

BUS STOP SAFETY *Improvement Plan*

ADOPTED BY OMNITRANS BOARD OF DIRECTORS, DECEMBER 2021



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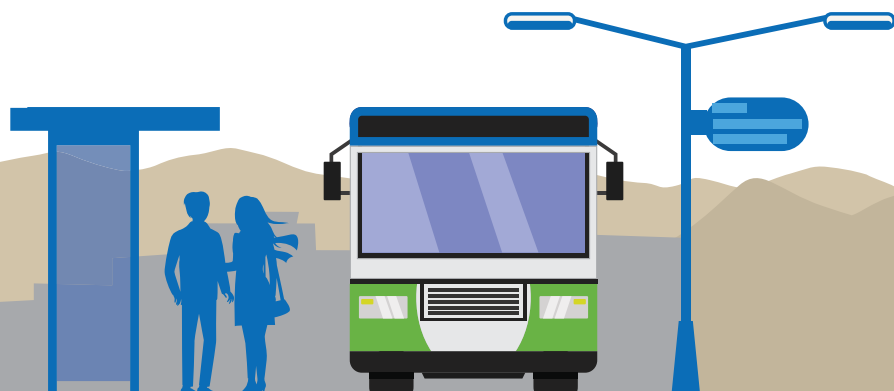
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Acronyms

ABBG	American Bus Benchmarking Group	CRF	Crash Reduction Factor
ADA	Americans with Disabilities Act	CTC	California Transportation Commission
AIM	Accelerating Innovative Mobility	CTE	Center for Transportation and the Environment
APBP	Association of Pedestrian and Bicycle Professionals	DUI	Driving Under the Influence
ATP	Active Transportation Plan	EEMP	Environmental Enhancement and Mitigation Program
BRT	Bus Rapid Transit	FHWA	Federal Highway Administration
BSSIP	Bus Stop Safety Improvement Plan	FTA	Federal Transit Administration
BTA	Bicycle Transportation Account	GHG	Green House Gas
BUILD	Better Utilizing Investments to Leverage Development	GIS	Geographic Information System
CA	California	HAWK	High-intensity Activated Crosswalk Beacon
CAHOOTS	Crisis Assistance Helping Out On The Streets	HSIP	Highway Safety Improvement Plan
CALTRANS	California Department of Transportation	IEBA	Inland Empire Biking Alliance
CBO	Community Based Organization	IMI	Integrated Mobility Innovation
CCTV	Closed Circuit Television	IOBY	In Our Back Yards
CEC	California Energy Commission	LED	Light-emitting Diode
CHP	California Highway Patrol	LOS	Level of Service
CIG	Capital Investment Grant	LPI	Leading Pedestrian Intervals
CIP	Capital Improvements Program	LRSP	Local Road Safety Plan
CMAQ	Congestion Mitigation and Air Quality	LTF	Local Transportation Fund
CPTED	Crime Prevention Through Environmental Design	LWCF	Land and Water Conservation Fund
		mph	Miles per Hour
		MPO	Metropolitan Planning Organization

MUTCD	Manual on Uniform Traffic Control Devices	SSARP	Systemic Safety Analysis Report Program
NACTO	National Association of City Transportation Officials	STA	State Transit Assistance
NAR	National Association of Realtors	STEP	Sustainable Transportation Equity Program
NCDOT	North Carolina Department of Transportation	STIP	State Transportation Improvement Program
NHS	National Highway System	SWITRS	Statewide Integrated Traffic Records Systems
NMTP	Non-Motorized Transportation Plan	SoCal	Southern California
PASTACC	Public and Specialized Transportation Advisory and Coordination Council	TAC	Technical Advisory Committee
PHB	Pedestrian Hybrid Beacon	TAP	Transportation Alternatives Program
PIPP	Point of Interest Pedestrian Plan	TDA	Transportation Development Act
PWL	Protected Walking Lane	TIMS	Transportation Injury Mapping System
QR Code	Quick Response Code	TIRCP	Transit and Intercity Rail Capital Program
RRFB	Rectangular Rapid Flashing Beacon	TOD	Transit Oriented Development
RTP	Recreational Trails Program	TPA	Transit Priority Area
RTPA	Regional Transportation Planning Agency	TSP	Transit Signal Priority
SBCOG	San Bernardino Council of Governments	U.S.	United States
SBCTA	San Bernardino County Transportation Authority	VAWG	Violence Against Women and Girls
SCAG	Southern California Association of Governments	VMT	Vehicle Miles Traveled
SHOPP	State Highway Operations and Protection Program	VTPI	Victoria Transport Policy Institute
SOV	Single Occupancy Vehicle		
SRD	Safety Research and Demonstration		
SRTS	Safe Routed to School		
SRTSP	Safe Routes to School Plan		



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ES

Executive Summary

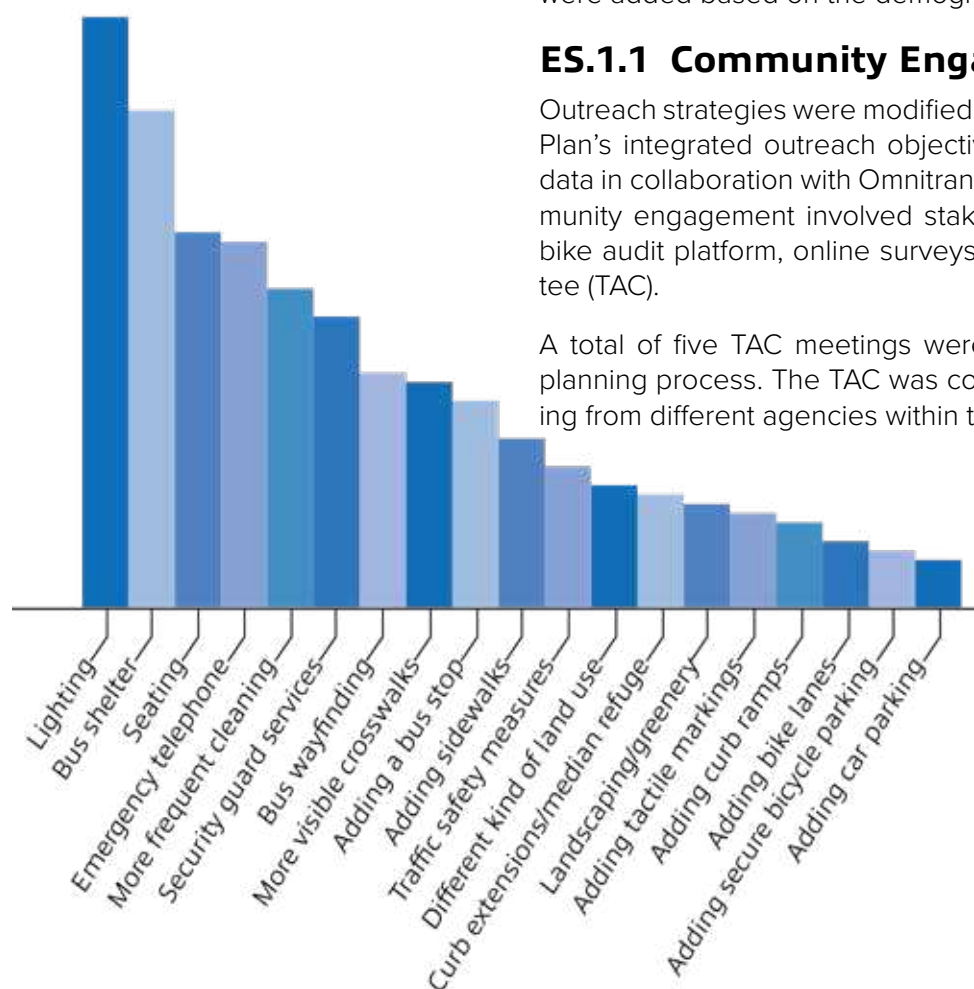
ES.1 Purpose

The purpose of the Bus Stop Safety Improvement Plan (BSSIP) is to enhance safety at bus stops and safety while accessing/travelling to bus stops across Omnitrans' service area. In order to do this, the BSSIP focused on nine Census Tracts located in the most highly disadvantaged, low-income, and transit-dependent areas within the service area, where causes for transit passengers feeling unsafe waiting at the bus stop were identified. The original six Census Tracts were selected only because they had the most bus stops with low customer safety ratings from a 2017 passenger survey. The additional three Census Tracts were added based on the demographics mentioned above.

ES.1.1 Community Engagement

Outreach strategies were modified due to the COVID-19 pandemic. The Plan's integrated outreach objectives included the review of existing data in collaboration with Omnitrans and SCAG. The strategies for community engagement involved stakeholder interviews, an online walk/bike audit platform, online surveys, and a Technical Advisory Committee (TAC).

A total of five TAC meetings were conducted throughout the BSSIP planning process. The TAC was composed of 16 representatives ranging from different agencies within the nine identified census tracts.



Solutions chosen by survey respondents that would make them feel safer at bus stops.

ES.1.2 Study Outcomes and Recommendations

This Plan includes both traffic safety and personal safety best practices, which fall into three categories: (1) projects, (2) policies, and (3) programs.

Projects

Project recommendations include providing lean bars for senior citizens waiting for the bus, and activating bus stops through artwork and placemaking. In addition, it is recommended that certain bus stop that don't already have transparent shelters, should receive additional transparent shelters. Lighting, benches, surveillance cameras, landing pads, signal modifications, turning movement restrictions, and bicycle and pedestrian accessibility improvements are other projects recommended in this Plan.

Policies

This Plan makes many policy recommendations, including to continue to Provide Safety Amenities at Bus Stops, Ensure ADA Accessibility, Utilize Complete Street Strategies to Improve Bus Stop Accessibility, Develop Local and Regional Programs to Encourage Transit Use and Safety, and Create Non-motorized Access to Transit Which is Direct, Safe, Understandable, and Pleasant.

Programs

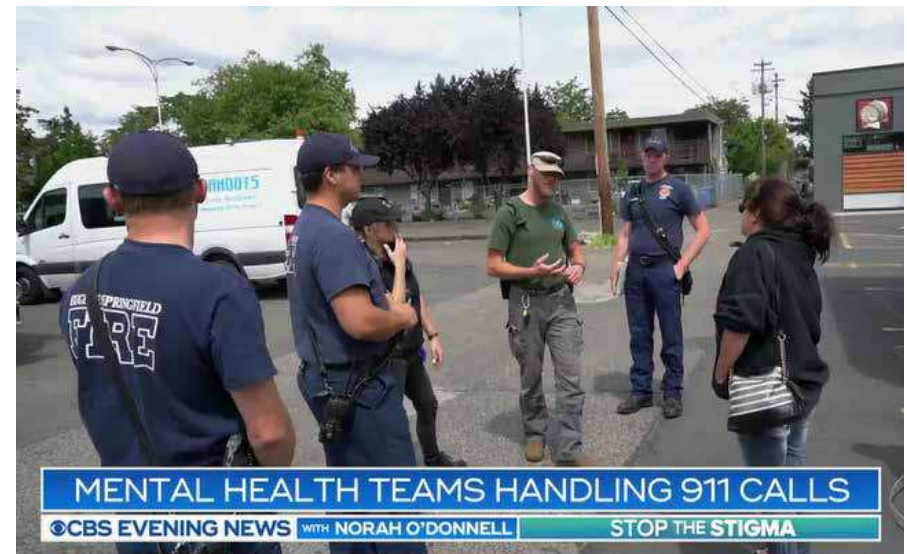
Finally, a program recommendation is to emulate the CAHOOTS (Crisis Assistance Helping Out On The Streets) program. The CAHOOTS program is an unarmed mobile crisis-intervention program in Eugene, Oregon that works to improve the city's response to mental illness, substance abuse, and homelessness.



Lean bar in Sacramento



Examples of Omnitrans transparent bus stop shelter



Many people feel safer with an unarmed mental health team responding to many crisis calls at bus stops instead of only sending armed police officers for every 911 call



When funds to build sidewalks are lacking, "Protected Walking Lanes" can be a cheap and effective temporary replacement for sidewalks



A white raised marker can direct visually impaired bus users across crosswalks and to bus stops

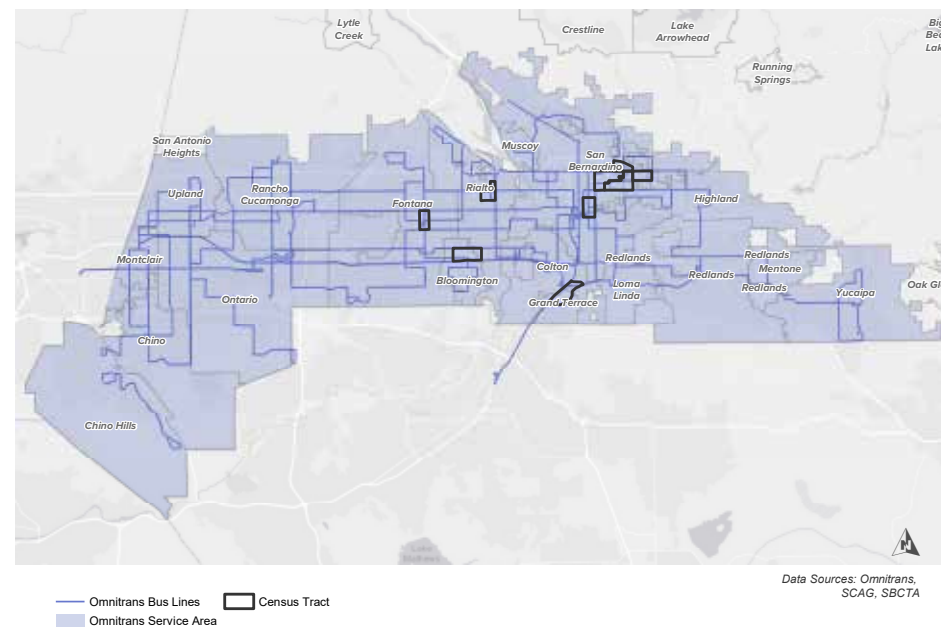


Separated bike lanes can reduce bike-bus conflicts and make roads safer for all users

ES.1.3 Proposed Bus Stop Safety Projects

Based on analysis and public input from each of the nine Census Tracts, recommended pedestrian, bicycle, and bus stop improvements were identified. Applicable strategies to move forward with implementing these improvements by local jurisdictions is suggested in Chapter 5, along with programs where Omnitrans can provide assistance.

Some of the recommended pedestrian improvements include items like: installing high visibility crosswalks, constructing concrete sidewalks in areas lacking sidewalks or protected walking lanes if funding is not available, and installing enhanced high visibility mid-block crossings. Recommended bicycle improvements include installing separated bike lanes to reduce conflicts with buses and pedestrians, and bus-bike lanes in select locations throughout the Census Tracts.



Omnitrans' service area

ES.1.4 Implementation and Prioritization Analysis

A framework has been developed to provide the general phases to improve bus stop safety and active transportation improvements from initial assessment to implementation. These phases have been categorized into:

1. Identify the needs
2. Planning and assessment
3. Program implementation
4. Infrastructure implementation

Steps number 3 and 4 above involve a systemic and flexible prioritization framework to assist Omnitrans to identify and prioritize program and infrastructure implementation to improve bus stops throughout their service area.

Ultimately the project selection criteria was divided into five categories known as the “5-Cs.” Those 5-Cs are as follows:

1. Commuter / Ridership Volume (higher volume led to higher priority)
2. Crime and Safety incidents (including both violent crime and non-violent crime)
3. Community input (community members filled out a survey for location selection)
4. Collisions (only bike/ped collisions, including both injury and non-injury collisions)
5. Characteristics (existing sidewalks, bicycle facilities, lighting, surrounding land uses)

The 5-Cs were weighted equally, with each receiving 20% of the weight. Those 5-Cs were used to determine the highest priority bus stops from the nine census tracts. (The nine census tracts were chosen based on equity considerations using CalEnviroScreen.) After the highest priority bus stops were chosen, they were presented to the TAC for further vetting, and ultimately recommendations were made to mitigate safety concerns at the chosen bus stops. The 5-Cs are further detailed in Chapter 5 of this report. This implementation plan included items for implementation by Omnitrans as well as local jurisdictions and other partner agencies.

01

Introduction and Context



1.1 Purpose of the Plan

Omnitrans is a public transit agency that provides 31 fixed bus routes, a bus rapid transit line, Americans with Disabilities Act (ADA) paratransit service, and other mobility services within the 480-square-mile area known as the San Bernardino Valley area in Southern California. Serving around 11 million passengers per year (pre-pandemic), Omnitrans is committed to providing comprehensive public transportation services and maximizing the comfort and safety of all users.

The purpose of the Bus Stop Safety Improvement Plan (BSSIP) is to enhance safety at bus stops and safety while accessing/travelling to bus stops across Omnitrans' service area. In order to do this, the BSSIP focused on nine Census Tracts located in the most highly disadvantaged, low-income, and transit-dependent areas within the service area, where causes for transit passengers feeling unsafe waiting at the bus stop were identified. The original six Census Tracts were selected only because they had the most bus stops with low customer safety ratings from a 2017 passenger survey. The additional three Census Tracts were added based on the demographics mentioned above. Potential solutions were evaluated to improve passenger safety in these areas, which could then be applied in other locations throughout Omnitrans' service area.

The BSSIP also considered equity in bus stop safety, including the identification of specific challenges that women and people of color face that make them less satisfied overall with bus stop safety.

1.2 Goals of the Plan

The BSSIP will guide the development and implementation of measures that will improve safety at and around bus stops.

The goals of the BSSIP include:

- » To improve Omnitrans' passengers' rating of safety while waiting for the bus on the American Bus Benchmarking Group's survey from 3.5 in 2017 to 3.6 by 2023, 3.7 by 2024, and 4.0 by 2030.
- » To reduce the number of bus stops that do not have an ADA-accessible path of travel to the intersection by 90 percent by 2030 in order to improve pedestrian safety at and around bus stops.
- » To identify strategies that can be implemented in partnership with local jurisdictions/authorities, San Bernardino County Transportation Authority (SBCTA), and other partners in order to reduce bicycle and pedestrian fatalities by 2030.



1.3 Omnitrans' Ridership Characteristics

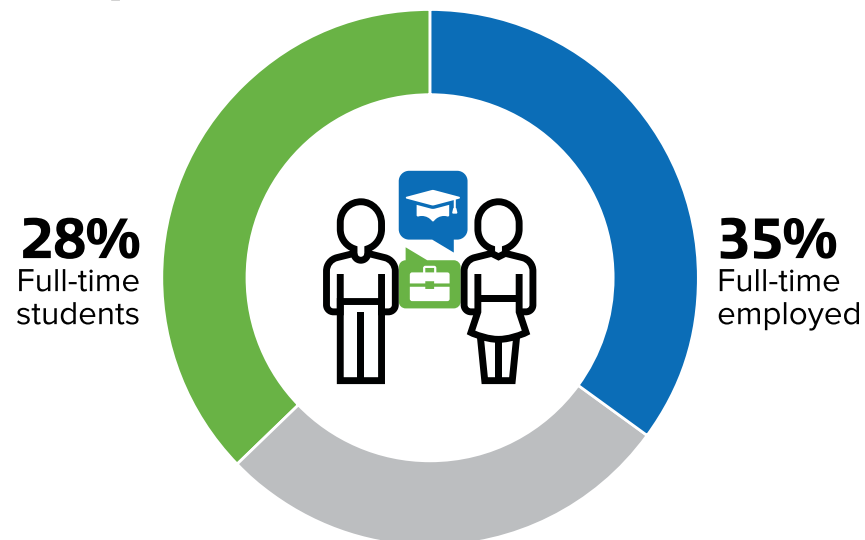
In 2017, Omnitrans completed the Fixed-Route Onboard Study that provided valuable insight into the needs and behaviors of Omnitrans' diverse customer base. This study explored fixed-route rider travel patterns, rider satisfaction, and awareness and attitudes regarding the sbX Bus Rapid Transit (BRT).

According to the study findings, Omnitrans' riders are younger when compared to the general population of San Bernardino County. Approximately a third (31 percent) of riders are between 20 and 29 years old, which likely travel to major schools in the area. Similarly, more riders self-identify as Black than U.S. Census demographics of San Bernardino County. About 21 percent of riders speak Spanish and another 3 percent speak another language other than English at home. Additionally, over 35 percent of riders are employed full-time, while 28 percent indicated that they were full-time students.

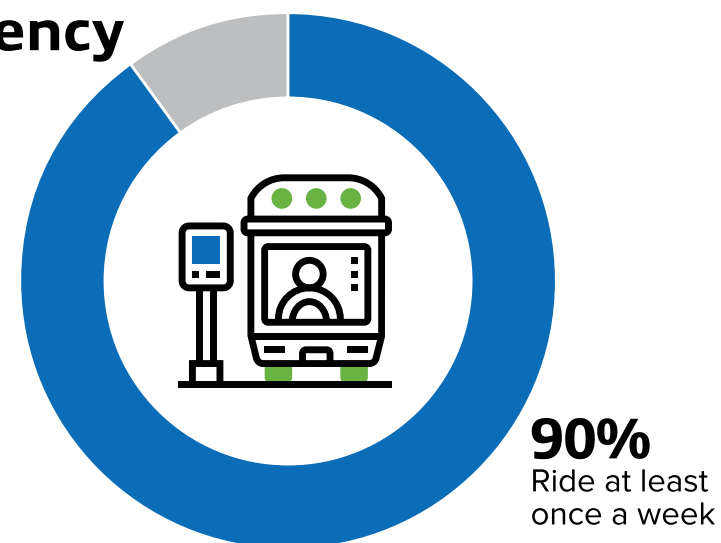
Omnitrans' riders are long-term riders and more than half of them have been riders for more than two years. About 90 percent of riders use the bus more than once a week (3.7 days per week) but they are riding fewer days than in 2011 (4.4 days per week), likely due to higher unemployment rate, lower gasoline costs, and the expanded availability of driver's licenses. Approximately 86 percent of users either start or end their trips at home and the majority of them walk to or from bus stops, which is unchanged from 2011. The use of multi-day passes increased from 47 percent in 2011 to 51 percent in 2017.

Overall safety at stops was rated good or higher by 82 percent of riders, with 84 percent of sbX riders rating safety at bus stops as good or better, which is likely related to the presence of dedicated lighted stations. In general, rider satisfaction system-wide is higher at 85 percent than in 2011 (81 percent).

Occupation



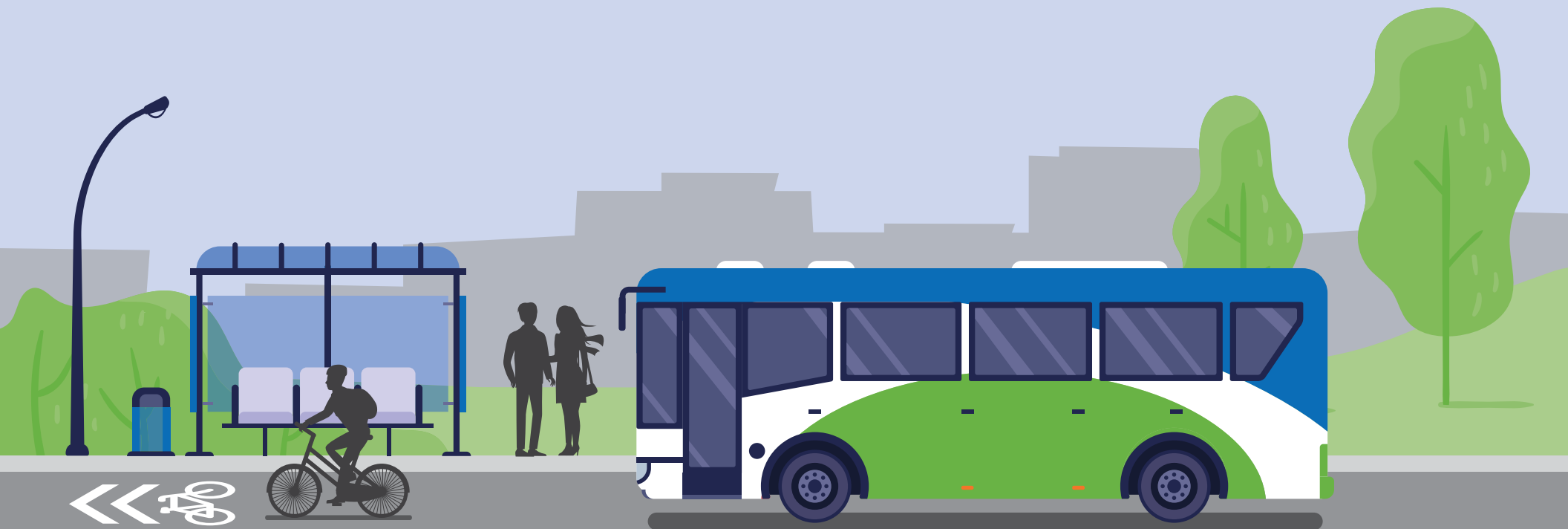
Trip Frequency



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02

Existing Conditions



2.1 Existing Conditions Overview

Understanding the existing roadway conditions, land use, pedestrian and bicycle infrastructure, and other context-sensitive information in Omnitrans' service area is imperative for planning for its future. This chapter presents the data analyzed to identify issues that impede accessibility and safety of transit stops.

The Plan focuses on nine Census Tracts, which are located in the most highly disadvantaged, low-income, and transit-dependent areas in Omnitrans' service area, as shown in Figure 2-1. These Census Tracts were areas with the most bus stops with high ratings of feeling unsafe and had the lowest safety rating from passengers in a 2017 Omnitrans' Fixed-Route Onboard Study passenger survey. They are located in the following cities or areas:

- » Census Tract 1: City of Fontana
- » Census Tract 2: City of Rialto
- » Census Tract 3: Bloomington
- » Census Tract 4: Cities of Grand Terrace and Colton
- » Census Tract 5: Downtown San Bernardino
- » Census Tract 6-9: Cities of San Bernardino and Highland

This chapter includes sections on pedestrian and bicycle collisions, land use, existing pedestrian and bicycle infrastructure for each identified Census Tract, as well as relevant policies and planning documents.

2.2 Collision Analysis

The following section provides an analysis for high collision corridors and common aspects of collisions within the selected Census Tracts shown on Figure 2-3. Data used for the analysis included bicycle and pedestrian collisions between 2014 and 2018 from the California Highway Patrol's SWITRS and TIMS datasets. Attributes in the collision data, as shown in the list below, were used to find common aspects of the collision data.

Data is included as reported, which can have limitations in accuracy. Recent crash research that looks to calibrate crash data has been considered in this plan.

- » Temporal trends: the month and time of day
- » Driving conditions: lighting, road surface, and weather
- » Collision severity and primary factors
- » Age range of the parties involved in the collisions
- » Proximity to bus stops

To help identify road characteristics that may be contributing to high collision rates, the criteria listed below were used to analyze transportation routes and identify priority corridors.

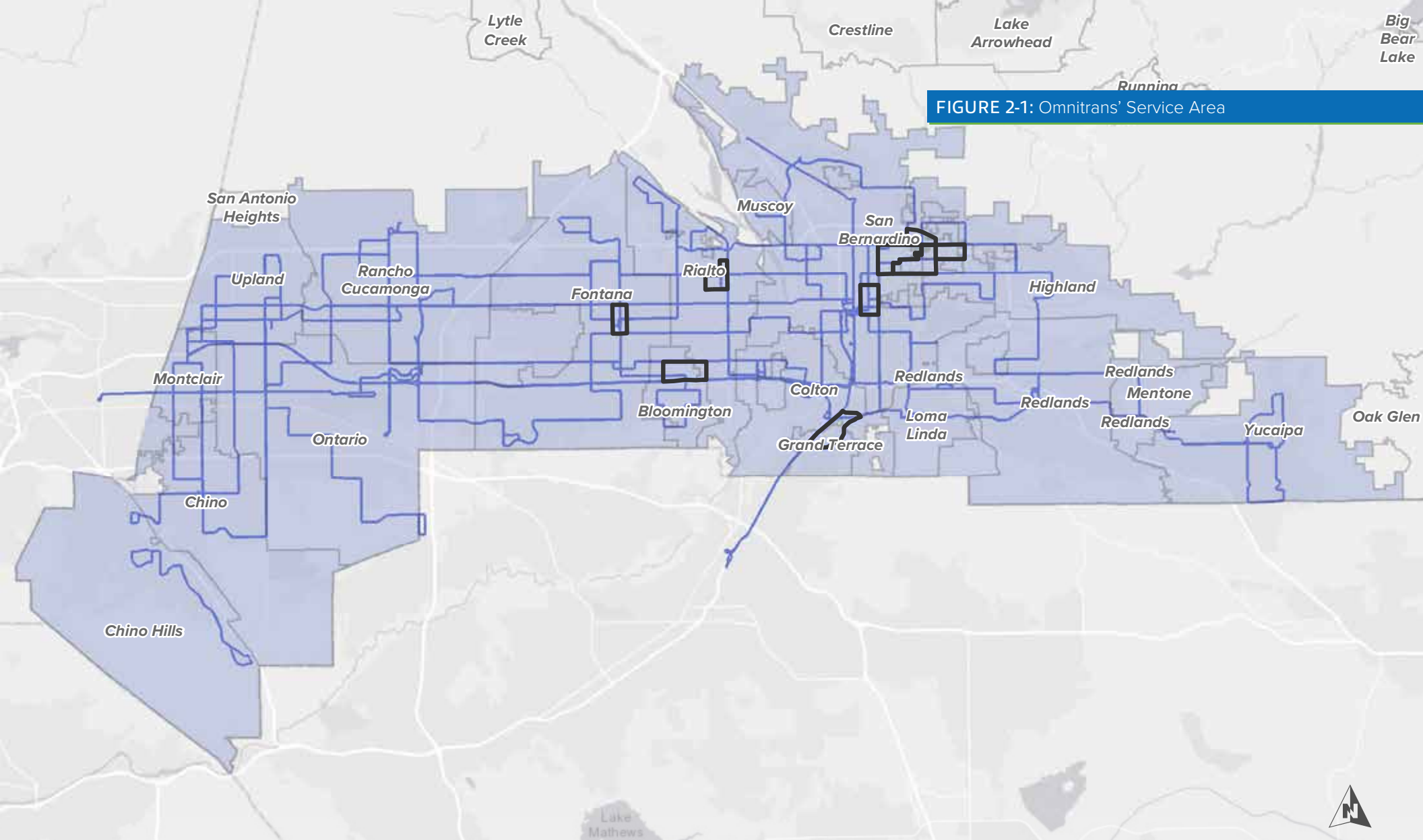
- » Locations with highest number of collisions
- » On transit routes
- » On arterials connecting to transit routes

As a result of analysis using the criteria noted above, the corridors noted in Table 2-1 were analyzed in more detail in the following sections. See section 2.2.2 for more detailed collision data.

TABLE 2-1: Analyzed Corridors per Census Tract

CENSUS TRACT	CORRIDORS
1	Foothill Boulevard, Arrow Boulevard, Merrill Avenue, Sierra Avenue, and Juniper Avenue
2	Baseline Road, Jackson Street, and Willow Avenue
3	Valley Boulevard, Cedar Avenue, Bloomington Avenue, and Magnolia Street
4	Washington Street, Meadow Lane, Barton Road, and Mohave Drive
5	5th Street, Arrowhead Avenue, 9th Street, Sierra Way, and 2nd Street
6-9	Highland Avenue, Pacific Street, Del Rosa Avenue, Waterman Avenue, and Golden Avenue

FIGURE 2-1: Omnitrans' Service Area



— Omnitrans Bus Lines
— Omnitrans Service Area
□ Census Tract

Data Sources: Omnitrans,
SCAG, SBCTA

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Miles

2.2.1 Summary of Findings and Recommendations

Each corridor was analyzed by year, crash hour, light condition, road surface, weather, crash severity, and primary collision factor. When looking at the top factor in each of these categories the following were the results:

- » Most collisions occurred between 6-9 PM during peak rush hour, on dry roads with clear weather conditions.
- » Injuries that complain of pain are the top crash severity, as shown in Table 2-2.
- » Eighty-one percent of reported bicycle related collisions occurred on roadways that did not have designated bike lanes, or protected bikeways, with the primary cause being bicyclists riding on the wrong side of the road. Wrong way riding can often be attributed to some bicyclists not feeling safe riding with traffic where designated bicycle lanes do not exist. Some riders prefer to see oncoming traffic as they ride, or conditions on one side of the road are safer and more comfortable, or the rider does not understand the rules of the road¹.
- » In Census Tract 1 (Fontana), reported bicycle collisions make up 14 percent of all collisions.
- » All the reported pedestrian related collisions occurred along high speed and high-volume roadways where there are long blocks with limited refuge for people walking or crossing locations. The high speeds were a likely factor in the pedestrian crashes.

- » According to the report Dangerous by Design, the most vulnerable users are older adults ages 65 and up. Data analyzed confirms this is the case for the Omnitrans' service area. Census Tract 1 (Fontana) had the highest number of collisions involving seniors at 27 percent of all collisions. Census Tract 2 (Rialto), and Census Tract 4 (Grand Terrace and Colton) each had 13 percent of their collisions involving seniors. All collisions involving seniors in each Census Tract occurred on high speed roads with posted speed limits of over 45 mph.
- » Crashes in which people are struck and killed while walking occur more often at an intersection or in a crosswalk. This is not unusual as people are most likely to be crossing in these areas. Collision data from all Census Tracts supports this research where Census Tract 1 (Fontana) and Census Tract 5 (downtown San Bernardino) each had 20 percent of pedestrian related collisions occur at intersections with the other 80 percent occurring outside of intersections.

According to this collision summary, safety and accessibility improvements for pedestrians and bicyclists are recommended to improve access to bus stops, transit centers, and local and regional destinations. Recommendations will be discussed in Chapter 5 Investments in infrastructure, education, and other jurisdictional transportation department activities can also have a profound impact on the safety of roadways and help improve bicycle and pedestrian safety. This analysis will help develop bus stop access recommendations within each Census Tract to serve as a guide for collaboration between Omnitrans and local jurisdictions to improve the pedestrian and bicycling environment.

TABLE 2-2: Collision Summary per Census Tract

CENSUS TRACT	CRASH SEVERITY				TOTAL CRASHES PER CENSUS TRACT
	FATAL	SEVERE INJURY	INJURY (OTHER VEHICLE)	INJURY (COMPLAINT OF PAIN)	
1	1	4	18	12	36
2	0	2	1	5	10
3	2	5	7	2	19
4	0	2	1	5	12
5	0	2	12	7	26
6-9	4	8	23	23	58
Total	7	23	62	54	161

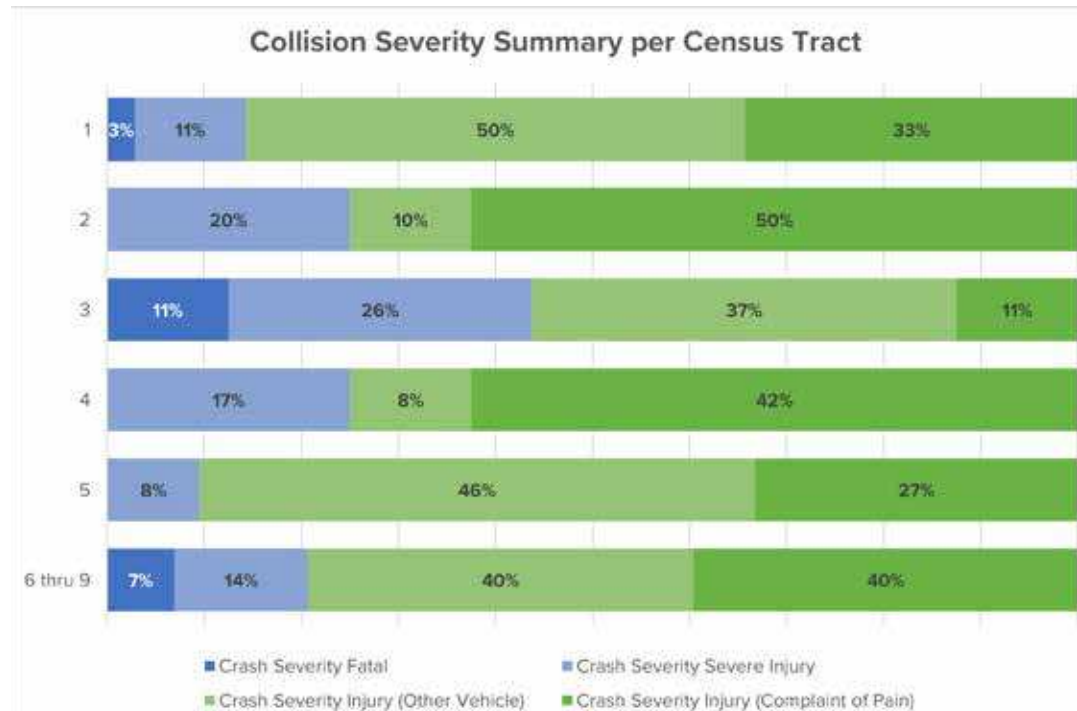
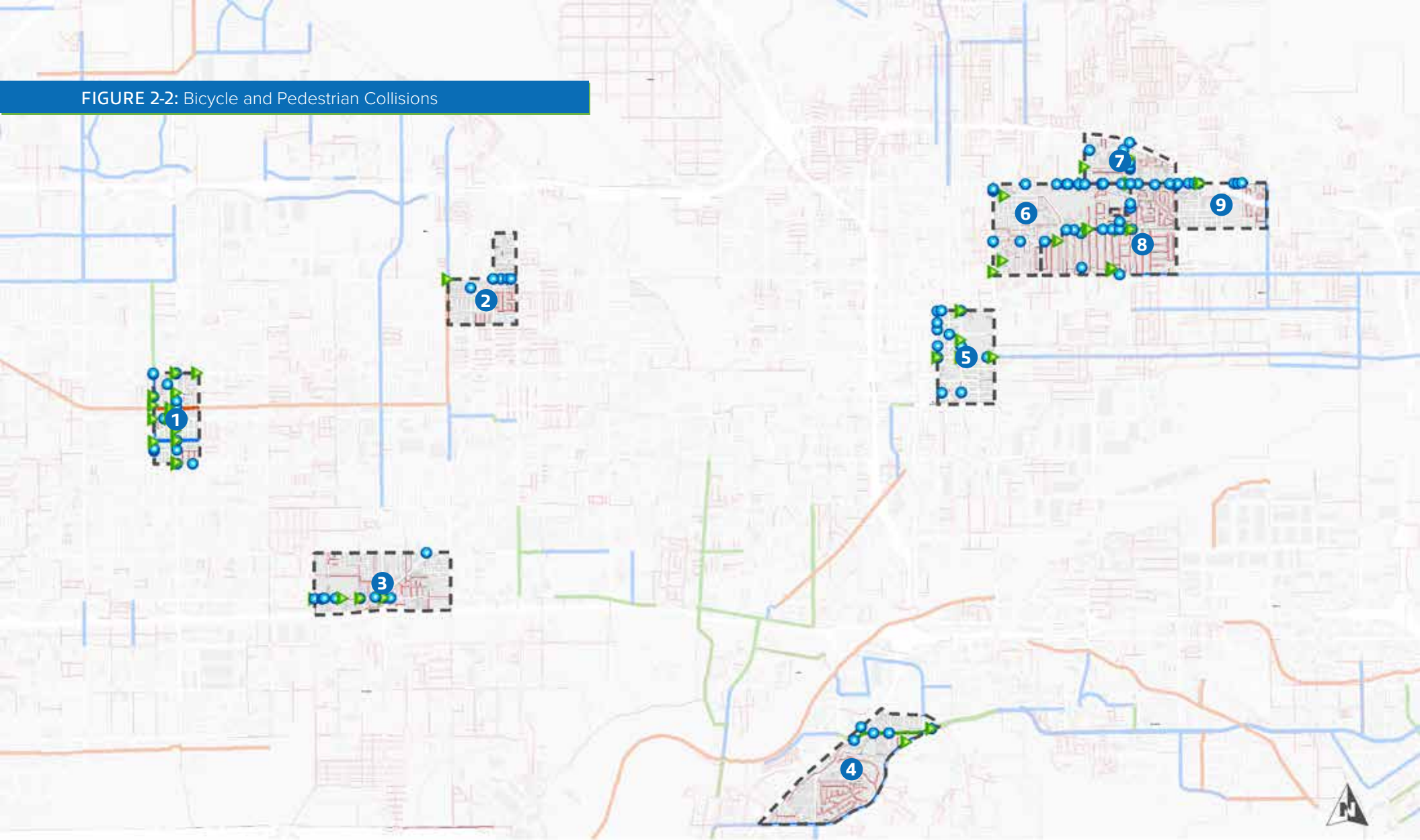


















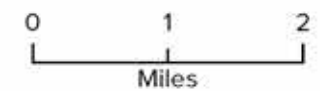
FIGURE 2-2: Bicycle and Pedestrian Collisions



Data Sources: Omnitrans,
SCAG, SBCTA

- | | | |
|---|--|---|
|  Bicycle Collisions |  Census Tract | Existing Bikeways |
|  Pedestrian Collisions |  Missing Sidewalk |  Class I: Multi-Use Path |
| | |  Class II: Bikelane |
| | |  Class III: Bike Route |

- | | |
|--|--|
|  Census Tract 1 |  Census Tract 6 |
|  Census Tract 2 |  Census Tract 7 |
|  Census Tract 3 |  Census Tract 8 |
|  Census Tract 4 |  Census Tract 9 |
|  Census Tract 5 | |



2.2.2 Detailed Collision Analysis

The following tables and figures provide detailed analysis and mapping of pedestrian and bicycle collision data from the 2014 to 2018 California Highway Patrol's (CHP) Statewide Integrated Traffic Records Systems (SWITRS) and Transportation Injury Mapping System (TIMS) collisions datasets. Each Census Tract has a detailed map and supporting summary table of collision analysis information. The supporting tables list primary corridors with high collision rates and most frequent collision type. Adjacent land uses are noted to see if a cause and effect relationship may exist.

Table 2-3 provides a comparison of Primary Collision Factors from SWITRS and TIMS for all locations. Pedestrian violations frequently include crossing a street outside of a designated crosswalk or crossing against a red signal. Violating a pedestrian's right-of-way may entail a vehicle proceeding into the crosswalk with pedestrians present or crossing the street at intersections. Violating traffic signals and signs may entail a vehicle not conforming to the present signage, signals or proceeding into the crosswalk with people walking present.

Table 2-4 provides a summary of collision data and site analysis factors that are shown in Figure 2-3 through Figure 2-8. As shown in the table and supporting figures, some roads have no collisions while other locations have higher or lower collision rates. Darker shades of red-brown circles on the figures indicate high quantities of collisions at a location, and lighter red-brown circles indicate lower quantities of collisions. Roads with high quantities of collisions are considered high collision corridors and potential cause of the collisions is noted in the table. As shown in the figures, most collisions occur on busy multi-lane collector roads with higher speed limits.

