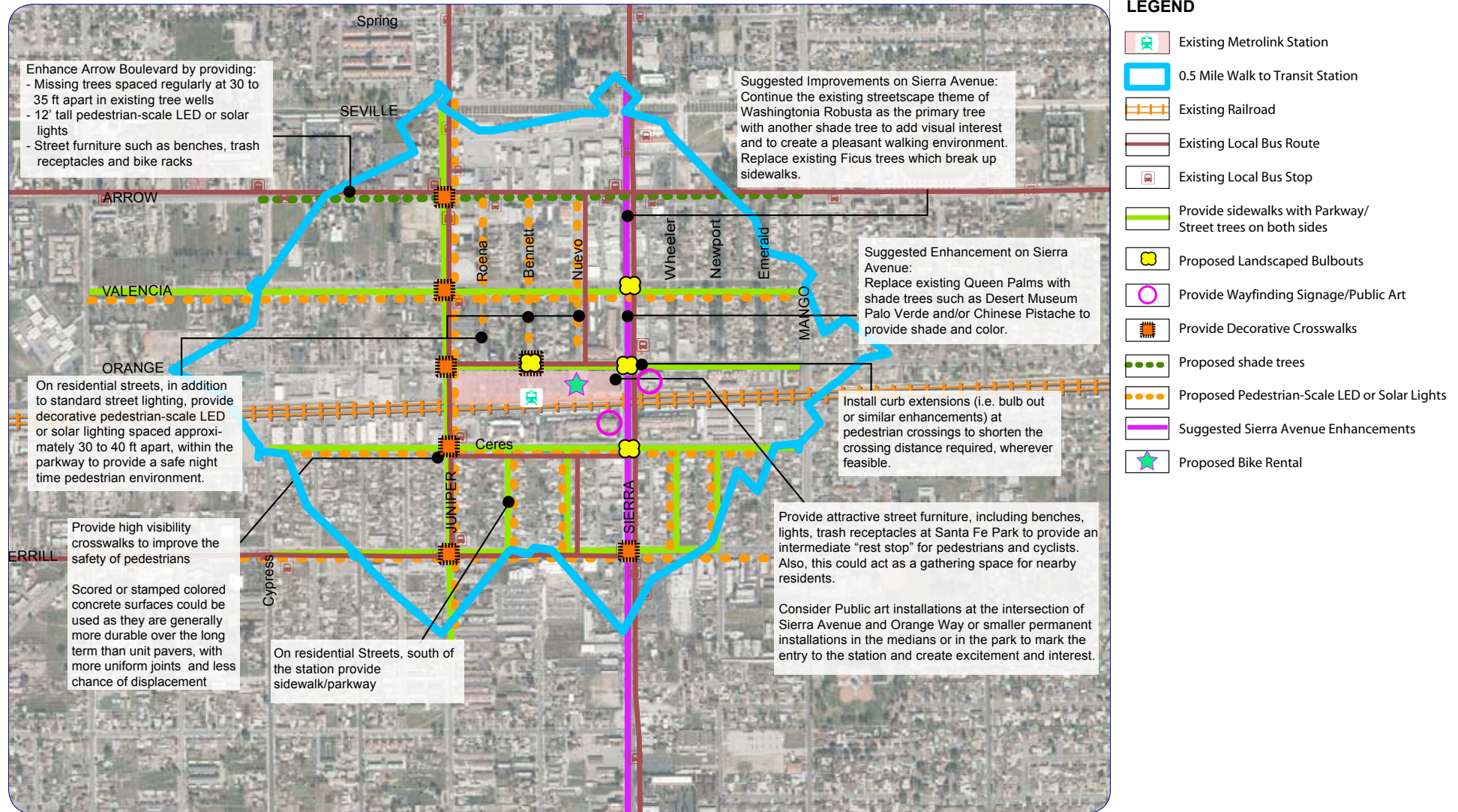


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## Additional Improvements from the Project Development Team

- Clean and/or repair existing water fountains
- Install permanent public restrooms
- Provide a more direct pathway to Sierra & Orange Way by bisecting Santa Fe Park with Bike/Pedestrian path & embellish with landscaping on either side of path. Also this could make a prominent entrance/exit to or away from transit center.
- Allow for a portion of Santa Fe Park to accommodate food vendors, festivals, farmer's markets etc. As there is already an ice cream truck that comes in and out of existing parking lot. This could be an opportunity to provide a destination point for residents in Fontana and surrounding cities. In addition, the constant presence of people could deter vandalism and limit opportunities for crime.
- Bike center

FIGURE 4.9: FONTANA METROLINK STATION PROPOSED PEDESTRIAN IMPROVEMENTS





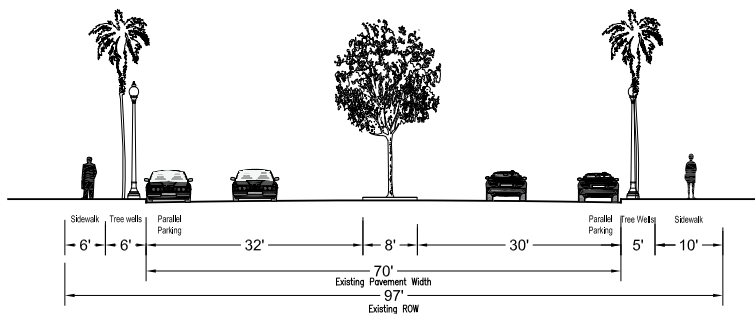
## Fontana Station: Improve pedestrian experience along Sierra Avenue

### Project Description

Washingtonia Robusta (Mexican Fan Palm) is the major street tree on Sierra Avenue with Queen Palm as the accent tree between Orange Way and Valencia Avenue. The Mexican Fan Palms offer a strong defining edge and add character and visual interest; however, they provide no shade.

The existing Queen Palms are not a drought tolerant tree and provide no shade. Addition of canopy trees for shade would make the environment more comfortable for pedestrians and provide a stronger, more attractive image. Therefore, overtime the Queen Palms can be replaced with Cercidium 'Desert. Museum'- Palo Verde Tree or Prosopis alba 'Colorado'- Argentine Mesquite or Chinese Pistache which will respond better to the specific local conditions and will be more sustainable. Trees of 36 inch box or larger should be spaced and pruned to provide sign visibility for merchants.

Sierra



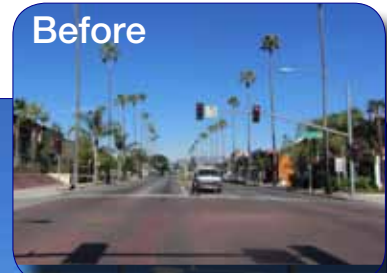
Between Valencia Avenue and Arrow Boulevard the major street is Ficus

### Cost Estimate

● Trees: 24 @ \$600 EA

Total cost: \$14,400

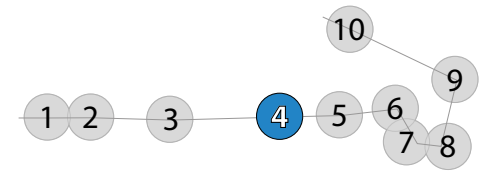
NEAR-TERM	MID-TERM	LONG-TERM



Cercidium 'Desert. Museum- Palo Verde



Chinese Pistache



## Fontana Station: Activate Santa Fe Park

### Project Description

Install a 10ft pedestrian and bicycle pathway, as shown in the figure below to provide direct pedestrian and bicycle connection between Sierra Avenue and the Metrolink Station Platforms and provide street furniture including benches, trash receptacles to transform Santa Fe Park into an active neighborhood gathering space.



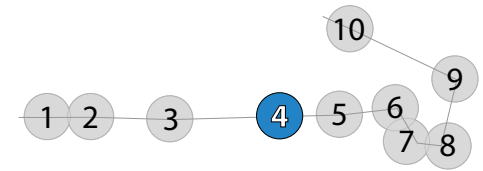
### Cost Estimate

Phase I

- Sidewalk: 2000 SF @ \$3.80 SF
  - Benches: 4 @ \$900 EA
  - Trash receptacles: 2 @ \$2000 EA
  - Trees: 6 @ \$600 EA
- Total cost: \$18,800

NEAR-TERM	MID-TERM	LONG-TERM



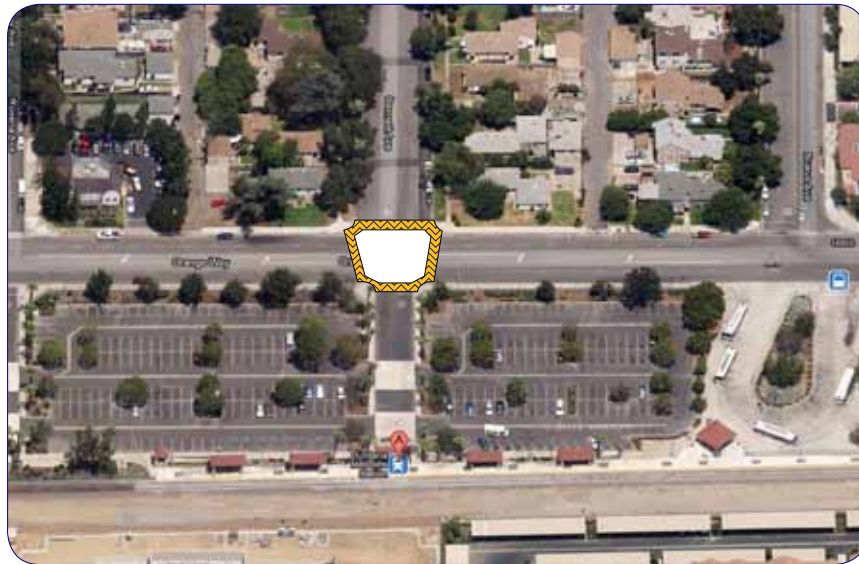


## Fontana Station: Provide Mid-Block Crossing

### Project Description

Provide high visibility crosswalk at the intersection of Bennett Avenue and Orange Way to provide a safe pedestrian access to the Metrolink Station. Phase I - Install thermoplastic crosswalks

Phase II - Provide high visibility pavers at intersection



### Cost Estimate

Phase I

- Thermoplastic crosswalks: 160 @ \$ 3.80 LF

Total cost: \$600

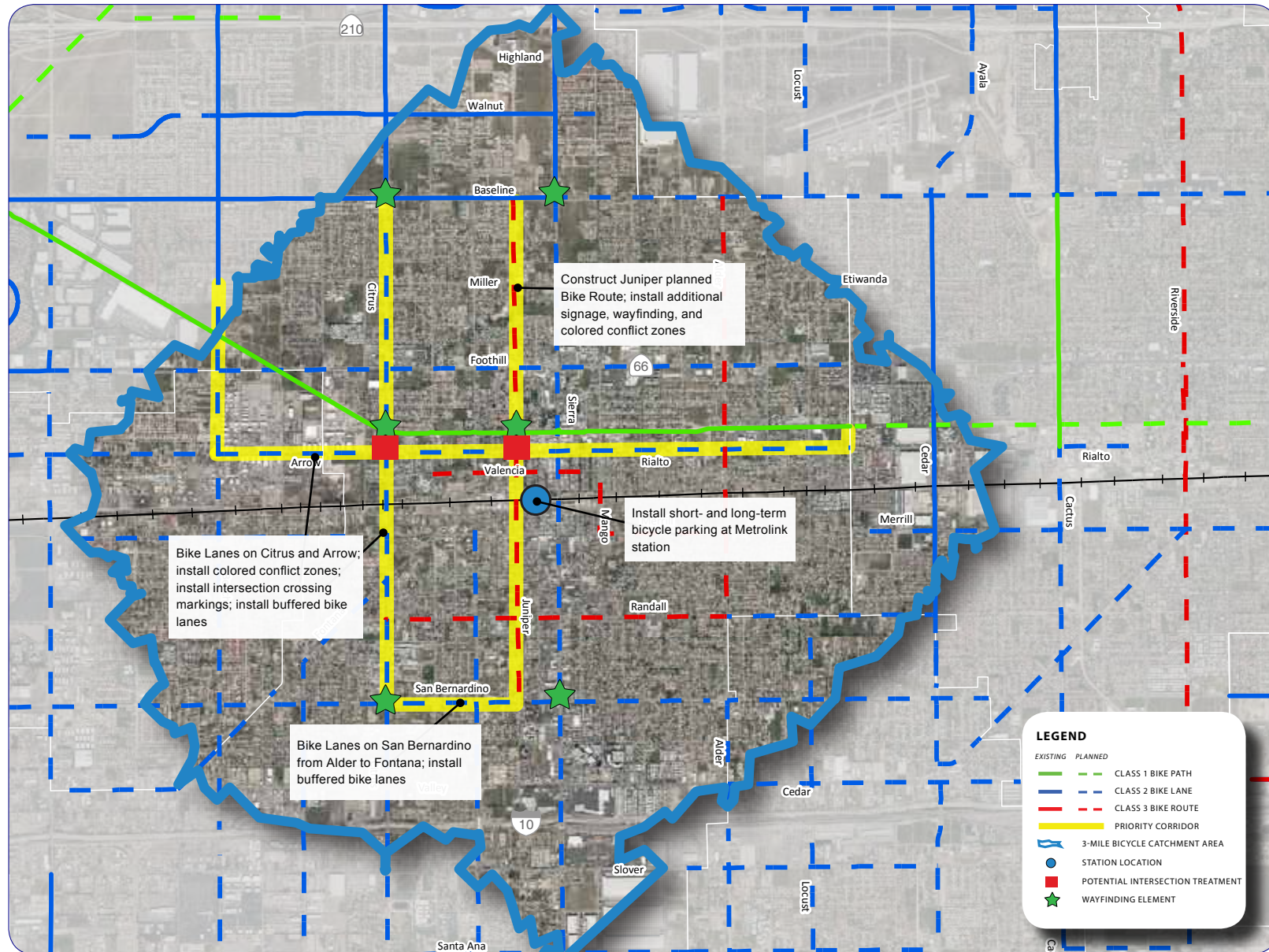
Phase II

- Accent Architectural Pavers at Intersection: 2400 @ \$ 12.75 SF
- Crosswalks: 4 @ \$600 EA

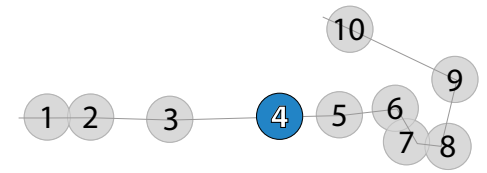
Total cost: \$33,000

NEAR-TERM	MID-TERM	LONG-TERM

FIGURE 4.10: FONTANA METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS







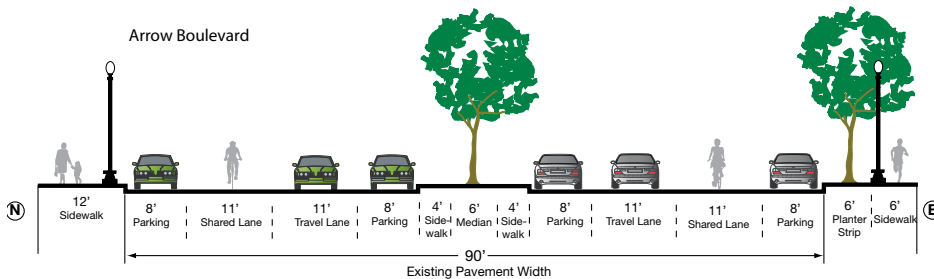
## Fontana Station: Arrow Boulevard

### Project Description

Arrow Boulevard is a key east-west connector through Fontana and Rialto. Bike lanes will provide access to the station via Juniper Avenue (see project sheet 8). The street character varies throughout this corridor, with sections lacking curb, gutter, and sidewalk. If the street is built out in the future, it should have sufficient width to accommodate bike lanes.



The character of Arrow Boulevard changes significantly along the corridor. When the street is built out with curb and gutter, formal bike lanes should be included along the street.



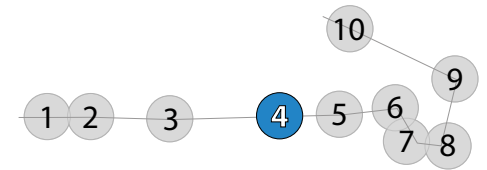
### Cost Estimate

- Buffered bike lanes (Beech Street to Lime Avenue): 0.38 mile @ \$80,000/mile
- Class II bike lanes (Lime Avenue to Juniper Avenue and Sierra Avenue to Palmetto Avenue): 1.90 mile @ \$50,000/mile
- Shared lane markings (Juniper Avenue to Sierra Avenue): 0.25 mile @ \$2,000/mile

Total Cost: \$126,000

NEAR-TERM	MID-TERM	LONG-TERM

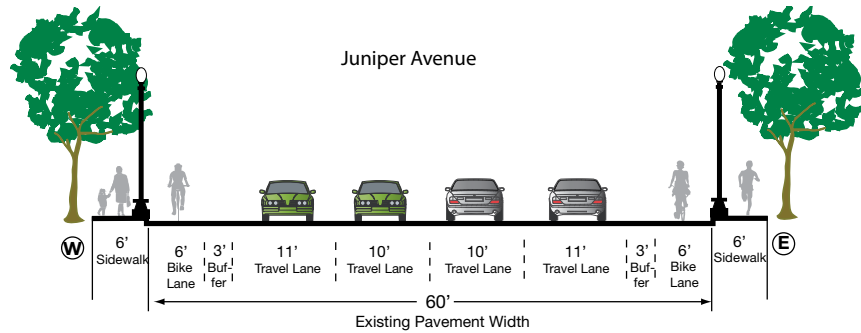




## Fontana Station: Juniper Avenue

### Project Description

Juniper Avenue makes a connection between the existing Pacific Electric Trail, proposed bike lanes on Arrow Boulevard, and Fontana station. The street currently has no on-street parking, and buffered bike lanes can be accommodated through restriping.



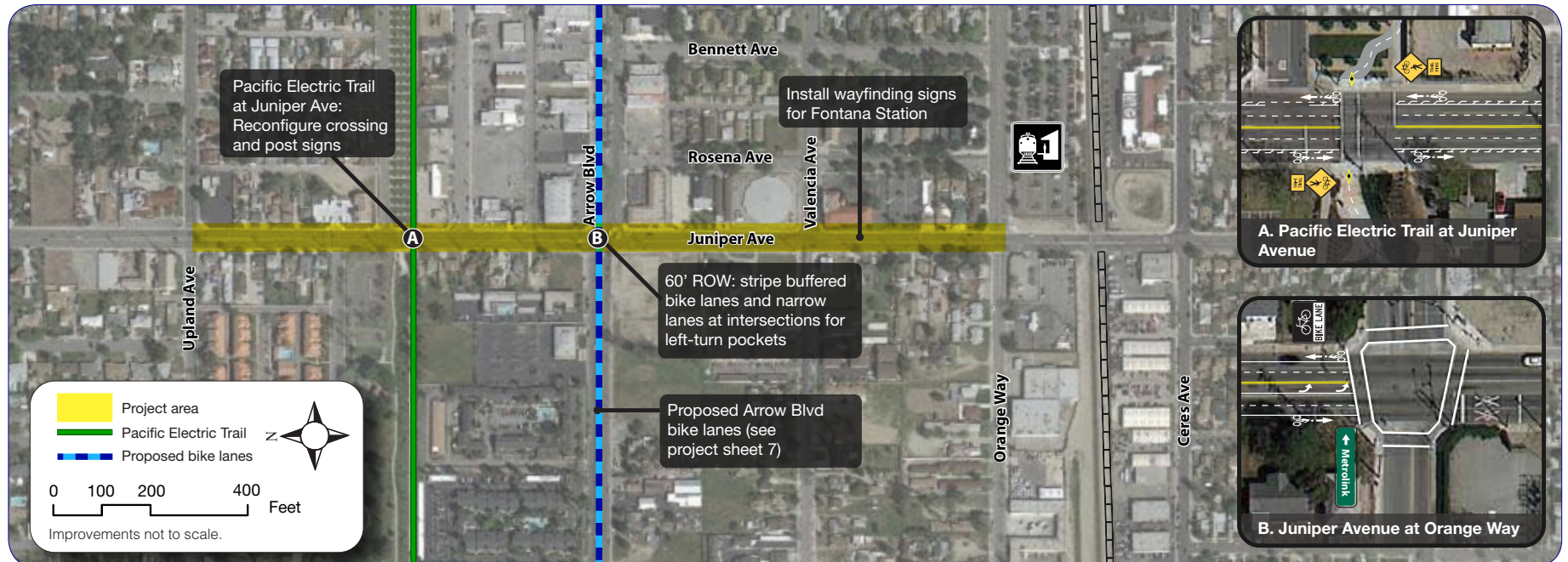
Wayfinding signs should be posted at the Pacific Electric Trail, Arrow Boulevard, and Orange Way to assist bicyclists in finding appropriate routes to their destinations.

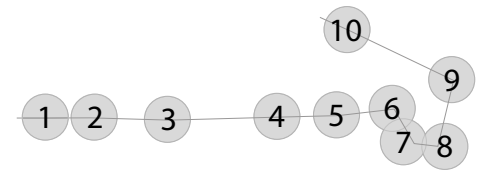
### Cost Estimate

- Class II bike lanes: 0.49 mile @ \$50,000/mile
- 6 wayfinding signs @ \$300

Total Cost: \$26,000

NEAR-TERM	MID-TERM	LONG-TERM

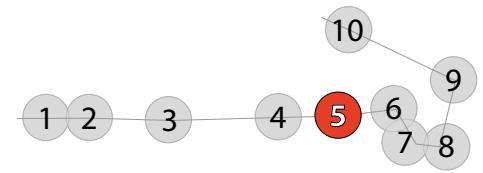




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## 4.5 Rialto Metrolink Station Improvements



### Overview

The Rialto Metrolink Station has adequate connections to the nearby residential land uses north of the station. Connections to the south are more challenging. Several of the nearby streets are identified as candidates for widening as part of the City’s General Plan, which presents an excellent opportunity to implement a number of the recommendations in this section.

The bicycle network is disconnected, and the Rialto section of the Pacific Electric Trail remains the lone unconstructed piece of the trail.

Improvements include curb improvements, additional sidewalks, pedestrian overcrossings, and numerous bicycle network improvements consistent with the City General Plan and SANBAG Non-Motorized Plan.

### Recommended Pedestrian Catchment Area Improvements

- Additional multi-use paths to improve Rialto Avenue
- Install public art to improve pedestrian connections
- Provide pedestrian overcrossing
- Provide Street furniture and shade trees

### Recommended Bicycle Catchment Area Improvements

- Finish Pacific Electric Trail facility
- Improvements to and connections with existing facilities on Cedar and Cactus
- Additional bicycle parking options at station area
- Construction of Class III Bike Route on Riverside

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$3,138,000
General Improvements in Pedestrian Catchment Area	\$3,734,000
<b>TOTAL</b>	<b>\$6,872,000</b>

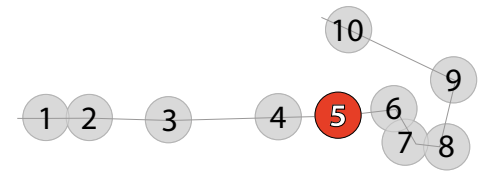


Existing Class I Bike Path is overgrown and unattractive to users.



Cost-effective striping improvements and additional maintenance can increase attractiveness and functionality.