Research published in the Journal for Transport and Land Use notes that a deceased pedestrian or bicycle is not able to give their perspective on the collision and the person reporting the collision usually has the perspective of a motorist. These points tend to skew data resulting in pedestrians and cyclists being blamed for a disproportionate number of crashes. This conclusion should be noted when developing counter-measures.¹⁶

Primary collision factors...



As high as
11%
of reported
bicycle crashes
are due to
unsafe turning
of the motorist

As high as
14%
of reported
pedestrian
crashes are
due to unsafe
speed of the
motorist



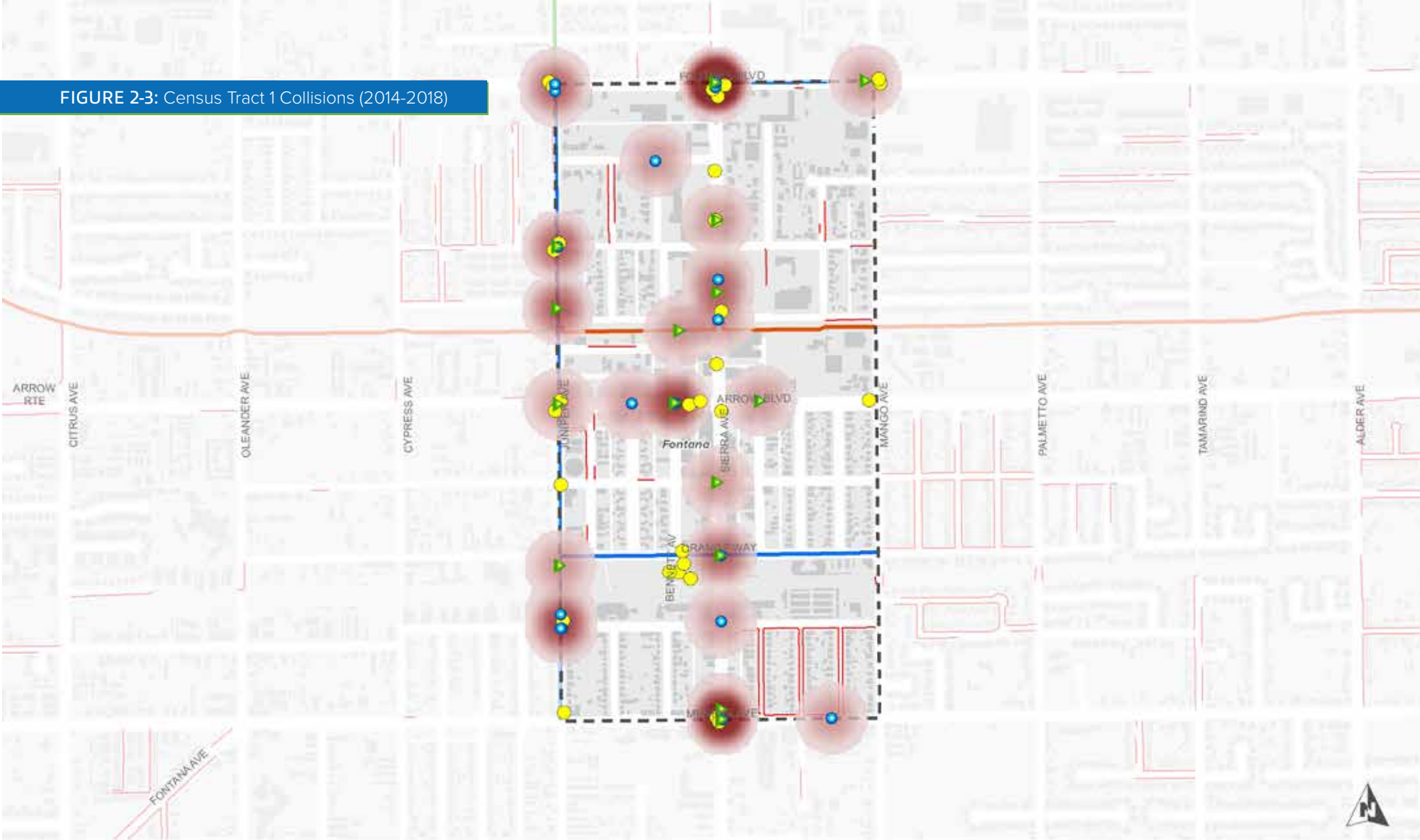
TABLE 2-3: Primary Collision Factors per Census Tract¹⁶

CENSUS TRACT	1		2		3		4		5		6-9	
	PED	BIKE	PED	BIKE	PED	BIKE	PED	BIKE	PED	BIKE	PED	BIKE
Other Hazardous Violation							17%					
Other Than Driver (or Pedestrian)											5%	
Not Stated											2%	
Brakes						20%						
Unsafe Starting or Backing											3%	6%
Traffic Signal and Signs	5%	22%	14%		9%	20%		50%	6%	44%	2%	11%
Pedestrian Violation	38%	11%	73%		73%		33%		50%		45%	6%
Pedestrian/Bike Right of Way	33%	11%	14%	100%			33%		31%		23%	
Automobile Right of Way	5%	33%	14%		9%	20%				33%	2%	17%
Improper Turning					9%						2%	11%
Improper Passing									6%		2%	6%
Bicycle going wrong way		35%										
Bicycle on wrong side of road						40%	17%	50%		11%		22%
Vehicles traveling at unsafe speed			14%						6%	11%	5%	
Impeding Traffic												11%
DUI											5%	
Unknown	15%	22%									5%	11%

TABLE 2-4: Collision Analysis per Census Tract¹⁶

Census Tract	1 - FONTANA	2 - RIALTO	3 - BLOOMINGTON	4 - GRAND TERRACE AND COLTON	5 - DOWNTOWN SAN BERNARDINO	6-9 - SAN BERNARDINO & HIGHLAND
Highest collision corridors	-Sierra Avenue -Juniper Avenue	-Baseline Road	-Valley Boulevard	-Washington Street	-Sierra Way -5th Street -Arrowhead Avenue	-Sierra Avenue -Juniper Avenue
Pedestrian Collisions	-Pedestrian violations. -Violating pedestrian ROW	-Violating pedestrian ROW -Pedestrian violations -Improper turning -Violating vehicle ROW -Violating signals and signs	-Pedestrian violations -Improper turning -Violating vehicle ROW -Violating signals and signs	-Pedestrian violations -Violating pedestrian ROW	-Pedestrian violations -Violating pedestrian ROW	-Pedestrian violations -Violating pedestrian ROW
Existing Pedestrian Infrastructure	-Long block lengths -Lack of sidewalks -Signals prioritized for vehicles	-Long block lengths -Lack of designated crosswalks	-Long block lengths -Lack of sidewalks	-Lack of designated crosswalks -Signals prioritized for vehicles	-Long block lengths -Lack of sidewalks -Signals prioritized for vehicles	-Long block lengths -Lack of sidewalks -Signals prioritized for vehicles
Bike Collisions	-Bicyclist riding on the wrong side of the road	-One bicycle violating pedestrian ROW at Cactus Multi-use Trail and Baseline Road	-Bicyclist riding on the wrong side of the road	-Bicyclist riding on the wrong side of the road	-Violating traffic signals and signs -Bicyclist riding on the wrong side of the road	-Bicyclist riding on the wrong side of the road
Existing Bicycle Infrastructure	-Lack of bike lanes on both sides of road	-Lack of bike lanes extending beyond Cactus Multi-use Trail	-Lack of bike lanes on both sides of road -Signal yellow-time not accommodating bicyclists	-Lack of bike lanes -Right-turn only lacks bike lanes -Signal yellow-time inadequate -Lanes bottleneck down to single lane (Barton-Walin)	-Lack of bike lanes on both sides of road -Signals prioritized for vehicles	-Lack of bike lanes on both sides of road

FIGURE 2-3: Census Tract 1 Collisions (2014-2018)



- | | | | |
|---|---|--|---|
| <ul style="list-style-type: none"> ● Omnitrans Bus Stops ▶ Bicycle Collisions ● Pedestrian Collisions | Collision Density
<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background: linear-gradient(to bottom, red, white); border: 1px solid red; margin-right: 5px;"></div> <div> <p>High Density</p> <p>Low Density</p> </div> </div> | <div style="border: 2px dashed black; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> Census Tract
— Missing Sidewalk | Existing Bikeways
— Class I: Multi-Use Path
— Class II: Bikelane
— Class III: Bike Route |
|---|---|--|---|

Data Sources: Omnitrans,
SCAG, SBCTA

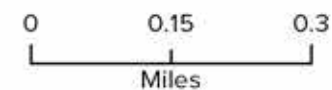
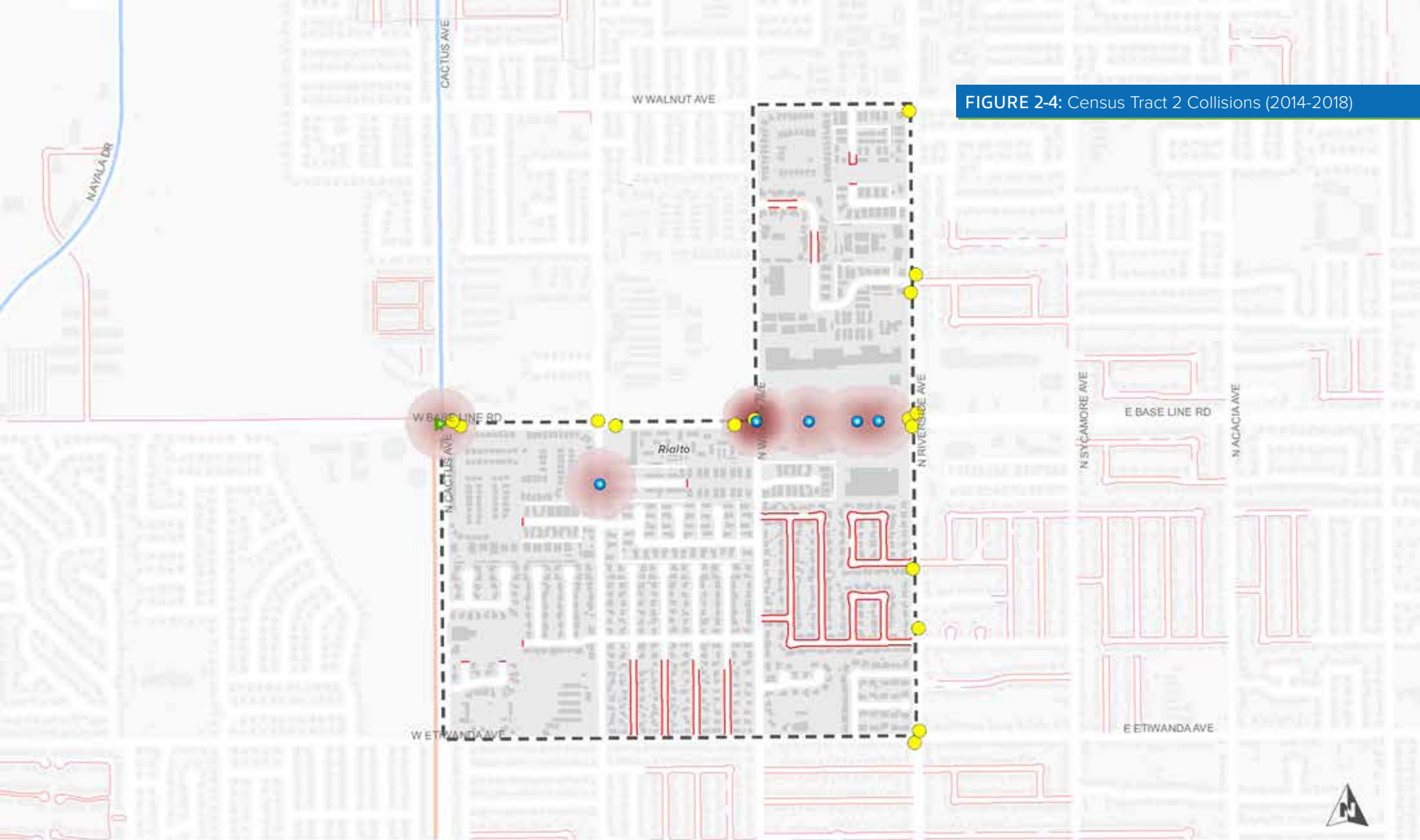


FIGURE 2-4: Census Tract 2 Collisions (2014-2018)

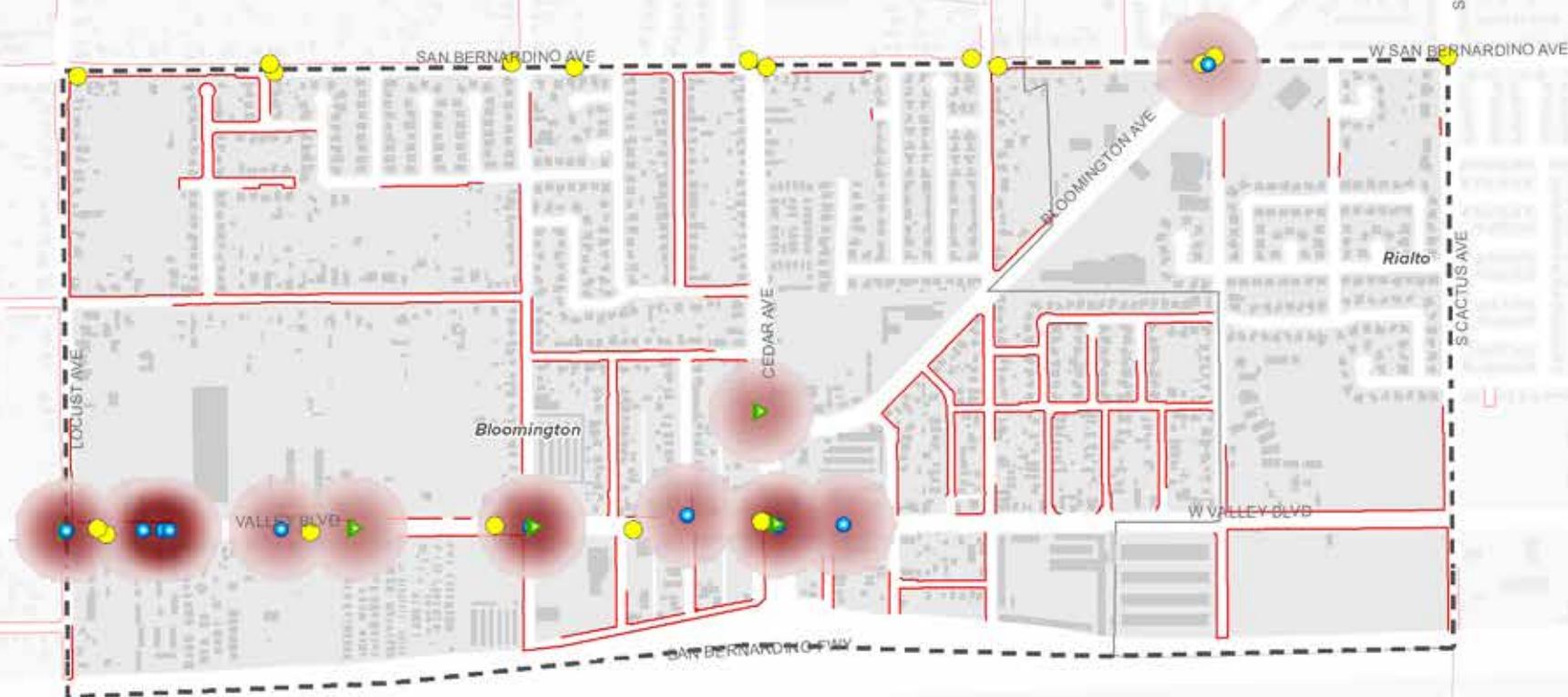


Data Sources: Omnitrans,
SCAG, SBCTA

- Omnitrans Bus Stops
- ▲ Bicycle Collisions
- Pedestrian Collisions
- Collision Density**
 - High Density
 - Low Density
- Census Tract
- Missing Sidewalk
- Existing Bikeways**
 - Class I: Multi-Use Path
 - Class II: Bikelane

0 0.15 0.3
Miles

FIGURE 2-5: Census Tract 3 Collisions (2014-2018)

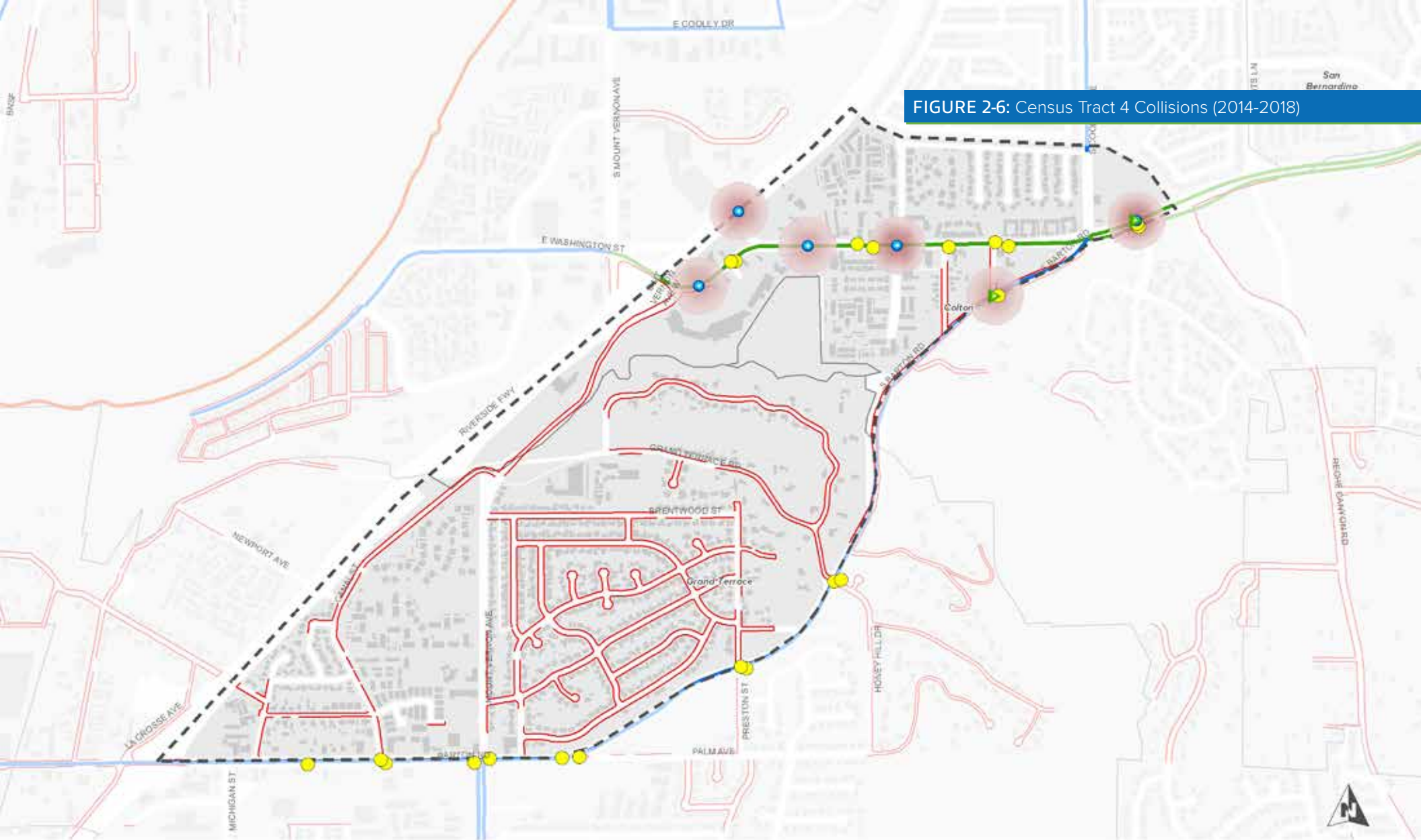


- Omnitrans Bus Stops
 - ▶ Bicycle Collisions
 - Pedestrian Collisions
- Collision Density**
- High Density
 - Low Density
- Census Tract
- Missing Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.15 0.3
Miles

FIGURE 2-6: Census Tract 4 Collisions (2014-2018)

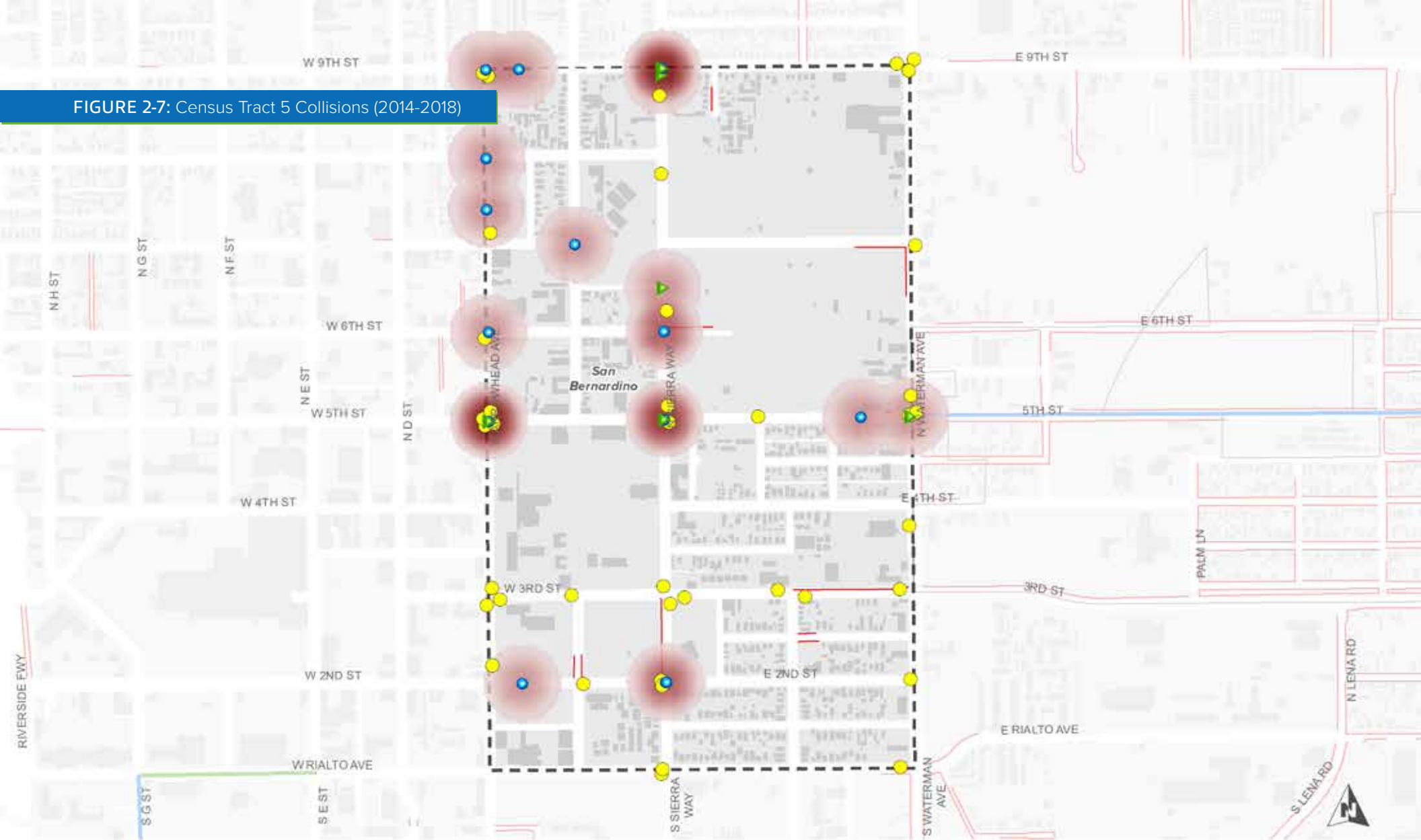


Data Sources: Omnitrans,
SCAG, SBCTA

- | | | | |
|-------------------------|--------------------------|--------------------|---------------------------|
| ● Omnitrans Bus Stops | Collision Density | --- Census Tract | Existing Bikeways |
| ▶ Bicycle Collisions | High Density | — Missing Sidewalk | — Class I: Multi-Use Path |
| ● Pedestrian Collisions | Low Density | | — Class II: Bikelane |
| | | | — Class III: Bike Route |

0 0.2 0.4
Miles

FIGURE 2-7: Census Tract 5 Collisions (2014-2018)

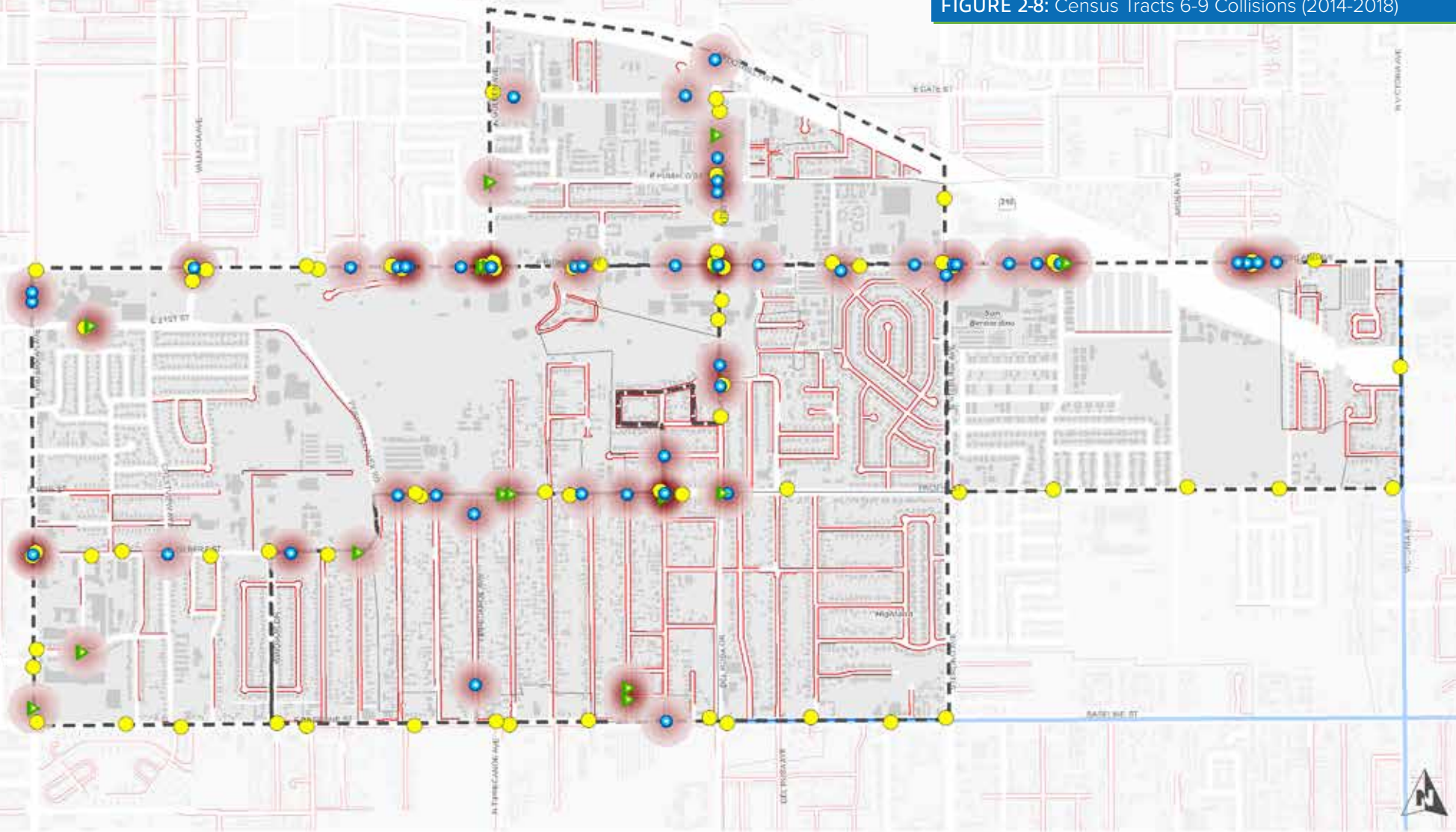


Data Sources: Omnitrans,
SCAG, SBCTA

- Omnitrans Bus Stops
- ▲ Bicycle Collisions
- Pedestrian Collisions
- Collision Density**
 - High Density
 - Low Density
- Census Tract
- Missing Sidewalk
- Existing Bikeways**
 - Class II: Bikelane
 - Class III: Bike Route

0 0.15 0.3
Miles

FIGURE 2-8: Census Tracts 6-9 Collisions (2014-2018)



- Omnitrans Bus Stops
 - ▶ Bicycle Collisions
 - Pedestrian Collisions
- Collision Density**
- High Density
 - Low Density
- Existing Bikeways**
- Missing Sidewalk
 - Class II: Bikelane
- Census Tract**

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.25 0.5
Miles

2.3 Land Use

Omnitrans covers a 480-square mile area that includes 15 cities, as well as several unincorporated areas of San Bernardino County. Single-family residential uses make up 31 percent of the existing land uses in the area, followed by vacant (23 percent), industrial (11 percent), transportation and utilities (nine percent), and open space and recreation (six percent). Additional land uses include agriculture, commercial and services, multi-family residential, educational institutions, public facilities, offices, among others, of which the prevalence varies by Census Tract. This section identifies and analyzes existing land use patterns and activity centers within each of the nine identified Census Tracts to determine their impact on the safety of transit users. These findings assist local jurisdictions in identifying policies to improve safety around transit and the identification of priority areas for potential improvements.

Existing land use patterns vary depending on the jurisdiction and Census Tract, as shown in Figure 2-9. The cities of Fontana, Rialto, Grand Terrace, and Highland are defined by a conventional suburban structure of primarily single family-residential development intermixed with other land uses, such as multi-family residential, commercial, public facilities, and industrial uses.

The four Census Tracts in the City of San Bernardino show a wide variety of land uses. Its southern portion has large numbers of commercial uses, offices, and public facilities, several of them separated by large areas dedicated to parking. As a result, parking can take up more than 50 percent of the land used in a development. On the other hand, single- and multi-family residential uses are predominant in northern San Bernardino. Since the City of San Bernardino serves as the county seat, various regional destinations are located there, including county government buildings, the Saint Bernardine Medical Center, the Community Hospital of San Bernardino, California State University San Bernardino, among other educational institutions and commercial and industrial establishments.

Existing Land Uses in San Bernardino Valley

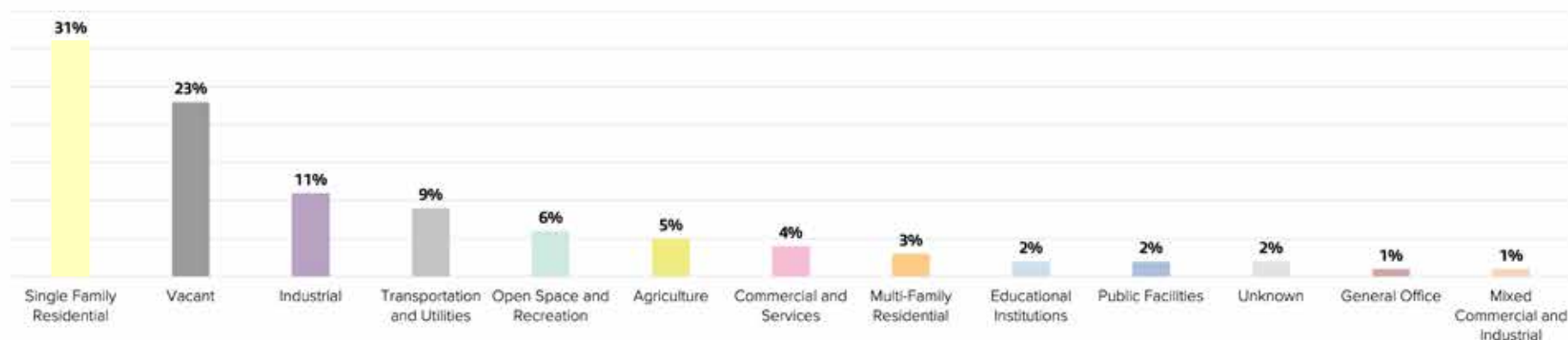
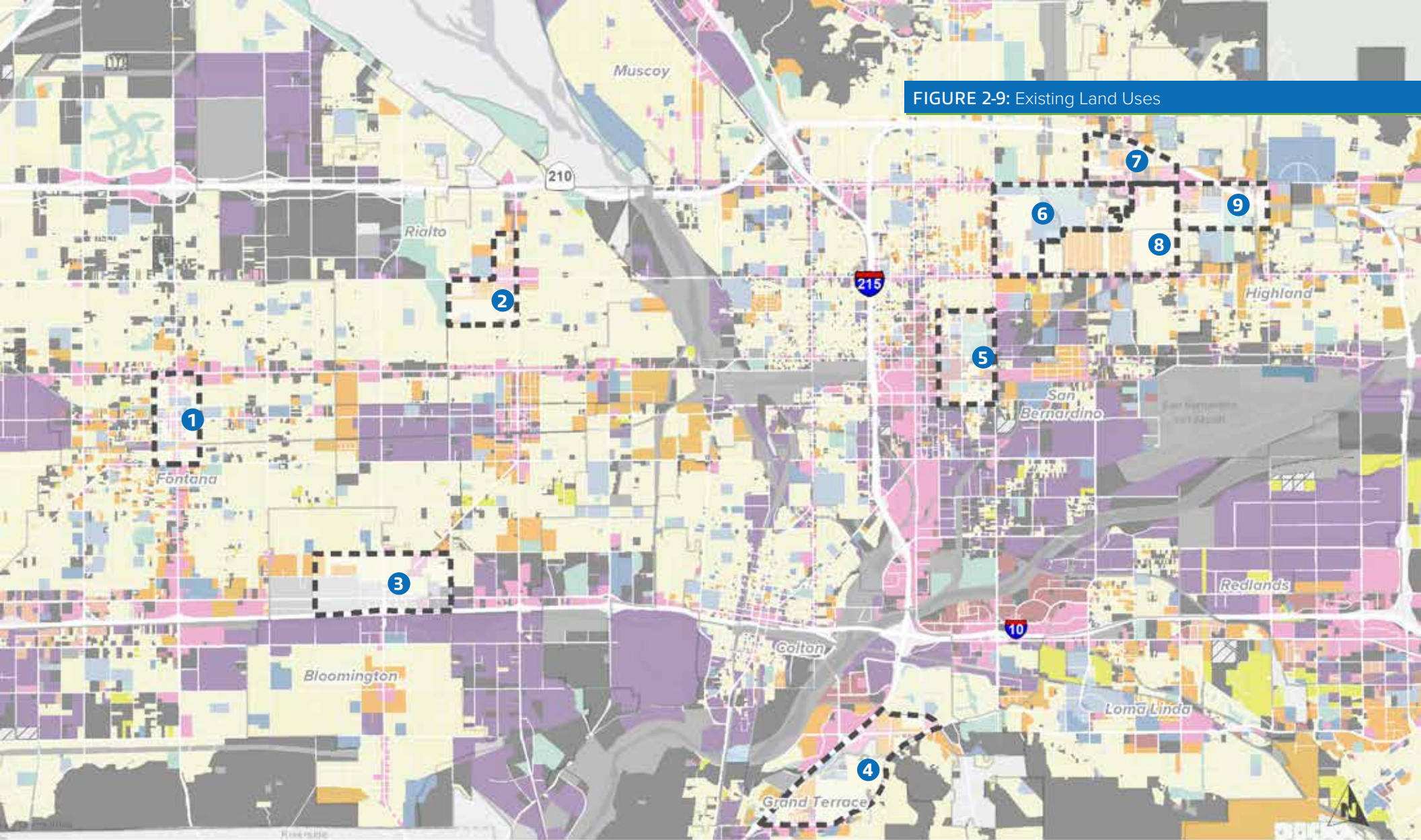


FIGURE 2-9: Existing Land Uses



Census Tract

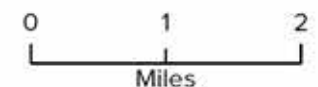
Land Use

- Single Family Residential
- Multi-Family Residential
- Mixed Residential
- General Office Use
- Commercial and Services

- Mixed Use
- Educational Institutions
- Public Facilities
- Military Installations
- Industrial
- Transportation and Utilities
- Open Space and Recreation

- Agriculture
- Vacant
- Water
- Under Construction
- Undevelopable or Protected Land
- Unknown

Data Sources: Omnitrans,
SCAG, SBCTA



2.3.1 Land Use Mix

Figure 2-10 indicates the land use mix entropy index for the nine selected Census Tracts. The entropy index is a measure of land use mix which considers the relative percentage of two or more land use types within an area, with higher levels of entropy indicating a higher mix level. This indicator is based on the mix of eight different employment types (office, retail, industrial, service, entertainment, education, health, and public sector) within each block group in the metropolitan area. Studies indicate that there is a correlation between land use mix and travel behaviors. Neighborhoods with higher densities, mixed land uses, and more connected streets are associated with higher levels of walking. Moreover, land use planning policies and strategies that encourage a greater mix of land uses and shorter trip distances make walking more feasible, and safer, if measures for safe walking have been considered.

Mixed-use environments allow for more compact urban environments that result in walkable neighborhoods by fusing together different functions, such as residential, commercial, and recreational land uses. These mixed-use land uses allow residents to travel only short distances to satisfy their needs resulting in improved and healthier lifestyles and encourages alternate modes of transportation.

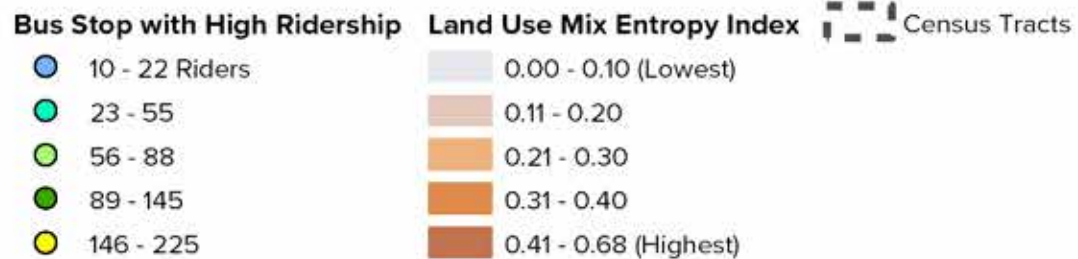
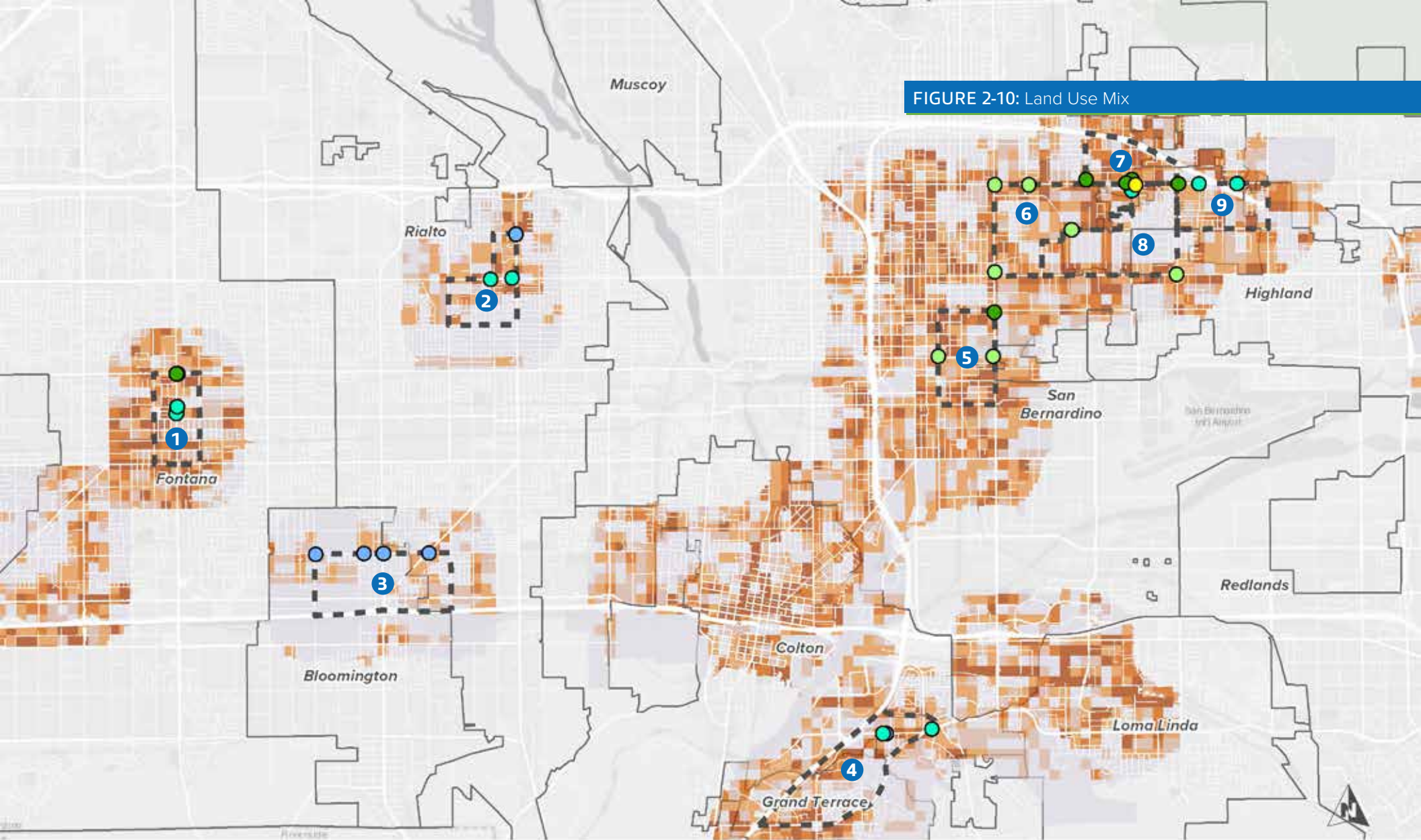
As seen in Figure 2-10, busier bus stops are in areas with a higher land use mix. The total average daily ridership is substantially higher in those transit stops located in Census Tracts with larger concentrations of commercial, service, and public or institutional uses. The San Bernardino Transit Center, located in downtown San Bernardino, is the busiest transit center in Omnitrans' service area, with 5,000 average daily passengers (pre-pandemic 2020). This intermodal transit center, which allows users to transfer between Omnitrans' routes, several other regional bus transit providers, and Metrolink commuter rail, provides easy and convenient access to numerous commercial, retail, and office establishments, as well as city and county government buildings. The Fontana Transit Center is another important transit center within the Omnitrans' service area with over 2,000 daily boardings (pre-pandemic 2020).



A mixture of land uses can encourage non automobile based modes of travel, such as walking and bicycling, which in turn can have a positive impact on public health.

There is very little correlation between security and safety with a specific land use type since many other factors play into a person feeling safe. Incorporating crime data is an important factor in determining actual and feelings of safety at a bus stop. For example, while bus stops near industrial land use may feel unsafe due to “fewer eyes on the street,”¹ they have little to no criminal activity. However, a transit rider may feel unsafe since the stop may be isolated and/or not well illuminated. Commercial land use may have more activity, more “eyes on the street,”¹ but based on crime data, they have tended to have higher criminal activity. In conclusion, land use still plays an important role in both feelings of safety and actual safety, however, other factors still need to be considered to fully make improvements to the bus stop environment.

FIGURE 2-10: Land Use Mix



Data Sources: Omnitrans, SCAG, SBCTA



2.4 Bicycle Facilities

The existing bicycle facility network throughout the Omnitrans' service area consists of multi-use paths, bicycle lanes, and bicycle routes making up 640 miles of existing bikeways (Figure 2-11). For a description of bikeway classifications please see section 4.2.3. Nineteen percent of existing bicycle facilities are multi-use paths, 62 percent are class II bike lanes, and the remaining 19 percent are bicycle routes.

Bicycle and pedestrian collision data were obtained from SWITRS collision dataset managed by the CHP, which captures reported bicycle-vehicle, pedestrian-vehicle, and bicycle-pedestrian collisions that resulted in injury or property damage throughout the county of San Bernardino in the five-year period of 2014 through 2018. Collision density and location data are displayed in Figure 2-2.

There were 842 reported bicycle-related collisions and 1,317 pedestrian-related collisions that occurred in the Omnitrans' service area. Of those collisions, 142 resulted in fatalities. Nearly all reported collisions resulted in injury (97 percent). In the same dataset, most of the pedestrian-related collisions and bicycle-related collisions, occurred during daylight hours (1,150 injured and 22 fatal). It is important to note that collisions involving bicyclists and pedestrians are known to be under-reported, and therefore such collisions are likely under-represented in this analysis, especially those that did not result in an injury or fatality. Some of the under-reporting of serious injuries can also occur when those involved don't realize how serious their injuries are until they are fully examined.

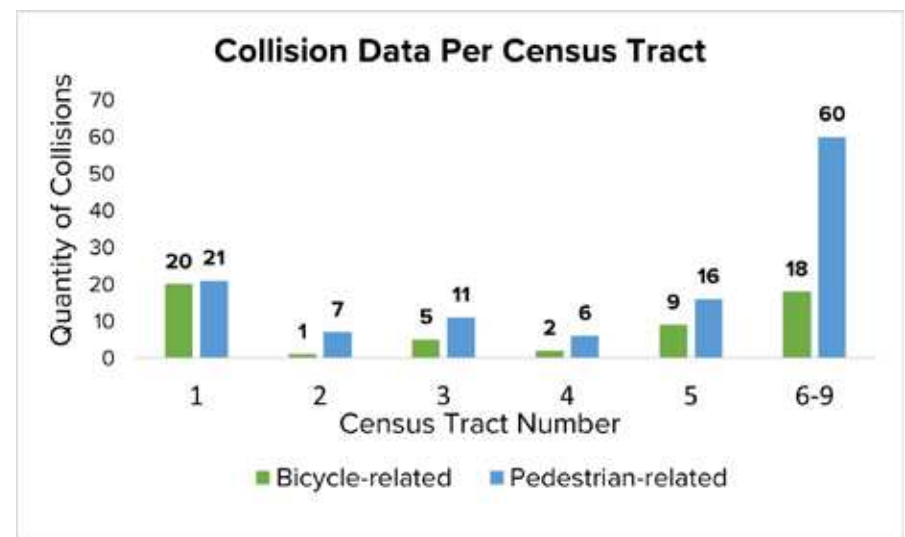
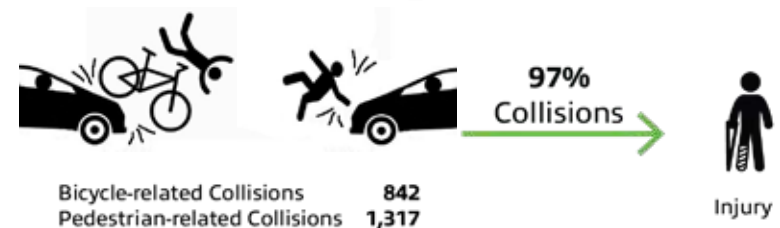
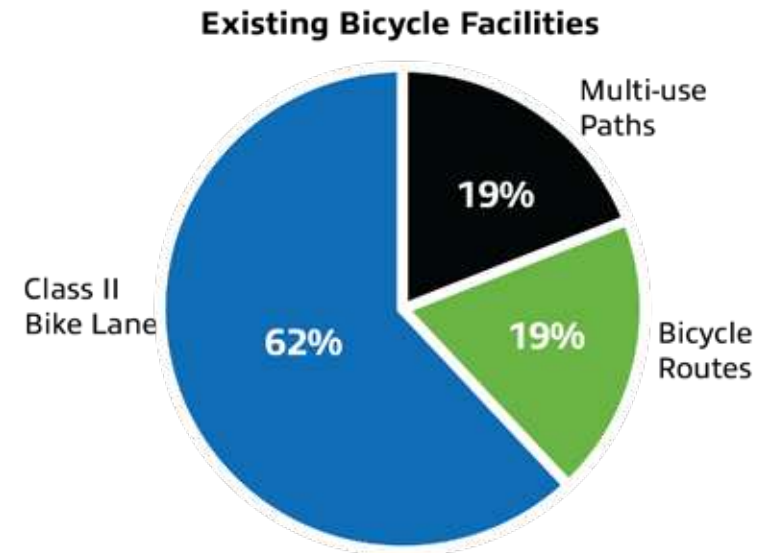
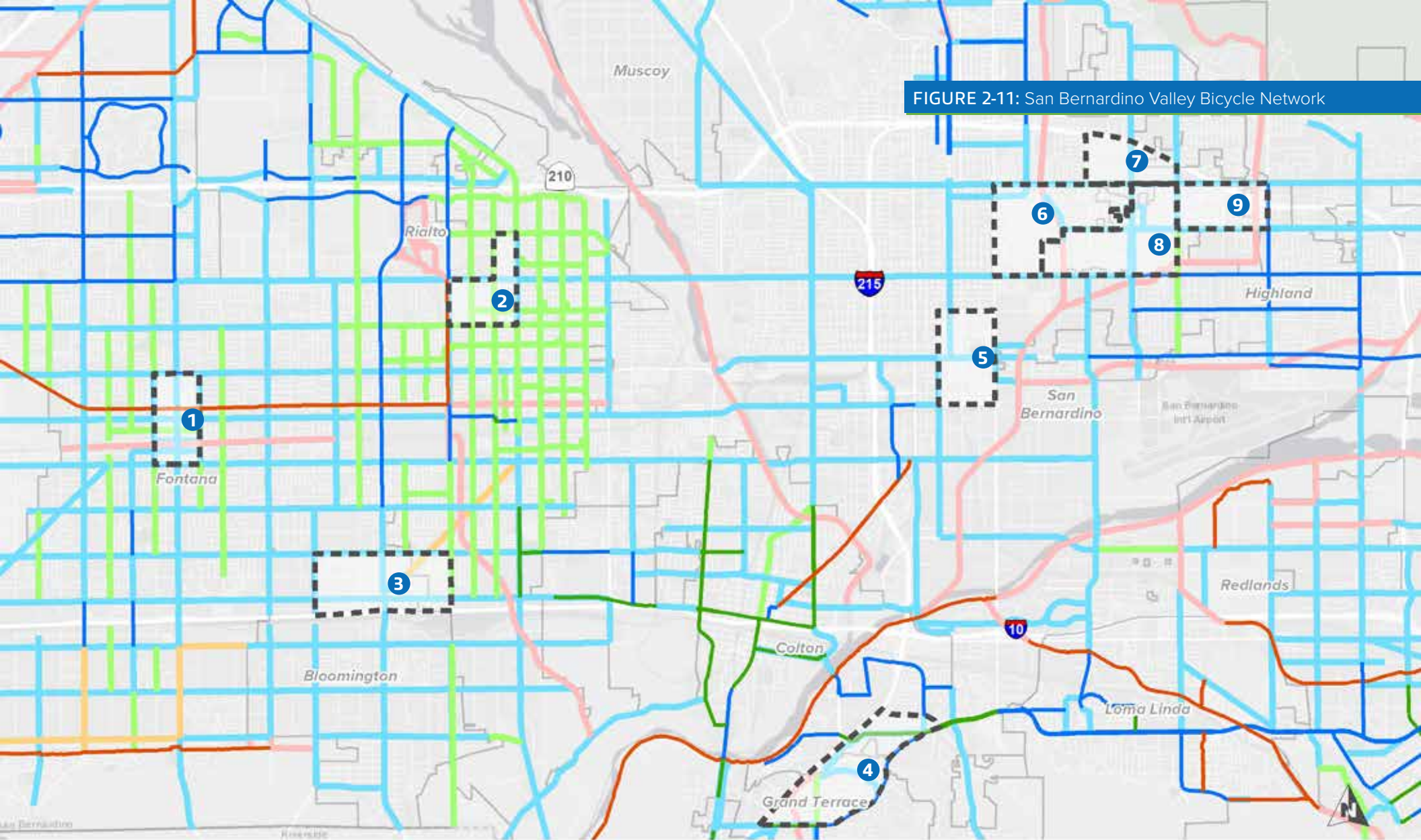


FIGURE 2-11: San Bernardino Valley Bicycle Network



Census Tract Planned Bikeways

- Class I: Multi-Use Path
- Class II: Bikelane
- Class III: Bike Route
- Class IV: Separated Bikelane

Existing Bikeways

- Class I: Multi-Use Path
- Class II: Bikelane
- Class III: Bike Route

Data Sources: Omnitrans,
SCAG, SBCTA



2.5 Pedestrian Network

The existing pedestrian network varies between each of the Census Tracts chosen, as shown in Figure 2-12. In general, the pedestrian network faces major barriers crossing the streets. The lack of curb ramps and connected sidewalks within the selected Census Tracts leads to high-stress crossings. Additionally, long block lengths and the prevalence of cul-de-sacs lengthen distances and limits people's ability to walk from one point to another. Nonetheless, the Census Tracts located in urban and walkable settings with a close mix of employment, activity centers, and residential housing, such as the Fontana Transit Center and downtown San Bernardino, are relatively well connected when compared to the other Census Tracts.

The current pedestrian network also poses challenges for people with physical disabilities. The mix of ADA ramps with and without tactile markings, and their placement diagonally across the street instead of towards the opposing ADA ramp, can be disorientating. These are typical for streets within the chosen Census Tracts.

While the aforementioned characteristics can be observed throughout the study area, bus stop amenities and accessibility for people walking do vary throughout each Census Tract. The pedestrian network has been analyzed for connectivity within each Census Tract and connecting areas particularly as it relates to accessing the bus stop. As described above, there are relatively few signalized pedestrian crossings near bus stops that are not near signalized intersections, which is where most bus stops are located within the nine Census Tracts. Moreover, the area around freeway on-ramps and off-ramps, with large curb returns and non-existing traffic calming measures such as truck aprons, make for an especially unfriendly walking environment.

Data from SBCTA's Point of Interest Pedestrian Plan (PIPP) and Open Data Portal was used to identify the missing sidewalks. Available curb ramp data was used where available, and datasets were verified using Google Earth and online mapping website Nearmap. Bus stop data was collected from Omnitrans and verified using Google Earth.

Major Pedestrian Barriers



Lack of Protected Crosswalks



Lack of Accessible Roadways/Sidewalks

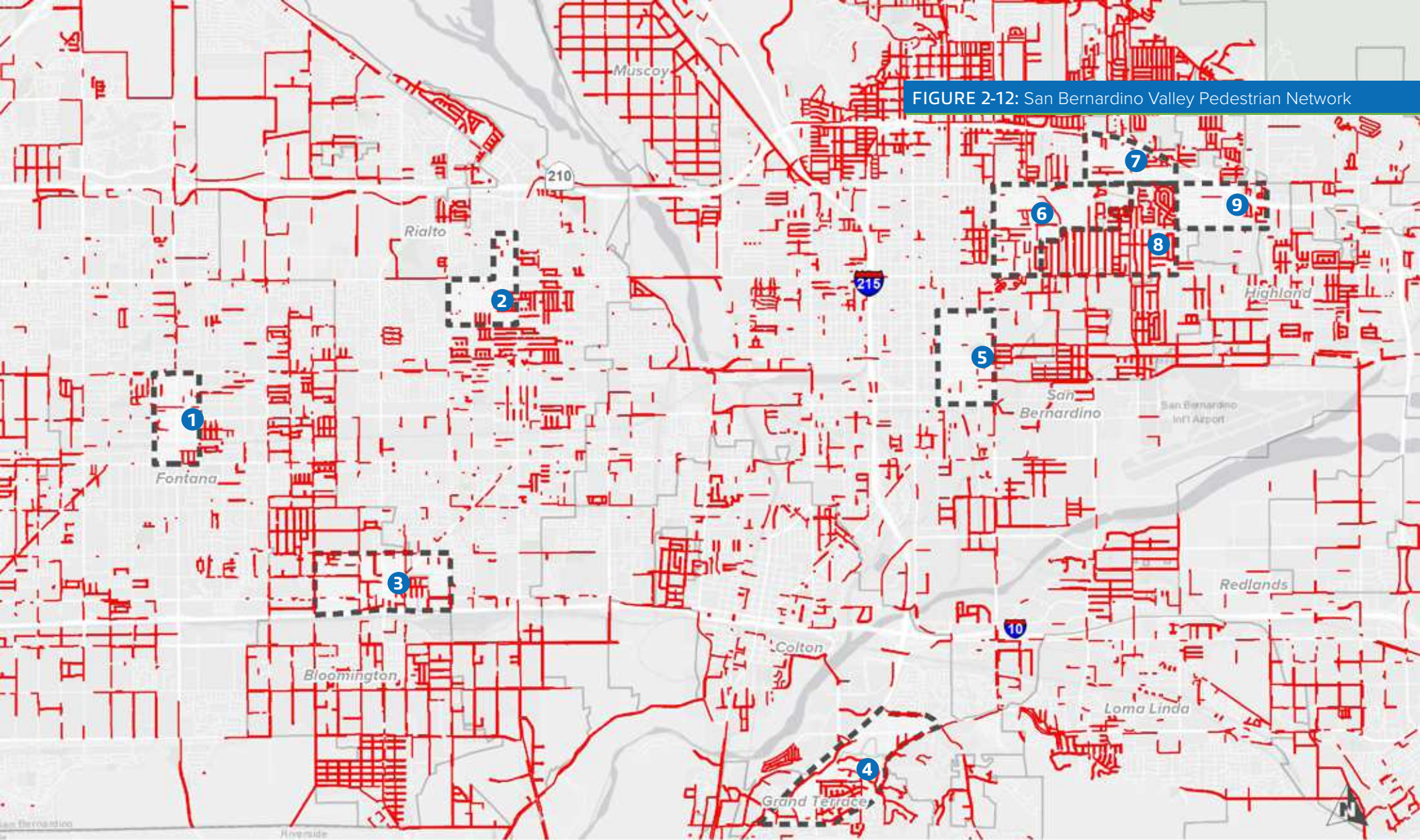




Lack of Accessible Bus Stops

2.6 Characteristics by Census Tract

The usage and safety perception of bus stops can be influenced by the existence of nearby activity centers, the prevalence of points of interests, and the quality of pedestrian and bicycle infrastructure. Existing land uses and pedestrian and bicycle infrastructure within each identified Census Tract have been analyzed to determine their impact on the transportation safety at and around bus stops.

FIGURE 2-12: San Bernardino Valley Pedestrian Network



 Census Tract
 Missing Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA

0 1 2
Miles

CENSUS TRACT 1

Fontana

This Census Tract is centrally located in the City of Fontana and encompasses downtown Fontana, the Fontana Metrolink and Transit Center and various civic facilities such as City Hall and library. The main corridors covered in this tract are Foothill Boulevard, Arrow Boulevard, Merrill Avenue, Sierra Avenue, and Juniper Avenue.

Land Use

Census Tracts 1 has a conventional suburban street pattern of primarily single family-residential development interspersed with pockets of other land uses that include multi-family residential, commercial and office, public facilities, and industrial uses, as seen on Figure 2-13. Commercial uses, services, and multi-family residential developments tend to concentrate along some of the major thoroughfares that connect the entire region, including Sierra Avenue in Census Tract 1. As expected, busier bus stops are also located in these areas with more diverse land uses. At the same time, these same corridors saw the largest numbers of pedestrian and bicycle collisions within these Census Tracts between 2014-2018.

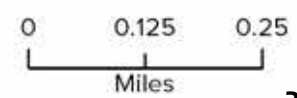


Commercial and civic uses along Sierra Avenue in Fontana

FIGURE 2-13: Census Tract 1 Land Uses



Data Sources: Omnitrans,
SCAG, SBCTA



Bicycle Facilities

Except for a short bike lane on Foothill Boulevard between Sierra Avenue and Mango Avenue, Census Tract 1 lacks bicycle facilities to connect people to bus stops and along the transit routes served throughout this study area, as seen in Figure 2-14. This small section of bike lane runs adjacent to commercial land use. The existing Pacific Electric Bike Trail allows for bus stop access to Juniper Avenue, Sierra Avenue, and Arrow Boulevard. Overall existing facilities are lacking to make direct bicycle connections to bus stops and the Fontana Transit Center/Metrolink Station. Proposed bike facilities from the Fontana Active Transportation Plan and the SBCTA Improvement to Transit Access for Cyclists and Pedestrians report look to close these gaps and provide bike lanes and bike routes to bus stops and Fontana Transit Center/Metrolink Station. Recommendations from these plans include bike lanes on Juniper Avenue and Arrow Boulevard. SBCTA has also done extensive work with the Improvement to Transit Access for Cyclists and Pedestrian plan for bike and pedestrian connections to Metrolink stations including in the City of Fontana. According to the Improvement to Transit Access for Cyclists and Pedestrian report, Cypress Avenue, Arrow Boulevard, Juniper Avenue and San Bernardino Avenue have been identified as priority corridors to improve the walking and bicycling environment to the Transit Center/Metrolink Station.

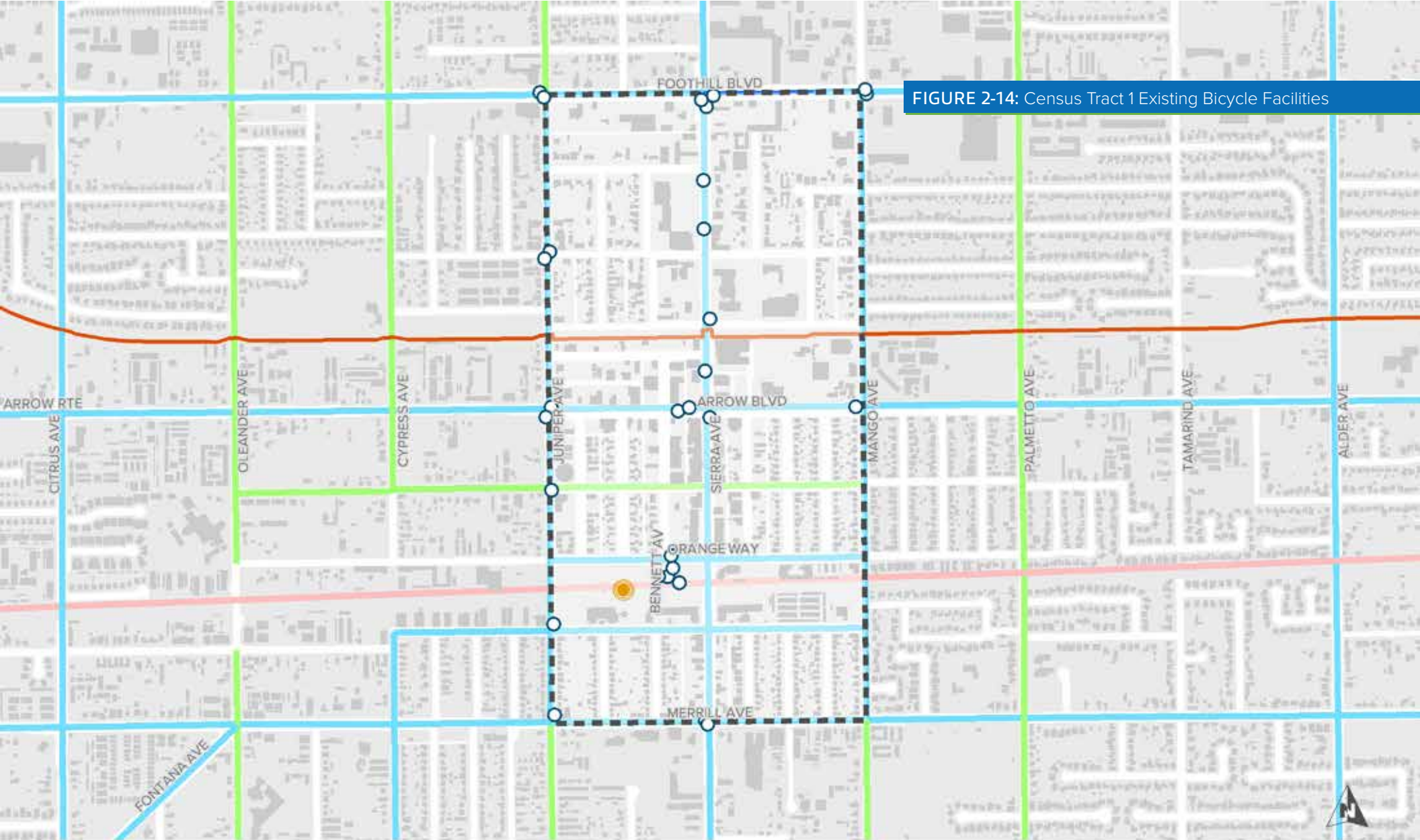



Bicyclist crossing Merrill Avenue



Lack of bicycle facilities along Sierra Avenue

FIGURE 2-14: Census Tract 1 Existing Bicycle Facilities



- | | | |
|---|---|---|
|  Census Tract | Planned Bikeways | Existing Bikeways |
|  Omnitrans Bus Stops |  Class I: Multi-Use Path |  Class I: Multi-Use Path |
| |  Class II: Bikelane |  Class II: Bikelane |
| |  Class III: Bike Route | |

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

Pedestrian Facilities

Out of the nine Census Tracts, Census Tract 1 has one of the most connected pedestrian networks since it encompasses downtown Fontana and the Metrolink and Transit Center, as shown in Figure 2-15. Shorter block lengths, the Pacific Electric Trail, the Civic Center and library, and diversity in land use help to increase sidewalk connectivity. According to the sidewalk data from SBCTA, 82 percent of the built-out pedestrian network exists. While most of this Census Tract has existing sidewalks and curb ramps, there are still pockets of missing sidewalks. The neighborhoods in the southeastern edge of the Census Tract, and directly east of Mango Avenue along Valencia Avenue, are missing sidewalks. A small number of other streets are missing short segments on one side. Overall, people accessing downtown Fontana, Metrolink and Transit Center or other civic facilities can use the larger streets, such as Arrow Boulevard, Sierra Avenue, Orange Way, Mango and Foothill Drive, where the sidewalk network is complete. In general, there are few crosswalks, even fewer enhanced crossings for people walking such as Rectangular Rapid Flashing Beacons and relatively large distances to walk to arrive at signalized intersections. The signalized intersections generally have marked crosswalks.

Decorative paving exists at the intersections along Sierra Avenue between Ceres Road and Arrow Boulevard through downtown Fontana. Additional crosswalks are found on Ceres Road at the Fontana Community Senior Center and at the Pacific Electric Trail crossings. An existing crosswalk on Arrow Boulevard and Bennett Avenue provides a median refuge island for this four-lane crossing. Additional enhancements such as a Rectangular Rapid Flashing Beacon or Pedestrian Hybrid Beacon would help to warn drivers that people walking are present at the crosswalk.

Bus stops are located along Juniper Avenue, Sierra Avenue, Merrill Avenue, Arrow Boulevard and Foothill Boulevard. All bus stops have sidewalk connectivity but vary in amenities throughout the Census Tract. Sixteen of the 29 bus stops have benches and 11 have bus shelters. It should be noted that the reason some bus stops are missing certain amenities is due to the lack of space at the stop. An eight foot wide sidewalk is needed for ADA compliance plus a bench. An area 10 feet by 25 feet is

needed to fit a shelter. All bus stops, except for the Juniper Avenue and Arrow Boulevard bus stops, are either illuminated by a streetlight, solar pole mount, shelter light, or ambient lighting from an adjacent source like a building.

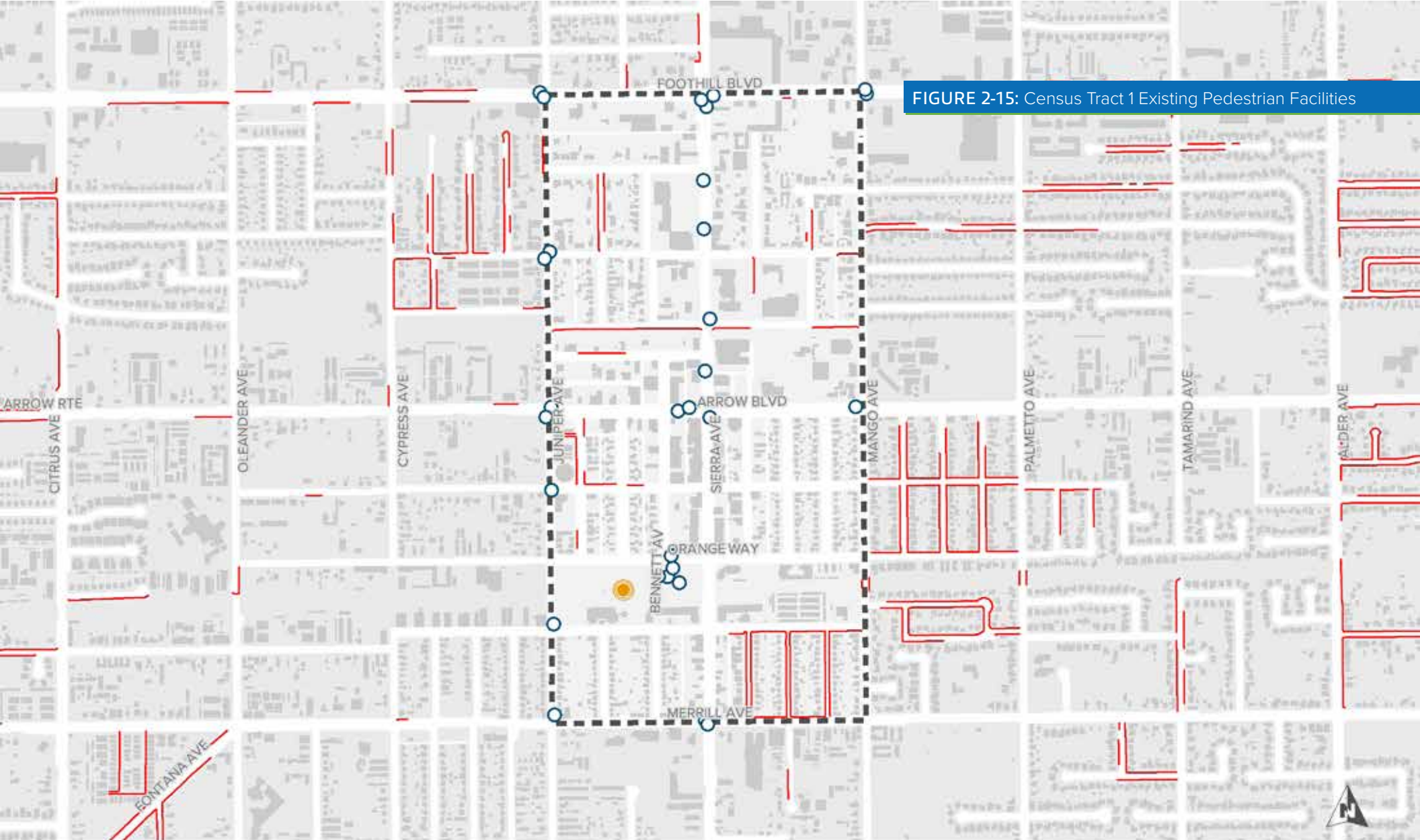





Missing sidewalks along Merrill Avenue



Sidewalk with a parkway along Arrow Boulevard

FIGURE 2-15: Census Tract 1 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

CENSUS TRACT 2

Rialto

This Census Tract is in northeastern Rialto just north of downtown Rialto. The high collision corridors covered in this Census Tract are Baseline Road, Jackson Street, and Willow Avenue.

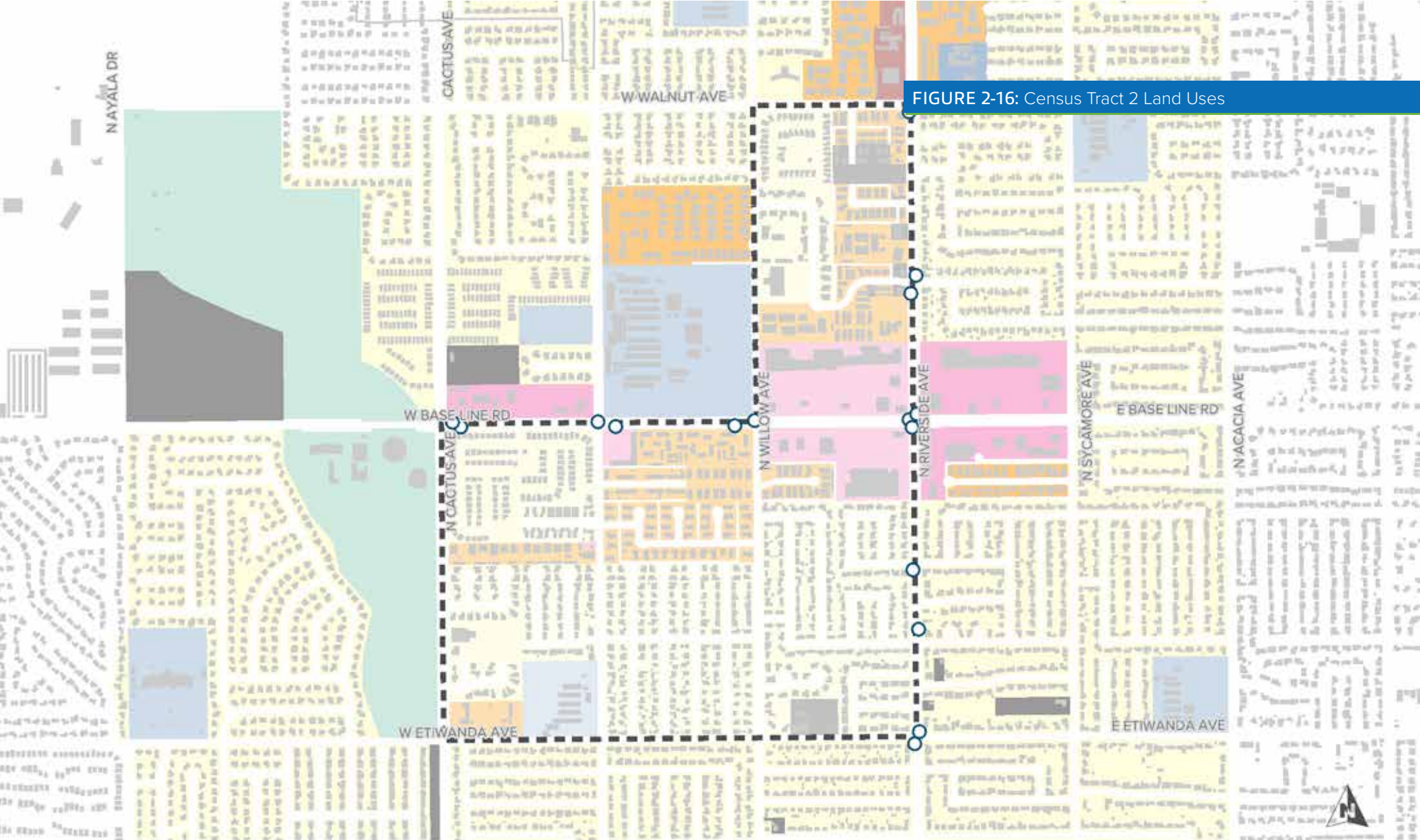
Land Use

Census Tract 2 has commercial uses, services, and multi-family residential developments that tend to concentrate along some of the major thoroughfares that connect the entire region, including Baseline Road and Riverside Avenue in Census Tract 2, as seen on Figure 2-16. Coincidentally, busier bus stops are also located in these areas with more diverse land uses. At the same time, Baseline Road saw the largest numbers of pedestrian and bicycle collisions within these Census Tracts between 2014-2018.



Single- and multi-family residential land uses in Census Tract 2

FIGURE 2-16: Census Tract 2 Land Uses



Census Tract



Omnitrans Bus Stops

Land Use

Single Family Residential

Multi-Family Residential

General Office Use

Commercial and Services

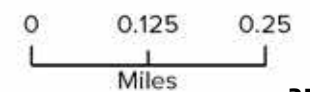
Educational Institutions

Public Facilities

Open Space and Recreation

Vacant

Data Sources: Omnitrans,
SCAG, SBCTA



Bicycle Facilities

Census Tract 2 lacks existing bicycle facilities except for the terminus of the Cactus Trail on the western edge of the Census Tract (see Figure 2-17). Within the study area itself, the transit routes run along Baseline Road, Willow Avenue, Etiwanda Avenue, and Riverside Avenue. Bicycle and pedestrian collisions have been recorded primarily along these corridors, showing the need for bicycle and pedestrian improvements. These corridors are adjacent to primarily commercial and residential land uses. Existing bicycle facilities with a three-mile bike shed include bike lanes on Ayala Drive, Cactus Avenue and Renaissance Parkway. Bike lanes have also been recently installed along Rialto Avenue to connect to the Pacific Electric Trail and Cactus Trail. Proposed bicycle facilities from Rialto's Active Transportation Plan look to add bicycle facilities along major corridors to create a network for safe routes to school and first and last mile access.

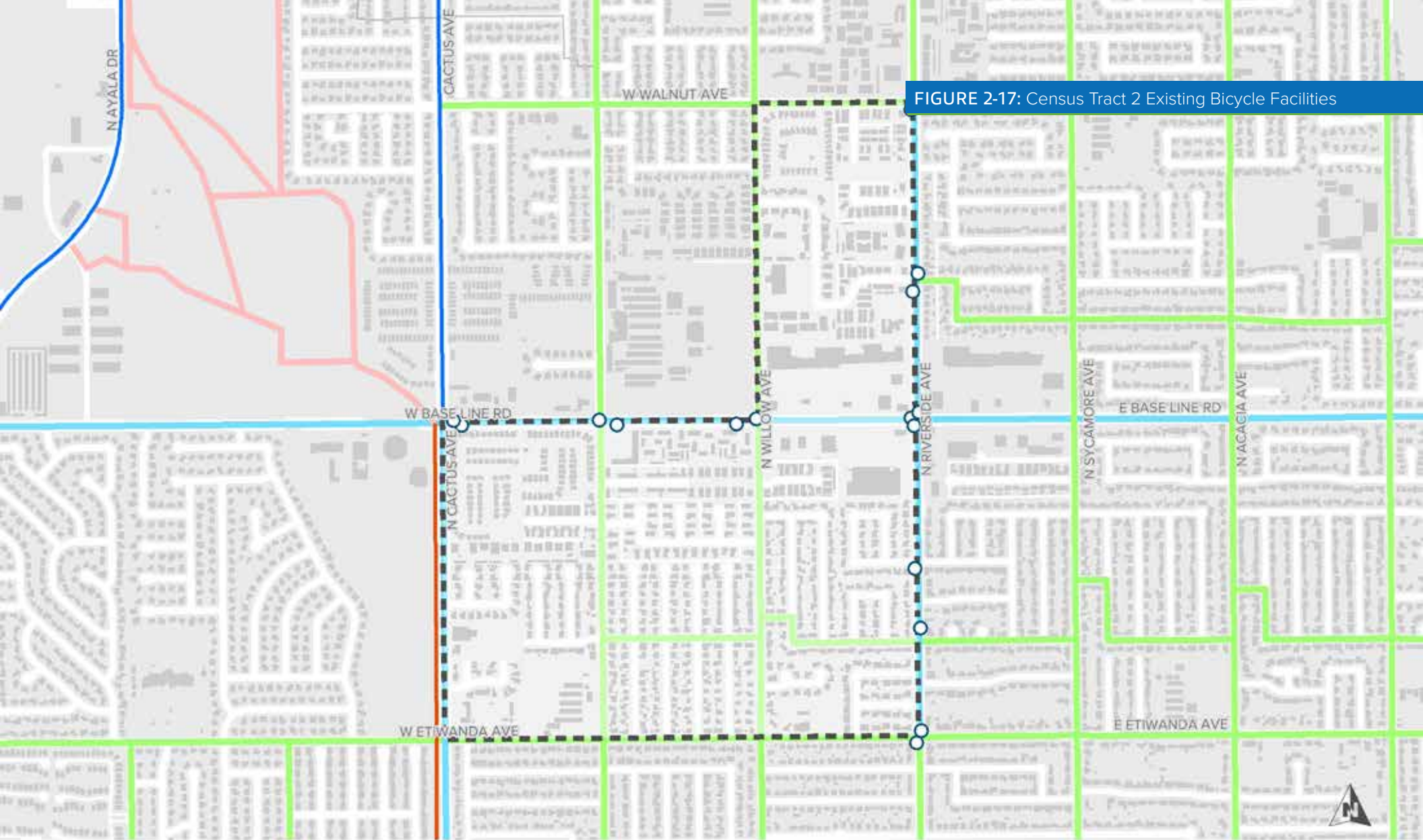


The major roadways within Census Tract 2 lack bicycle facilities (Baseline Road).



Multi-use path at the intersection of Cactus Avenue and Etiwanda Avenue

FIGURE 2-17: Census Tract 2 Existing Bicycle Facilities



- | | | |
|---|---|---|
|  Census Tract | Planned Bikeways | Existing Bikeways |
|  Omnitrans Bus Stops |  Class I: Multi-Use Path |  Class I: Multi-Use Path |
| |  Class II: Bikelane |  Class II: Bikelane |
| |  Class III: Bike Route | |

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

Pedestrian Facilities

Census Tract 2 encompasses the Rialto Shopping Center and a Transit First/Last Mile focus area according to the PIPP. Adjacent to the Census Tract is Eisenhower High School. The major arterials, such as Riverside Avenue, Baseline Road, Willow Avenue, Etiwanda Avenue and Walnut Avenue, have a connected sidewalk network and existing curb ramps, as seen in Figure 2-18. According to the sidewalk data from SBCTA, 76 percent of the built-out pedestrian network exists. Crosswalks and curb ramps are present at all signalized intersections. As in the other Census Tracts, there are few crosswalks, even fewer protected crossings for people walking, and relatively large distances to walk to arrive at signalized intersections.

While this study area has a predominantly grid street network, the north-south blocks are roughly twice the length of the east-west blocks. In between these large blocks are cul-de-sacs and a disconnected internal road network where several streets do not intersect at a four-way intersection. Some neighborhood streets, such as Holly Street and Shamrock Avenue, can be found offset to a connecting street, creating challenges to provide safe crossing locations.

Neighborhoods south of Baseline Road and east to Riverside Avenue have missing sidewalks and curb ramps needed to access bus stops along these corridors. For example, the bus stop on Riverside Avenue and Wabash Street is connected by a sidewalk on Riverside Avenue, however, Wabash Street is missing sidewalks on both sides. Neighborhoods to the west and north have a well-connected sidewalk network to access the bus stops on Riverside Avenue and Baseline Road. There have been 18 reported pedestrian related collisions with 10 occurring on Baseline Road.

Ten of the 16 bus stops have bus shelters, and four others have benches. Two bus stops, Riverside Avenue and Wabash Street, lack bus shelters and benches due to narrow sidewalk widths and being located along residential streets.

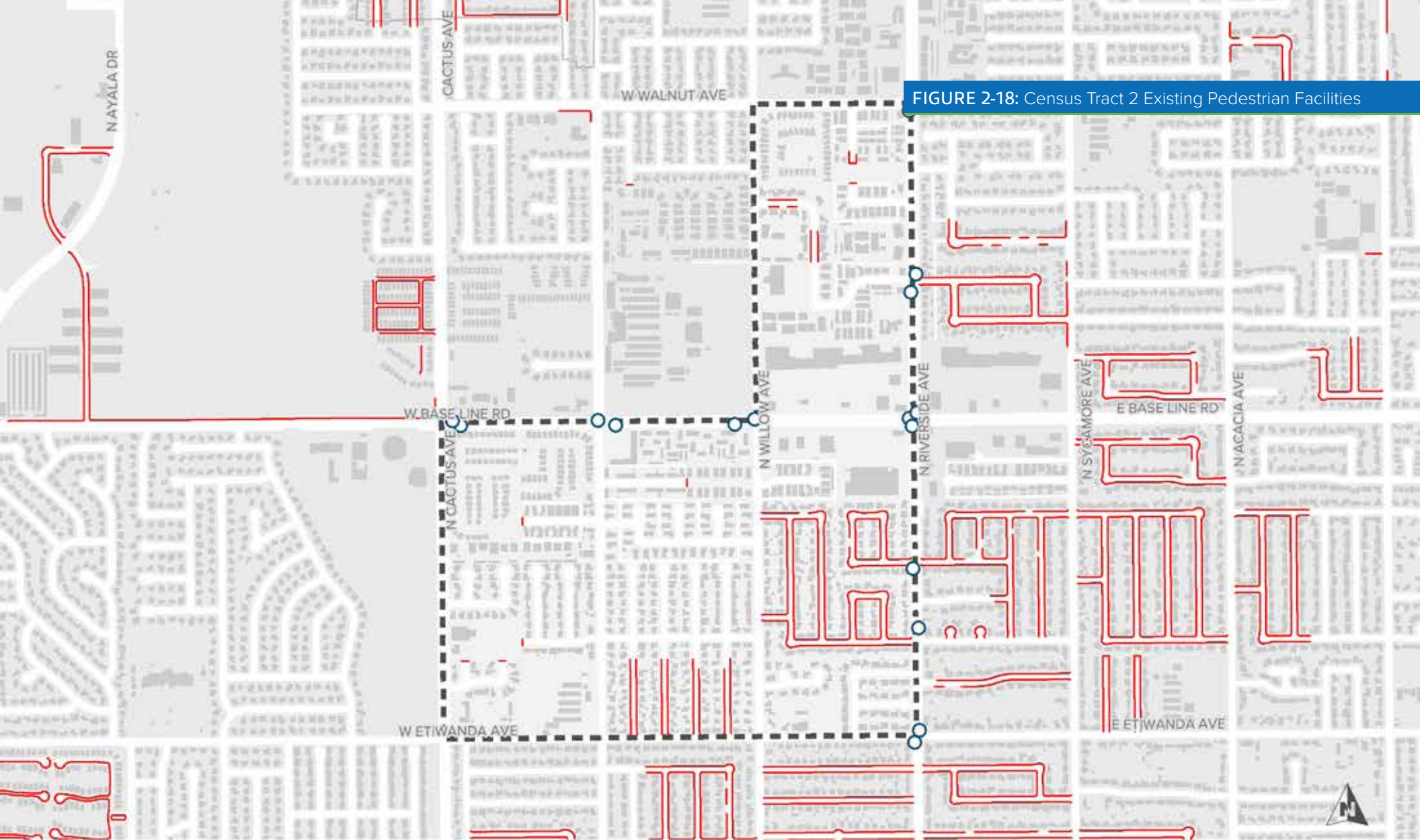





Sidewalk with parkway along Willow Avenue



Lack of sidewalks along Verde Avenue

FIGURE 2-18: Census Tract 2 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

CENSUS TRACT 3

Bloomington

This Census Tract is located in the unincorporated community of Bloomington, although a small portion of the tract spills into the neighboring City of Rialto. The main high collision corridors covered in this tract are Valley Boulevard, Cedar Avenue, Bloomington Avenue, and Magnolia Street.