### Additional Improvements from the Project Development Team

- Bike lanes on Trickleside Way and Orange Avenue to connect to 1st Street.
- Attract vendors of new or existing businesses into Longville depot building. This is a good opportunity for coffee, pastries etc. inside building.
- Add artwork or areas of interest in the city to walls. People can enjoy artwork, coffee, pastry etc., while people are waiting for train/bus etc.
- Have farmer's market as a destination place on corner of 1st and Riverside on vacant, city-owned lot. The area of interest information can direct visitors or residents to Farmer's market.
- Bike center
- Provide LED screen with updates, newsfeed etc. while passengers are waiting for bus or train.
- Real time bus arrival information signage

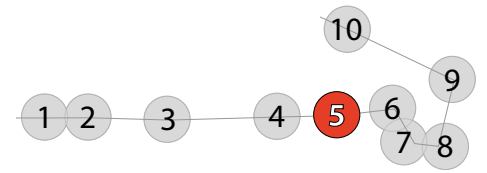
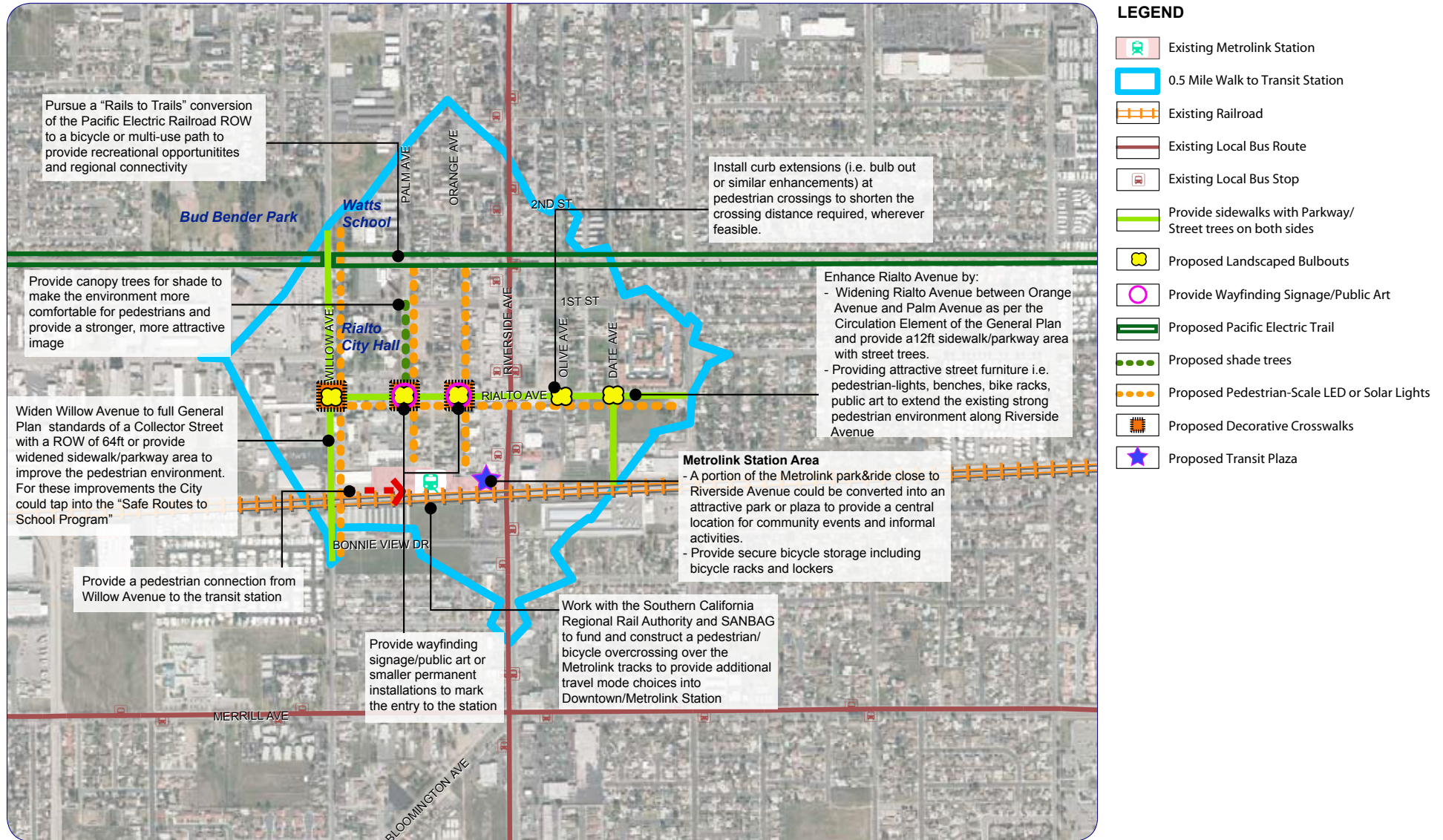


FIGURE 4.11: RIALTO METROLINK STATION PROPOSED PEDESTRIAN IMPROVEMENTS

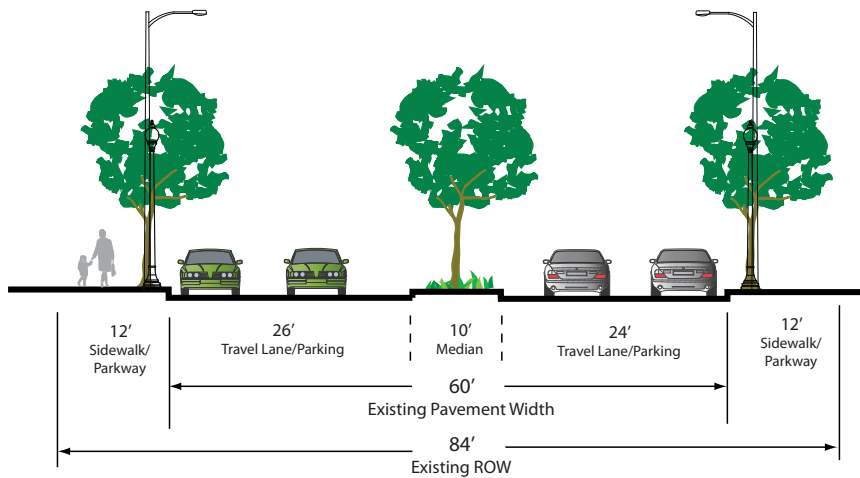




## Rialto Station: Improve pedestrian experience along Rialto Avenue

### Project Description

Enhance Rialto Avenue between Orange Avenue and Willow Avenue as per the Circulation Element of the General Plan and provide a 12ft sidewalk/parkway area with street trees, area for attractive street furniture i.e. pedestrian-lights, benches, bike racks, public art to extend the existing strong pedestrian environment along Riverside Avenue.

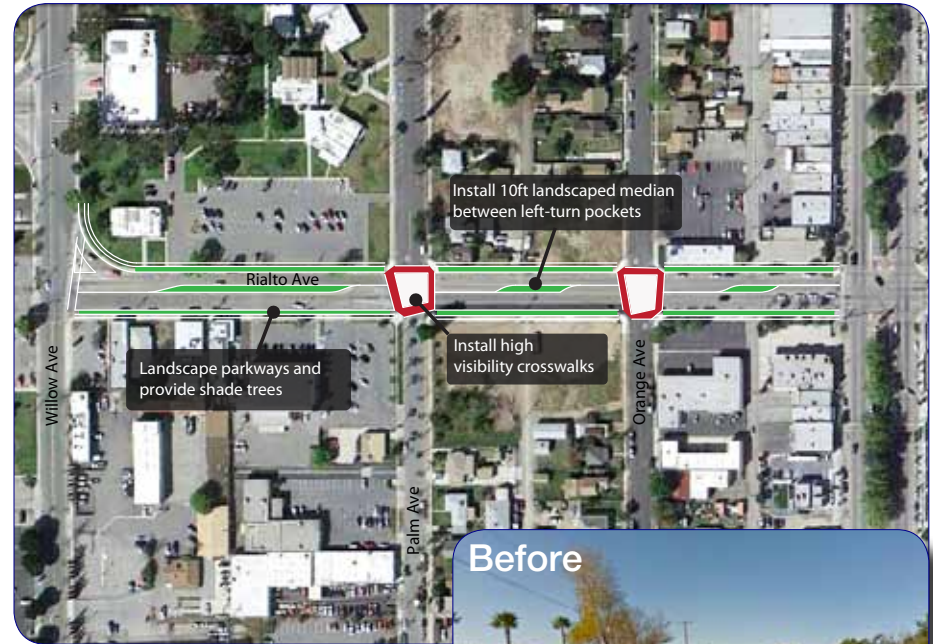


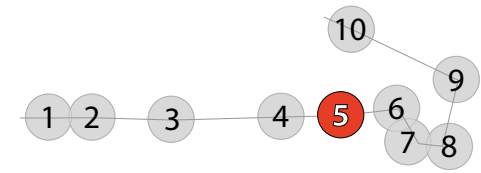
### Cost Estimate

- Trees: 90 @ \$600 EA
- Landscaping: 23000 SF @ \$25 SF
- Irrigation: 23000 SF @ \$ 3 SF
- Curb (median): 750 LF @ \$20 LF

Total Cost: \$720,000

NEAR-TERM	MID-TERM	LONG-TERM

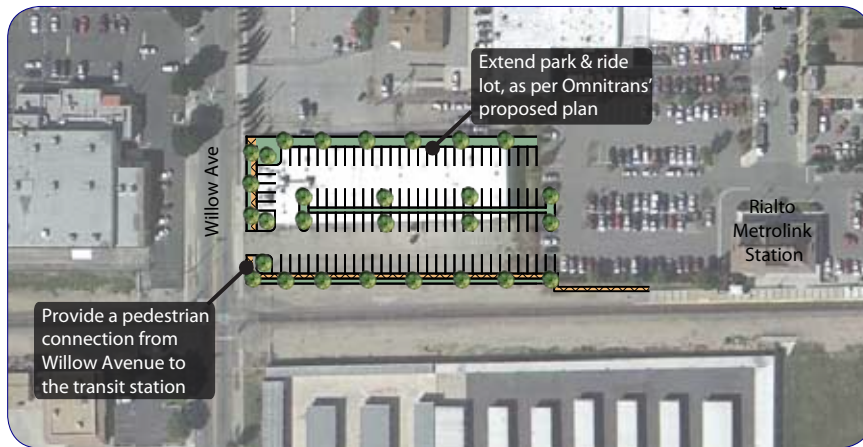




## Rialto Station: Provide pedestrian connection from Willow Avenue to Station

### Project Description

Provide a pedestrian connection from Willow Avenue to the transit station. This would provide a direct connection for uses east of Willow Avenue and improve the pedestrian catchment area. Design of the proposed parking lot north of the tracks between Willow Avenue and the Transit Center should ensure that a pedestrian and bicycle connections is provided.



### Cost Estimate

#### Phase I

- Sidewalk: 2500 @ \$3.80 SF

Total Cost: \$9,500

#### Phase II

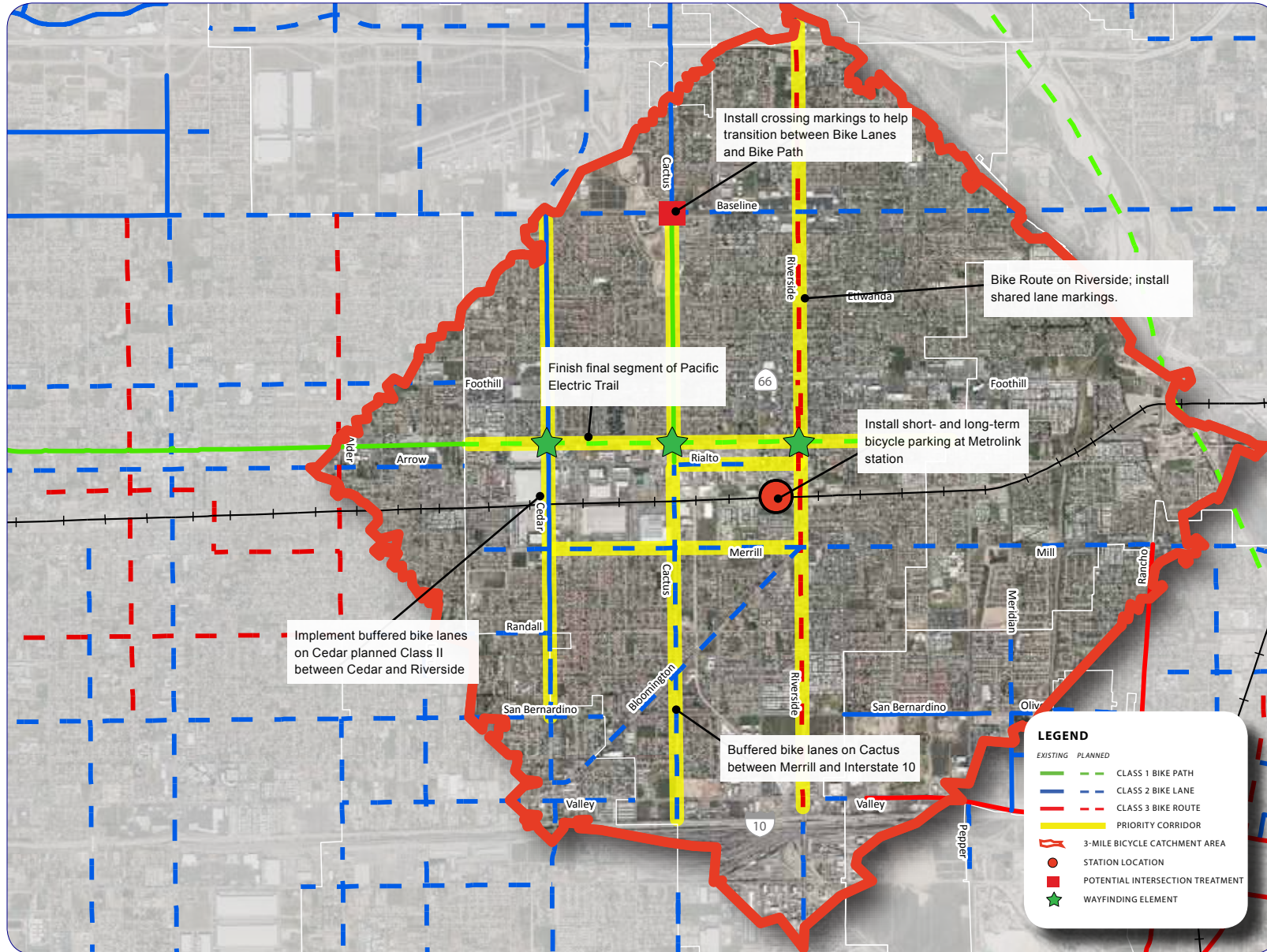
- Parking Asphalt: 35,000 @ \$3.50 SF
- Landscaping: 7300 @ \$25 SF
- Irrigation: 7300 @ \$3 SF
- Trees: 30 @ \$600 EA

Total Cost: \$344,900

NEAR-TERM	MID-TERM	LONG-TERM



FIGURE 4.12: RIALTO METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS

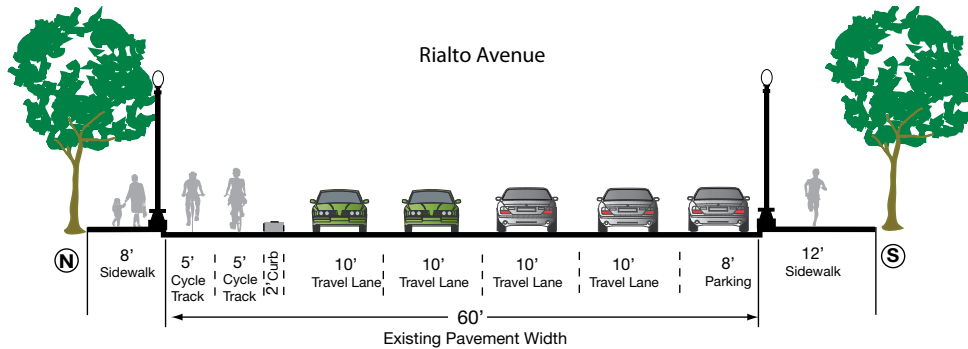




## Rialto Station: Arrow Boulevard/ Rialto Avenue

### Project Description

This project continues bike lanes on Arrow Boulevard from the city limits to Willow Avenue, where the corridor jogs south by the Station. A cycle track connection on the east side of S. Palm Avenue will provide a direct route to the station. A dedicated signal phase will help bicyclists continue on Rialto Avenue or turn onto S. Palm Avenue.



A two-way cycle track on Willow Avenue and Rialto Avenue will facilitate a bicycle connection to the Rialto Station.

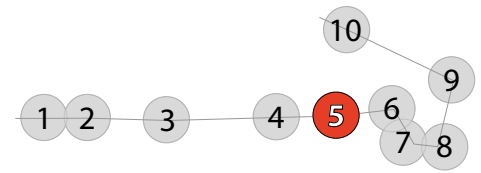
NEAR-TERM	MID-TERM	LONG-TERM

### Cost Estimate

- Class II bike lanes (Arrow Boulevard/Rialto Avenue): 3.28 mile @ \$50,000/mile
- Cycle track (east side of S. Palm Avenue and north side of Rialto Avenue): 0.13 mile @ \$80,000/mile
- Class III bike route (Palm Avenue): 0.11 mile @ \$30,000/mile

Total Cost: \$178,000

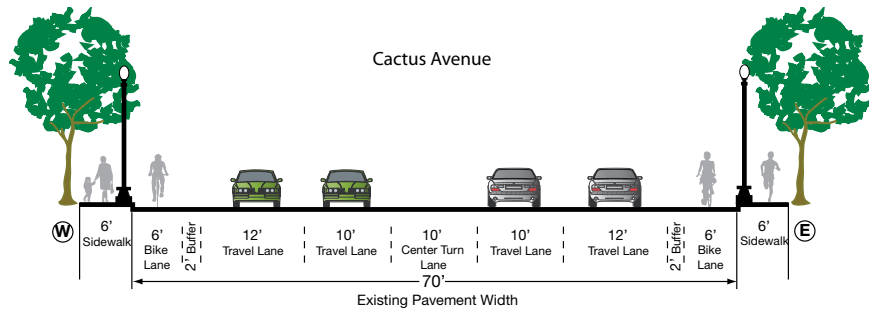




## Rialto Station: N Cactus Avenue

### Project Description

Bike lanes currently exist on N. Cactus Avenue north of W. Rialto Avenue. This project extends the bicycle facility south to Bloomington Avenue, enhancing bicycle access to the station from the south.

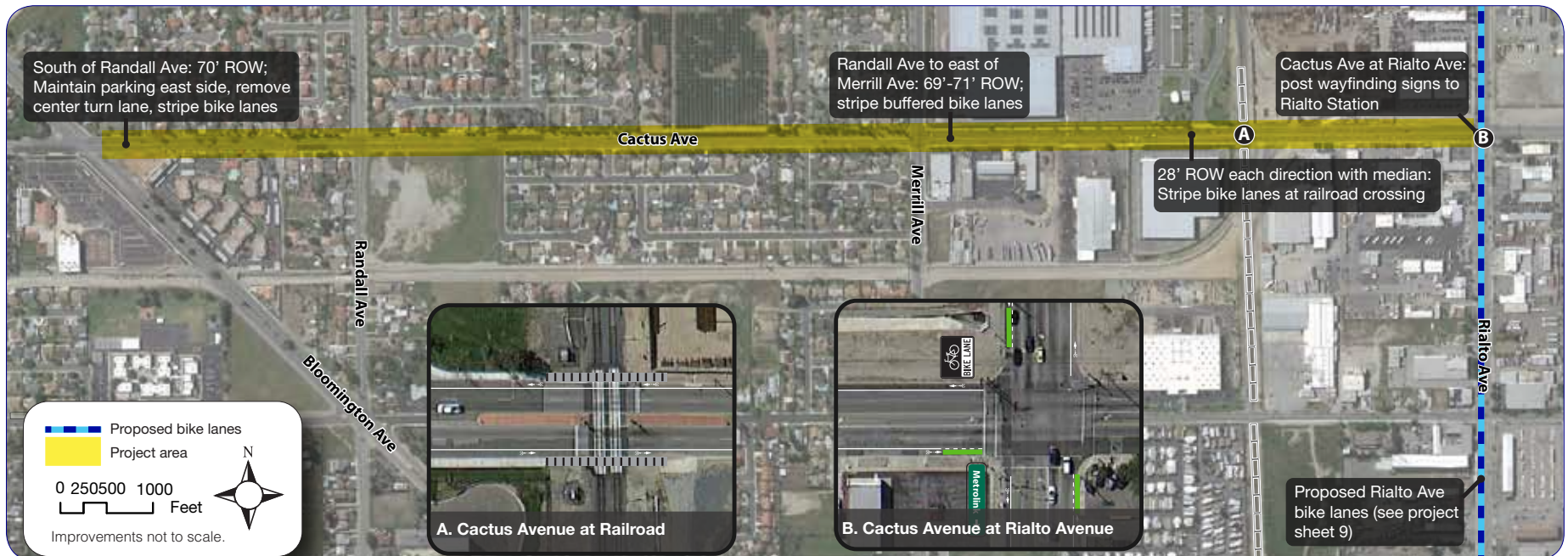


Buffered bike lanes can be accommodated along this corridor by narrowing travel lanes and removing the center turn lane.

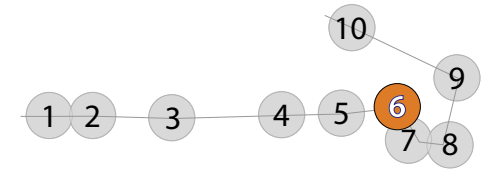
### Cost Estimate

- Class II bike lanes: 1.21 mile @ \$50,000/mile
  - 2 wayfinding signs @ \$300
- Total Cost: \$61,000**

NEAR-TERM	MID-TERM	LONG-TERM







## 4.6 San Bernardino Metrolink Station Improvements



### Overview

The San Bernardino Metrolink Station represents the current eastern terminus of Metrolink service in San Bernardino County. The immediate station area has a number of substandard, disconnected sidewalks, limited shade, and is disconnected from areas to the north of the station by the adjacent freight rail yard, save for a single, deteriorating bridge at Mt. Vernon Avenue.

Bicycle facilities in the study area are limited, and provide no direct connection to nearby attractions, despite an observed high level of bicycle activity.

Improvements in the area focus on improving connections within the community and mitigating the divisive nature of the rail yard and nearby Interstate 215.

### Recommended Pedestrian Catchment Area Improvements

- Add pavement, sidewalks, and bridge improvements to create a better pedestrian environment
- Add wayfinding signs to give direction to direct access to facilities
- Create an aesthetic environment by investing in public art
- Provide shade trees to keep pedestrians cool

### Recommended Bicycle Catchment Area Improvements

- Extend Rialto Avenue bike lanes to I-215 and possibly Mt. Vernon to bypass freeway ramp conflicts
- Buffered bike lanes along Arrowhead
- Class II Bike Lanes along Mt. Vernon
- Intersection crossing markings and colored conflict zones
- Construct Class I Bike Path from Baseline to Colton

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$4,105,000
General Improvements in Pedestrian Catchment Area	\$3,436,000
<b>TOTAL</b>	<b>\$7,541,000</b>



Cyclists often find freeway ramp environments challenging and difficult to navigate, such as this interchange at Baseline and I-15 in Rancho Cucamonga.



Colored bike lanes provide motorists and cyclists with a less challenging, less stressful experience.



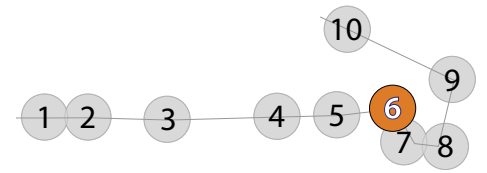
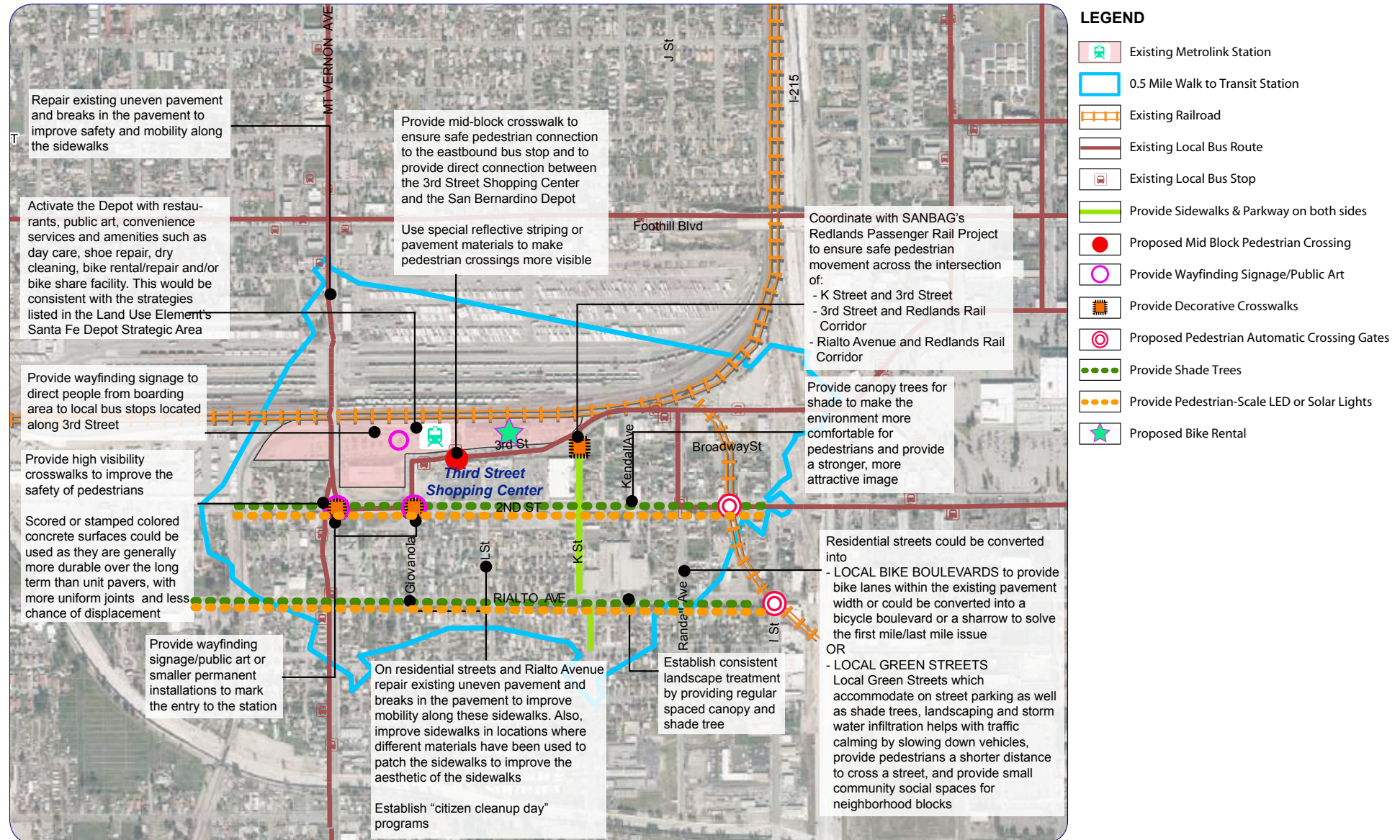
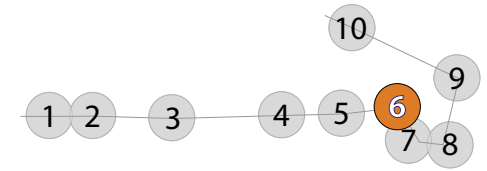


FIGURE 4.13: SAN BERNARDINO METROLINK STATION PROPOSED PEDESTRIAN IMPROVEMENTS

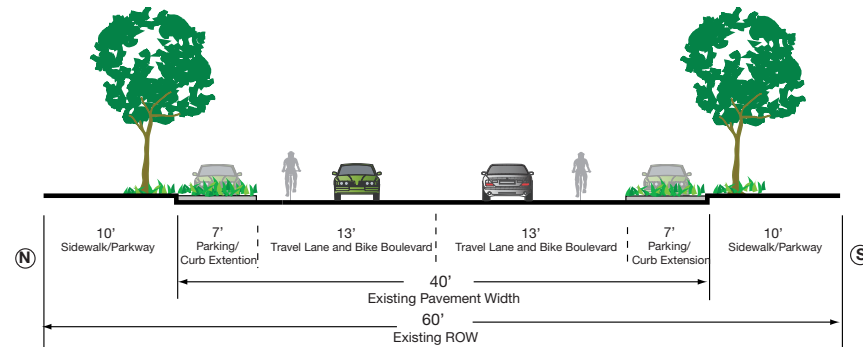




## San Bernardino Station: Parkway, Bicycle Boulevard and Curb Extensions

### Project Description

Residential streets between 2nd Street and Rialto Avenue (600 LF): Phase 1 - Install parkways to provide shade and install bicycle symbols to convert street into a local bike boulevard to help solve first mile/last mile issue. Phase 2 - Install curb extensions for traffic calming and storm water infiltration.



Shared lane marking symbols improve visibility of bicyclists and help them properly position themselves in the lane.

NEAR-TERM	MID-TERM	LONG-TERM

### Cost Estimate

Parkway and Bicycle Boulevard (Phase I)

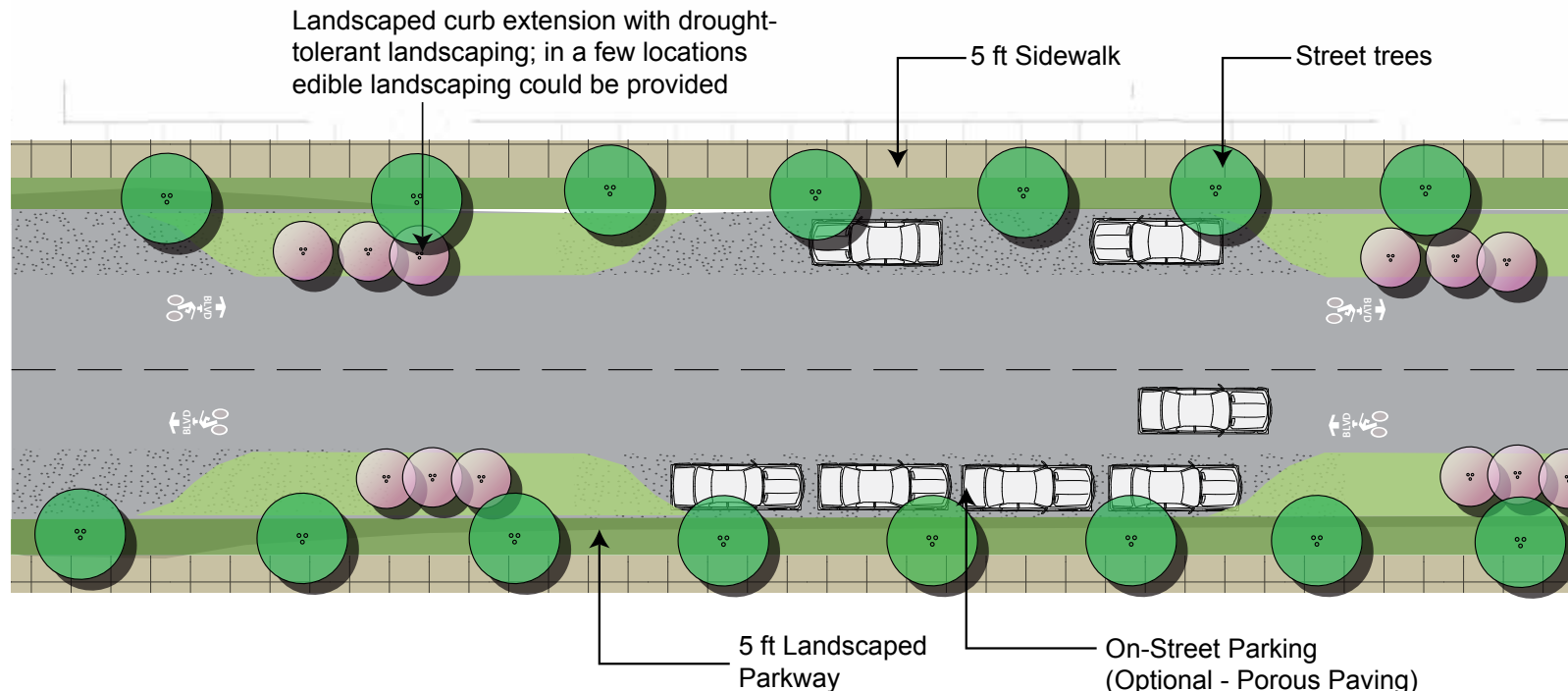
- Conc. removal: 4,000' @ \$ 3.80 SF
- Trees: 20 @ \$600 EA
- Landscaping: 3,000' @ 25 SF
- Thermoplastic bicycle symbol: 6 @ \$100 EA

Total cost: \$92,000

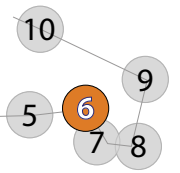
Curb Extensions (Phase II)

- Asphalt removal: 3,300' @ \$ 3.50 SF
- Curb installation: 470' @ 20 LF
- Landscaping: 3,000' @ 25 SF

Total cost: \$96,000



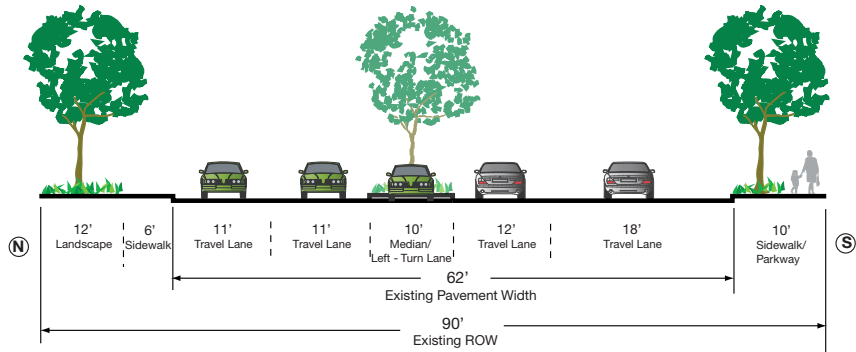




## San Bernardino Station: Install Median

### Project Description

Install landscaped median between the left-turn pockets and provide a 5' landscaped parkway adjacent to the curb on the south side to improve the pedestrian environment.



Install landscaping within the traffic island to simplify this difficult intersection, guide pedestrians, and improve storm water infiltration.

NEAR-TERM	MID-TERM	LONG-TERM

### Cost Estimate

#### Median

- Asphalt removal: 6,800' @ \$3.50 SF
- Curb installation: 680' @ \$20 LF
- Landscaping: 6,800' @ \$25 SF
- Trees: 17 @ \$600 EA

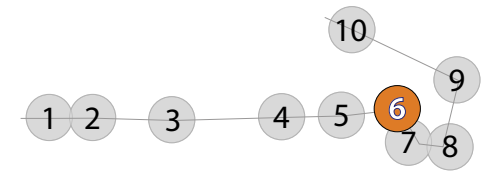
#### Sidewalk/Parkway

- Concrete removal: 7,000' @ 3.80 SF
- Trees: 35 @ \$600 EA
- Landscaping: 7,000' @ \$25 SF

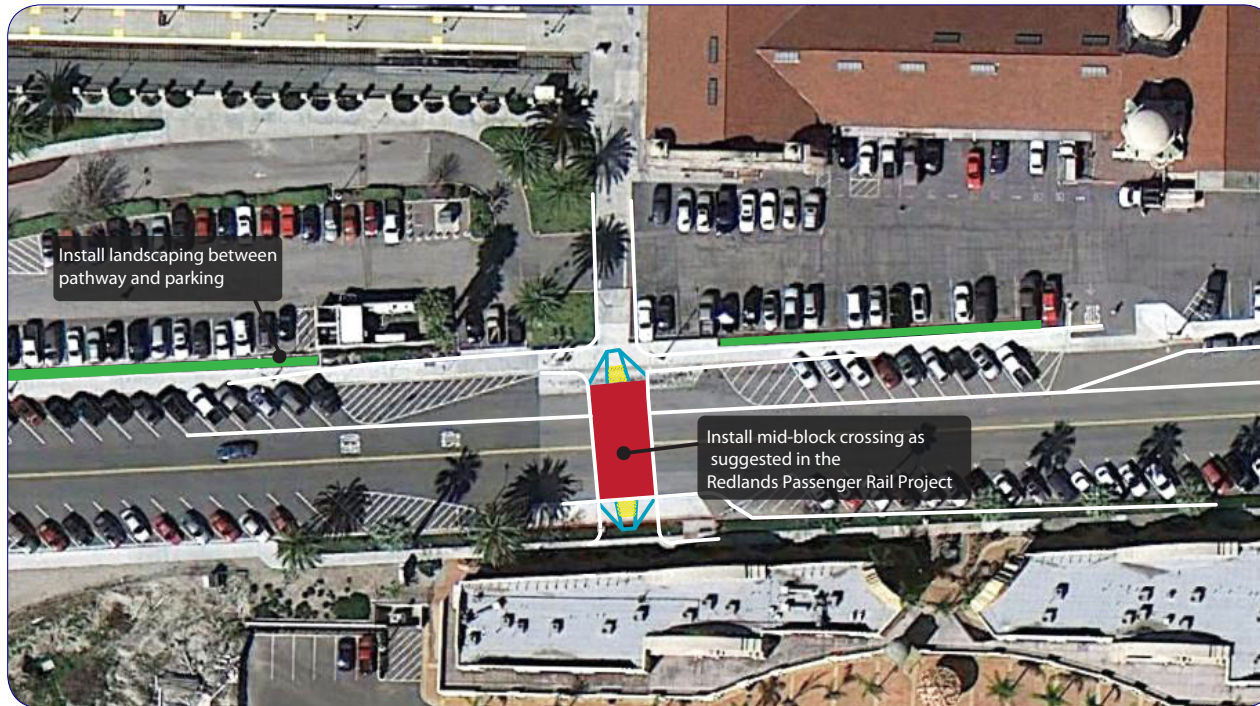
Total cost: \$440,000







## San Bernardino Station: Mid-Block Crosswalk



### Project Description

Install mid-block crosswalk, as suggested in the Redlands Passenger Rail Project to ensure safe pedestrian connection to the eastbound bus stop and to provide direct connection between the 3rd Street Shopping Center and the San Bernardino Depot.

### Cost Estimate

Phase 1

- High Visibility Crosswalk: 1 @ \$600 EA
- Curb Ramp: 2 @ \$5,000 EA

Total Cost: \$10,600

Phase 2

- Trees: 9 @ 600 EA
- Landscaping: 1700 @ \$25 SF

Total Cost: \$48,000

### Project Description

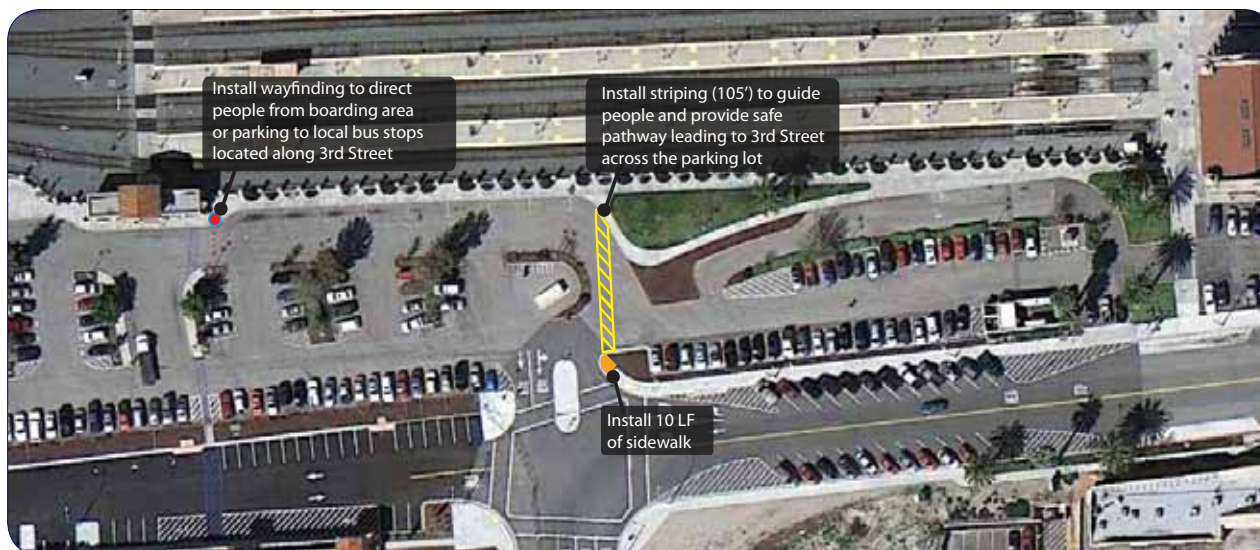
Install pedestrian directional sign to direct people from boarding/parking area to local bus stops. Stripe parking lot to provide safe pedestrian pathway across parking lot.

### Cost Estimate

- Sign: 1 @ \$7,000 EA
- Thermoplastic strip: 70 @ \$1.50 LF
- Sidewalk: 10 @ \$90 LF

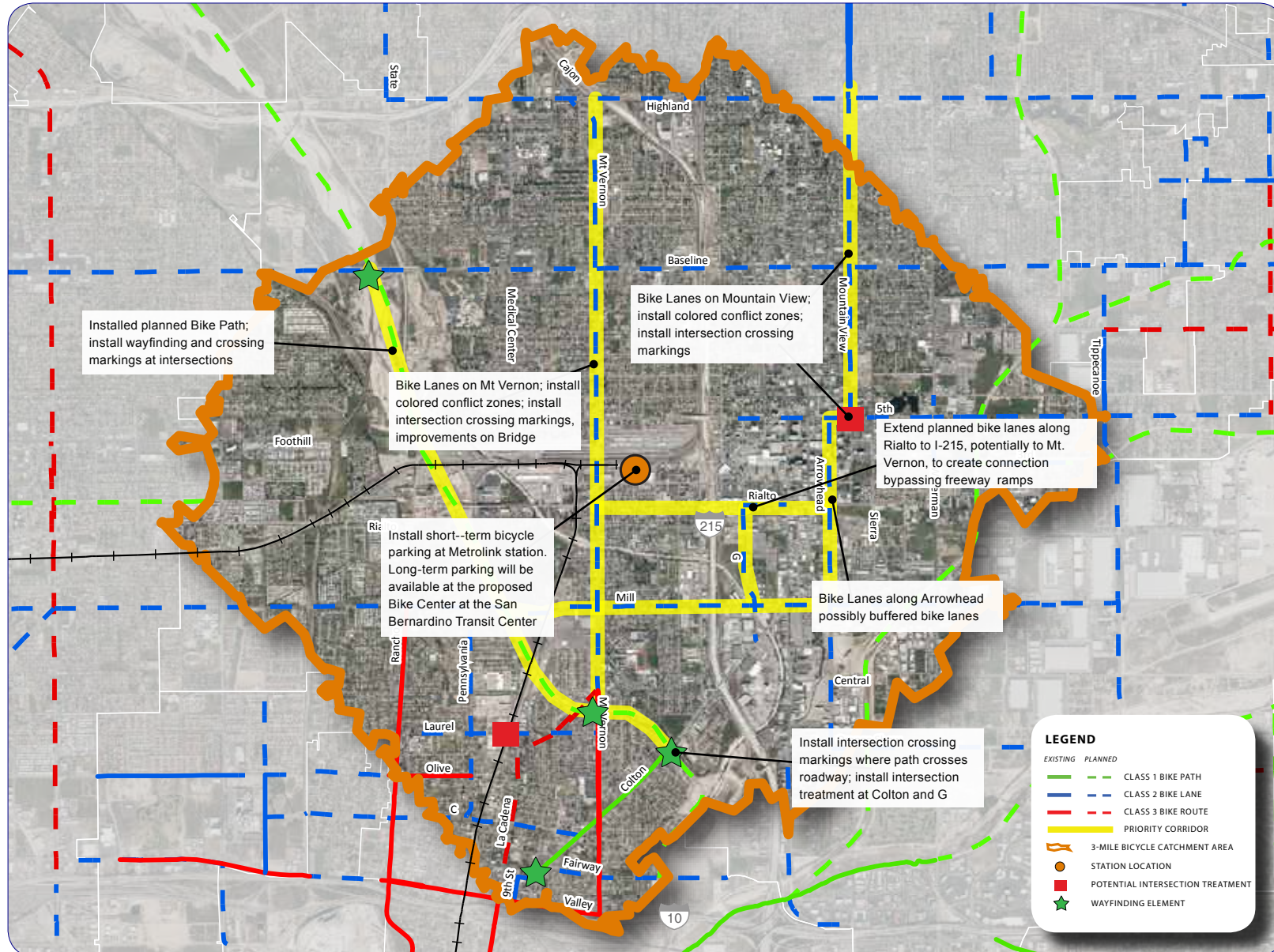
Total Cost: \$8,000

NEAR-TERM	MID-TERM	LONG-TERM

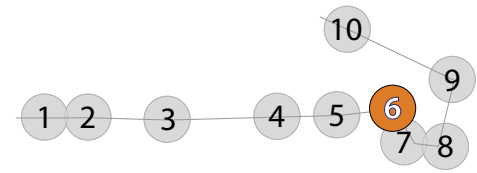




**FIGURE 4.14: SAN BERNARDINO METROLINK STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS**



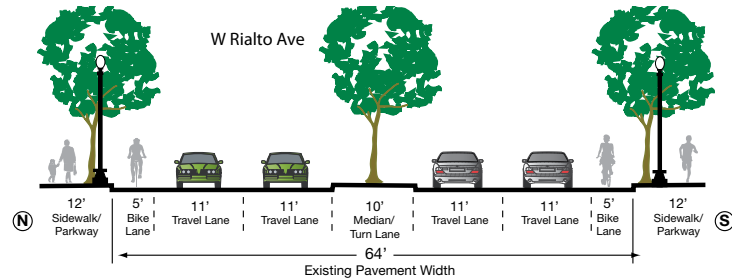




## San Bernardino Station: W Rialto Avenue

### Project Description

Bike lanes can be provided by narrowing the lanes along W. Rialto Avenue from I-215 to W. Arrowhead Street. Intersection through-markings with green paint will improve visibility of the bike lanes. Following successful implementation, additional study should be done to examine the feasibility of a direct connection West to Mt. Vernon, which would connect the existing Metrolink Station to the planned station at Arrowhead along a facility without freeway ramp conflicts.\*



Provide intersection through markings with green paint on the approaching side of the intersection to improve drivers' awareness of bicyclists.

### Cost Estimate

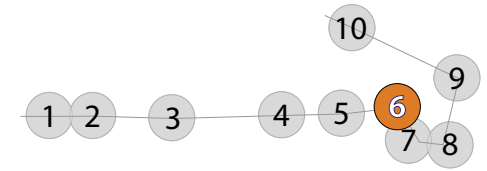
- Class II bike lanes: 0.68 mile @ \$50,000/mile
- Colored pavement: 100 yards @ \$65/SY
- Intersection crossing markings: 5 @ \$3,500

Total Cost: \$58,000

NEAR-TERM	MID-TERM	LONG-TERM



\* Coordinate the design of the Rialto Avenue bike lanes with plans from the proposed San Bernardino Transit Center at Rialto Avenue and E Street and the sbX E Street project currently under construction on E Street.



## San Bernardino Station: N Arrowhead Avenue

### Project Description

This project would remove a travel lane from N. Arrowhead Avenue in each direction to provide a buffered bike lane, a center turn lane/median, and parking in both directions from W. 5th Street to E. Mill Street.

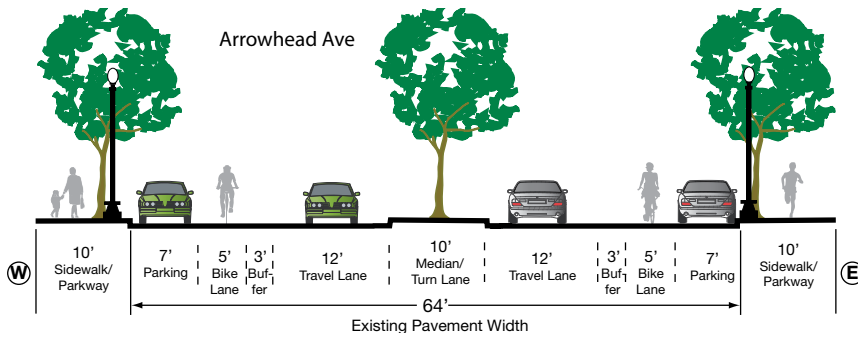


Stripe buffered bike lane to separate bicyclists from automobiles and to provide a more comfortable bicycling environment.

### Cost Estimate

- Class II buffered bike lanes: 1.11 mile @ \$80,000/mile
- Colored pavement: 140 yards @ \$65/SY
- Intersection crossing markings: 7 @ \$3,500

**Total Cost: \$122,000**



NEAR-TERM	MID-TERM	LONG-TERM





## 4.7 Hunts Lane sbX Station Improvements

### Overview

The Hunts Lane sbX Bus Rapid Transit (BRT) station is located in the middle of a busy commercial corridor along Hospitality Lane. The station area features a variety of pedestrian environments, from tree-lined, well-connected sidewalks, to the challenging I-10 undercrossing south of the station.

Several planned bicycle facilities can be found in the area, including extensions of the Santa Ana River Trail, San Timoteo Creek Trail, as well as other Class II Bike Lanes.

Improvements in the area are designed to improve the connections to the area from the north and east, and to provide pedestrians and cyclists with safe, direct routes across Interstate 10.