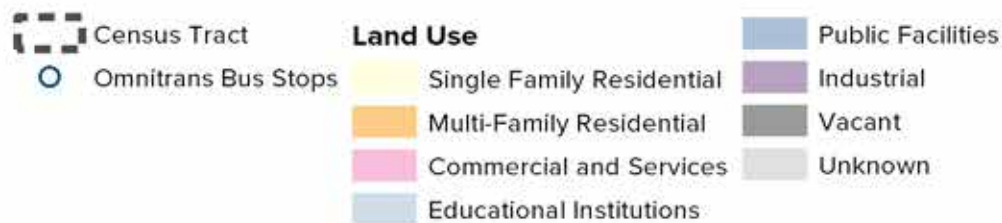
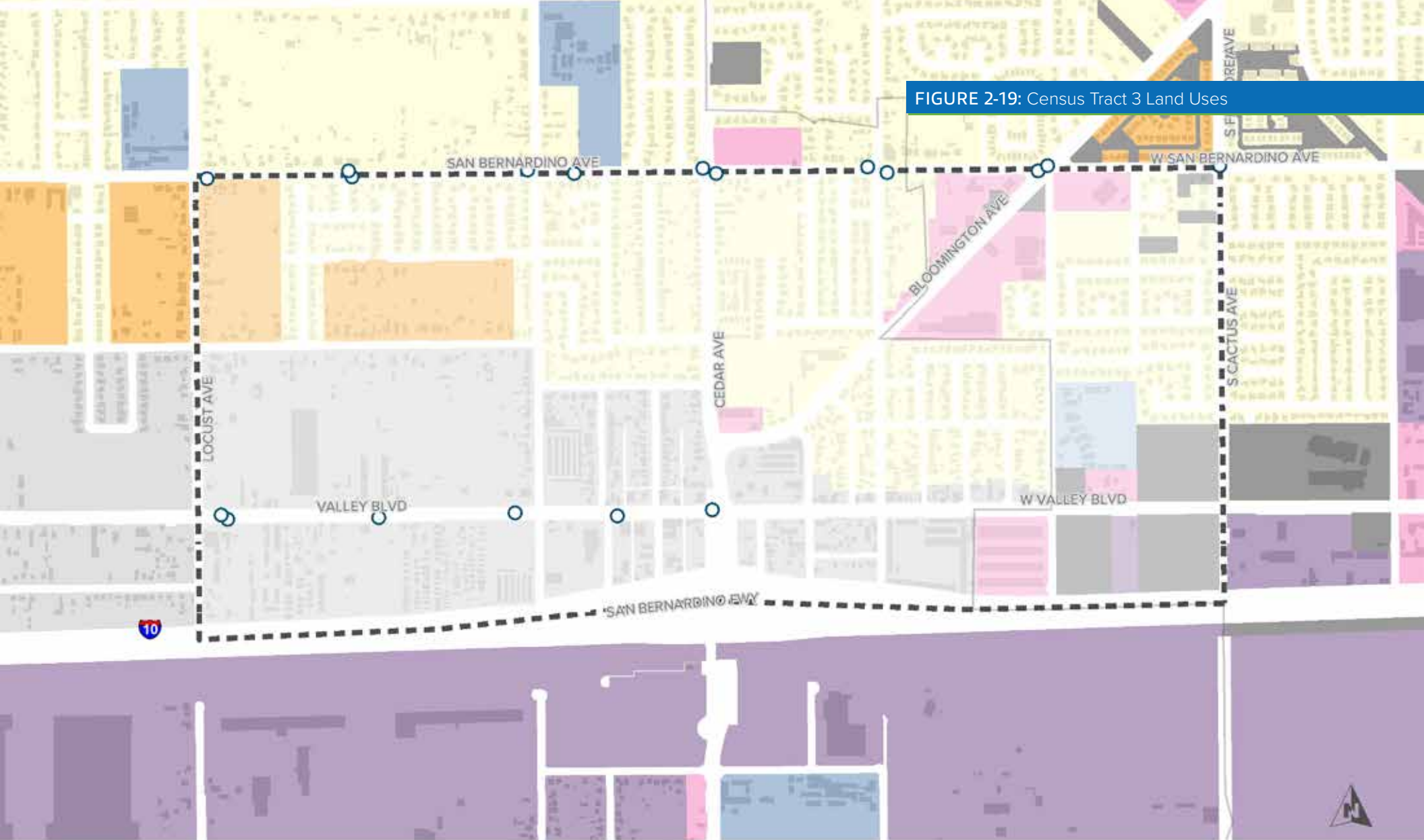
Land Use

Census Tract 3 has a suburban street pattern of primarily single family-residential development with pockets of other land uses that include multi-family residential, commercial and office, public facilities, and industrial uses. Within this Census Tract, commercial uses, services, and multi-family residential developments tend to concentrate along some of the major thoroughfares that connect the entire region, including San Bernardino Avenue and Valley Boulevard (see Figure 2-19). Busier bus stops are also located in these areas with more diverse land uses.

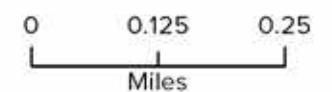


Commercial and residential uses along Cedar Avenue and Valley Boulevard

FIGURE 2-19: Census Tract 3 Land Uses



Data Sources: Omnitrans,
SCAG, SBCTA



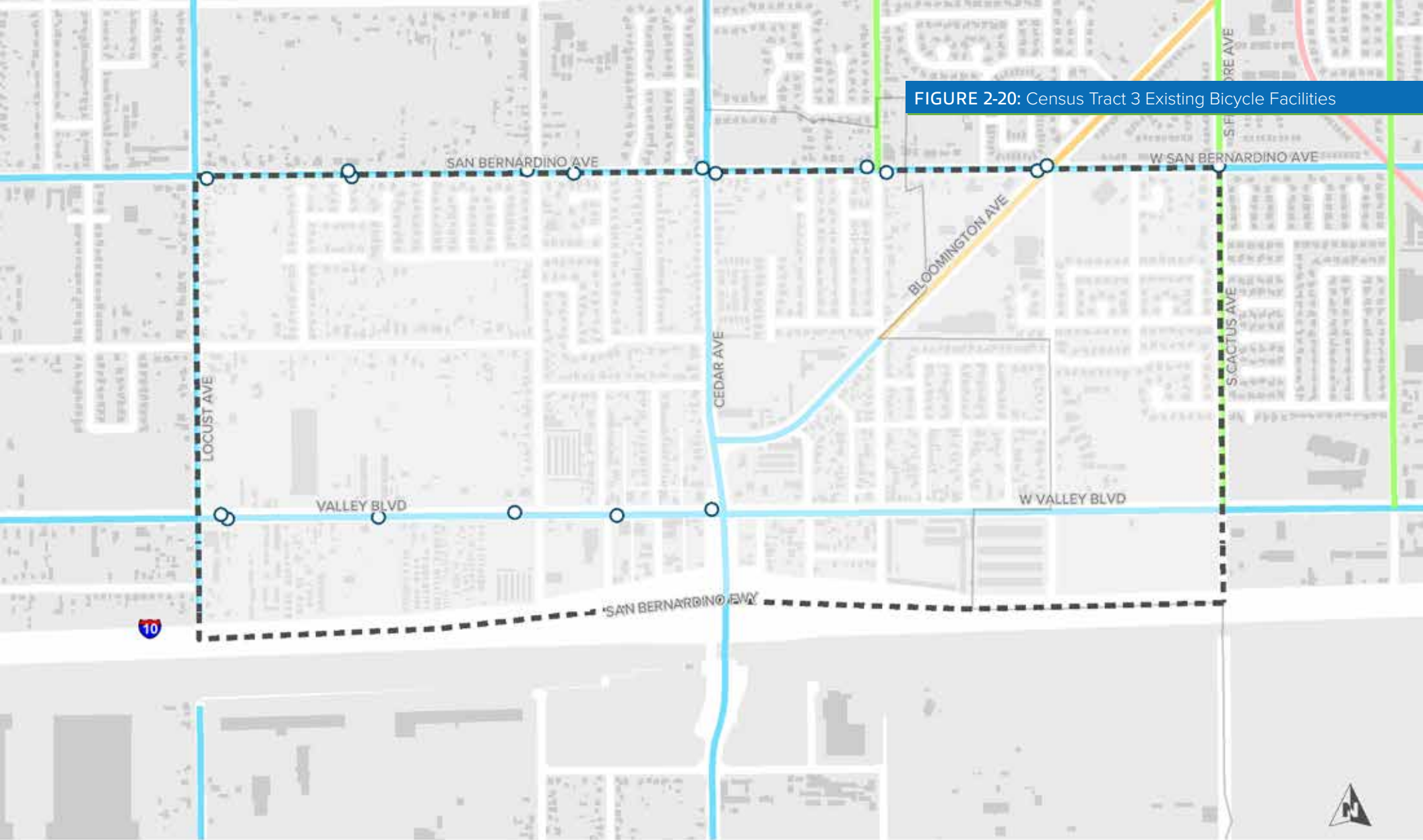
Bicycle Facilities

This Census Tract borders Interstate 10 to the south and lacks bicycle facilities within and adjacent to the Census Tract, as shown in Figure 2-20. Transit routes along San Bernardino Avenue and Valley Boulevard/Cedar Avenue lack bicycle facilities with Valley Boulevard and Cedar Avenue experiencing two reported bicycle collisions. Analysis using a three-mile bike shed shows a lack of connected bicycle facilities around this study area. The closest bike facilities are on Ayala Drive and Olive Street, however, they do not connect to the study area. San Bernardino Avenue is primarily adjacent to the back of residential land use, so there is little to no interaction between the residences and the street itself. No reported bicycle collisions have occurred along this corridor. Valley Boulevard is primarily industrial land use. Proposed bicycle facilities from the Rialto Active Transportation Plan and SBC-TA's Non-Motorized Transportation Plan are recommending bicycle facilities along these routes and within the Census Tract to connect the two communities. Bloomington Avenue is recommended as a Class IV separated bikeway adjacent to commercial land use. Valley Boulevard, Cedar Avenue and San Bernardino Avenue are being recommended as bike lanes.



Lack of bicycle and pedestrian facilities along San Bernardino Avenue

FIGURE 2-20: Census Tract 3 Existing Bicycle Facilities



- Census Tract**
- Omnitrans Bus Stops
- Planned Bikeways**
- Class I: Multi-Use Path
 - Class II: Bikelane
 - Class III: Bike Route
 - Class IV: Separated Bikelane

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

Pedestrian Facilities

This Census Tract borders Interstate 10 to the south and has a disconnected pedestrian network within and adjacent to the Census Tract, as seen in Figure 2-21. Bus stops along San Bernardino Avenue and Valley Boulevard lack a continuous sidewalk network and curb ramps. According to the sidewalk data from SBCTA, 40 percent of the sidewalks are missing and/or unbuilt within the Census Tract. Crosswalks are present at signalized intersections and at two pedestrian crossings on Valley Boulevard at Magnolia Street and Orchard Street. Pedestrian/median refuge islands exist at these two crossings and are located near bus stops but lack additional safety countermeasures for people walking, such as a Rectangular Rapid Flashing Beacon, or Pedestrian Hybrid Beacon, which is common for this Census Tract. Additional crossings would provide shorter distances for people to walk to cross the street and would discourage illegal and potentially dangerous crossings.

This Census Tract varies in block length due to the rural residential land use pattern in the southwest and pockets of single- and multi-family residential and commercial land use. Sidewalks and curb ramps within the residential neighborhoods vary with sidewalks present in newer developments. Cedar Avenue is the only arterial with a connected sidewalk network which also traverses over Interstate 10. Twenty-one pedestrian-related collisions have been reported with 14 on Valley Boulevard and three on Cedar Avenue.

There are 18 bus stops within this Census Tract and none have bus shelters and nine bus stops have benches. Shelters will be a challenge to install due to narrow sidewalks, unavailable space, or areas without sidewalks. The bus stops without benches are primarily along San Bernardino Avenue where there are long stretches of missing sidewalk, unavailable space or the sidewalk is too narrow. It should be noted that the reason some bus stops are missing certain amenities is due to the lack of space at the stop. An eight foot wide sidewalk is needed for ADA compliance plus a bench. An area 10 feet by 25 feet is needed to fit a shelter.

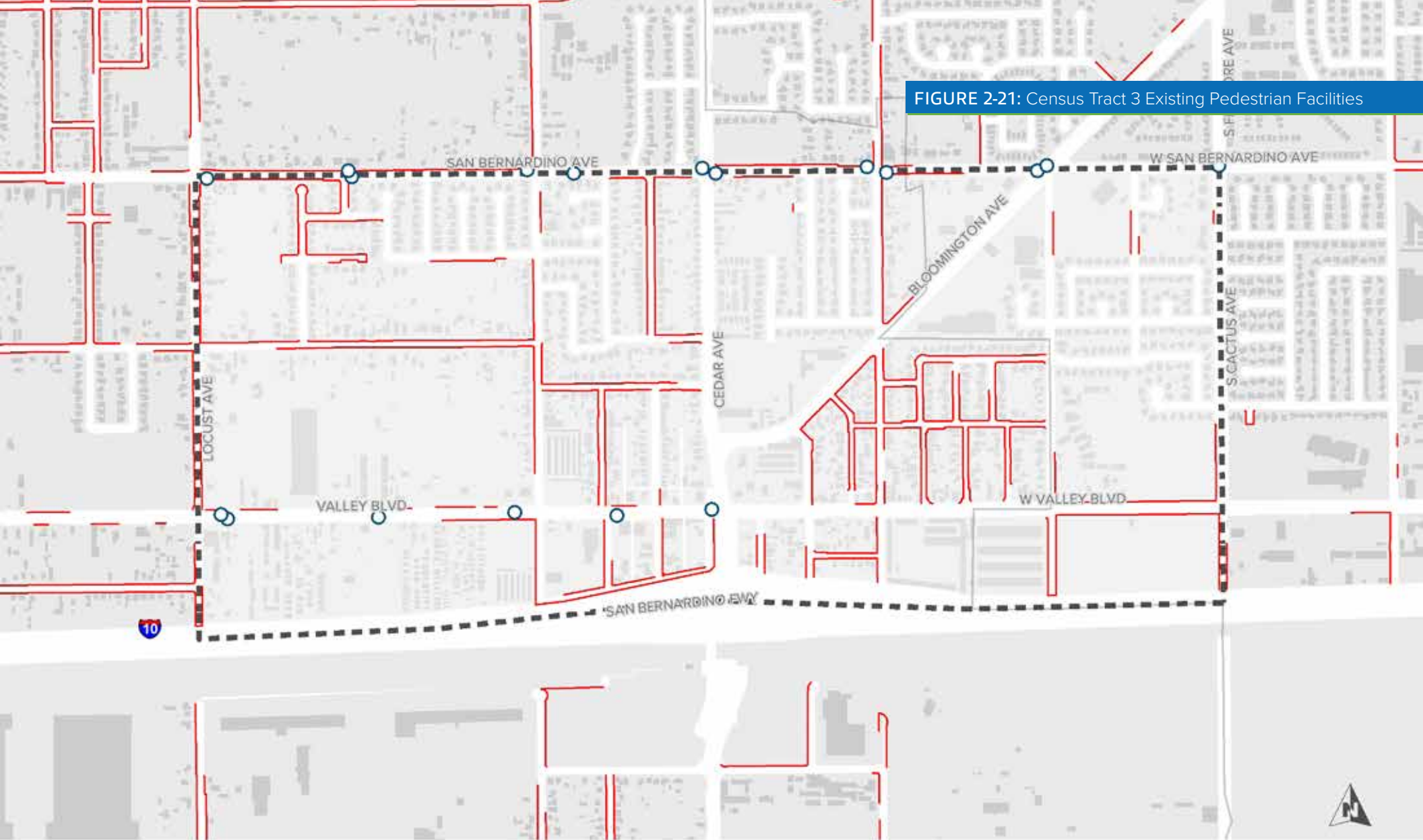





Segments of San Bernardino Avenue lack sidewalks on one side of the road



Pedestrian refuge islands on Valley Boulevard

FIGURE 2-21: Census Tract 3 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

CENSUS TRACT 4

Grand Terrace and Colton

This Census Tract is located in the cities of Grand Terrace and Colton. The main corridors covered in this tract are Washington Street, Meadow Lane, Barton Road, Mohave Drive, and Interstate 215.

Land Use

Census Tract 4 located to the southeast of the San Bernardino Valley and has a similar land use distribution to the aforementioned Census Tract study areas, as shown in Figure 2-22. While the proportion of multi-use family residential uses is higher than commercial uses within this Census Tract, both tend to concentrate along I-215 and Barton Road, classified as a major highway under Grand Terrace's Circulation Element. The busier bus stops in this Census Tract are also located along Barton Road and Washington Street.

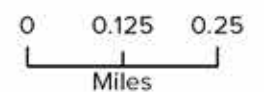


Commercial uses at the intersection of Barton Road and Mount Vernon Avenue

FIGURE 2-22: Census Tract 4 Land Uses



Data Sources: Omnitrans,
SCAG, SBCTA



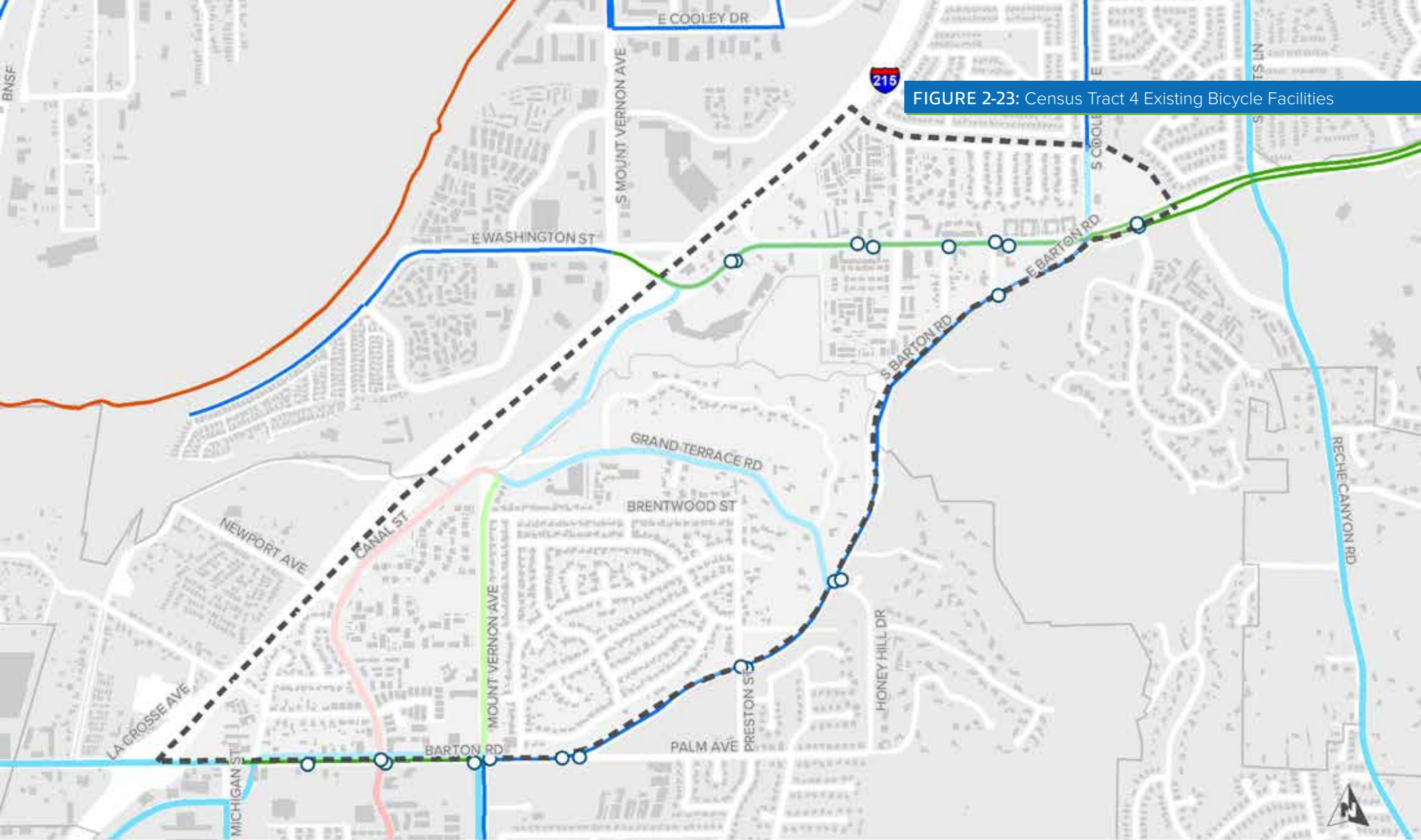
Bicycle Facilities

Barton Road has bike lanes between Mt Vernon Avenue and Cooley Drive in Colton. Class III bike routes exist along Barton Road between Michigan Street and Mt Vernon Avenue and on East Washington Street in Colton (see Figure 2-23). The remainder of the Census Tract lacks bicycle facilities with few roadways to make connections between the two cities and existing bicycle facilities. Unlike the other Census Tracts, the existing bike facilities are located along existing transit routes, providing connections to transit stops and for bicycle travel. The Santa Ana River Trail provides a bicycle and pedestrian connection between the cities of San Bernardino and Riverside and is located within a mile of the study area. Like San Bernardino Avenue in Census Tract 3, the residential land use along Barton Road is primarily the back of properties with little to no interaction between the residences and the street. Two bicycle-related collisions have occurred along these corridors, both in the City of Colton near commercial and office land use. Active transportation plans from Grand Terrace and Colton recommended a connected bicycle network to make connections to these transit stops, and recent gains have been made. A preliminary design for a cycle track the length of Michigan Street has been developed (but not formally approved yet.) The facility will connect to bicycle facilities in other parts of Grand Terrace, including along Main Street, Barton Road, and Mt Vernon Avenue.






Class II bike lane along Barton Road

FIGURE 2-23: Census Tract 4 Existing Bicycle Facilities



Data Sources: Omnitrans,
SCAG, SBCTA

- | | | |
|---|---|---|
|  Census Tract | Planned Bikeways | Existing Bikeways |
|  Omnitrans Bus Stops |  Class I: Multi-Use Path |  Class I: Multi-Use Path |
| |  Class II: Bikelane |  Class II: Bikelane |
| |  Class III: Bike Route |  Class III: Bike Route |

0 0.125 0.25
Miles

Pedestrian Facilities

This Census Tract has a curvilinear and irregular street pattern due to its varying single-family and rural residential land use patterns, as shown in Figure 2-24. Commercial land uses can be found along Barton Road in Grand Terrace and Washington Street in Colton. The Fiesta Village Family Fun Park has been identified as a focus area from SBC-TA's Points of Interested Pedestrian Plan and is located on Washington Avenue. Along Barton Road, Grand Terrace Elementary, retail shopping, and the Terrace Branch Library have also been identified as focus areas for people walking. Crosswalks and curb ramps are present at all signalized intersections. However, consistent crosswalks are generally missing as are added amenities for people walking. Visually enhanced brick sidewalks are present along Barton Road at Michigan Street and Mt Vernon Avenue. Additional crosswalks can be found around Grand Terrace Elementary School and Terrace View Elementary School.

The sidewalk and curb ramp network are very disconnected with almost every street missing a sidewalk segment. According to the sidewalk data from SBCTA, 60 percent of the sidewalks are missing and/or unbuilt within the Census Tract. The most complete sidewalk network is on Washington Street between the Interstate 215 interchange and Barton Road. Barton Road is missing sidewalks between Washington Street and Honey Hill Drive/Grand Terrace Road intersection which is fronted by the back fences of adjacent single-family residential buildings resulting in little interaction with the street. Bus stops are located along Barton Road and Washington Street and are typically well connected by the existing sidewalks and curb ramps except for a few on Barton Road. Eight pedestrian collisions have been reported in this Census Tract with three occurring on Washington Street and two on Barton Road.

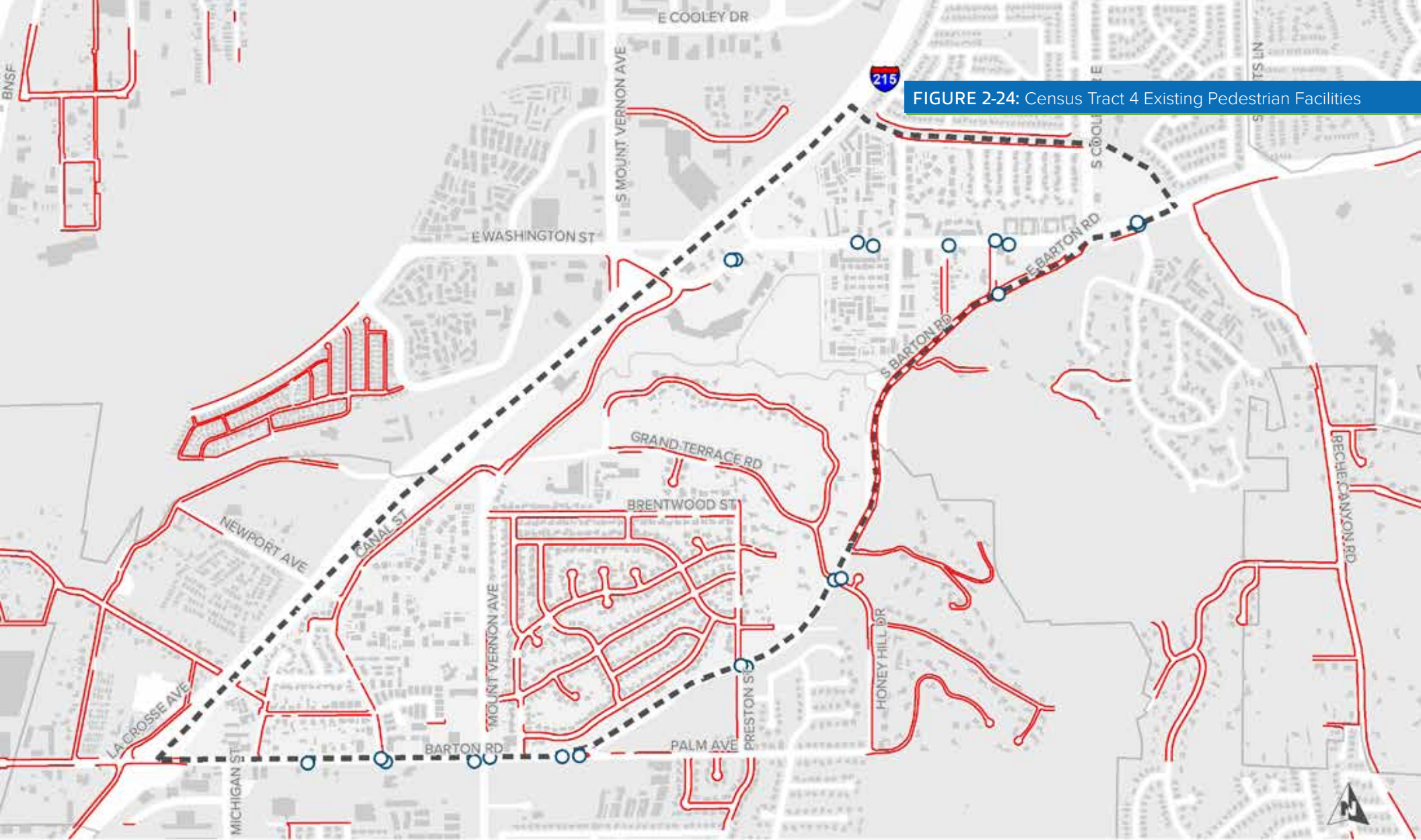
Sidewalk improvements have been identified from the Grand Terrace Active Transportation Plan to fill in the missing sidewalks around Grand Terrace Elementary where it will directly affect access to the bus stops




on Barton Road. Twenty-one bus stops are within this Census Tract with nine having shelters, three on Washington Street and six on Barton Road. Three bus stops have benches only and the remaining nine have benches and shelters due to narrow sidewalks and unavailable space. Coordination with adjacent business owners may be needed to provide space for benches or shelters. The bus stop at Barton Road and Walin Street lacks a flat ADA-compliant sidewalk boarding area connected to the curb, connecting sidewalks, curb ramps, and bus stop amenities but is illuminated. It should be noted that the reason some bus stops are missing certain amenities is due to the lack of space at the stop. An eight foot wide sidewalk is needed for ADA compliance plus a bench. An area 10 feet by 25 feet is needed to fit a shelter.



Various areas within Census Tract 4 lack sidewalks

FIGURE 2-24: Census Tract 4 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

CENSUS TRACT 5

Downtown San Bernardino

This Census Tract is located in downtown San Bernardino. The main corridors covered in this tract are 5th Street, Arrowhead Avenue, 9th Street, Sierra Way, and 2nd Street.

Land Use

Located in downtown San Bernardino, Census Tract 5 has a wide mix of land uses, with many offices, educational institutions, and open spaces. Small pockets of single- and multi-family residential uses can be found towards the southern half of this Census Tract, as seen in Figure 2-25. The busier bus stops within this Census Tract are along Waterman Avenue, Arrowhead Avenue, and Sierra Avenue, where large concentrations of industrial and commercial uses can be found. At the same time, these corridors experience the largest numbers of pedestrian and bicycle collisions within this Census Tract between 2014 and 2018. The bus stop with the highest average daily ridership is located at the intersection of Waterman Avenue and 9th Street, which due to its proximity to the Waterman Discount Mall, Neal Roberts Elementary School, and Sierra High School.

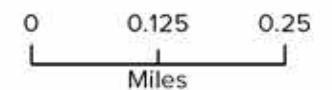


Mix of uses in Downtown San Bernardino

FIGURE 2-25: Census Tract 5 Land Uses



Data Sources: Omnitrans,
SCAG, SBCTA



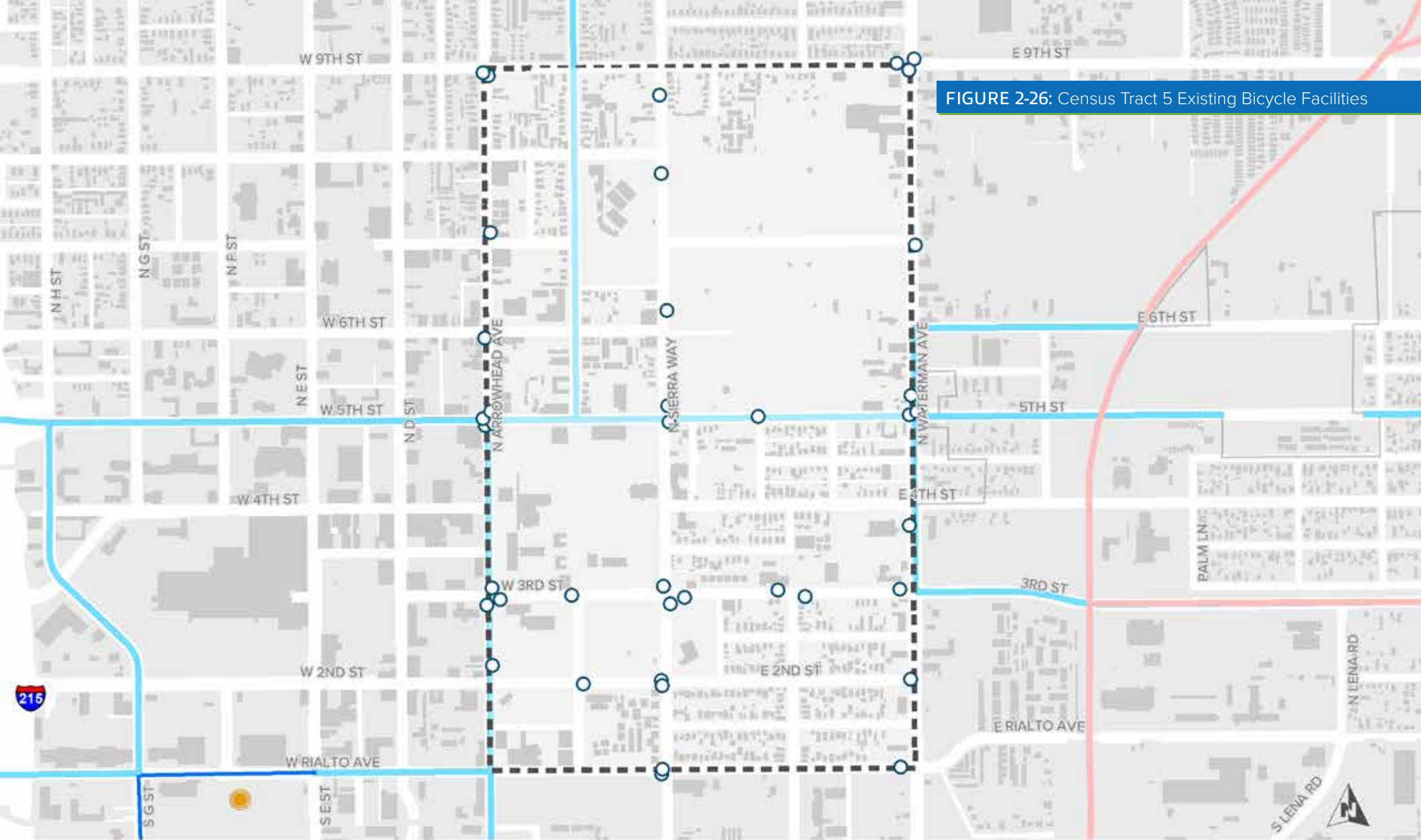
Bicycle Facilities

Despite this Census Tract being located near various land uses, the downtown core, and the regional-serving multimodal San Bernardino Transit Center, bicycle facilities are non-existent, as seen in Figure 2-26. The closest bicycle facilities are on G Street and Rialto Avenue to the west of the study area. Bicycle related collisions have primarily occurred along the corridors where existing transit routes are present. Several of these collisions are near bus stops. Proposed bicycle facilities are being recommended primarily along the larger corridors such as Arrowhead Avenue, 5th Street, and Waterman Avenue. According to the SBCTA Non-Motorized Transportation Plan, Sierra Way, on which four reported bicycle collisions have occurred, was not recommended as a bicycle facility. The City of San Bernardino is currently developing a new Active Transportation Plan and may have more up to date recommendations.



Lack of bicycle facilities in Census Tract 5

FIGURE 2-26: Census Tract 5 Existing Bicycle Facilities



- Census Tract
- Omnitrans Bus Stops
- Planned Bikeways**
 - Class I: Multi-Use Path
 - Class II: Bikelane
- Existing Bikeways**
 - Class II: Bikelane

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

Pedestrian Facilities

This Census Tract encompasses various land uses, including downtown San Bernardino, the San Bernardino Transit Center, and has a well-connected pedestrian network, albeit also missing regular marked and protected crossings, like other parts of the study area (see Figure 2-27). According to the sidewalk data from SBCTA, 88 percent of the built-out pedestrian network exists. The PIPP identifies the San Bernardino County Courthouse, Civic Center, and Meadowbrook Park as focus areas for people walking. A roundabout has been installed at Mountain View Avenue and 4th Street, which provides safer access for people walking to the San Bernardino County Government Center. Marked crosswalks exist at signalized intersections and near schools such as Norton Elementary School. Other crosswalks can be found on Sierra Way at 7th Street and on 3rd Street at Mountain View Avenue, although the crosswalks are on just one side of the street; whereas best practice is to mark them on both sides of the street. Unsignalized intersections typically do not have any traffic calming or additional protection for people walking to improve the crossing.

Accessibility to the bus stops along Waterman Avenue from the east have missing sidewalk segments along some major connectors, such as 3rd Street, 5th Street, 6th Street, and 8th Street. These segments of missing sidewalks are along vacant, industrial, and rural residential leading into the downtown core. There have been 32 pedestrian related collisions with the majority occurring along the major streets, such as Arrowhead Avenue, Waterman Avenue, 9th Street, and 5th Street, which are also the locations of bus stops. Other bus stops are also located on Rialto Avenue, Sierra Way, 2nd Street, and 3rd Street.

There are 40 bus stops which are evenly distributed geographically across the Census Tract. Of these 40, five have bus shelters and are primarily located on 9th Street, Arrowhead Avenue, and Rialto Avenue. Seventeen bus stops have benches with the remaining 18 bus stops lacking a bench or shelter. Due to this Census Tract being in an urban environment, all bus stops have some form of lighting such as ambient lighting from adjacent buildings, streetlights and solar light poles. It should be noted that the reason some bus stops are missing certain amenities is due to the lack of space at the stop. An eight foot wide

sidewalk is needed for ADA compliance plus a bench. An area 10 feet by 25 feet is needed to fit a shelter. here often is not enough right-of-way for these amenities.






One of the few areas in the Census Tract that is missing sidewalks



While some areas have sidewalks, they lack curb ramps

FIGURE 2-27: Census Tract 5 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles

CENSUS TRACTS 6-9

San Bernardino and Highland

Census Tracts 6 through 9 are located in the southeast portion of the City of San Bernardino and the eastern portion of the City of Highland. The high collision corridors covered in these tracts are Highland Avenue, Pacific Street, Del Rosa Avenue, Waterman Avenue, and Golden Avenue.

Land Use

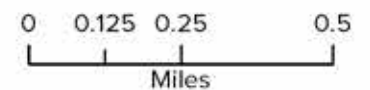
Census Tracts 6 through 8 are located entirely in northern San Bernardino, while Census Tract 9 includes the northwest edge of the City of Highland. Single- and multi-family residential uses dominate in Census Tracts 7, 8, and 9, along with smaller pockets of commercial, industrial and open space uses, as shown in Figure 2-28. Census Tract 6 contains larger areas dedicated to open space, educational institutions, and public facilities where important destinations are located, including the Saint Bernardine Medical Center, Pacific High School, and the San Bernardino Family Young Men's Christian Association (YMCA).

Several Omnitrans bus routes run along major corridors within these Census Tracts that include Highland Avenue in all four Census Tracts, Baseline Street in Census Tracts 6 and 9, Waterman Avenue in Census Tract 6, and Pacific Street in Census Tracts 6, 8, and 9. As a result, some of the busiest bus stops in Omnitrans' system can be found along these thoroughfares, including the bus stop located at the intersection of Highland Avenue and Del Rosa Avenue, which has the highest average daily ridership in this area. Other important bus stops can also be found along Highland Avenue at the intersections with Victoria Avenue, Sterling Avenue, and Golden Avenue, as well as the bus stop at Baseline Street at Waterman Avenue. Similarly to the other Census Tracts, the highest number of pedestrian and bicycle collisions between 2014 and 2018 took place along these corridors, with the highest concentration of collisions found at Highland Avenue, Baseline Street, Gilbert Street/Pacific Street, and Del Rosa Avenue.



Single-family residential uses north of San Geronio High School

FIGURE 2-28: Census Tracts 6-9 Land Uses



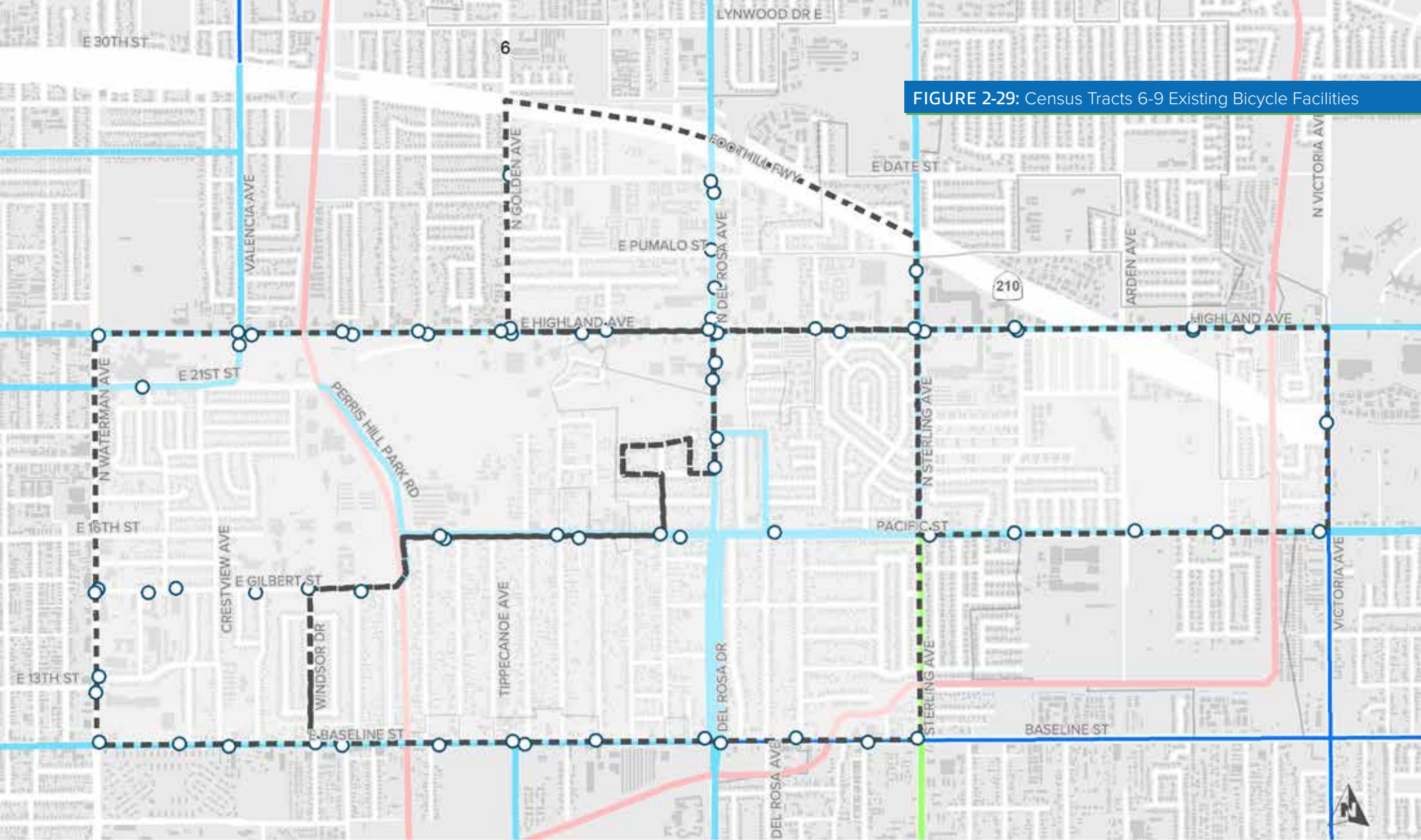
Bicycle Facilities

This group of adjoining Census Tracts lie within the cities of San Bernardino and Highland. Only a small section of bike lane exists within this study area on Baseline Street between De La Rosa Drive and Sterling Avenue in the City of Highland, as seen in Figure 2-29. Other existing bicycle facilities with a three-mile bike shed include bike lanes on 5th Street, 9th Street and Victoria Avenue in the City of Highland. Valencia Avenue, Mountain View Avenue and Arrowhead Avenue are existing bike lanes within the City of San Bernardino. Diversity of land uses within these tracts are conducive to shorter bicycle trips, but the lack of bicycle facilities highly discourages longer regional bicycle trips. The transit corridors primarily run along commercial, single family, and multi-family residential and office land uses. Bicycle collisions have occurred primarily along the transit routes adjacent to commercial and multi-family housing land uses. According to the SBCTA Non-Motorized Transportation Plan bicycle facilities are being proposed along the major corridors with transit routes, such as Highland Avenue, De La Rosa Avenue Pacific Street, and Baseline Street.



Class II bike lane along Baseline Street

FIGURE 2-29: Census Tracts 6-9 Existing Bicycle Facilities



- Census Tract**
- Omnitrans Bus Stops**
- Planned Bikeways**
- Class I: Multi-Use Path
 - Class II: Bikelane
 - Class III: Bike Route
- Existing Bikeways**
- Class II: Bikelane

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25 0.5
Miles

Pedestrian Facilities

This predominantly single-family residential land use with pockets of retail and vacant land has a large grid street configuration with irregular street patterns within these blocks making for longer walks to the transit corridors, as shown in Figure 2-30. The lack of crosswalks make for even longer walks to bus stops and transit corridors. Transit corridors run along the major arterials, including Highland Avenue, Waterman Avenue, Baseline Street, Pacific Street, Golden Avenue, Victoria Avenue, and Del Rosa Drive. Sidewalks are missing throughout these Census Tracts and while some of the newer residential neighborhoods have sidewalks, gaps still exist. According to the sidewalk data from SBCTA, 51 percent of the pedestrian network is missing and/or unbuilt. Among the transit corridors mentioned above, sidewalks are more prevalent along Highland Avenue, Waterman Avenue, and Victoria Avenue. Pacific Street, Baseline Street, and Del Rosa Drive have sidewalk gaps. Missing sidewalks can be found adjacent to bus stops on Baseline Street. There have been 109 pedestrian related collisions primarily along the major arterials.

Marked crosswalks can be found at all major signalized intersections and near schools. Additional pedestrian crossings can be found on 21st at the St. Bernardine Medical Center, Gilbert Street at Anton Elementary School, Pacific Street at Pacific High School, San Geronio High School and Fairfax Elementary School and Date Street, Pumalo Street, and Golden Avenue near Jefferson Hunt Elementary School. However, these crosswalks are typically just on one side of the street, not both sides of the street, which is best practice. A pedestrian crossing exists on Baseline Street at Valaria Drive but lacks additional countermeasures for people walking, such as a Rectangular Rapid Flashing Beacon, or median refuge, which is typical for the lack of pedestrian crossings in the region. Sidewalks exist at all the major over and underpasses at State Route 210. Streets, such as Arrowhead Avenue, Mountain Avenue, and Sierra Way, are more friendly for people walking over Highway 210 since they do not incorporate a highway interchange. Crossings at these interchanges are uncomfortable for most people walking because of the volume of vehicular traffic and speeds as vehicles enter and exit the freeway. Additionally, large curb returns coupled with high

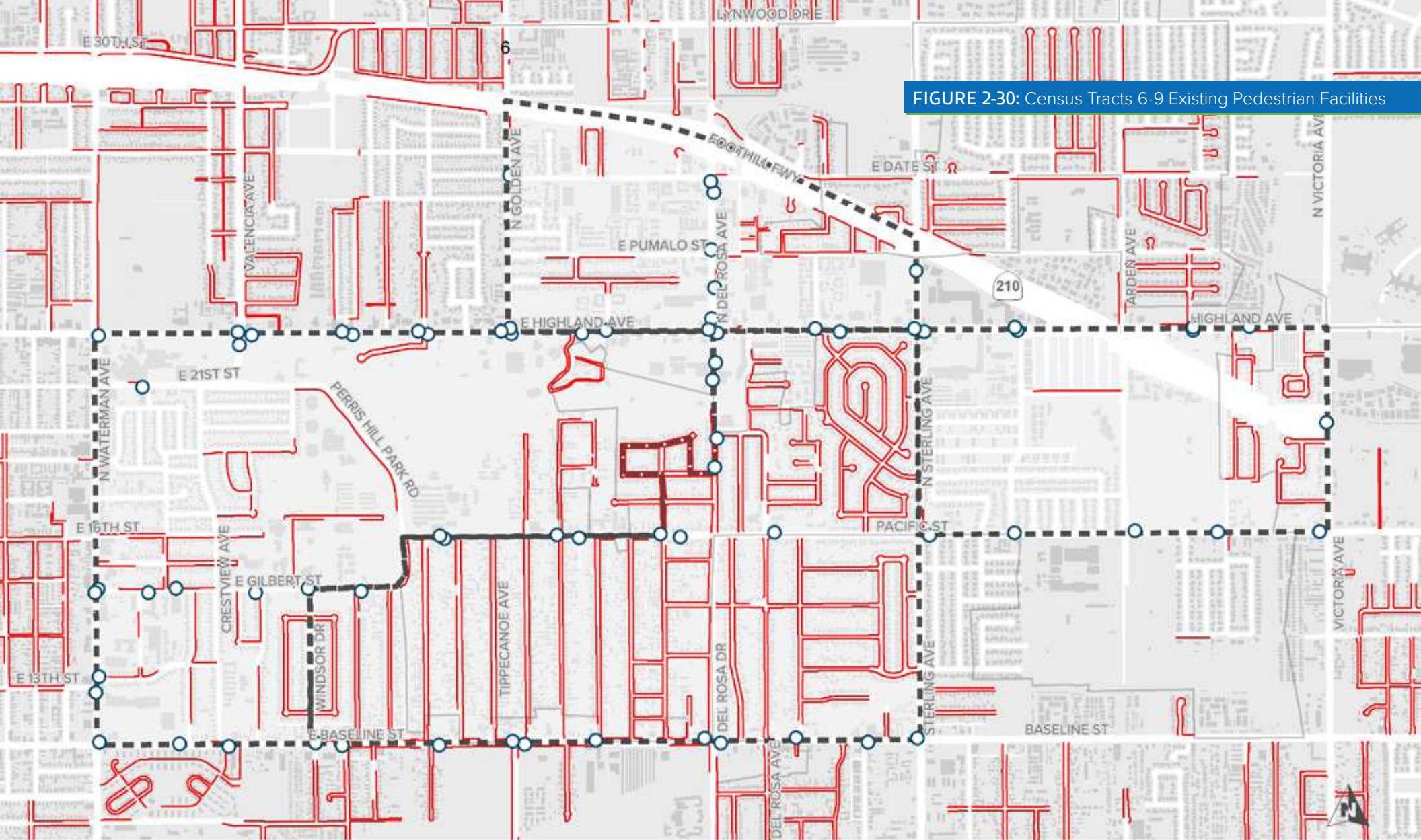
motor vehicle speeds make for an especially unfriendly environment for people walking around freeway on-ramps and off-ramps.




Of the 72 bus stops within these Census Tracts, 25 have bus shelters and are located along Waterman Avenue, Baseline Street, Highland Avenue, and Del Rosa Drive. Another 24 bus stops have benches and the remaining 23 do not have benches. Only four of the bus stops have been identified as having very little ambient or no lighting along Pacific Street and the other two on Del Rosa Drive. The remaining 28 bus stops are located near a streetlight or have ambient lighting from a nearby building. It should be noted that the reason some bus stops are missing certain amenities is due to the lack of space at the stop. An eight foot wide sidewalk is needed for ADA compliance plus a bench. An area 10 feet by 25 feet is needed to fit a shelter.



Lack of sidewalks along Baseline Street

FIGURE 2-30: Census Tracts 6-9 Existing Pedestrian Facilities



-  Census Tract
-  Missing Sidewalk
-  Omnitrans Bus Stops

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25 0.5
Miles

2.7 Policy and Planning Context

The following documents comprise the primary local and regional planning efforts affecting the Omnitrans BSSIP. The policy recommendations made within this BSSIP will take into account the following plans, which will provide context for efforts by Omnitrans, local jurisdictions, and partner agencies efforts to improve safety at and around bus stops. For each document, relevant policies, goals, and excerpts are provided.

General Plans

- » City of Fontana General Plan⁵
- » City of Grand Terrace General Plan⁶
- » City of Highland General Plan⁷
- » City of Rialto General Plan⁸
- » City of San Bernardino General Plan⁹
- » San Bernardino Countywide Plan and Bloomington Community Plan¹⁰

Active Transportation Plans

- » Fontana Active Transportation Plan¹¹
- » Grand Terrace Active Transportation Plan¹²
- » Rialto Active Transportation Plan

SCAG Connect SoCal

- » Active Transportation Technical Report¹⁴
- » Passenger Rail Technical Report
- » Transportation Safety and Security Technical Report
- » Transit Technical Report

San Bernardino County Transportation Authority

- » San Bernardino County Non-Motorized Transportation Plan¹³
- » SBCTA Improvement to Transit Access for Cyclists and Pedestrians¹⁵
- » SBCTA Points of Interest Pedestrian Plan¹⁶
- » Rialto Safe Routes to School Program and Plan
- » SBCTA Regional Safe Routes To School Plan Phase I & II



2.7.1 General Plans

Fontana General Plan (2018)

In the Community Mobility and Circulation section of Fontana's General Plan, one strategy is to create a Bus Stop Master Plan to include bus shelters and other amenities and improvements for accessing and using bus stops.

Grand Terrace General Plan (2010)

The following policies and actions included in Grand Terrace's General plan are related to alternative transportation modes and transit:

Policy 3.5.4: The City shall work closely with the regional transit agencies to ensure that convenient and affordable bus service continues to be available to local residents.

Action: Appoint a City Council representative to Omnitrans to represent the City's mass transit interests.

Policy 3.5.5: The City shall work with Omnitrans and SBCTA [formerly] known as SANBAG to implement a public transit system that meets the City's need for internal circulation as well as connections to regional activity centers and inter-urban transit routes.

Goal 9.5: Provide alternative transportation modes designed to reduce vehicle miles traveled.

Policy 9.5.1: The City shall encourage alternative transportation modes, including mass transit, ride sharing, bicycles, and pedestrian transportation.

Action: Select sites with available alternative transportation services.

Implementation: Select sites that are in close proximity to mass transit lines and bikeways.

Highland General Plan (2012)

The following goals and policies from the Circulation Element in the Highland General Plan support overall transportation safety enhancements.

Goal 3.5: Promote bus service and paratransit improvements

Policy 3.5.4: Coordinate with Omnitrans to provide safe, clean and attractive bus shelters at bus stops and transfer stations.

Goal 3.4: Provide a safe circulation system.

Policy 3.4.8: Implement street design features such as the use of medians, bus turnouts and consolidated driveways to minimize mid-block traffic congestion.

Rialto General Plan (2010)

The Circulation Element of the Rialto General Plan includes the following policies related to safety, connectivity, and design:

Policy 2-12.7: Shade bus shelters and other outdoor use areas from the sun. Commercial projects along major corridors in Rialto shall incorporate at least one bus shelter, taxi stop, bicycle rack, and/or similar transportation or pedestrian features. The design of these features shall be consistent with the identity, feel, and theme of that corridor.

Policy 4-4.1: Designate and mark school bus stops at curbs within neighborhoods to create clear curbside boarding spaces for school bus passengers.

Policy 4-4.2: Review campus site plans to ensure that school bus bays, parking lots, automobile passenger pick-up and drop-off areas, bicycle sheds and paths, and pedestrian walks are designed to maximize separation of travel modes, and to minimize danger to arriving and departing students and school personnel.

Policy 4-6.2: Establish new bus turnouts along appropriate arterials based on and in coordination with local and regional transit providers' master plan of stops.

Policy 4-6.5: Encourage clean, lighted, and convenient bus shelters and transit stops that are within walking distance of major activity areas and residential neighborhoods and along arterial roadways.

Policy 4-7.2: Achieve better integration of all transit and multimodal options at the Rialto Metrolink Station.

Policy 4-8.4: Require provision of secure bicycle storage, including bicycle racks and lockers, at the Metrolink station, public parks, schools, shopping centers, park-and-ride facilities, and other major activity centers.

Policy 5-9.6: Support Neighborhood Watch Programs.

Policy 5-9.8: Continue to provide community programs that develop positive relationships between the Rialto Police Department and community members, such as the Area Commander Program and Crime Free Multi-Housing Program, which provide a safe and secure environment for the community to discuss gang-related issues and effective solutions to help reduce crime and provide a safer living environment.

Policy 4-6.1: Support the establishment of an east-west Bus Rapid Transit line through the Valley along Foothill Boulevard.

Policy 4-6.6: Provide reliable and convenient paratransit services and other transportation service for individuals with disabilities and seniors who are unable to use fixed-route transportation systems.

Policy 4-9.1: Install sidewalks where they are missing, and make improvements to existing sidewalks for accessibility purposes. Priority should be given to needed sidewalk improvement near schools and activity centers. Provide wider sidewalks in areas with higher pedestrian volumes.

Policy 5-8.3: Continue to encourage design concepts that inhibit and discourage criminal behavior, such as Crime Prevention Through Environmental Design (CPTED) techniques.

Policy 4-9.3: Provide pedestrian-friendly and safety improvements, such as crosswalks and pedestrian signals, in all pedestrian activity areas.

Policy 2-11.4: Incorporate street trees and other landscape treatments along corridors to provide sufficient shade canopy and promote pedestrian comfort.

San Bernardino General Plan

The following policies included in the San Bernardino General Plan are related to transit, reducing traffic, and improving air quality:

Policy 12.6.7: Promote the use of public transit and alternative travel modes to reduce air emissions.

Policy 12.6.6: Continue to cooperate with Omnitrans and the Rapid Transit District to expand as necessary the comprehensive mass transit system for the City to reduce vehicular travel.

Policy 14.2.12: Require that commercial and industrial uses implement transportation demand management programs consistent with the Air Quality Management Plan that provide incentives for carpooling, van pools, and the use of public transit to reduce traffic and associated noise levels in the City.

Policy 14.2.13: Work with local agencies and businesses to provide public transit services that reduce traffic and associated noise.

Policy 14.2.14: Work with public transit agencies to ensure that the buses, vans, and other vehicles used do not generate excessive noise levels.

2.7.2 Active Transportation Plans

Fontana Active Transportation Plan (2017)

The following policies included in Fontana's Active Transportation Plan are related to safety, connectivity, and signage:

Policy 1.B.2: Identify gaps in the pedestrian and bicyclist facilities network and needed improvements to and within key activity centers such as employment centers, schools, Fontana Metrolink station, bus stops, and retail areas, and define priorities for eliminating these gaps by making needed improvements.

Policy 1.C.1: Coordinate with Omnitrans to establish appropriate designs for transit stops and station access ways. Bus stops can provide shelter from the weather, real-time arrival information, electronic signage, benches, garbage cans, and route maps. Bus stops can also become spaces to showcase public art.

Grand Terrace Active Transportation Plan (2010)

In Grand Terrace's Active Transportation Plan, there are a number of improvements documented. These improvements include bicycle improvements which will upgrade the existing bike lane and bike route to Class II bike lanes with three-foot buffers and enhanced green pavement striping at transition areas. Additionally, four bus bay refuges will be built to prevent vehicular stacking in the travel lane, while one curbside bus stop will be installed to improve transit service along the corridor.

Rialto Active Transportation Plan (2010)

The primary goal of the Rialto Active Transportation Plan (ATP) is to encourage the use of alternative modes of transportation such as walking, bicycling, and scootering. The City's priority is to build the non-motorized network to connect the schools along the Etiwanda Corridor to the Pacific Electric Trail and the multimodal facilities at the Rialto Metrolink Station and the citywide bus stops. The ATP also includes a first and last mile assessment targeting the conditions potentially affecting transit use levels within specified distance from high ridership locations within Rialto. The ATP evaluates how to effectively link people to and from transit stops to their origins and destinations, addressing the last mile at each end of their journey where facilities are often lacking.

Rialto Safe Routes to School Program and Plan

The Rialto SRTS Program objectives are: 1) to work with parents, students, schools, community leaders, and elected officials to create a safe and encouraging environment for students to walk or bicycle to school; and 2) to reduce greenhouse gas emission by promoting active modes of transportation that improve the health and wellbeing of the community through walking and bicycling to school. This district wide SRTS Program incorporates the best practice strategies of SRTS, commonly referred to as the "6 Es". These "6 Es" are Education, Encouragement, Enforcement, Engineering, Evaluation, and Equity. Each "E" is meant to remove barriers that prevent students from walking and bicycling to school. The Engineering chapter was used to assist with recommendations for the Baseline Road and Riverside Avenue intersection bus stop recommendations.

2.7.3 SCAG Connect SoCal

In 2020, the Southern California Association of Governments (SCAG) adopted Connect SoCal, a sustainable long range transportation plan for the vast and varied region that includes the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. Connect SoCal is a regional planning document that allows public agencies responsible for implementing transportation projects to do so in a coordinated manner. This plan represents a vision for the region's future and details existing challenges, as well as goals and strategies for a more sustainable region.

The following goals and principles from the Connect SoCal support overall transportation safety enhancements.

Goal 2: Improve mobility, accessibility, reliability, and travel safety for people and goods.

Goal 3: Enhance the preservation, security, and resilience of the regional transportation system.

Goal 6: Support healthy and equitable communities.

Principle 2: Place high priority for transportation funding in the region on projects and programs that improve mobility, accessibility, reliability and safety, and that preserve the existing transportation system.

Additionally, Connect SoCal identifies the importance of Transit Priority Areas (TPAs), which are areas located within one half mile of existing or major transit stops in the region. TPAs are where TOD can be realized by allowing higher density development with easy access to a multitude of safe and convenient transportation alternatives. Focusing regional growth in areas with planned or existing transit stops is key to achieving equity, economic and environmental goals, and ensure access to high-quality transportation.

Connect SoCal is also supported by 20 technical reports that provide additional data and material. The following technical reports were reviewed due to their relevance to this plan:

- » Active Transportation Technical Report
- » Passenger Rail Technical Report
- » Transportation Safety and Security Technical Report
- » Transit Technical Report

Connect SoCal Active Transportation Technical Report

The Active Transportation Technical Report outlines some of the most prominent reasons for investing in active transportation and reviews the impacts that supporting active modes can have on regional transportation mode share. This technical report also evaluates the relationship between active transportation and environmental justice, safety, demographic changes, land use, congestion, among other topics. Additionally, this technical report highlights how active transportation improvements can result in the creation of networks of high-quality sidewalks, crosswalks, and bikeways, and roadways can be made safer and more appealing for people interested in taking bicycling and walking trips.

The following strategies included in the Active Transportation Technical Report intend to reduce automobile vehicle miles traveled, support transit, and support mode shift:

Pedestrian Infrastructure

Strategy 1: Close network gaps, reduce driveway conflicts, and repair sidewalks to develop complete networks that provide access to essential destinations for users of all ages and abilities.

Strategy 2: Complete ADA and similar improvements to ensure universal access for people with disabilities and those who require mobility assistance devices.

Strategy 3: Implement traffic calming and Complete Streets projects to reduce vehicle speeds and improve safety at intersections and other crossing locations.

Local Bikeway Infrastructure

Strategy 1: Develop a context sensitive low-stress bikeway network, close bikeway network gaps, and prioritize protected infrastructure (Class 1 or 4) on high stress roadways that provide access to essential destinations for users of all ages and abilities.

Strategy 4: Complete short- and long-term bike parking improvements in the form of bike racks, bike lockers or bike hubs at key destinations.

First-Last Mile Infrastructure

Strategy 1: Complete station area pedestrian, bicycle and micro-mobility improvements to improve transit access and safety.

Strategy 2: Integrate pedestrian and bicycle network projects into new station area development to ensure networks are fully built upon station openings.

Strategy 4: Coordinate the development of land use, transit and active transportation strategies in areas expecting growth.

Strategy 5: Integrate fare payment across bike share and other micro-mobility options with transit fares.

Strategy 6: Implement improvements for transporting bikes on transit and rail in the form of safety features to secure bikes on transit and rail and expand space in rail cabins for temporary trip storage.

Regional First-Last Mile Infrastructure

Strategy 1: Support long-term storage/parking for bicycles and micro-mobility options at transit stations or options for safely bringing devices on-board.

Safety Strategies

Strategy 6: Partner on regional safety campaigns to improve driver awareness of the needs and rights of vulnerable road users.

Strategy 8: Pair major infrastructure changes and enforcement activities with messaging to communicate to community members the importance of traffic safety.

Connect SoCal Transportation Safety and Security Technical Report

Connect SoCal prioritizes ensuring the safety and mobility of the region's residents, including drivers and passengers, transit riders, pedestrians, micro mobility users, and bicyclists. The Safety and Security Technical Report looks at a range of safety strategies required to optimize the existing system, such as Complete Streets, in order to meet the region's economic, housing, environmental, equity, and public health goals. The goals identified in this technical report intend to improve mobility and enhance the regional transportation system include investments in infrastructure for a well preserved and resilient transportation system, as well as providing access to multiple efficient and reliable transportation choices for all users.

Some of the strategies included in the Safety and Security Technical Report to enhance safety include:

- » Implementing design treatments that support safety, including but are not limited to curb extensions, bulb-outs and pedestrian refuge islands that shorten crossing distances, marked crosswalks, advanced stop bars and shark teeth, yield markings, and changing intersection geometries to improve safety
- » Adopting Complete Streets policies to provide safe access for all modes.

- » Incorporating intersection safety into the planning grant strategy.
- » Installing lighting surrounding crosswalks at intersections and mid-block locations to provide better visibility of pedestrians crossing streets at night.
- » Improving safety for aging populations
- » Improve bicyclist safety
- » Improve safety at intersections
- » Improve pedestrian safety

Connect SoCal Transit Technical Report

The Transit Technical Report identifies programs, and policies necessary to increase mobility and accessibility, including congestion reduction and sustainability.

In San Bernardino County, the transit vision includes a commitment to key investments such as the Arrow project, new rapid bus services and BRT capital improvements, facilitating intercounty travel, providing transit access for all travelers, and expanding commuter rail service.

The Transit Technical Report identifies goals that intend to address the mobility needs and close gaps in San Bernardino County, including:

- » Promote and Coordinate Transportation Services: Promote, improve and expand information portals, ensuring multicultural strategies, embracing technology and employing mobility management tools to improve mobility and access.
- » Promote Safe and Comfortable Mobility: Ensure safety through new and well-maintained rolling stock, attention to passenger safety and to physical environments that promote safety for pedestrians and bicyclists.

2.7.4 Other Documents

San Bernardino County Non-Motorized Transportation Plan (2018)

The San Bernardino County Non-Motorized Transportation Plan (NMTP) encourages the use of alternative modes of transportation such as walking and bicycling. The plan supports the development of regional non-motorized transportation facilities that provide connectivity to more than one jurisdiction or complete gaps within the regional non-motorized transportation network or serve to provide better access to transit facilities.

The following represent the goals of the NMTP:

1. Increased bicycle and pedestrian access - Expand bicycle and pedestrian facilities and access within and between neighborhoods, to employment centers, shopping areas, schools, and recreational sites.
2. Increased travel by cycling and walking - Make bicycle and walking an integral part of daily life in San Bernardino County, particularly (for bicycle) for trips of less than five miles, by implementing and maintaining a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer and more convenient.
3. Routine accommodation in transportation and land use planning - Routinely consider bicyclists and pedestrians in the planning and design of land development, roadway, transit, and other transportation facilities, as appropriate to the context of each facility and its surroundings.
4. Improved bicycle and pedestrian safety - Encourage local and state-wide policies and practices that improve bicycle and pedestrian safety.

San Bernardino Countywide Plan

The following policies included in the San Bernardino Countywide Plan are related to first mile/last mile connectivity, homelessness, and healthy environments:

Policy TM-3.3: First mile/last mile connectivity. We support strategies that strengthen first/last mile connectivity to enhance the viability and expand the utility of public transit in unincorporated areas and countywide.

Policy HW-1.9: Homelessness. We address homelessness by coordinating a comprehensive countywide network of service delivery and by focusing on transitional and permanent supportive housing for the unhoused, including the chronically unhoused and near-unhoused families and individuals.

Policy HW-3.1: Healthy environments. We collaborate with other public agencies, not-for-profit organizations, community groups, and private developers to improve the physical and built environment in which people live. We do so by improving such things as walkability, bicycle infrastructure, transit facilities, universal design, safe routes to school, indoor and outdoor air quality, gardens, green space and open space, and access to parks and recreation amenities.

Bloomington Community Plan (2007)

Under the Circulation Goals and Policies section of the Bloomington Community Plan produced by San Bernardino County there are two goals stated that promote bike and pedestrian safety:

Goal 1: Ensure a safe and effective transportation system that provides adequate traffic movement while preserving the rural character of the community.

Policy 1.3: Full street improvements including paving, curbs, gutters and sidewalks shall be encouraged where necessary for public health, safety and welfare.

Goal 2: Ensure safe and efficient non-motorized traffic circulation within the community.

Policy 2.3: Where feasible, separate pedestrian/bicycle/equestrian traffic from vehicular traffic on major roadways to protect the safety of trail users.

SBCTA Improvement to Transit Access for Cyclists and Pedestrians

In this report, SBCTA studied the capability of non-motorized users to access its regional transit network including Metrolink commuter rail stations in San Bernardino County along the San Bernardino Line and BRT Stations in the cities of San Bernardino and Loma Linda. This project identified existing barriers to access via non-motorized modes and proposed planning-level improvements in and around the selected stations. Ten stations were developed for analysis, which served as a model for how to implement infrastructure improvements that are designed to best serve the needs of bicyclists and pedestrians at transit stations throughout the Inland Empire.

Recommended improvements at these stations included multi-use paths, pedestrian overcrossings, proposed bike routes, and bicycle parking.



SBCTA Points of Interest Pedestrian Plan

The PIPP aims to capture important locations in need of active transportation improvements. The PIPP provides a sample pedestrian plan for each of the 25 member jurisdictions, a list of additional pedestrian sites in need of pedestrian focused improvements based on extensive data analysis, and a framework for future plans that utilizes current best practices and a suite of tools that can be used to expand the PIPP to other locations as needed.

The following objectives included in the PIPP intend to provide active transportation improvements to areas that were not adequately captured in the original bicycle-centric NMTP, the broad SBCTA Complete Streets Strategy, or the school site focused Safe Routes to School Plan (SRTSP):

Develop priority-setting guidelines that demonstrate how a jurisdiction can:

- » Evaluate pedestrian needs through public-outreach and utilization of cutting-edge technologies (e.g. use of aerial photography, Google “street view”, geographic information systems, walk audits, etc.),
- » Identify points of interest (excluding schools which will be addressed in the SRTSP) that would benefit from a pedestrian plan based on the evaluation of pedestrian needs,
- » Inventory existing pedestrian access to those points of interest,
- » Estimate cost-effectiveness relative to project benefits, and
- » Prioritize pedestrian plan projects for investment of local funds and/or for future requests for ATP and other non-motorized funds.
- » Take advantage of economies of scale at the County level, reducing the need for duplicative efforts at the individual city-level by creating a Points of Interest Pedestrian Plan that not only captures the County-wide pedestrian needs of today but outlines a process that can be used in the future as needs may change.

- » Open additional lines of communication between public works, planning agencies, and citizens.
- » Incorporate the PIPP, with priority-setting guidelines and County-wide pedestrian plans for selected (to be determined through this project) priority points of interest, into the NMTP.
- » Make PIPP project information available to the public through the existing web based NMTP GIS application.

SBCTA Regional Safe Routes To School Plan Phase I & II

Phase I of the Regional Safe Routes to School (SRTS) Plan was created with the purpose of guiding strategic improvements to the safety and accessibility of non-motorized transportation networks around San Bernardino County schools. Phase II seeks to build upon the findings from Phase I of the Regional Safe Routes to School Plan by (1) compiling findings from field observations and student travel pattern data collected from approximately ten percent of the County’s public schools, (2) assembling an inventory of site-specific recommended school zone bicyclist and pedestrian network improvements based on these data, (3) providing resources for future implementation efforts at a regional scale, and (4) developing a strategy for collecting student travel data on a periodic basis for monitoring and modeling purposes. These resources can be used to assist local agencies in creating an effective, systematic, regionally consistent program for delivering necessary improvements to school-vicinity bicyclist and pedestrian commute networks. Engineering recommendations were reviewed where applicable to assist with bus stop recommendations.

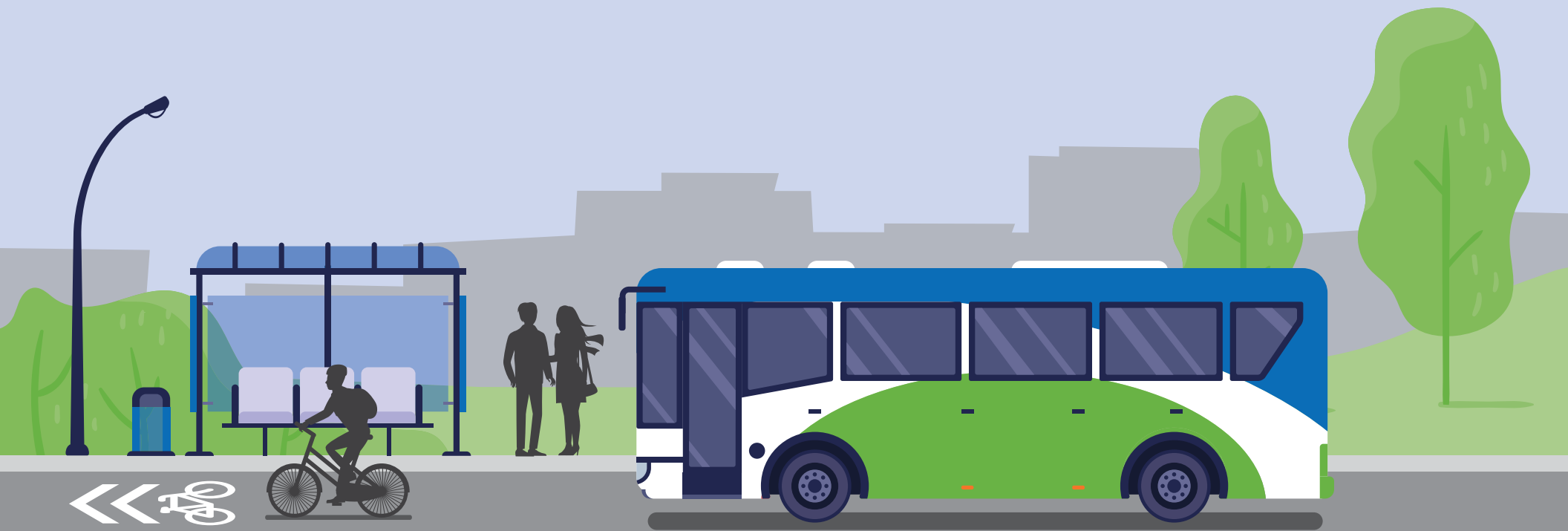
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03

Community Outreach



3.1 Public Outreach Overview

The project's integrated outreach objectives included the review of existing data to assess what measures would improve feeling safe at a bus stop and implementation of recommended measures, such as multi agency partnerships. The stakeholders for the project were grouped into two categories: 1) Multi-jurisdictional / Interdisciplinary Technical Advisory Committee (TAC); and 2) transit riders. The TAC members were identified by Omnitrans, while the second group of stakeholders responded to a direct ask campaign that was promoted on Omnitrans' buses and social media accounts, and through communications to Community Based Organizations (CBO) identified by Omnitrans and the TAC. Online engagement tools and surveys were also developed to provide additional avenues of feedback due to the COVID-19 pandemic. A webpage was created on the Omnitrans' website to post the online survey, walk, and bicycle audits, and general information about the project.

Figure 3-1 is a process diagram on the next page that identifies the project milestones, stakeholder engagement and communication materials from July 2020 through December 2021.

3.2 Contingency Plans Addressing COVID-19 Pandemic

In light of COVID-19 and the Governor's stay at home order, some of the traditional in-person outreach strategies were modified to safely engage members of the public. Those modifications included replacing the community meeting with an online survey. The in-person intercept surveys were replaced with an online virtual walk and bicycle audits of four (4) bus stops. Lastly, the in-person interviews were replaced with virtual interviews, conducted over the phone.

The team also provided a 24-hour hotline where members of the public could call and leave messages (both in English and Spanish).

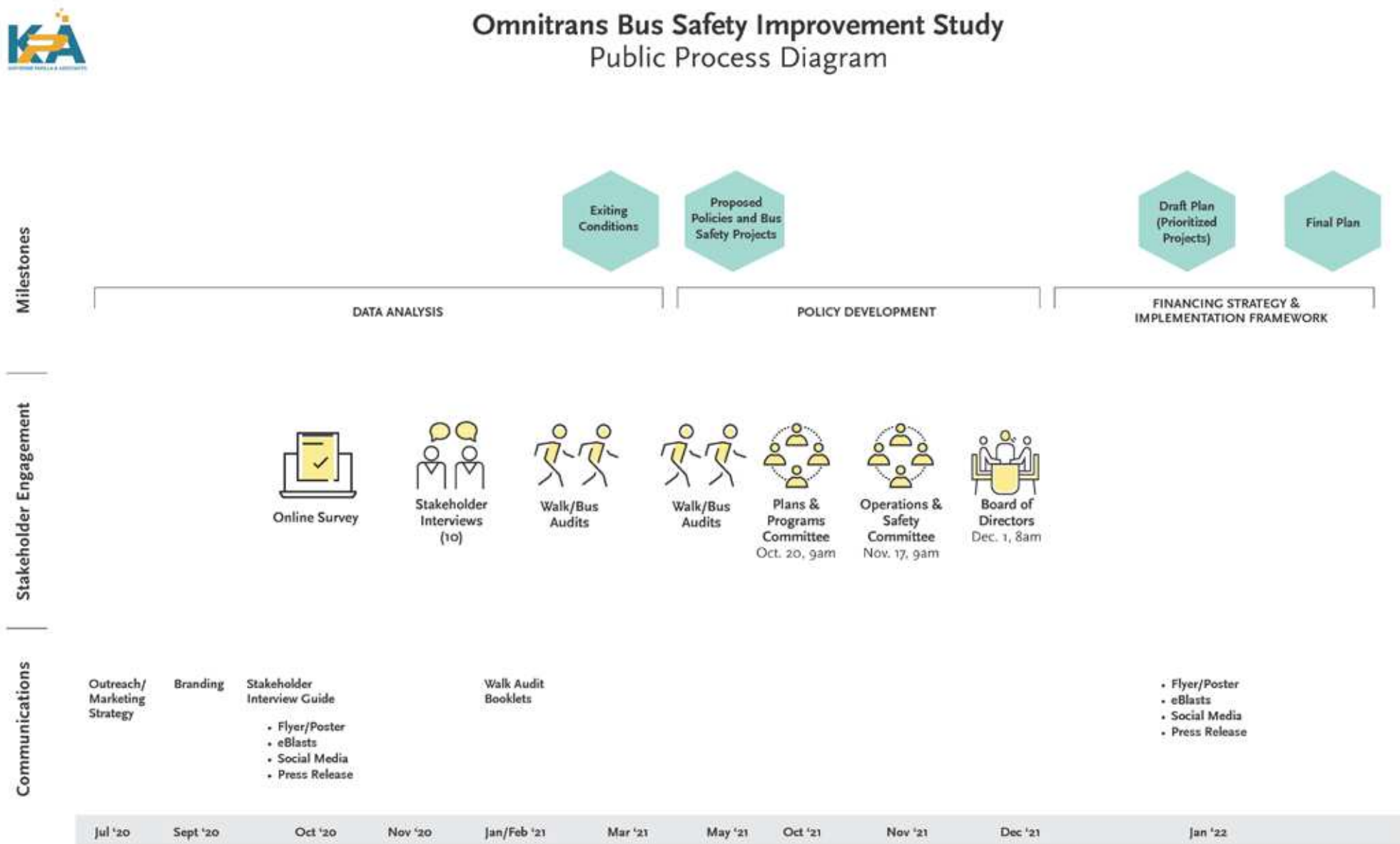
3.3 Developing a Technical Advisory Committee (TAC)

Omnitrans identified a list of agencies for membership in the TAC. The list included representatives from various agencies and the targeted nine Census Tracts which included Fontana, Grand Terrace, Highland, Rialto, San Bernardino and the Bloomington unincorporated area of San Bernardino County, for a total of 16 representatives. A letter of recruitment was drafted by the outreach team that included a description of the TAC, a projected time commitment, and anticipated action(s). Once approved by Omnitrans, the participation letter was emailed to the list of identified agencies provided by Omnitrans. TAC meetings had a mix of agencies in attendance throughout the course of the project.

TAC meetings were held virtually on the following dates and discussed the listed main points:

- » September 25, 2020
 - » Introduce the purpose of the plan
 - » Additional outreach to participate in
- » November 19, 2020
 - » The current findings based on the survey results
 - » Details on the upcoming walk audit program
 - » Analysis and methodology used to narrow down potential locations
- » March 25, 2021
 - » Walking/bike audits went live
 - » Approval of the potential project bus stop sites
 - » Discussion of best practices to be recommended for Omnitrans
- » May 27, 2021
 - » Confirmation on the prioritization scheme
 - » Input on project and recommendation types
- » September 9, 2021
 - » Discussed TAC comments on draft BSSIP

FIGURE 3-1: Omnitrans' Bus Stop Safety Improvement Plan Diagram



Rev. 09/23/2021

The TAC members represented:

- » Omnitrans
- » City of Fontana
- » City of Fontana - Police Department
- » City of Grand Terrace
- » City of Highland
- » City of Rialto - Police Department
- » City of San Bernardino - Community Development
- » City of San Bernardino - Police Department
- » Inland Empire Biking Alliance (IEBA)
- » San Bernardino County Department of Human Services
- » San Bernardino County Department of Public Health
- » San Bernardino County Department of Public Works
- » San Bernardino County Sheriff's Department
- » SBCTA
- » Southern California Association of Governments (SCAG)

3.4 Stakeholder Interviews and Outreach Events

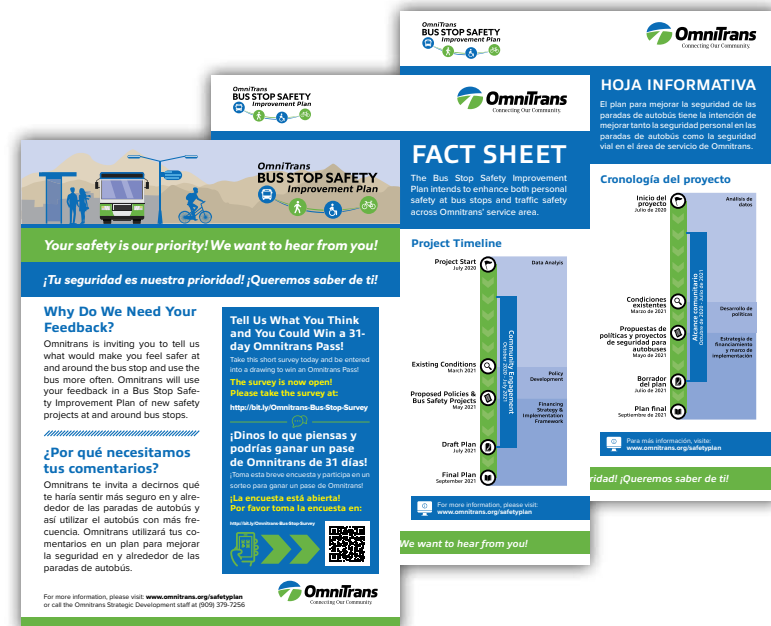
Marketing materials for the outreach activities included a project fact sheet as well as a flyer for both the online survey and virtual walk and bicycle audits. One hundred thirty (130) copies of the flyer were printed and displayed on Omnitrans' buses and a press release and social media messages were drafted to promote the online survey. Based on the positive response from bus riders to the social media, the team finalized website text and additional social media messages to promote the virtual walk and bicycle audits.

Phone and email scripts promoted the online survey, virtual walk and bicycle audits, and to contact the CBOs to further promote the surveys and participate themselves. TAC members were also forwarded the approved message and were asked to promote the input opportunities with their clients and on their social media accounts. TAC member repre-

sentatives confirmed dissemination of the project with the Southern California Transit Advocates, Public and Specialized Transportation Advisory and Coordination Council (PASTACC), SBCTA and the City of Highland. The City of Highland also confirmed that information was included in their newsletter and social media.

In addition to the CBOs and TAC, the outreach team also emailed all online survey participants to encourage their participation in the virtual walk and bicycle audits. All online survey and virtual walk and bicycle audits participants were entered in a raffle to win an Omnitrans' month-long bus pass to incentivize participation. All participants in the interviews received either a \$20 gift card or an Omnitrans' month-long pass.

Ten people participated in the stakeholder interviews based on their interest with the CBOs, experience using the Omnitrans' service, and also being contacted to encourage participation of their clients. The team also contacted the online survey participants who had self-identified as being interested in a follow up interview.