### Recommended Pedestrian Catchment Area Improvements

- Provide direct connections to the nearby Santa Ana River Trail
- Improve crosswalks and sidewalks to create a safe accessible place for pedestrians
- Provide shade trees
- Improve I-10 undercrossing

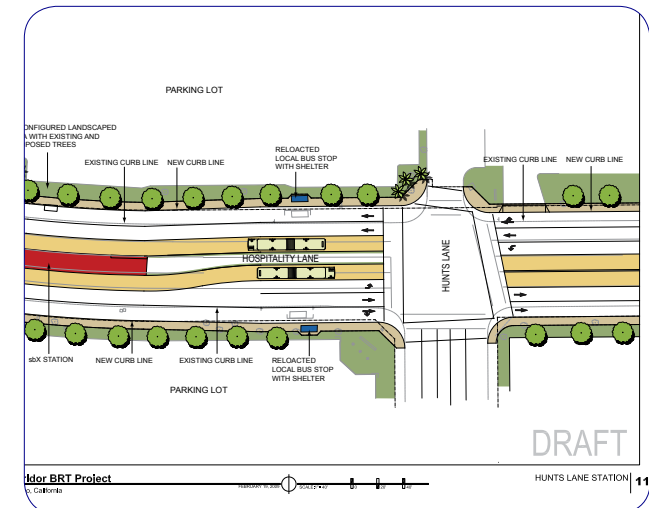
### Recommended Bicycle Catchment Area Improvements

- Extend E Street Bike Lanes to Mill\*
- Construct Santa Ana River Trail from Waterman to Tippecanoe
- Construct Class I Bike Path from E to Mill
- Provide wayfinding
- Extend San Timoteo Creek Trail to station via drainage channel or Redlands Blvd
- Provide additional Class II Bike Lanes along Orange Show, Mill, Arrowhead, and Tippecanoe
- Provide bicycle parking at station area

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$3,443,000
General Improvements in Pedestrian Catchment Area	\$3,345,000
<b>TOTAL</b>	<b>\$6,788,000</b>



Branding the Santa Ana River Trail as a destination for regional cyclists will increase usage by commuters

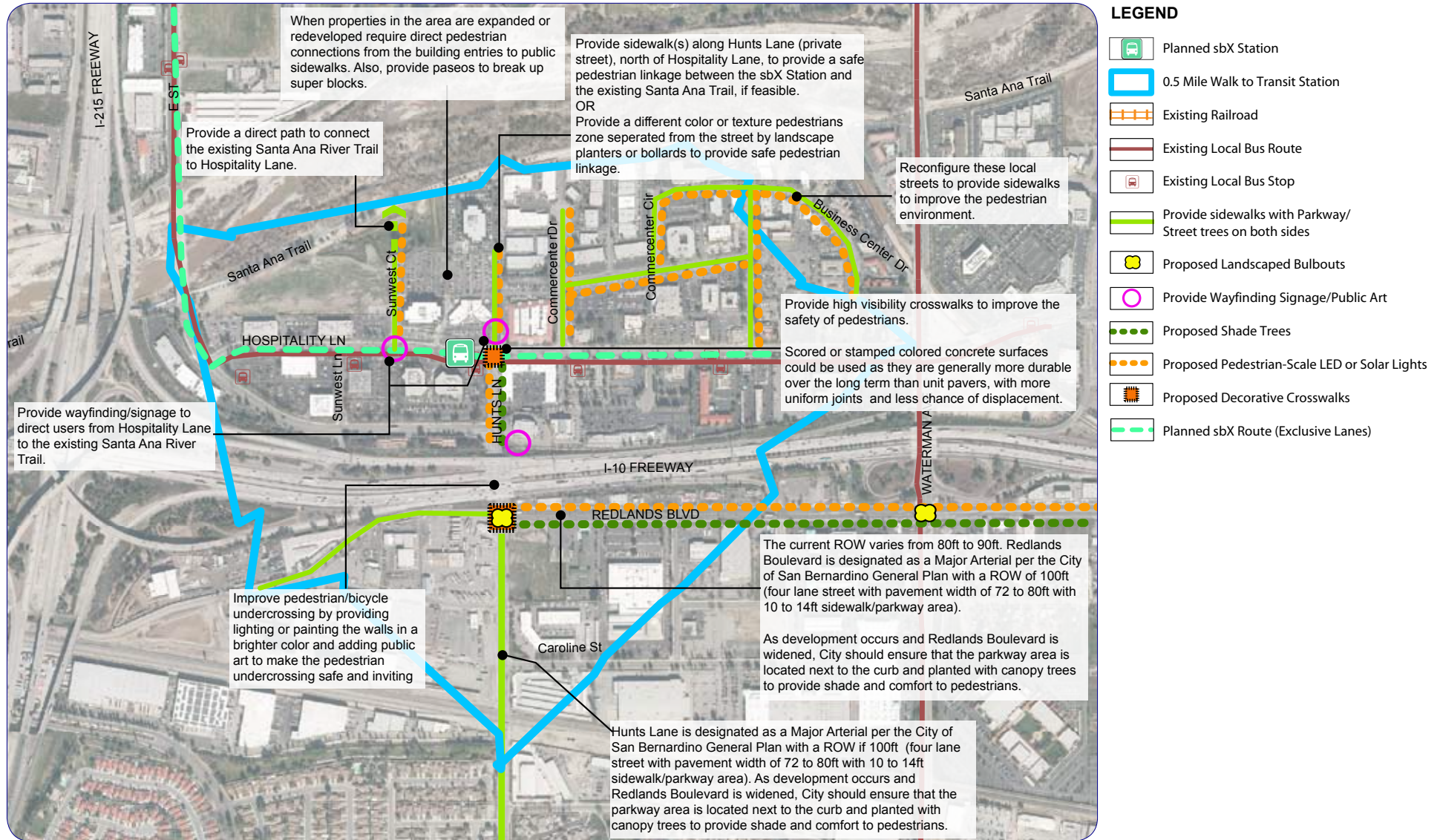


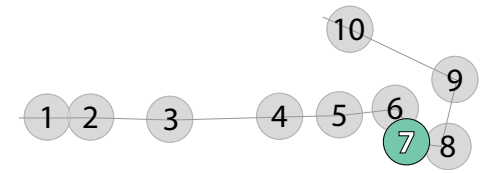
Hunts Lane sbX station area plan.

\* These must be coordinated with sbX E Street, under construction



FIGURE 4.15: HUNTS LANE SBX STATION PROPOSED PEDESTRIAN IMPROVEMENTS





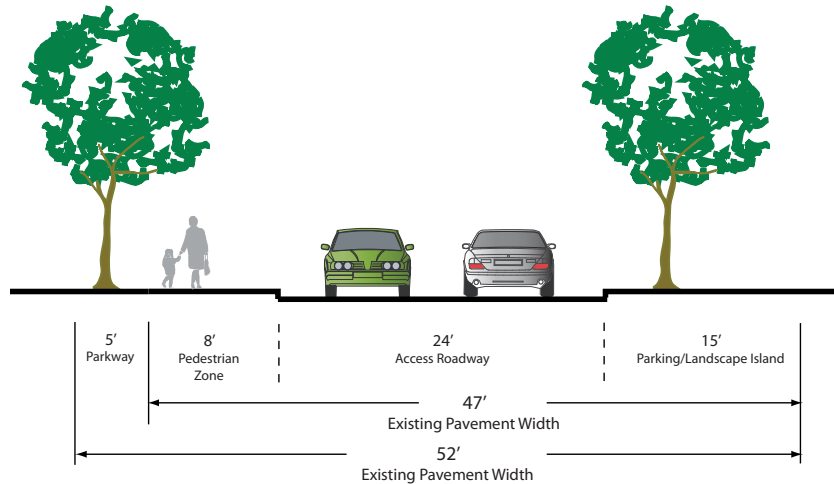
## Hunts Lane Station: Improve Hunts Lane north of Hospitality Lane

### Project Description

Provide sidewalk(s) along Hunts Lane north of Hospitality Lane to provide a safe pedestrian linkage between the sbX Station and the existing Santa Ana Trail, if feasible.

or

Provide a different color or texture pedestrian zone separated from the street by landscape planters or bollards to provide safe pedestrian linkage.



### Cost Estimate

(Hunts Lane between Hospitality Lane and Santa Ana River Trail)

Sidewalk

- Curb and Gutter: 1,000 LF @ \$25 LF
- Sidewalk: 8,000 SF @ \$3.80 SF

Total Cost: \$55,400

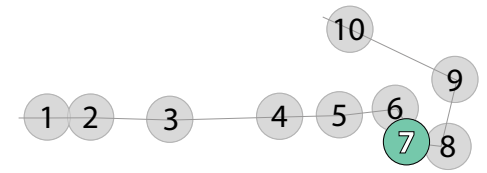
OR

Textured Pedestrian Zone

- Thermoplastic strip: 1,000 LF @ \$1.50 LF
- Textured pedestrian zone: 8,000 SF @ \$4 SF

Total Cost: \$1500 + \$33,500

NEAR-TERM	MID-TERM	LONG-TERM



## Hunts Lane Station: Improve Hunts Lane south of Hospitality Lane

### Project Description

Hunts Lane is designated as a Major Arterial per the City of San Bernardino General Plan with a ROW of 100ft (four lane street with pavement width of 72 to 80ft with 10 to 14ft sidewalk/parkway area). As development occurs and Redlands Boulevard is widened, City should ensure that the parkway area is located next to the curb and planted with canopy trees to provide shade and comfort to pedestrians.

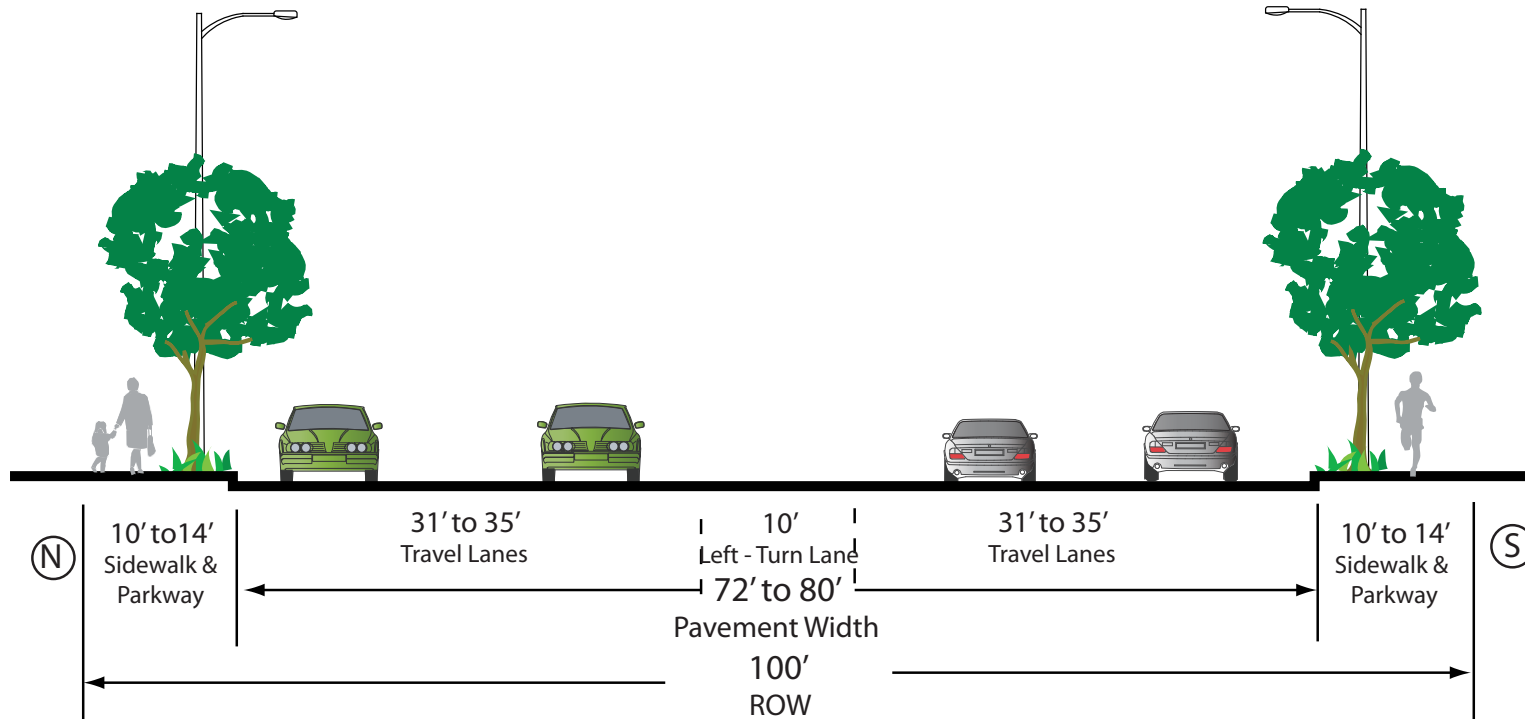
### Cost Estimate (Hunts Lane between I-10 freeway and railroad tracks)

#### Sidewalk/Parkway

- Curb and Gutter: 3,000 LF @ \$25 LF
- Sidewalk: 15,000 SF @ \$3.80 SF
- Landscaping: 15,000 SF @ \$25 SF
- Trees: 75 @ \$600 EA
- Irrigation: 15,000 SF @ \$3 SF

Total Cost: \$ 555,000

NEAR-TERM	MID-TERM	LONG-TERM





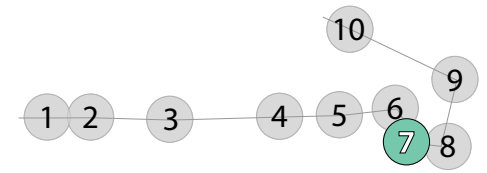
## Hunts Lane Station: Provide High Visibility Crosswalks

### Project Description

Provide high visibility crosswalks to enhance the safety of pedestrians at the intersection of Hospitality Lane and E Street. Scored or stamped colored concrete surfaces could be used as they are generally more durable over the long term than unit pavers, with more uniform joints and less chance of displacement. City of San Bernardino should coordinate with sbX E Street BRT project currently under construction.

### Cost Estimate

- Crosswalk: 4 @ \$600 EA
- Total Cost: \$2,400

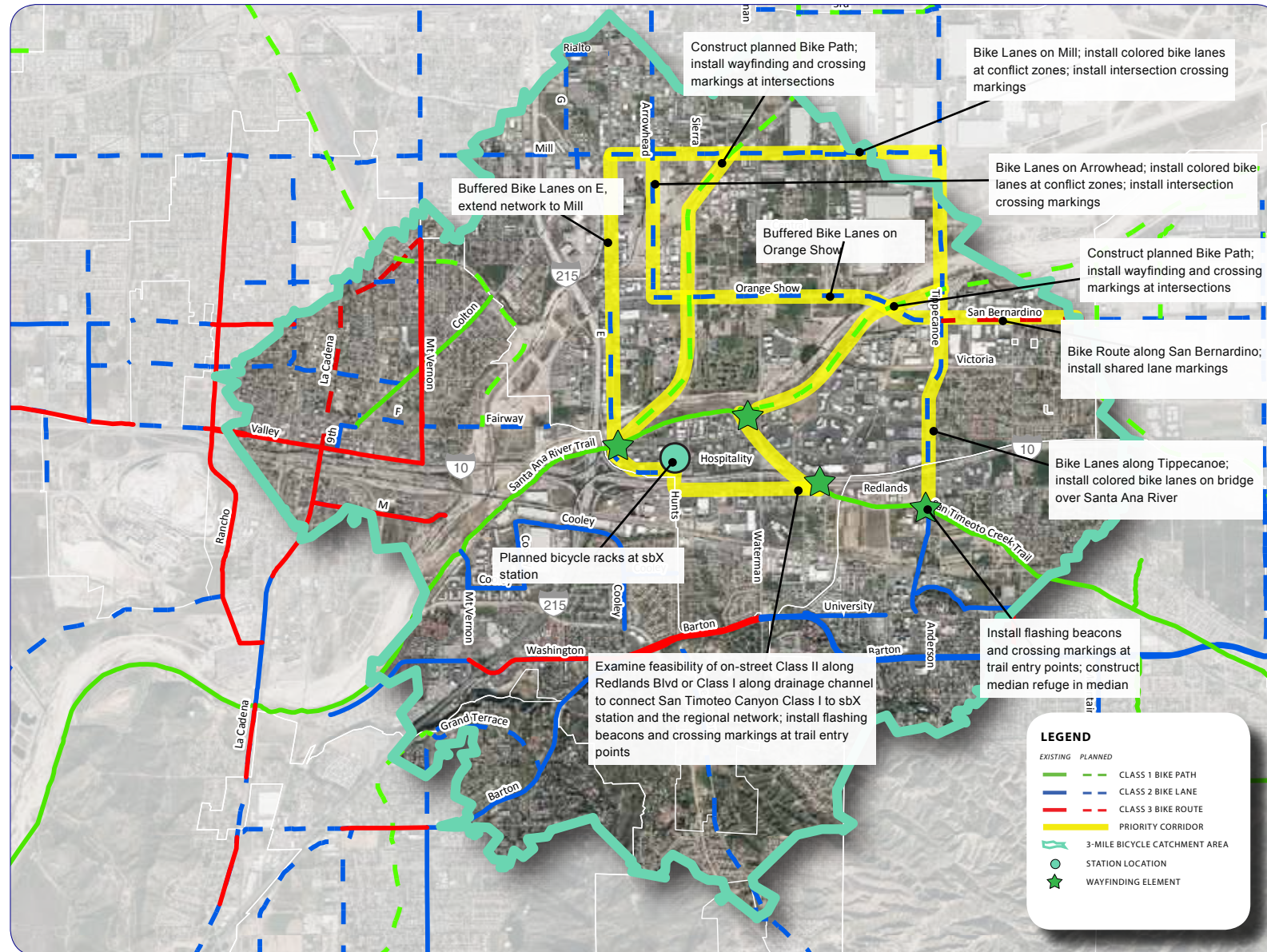


NEAR-TERM	MID-TERM	LONG-TERM

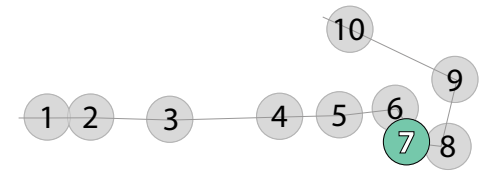




FIGURE 4.16: HUNTS LANE SBX STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS







## Hunts Lane Station: Santa Ana River Trail

### Project Description

The Santa Ana River Trail has been constructed alongside the Santa Ana River west of the project area to S Waterman Drive. This project provides a crossing of S Waterman Drive and continues the trail east to S. Tippecanoe Avenue. The alignment includes a stream and railroad crossing, as well as a crossing at E Orange Show Road and at S Tippecanoe Avenue.



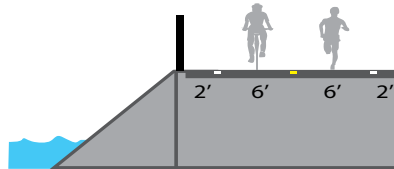
This trail would be constructed along the Santa Ana River and will require several complicated crossings.

### Cost Estimate

● Class I bike path: 1.35 miles @  
 \$1,000,000/mile

**Total Cost: \$1,350,000**

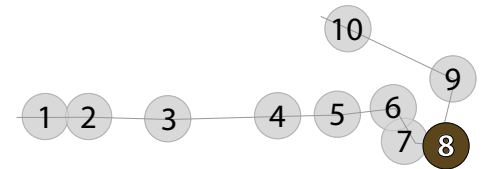
Santa Ana River Trail



NEAR-TERM	MID-TERM	LONG-TERM



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## 4.8 Anderson Street sbX Station Improvements



### Overview

The Anderson Street sbX BRT station is situated south of Interstate 10 in Loma Linda. Connections to the station from Loma Linda are ample and adequate, with the exception of the terminus of the San Timoteo Creek Trail, which is located approximately a quarter mile from the station, forcing pedestrians and cyclists to detour through neighborhood streets to reach the station.

Anderson Street north of the station is typically congested with vehicles, and provides a challenging environment for the non-motorized traveller as they approach the I-10 undercrossing.

Improvements are designed to extend the San Timoteo Creek Trail across Anderson, improve at-grade pedestrian crossings and sidewalks, and provide greater shade for residents and commuters.

### Recommended Pedestrian Catchment Area Improvements

- Improve sidewalks especially along Tippecanoe Avenue
- Improve crosswalks
- Provide additional trees for shade
- Add pedestrian scale lighting to streets

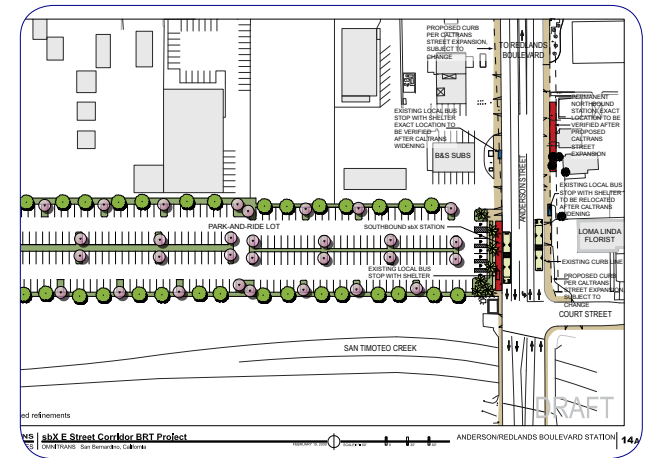
### Recommended Bicycle Catchment Area Improvements

- Extend E Street Bike Lanes to Mill
- Construct Santa Ana River Trail from Waterman to Tippecanoe and spur to California
- Construct Class I Bike Path from E to Mill
- Wayfinding
- Extend San Timoteo Creek Trail to station via drainage channel or Redlands Blvd
- Additional Class II Bike Lanes along Orange Show, Mill, Arrowhead, and Tippecanoe
- Bicycle parking at station area

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$2,844,000
General Improvements in Pedestrian Catchment Area	\$2,392,000
<b>TOTAL</b>	<b>\$5,236,000</b>



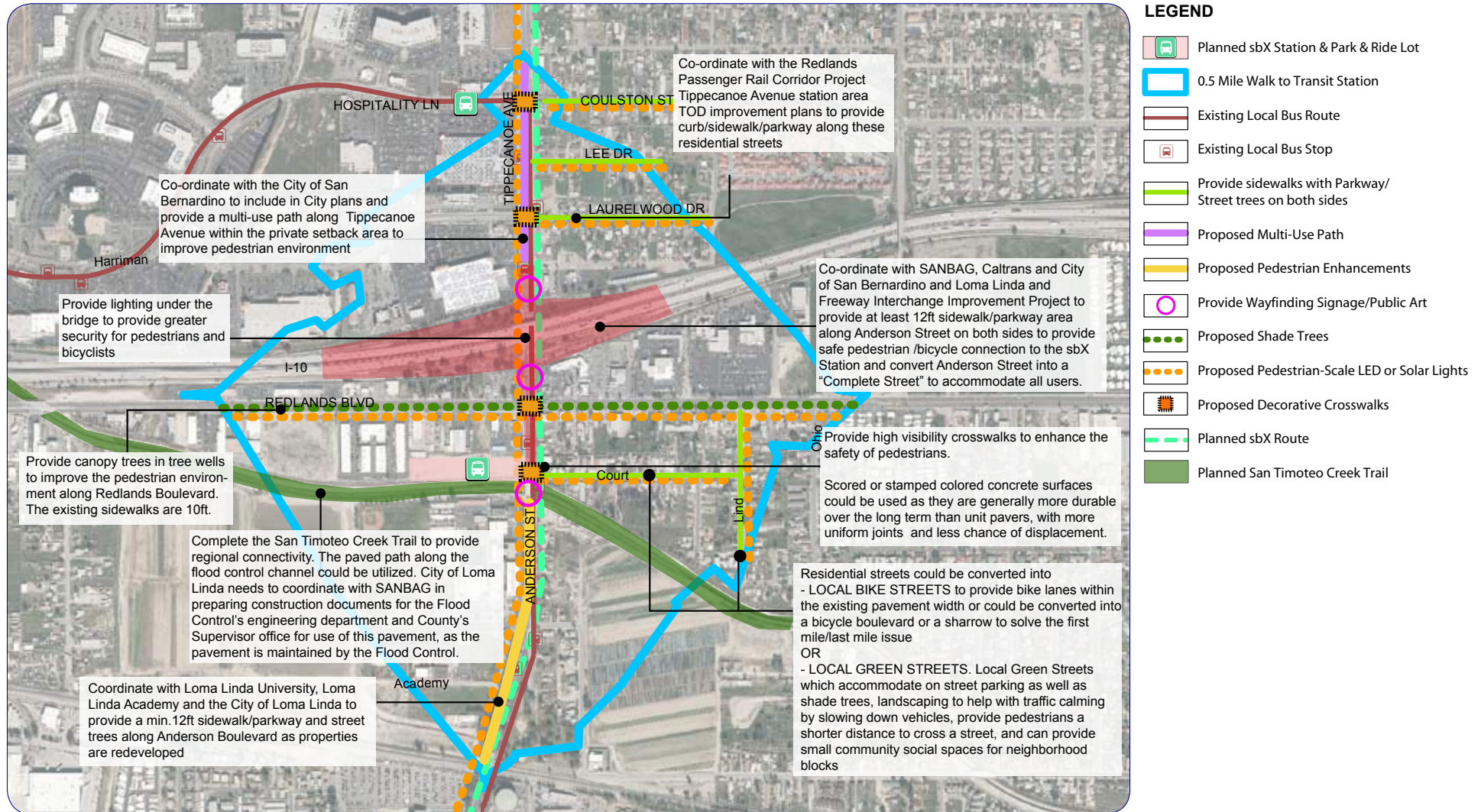
Opening the pathway provides a direct link to the Anderson sbX station and the rest of the City bike network.

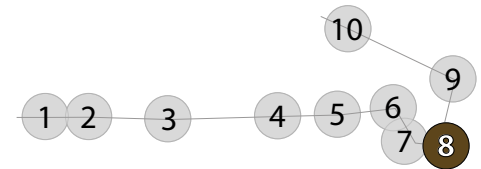


Anderson Street sbX station area plan.



FIGURE 4.17: ANDERSON STREET SBX PROPOSED PEDESTRIAN IMPROVEMENTS

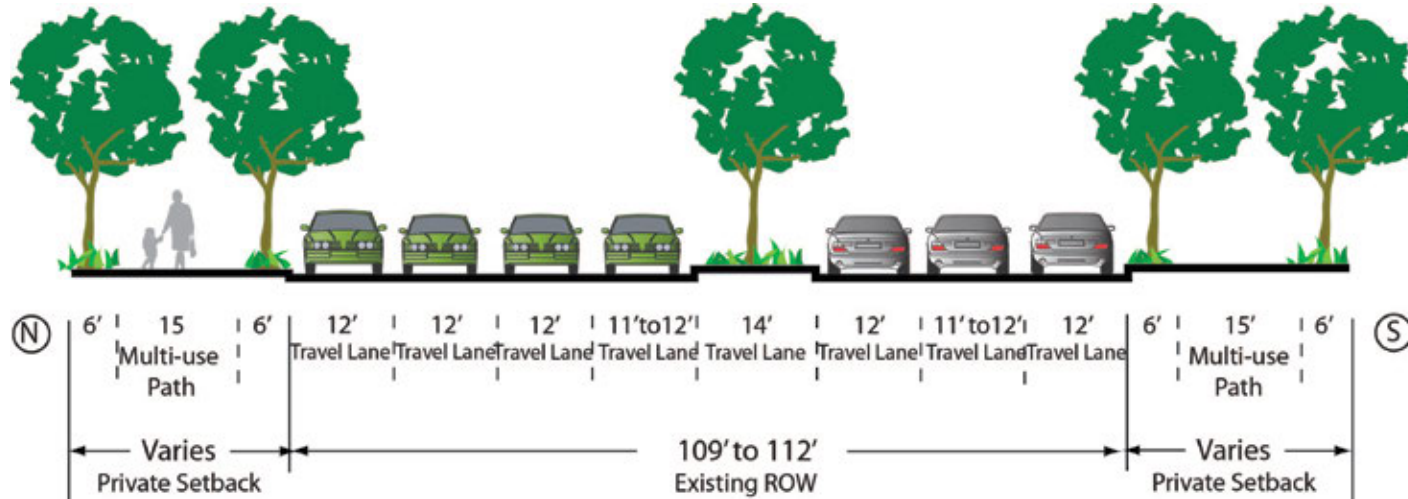




## Anderson Station: Improve Tippecanoe Avenue

### Project Description

Tippecanoe Avenue is designated in the City of San Bernardino General Plan as a major divided arterial with 6 to 8 travel lanes and typically 100 ft ROW with potential for more ROW at intersections and other special condition. Tippecanoe Avenue right-of-way has been acquired over time for double left-turns, deceleration lanes, and other traffic purposes. Therefore, the existing ROW of Tippecanoe Avenue varies from 109 to 112 ft. However, the pedestrian orientation is severely limited in the ROW and traffic congestion would not make a road diet feasible. Currently, land uses along Tippecanoe Avenue require setbacks of 15 to 20 ft which could be for the multi-use pathways and parkways in easements without entailing major land acquisition. As an alternative to using setback/easements, acquisition of additional ROW could be required by the City. It is recommended that at least 27 ft be developed as a multi-use path and adjoining landscaping with trees on both sides of Tippecanoe Avenue.



View of Tippecanoe Avenue proposed landscaped pedestrian/bike pathways  
Source: Redlands Passenger Rail Project, SANBAG

### Cost Estimate

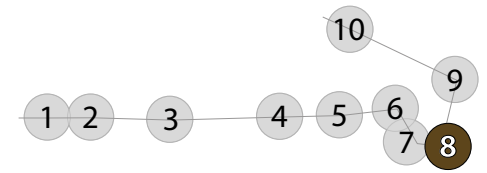
(Tippecanoe Avenue b/w I-10 Freeway and Hospitality Lane)

Multi-use path and Parkway

- Multi-Use Path: 37500 SF @ \$3.80 SF
- Landscaping: 36000 SF @ \$25 SF
- Irrigation: 36000 SF @ \$3 SF
- Trees: 100 @ \$600 EA

Total: \$1,220,000

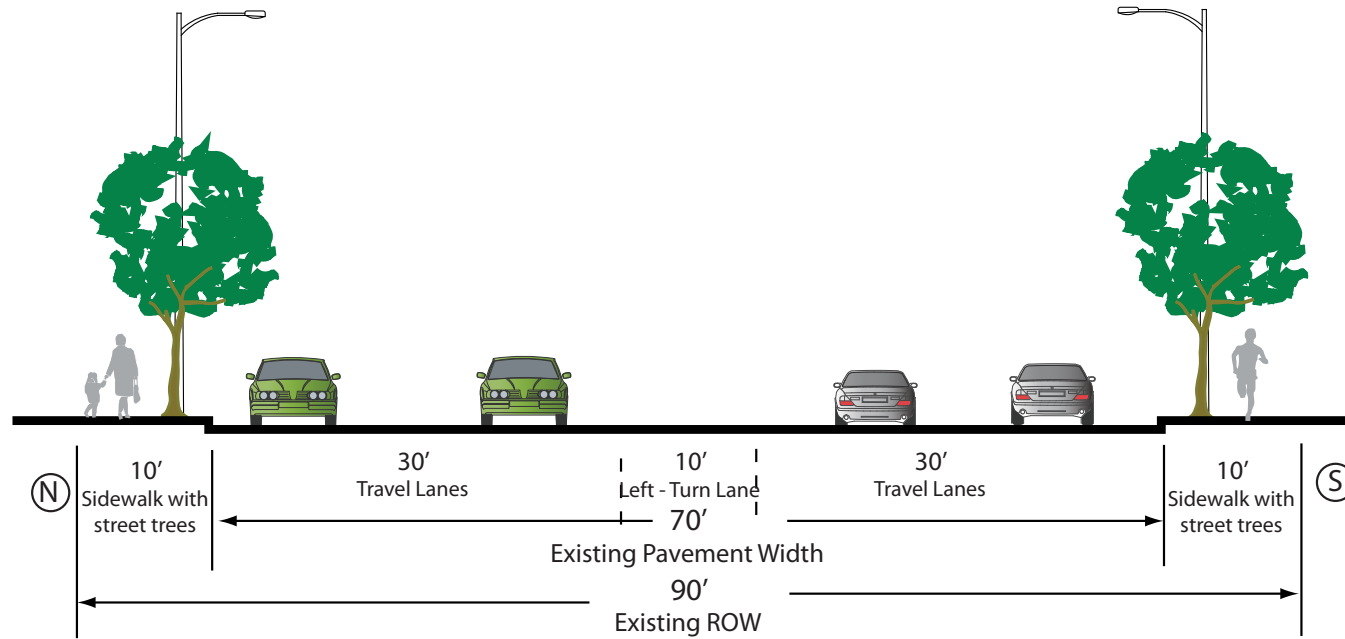
NEAR-TERM	MID-TERM	LONG-TERM



## Anderson Station: Improve Redlands Boulevard

### Project Description

Provide canopy trees in tree wells to improve the pedestrian environment along Redlands Boulevard between Richardson Street and Gage Canal. This assumes the preferred bicycle improvement of a Class I facility underneath Interstate 10. If an on-street Bike Lane facility bypass is constructed along Redlands Blvd, lane widths shown below will have to be adjusted consistent with those shown on Page 209.



### Cost Estimate

Trees in tree grates

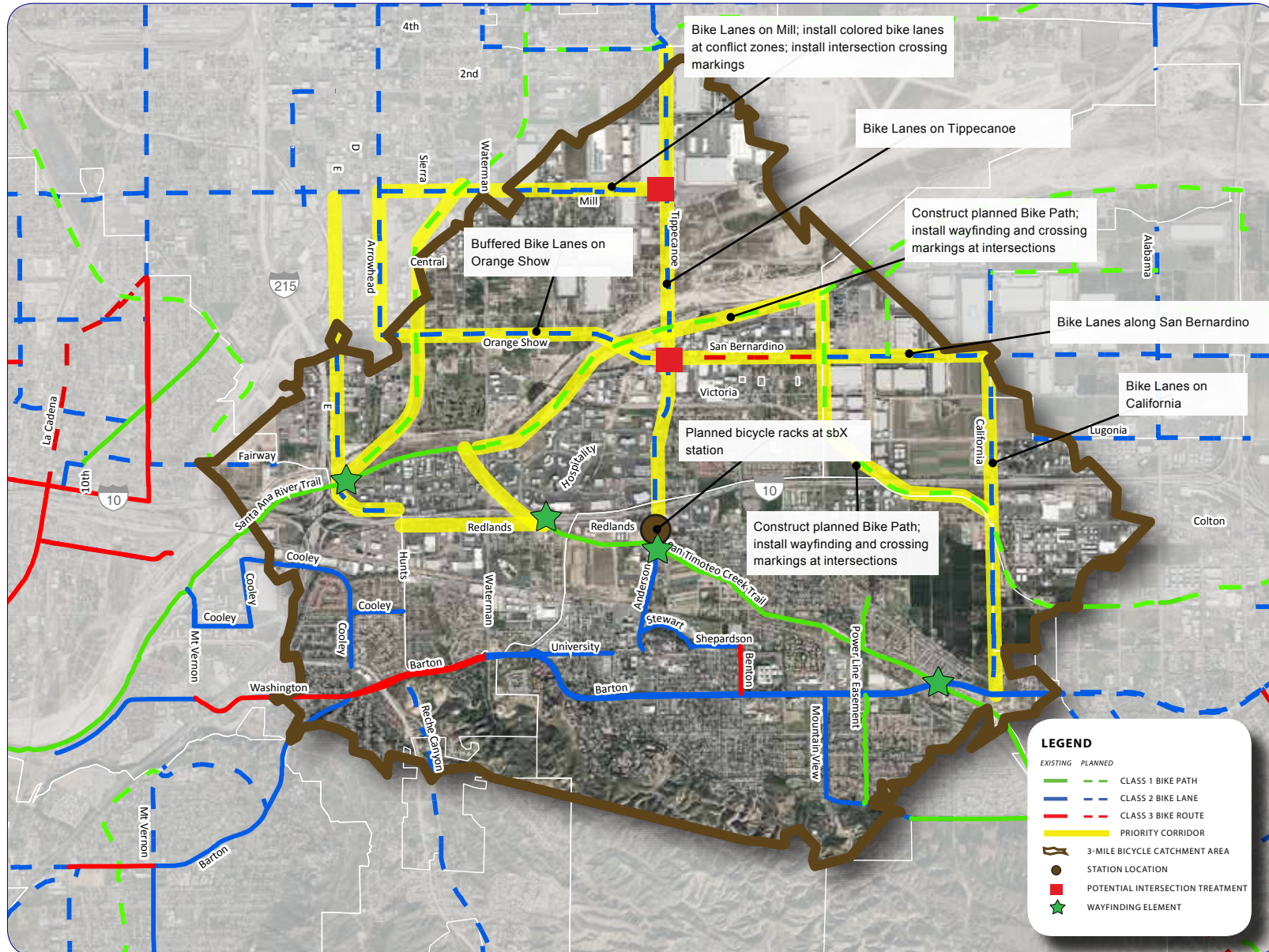
- Trees: 200 @ \$600EA
- Irrigation: 5000 SF @ \$3 SF
- Tree grate: 200 @ \$1000 EA

Total: \$335,000

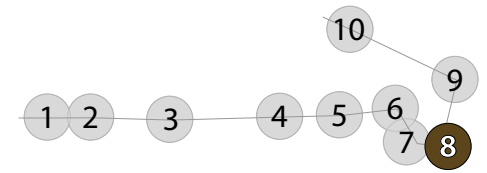
NEAR-TERM	MID-TERM	LONG-TERM



FIGURE 4.18: ANDERSON STREET SBX PROPOSED BICYCLE NETWORK IMPROVEMENTS



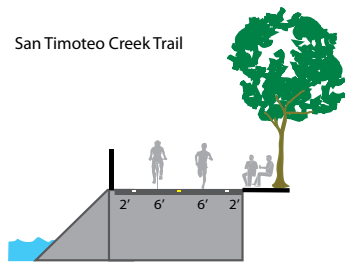




## Anderson Station: San Timoteo Creek Trail

### Project Description

An existing access road along the San Timoteo Creek could be repaved and striped as a Class I Bike Path. The project would connect to the on-street bike route proposed in Project #16. Improvements would include opening existing gates at access points, landscaping, and providing enhanced crossings of roadways.



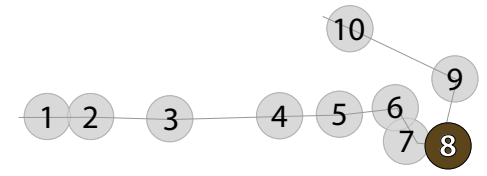
### Cost Estimate

- Upgrade Class I bike path: 1.00 miles @ \$100,000/mile
- Crossing treatment at Redlands Boulevard, includes crosswalk, median extension, and signage @ \$17,000

Total Cost: \$117,000

NEAR-TERM	MID-TERM	LONG-TERM

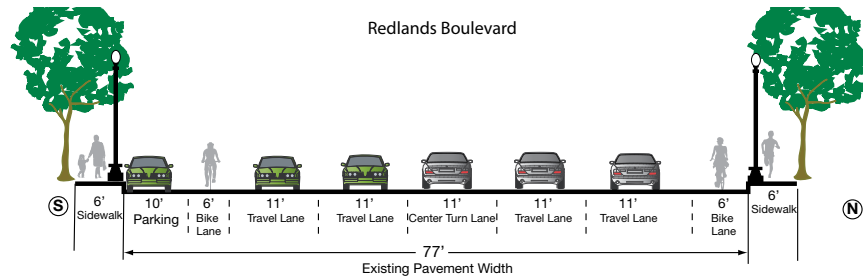




## Anderson Station: Redlands Boulevard

### Project Description

Redlands Boulevard currently has on-street parking on both sides, despite the presence of ample off-street parking for nearby land uses. Removal of parking on the north side, whose numerous curb cuts prevent parking, creates space for bike lanes in both directions.



Coloration should be used in the bike lanes at the interstate ramps to enhance visibility of bicyclists in the bike lanes.

### Cost Estimate

- 2 curb extensions @ \$30,000
- 5 high-visibility crosswalks @ \$600
- 3 bike lane crossing treatments @ \$3,500
- 0.95 miles of bike lanes, buffered on one side @ \$65,000

Total Cost: \$166,000

NEAR-TERM	MID-TERM	LONG-TERM



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## 4.9 Highland Avenue sbX Station Improvements



### Overview

The Highland sbX BRT station area is located on E Street in a residential area of San Bernardino. Highland Avenue has a number of commercial businesses along its length, with generally wide and clear sidewalks. San Bernardino High School is located south of the station on E Street. The area has a number of mature trees along nearby smaller residential streets, whose roots can cause problems for those with mobility issues.

As with several streets in the area, planned bike lanes can be constructed by modifying the existing center turn lane and a narrowing of travel lanes. Some streets may also accommodate buffered bike lanes as a way to create safer transitions to and from major arterials.

### Recommended Pedestrian Catchment Area Improvements

- Curb ramp improvements
- Crosswalk improvements
- Shade trees
- Wayfinding
- Lighting improvements

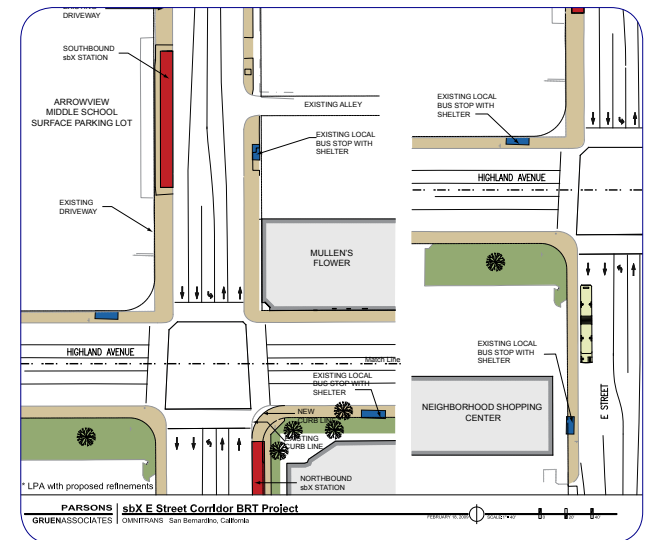
### Recommended Bicycle Catchment Area Improvements

- Class II Bike Lanes or buffered bike lanes on Highland, Mt. Vernon, 5th, Valencia, and Mountain View
- Intersection crossing markings
- Colored conflict zones
- Construct Class I Bike Path from 5th to Parkdale

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$3,923,000
General Improvements in Pedestrian Catchment Area	\$3,524,000
<b>TOTAL</b>	<b>\$7,447,000</b>



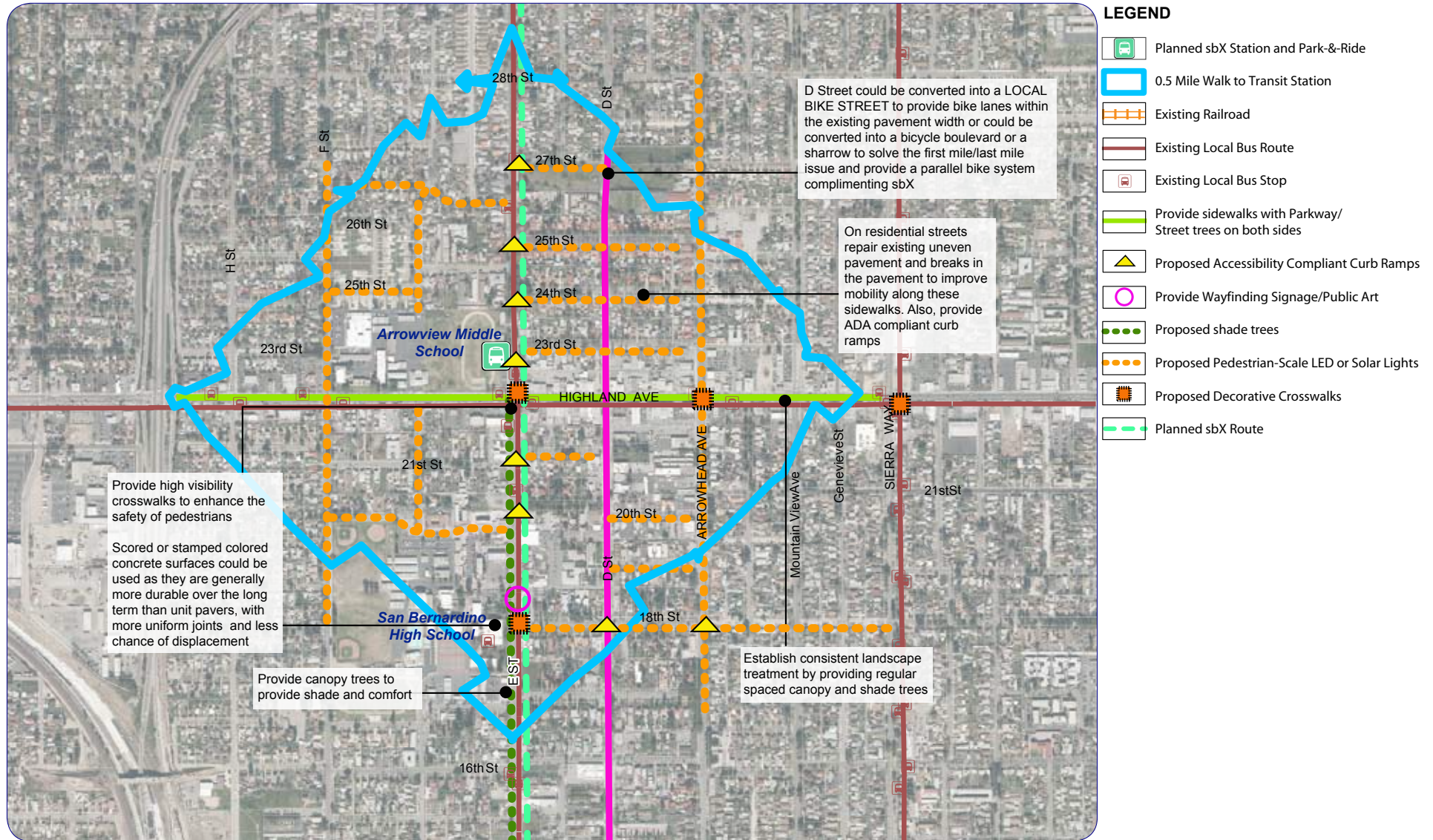
Highland Avenue has ample space to accommodate the Class II Bike Lanes planned for the corridor.

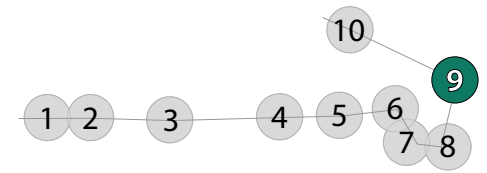


Highland Avenue sbX station area plan.



FIGURE 4.19: **HIGHLAND AVENUE SBX STATION PROPOSED PEDESTRIAN IMPROVEMENTS**



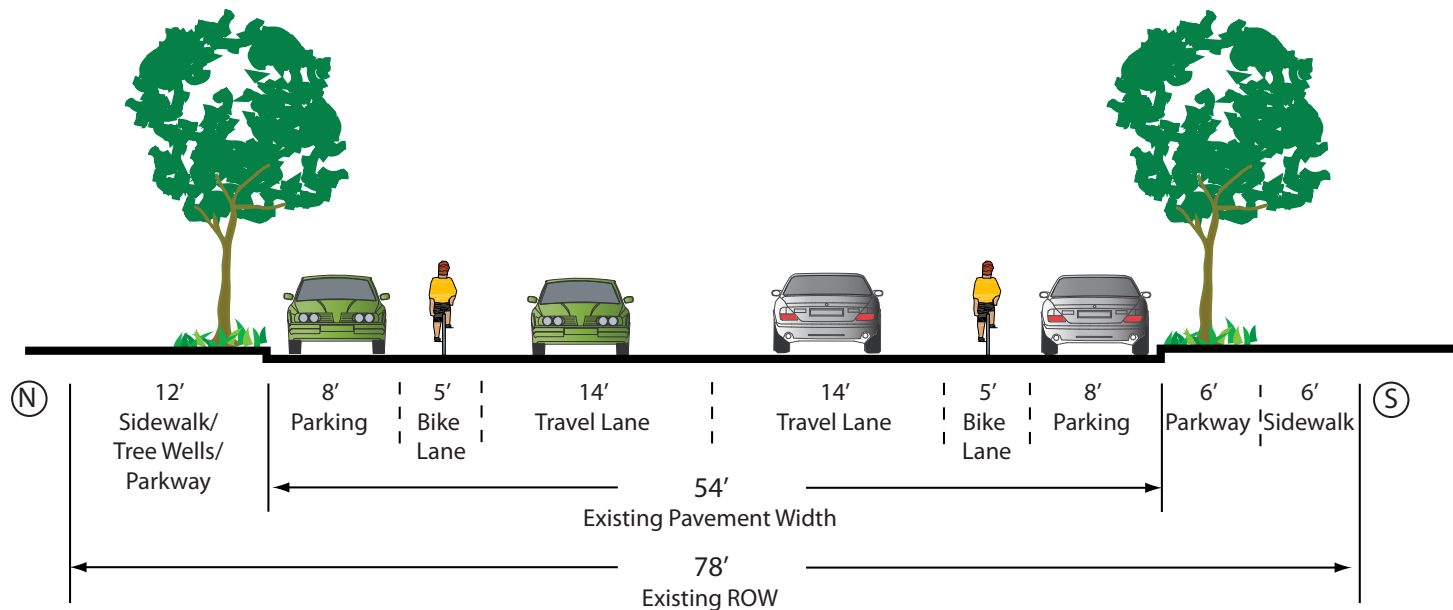


## Highland Avenue Station: Convert D Street into a Bike Street/Boulevard

### Project Description

D Street could be converted into a LOCAL BIKE STREET to provide bike lanes within the existing pavement width or could be converted into a bicycle boulevard or a sharrow to solve the first mile/last mile issue and provide a parallel bike system complementing sbX.

### BIKE LANES WITHIN EXISTING ROW OF D STREET



### Cost Estimate (D Street between 27th Street and 18th Street)

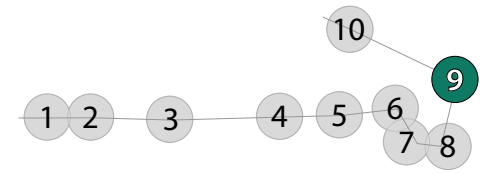
Bike Lane striping and symbols

- Thermoplastic strip: 16000 LF @ \$1.50 LF
- Thermoplastic bicycle symbol: 50 @ \$100 EA

Total: \$29,000

NEAR-TERM	MID-TERM	LONG-TERM





## Highland Avenue Station: Provide High Visibility Crosswalks

### Project Description

Provide high visibility crosswalks to enhance the safety of pedestrians at the intersection of E Street and 18th Street. Scored or stamped colored concrete surfaces could be used as they are generally more durable over the long term than unit pavers, with more uniform joints and less chance of displacement. City of San Bernardino should coordinate with sbX E Street BRT Project currently under construction.