Examples of Flyer and Fact Sheets

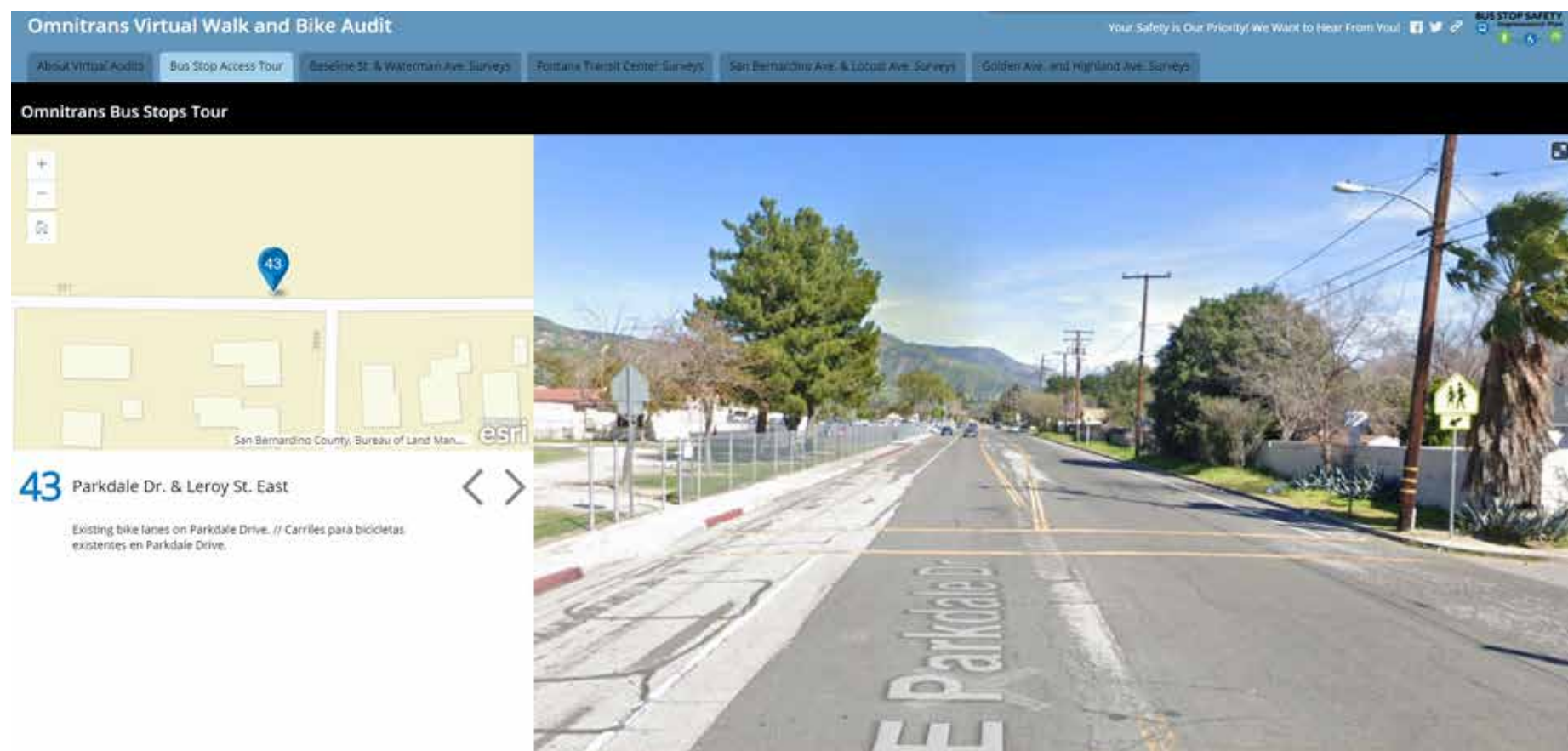
3.4.1 Virtual Walk and Bicycle Audits and Online Platform (due to COVID restrictions)

Traditional walk and bicycle audits are conducted in person and are conducted for the purpose of identifying challenges and opportunities for pedestrians, cyclists, and bus riders. Due to the COVID-19 pandemic, a virtual option of a traditional walk and bicycle audits was developed to maintain COVID-19 safety measures and restrictions, while still ensuring public participation.

The virtual walk and bicycle audits ensured materials to inform participants of the development of this plan such as Fact Sheets, FAQ sections, and web links to online sources. The virtual walk and bike audits site had many features and tools to understand the four bus stops chosen and allow participants to provide their feedback.

A bus stop access tour tool was developed to visually inform participants of specific areas of concern with geo-located photographs that corresponded with a location on an interactive map, as shown below.

FIGURE 3-2: Omnitrans Virtual Audit Bus Stops Tour

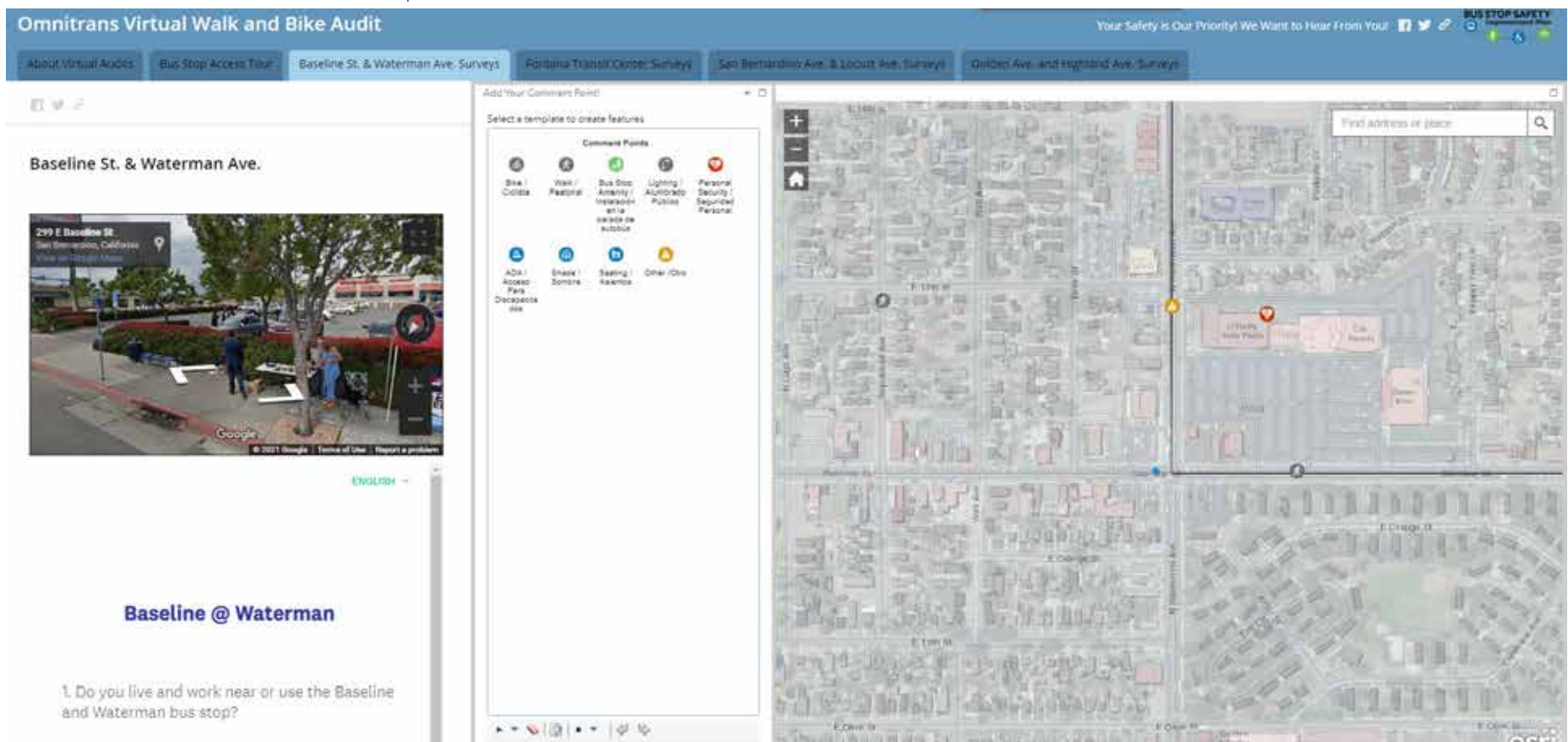


Two surveys were developed for each of the four chosen bus stops, a multiple-choice survey, and a map survey. The multiple-choice survey served as a traditional public outreach survey, which aimed at gathering basic information from users of the bus stops and other members of the community. The map survey was an interactive map that allowed participants to add geo-located points to any location on the map and provide a comment on that location, as shown below.

To promote the virtual walk and bicycle audits and online platform, the outreach team developed a flyer, website content and social media messages. Additionally, Omnitrans approved email and phone scripts

that were utilized by the outreach team to contact all TAC members as well as a list of 20 CBOs. The email was a call to action encouraging representatives to share the flyer with their customers. Attached to the email, the TAC and CBOs received a copy of the walk and bicycle audits flyer with follow-up calls and emails providing additional clarifying information and an opportunity for stakeholders to ask any follow-up questions.

FIGURE 3-3: Virtual Audit Interactive Map



3.5 Onboard Survey and Focus Group Summary

In lieu of a community meeting due to COVID-19 restrictions, the outreach team developed a project flyer with a scannable QR code and bit.ly link on buses. A short survey with questions about the bus stop conditions and/or recommendations was posted to the Omnitrans website. It also included a question to gauge interest in participating in a stakeholder interview, with the offer to be entered to win a transit pass donation.

Social media messages were developed to promote the survey. The online survey was available on the Omnitrans' website from between October 2020 through April 2021.

3.6 Public Outreach Participation

There were a total of ten stakeholders who participated in the interviews. One hundred (100) participants completed the online survey and forty (40) participated in the virtual walk and bicycle audits. Some stakeholders participated in all the surveys.

3.7 Online Survey Results

A total of 100 participants completed the online surveys and provided comments. The results were analyzed and used for the development of potential infrastructure and programmatic projects. The survey also provided a current view of opinions, concerns, and desires for improved access to bus stops and perspectives on improvements to personal safety at bus stops.

Over 62 percent of participants mentioned that lack of lighting was their main concern at bus stops followed by feeling unsafe or uncomfortable around bus stops. The second highest, at 48 percent, was feeling uncomfortable around certain bus stops due to the surrounding environment. This includes an empty lot, parking lot or the type of business or residence adjacent to the bus stop. Missing bus shelters was the third highest safety concern transit users mentioned at 46 percent.

The following charts summarize the primary questions from the survey. These results also coincide with the results from the stakeholder interviews summarized in the following section.

FIGURE 3-4: Personal Safety Concerns at or Around Bus Stops

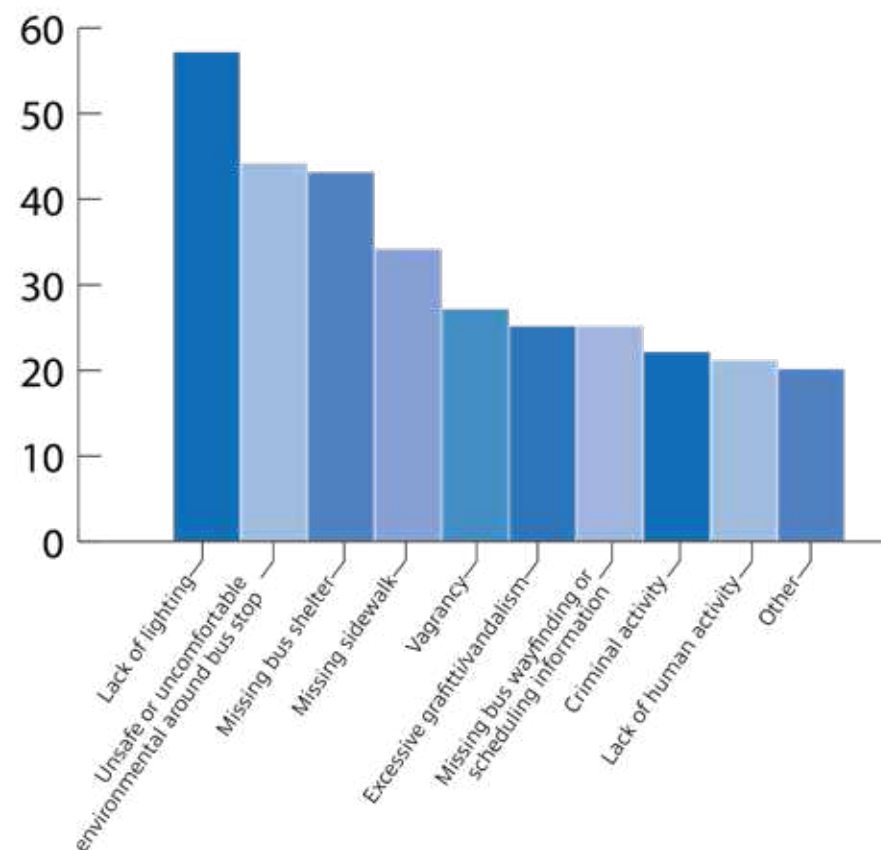


FIGURE 3-5: Accessing Bus Stops

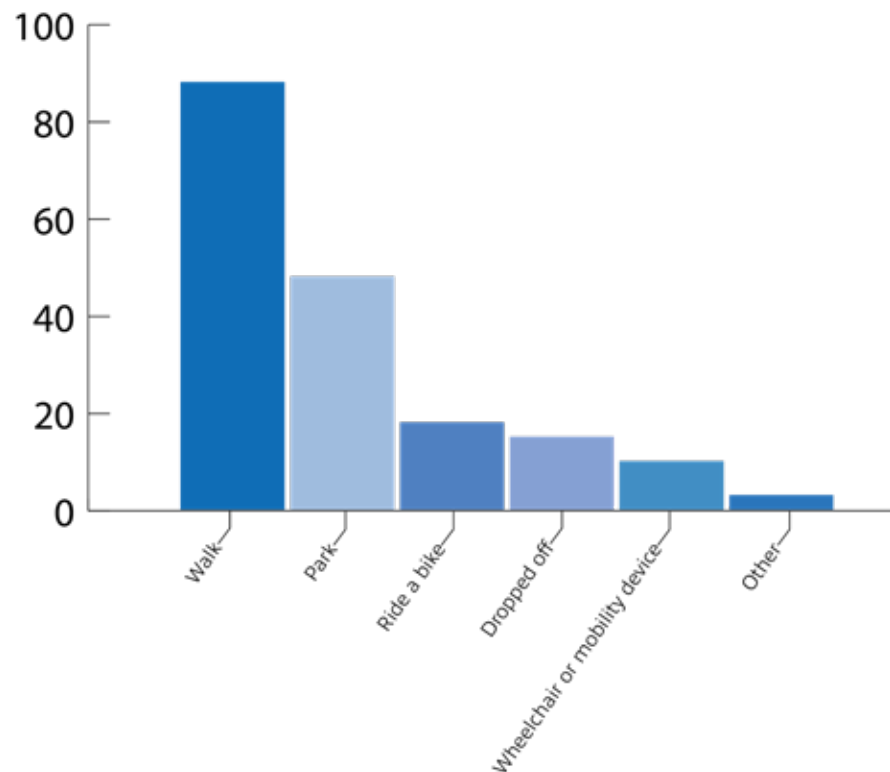


FIGURE 3-6: Traffic Safety Concerns While Accessing Bus Stops

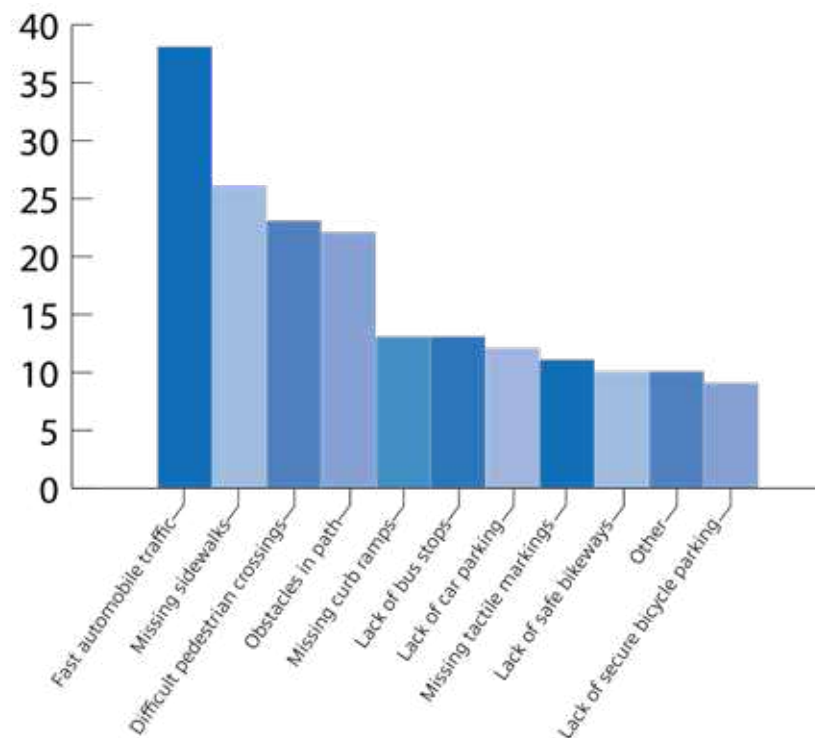
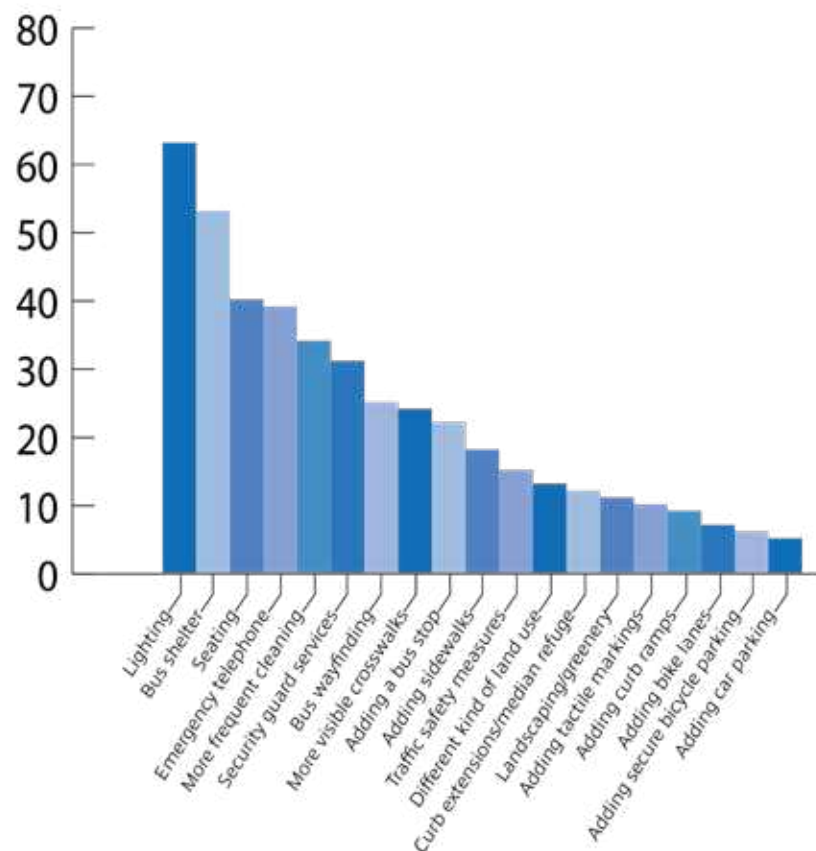
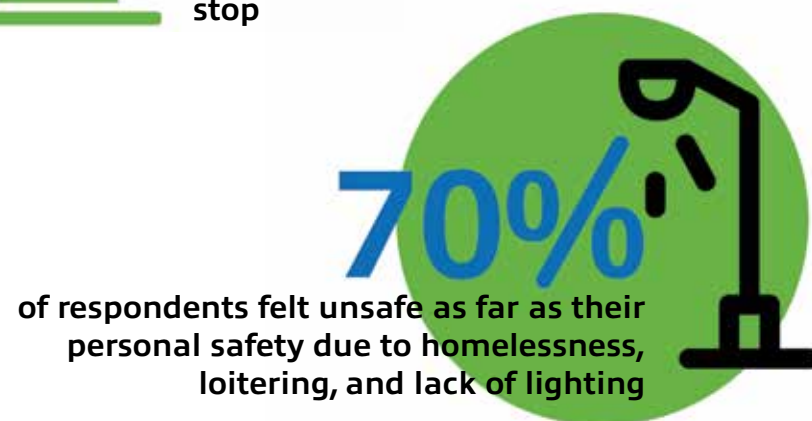
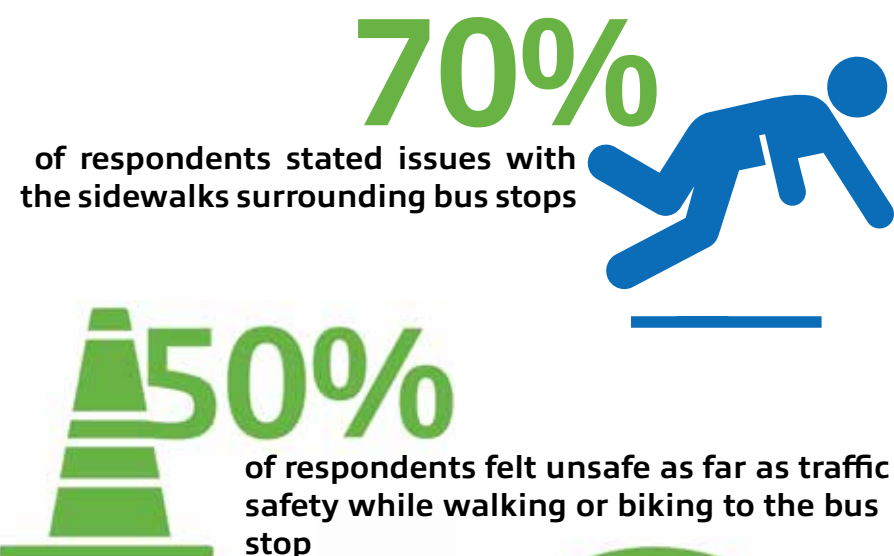


FIGURE 3-7: Solutions that Would Improve Safety at Bus Stops

3.8 Stakeholder Interviews

The focus of the stakeholder interviews was to learn about the riders' perceptions of both traffic and personal safety as well as accessibility while waiting at bus stops. The interviews were held from December 7 through December 18, 2020. Transit riders were given an opportunity to participate in interviews by phone or over a virtual call. Participants selected included those who responded to Omnitrans' social media posts encouraging riders to participate in the interviews and those who selected the "follow up with me box" at the end of the Omnitrans BSSIP

survey. Emails and calls were made to follow up with potential stakeholders interested in participating, and interviews were scheduled at various times throughout the day to encourage participation. In total, 10 transit riders participated with interview durations from 25 to 45 minutes, depending on their responses and level of detail provided. The majority rode the bus five to seven days a week, though one participant had changed their riding schedule from daily to a few times a month, due to concerns about COVID-19.



3.9 Results from Outreach Events

The following is a summary of the stakeholder interviews which consisted of 17 questions. The responses listed are a brief recap of their responses and trends.

1) How often they rode the bus:

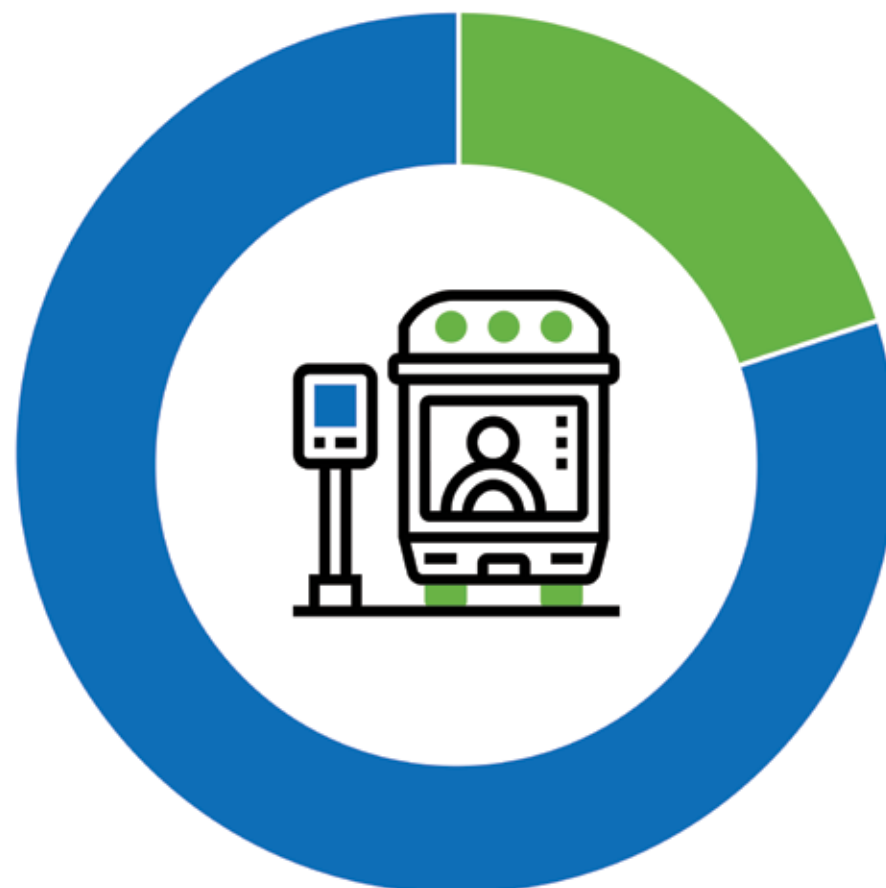
Eight of the ten riders use Omnitrans almost daily, while only one does not ride regularly. Only one of the ten participants has changed their riding frequency from every day to once a month due to concerns about COVID-19. Riding times typically included mornings and evenings.

2) What are your top three concerns when waiting at bus stops?

- » Lighting (Concern for 8 riders)
- » Unhoused individuals sleeping/residing at bus stops
- » Trash
- » Proximity between stops
- » Frequency/Schedule
- » Shelter/Seating

3) At bus stops, have you felt uncomfortable or unsafe as far as your personal safety? What made you feel unsafe?

- » Seven out of ten riders stated they felt unsafe as far as their personal safety. The leading source was the presence of people experiencing homelessness or lack of lighting.
- » One rider did not feel unsafe.
- » One participant shared concerns about experiences with bus drivers on two different occasions.



80%

of stakeholder interview participants use Omnitrans almost daily

4) At which streets / cross-streets did you feel uncomfortable or unsafe for your personal safety? During what times of day?

Locations and times where concerns were expressed included:

- » Marygold Ave and Sierra Ave (morning and evening; all day; bus stops at 6pm on Sundays). This location was mentioned three times.
- » E St and Highland
- » E St and Marshall (during the daytime)
- » E St and Baseline St (the sbX line, around lunch time or 1pm)
- » Randall Ave and Sierra Ave
- » Foothill Blvd and Citrus Ave (all day)
- » Del Rosa Ave by San Bernardino Ave (close to the Casino and by Terrace Mall, evening hours)
- » Carousel Mall and 2nd St (evening hours)
- » Shandin Hills and Kendall
- » Route 312 / Treten St and Medical Center (day and evening). There is no light at the bus stop or on your way to the stop. Even during the day, the bus stop is not visible by drivers. It is closer to the grass, Treten St.

5) Did you overcome being uncomfortable, if so, how did you do it?

Most responses emphasized not being able to overcome feeling uncomfortable and needing to be on high alert, using the flashlight on their phone, and/or carrying pepper spray. Whenever it was possible, riders moved to a different stop.

6) Have you felt unsafe as far as traffic safety while walking or biking to the bus stop?

The responses were split in half. Half of the riders felt unsafe as far as traffic safety, while the other half did not feel unsafe.

7) At which streets / cross-streets did you feel unsafe or uncomfortable at a bus stop? During what times of day?

The locations where participants felt unsafe were identified as:

- » Highland/State St: There are food trucks and food carts. The 312 bus has to pull up in the middle of the street.
- » Linden/Merrow: All the time. There is no curb. Riders are waiting on the dirt.
- » Foothill/Mango: A lot of heavy traffic. Stop is close to the street.
- » Sierra (between Spring St and Arrow): There's no seating, or shelter. Only signage. But it is close to the street. It is hard for the drivers to see the riders waiting for the bus. You often see riders running after the bus after they've been passed. The area has people experiencing homelessness hanging around, so it's hard for drivers to differentiate if the riders are waiting for the bus. This location also has poor lighting, so it's even worse at night.
- » Foothill and Hamlock: Late morning (10am/11am).
- » Baseline/E St (and all stops): Cars making turns at all times of day
- » G St/Mills St: During the day.

8) Have you had trouble accessing the bus stop while walking or using a mobility device?

Results were split in half with 50 percent of the participants not having trouble accessing their bus stop while the other 50 percent did. None of the ten participants used a mobility device.

9) At which streets / cross-streets do you feel unsafe accessing a bus stop? During what times of day?

- » 16th St/State St both in the morning and afternoon. Food carts will park there all day.
- » Linden/Miro (between Alder and Linden) - all day
- » College & University in front of the Ralphs shopping center. There is poor lighting.
- » Foothill and Hamlock
- » Arrowhead and Highland - all day
- » Del Rosa area in San Bernardino. Bus route 1.

10) Which problems at those locations made it difficult for you to access the bus stop? For example: fast moving traffic, poor lighting, poorly marked crosswalks, etc.

- » “It is lacking shade. I have suffered heat exhaustion. I had to walk 35-40 minutes, and still had to wait to be let on the bus for another 20 minutes. This was in over 100-degree weather. I collapsed once I was let inside the bus.”
- » “16th St/ State St. It has poor lighting at the street and no light on the stop.”
- » “Lincoln/State St has no lighting on the street and no lighting at the stop.”
- » “Bus drivers don’t see riders at the stops and it’s worse at night.”
- » “There is no sidewalk.”
- » “The stop on Sierra between Spring and Arrow, close to Metrolink,

drivers easily pass riders waiting there. Maybe the drivers drive quickly to get to the Metrolink station.”

- » “There is one or two cars obstructing access either at the pawn shop or liquor store. It’s a BIG problem.”
- » “Fast moving traffic, poor lighting on the way to the bus stop and at the bus stop. I’ve been missed by the driver because he didn’t see me waiting at the stop. It’s that dark.”
- » “Lack of lighting.”
- » “No sidewalks.”

11) Are there any issues with the sidewalks surrounding the bus stops you use? For example: uneven sidewalk, tree roots, too narrow, missing sidewalk, objects blocking the sidewalk, etc.

Three riders responded no to this question. The others identified the following issues:

- » “There is no shade on my way to the bus nor at the bus stop.”
- » “On Miro (between Alder and Linden) there is no sidewalk.”
- » “In Fontana, behind Kaiser Hospital, there is a four-way stop. On Palmetto and Marygold. The stop is on dirt. It’s a tough spot to access.”
- » “There is no sidewalk to walk on 16th and Medical St stop for route 312. Others are fine.”
- » “Several but mostly Foothill and Hamlock.”
- » “There are cracks on the sidewalk and people blocking the street.”
- » “There are uneven sidewalks.”



50%

of those interviewed did have trouble accessing the bus stop

12) Which streets do you find these issues? (at which cross streets / where?)

- » Miro (between Alder and Linden)
- » Palmetto/Marygold
- » 16th/Medical
- » Foothill/Hamlock
- » E St/Baseline
- » Highland/E St, Line 6
- » Gold St
- » 2nd St/Lorena

13) Are there any additional concerns about bus stops that you would like for us to know?

Three riders had no additional feedback. The other seven restated some of their concerns. The following are listed in no particular order.

- » Lighting
- » Frequency
- » Distance between stops
- » Cleanliness
- » Shade/Shelter
- » Visibility
- » People experiencing homelessness
- » Signage

14) What bus stop improvements would help you feel safer? For example, lighting, surveillance cameras, emergency phone, seating, shelter, etc. (used examples only if they didn't have a response).

Recommendations included:

- » Lighting (solar and regular) at stops
- » Shelter
- » Proximity between stops
- » Paint bus stop curbs red
- » Button at stop to alert bus drivers to people waiting at stop
- » Stop maintenance/cleanliness

15) What else would make you feel safer as far as personal safety at and around bus stops?

A summary of the responses includes the following list:

- » An emergency phone at the bus stop
- » Emergency call button INSIDE the bus (like with light rail trains)
- » Safety personnel at specific locations
- » PPE enforcement during COVID
- » Extra masks/disinfectant on buses
- » Shelter at bus stops
- » Bus frequency
- » No smoking/drinking/loitering signs
- » Bus stop inspections for cleanliness

16) What would make you feel safer as far as traffic safety while walking, using a mobility device, or biking to the bus stop? For example, speed humps, curb extensions, bike lanes, pedestrian-friendly traffic signal measures, etc.

Responses from riders included:

- » Improve street conditions
- » Curb extensions
- » Pedestrian/crosswalk reflectors
- » Additional traffic signals
- » Pedestrian signage for private driveways
- » Speed humps
- » Enforcement
- » Bus frequency
- » No loitering signage

17) Have you used Omnitrans' transit app, or Nextrip real-time arrival information system? If not, were you aware of these apps? Do these apps help you feel safe?

Most riders have used one or all the Omnitrans' apps. The majority felt the apps are helpful but don't necessarily improve their safety perception. Only three riders felt the apps made them feel safe. All commented on the app's accuracy, stating the app did not always reflect delays.

04

Best Practices, Programs, Projects, and Policies



4.1 Barriers and Solutions Overview

There are several physical and institutional challenges that prevent safe walking and bicycling to transit throughout Omnitrans' service area. Common situations include a lack of safe and comfortable sidewalks, crossings and bicycle facilities. In most cases, roadways and signal systems were designed to accommodate high volume, high speed vehicular traffic, without considering the needs of all roadway users.¹

This chapter identifies some of the most common pedestrian and bicycle challenges and lists potential solutions that cities can apply to address them. This Plan recommends that all proposed improvements be implemented as a team partnership between Omnitrans, local jurisdictions and other partnering agencies or organizations. The lead agency for each project will depend on the project type and specific location.

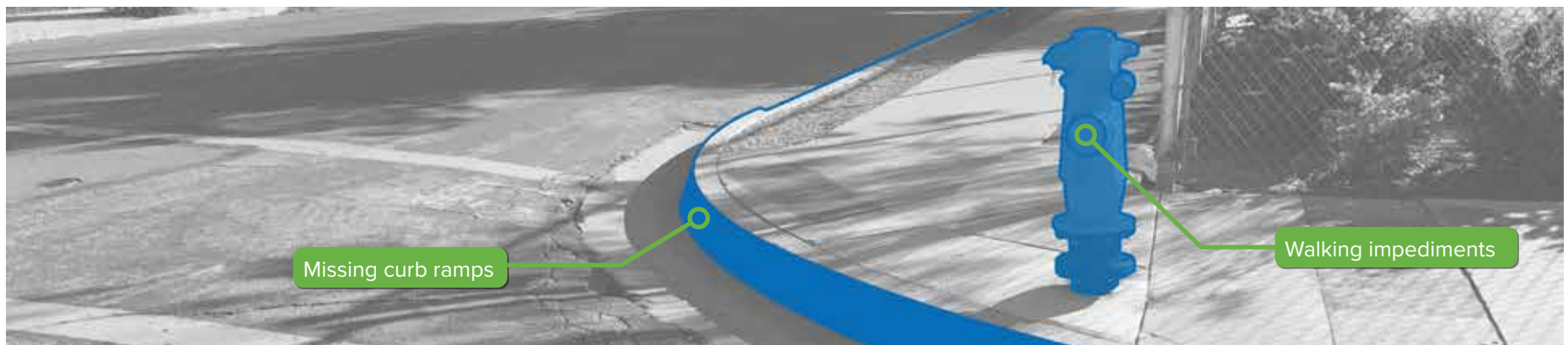
4.1.1 Pedestrian Challenges

In general, people walking or using a mobility device are at risk whenever they cross the roadway. However, these risks depend on the complexity of the vehicular and pedestrian traffic patterns and the effectiveness of supplementary information provided regarding the crossing location, direction, and duration.¹ In addition to the physical design of roadways and intersections, the information available to people walking also has an impact on their safety. Complex crossings need to have accessible information about their location, direction, and duration.

Physical or movement challenges are anything that restricts a person's ability to physically move along the sidewalk and crosswalk environments. Common movement challenges for people walking include:

- » Long crossing distances
- » Insufficient crossing time at signalized intersections
- » Medians and islands without ramps or cut throughs
- » Curb returns without curb ramps
- » Curb returns without level landing
- » Pedestrian actuated signal devices that are difficult to activate or reach
- » Lack of information during pedestrian signal phase
- » Excessive delay at signalized intersections
- » Lack of protected phases at pedestrian beacons

Safety for people walking can be improved by providing adequate access and mobility at intersections and crossings. Strategies that can help improve conditions for people walking include increasing crossing times, reducing crossing distances increasing visibility with curb extensions, installing curb ramps and pedestrian refuges, as well as clarifying areas with truncated domes and reducing traffic speed with traffic calming. Traffic and pedestrian signal devices that provide accessible information are also important to eliminate any information challenges.



Common pedestrian challenges

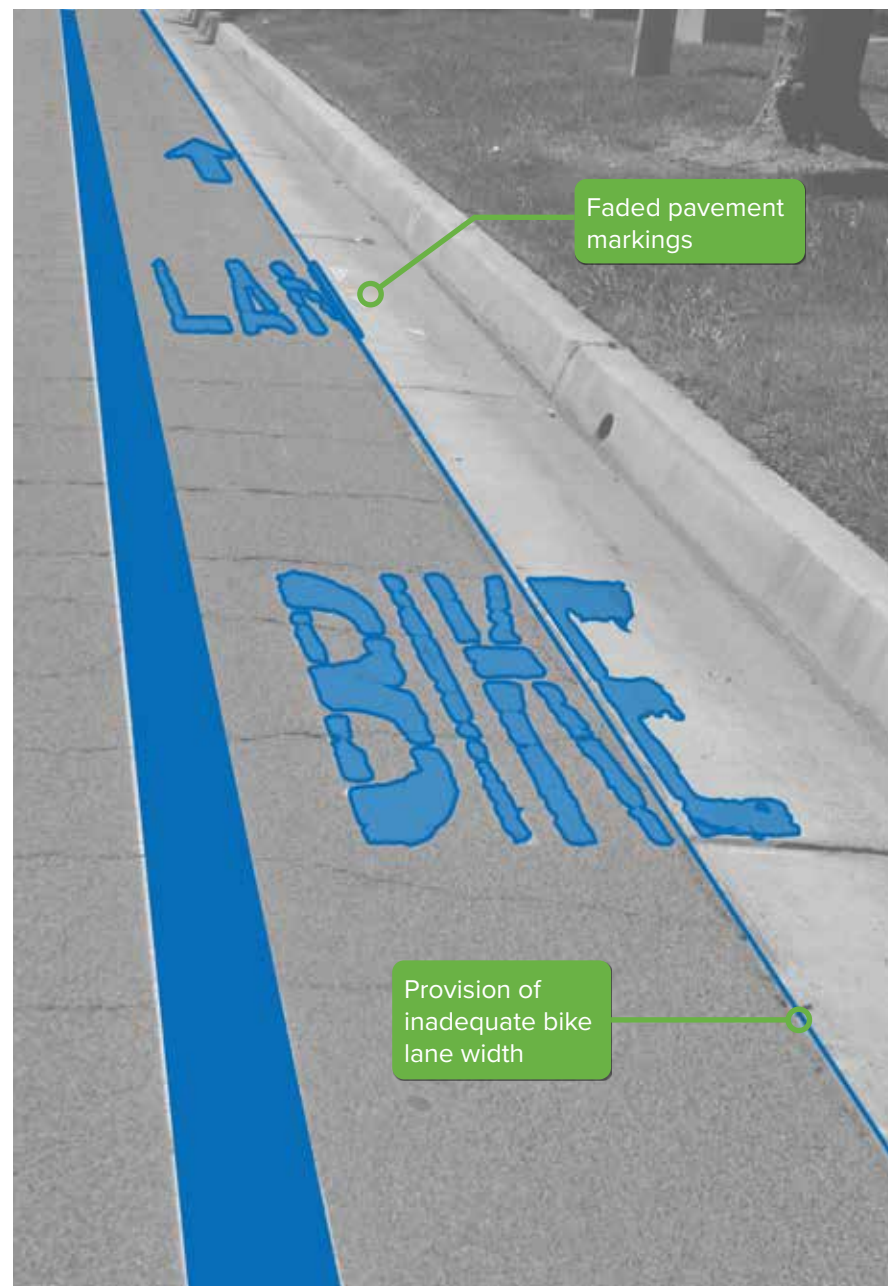
4.1.2 Bicycle Challenges

Most bicyclists feel high levels of stress while riding on busy streets, which makes them less desirable and may discourage people from biking on them. Building safe and comfortable bicycle facilities is key to encouraging more bicycling and reducing the number of serious bicycling collisions and injuries. Traditionally, bicyclists have been seen as pedestrians, which has led to undesirable situations where bicyclists were being underserved by inadequate facilities. Many roadway designs, whether constructed decades ago or quite recently, have prioritized driver comfort and speed over pedestrian and bicyclist comfort and safety.² Observed characteristics of disconnected networks for non-motorists included:

- » Wide, multi-lane roads without high-quality bicycle facilities
- » Lack of marked crossings at intersections or midblock crossings
- » Gaps in sidewalks and bicycle facilities that create risk and limit ability for users to safely travel to and from destinations
- » Constrained rights-of-way preventing construction and development of bike facilities
- » Intersection designs that do not safely accommodate pedestrians and bicyclists, making it difficult to cross
- » Roadways with an excessive number of driveways

Creating a safer bicycling environment involves more than striping a bike lane or building a separated path. A safe bicycling network involves all aspects of safety, from signage and mapping that alerts riders to the level of skill necessary on a facility to the details of the design such as safe driveway treatments and bike friendly signal measures.

Cities that have adopted bicycle master plans can prioritize bicycle improvements to transit stations and bus stops to provide first and last mile connectivity. Their policies can improve bicycle accommodations to, at, and on buses and can improve levels of safety and reduce the number of safety by passengers.



Common bicycle challenges

4.2 Bicycle and Pedestrian Solutions

While not universally applied, in general, travel for people walking in urban areas has long tended to be accommodated with features like sidewalks, crosswalks, dedicated signals, and curb extensions. The suggested pedestrian treatments in this section address a wide variety of issues identified within Omnitrans' service area to enhance connectivity, safety, and access to transit stops. Pedestrian improvements help to ensure equitable multi-modal transportation because they serve populations that may not be able to afford a bicycle or likely to ride a bicycle, and instead rely on transit and walking. Newer innovations like pedestrian scrambles, modified signal timing, flashing beacons, and other pedestrian improvements are described in this chapter in addition to standard pedestrian treatments.

An increased focus on providing safer, less stressful bicycle travel has occurred more recently across the United States, with significant transformation in the state of practice for bicycle travel over the last decade. Much of this may be attributed to bicycling's changing role in the overall transportation system. No longer viewed as an "alternative" mode, it is increasingly considered as legitimate transportation that should be actively promoted as a means of achieving community environmental, social, and economic goals. While connectivity and convenience remain essential bicycle travel quality indicators, recent research indicates the increased acceptance and practice of daily bicycling will require "low-stress" bicycle routes, which are typically understood to be those that provide bicyclists with separation from high volume and high-speed vehicular traffic and mixing cyclists with traffic only on low volume, low speed roadways. The bicycle improvements in this chapter ensure more convenient, more comfortable, and safer access to and from transit stops.

4.2.1 Bus-Bicycle Lane

Bus-bicycle lanes are developed where there is inadequate space for a painted or separated bicycle lane on a bus route. The bus-bicycle lane can be established by converting a general car travel lane to exclusive bus and bicycle use only. Sometimes this conversion occurs after a traffic analysis shows the traffic impact. However, in many cases the existing level of service (LOS) is F and removing a travel lane and add-

ing a bus-bicycle lane will serve to increase the overall people-moving capacity of the roadway due to the sheer number of people that fit on a bus. In Boston, Massachusetts, for example, there was over a mile length of roadway with LOS F (read: bumper to bumper congestion) on four-lane Washington Street from Roslindale Square to Forrest Hills. The City of Boston, as a pilot project, converted a travel lane to a bus-bike lane, given that buses on the road carry 60 percent of the people moving through the corridor. The pilot project was deemed a success and the project was made permanent.

Precedents for this exist around the world and are being implemented more in the U.S. starting in large cities like Boston, Philadelphia, Chicago, New York City, and Seattle. It may be counterintuitive for congested roads, but latest research and evolving best practices suggest bus-bicycle-only lanes can work in existing congested areas because, like in Boston, the overall increase in people-moving capacity of a bus-bicycle lane justifies the conversion from a travel lane.



Bus-Bicycle Only Lane (Washington Street, Boston, MA)

The overall strategy is to increase transportation options by making bicycle and bus travel attractive alternatives to cars. New dedicated bus-bicycle-only lanes (typically painted red) should be considered on roads supporting existing bus lines with high ridership levels, and proposed bicycle lanes that will not otherwise fit between jurisdictional rights of way or other constraints. Areas and bus routes with very high bus volumes may not be suitable for a bus-bicycle-only lane due higher potential for bus-bicycle conflicts. According to National Association of City Transportation Officials (NACTO), applications should generally be limited to bus lanes with transit headways of four minutes or longer. This applies to most bus routes within Omnitrans as most of them have transit headways of at least four minutes.

A dedicated lane for bicycles, whether it is a painted lane or separated lane, makes people feel safer and more people will be likely to ride to work, the store, or other destinations. A bus-only lane reduces bus travel times to all stops on a route, making it a quicker and more attractive option which can lead to increased ridership. A combined bus-bicycle-only lane is not ideal but it is preferable to no bicycle facility at all. It is a compromise when a painted or fully separated bicycle lane will not fit. Reduced bus travel times can be leveraged to increase bus frequency to all stops without increasing the number of buses or drivers. This higher bus frequency reduces wait times and crowding which improves the experience and increases bus ridership. As noted in a recent article on dedicated bus lanes in Chicago, a dedicated bus lane can have a secondary traffic calming effect by generally reducing car speeds in the area around the dedicated bus lane. Bus-bicycle lanes are considered best practice not just in cities across the U.S. but in design guidelines including NACTO Bikeway Design Guide and the Federal Highway Administration (FHWA) BikeSafe Design Guide.

4.2.2 Research and Context

This section of the report delves into the concept of personal safety and security at bus stops. Personal safety refers to freedom from assault, theft, and vandalism, as opposed to traffic safety which refers to freedom from collision with motor vehicles and other transport devices. Extensive research has been carried out on the topic entitled “Bus Stop Design and Placement Security Considerations”. The American Public Transit Association has a 2010 White Paper that delves into the minutia of bus stop safety design, describing features such as⁴:

1. Bollards
2. Closed-circuit television (CCTV)
3. Communication systems
4. Passenger amenities
5. Shelters
6. Visibility
7. Durability
8. Bus benches
9. Newspaper boxes
10. Trash containers

The White Paper also heavily details the concept of CPTED with its focus on increasing sight lines. This Plan uses a balanced approach to increase sight lines by focusing on the concepts of placemaking and space activation at bus stops. Instead of “hostile architecture,” the White Paper focused on increasing the aesthetics, the livability, the activation, and the appeal of bus stops, which encourages more use, which in turn increases safety. In a sense, it offers a “carrot” instead of a “stick” approach to increasing safety.

As explained by the Victoria Transport Policy Institute (VTPI), contrary to popular assumptions, transit users generally face lower overall crime risks than motorists. All else being equal, research has shown that per capita crime rates tend to decline as transit ridership increases in a given community (Devries, et al. 2018)⁵.

The table below illustrates ways that high quality public transit can improve safety and reduce crime risk.

TABLE 4-1: How Transit Improvements Can Reduce Urban Crime ⁶

Crime Risk Factor	Impacts of Improved Transport Options and Smart Growth
Natural surveillance and community cohesion	More businesses, residents and responsible (non-criminal) by-passers provide “eyes on the street” (credit to Jane Jacobs) and helps build local social networks (neighbors who know and care about each other).
Vulnerable population's access to economic opportunity	Better access to education and employment for low income people (many of whom have limited access to a car).
Policing efficiency and response times	More compact, mixed density development increases policing efficiency and reduces response times.
Transit Security	Increased ridership increases transit security public support and efficiency (lower costs per passenger), leading to expanded programs.
Motor vehicle ownership	Tends to reduce total vehicle ownership and associated crime risks.

Improving transit services and transit-oriented development can reduce crime risk. This tends to reduce total per capita crime rates rather than simply shifting where crimes occur.

Research from 2013 from VTPI shows in detail that crime rates are lower in transit-oriented cities. VTPI research explains that people often assume that crime rates increase with city size and density, and therefore with transit travel and transit-oriented development. These assumptions are partly true and partly inaccurate. Simplistic analysis may lead to false conclusions concerning these factors. For example, crime mapping and real estate guides often indicate that more crimes occur in denser, mixed urban neighborhoods than lower-density suburbs, implying that urban environments tend to stimulate crime and increase risks to individuals, but this is not really what the data indicate. Dense, mixed urban areas have more of just about everything measured per square-mile: more people, businesses, wealth, poverty, social services,

productivity, tragedy, generosity, and crime. However, contrary to the impressions of crime mapping, crime density does not really reflect the risk to individuals; concentrated crime in a city center does not really indicate that denser development causes responsible people to become criminals or increases the risk a typical person faces of becoming a crime victim. Research from 2013 from VTPI shows in detail that crime rates are lower in transit-orientated cities. Crime rates per capita need to be considered, not just raw numbers of crimes, since denser areas have more overall population.

During the last two decades, U.S. crime rates declined significantly. Overall, violent crime was up by about 3 percent in 2020 over the previous year, but this should be seen in the context of the longer-term downward trend from a peak in the early 1990s, according to an article from the British Broadcasting Company. (see <https://www.bbc.com/news/57581270>). The long term trends show that crime rates declined for virtually all types of crime in virtually all size communities, but the declines were particularly dramatic in the largest cities (more than a million residents), resulting in their rates being lower than in medium-size cities (250,000 to 1,000,000 residents). The cities of Fontana and San Bernardino are the closest to being considered medium sized cities with populations just under 250,000. As a result of these trends, the largest cities now have significantly lower crime rates (23 percent lower for violent crimes and 32 percent lower for property crimes) than medium-size cities.⁹

Research from Laurence Levaque in 2015 focused on preventing crime against female-identified individuals at bus stops and on public transit, another important topic that transcends international boundaries. In the research, sponsored by the Asian Development Bank, the author offers guidance for practical ways to reduce violence. These include:

Safe physical environment and design features¹⁰

- » Ensure safe physical access to urban transit services through adequate lighting; clear visibility; emergency services provided at bus stops, on platforms and in and around bus and rail stations; and on sidewalks and pathways to and from stops/stations.
- » Install cameras and alarm systems such as emergency buttons.
- » Adopt measures to ensure proper maintenance of the transport system, as this has an influence on users' perception of security and degree of acceptance of crime or misconduct.

Prevention and support services¹⁰

- » Establish a security hotline which transit users can call or text to report incidents of Violence Against Women and Girls (VAWG) Prevention.
- » Install clear signs in buses/trains and stations with information about zero tolerance to sexual harassment, the security hotline, and local support services available in the area.

Capacity building¹⁰

- » Train security personnel, drivers and conductors on women's security and safety issues and gender-sensitive emergency assistance for VAWG on public transport.
- » Organize regular briefing sessions for female and male station staff on security-related issues, including VAWG.
- » Institutionalize data collection and analysis on VAWG with sex-disaggregated data and gender-related information in the transit sector.

The rest of this chapter delves deeper into mitigation measures to increase personal safety at bus stops; in particular, it focuses on programs, projects, policies, goals, and objectives to increase safety.

4.2.3 Bicycle Solutions

There are four conventional bicycle route types recognized by the California Department of Transportation. Details of their design, associated wayfinding, and pavement markings can be found in the CA Manual on Uniform Traffic Control Devices (MUTCD) and CA Highway Design Manual. Additionally, there are other low cost, easy to install treatments that can be installed by cities along certain corridors within Omnitrans' service area to provide additional awareness about the likely presence of bicyclists. In many instances, installation of these bicycle route enhancements can be coordinated as part of street resurfacing projects. Additional low-cost projects ideas can be found at tacticalurbanismguide.com

Class I: Multi-Use Paths

Class I multi-use paths (frequently referred to as "Shared Use Paths") are physically separated from motor vehicle travel routes, with exclusive rights-of-way for non-motorized users such as bicyclists and pedestrians.

Class II: Bicycle Lanes

Bicycle lanes are one-way route types that carry bicycle traffic in the same direction as the adjacent motor vehicle traffic. They are typically located along the right side of the street (although they can also be "contra flow bicycle lanes" that carry bicycle traffic comfortably and safely against the flow of one way traffic.) and are between the adjacent travel lane and curb, road edge, or parking lane. They are not physically separated from motor vehicle traffic.



Class I multi-use path



Class II bicycle lane

Class III: Bicycle Routes

A Class III facility is a suggested bicycle route along a calm street marked by signs designating a preferred path between destinations. They are recommended where traffic volumes and roadway speeds are fairly low (25 mph or less).

Class IV: Separated Bikeways

Separated bikeways are bicycle-specific routes that combine the user experience of a multi-use path with the on-street infrastructure of a conventional bicycle lane. Separated bikeways are physically separated from motor vehicle traffic and designed to be distinct from any adjoining sidewalk. The variety of physical protection measures can include raised curbs, parkway strips, reflective bollards, or parked vehicles. Separated bikeways can be either one-way or two-way, depending on the street network, available right-of-way, and adjacent land use. Two-way separated bikeways must be carefully designed, especially if they cross motor vehicle routes. This is because few motor vehicle drivers are accustomed to two-way separated bikeways and they may tend to look to the left only when deciding whether it is safe to proceed across the separated bikeways. When two-way cycle tracks are carefully designed and follow the standards, they tend to be safe, as shown in a Long Beach, California, research study. In North America, roughly a third of all cycle tracks are two-way and in cities like Seattle, there are more two-way cycle tracks than one-way cycle tracks, and the two-way cycle tracks have an excellent safety record. Two-way cycle tracks without on street parking tend to have a similar safety record to one-way cycle tracks. Two-way cycle tracks with on-street parking require specialized design considerations, such as additional speed humps at driveways, to improve their safety record.



Class III bicycle route



Class IV separated bikeway

Buffered Bicycle Lanes

Buffered bicycle lanes provide additional space between the bicycle lane and traffic lane, parking lane, or both, to provide a more protected and comfortable space for bicyclists than a conventional bicycle lane. The buffering also encourages bicyclists to avoid riding too close to parked vehicles, keeping them out of the “door zone” where there is the potential danger of drivers or passengers suddenly opening doors into the bicyclists’ path.

Shared Lane Markings (“Sharrows”)

The shared lane marking is commonly used where parking is allowed adjacent to the travel lane or where there isn’t enough width for a traditional bike lane. It is now common practice to center them within the typical vehicular travel route in the rightmost travel lane to ensure adequate separation between bicyclists and parked vehicles. Many cities install sharrows over a thermoplastic green background to enhance visibility.

Bike Boxes

A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists a safe and visible way to wait ahead of queuing traffic during the red signal phase, especially for left turning cyclists. This positioning helps encourage bicyclists traveling straight through not to wait against the curb for the signal change, and increases comfort by gathering cyclists and facilitating cyclist left turn movements.

Bicycle Boulevards

Bicycle boulevards provide a convenient, low stress cycling environment for people of all ages and abilities. They are installed on streets with low vehicular volumes and speeds and they often parallel higher volume, higher speed arterials. Bicycle boulevard treatments use a combination of signs, pavement markings, traffic diverters, and traffic calming measures that help to discourage through trips by motor vehicle drivers and create safe, convenient bicycle crossings of busy arterial streets. They are similar to class III bicycle routes but tend to include more traffic calming and diversion infrastructure.

Signage and Wayfinding

Signage and wayfinding on all streets and bicycle routes are intended to identify routes to both bicyclists and drivers, provide destination information and branding, and to inform all users of changes in distance and roadway conditions.

Green Colored Transition Conflict Striping

Intersection or mid-block crossing conflict markings indicate the intended path of bicyclists. Colored striping can be used to highlight conflict areas between bicyclists and vehicles, such as where bicycle lanes merge across motor vehicle turn lanes, merge across a bus lane, or cross an intersection.



Buffered bike lanes



Shared lane markings



Bike boxes



Bicycle boulevard



Signage and wayfinding



Transition striping



Protected intersection



Bicycle signals

Protected Intersections

Protected intersections maintain the integrity (low stress experience) of their adjoining separated bicycle lanes by fully separating bicyclists from motor vehicles at intersections. Hallmark features of these protected intersections include two-stage crossings supported by an advance queuing space, protective concrete islands, special bicycle-cross markings (parallel with crosswalks), and can include special signal phasing. At intersections, cyclists can be protected in time and in space. Protected signal phasing and leading phasing protects cyclists in time. On the other hand, protected intersections protect cyclists in space by placing the cyclists physically ahead of the motorists to give them a head start when the light turns green. There are various signal timing treatments available for protected intersections. The aforementioned protective concrete islands at each corner protects cyclists from right turning vehicle, mitigating the “right hook” conflict. The right hook conflict occurs when a motorists turns right and a cyclists goes straight across the turning path of the motor vehicle.

Bicycle Signals

This category includes all types of traffic signals directed at bicyclists. These can include typical green/yellow/red signals with signage explaining the signal controls, or special bikeway icons displayed within the signage lights themselves. Near-side bicycle signals may incorporate a “countdown to green” display, as well as a “countdown to red.” It is preferable to have the smaller (four inch diameter) near side bike signals in addition to the larger (eight inch) far side bike signals at bike crossing for additional crossing information.

4.2.4 Pedestrian Solutions

While streets in some areas within half mile of Omnitrans' bus stops have sidewalks, other locations lack safe crossing facilities for people walking. While many intersections are signalized and have crosswalks, there are some segments with long blocks without convenient crossing places. Providing crossing treatments will help to formalize pedestrian crossings where people walking already informally cross, increasing safety.

Enhanced Crosswalk Markings

Enhanced crosswalk markings can be installed at existing or proposed crosswalk locations. They are designed to both guide people walking and to alert drivers of a crossing location. The bold pattern is intended to enhance visual awareness, and their retroreflectivity will make them visible at night. Traditional crosswalk designs that include only two parallel stripes are surprisingly difficult for motorists to see and can lead to safety issues.

Curb Extensions

Also called bulb-outs or neck-downs, curb extensions extend the curb line outward into the travel way, reducing the crossing distance for people walking while reducing the speed of motorists, which are the two most salient principles when designing for pedestrian safety. Typically occurring at intersections, they increase visibility, reduce the crossing distance, and can reduce delay for people walking by shortening phases and cycle lengths. Curb extensions must be installed in a manner where they will not interfere with bicycle lanes or separated bikeways. If both treatments are needed which is common, the curb extensions should protrude a maximum of 6 feet into the roadway so they don't impact the bike lanes.



Enhanced crosswalk markings



Curb extensions



Refuge island



Mid-block crossing

Refuge Island

Refuge islands provide pedestrians and bicyclists a relatively safe place within an intersection and midblock crossing to wait if they are unable to complete their crossing in one movement. Even on single lane roadways, refuge islands are one of the most beneficial pedestrian treatments in the toolbox, both in terms of increasing safety and increasing accessibility. For midblock crossing islands where there is limited right-of-way, often a short stretch of parking can be removed to install safe and effective refuge islands to dramatically improve the environment for people walking.

Mid-block Crossings

Mid-block crossings provide convenient locations for pedestrians and bicyclists to cross thoroughfares in areas with infrequent intersection crossings or where the nearest intersection creates substantial out-of-direction travel. Mid-block crossings should be paired with additional traffic-control devices such as traditional Pedestrian Signals, Pedestrian Hybrid Beacons, Rectangular Rapid Flashing Beacons, LED enhanced flashing signs, and/or refuge islands. Resources such as the North Carolina Pedestrian Crossing Guidance (NCDOT) give further details on which type of treatment to use in which type of situation.

Lighting

Pedestrian-scale lighting provides many practical and safety benefits, such as illuminating the path and making people walking, using mobility devices, or bicycling more visible to drivers. Lighting can also be designed to be fun, artistic, and interactive.

Transit Stop Amenities

Transit stop amenities such as shelters with overhead protection, seating, trash receptacles, and lighting are essential for encouraging people to make use of public transit.



Lighting



Transit stop amenities



Crosswalk art



Public art

Special Intersection Paving and Crosswalk Art

Special intersection paving and crosswalk art provide unique opportunities at intersections to highlight crossings, key civic or commercial locations, while breaking the visual monotony of asphalt. Intersection paving treatments and crosswalk art can integrate context-sensitive colors, textures, and scoring patterns.

Paving treatments and crosswalk art do not define a crosswalk and should not be seen as a safety measure. Standard transverse or longitudinal high visibility crosswalk markings are still required to meet MUTCD requirements for a crosswalk.

Furnishings and Public Art

Transit shelters, bicycle racks, seating, and public art provide important amenities for functionality, design and vitality of the urban environment. They announce that the street is a safe, inviting, and comfortable place to be and provide visual detail and interest.

Rectangular Rapid Flashing Beacon (RRFB)

Rectangular Rapid Flashing Beacons (RRFB) are user-actuated flashing lights incorporated into pedestrian warning sign assembly that increase driver awareness of a crossing for people walking at unsignalized intersections or mid-block locations.



Pedestrian hybrid beacon

Pedestrian Hybrid Beacon (PHB)

Pedestrian Hybrid Beacons (PHB), including the High-intensity Activated Crosswalk Beacon (HAWK), are a type of user-actuated signal that allows pedestrians and bicyclists to stop traffic to cross high-volume arterial streets. This type of signal may be used in lieu of a full signal that meets any of the traffic signal control warrants in the MUTCD. It may also be used at locations which do not meet traffic signal warrants but where assistance is needed for pedestrians or bicyclists to cross a high-volume arterial street.

Protected Walking Lane (PWL)

Protected Walking Lanes (PWL) are dedicated, unobscured spaces in the street for people to walk. PWL's incorporate colored paint and concrete bumpers as a sidewalk alternative.



Rectangular rapid flashing beacons (RRFB)



Protected walking lane

4.3 Identifying the Bus Stop Catchment Areas

Identifying the footprint of each bus stop catchment area is based on Southern California and national level best practices for public transit accessibility. Since the actual distance that users need to travel to reach bus stops will vary, catchment areas are developed to provide a study area footprint for bicycle and pedestrian strategies. Access and improvements are established for people who walk using a half-mile or a 10-minute walking distance from a bus stop. The 10-minute walking distance assumption is based on able-bodied person travel time. For bicycle access and improvements, a three-mile or a 15-minute bicycling distance is used. The bicycle catchment area becomes the overall footprint for bus stop analysis due to its larger footprint and captures transit users who may walk farther than the half-mile. Figure 4-2 depicts how the catchment area is developed.

While it is safe to say that the catchment area will encompass a large area, it is not indicative of a street network that people who walk, or use other mobility aids (i.e. scooters, wheelchairs) and bicycles must traverse. Many cities in San Bernardino County have a curvilinear street network and cul-de-sacs that forces people who walk to bus stops onto major arterials which may not have the best walking and bicycling environments. In many cases, it makes their trip to a bus stop even longer, as seen in Figure 4-1. To increase walkability, neighborhoods should be designed with a tight street grid.

FIGURE 4-2: Development of a Catchment Area

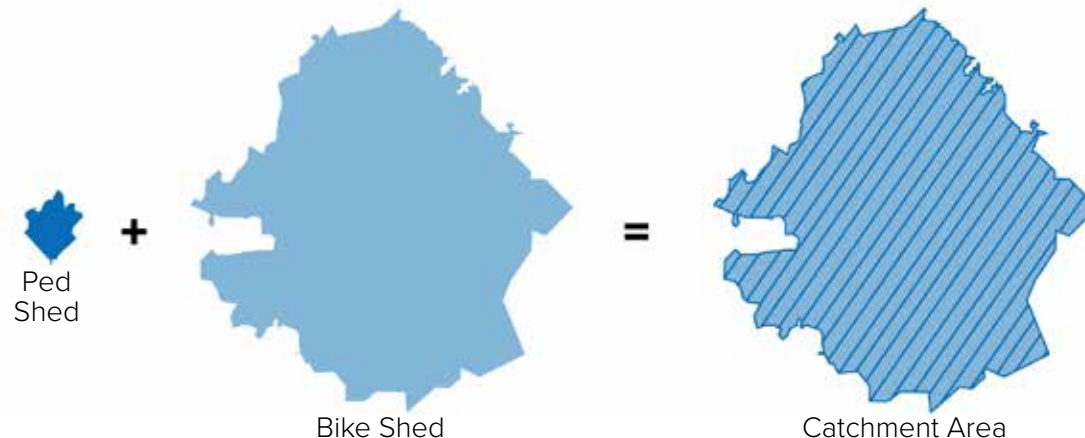
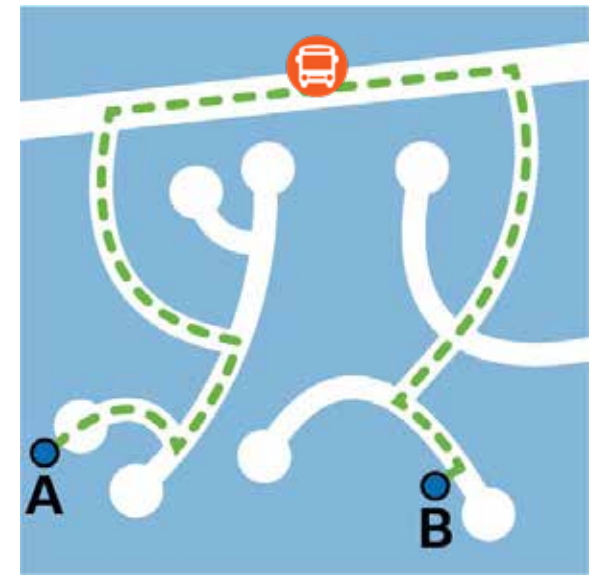
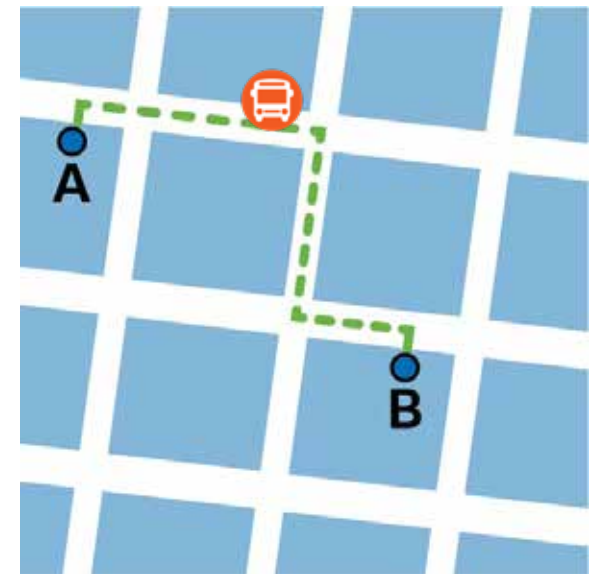


FIGURE 4-1: Curvilinear Network vs Street Grid

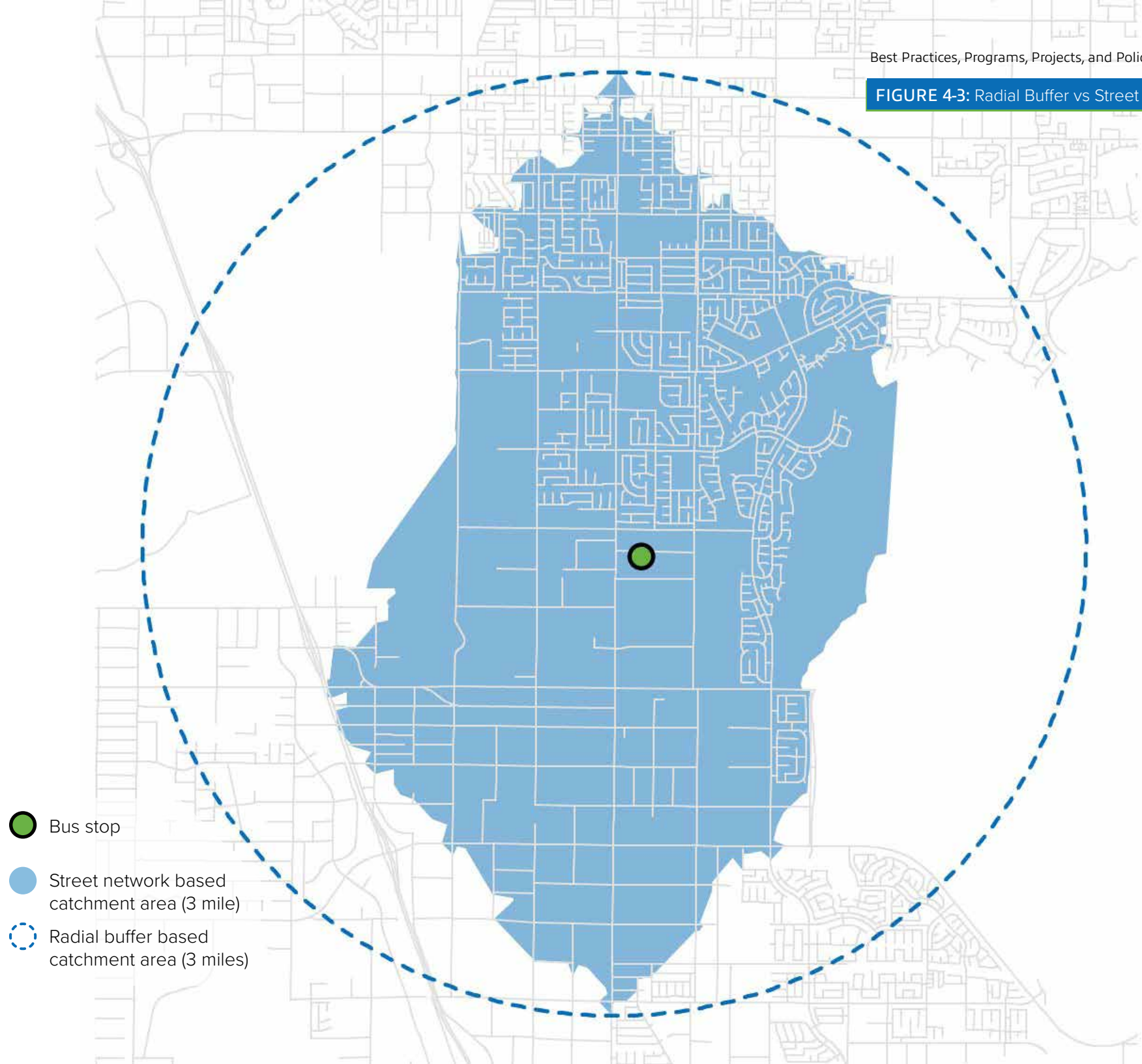


Curvilinear street network



Traditional street grid

FIGURE 4-3: Radial Buffer vs Street Network



4.4 Traffic Calming

In addition to the pedestrian and bicycle solutions mentioned in the previous sections, certain traffic calming techniques can also be implemented to increase the accessibility for pedestrians and bicyclists to transit stops. Aside from increasing accessibility, traffic calming increases safety for pedestrians and cyclists, as well as safety for motorists. Traffic calming involves changes in street alignment, installation of challenges, and other physical measures to reduce traffic speeds and/or cut-through motor vehicle traffic volumes. The intent of traffic calming is to alter driver behavior and to improve street safety, livability, and other public purposes. Other techniques consist of operational measures such as police enforcement and speed displays. The following examples provided are traffic calming measures that may be applied by cities throughout Omnitrans' service area.

Roundabouts/Traffic Circles

A roundabout is a circular intersection with yield control at its entry that allows a driver to proceed at controlled speeds in a counterclockwise direction around a central island. Roundabouts are designed to maximize motorized and non-motorized traffic through their innovative design that includes reconfigured sidewalks, bikeway bypasses, high-visibility crosswalks, pedestrian flashing beacons, and other traffic measures. Roundabouts are typically implemented on collector or arterial roadways and may require additional right-of-way.



Traffic Circle

A traffic circle is a small-scale traffic calming measure commonly applied at uncontrolled intersections on low volume, local residential streets. They lower traffic speeds on each approach and typically avoid or reduce right-of-way conflicts because the overall footprint is smaller compared to roundabouts. Traffic circles may be installed using simple markings or raised islands but are best accompanied with drought-tolerant landscaping or other attractive vertical elements. Traffic circles are also highly effective at calming traffic and reducing collisions, although at a much reduced cost compared to roundabouts.

Signals and Warning Devices

Traditional pedestrian signals remain the gold standard for high quality crossings for people walking, although some cases warrant new signal technologies. PHBs and RRFBs are special signals used to warn and control traffic at unsignalized locations to assist people walking in crossing a street via a marked crosswalk. Either of these devices should be installed at locations that have pedestrian desire lines and that connect people to popular destinations such as schools, parks, and retail. Research has shown that PHBs tend to have a 90 percent motorist compliance rate versus RRFBs, which tend to have an 80 percent motorist compliance rate. Traditional pedestrian signals tend to have around a 100 percent compliance rate, which improves safety over other types of signals, and therefore are preferable for pedestrian facilities.



Signal and warning devices

Signals and warning devices should be paired with additional pedestrian improvements, where appropriate, such as curb extensions, enhanced crosswalk marking, lighting, median refuge islands, corresponding signage, and advanced yield markings to mitigate multiple threat collisions on multi-lane roadways.

Speed Tables/Raised Crosswalks

Speed tables are flat-topped road humps, often constructed with textured surfacing on the flat section. Speed tables and raised crosswalks help to reduce vehicle speeds and enhance pedestrian safety.

On-Street Edge Friction

Edge friction is a combination of vertical elements such as on-street parking, bicycle routes, chicanes, site furnishings, street trees, and shrubs that reduce the perceived street width, which has been shown to reduce motor vehicle speeds.



Speed table



Edge friction

4.5 Best Practices Research

Best practices research was conducted in the earlier stage of the planning process. The research included reviewing transit research as well as studies from other similar-size transit agencies from around the region and across the country that have recommendations to successfully improve bus stop safety. A list of studies reviewed to find the latest best practices for bus stop safety are shown at the end of this chapter.

The primary goal of a transit agency is to provide passengers with transportation to their destination in a safe, convenient, efficient, and reliable manner.¹¹ The physical safety of passengers is vital to the success of any transit system to not only retain existing ridership but also encourage new riders.¹¹ Ultimately, it is important that bus stops are easily identifiable, safe, accessible, and a comfortable place to wait for the bus.¹² This section starts with discussing personal safety at bus stops then traffic safety as it affects bus stop safety.

4.5.1 Safety at Bus Stops

Transit agencies and local jurisdictions can play an important role in making conditions safe for people traveling to and from transit stops. Transit agencies help by ensuring their vehicles are operated safely near pedestrians and that their stops and stations provide safe pedestrian access.¹² This section will cover the following topics as relates to pedestrians and bus stops:

- » Number of safety concerns reported by passengers
- » Land Use and Personal Safety
- » Lighting for Personal Safety
- » Visibility for Personal Safety
- » Community Outreach
- » Bus Stop Facility Modifications for Personal Safety
- » Placemaking and Space Activation



Number of Safety Concerns Reported by Transit Users

A critical criterion for measuring the quality of public transportation is safety and security as research has shown how different types of settings generate large amounts of crime.¹⁶

Research has consistently demonstrated that crime, and fear of crime, can affect ridership.¹⁶ Many people have fears of riding public transit and waiting at transit stops, which can be a major obstacle for transit agencies to encourage transit travel, improve transit services, and implement transit-oriented development including more compact, mixed, walkable development around transit stations and routes.¹⁶ More precise and positive information about bus stop safety and riding a bus can help planners design safer and healthier communities and build more efficient and equitable transportation systems.¹⁵ To make passengers feel safer at bus stops and to reduce the number of safety concerns reported by passengers, it is ideal for bus stops to be in non-isolated, visible, well-lit locations. Increased diversity and density of uses near bus stops increases the number of people that see and effectively help monitor safety at bus stops.

It is recommended that placemaking and space activation measures be implemented to attract people to areas near bus stops. More people on the street will often be effective in reducing crime and improving safety.

The following types of policies are effective for reducing likelihood of crime:

- » Encourage compact development that can be supported by public transit
- » Provide safe sidewalks and protected bike routes to bus stops
- » Provide high quality transit and stops for rest, reading, telephone, computer, homework, or similar while waiting for the bus
- » Provide high quality transit service: speed, stops, safety and security
- » Provide practical guidance about how people should respond if they see dangerous or inappropriate activity

Land Use and Personal Safety

Buildings, as controlled by local land use categories, can significantly impact quality of the walking environment and improve the community experience.¹³

Buildings can offer a sense of safety, security, wayfinding, and protection as people walk around their neighborhood.¹³ Building uses, such as retail increase activity and can contribute to safety by adding “eyes on the street.”¹³ It is important to ensure that “eyes on the street” do not result in more racial profiling, but instead add to the sense of community and connection among the public. Generally, it is best to site a bus stop next to popular destinations that are safe, clean, and well-maintained with larger volumes of activity.²⁰ This will increase the number of people that can ‘keep an eye out’ for one another without feeling isolated or at risk. Space activation can be an effective way to make people feel safer.

When bus stops are placed far from destinations, then adding art and activities can increase the appeal of waiting at a bus stop. Additional options might include a little free library, a chalkboard for drawing, or a play sculpture/play structure. At bus stops that do not have benches, it is recommended that a horizontal bar be placed near the bus stop so people, especially senior citizens, can rest by leaning against the bar when waiting at bus stops. It should be noted that bus stop spacing and placement is based on the Omnitrans Transit Design Guidelines (2013) including 1/2 mile walking distance to provide access to the maximum number of people. The final bus stop location is also affected by existing constraints like available space to construct the bus stop, traffic safety, bus access space requirements and other criteria.

In contrast, some building and land uses can reduce feelings of safety and actual safety for transit riders. Liquor stores, bars, check-cashing establishments, and pawn shops are perceived to increase risk for some vulnerable members of society like the elderly, disabled, women and children.¹⁹ Locations with reduced activity near unmaintained areas, like some vacant lots and vacant buildings, can also create a feeling of risk that reduces ridership.²² 4 briefly summarizes strategies to reduce crime and fear that may reduce ridership.

Development and redevelopment projects by local jurisdictions within the watershed of a bus stop should also be reviewed for opportunities to rebuild damaged sidewalks or construct new ones where gaps exist, to provide more direct pedestrian networks, or improve the safety and environment of the overall pedestrian experience.¹³

In some cases, residents have opposed specific transit services, such as new lines and stations in their neighborhood, due to fears that improving low-income people's access will increase crime rates.¹⁵ Several before-and-after studies indicate that new transit services do not generally increase total crime rates.¹⁵ They may attract more people and business activity which may increase local crimes, but crimes per transit passenger, total regional crime, and risks to individuals rarely increase.¹⁵

Lighting for Personal Safety

Adequate lighting is one component to safety and security at bus stops. Omnitrans has been working to install hundreds of pole-mounted solar lights at bus stops throughout the system. When existing streetlights do not provide adequate lighting and solar lights are lacking, proper lighting should be provided to ensure the safety and security of all transit riders.¹³ In addition, bus stops should be visible from nearby buildings, roads, near crosswalks, and well-lit so passersby can help monitor the bus stop.

Visibility for Personal Safety

The concept of putting more “eyes on the street” from passing cars, building windows and walkways can create a greater sense of safety at a bus stop. This extends to sightlines in and around a bus stop and requires special attention for a personal sense of safety and security.¹³

For example, the Omnitrans Transit Design Guidelines (2013) includes additional transparent shelters for their bus stops. Transparent materials are also important because it allows someone approaching the bus stop to see if another person is hiding behind a shelter panel and might jump out at them. Similarly, bushes near a bus stop are discouraged if there is potential for someone to hide behind them.¹⁹ Surveillance cameras can be used if crime is an issue at an existing bus stop as it may have a deterrent effect on crime.¹⁴

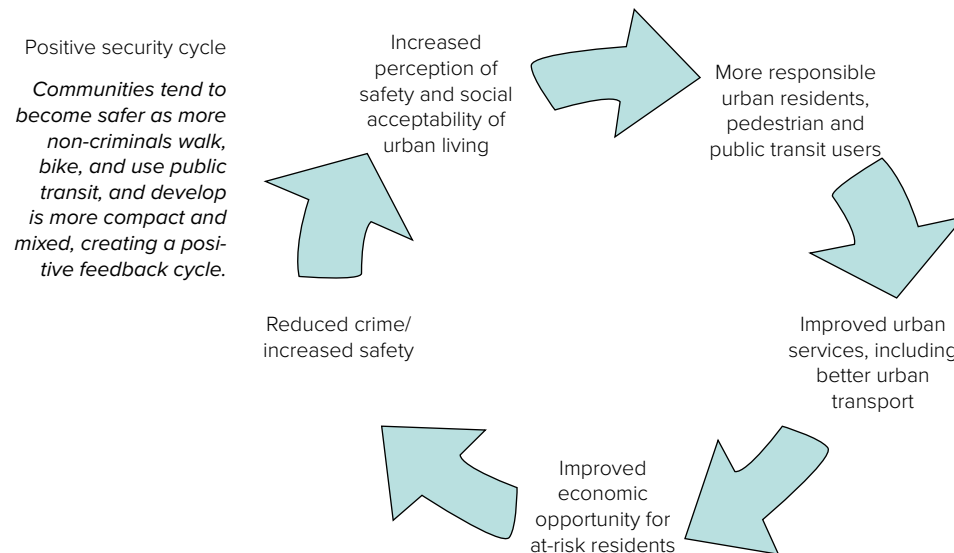


FIGURE 4-4: Strategy to Reduce Crime and Reduce Fear that Reduces Transit Ridership¹⁵

Bus Stop Facility Modifications for Personal Safety

Bus stop facility modifications to improve personal safety may continue to include:

- » Continue to provide signage, seating, shelters, and trash receptacles at more bus stops.¹¹
- » Increasing maintenance (frequency and thoroughness)¹¹
- » Provide amenities based on the expected rider types (elderly need more benches, etc.).
- » Security cameras, emergency phones, and public announcement systems at locations with the most safety concerns.
- » Local jurisdictions should add and maintain trees for shade without compromising bus stop function or accessibility.

Community Outreach

Transit agencies can assess existing conditions for pedestrian safety near transit stops and stations with help from the community. Note that Omnitrans already has many of these programs in place.

Continue existing programs:

- » “Adopt-A-Stop” programs with riders and businesses.¹¹
- » Encouraging residents to report safety issues.¹¹

Explore implementing the following programs:

- » Encourage the creation of community task forces for new construction and redevelopment projects.¹¹
- » Encourage community participation in project advisory committees.¹¹
- » Encourage resident participation in community safety teams.¹¹
- » Enlist community help with transit accessibility audits.¹¹
- » Develop quick reference phone lists for residents to contact the appropriate person.¹¹
- » Develop easy-to-use websites with information directed at community groups.¹¹



SCAG's Go Human Demonstration



Parklet

Placemaking and Space Activation

Placemaking to increase personal safety and quality of life at bus stops is the idea of integrating the bus stop into an attractive destination for people to meet and socialize while patronizing adjacent centers of activity and be part of a person's full day's journey - instead of just a bench and a ride to start your day's activities. The bus stop can become a positive focal point for a street or small neighborhood. There is potential for secondary effects like improved economic activity near the bus stop that increases overall sense of safety and security for everyone.

A major aspect of placemaking is partnering with the surrounding community to help identify positive features and activities in a small area that is being considered for a bus stop. The process starts with community coordination to find positive existing assets near a bus stop to build upon and make an overall positive experience for the bus rider. Walkability, safe connected sidewalks, wayfinding signage, an events calendar or suggestions of things to do near the bus stop all contribute to placemaking and attracting people to use transit.

Place-building activities near a bus stop typically include small parks, coffee shops, restaurant, entertainment centers, a blank wall that gets a locally developed mural or sculpture, and local efforts to paint or wrap city-owned utility boxes with art as shown in the samples to the right. Omnitrans riders may find this concept familiar as several Omnitrans member cities have utility box art and mural programs in place. This can increase a local community's sense of ownership of the streetscape and bus stop. Adopt-a-stop and adopt-a-litter-container programs can help neighbors build a sense of place around a bus stop and reduce fear of crime at a bus stop.



Mural on side of building

4.5.2 Signal Timing

Best practice for signal timing involves reducing travel time for both buses and for transit users walking to bus stops, leading to less wait time and higher levels of comfort. The top three best practice measures for Bus Stop Safety signal timing are:

Transit Signal Priority (TSP)

TSP is a technique to improve service and reduce delay for mass transit vehicles at intersections controlled by traffic signals. The recommendation is to continue to use TSP where feasible. Omnitrans is already using TSP, as shown in the 2014 TSP evaluation conducted by Iteris.