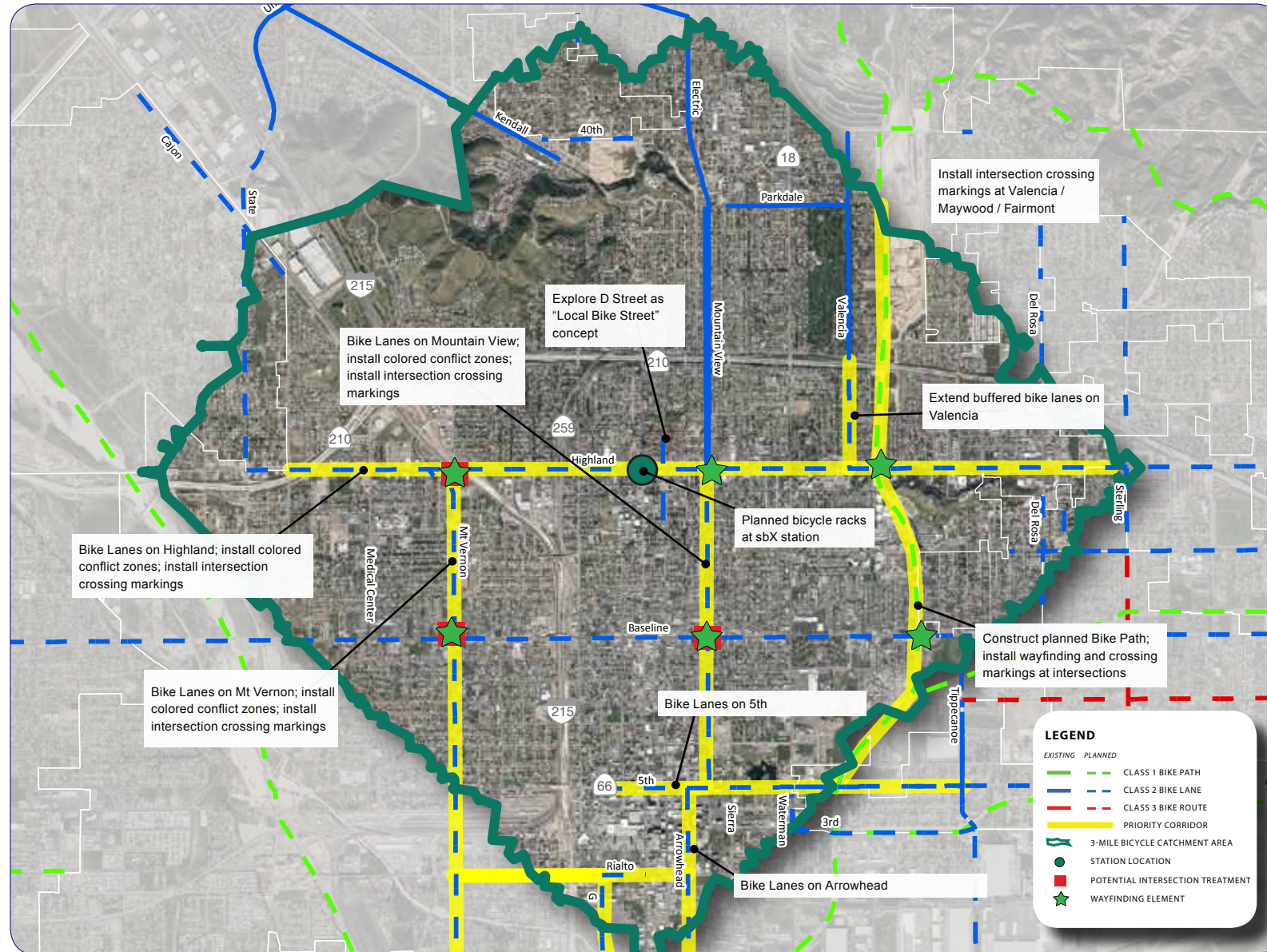
### Cost Estimate

- Crosswalk Installation: 4 @ \$600 EA

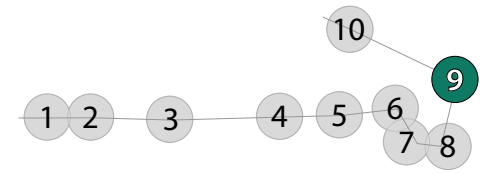
Total Cost: \$2,400

NEAR-TERM	MID-TERM	LONG-TERM

**FIGURE 4.20: HIGHLAND AVENUE SBX STATION PROPOSED BICYCLE NETWORK IMPROVEMENTS**



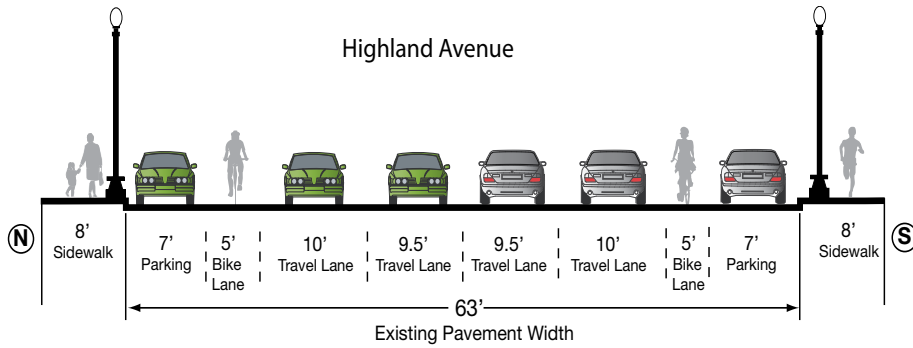




## Highland Avenue Station: Highland Avenue

### Project Description

Bike lanes can be striped on Highland Ave with the removal of the center turn lane and the narrowing of travel lanes. One parking lane should be removed at each intersection to allow for left-turn pockets. The roadway is very narrow for a four-lane road, and requires undesirable lane widths.



Coloration in the bike lanes should be used where drivers are likely to cross the bike lane to make a right turn.

### Cost Estimate

- Class II bike lanes: 0.39 mile @ \$50,000/mile
- Green paint: 80 square yards @ \$65/SY

Total Cost: \$25,000

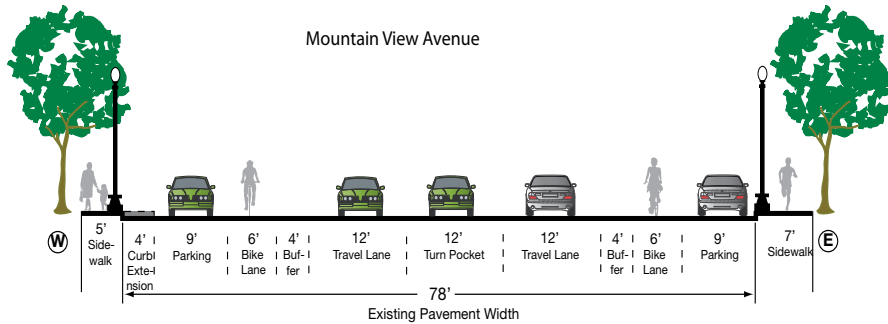
NEAR-TERM	MID-TERM	LONG-TERM



## Highland Avenue Station: Mountain View Avenue

### Project Description

The wide right-of-way on Mountain View Avenue provides sufficient space to stripe buffered bike lanes from where they currently end at W 23rd Street to Highland Avenue. This project connects to the Highland Avenue bike lanes project and the station.



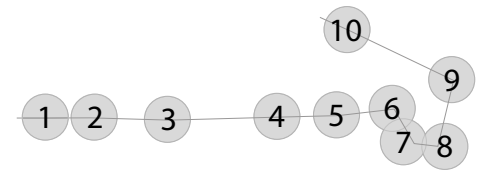
Painting buffered bike lanes and a center turn lane on Mountain View Avenue from W 23rd Street to Highland Avenue will simplify the roadway configuration for all users.

### Cost Estimate

- Buffered bike lanes: 0.06 mile @ \$80,000/mile
  - Green paint: 120 square yards @ 65/SY
- Total Cost: \$13,000

NEAR-TERM	MID-TERM	LONG-TERM

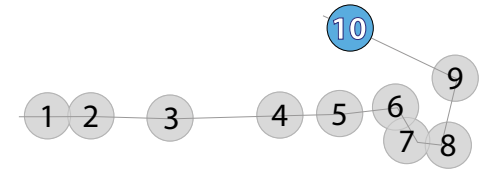




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## 4.10 Palm Avenue sbX Station Improvements



### Overview

The Palm sbX Station on Kendall Avenue is the northernmost station in the study area, and is the least-developed immediately around the station in the study area. Residential land uses with a mix of pedestrian and cyclist amenities are typical of the area immediately north and east of the station. Vehicle travel speeds are relatively low, and provide an opportunity to implement a series of “low-stress” recreational and commuter bicycle facilities.

Interstate 215 bisects the study area and poses a challenge for non-motorized transportation, with the area west of the freeway having little to no amenities for travellers.

Improvements include connecting the existing developer-provided soft trail with the planned Class I facility to the east, sidewalk improvements, tree plantings, and intersection improvements.

### Recommended Pedestrian Catchment Area Improvements

- Street trees
- Curb extensions
- New and/or improved sidewalks
- Crosswalk improvements

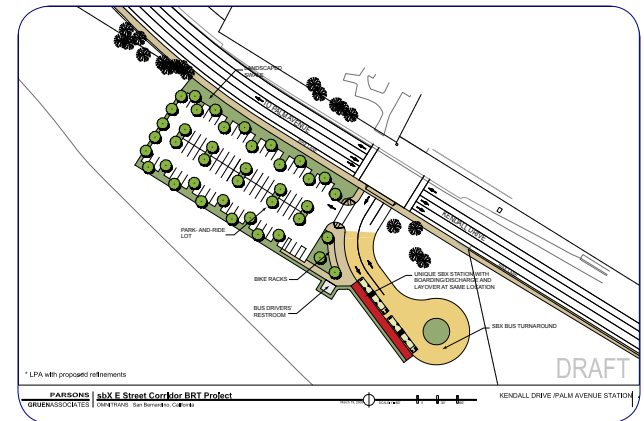
### Recommended Bicycle Catchment Area Improvements

- Intersection crossing markings
- Wayfinding elements
- Bike Path along Ohio
- Buffered bike lanes on Kendall, Northpark and Campus

IMPROVEMENT TYPE	ESTIMATED COST
Priority Bikeways Corridor Catchment Improvements	\$1,650,000
General Improvements in Pedestrian Catchment Area	\$1,366,000
<b>TOTAL</b>	<b>\$3,016,000</b>



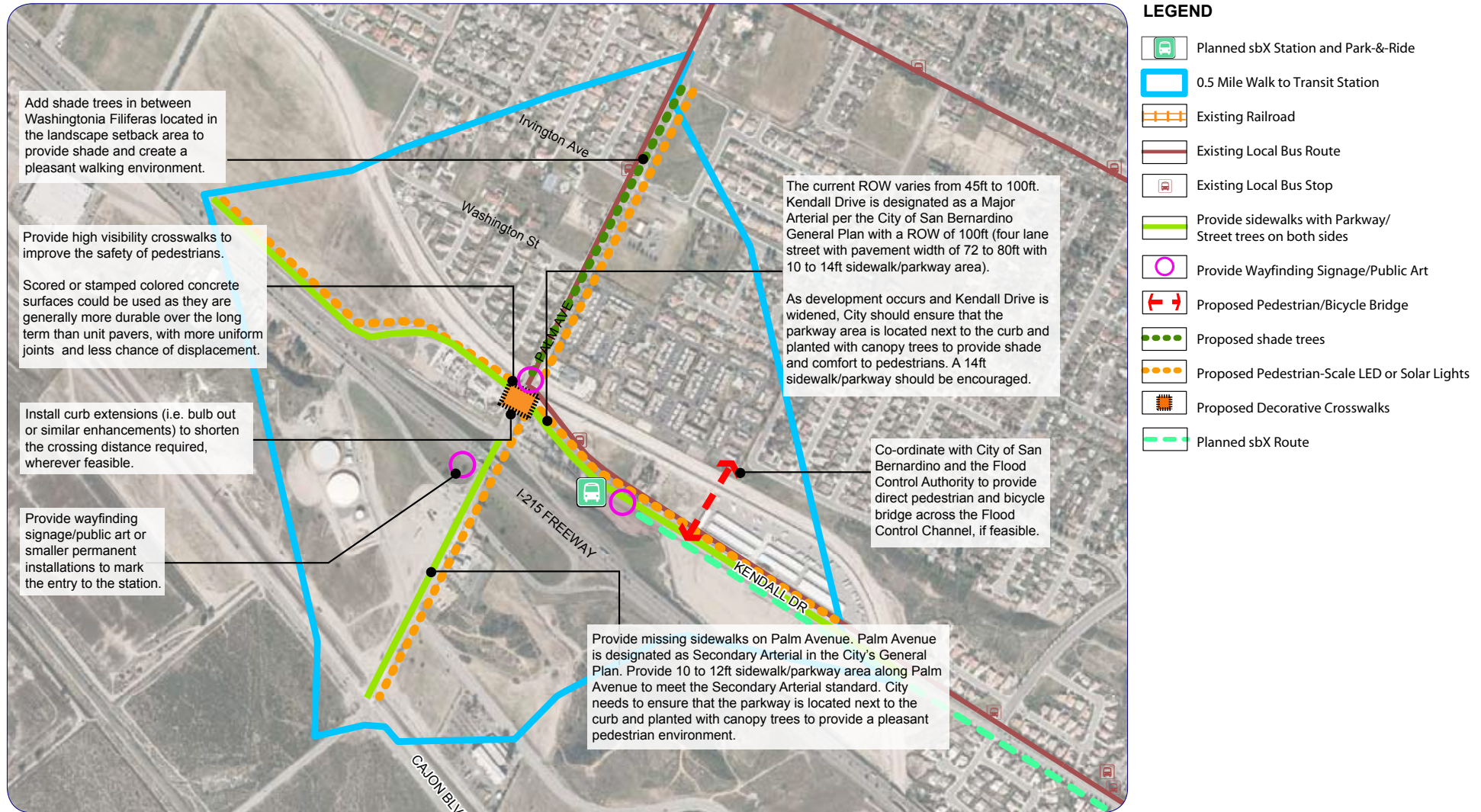
Many flood channel roads are closed and unavailable for non-motorized use.

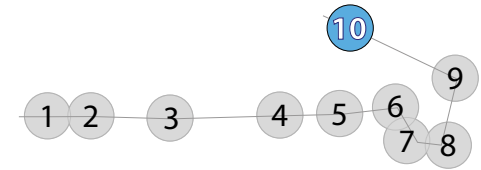


Palm Avenue Station area plans.



FIGURE 4.21: PALM AVENUE SBX PROPOSED PEDESTRIAN IMPROVEMENTS

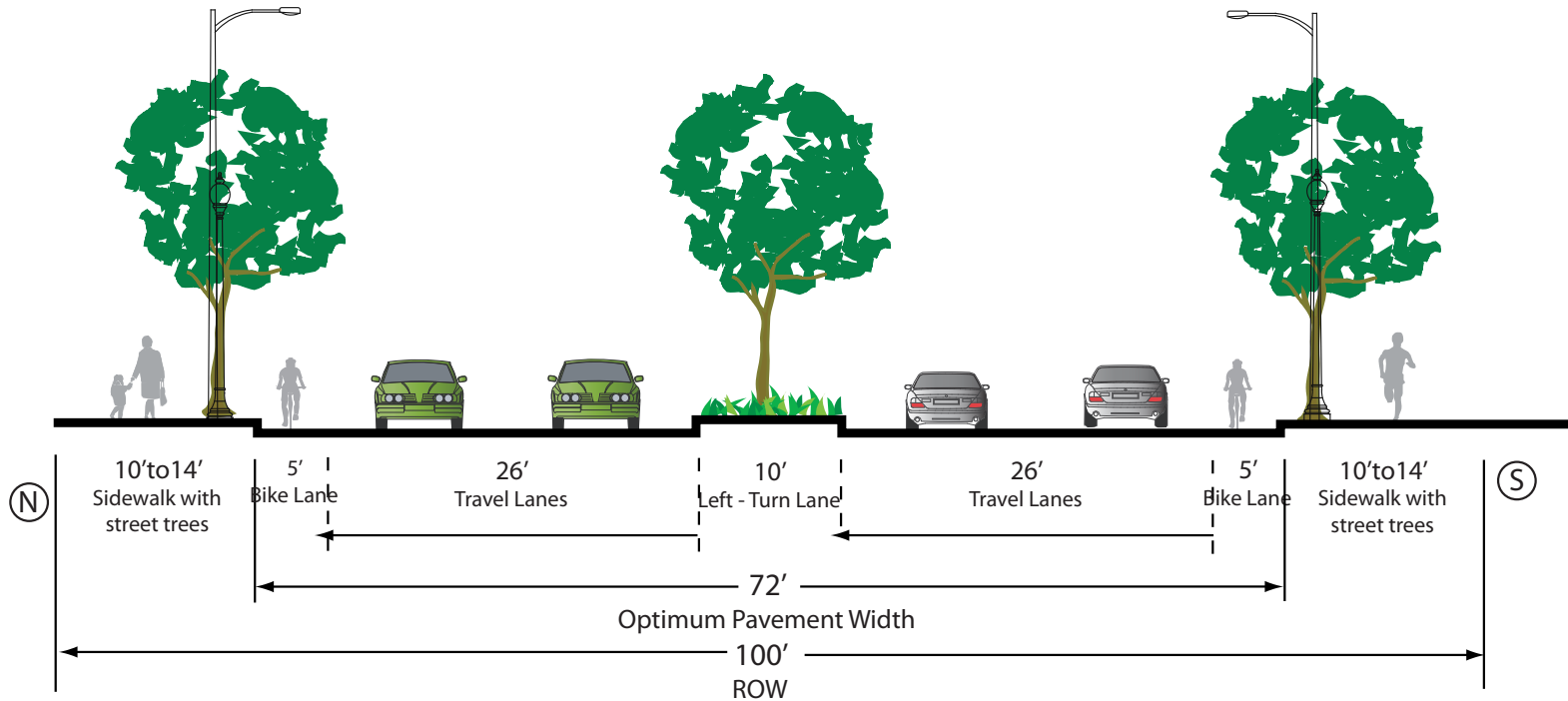




## Palm Avenue Station: Improve Kendall Drive Per General Plan Standards

### Project Description

The current ROW varies from 45ft to 100ft. Kendall Drive is designated as a Major Arterial per the City of San Bernardino General Plan with a ROW of 100ft (four lane street with pavement width of 72 to 80ft with 10 to 14ft sidewalk/parkway area). As development occurs and Kendall Drive is widened, City should ensure that the parkway is located next to the curb and planted with canopy trees to provide shade and comfort to pedestrians. A 14ft sidewalk/parkway should be encouraged. Median installation can happen as phase 2.



### Cost Estimate (Kendall Drive between Pine Avenue and Palm Avenue)

#### Phase 1

Street widening, sidewalk/parkway installation

- Road widening: 3,500LF @ \$150,000 Mile
- Curb and gutter: 3,500 LF @ \$25 LF
- Trees: 90 @ \$600 EA

Total Cost: \$155,000

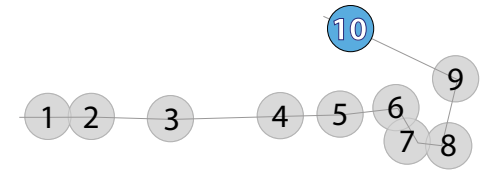
#### Phase 2

Median

- Irrigation (median): 20,000 @ \$3 LF
- Curb (median): 2,000 LF @ \$20 LF
- Landscaping: 20,000 SF @ 25 SF

Total Cost: \$600,000

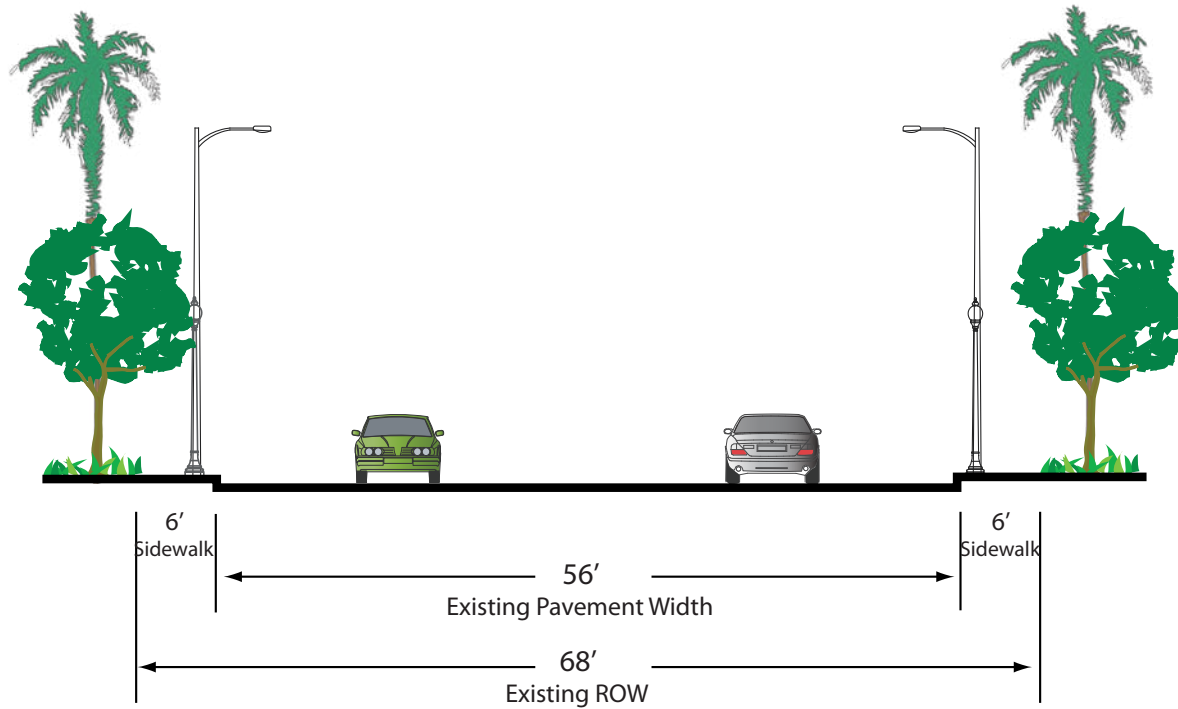
NEAR-TERM	MID-TERM	LONG-TERM



## Palm Avenue Station: Add Shade Trees along Palm Avenue

### Project Description

Add shade trees in between Washingtonia Filiferas located in the landscape setback area to provide shade and create a pleasant walking environment.



### Cost Estimate (Palm Avenue between Kendall Drive and Belmont Avenue)

Trees

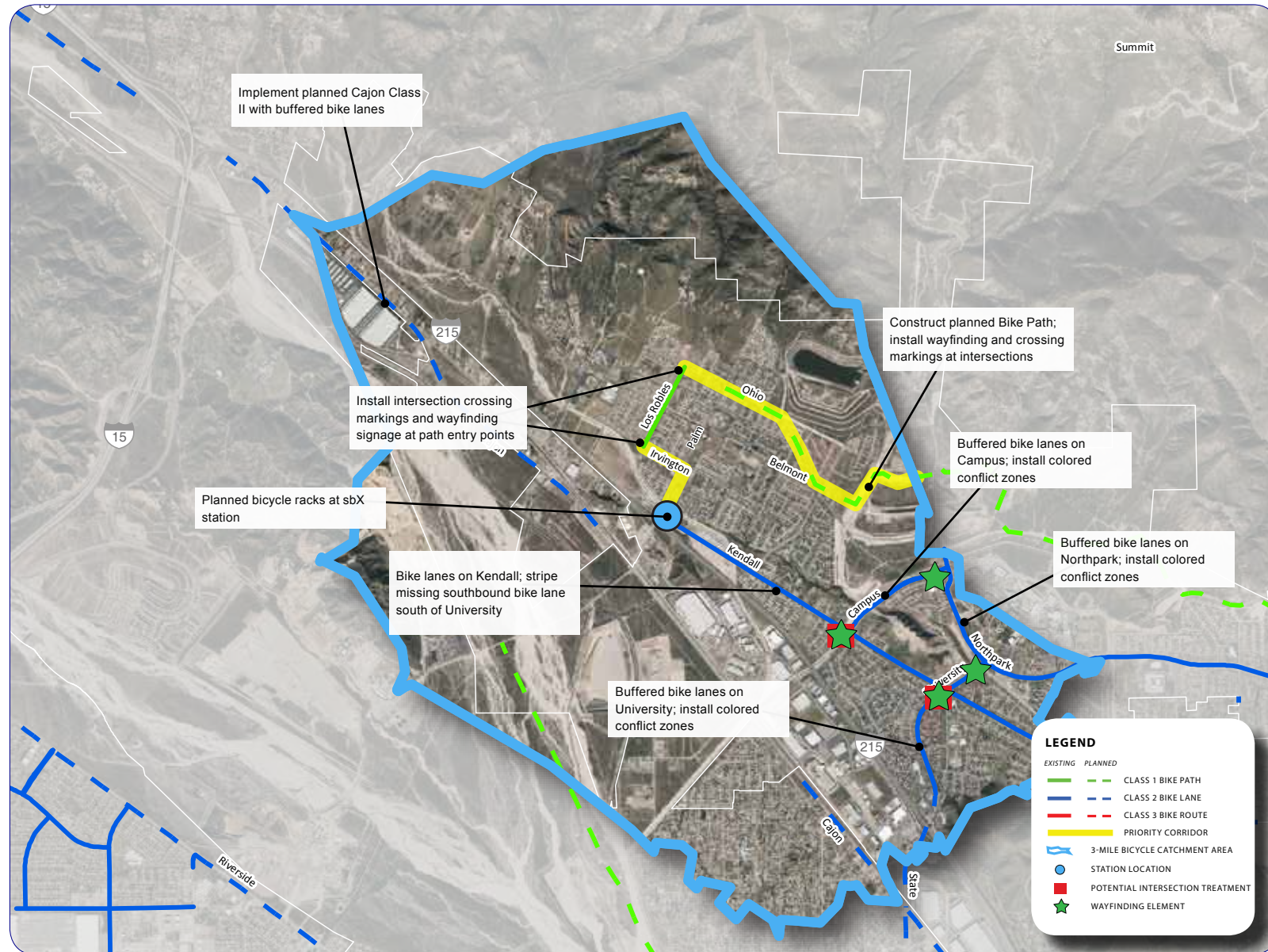
- Trees: 150 @ \$600 EA

Total cost: 90,000

NEAR-TERM	MID-TERM	LONG-TERM



FIGURE 4.22: PALM AVENUE SBX PROPOSED BICYCLE NETWORK IMPROVEMENTS





## Palm Avenue Station: Palm Avenue

### Project Description

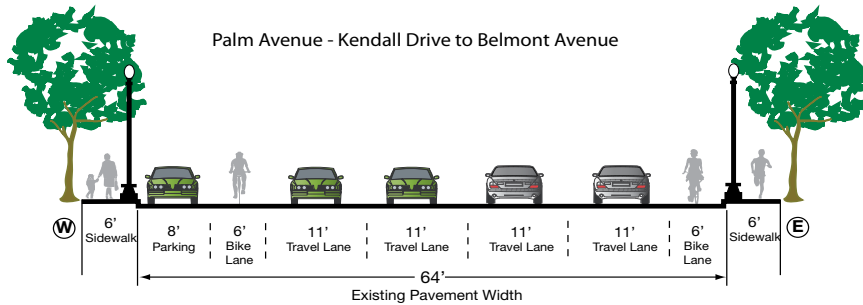
Bike lanes can be striped on Palm Avenue from the Station to Belmont Avenue. North of Belmont Avenue, road widths and lower speed limits allow a Class III bike route to be designated with signs and pavement markings. This route connects to existing bike lanes on Kendall Drive, Palm Elementary School, and projects on Ohio Avenue and Irvington Avenue.



North of Belmont Avenue, low vehicular speeds and volumes enable a Class III bike route to be signed and marked.

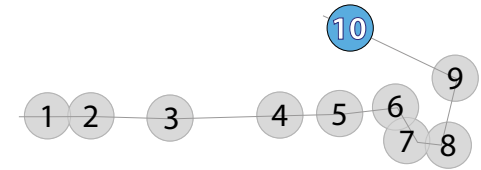
### Cost Estimate

- Class II bike lanes: 0.52 mile @ \$50,000/mile
  - Class III bike route: 0.27 mile @ \$30,000/mile
- Total Cost: \$34,000**



NEAR-TERM	MID-TERM	LONG-TERM





## Palm Avenue Station: Ohio Avenue

### Project Description

Ohio Avenue can have bike lanes from the bike path to Ridgeline Avenue. East of Ridgeline Avenue, the unimproved northern side of the street would need construction to facilitate bike lanes. This project connects to the City Creek Trail and to the bike route on Palm Avenue.

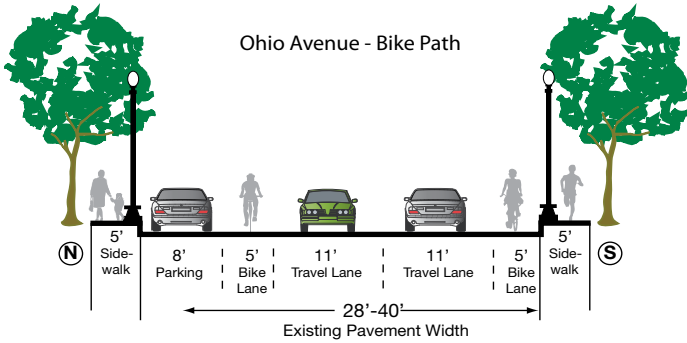


Bike lanes can be accommodated on Ohio Avenue with the removal of parking on one side of the street.

### Cost Estimate

- Class II bike lane: 0.66 mile @ \$50,000/mile
- Roadway widening (level terrain; Ridgeline Avenue to Palm Avenue): 0.10 mile @ \$150,000/mile

**Total Cost: \$48,000**

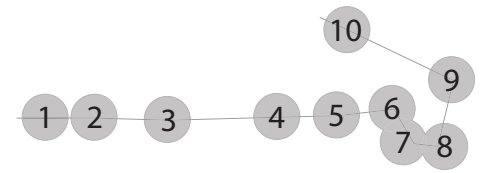


NEAR-TERM	MID-TERM	LONG-TERM



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## 5 Funding and Implementation

This chapter reviews federal, state, local, and other financing options for use by the participating cities to implement recommendations as part of the Improvement to Transit Access for Cyclists and Pedestrians Project. Following a narrative describing each source, [Table 5.1](#) presents an overview of federal funding sources by bicycle and pedestrian improvement type and [Table 5.2](#) presents details of all funding sources discussed.

There are many opportunities for funding sources to implement bicycle and pedestrian projects. This section examines the potential federal, state, local, and other sources that could be used to implement recommended improvements to transit access.

### 5.1 Federal Funding Sources

#### Moving Ahead for Progress in the Twenty-First Century (MAP-21)

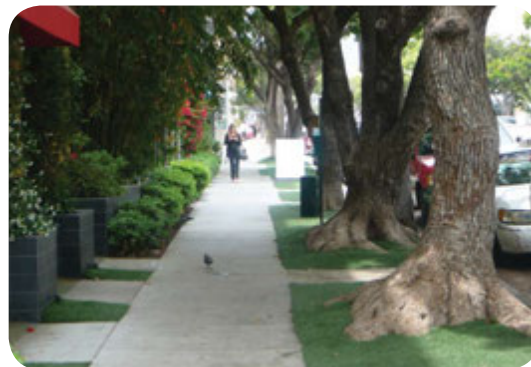
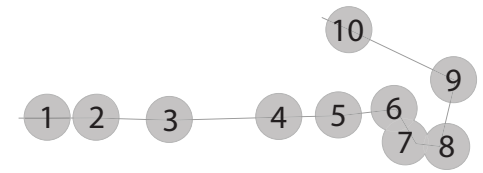
The largest source of federal funding for bicycle and pedestrian is the US DOT's Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141. The Act replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012.

MAP-21 authorizes funding for federal surface transportation programs including highways and transit for the 27 month period between July 2012 and September 2014. It is not possible to guarantee the continued availability of any listed MAP-21 programs, or to predict their future funding levels or policy guidance. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs.

In California, federal monies are administered through the California Department of Transportation (Caltrans) and regional planning agencies. Most, but not all, of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal stop, connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system.

There are a number of programs identified within MAP-21 that are applicable to bicycle and pedestrian projects.





These programs are discussed below.

More information: <http://www.fhwa.dot.gov/map21/summaryinfo.cfm>

### Transportation Alternatives

Transportation Alternatives (TA) is a new funding source under MAP-21 that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did. Unless the Governor of a given state chooses to opt out of Recreational Trails Program funds, dedicated funds for recreational trails continue to be provided as a subset of TA. MAP-21 provides \$85 million nationally for the RTP.

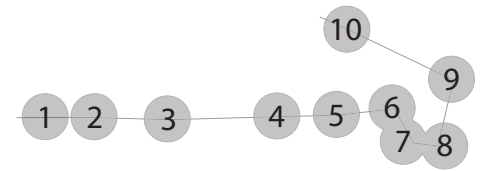
Complete eligibilities for TA include:

1. **Transportation Alternatives** - As defined by Section 1103 (a)(29), this category includes the construction, planning, and design of a range of bicycle and pedestrian infrastructure including “on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.” Infrastructure projects and systems that provide “Safe Routes for Non-Drivers” is a new eligible activity. For the complete list of eligible activities, visit:

[http://www.fhwa.dot.gov/environment/transportation\\_enhancements/legislation/map21.cfm](http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm)

2. **Recreational Trail** - TA funds may be used to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

Recreational Trails Program (RTP) funds may be used for:



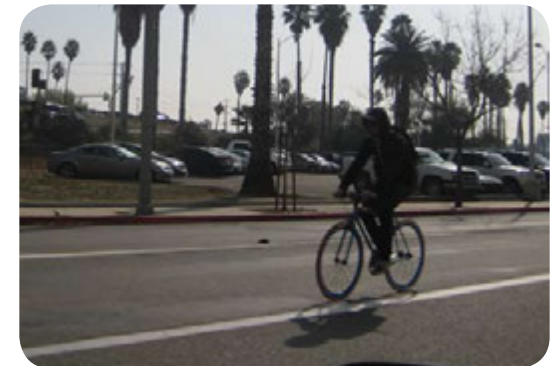
- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a state's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a state's funds)

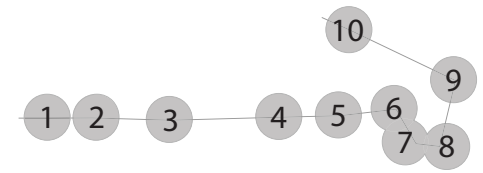
Under MAP-21, dedicated funding for the RTP continues at FY 2009 levels – roughly \$85 million annually. The state of California will receive \$5.8 million in RTP funds per year through FY2014. However, please note that under MAP-21 governors may choose to opt out of a portion or all of this “dedicated” RTP funding.

3. **Safe Routes to School** - The purpose of the Safe Routes to Schools eligibility is to promote safe, healthy alternatives to riding the bus or being driven to school. All projects must be within two miles of primary or middle schools (K-8).

Eligible projects may include:

- Engineering improvements. These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Physical improvements may also reduce motor vehicle traffic volumes around schools, establish safer and more accessible crossings, or construct walkways, trails or bikeways. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
- Education and Encouragement Efforts. These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits, and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).
- Enforcement Efforts. These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include





development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian sting operations.

4. **Planning, designing, or constructing roadways within the right-of-way of former Interstate routes or divided highways** - At the time of writing, detailed guidance from the Federal Highway Administration on this new eligible activity was not available.

Average annual funds available through TA over the life of MAP-21 equal \$814 million nationally, which is based on a 2% set-aside of total MAP-21 authorizations. Projected apportionments for California total \$3.5 billion for FY 2013 and 3.6 billion for FY 2014.

Since this region is located in an urban area with a population of 200,000 and above, 50% of TA funds for the region are automatically allocated directly to Omnitrans based on population. Omnitrans distributes funds to local communities through a competitive grant program.

Remaining TA funds (those monies not re-directed to other highway programs) are disbursed through a separate competitive grant program administered by Caltrans. Local governments, school districts, tribal governments, and public lands agencies are permitted to compete for these funds.

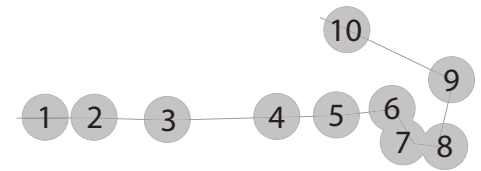
#### Surface Transportation Program

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded bicycle and pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50% of each state's STP funds are suballocated geographically by population; the remaining 50% may be spent in any area of the state.



#### Highway Safety Improvement Program





MAP-21 doubles the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides \$2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds.

### Congestion Mitigation/Air Quality Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no nonattainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible.

### New Freedom Initiative

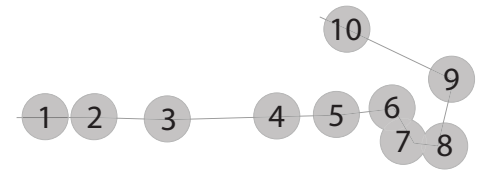
MAP-21 continues a formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act. Examples of pedestrian/accessibility projects funded in other communities through the New Freedom Initiative include installing Accessible Pedestrian Signals (APS), enhancing transit stops to improve accessibility, and establishing a mobility coordinator position.

More information: <http://www.hhs.gov/newfreedom/>

### Pilot Transit-Oriented Development Planning

MAP-21 establishes a new pilot program to promote planning for Transit-Oriented Development. At the time of writing the details of this program are not fully clear, although the bill text states that the Secretary of Transportation may make grants available for the planning of projects that seek to “facilitate multimodal connectivity and accessibility,” and “increase access to transit hubs for pedestrian and bicycle traffic.”





## Community Development Block Grants

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may “use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs.”

More information: <http://www.hcd.ca.gov/fa/cdbg/EconDev.html>

## Land and Water Conservation Fund

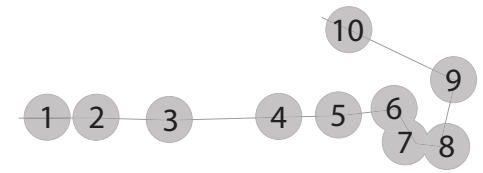
The Land and Water Conservation Fund (LWCF) is a National Parks Service program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. The program is administered by the California Department of Parks and Recreation. Funds can be used for right-of-way acquisition and construction. Any projects located in future parks could benefit from planning and land acquisition funding through the LWCF. Trail corridor acquisition can be funded with LWCF grants as well.

More info: <http://www.nps.gov/ncrc/programs/lwcf/grants.html>

## Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development throughout the cities in San Bernardino County, but should not be considered a future capital funding source.

More info: <http://www.nps.gov/pwro/rtca/who-we-are.htm>



## Transportation Investment Generating Economic Recovery Program (TIGER)

The Recovery Act was signed into law by President Obama on February 17th, 2009 as an effort to jump start the United States economy and create or save millions of jobs. The Recovery Act includes measures to modernize the nation's infrastructure, enhance energy independence, expand educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need. The TIGER (Transportation Investment Generating Economic Recovery) Discretionary Grant Program was included in the Recovery Act to spur a national competition for innovative, multi-modal and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to an entire metropolitan area, a region, or the nation. Projects funded with the \$1.5 billion allocated in the Recovery Act include improvements to roads, bridges, rail, ports, transit, intermodal facilities, and non-motorized transportation facilities. Trail projects in San Bernardino County may be appropriate projects to submit for TIGER funding as they provide regional transportation improvements.

More information: <http://www.dot.gov/recovery/ost/>

## Bus and Bus Facilities Program: State of Good Repair

The State of Good Repair Initiative of the Bus and Bus Facilities Program is administered by the Federal Transit Administration. The program provides funds to public transit providers for new and replacement buses, related equipment, and facilities, which includes bike racks on busses, transfer facilities, bus malls, transportation centers, and intermodal terminals.

More information: [http://www.fta.dot.gov/grants/13077\\_14330.html](http://www.fta.dot.gov/grants/13077_14330.html)

## Bus Livability Initiative

The Bus Livability Initiative is administered by the Federal Transit Administration and also provides funds to public transit providers for new and replacement buses, related equipment, and facilities, which includes bike racks on busses, transfer facilities, bus malls, transportation centers, and intermodal terminals.

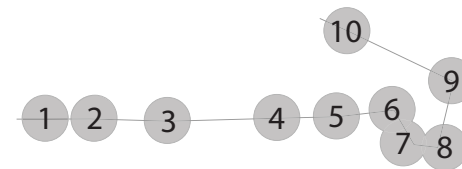
More information: [http://www.fta.dot.gov/grants/13077\\_14331.html](http://www.fta.dot.gov/grants/13077_14331.html)

## Hazard Elimination and Railway-Highway Crossing Program

The Federal Highway Administration administers the Hazard Elimination and Railway-Highway Crossing Program to make available funds for safety improvements that eliminate hazards and for the installation of protective devices at railway-highway crossings. Funds can be used for improvements to bicycle and pedestrian facilities.

More information: <http://www.fhwa.dot.gov/discretionary/rhchehsr2012info.htm>





## Energy Efficiency and Block Grant Program

The Energy Efficiency and Conservation Block Grant (EECBG) Program is funded by the American Recovery and Reinvestment Act (Recovery Act) of 2009. The program is similar to the Community Development Block Grant program and is intended to help cities, counties, states, territories, and Indian tribes to develop, promote, implement, and manage energy efficiency and conservation projects and programs. Approximately \$2.7 billion is available through formula grants. Funds can be used for a variety of activities, including transportation programs to conserve energy and support renewable fuel infrastructure.

More information: <http://www1.eere.energy.gov/wip/eecbg.html>

## Sustainable Communities Regional Planning Grant Program

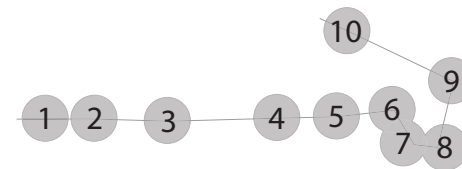
The Sustainable Communities Regional Planning Grant Program provides funding for larger-scale planning efforts that join housing, land use, economic and workforce development, transportation, and infrastructure investments. Efforts funded will take into account the principles of sustainability, including economic revitalization, social equity, public health, and environmental impacts. The Program prioritizes partnerships that move the Federal Livability Principles into approaches that result in long-term development and reinvestment, show a commitment to addressing regional issues, use data to establish and evaluate progress toward performance goals, and involve stakeholders and residents in the decision-making process. The improvements identified in this plan may be very competitive in this grant program due to their regional, multi-modal nature.

More information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/sustainable\\_housing\\_communities/sustainable\\_communities\\_regional\\_planning\\_grants](http://portal.hud.gov/hudportal/HUD?src=/program_offices/sustainable_housing_communities/sustainable_communities_regional_planning_grants)

## Additional Federal Funding

The landscape of federal funding opportunities for bicycle and pedestrian programs and projects is always changing. A number of Federal agencies, including the Bureau of Land Management, the Department of Health and Human Services, the Department of Energy, and the Environmental Protection Agency have offered grant programs amenable to bicycle and pedestrian planning and implementation, and may do so again in the future. For up-to-date information about grant programs through all federal agencies, see <http://www.grants.gov/>



## 5.2 State Funding Sources

### California Safe Routes to School

Caltrans administers California's portion of the national Safe Routes to School (SR2S) program. As previously discussed, grants can be used to identify and reduce barriers and hazards to children walking or bicycling to school. The Cycle 10 "Call for Projects", the latest California SR2S cycle announced on December 20, 2011, is for \$45 million in projects for a two-year cycle of funds.

More information: <http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm>

### Community Based Transportation Planning

Caltrans administers the Community Based Transportation Planning grant program to fund planning projects throughout the state that create livable communities, integrate land use and transportation planning, and encourage public participation. Planning projects funded will promote the State's goal of providing transportation choices that meet future demands and enhance the environment. This transit access study is one type of project that could receive funding from the Community Based Transportation Planning program. If future studies are needed to implement recommended improvements included in this plan, this funding source could be of high importance.

More information: [http://www.dot.ca.gov/hq/tpp/grant\\_files/1011/10-11\\_CBTP\\_Grant\\_Marketing.pdf](http://www.dot.ca.gov/hq/tpp/grant_files/1011/10-11_CBTP_Grant_Marketing.pdf)

### Environmental Justice Planning Grants

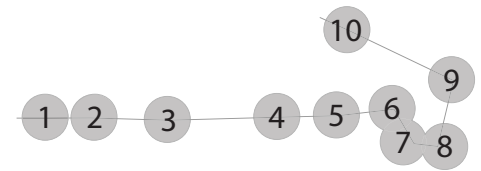
The Environmental Justice Grant Program aims to help low-income, minority, and Tribal communities that face socioeconomic barriers, such as the high cost of car ownership for people on low and fixed incomes. One of the key goals of this grant is to improve bicycle and pedestrian infrastructure. Large-scale transportation facilities are key contributors of air and noise pollution, which low-income and minority communities are disproportionately located near. However, non-motorized transportation projects support low-income and minority communities as they provide cost-effective commute options and have fewer or no negative environmental impacts. Thus, recommended improvements in this plan are appropriate for pursuing this funding source.

More information: <http://www.dot.ca.gov/hq/tpp/grants.html> (see Power Point)

### Highway Safety Improvement Program

Administered by Caltrans, the goal of the Highway Safety Improvement Program (HSIP) is to significantly reduce traffic fatalities and serious injuries resulting from collisions on all public roads by implementing infrastructure-related highway safety improvements. If this funding source is pursued, the applying agency should conduct a detailed collision analysis to determine if any of the recommended improvements are located in areas with high crash rates and if the treatments would likely benefit those sites.

More information: <http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>



### Environmental Enhancement and Mitigation Program

The Environmental Enhancement and Mitigation Program provides funds for projects that reduce environmental impacts of altered or new public transportation facilities including streets, mass transit guideways, park-n-ride facilities, transit stations, tree planting (to minimize the effects of motor vehicle emissions), off-road trails, and the acquisition or development of roadside recreational facilities. Proposed shared-use path improvements are eligible under the Roadside Recreation Projects category.

More information: <http://resources.ca.gov/eem/>

### State Highway Operations and Protection Program (SHOPP)

Caltrans administers SHOPP, which provides funding for capital improvements projects that reduce collisions, restore damaged roadways, enhance mobility, and preserve bridges, roadways, roadsides, and other transportation facilities related to the state highway system. Eligible projects can include bicycle and pedestrian facilities. As of March 2012, Caltrans will target resources on the direct categories of projects in the SHOPP, which are safety, mandates, bridge, and pavement preservation.

More information: <http://www.dot.ca.gov/hq/transprog/shopp.htm>



### Petroleum Violation Escrow Account

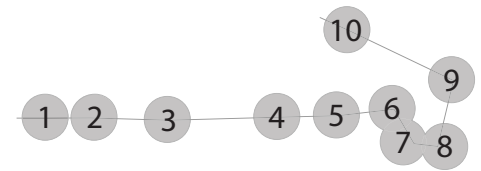
The Petroleum Violation Escrow Account (PVEA) consists of funding from money collected from oil companies for price overcharges on crude oil and refined petroleum products. Transportation related PVEA projects are administered by Caltrans and do not require a match. To date, PVEA refunds have totaled more than \$4.7 billion, nationwide. California has received more than \$417 million since the beginning of the program with \$129 million allocated for transportation related projects and approximately \$102 million expended for transportation related projects. Projects eligible for PVEA funds must save or reduce energy.

More information: [http://www.dot.ca.gov/hq/LocalPrograms/lam/prog\\_g/g22state.pdf](http://www.dot.ca.gov/hq/LocalPrograms/lam/prog_g/g22state.pdf)

### Office of Traffic Safety (OTS) Grants

The Office of Traffic Safety (OTS) aims to reduce vehicular fatalities and injuries through a national highway





safety program. The OTS obtains funds from the National Highway Safety Act and provides grants for approximately one to two years. One of the priority areas includes pedestrian and bicycle safety, including bicycle safety programs.

More information: [http://www.ots.ca.gov/ots\\_and\\_traffic\\_safety/faqs.asp](http://www.ots.ca.gov/ots_and_traffic_safety/faqs.asp)

### California Conservation Corps

The California Conservation Corps (CCC) provides labor assistance for projects related to natural resource management. Public agencies can hire a CCC team at low cost. The nearest CCC center is the Inland Empire center located in San Bernardino.

More information: <http://www.ccc.ca.gov/about/glance/faqs/abouthiringacrew/Pages/faqhirecrew.aspx>

### AB 2766 Subvention Fund Program

In 1990, California Assembly Bill 2766 was signed into law (Health & Safety Code Sections: 44220 - 44247) and the funding program described in that law has since been known as the “AB2766 program” or just “AB2766.”

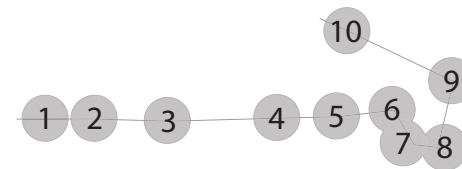
AB 2766 provides for the collection of an additional \$4 in motor vehicle registration fees to fund various air pollution efforts. Each dollar collected is disbursed as follows:

- 30 cents - used by the AQMD for programs to reduce air pollution from motor vehicles and to carry out planning, monitoring, enforcement and technical studies that are authorized by, or necessary to implement, the California Clean Air Act.
- 40 cents - distributed on a quarterly basis by the AQMD to cities and counties located in the South Coast District, based on their percentage of population, to be used to reduce motor vehicle air pollution. Every year AQMD provides technical assistance and training for the local government AB2766 reporting process.
- 30 cents - deposited by the AQMD into a “Discretionary Fund” to be used to implement or monitor programs to reduce motor vehicle air pollution. To determine which projects should be funded by the Discretionary Fund, AB 2766 provided for the creation of the Mobile Source Air Pollution Reduction Review Committee (MSRC), which develops a Work Program for evaluating programs and makes a final recommendation to the SCAQMD Governing Board as to which programs and/or projects should be funded.

More information: <http://www.aqmd.gov/localgovt/AB2766.htm>

[http://www.aqmd.gov/trans/ab2766/summit\\_doc/questions\\_ab2766\\_summit.pdf](http://www.aqmd.gov/trans/ab2766/summit_doc/questions_ab2766_summit.pdf)





## State-Local Transportation Partnership Program

The State-Local Transportation Partnership Program (SLTPP) was implemented in 1989 to encourage local agencies to fund and construct transportation improvement projects both on and off the State Highway System. The program is continuously funded from the State Highway Account at a level of approximately \$200,000,000 per fiscal year. To qualify for the SLTPP, a project must be on a local road, State highway, or exclusive public mass transit guideway and must be constructed by contract. The completed project must be a usable segment that either increases capacity, extends service to a new area, or extends the useful life of the roadway by ten years as an eligible rehabilitation project.

More information: <http://www.catc.ca.gov/programs/SLPP.htm>

<http://www.dot.ca.gov/hq/LocalPrograms/lam/ArchivedDocs/g15sltppArch.pdf>

## Habitat Conservation Fund

The Habitat Conservation Fund provides funding through State general funds to local agencies to protect threatened species, to address wildlife corridors, to create trails, and to provide for nature interpretation programs which bring urban residents into park and wildlife area. This source would be appropriate for recommended improvements to the shared-use paths, such as the Pacific Electric Trail.

More information: [http://www.parks.ca.gov/pages/1008/files/hcf\\_fact\\_sheet\\_2010.pdf](http://www.parks.ca.gov/pages/1008/files/hcf_fact_sheet_2010.pdf)

<http://www.parks.ca.gov/pages/1008/files/faqs%202012.pdf>

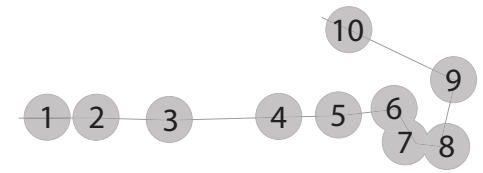
## California River Parkways

The California River Parkways program grants funds for river parkway acquisition or development projects that meet at least two of the following conditions: recreation, habitat, flood management, conversion to a river parkway, and/or conservation and interpretive enhancement. Trails along the Santa Ana River, for example, could satisfy the recreation category, and potentially be considered for the conservation and interpretive enhancement category if additional improvements, such education kiosks, are included in the project.

More information: [http://www.resources.ca.gov/grant\\_programs.html#](http://www.resources.ca.gov/grant_programs.html#)

## Transportation Development Act Article 3 Funds

Transportation Development Act (TDA) Article III funds awarded annually to local jurisdictions for bicycle and pedestrian projects in California, with about \$700,000 awarded for San Bernardino County. These funds originate from the state gasoline tax and are distributed to counties based on population, with a competitive process administered by SANBAG for local jurisdictions. Funds may be used for the following bicycle and pedestrian activities:



- Engineering expenses
- Right-of-way acquisition
- Construction and reconstruction
- Retrofitting existing bicycle and pedestrian facilities, including signage installation and ADA compliance
- Route improvements such as signal controls for cyclists, bicycle loop detectors, rubberized rail crossings and bicycle-friendly drainage grates
- Support facilities, such as bicycle parking and pedestrian amenities

More information: <http://www.dot.ca.gov/hq/MassTrans/State-TDA.html>

## 5.3 Local Funding Sources

### Local Bond Measures

Local bond measures, or levies, are usually initiated by voter-approved general obligation bonds for specific projects. Bond measures are typically limited by time, based on the debt load of the local government or the project under focus. Funding from bond measures can be used for right-of-way acquisition, engineering, design, and construction of pedestrian and bicycle facilities. Bond measures are often used by cities for local match in grant applications. Transportation-specific bond measures featuring a significant bicycle/pedestrian facility element have passed in other communities, such as Seattle’s “Closing the Gap” measure.

### Measure I Sales Tax

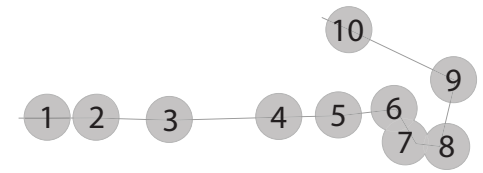
Measure I is the half-cent sales tax collected throughout San Bernardino County for transportation improvements. San Bernardino County voters first approved the measure in November 1989 to ensure that needed transportation projects were implemented countywide through 2010. In 2004, San Bernardino County voters overwhelmingly approved the extension of the Measure I sales tax, with 80.03% voting to extend the measure through 2040. SANBAG administers Measure I revenue and is responsible for determining which projects receive Measure I funding, and ensuring that transportation projects are implemented. Measure I funds are allocated based on a strategic plan.

More information: <http://sanbag.ca.gov/funding/mi.html>

### Tax Increment Financing/Urban Renewal Funds

Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are





then dedicated to finance the debt created by the original public improvement project. Tax Increment Financing typically occurs within designated Urban Renewal Areas (URAs) that meet certain economic criteria and are approved by a local governing body. To be eligible for this financing, a project (or a portion of it) must be located within the URA. It should be noted that some TIF programs around the country have been performing poorly during the current economic downturn because property values have not risen steadily as expected.

### Developer Impact Fees

As a condition for development approval, cities can require developers to implement specific infrastructure improvements, including bikeway projects, bicycle parking, or shower and locker facilities. The type of facility required to be provided by developers should reflect the demand for the particular project and its local area. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

### New Construction

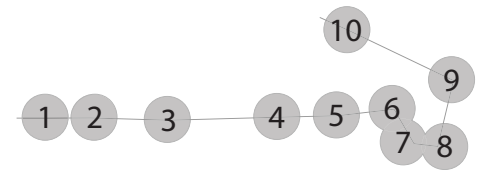
Future roadway widening and construction projects can be a method of providing on-street bikeways and pedestrian facilities. To ensure that these projects provide facilities where needed, it is key that the review process includes input pertaining to consistency with the proposed bicycle network. In San Bernardino County, new or widened arterials, and the bicycle facilities that accompany them, may be funded through a combination of Measure I half-cent sales tax funds, development fees, and other local funds.

### Transportation System Maintenance Fee

The revenue generated by a Transportation System Maintenance Fee (sometimes called a transportation maintenance fee or a street user fee) is commonly used for operations and maintenance of the street system, including maintaining on-street bicycle and pedestrian facilities, including routine sweeping of bicycle lanes and other designated bicycle routes.

### Local Improvement Districts (LIDs)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks, or bikeways. Through the LID process, the costs of local improvements are generally spread out



among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as trip generation.

### Economic Improvement Districts (EIDs)

Pedestrian improvements can often be included as part of larger efforts aimed at business improvement and retail district beautification. Economic Improvement Districts collect assessments or fees on businesses in order to fund improvements that benefit businesses and improve customer access within the district. These districts may include provisions for pedestrian and bicycle improvements, such as wider sidewalks, landscaping, and ADA compliance.

### Stormwater Green Streets Funding

Municipal water quality agencies are increasingly turning to green streets projects as a promising strategy to fulfill their mission to improve water quality by minimizing and treating stormwater runoff. Green streets improvements can often serve a secondary community benefit as traffic calming by adding on-site stormwater management to traffic circles, chicanes, and curb extensions. Fees collected by stormwater management agencies are commonly applied to a variety of projects, including capital investments; depending on the agency culture, these capital investments may include green streets efforts. Non-motorized transportation projects can be used to implement green streets, such as through curb extensions with bioswales.

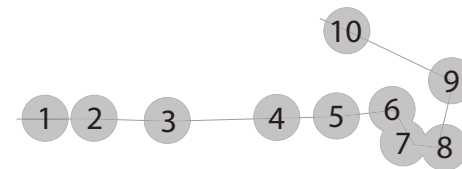
More information: <http://www.portlandonline.com/bes/index.cfm?c=44407>

## 5.4 Other Funding Sources

### Bikes Belong Grant

The Bikes Belong Grant Program strives to put more people on bicycles more often by funding important and influential projects that leverage federal funding and build momentum for bicycling in communities across the United States. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives. Since 1999, Bikes Belong has awarded 236 grants to municipalities and grassroots groups in 46 states and the District of Columbia, investing nearly \$1.9 million in community bicycling projects and leveraging more than \$657 million in federal, state, and private funding.





California organizations that have been awarded funds include but are not limited to the City of Oakland, the City of Modesto, CicLAvia, the American River Conservancy, and the Los Angeles County Bicycle Coalition.

More information: <http://www.bikesbelong.org/grants/>

## REI Grants

The REI grants program makes funding available to local non-profit organizations to provide the resources and capacity to organize stewardship activities and get volunteers involved. The cities could partner with local advocacy groups to pursue these funds.

More information: <http://www.rei.com/about-rei/grants02.html>

## Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation provides grants to communities pursuing healthy lifestyles for its residents. La Jolla, CA in San Diego County, for example, received \$12.5 million to conduct active living research.

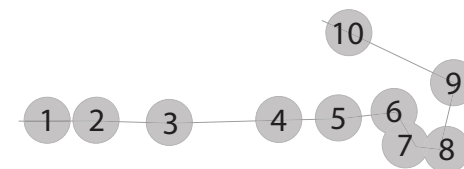
More information: <http://www.rwjf.org/grants/>

## Volunteer and Public-Private Partnerships

A public-private partnership involves an agreement between a public agency and a private party, in which the private party delivers a public service or project to the public agency. Projects can be funded solely by the private party or through a collection of private monies and taxpayer dollars.

## Donations

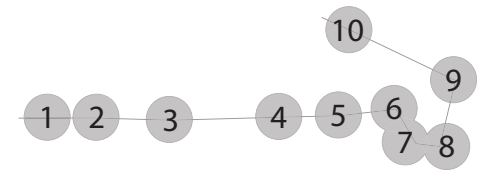
Private companies and individuals sometimes make donations to causes they feel strongly in favor of. Though these are not a reliable source of financing since they can come about randomly and infrequently, opportunities for donations to implement recommended improvements should still be considered a potential funding source.



**TABLE 5.1 : FUNDING SOURCE OVERVIEW BY IMPROVEMENT TYPE**

IMPROVEMENT	TA	STP	HSIP	RTP	TCSP	CMAQ	BYW	SRTS	FLH	BRI	FTA	NHS	402	JARC
Bicycle and pedestrian plan		*			*	*								
Bicycle lanes on roadway	*	*	*			*	*	*	*	*	*	*		
Paved Shoulders	*	*	*			*	*	*	*	*		*		
Signed bike route	*	*				*	*	*	*			*		
Shared use path/trail	*	*		*		*	*	*	*	*		*		
Single track hike/bike trail	*			*										
Spot improvement program	*	*	*			*		*						
Maps	*	*				*		*					*	
Bike racks on buses		*				*					*			
Bicycle parking facilities	*	*				*	*	*			*			
Trail/highway intersection	*	*	*	*		*	*	*	*			*		
Bicycle storage/service center	*	*			*	*		*			*			*
Sidewalks, new or retrofit	*	*	*			*	*	*	*	*	*	*		
Crosswalks, new or retrofit	*	*	*			*	*	*	*		*	*		
Signal improvements	*	*	*			*		*				*		
Curb cuts and ramps	*	*	*			*		*				*		
Traffic calming	*	*	*		*			*						
Coordinator position	*	*			*	*		*						
Safety/education position	*	*				*		*					*	
Police Patrol	*	*						*					*	
Helmet Promotion	*	*						*					*	
Safety brochure/book	*	*		*		*		*					*	
Training	*	*		*		*		*					*	

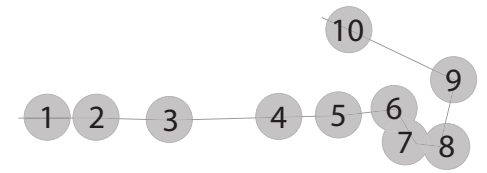




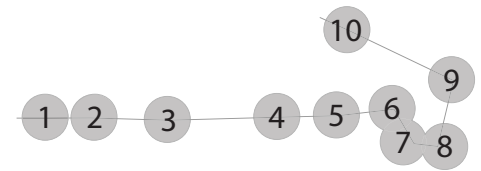
**TABLE 5.2 : FUNDING SOURCES AND ELIGIBILITY**

GRANT SOURCE	DUE DATE*	ADMINISTERING AGENCY	RECENT ANNUAL TOTAL	MATCHING REQUIREMENT	ELIGIBLE APPLICANTS	PLANNING	CONSTRUCTION	OTHER	NOTES
Federal Funds									
Transportation Enhancements*	Summer	Federal Highway Administration/Caltrans	Approximately \$19 million in San Bernardino County	25%	States and local governments	X	X	X	Can be used for bicycle and pedestrian facilities, as well as educational and safety programs.
Surface Transportation Program (STP)	October	Federal Highway Administration	Approximately \$109.3 million in San Bernardino County	20%	States and local governments		X	X	Can be used for sidewalk installation, sidewalk upgrades to meet ADA requirements, shared-use paths, paved shoulders, bike lanes, and for bicycle/pedestrian educational programs.
Highway Safety Improvement Program	July	Federal Highway Administration/ Caltrans	\$98 million in California in 2009	Varies between 0% and 20%	City, county or federal land manager	X	X	X	Projects must address a safety issue and may include education and enforcement programs. This program includes the Railroad-Highway Crossings and High Risk Rural Roads programs.
Recreational Trails Program*	October	California Department of Parks and Recreation	\$5 million in California in 2010	12%	Agencies and organizations that manage public lands	X	X	X	Funds can be used for acquisition of easements for trails from willing sellers.
Transportation, Community and System Preservation Program	Varies, generally January or February.	Federal Highway Administration	\$204 million nationally in 2009	20%	States, MPOs, local governments and tribal agencies	X	X	X	Funds projects that reduce the environmental impacts of transportation and reduce the need for costly future public infrastructure investments.
Congestion Mitigation/Air Quality (CMAQ) Program		Federal Highway Administration/Caltrans	\$370 million in California in 2009	20%	South Coast Air Basin, Mojave Desert Air Basin		X	X	Funds can be used to build bicycle/pedestrian facilities that reduce travel by automobile. Purely recreational facilities are not eligible.
National Scenic Byways Program	Varies by agency	Federal Highway Administration/Caltrans	\$3 million annually nationwide; \$740,000 in California in 2009	20%	State agencies	X	X	X	NSB funds may be used to fund on-street or off-street facilities, intersection improvements, user maps and other publications. Projects must be located along a National Scenic Byway.
Federal Safe Routes to School*	Mid-July	Caltrans	\$46 million	none	State, city, county, MPOs, RTPAs and other organizations that partner with one of the above.		X	X	Construction, education, encouragement and enforcement program to encourage walking and bicycling to school.

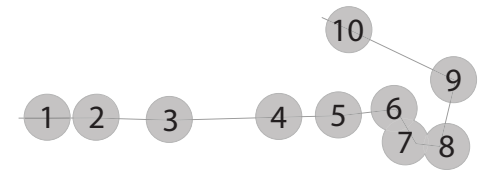
\* Recently consolidated under Map-21. Refer to <http://www.fhwa.dot.gov/map21/summaryinfo.cfm> for more details



GRANT SOURCE	DUE DATE*	ADMINISTERING AGENCY	RECENT ANNUAL TOTAL	MATCHING REQUIREMENT	ELIGIBLE APPLICANTS	PLANNING	CONSTRUCTION	OTHER	NOTES
Bus Livability Initiative	March	Federal Transit Administration	\$125 million in 2012	10%	Direct Recipients under the Section 5307 Urbanized Area Formula program, States, and Indian Tribes		X	X	Can be used for bicycle and pedestrian support facilities, such as bicycle parking, bike racks on buses, pedestrian amenities, and educational materials.
Hazard Elimination and Railway-Highway Crossing Program	Not available	Federal Highway Administration	\$5 million per year	10%	States	X	X		Can be used for identification and modification of areas that may create a danger to bicyclists and pedestrians, a review of hazardous sites, projects on publicly-owned bicycle/pedestrian pathways, or any safety-related traffic calming measure.
National Highway System	Not available	Federal Highway Administration	\$6.3 million in 2009	20%	States		X	X	Can be used for bicycle/pedestrian facilities on NHS routes, which are arterial routes serving key population centers.
Energy Efficiency and Block Grant Program	Varies	U.S. Department of Energy	\$3 million in California	None	Public agencies and Indian Tribes	X		X	Funds can be used for transportation programs that reduce energy consumption and support renewable fuel infrastructure
Sustainable Communities Regional Planning Grant Program	Ongoing	Department of Housing and Urban Development	\$68 million nationwide	20%		X		X	Funds support metropolitan and multijurisdictional planning efforts that integrate housing, land use, economic and workforce development, transportation, and infrastructure investments
State Funds									
California Safe Routes to School	Varies	Caltrans	\$24.5 million	10%	City, county		X	X	SR2S is primarily a construction program to enhance safety of pedestrian and bicycle facilities near schools.
Community Based Transportation Planning	March	Caltrans	\$3 million	Minimum 10%	MPO, RPTA, city, county	X			Eligible projects that exemplify livable community concepts including enhancing bicycle and pedestrian access.
Environmental Justice Planning Grants	April	Caltrans	\$3 million	Minimum 10%	MPO, RPTA, city, county	X			Program is intended to help low-income, minority, and Tribal communities overcome issues related to transportations, including improving bicycle and pedestrian safety.
Highway Safety Improvement Program	October	Caltrans	\$1.4 million apportioned to Monterey County in 2010	Varies between 0% and 10%	City, county or federal land manager	X	X	X	Projects must address a safety issue and may include education and enforcement programs. This program includes the Railroad-Highway Crossings and High Risk Rural Roads programs.

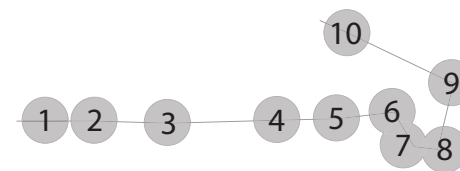


GRANT SOURCE	DUE DATE*	ADMINISTERING AGENCY	RECENT ANNUAL TOTAL	MATCHING REQUIREMENT	ELIGIBLE APPLICANTS	PLANNING	CONSTRUCTION	OTHER	NOTES
Environmental Enhancement and Mitigation Program	Varies	California Natural Resources Agency	\$10 million state-wide	None	Federal, State, local agencies and NPO		X	X	EEMP funds projects in California, at an annual project average of \$250,000. Funds may be used for land acquisition.
State Highway Operations and Protection Program (SHOPP)	Not Available	Caltrans	\$1.69 million statewide annually through FY 2013/14	Not Available	Local and regional agencies		X	X	Capital improvements and maintenance projects that relate to maintenance, safety and rehabilitation of state highways and bridges.
Petroleum Violation Escrow Account	March	Caltrans	Varies annually	None	Local and regional agencies		X	X	Funds programs based on public transportation, computerized bus routing and ride sharing, home weatherization, energy assistance and building energy audits, highway and bridge maintenance, and reducing airport user fees.
Office of Traffic Safety (OTS) Grants	January	Caltrans	Varies annually	None	Government agencies, state colleges, state universities, city, county, school district, fire department, public emergency service provider			X	Funds safety improvements to existing facilities, safety promotions including bicycle helmet giveaways and studies to improve traffic safety.
California Conservation Corps	On-going	California Conservation Corps	CCC donates labor hours	None	Federal and state agencies, city, county, school district, NPO, private industry		X	X	CCC provides labor assistance on construction projects and annual maintenance.
AB 2766 Subvention Fund Program	Varies	South Coast Air Quality Management District	Approximately \$20 million in the South Coast Air Basin	None	Cities and counties in the South Coast Air Basin	X		X	Uses vehicle registration fees to fund transportation-related projects that reduce air pollution
State-Local Transportation Partnership Program	August	Caltrans/California Transportation Commission	Approximately \$200 million	Dollar-for-dollar	Cities and Counties	X	X	X	Requires developer or traffic fee match
Habitat Conservation Fund	October	California Department of Parks and Recreation	\$2 million	Dollar-for-dollar	Cities, counties, and districts			X	Projects can be to acquire or develop wildlife corridors and trails, and to provide for nature interpretation programs and other programs which bring urban residents into park and wildlife areas. Requires CEQA to be complete at the time of application.

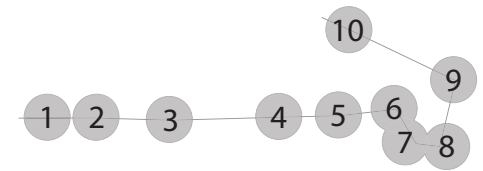


GRANT SOURCE	DUE DATE*	ADMINISTERING AGENCY	RECENT ANNUAL TOTAL	MATCHING REQUIREMENT	ELIGIBLE APPLICANTS	PLANNING	CONSTRUCTION	OTHER	NOTES
California River Parkways	Not available	California Natural Resources Agency	Not available	Not available	Public agencies and non-profits		X	X	Must satisfy two of the five requirements: Recreation, habitat, flood management, conversion to river parkways, or conversion and interpretive enhancement
Transportation Development Act Article 3 Funds	Varies	San Bernardino Associated Governments	Varies	None	Cities and counties	X	X	X	State gas tax funds allocated for bicycle and pedestrian facilities
Local Funds									
Local Bond Measures	Not applicable	SANBAG, city, or county	Varies	None	City, county	X	X	X	Can be used for engineering, right-of-way acquisition, design, or construction of bicycle/pedestrian facilities, as well as for a local match of funds.
Measure I Sales Tax	Not applicable	SANBAG	Varies	None	City, county	X	X	X	Voters approved a ½ sales tax increase through 2040 for transportation improvements.
Tax Increment Financing	Not applicable	SANBAG, city, or county	Varies	None	City, county		X	X	Projects funded by TIF should be located in urban renewal areas.
Developer Impact Fees	Not applicable	SANBAG, city, or county	Varies	None	City, county		X		Eligible projects through developer impact fees can be bicycle and pedestrian facilities, and support facilities, such as bicycle parking and shower facilities.
New Construction	Not applicable	SANBAG, city, or county	Varies	None	City, county		X		On-street bikeways and pedestrian facilities can be incorporated into new constructions or roadway widening projects.
Transportation System Maintenance Fee	Not applicable	SANBAG, city, or county	Varies	None	City, county			X	Typically used for maintenance of bicycle and pedestrian facilities, such as sweeping of on-street bike lanes.
Local Improvement Districts	Not applicable	SANBAG, city, or county	Varies	None	City, county		X		LIDs can be used construct bicycle and pedestrian facilities.
Economic Improvement Districts	Not applicable	SANBAG, city, or county	Varies	None	City, county		X		EIDs are created to increase the economic vitality of areas. Non-motorized transportation facilities and amenities that beautify an area and increase customer access, such as sidewalk improvements, can be funded through EIDs.
Stormwater Green Streets Funding	Not applicable	SANBAG, city, or county	Varies	None	City, county		X		Non-motorized transportation projects can qualify as green streets infrastructure, such as curb extensions with bioswales to absorb stormwater.





GRANT SOURCE	DUE DATE*	ADMINISTERING AGENCY	RECENT ANNUAL TOTAL	MATCHING REQUIREMENT	ELIGIBLE APPLICANTS	PLANNING	CONSTRUCTION	OTHER	NOTES
Other Funding Sources									
Bikes Belong Grant	Multiple dates throughout year.	Bikes Belong	Not Available	50% minimum	Organizations and agencies		X	X	Bikes Belong provides grants for up to \$10,000 with a 50% match that recipients may use towards paths, bridges and parks.
REI	Not applicable	REI	Varies	None	Non-profit groups		X	X	REI grants provide partner organizations with the resources and capacity to organize stewardship activities and get volunteers involved. These can include recreational trail projects.
Robert Wood Johnson Foundation	Varies	Robert Wood Johnson Foundation	Varies by program	None	Organizations			X	Provides varying grant opportunities to promote healthy communities and lifestyles.
Volunteer and Public-Private Partnerships	Not Applicable	City, county, joint powers authority	Varies	Not Applicable	Public agency, private industry, schools, community groups		X	X	Requires community-based initiative to implement improvements.
Donations	Not Applicable	Not Applicable	Varies	None	City, county	X	X	X	Funds can be used for a variety of projects supported by the donor.
* Due dates for Federal Highway Administration Programs are subject to change due to pending authorization of a new federal transportation bill.									



## 5.5 Additional Implementation Notes

In order to implement the recommendations presented in this report, a coordinated, multi-agency approach is critical.

A regional strategy will ensure the planned improvements will be consistent with local existing and future plans and standards. It is recommended that SANBAG develop a non-motorized transportation working group to meet regularly to discuss strategies, funding sources, maintenance, and evaluation of the proposed projects. The working group should be comprised of one to two representatives from each city and stakeholder groups, particularly Omnitrans and Metrolink.

Initial discussion topics and action items could include:

- Assess existing, approved, and planned developments that could impact or include non-motorized transportation facilities
- Create a workflow chart to show the roles of each agency that provides direction of action to each
- Develop standards and performance measures for non-motorized transportation modes
- Research funding sources and look for opportunities to apply collaboratively with other cities and developers
- Provide safety, education, and encouragement programs for residents about non-motorized transportation
- Create a Multi-Modal Access Guide or online website to promote the improvements

This list is by no means comprehensive, but rather, is intended to guide the initial implementation efforts of the non-motorized transportation working group.

In addition, it is recommended that proposed facilities should be included in City General Plans moving forward, and agencies explore innovative partnerships with transit operators and private development to implement the improvements. The standards and the performance measures by which roadway projects are designed should be revised to include all roadway users, consistent with emerging multi-modal level-of-service modelling. Cities should change the performance standards in their general plans rather than evaluating projects only by their impacts on vehicular Level of Service.

Further, Omnitrans should include them in their Short Range Transit Plan and apply for transit funding for them, which can be passed through to cities for design and construction of the projects.

In addition, non-motorized facilities should be included with other projects that are already being invested in, such as BRT corridors or roadway improvements. Too often, roadway projects remove or narrow sidewalks, remove crosswalks, and exclude bicycle facilities in the name of vehicular circulation.