Leading pedestrian interval

Source: FHWA



No right turn on red sign

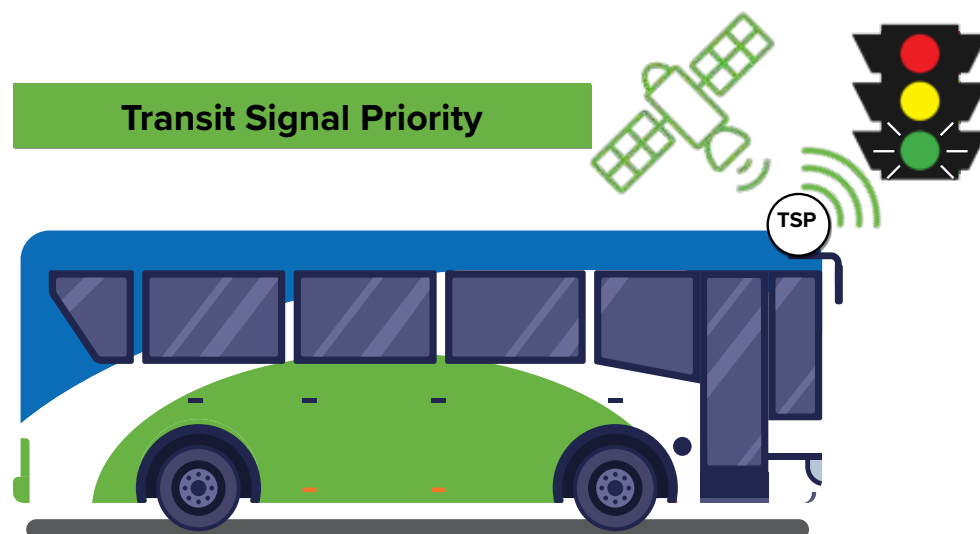
Source: PedSafe - FHWA

Leading Pedestrian Intervals (LPI)

A LPI is a signal timing technique that allows a “head start” for people walking. It gives people walking exclusive access to a crosswalk, typically three to seven seconds, before vehicular traffic is permitted. LPIs are known to have among the highest benefit-cost ratio of any pedestrian safety mitigation measure.

Right-Turn-On-Red (ROTR) Restrictions

No ROTR improves safety for people walking by not allowing motorists to turn right when the signal is red. No ROTR restrictions are in place city-wide in New York City and are common across the country in cities like Boston and Somerville, Massachusetts, using signing. It was standard practice across the country until the 1970s.



4.5.3 Safety While Accessing/Travelling to Bus Stops

Transit riders should be able to access transit from their origin point or reach their destination from transit with minimal risk of being harmed by a vehicle, being a victim of a crime, or potentially being injured.¹³ Ultimately, pedestrians should feel as if they are at minimal risk.¹³ This section will discuss traffic safety recommendations to improve safety at and around bus stops, and will cover the following topics related to traffic safety:

- » Safe Access to Bus Stops
- » Coordinate with Local Jurisdictions
- » Collision Studies
- » Safety Education

Safe Access to Bus Stops

Safe pedestrian and bicycle access to a bus stop is critical to the transit agency and the rider. If people who walk and bicyclists do not feel safe and secure, they will not have a desire to walk or ride to the bus stop.¹³ If a person is injured or harmed walking to or from a bus stop, there may be substantial costs put upon local governments and transit agencies if the conditions were unsafe.¹³ Providing contiguous, fully accessible, well maintained, and designated walking paths with high-visibility crossings of roadways, and bicycle facilities can reduce risk of liability for both local governments and transit agencies.¹³



FIGURE 4-5: Median Treatment to Discourage Unsafe Pedestrian Midblock Crossing²¹

Well maintained sidewalks and high-visibility crosswalks in the area around the bus stop and amenities such as benches, shade shelters, and lighting at stops and stations, are vital for pedestrian and bicyclist comfort and safety.¹¹ Successful transit systems provide convenient and safe pedestrian and bicycle access as well as comfortable waiting areas, which can all support greater transit use.¹¹ Comfortable, well maintained seats, sidewalks and shade structures at bus stops will encourage more people to use transit in general.

Consistent with the Omnitrans Transit Design Guidelines (2013), of the three possible locations to place a bus stop relative to an intersection, the far-side of the intersection is the safest because pedestrians will cross the street at the intersection behind the bus and will be visible to following cars. This is safer than a stop located on the near-side of the intersection where people who walk and bicyclists would have to cross the intersection in front of the bus and be hidden by the bus to following cars. Mid-block bus stop locations are least preferred because people that are running late may cross the street mid-block and be at risk of getting hit by a car.

Wherever possible, the local jurisdiction should provide a sidewalk through-zone in front of, or behind, the bus stop bench and shelter for pedestrians going past the bus stop. Omnitrans should ensure all bus stops are easily identifiable with signage, a bus schedule, and its territory is well defined to discourage non-transit users from occupying it for other reasons. Omnitrans should locate bus stops as feasible to shorten walking distances, reduce street crossings, or improve safety at street crossings for people accessing transit at each stop.¹¹

5 shows the option of installing a physical barrier in the median to reduce the risk of people crossing the street midblock to get to a bus stop. Another option is to install a protected mid-block crossing with pedestrian refuge and low growing plantings.

Coordinate with Local Jurisdictions

In most cases, transit agencies are limited in their ability to improve sidewalks and curb ramps around bus stops.¹¹ Transit agencies frequently lack jurisdictional authority to address sidewalks on property not owned by the agency.¹¹ To improve safety for their riders, transit agencies form partnerships with other organizations and local government agencies to provide contiguous and safe sidewalks and bicycle facilities especially those that own and maintain public rights-of-way.¹¹ It should be noted that Omnitrans currently coordinates and partners with all 16 member jurisdictions to implement all recommended improvements.

Examples of current Omnitrans coordination efforts include working with local jurisdictions to identify areas in need of improvement in the pedestrian and bicycle network; building priority project lists based on pedestrian and bicycle safety; and working with property owners to improve pedestrian connectivity to bus stops.

As a part of this plan, Omnitrans is building relationships with citizens and local community groups to improve pedestrian safety for their riders and gather essential information about pedestrian and bicycle access issues and needs.¹¹ Typical strategies include working with residents to identify pedestrian and bicycle access issues that need improvement, educating residents about pedestrian, bicyclist and transit safety issues, and working with community members to develop solutions to improve pedestrian and bicycle safety.¹¹

In addition, those who regularly walk and bicycle to and from bus stops or transit stations are most familiar with pedestrian safety issues along their routes. Ongoing Omnitrans coordination with transit riders helps collect this insider knowledge.¹¹ To take advantage of this information, transit rider questionnaires have helped gather feedback about safety and access conditions at and around bus stops and stations.¹¹ It should be noted that Omnitrans regularly surveys riders to check on riding conditions and needed improvements. This Plan also included rider engagement about safety issues that need to be addressed.

Collision Studies

A study of collision rates in Sydney, Australia found that changing from private vehicle commuting to public transportation tend to reduce both total collisions and severe injury collisions.¹⁶ The same study found that increases in walking, bicycling and motorcycle mode shares, higher speed roads, and industrial areas, all tend to increase collisions and harm overall pedestrian safety.¹⁶

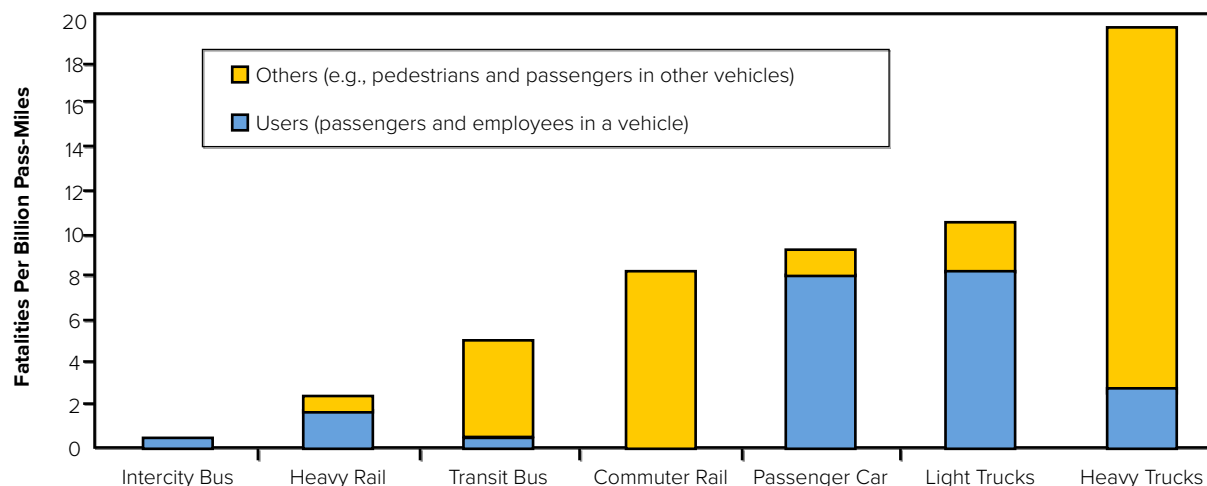
Comparisons of major U.S. cities indicate that those with significantly improved public transportation services and increased transit ridership, experienced large reductions in traffic casualty rates compared with neighboring cities with less transit-supportive policies.¹⁵ These public transportation services were improved by shifting resources including funding and road right-of-way from highways to public transportation and implementing various support policies including pedestrian and bicycling improvements, more efficient parking management, transportation demand management, Complete Streets roadway design, and smart growth policies.¹⁵

To reinforce the idea that it is safer on public transit over private passenger vehicles, a study using U.S. statistics from 2000 to 2009 are shown in Table 4-2 and 6. The data compares deaths per billion passenger miles traveled. As shown, bus riders have far lower traffic casualty rates than automobile occupants (or people that get hit by a bus).²²

TABLE 4-2: Passenger Fatalities per Billion Passenger Miles 2000-2009 ²¹

Riding a motorcycle	212.57
Driving or passenger in a car or light truck	7.28
Passenger on a local ferry boat	3.17
Passenger on commuter rail and Amtrak	0.43
Passenger on urban mass transit rail (2002-2009) ^a	0.24
Passenger on a bus (holding more than 10 passengers - transit, intercity, school, charter)	0.11
Passenger on commercial aviation	0.07

Notes: ^a While onboard a train including assault and violent acts



Source: Litman and Fritzroy 2021, based on FHWA and APTA data

FIGURE 4-6: Fatalities per Billion Passenger Miles Traveled ²¹

4.5.4 Case Studies

Short summaries of two detailed reports are provided below as additional narrative for clarity on best practices to increase the safety on transit systems. The first study focuses on safety concerns for women while riding transit. The second highlights that the location of bus stops can affect pedestrian safety.

Women's Safety in Transportation Environments¹⁸

The Mineta Transportation Institute initiated a project to understand the relationship between women's fear and the built environment, as research found that women are more likely than men to feel unsafe in public spaces, often transportation environments. This case study examines the issue of women's safety on transit in the U.S. There have been several studies researching the relationship of the built environment and how it impacts the safety of women. Research shows that transit passengers' fears and concerns about safety influence their travel decisions. A short list of situations that can create stressful situations that cause women to avoid public transit include:

- » Empty bus stops
- » Dimly lit parking lots and parking structures
- » Overcrowded transit vehicles

This study found that women transit passengers have specific travel needs. Other countries have adopted specific measures and policies in response to transit safety needs of women. Crime surveys and empirical studies from different parts of the world show that most women are worried of the potential violence against them when in public spaces and potentially experiencing sexual harassment on streets and public transportation vehicles. The study provides the following actions to address women's safety while riding transit:

- » Incorporating women's voices in the planning process
- » Collaborating and partnering between transit agencies and nonprofits
- » Prioritizing safety and security needs in the transportation system
- » Modifying safety and security initiatives to the unique needs of communities

- » Implementing an approach to safety that utilizes environmental design
- » Policing and security technology
- » Education and outreach strategies
- » Policy initiatives to improve safety of women riders
- » Flyers or posters on the bus, and at bus stops, to report harassment

The study recommended the following policies to increase women's safety when using transit services:

- » Increased accessibility and availability of public transportation and more bus stops in underserved neighborhoods so that people do not have to walk for long distances
- » Rideshare vouchers available to low-income riders for use in emergency situations
- » Best practice case studies so that cities and transit agencies learn from one another
- » Incorporation of women in the transportation planning process
- » Having women conduct safety audits of their neighborhoods

4.6 Personal Safety Best Practices

Best practices for personal safety fall into three different categories:

1. Programs;
2. Projects; and
3. Policies, Goals, and Objectives

Through research in these categories, examples can be drawn from cities with successful practices when it comes to personal safety.

4.6.1 Programs

The following programs have proven to be successful in cities across the country. These programs focus on personal safety of riders and how to appropriately mitigate any issues that may arise.

CAHOOTS (Crisis Assistance Helping Out On The Streets) Programs

CAHOOTS is a mobile crisis-intervention program in Eugene, Oregon. The mission of this program is to improve response to mental illness, substance abuse, and homelessness. In a nutshell, instead of police answering Eugene's non-violent mental health 911 calls, the mental health crisis team answers the calls. One study showed that at least 25% of people killed in police encounters in the U.S. have serious mental illness and CAHOOTS acts as the middleman to mitigate that problem and lower the statistic.

Homelessness Programs

Hub of Hope in Philadelphia is a great example of a successful drop-in center for the unhoused. The center is in a renovated storefront inside the underground rail station in Philadelphia's downtown. The Hub of Hope program aims to relieve homelessness in the transit area by providing trained social service workers to do client intake on-site to persuade individuals to seek and accept help. In two months, Hub of Hope was able to help place 359 people in shelters, treatments, and other housing options. From their findings, having a center for homelessness near a transit center is an example of good practice. San Francisco also implemented a homelessness outreach team with two full-time workers in downtown transit stations to contact and assist unhoused individuals by connecting them with services, housing, and treatment. During the San Francisco program 75 percent of the unhoused population were connected with services and 25 percent had fully moved out of the transit system. It should be noted that Omnitrans has partnered with the San Bernardino County Health Department's homelessness outreach program which provides outreach services to unhoused individuals at bus stop to connect them with services.

4.6.2 Projects

The following projects have proven to be successful in cities across the country. These projects focus on personal safety of riders and how to appropriately mitigate any issues that may arise.

Ambience Modifications (Background Music)

A Seattle McDonald's restaurant located on a corner notorious for crime, played classical music into the city streets to deter crime and it was shown to be successful based on anecdotal evidence. Playing music is a larger strategy for crime prevention through environmental design and has also been seen in Dallas, San Francisco, and Portland. One case study in Montreal showed that within 18 months robberies were cut by 33 percent, assault cut by 25 percent and vandalism cut by 37 percent in 18 months.²³

Safety

The following items are highly recommended in regards to safety on public transportation systems. Note that Omnitrans is already implementing all of these recommendations:

1. A deeper investment in lighting and more frequent service to produce shorter wait times.
2. Land use variances by local jurisdictions to allow small shops and stores near bus stops, so riders can wait in the shop while checking real time bus arrival information on their phones, to increase their sense of safety.

Placemaking Projects

The Portal to Places project in Pittsburgh, Pennsylvania is a great example of placemaking at bus stops. The focus of this project is to recognize bus stops as part of social infrastructure, meaning that bus stops should be surrounded by everyday destinations beyond just transportation. In the spirit of cultivating activity around bus stops, the City of Pittsburgh created a temporary bus shelter at one of its neighborhood bus stops. During the installation of the temporary shelter, a few activities took place including: a stationary cardio bike, book corral aimed at kids with accompanying educational games, and a program with music, dance, poetry, and art done by local artists. This project brought life and culture back into the neighbourhood and around the bus stop.

The *Go Human* community outreach and advertising campaign done by SCAG encourages people to walk and bike more. The goal of this campaign is to create safer and healthier cities through education, advocacy, information sharing, and events as shown in the photo below.

Research has shown that green spaces have a positive physical and mental effect on people and reduced violence and stress, ultimately improving peoples moods. In Detroit, the NW Goldberg Cares organization transformed a vacant lot that included a bus stop into a pocket park.



Example of SCAG Go Human demonstration project

4.6.3 Policies and Goals and Objectives

Creating communities where safe and attractive bus stops and transit centers can be reached by walking, biking, and other modes is the focus of this policy best practices section. This section outlines key planning policies and practices necessary to improve safety and access to transit centers and bus stops. The best practice policy examples are aimed to instill collaboration between Omnitrans and their member jurisdictions. Best practice policies help to encourage existing and new transit users by implementing infrastructure, amenities, and programs to create communities where travel by walking, transit, and bicycle is practical and more importantly safe.

These example policies and best practices were generated by analyzing policies, goals, objectives and best practices from the cities and communities in the project Census Tracts, regional objectives from SCAG, SBCTA, and the County, and researching best practice across North America, as well as summaries from the American Bus Benchmarking Group (ABBG) peer transit agency discussion forum that discusses transit best practice across the country. The intent of this section is to provide Omnitrans and local jurisdictions opportunities to collaborate and improve safety at and around bus stops while accessing bus stops and transit centers through active transportation.



Example of parklet along VIA Metropolitan Transit line (San Antonio, TX)

Placemaking Case Study

In October 2003, the Seattle City Council approved a fenced off-leash dog area in Regrade Park in Belltown with the hopes of reducing crime and increasing neighborhood use of the park. There is a bus stop next to the park that was commonly avoided by local residents due to concerns around crime. This project ran as a pilot project for 18-months and was considered a success, demonstrating that off-leash areas can successfully displace persistent illegal activities while creating a welcoming gathering place for a new user group. Members of the public stated that before the park installed the off-leash area they would avoid walking in that area of town and that it was frequently the site of crime and needles left by drug users. However, after the installation of the off-leash area, community members found that it created a sense of community, brought different people together, and made them feel safer. Due to its high community support, Regrade Park became a permanent off-leash area in 2005. The bus stop next to the park became more popular and the bus shelter increased in size. Additional scheduling information and wayfinding maps were added to the bus stop, adding to the bus stops appeal. This project is considered a good practice example to increase bus stop safety.



Dog playing at Regrade Park near RapidRide bus stop

In addition, implementing safety measures, placemaking, and bus stop amenities are recommended to improve the comfort and aesthetics of bus stops and discourage illicit and criminal behavior around bus stops and transit centers. Best practice policies include but are not limited to activating space with placemaking to encourage more sidewalk activity; coordinating with the local jurisdiction on providing additional space for shelter installation and ADA-compliant access; and continuation of Omnitrans' safety awareness campaign, with cross-promotion by partner agencies.

Summary of Transit-based Policies and Best Practices

Policy 1: Provide Clean, Safe, and Comfortable Bus Stops to Encourage Transit Use

Passenger comfort, safety, and convenience are all impacted by bus stop features that are located off the street or roadway, commonly referred to as curbside improvements. This section provides policy guidance on how developers and jurisdictions can provide the appropriate bus stop amenities to make transit use safe and comfortable.

Rural areas may present challenges for bus stop design and placement since many of them are lacking sidewalk networks or have other impediments, such as high-speed roadways and non-supporting transit land uses such as industrial buildings, vacant parcels and open spaces. In these cases, efforts should be made by local jurisdictions, in coordination with Omnitrans to find the most level and open area for the bus stop to ensure customer safety for access and waiting. Stops must include ADA accessible waiting pads, landing area, any necessary wheelchair ramps constructed of concrete or asphalt, and connections to existing intersections or developments in accordance with the Omnitrans Transit Design Guidelines (2013).

Best Practice 1.1: Provide or encourage clean, lighted, and convenient bus shelters and transit stops that are within walking and biking distance of major activity areas, residential neighborhoods, and arterial roadways.

Best Practice 1.2: Omnitrans-provided, owned, and maintained bus stop design features shall be consistent with the Omnitrans Transit Design Guidelines (2013). Local jurisdictions are encouraged to install, or require developers to install, amenities, consistent in design with the Omnitrans Transit Design Guidelines (2013).

Best Practice 1.3: When establishing new bus bulbouts along appropriate arterials, design considerations shall follow the Omnitrans Transit Design Guidelines (2013).

Best Practice 1.4: This Plan recommends installing shelters and benches at all bus stops. If resources are limited then develop a ranking methodology to prioritize bus shelter locations. Criteria might include the following:

- » Demographic analysis such as areas in low-income neighborhoods, minority populations, transit dependent neighborhoods with low vehicle ownership in accordance with Omnitrans' Title VI Plan
- » Passenger volume
- » Traffic volume and circulation

Policy 2: Create Attractive Bus Stops Amenities and Access

In the past, bus stop amenities were highly dependent upon the number of passengers that use the stop. Recently, Omnitrans' Board members and SBCTA have realized that previous ridership warrants for benches and shelters are not enough to support bus riders and have pushed to have shelters installed everywhere, even in lower-ridership locations. As activity and ridership increase, expanded amenities beyond the required bench or shelter are typically warranted. The challenge has been having adequate sidewalk space to install shelters. The following best practice policies are aimed to help local jurisdictions on how to create attractive bus stops that are safe and comfortable place to board and alight. Examples include providing a connected network along transit routes, providing space on sidewalks to install shelters and appropriate boarding and landing areas, and opportunities to increase safety such as additional lighting and security call mechanisms. It is also important to recognize that some bus stops have a high latent demand for passengers and although the existing number of passengers might be low, Omnitrans has installed amenities and shelters in low ridership areas when the required space needed for shelters or benches is available.

Best Practice 2.1: Local jurisdictions and private developers should provide and maintain street trees and other landscape treatments along corridors near bus stops within the public right-of-way to provide sufficient shade canopy and promote pedestrian comfort without impeding bus access or opportunities to install shelters.

Best Practice 2.2: Encourage the development of adjacent businesses near major transit stops and bus stops to activate the space and make these facilities safer and more pleasant.

Best Practice 2.3: Local jurisdictions should continue to coordinate with Omnitrans to establish appropriate designs for bus stops through Omnitrans' Passenger Amenity Program.

Best Practice 2.4: Encourage creativity and innovation, including art at bus stops and transit centers, to promote community cohesion and bus stop appeal. Local jurisdictions can partner with local public art programs and artists to create artwork that is visually connected to the historical, environmental, or cultural aspects of the site. Artwork should be developed in coordination with Omnitrans and consistent with CPTED and the Omnitrans Transit Design Guidelines (2013).

Best Practice 2.5: Omnitrans and local jurisdictions should coordinate to provide the opportunity for wayfinding customization, themes, and consistent design quality to promote connectivity to transit facilities, park and ride lots, and other local and regional activity centers.

Best Practice 2.6: Other agencies and local jurisdictions, not-for-profit organizations, and community groups should coordinate with Omnitrans to improve the physical and built environment around bus stops. Examples of improvements include universal design, gardens, green space and open space, and access to parks and recreation amenities.

Best Practice 2.7: Where feasible, install bike racks and ensure they do not block pedestrian access to the bus boarding and alighting area. The bike racks should provide two points of contact to a bicycle and should fit bicycles of various sizes. Refer to the Omnitrans Transit Design Guidelines (2013) for bike rack design and placement.

Best Practice 2.8: Local jurisdictions and Omnitrans should continue to explore opportunities to expand Omnitrans' Adopt-a-Stop Program. The Omnitrans Adopt-A-Stop is a program that helps businesses, individuals and community organizations make a real difference in their neighborhoods by "adopting" a local bus stop. This program entails coordinating with civic-minded individuals, groups, and organizations to volunteer to help Omnitrans and local jurisdictions to maintain litter-free bus stops, to alert Omnitrans staff of maintenance needs, and to present safe and secure bus stops.

Policy 3: Provide Safety Amenities at Bus Stops

Bus stops are critical connection points between modes of transportation. Bus stops should be comfortable, safe, convenient, and designed for the local context. They should complement the larger transportation network and provide a sense of safety at all times of the day. There are several strategies that can be explored to activate the space around bus stops with high crime rates, high ridership, or experience regular complaints. Local jurisdictions and Omnitrans should collaborate on feasible strategies that will benefit both transit riders and the surrounding community.

Bus stops with elements such as shelters, benches, and in-shelter lighting increase the comfort, convenience, and visibility of patrons and the stop itself. This investment in infrastructure can raise the overall attractiveness of bus service and help meet Omnitrans' targets for ridership growth.

Best Practice 3.1: Encourage the provision of amenities such as seating, lighting, and signage (including real-time arrival information), and bicycle parking areas at bus stops, shuttle stops, and transit centers to increase rider comfort, safety, and convenience.

Best Practice 3.2: Install additional lighting at bus stops (solar preferred), cameras, and blue light emergency phones at high incident stops. Omnitrans and local jurisdictions should coordinate with local Police Departments or Sheriff's Department on monitoring and maintaining surveillance cameras and blue light emergency phones.

Best Practice 3.3: Work with local businesses or property owners that are adjacent to the stops with high complaints to come up with a viable solution such as provide security cameras or additional lighting. Bus stop relocation or shelter removal is a last resort because it inconveniences customers, and a new location may not be viable.

Best Practice 3.4: The use of communication systems at bus stops may enhance security. Ensure that each bus stop has the number for the Text-a-Tip program and the 24-hour telephone number displayed for emergency purposes. Where incidents are prevalent and transit riders have requested them, install blue light emergency phones.

Policy 4: Utilize Complete Street Strategies to Improve Bus Stop Accessibility

Multimodal transportation networks provide access to jobs, education, health care, and other essential services in urban, suburban, and rural areas throughout the United States. Interconnected pedestrian and bicycle infrastructure with transit provides viable transportation choices for everyone and this contributes to the health, equity, and quality of life of our communities. Embracing Complete Streets strategies into redevelopment and roadway improvements go a long way toward achieving a truly Complete Street. When planning and construction projects are being developed, local jurisdictions should involve Omnitrans when there is an opportunity to provide input on a project design of bus stop placement and appropriate amenities.

Best Practice 4.1: A Complete Street may include, but not be limited to, sidewalks, bike lanes (or wide paved shoulders), special bus lanes, comfortable, safe, and accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, and roundabouts. Use a Complete Streets approach that is best suited to meet the goals of the corridor or area to maximize the number of people walking or biking to transit. Improve bicycle transportation infrastructure and conditions in the area three miles from a transit station or stop and half-mile for infrastructure for people walking.

Best Practice 4.2: Local jurisdictions should utilize Complete Streets concepts to accommodate and optimize new technologies and micro-mobility devices, first-last mile connections to transit, and curbside management strategies, to provide safe and accessible choices to increase active transportation and transit use.

Best Practice 4.3: Dedicate funding to implement improvements related to Complete Streets policies and implementation.

Best Practice 4.4: Local jurisdictions should prioritize a network of Complete Streets designed for users of all ages and abilities to access bus stops and transit centers. Focus the designs first and foremost on critical areas, which are usually the intersections, before expanding it to the entire network.

Best Practice 4.5: When redesigning roadways, prioritize safety over motor vehicle capacity. All streets should be designed to be accessible for walking, biking, and accessing transit stops.

Best Practice 4.6: Regional agencies such as SBCTA, San Bernardino Council of Governments (SBCOG) and SCAG should explore opportunities and grant programs to provide local jurisdiction officials and engineers with the most up-to-date training and education on implementing Complete Streets concepts. Funding and programs can be administered by, but not limited to, Smart Growth America, Association of Pedestrian and Bicycle Professionals (APBP) and UC Berkeley's SafeTREC program.

Best Practice 4.7: Within each city in Omnitrans' service area, local jurisdictions should continue to evaluate and prioritize projects according to Omnitrans' Title VI Plan to ensure Low-Income / Minority (LIM) populations are prioritized and have equal and safe access to transit.

Best Practice 4.8: In documents and publications non-motorized street crossing fatalities should not be referred to as "accidents" but as a "crash" or "collision" to emphasize that roadway deaths are preventable. It is a small change that can make a big difference.

Best Practice 4.9: Local jurisdictions are encouraged to test out bold, creative approaches to safer street design. Improving street design is neither an insurmountable nor expensive challenge. Coordinate with SCAG on their *Go Human* campaign to test low-cost, short-term interventions to create safer streets. When a solution is implemented, measure the results to gauge the impact of their projects to work toward permanent solutions.

Best Practice 4.10: Minimize roadway crossing distances without compromising transit operations.

Policy 5: Create Non-motorized Access to Transit Which is Direct, Safe, Understandable and Pleasant

Obstacles to improving transit infrastructure may include lack of sidewalk and bicycle network, available space for bus stop infrastructure (including ADA), accessible neighborhood sidewalks connecting to bus stops, and safe street crossings. Transit combined with pedestrian and bicycle access is critical not only for creating a complete and sustainable transportation network but also to encourage passengers to use transit to complete daily trips and activities.

Local jurisdictions that own right-of-way are encouraged to make improvements and continued upgrades to complete the networks, especially during other construction projects with an emphasis on the bus stop and transit access as a priority.

Best Practice 5.1: Support strategies that strengthen first/last mile connectivity to enhance the viability and expand the utility of public transit throughout Omnitrans' service area.

Best Practice 5.2: Maximize potential pedestrian connections using highly visible gateways, walkways, and directional signs and the installation of traffic-calming devices where appropriate. Markings and amenities should also be provided for visually impaired pedestrians traveling to and at transit stops.

Best Practice 5.3: Prioritize bicycle and pedestrian network improvements that provide safe and continuous pedestrian and bicycle access to mobility focus areas, schools, parks, bus stops, and major transit stops.

Best Practice 5.4: Explore opportunities to upgrade existing Class II bicycle lanes and shared bike routes to Class II bicycle lanes with three-foot buffers and enhanced green pavement striping at transition areas as well as opportunities to add traffic calming to Class III bike routes.

Best Practice 5.5: Explore opportunities to upgrade existing Class II bicycle lanes to Class IV separated bikeways.

Best Practice 5.6: Provide routine accommodation in transportation and land use planning by considering bicyclists and pedestrian in the planning and design of land development, roadway, transit, and other transportation facilities, as appropriate to the context of each facility and its surroundings. Encourage mixed-use developments and TOD to reduce required travel distances and create latent demand for transit.

Best Practice 5.7: Coordinate with SBCTA and local jurisdictions to develop a regional wayfinding system to assist travellers and students to identify the non-motorized transportation system. Part of this system can include Safe Routes to School wayfinding.

Best Practice 5.8: Omnitrans, SBCTA, and local jurisdictions should work together to incorporate non-motorized transportation facilities into general and specific plans as well as provide assistance in identifying design standards that provide for pedestrian- and bicycle-friendly access to transit facilities.

Policy 6: Continue to Ensure ADA Accessibility

Omnitrans already follows ADA guidelines, as required, and this policy is recommending they continue their existing policy.

At the network level, connecting pedestrian access routes reduces conflicts by providing access across challenges. This enables safe and comfortable walking trips from beginning to end for pedestrians of all abilities. Accessible pedestrian facilities improve the quality of life for those with mobility, visual, hearing, or other disabilities by reducing challenges to services, opportunities, and social activities. Pedestrian access routes, which provide continuous and clear pedestrian pathways, enhance mobility, and encourage independence by increasing transportation choice.

Policy 7: Utilize Traffic Calming and Safety Countermeasures to Improve Accessibility to Bus Stops and Transit Centers

This policy explores the principle of traffic calming to provide a full range of treatments to slow vehicles, as they move through commercial corridors and residential neighborhoods. The benefit for pedestrians and bicyclists is that vehicles drive at speeds that are safer and more compatible with walking, biking, and accessing bus stops. Traffic calming can take on many forms and costs, such as paint and bollards to traffic circles and roundabouts. It will be key to integrate bus stop access into traffic calming projects to provide the transit users with safe access to their destinations.

Best Practice 7.1: Provide pedestrian-friendly safety improvements, such as crosswalks and pedestrian signals near bus stops and transit centers.

Best Practice 7.2: Where feasible, implement proven traffic calming measures, such as speed humps, speed tables, curb extensions, roundabouts, and traffic circles, to slow vehicular speeds and improve bicycle and pedestrian safety. (Reference Section 4.1 for examples of these countermeasures)

Best Practice 7.3: Implement floating bus stops to facilitate buses moving in and out of traffic and to reduce bus travel time, increasing convenience and attractiveness of transit use.

Best Practice 7.4: Where feasible, implementing full street improvements, including paving, curbs, gutters, and sidewalks are to be encouraged where necessary for public health, safety, and welfare.

Best Practice 7.5: Where feasible, separate pedestrian and bicycle traffic from vehicular traffic on major roadways to protect the safety of roadway users. Driveways and minor roads should have raised bicycle and pedestrian crossings and intersections should be protected to mitigate right hook conflicts.



Floating Bus Stop

Policy 8: Continue to Develop Local and Regional Programs to Encourage Transit Use and Safety

Shifting the daily commute from cars to sustainable transport modes, like public transportation, walking, and biking, incorporates physical activity into everyday commuting and can improve health and happiness. These health benefits can lower insurance costs for employers and create a happier, more engaged workforce, as well as reduce obesity and heart disease. Programs should be explored with local and regional employers to encourage transit use by providing incentives and education on the benefits of alternative transportation.

Best Practice 8.1: SBCTA to collaborate on Transportation Demand Management strategies to develop and implement policies, plans, and programs designed to encourage the use of a wider range of transportation alternatives, including transit, micro-mobility, and bicycles.

Best Practice 8.2: Encourage major employers to reduce vehicular trips by offering incentives such as, but not limited to, free or reduced-fare transit passes, transit stipends, and company-wide contests and events.

Best Practice 8.3: Collaborate to develop back-to-school marketing campaigns to promote bus, carpool, walking, and biking to school. The marketing campaign can include suggested route maps, safety education materials, volunteer opportunities, event calendars, and traffic safety enforcement notices. It can also include an illustrative guide that provides the Suggested Walking and Biking to School maps.

Best Practice 8.4: Avoid high intensity uses in locations with minimal transit service.

Best Practice 8.5: Provide appropriate but not excessive amounts of parking near high transit use areas to encourage transit use.

Policy 9: Continue to Develop Local and Regional Programs to Encourage Safety at Bus Stops and Transit Centers

Safety features at bus stops are the highest priority to improve transit rider safety, such as additional lighting, activating the space around the bus stops, and providing shelter from environmental elements. As part of encouraging the use of transit and the safety issues at some bus stops, programs are an important part to help mitigate some of those concerns. There are programs to provide regular security presence at bus stops and transit centers. This section summarizes some of the best practices that are being employed regionally and statewide that can be explored as a collaborative effort between Omnitrans and local jurisdictions.

Best Practice 9.1: Continue to expand and improve Omnitrans' safety awareness campaign to include short instructional videos, newspaper ads, social media, and community engagement.

Best Practice 9.2: Local jurisdictions should support Neighborhood Watch programs. Members should all be given the training to ensure that racial bias is not used during neighborhood watch activities.

Best Practice 9.3: Continue to provide community programs that develop positive relationships between the jurisdictional Police Department, Sheriff's Departments, and community members to provide a safe and secure environment for bus and transit users.

Best Practice 9.4: Established a uniformed and unarmed security presence on buses and at bus stops such as a “Transit Ambassador” program used in the greater Los Angeles region. This program is believed to have helped to significantly improve security on the system. These ambassadors receive additional de-escalation and anti-bias training before being deployed. These ambassadors will be dedicated to riding transit which in turn help represent a new shift in the deployment strategies of the police department. Across the country, these approaches are helping transit agencies provide additional passenger security and comfort, while allowing sworn, armed police officers to focus their efforts on more serious criminal activity. Prior to implementing a full-scale deployment, a pilot program should be considered to evaluate and refine the program.

Best Practice 9.5: Prioritize stops that routinely draw complaints of illicit or unwanted activity for Transit Ambassadors to regularly monitor to deter illicit behavior.

Best Practice 9.6: Install surveillance cameras at some of the higher ridership bus stops and bus stops with the most complaints.

4.6.4 Goals, Objectives and Strategies

This section summarizes the goals and objectives for this Plan. Goals and objectives are an integral part of any plan because they provide the direction to achieve Omnitrans’ and its member agencies’ vision. The goals, objectives, and strategies presented in this section were prepared based on review and assessment of policies examined by Omnitrans; feedback received during the public involvement process; feedback from TAC members; and the review of local and regional transportation planning documents. After each strategy, the implementing agency of local jurisdiction is identified.

Goal 1: Provide Safe and Pleasant Bus Stops and Transit Centers

Objective 1.1: Understand the needs and concerns of transit users.

Strategy 1.1.1: Continue annual Omnitrans satisfaction survey and conduct surveys to gather feedback on bus service, bus stops and transit stops. Provide QR codes at bus stops and transit centers to direct users to the Omnitrans website to take surveys to obtain regular feedback.

Objective 1.2: Identify bus stops and transit centers in need of improvement.

Strategy 1.2.1: Re-evaluate the current bus stop assessment checklist to annually assess the condition of high use and/or high complaint bus stops. (Omnitrans)

Strategy 1.2.2: Regularly update Omnitrans' GIS data with amenities. (Omnitrans)

Strategy 1.2.3: Coordinate with Omnitrans on corridor improvement projects that may assist with installing bus shelters and improving access to transit. (Local jurisdiction)

Objective 1.3: Enhance streetscape along transit routes.

Strategy 1.3.1: Streetscapes should be utilized to provide visually attractive and physically comfortable environments that are integrated with similar environments of adjacent private property. Cultural, environmental, and historical considerations should be acknowledged when developing a streetscape. (Local jurisdiction)

Strategy 1.3.2: Utilize the streetscape to establish a character or theme for special areas, historic districts, activity centers, universities, neighborhoods, or scenic drives and gateways. Refer to the Omnitrans Transit Design Guidelines (2013) on landscaping and minimum required bus stop elements. (Local jurisdiction)

Objective 1.4: Make bus stops and transit centers a secure environment for customers, both from a traffic safety and from a personal safety perspective.

Strategy 1.4.1: Maintain visible level of systemwide security presence and surveillance coverage which may include unarmed security and activating spaces. (Local Police and County Sheriff's Departments, Local jurisdictions)

Strategy 1.4.2: Maintain and provide direct access to transit vehicles and facilities. Avoid blind spots such as landscaping, fencing and/or structures blocking surroundings to ensure overall visibility of the bus stop from the street and surrounding areas. Refer to the Omnitrans Transit Design Guidelines (2013) for additional security measures. (Local jurisdiction)

Strategy 1.4.3: Maintain/provide additional lighting at all transit facilities, including bus stops. Continue to install solar lights at bus stop throughout Omnitrans' system. (Omnitrans and local jurisdiction)

Goal 2: Provide Safe, Comfortable, and Convenient Bicycle and Pedestrian Access to Bus Stops and Transit Centers

Objective 2.1: Conduct annual bicycle and pedestrian safety assessments.

Strategy 2.1.1: Annually review pedestrian collision data within a one half-mile and bicycle collision with three-miles of bus stops and transit centers using data such as the SWITRS, TIMS or Crossroad software if maintained by local jurisdictions. (Local jurisdictions)

Strategy 2.2.2: Analyze the collected bicycle and pedestrian collision data to identify hot spot locations and trends to develop countermeasures to mitigate the causes of collisions. The safety approach will not be limited to hot spot mitigation. Ultimately it will follow the “Vision Zero” approach which takes a systematic approach to improve safety network-wide rather than just in hot spot locations. In order to implement a systems-wide approach, the projects tend to be less expensive and utilize tactical urbanism methodologies. Refer to local active transportation plans, Complete Streets plans and the SBCTA’s Non-Motorized Transportation Plan and Improvement to Transit Access for Cyclists and Pedestrians for example countermeasures and recommendations. (Local jurisdictions)

Strategy 2.2.3: Develop a Local Road Safety Plan (LRSP) or Systemic Safety Analysis Report Program (SSARP) to identify high-injury corridors and make recommendations. Pursue funding through the federal Highway Safety Improvement Program which provides aid to develop these plans. (Local jurisdictions)

Objective 2.2: Provide a connected, comfortable, and safe pedestrian and bicycle network.

Strategy 2.2.1: Develop an Active Transportation Plan with First and Last Mile to Transit components. (Local jurisdictions)

Strategy 2.2.2: Develop a bus stop access assessment checklist to assist in assessing non-motorized access to bus stops for local jurisdictions to use. Utilize Appendix B, Station Kit of Parts Checklist and checklists such as the Riverside Transit Agency’s bus stop checklist as a starting point. (Omnitrans)

Strategy 2.2.3: Prioritize disadvantaged communities where walking, bicycling, and using transit is the primary mode of transportation. (Omnitrans and Local jurisdictions)

Strategy 2.2.4: Analyze the number of missing sidewalks and crossing locations within one quarter mile of new bus stops, high rider-ship bus stops and transit centers to identify likely paths of travel to bus stops that connect neighborhoods and destinations. Work with SBCTA and their sidewalk inventory and curb ramp database. (Local jurisdictions)

Strategy 2.2.5: Improve pedestrian linkages between residential, commercial, and community facilities and schools to transit stops by providing direct and continuous access. Utilize SBCTA’s sidewalk inventory and curb ramp database as a baseline to understand gaps in the pedestrian network. (Local jurisdictions)

Strategy 2.2.6: Implement well defined crosswalks at intersections, and mid-block crossings to increase safe access to bus stops and local destinations. (Local jurisdictions)

Strategy 2.2.7: Analyze and plan bikeway connectivity within three-miles of new bus stops and transit centers to identify potential routes to these new facilities that connect neighborhoods and destinations. Reference SBCTA's Non-Motorized Transportation Plan and available active transportation plans. (Local jurisdictions)

Strategy 2.2.8: Pursue funds to implement active transportation improvements through grants programs such as the Caltrans Active Transportation Program and Prop 68 Urban Greening Program. (Local jurisdictions)

Objective 2.3: Increase coordination between regional and local transportation providers to provide better multimodal connections.

Strategy 2.3.1: Omnitrans and local jurisdictions to continue attending San Bernardino County Active Transportation Network meetings. (Local jurisdiction, Omnitrans, local police and County Sheriff's department)

Objective 2.4: Implement Complete Streets projects to provide multi-modal access to bus stops and transit centers.

Strategy 2.4.1: Develop a Complete Streets Corridor Plan with First and Last Mile to Transit components for high need, high collision rate corridors. (Local jurisdictions)

Strategy 2.4.2: Develop a First and Last Mile to Transit Plan. (Local jurisdictions, SBCTA and Omnitrans)

Strategy 2.4.3: Identify improvements aimed at enhancing the safety of existing roadway users (e.g. traffic signal coordination, traffic circles, roundabouts, bicycle facilities, etc.). (Local jurisdictions)

Strategy 2.4.4: Local jurisdictions should utilize minimum turning radii and/or curb extensions as a traffic calming technique at locations that street character, as defined by land use and street classification, calls for slower speeds and enhanced pedestrian environments. Reference the Omnitrans Transit Design Guidelines (2013) for required turning radii. Traffic calming measures should:

1. Promote safe and attractive conditions for motorists, bicyclists, pedestrians, and residents on neighborhood streets;
2. Mitigate the impact of vehicular traffic, including excessive speed and collisions.
3. Provide a visually attractive environment for those who use transit or travel by active transportation modes through an area by increasing landscaping and gateway opportunities.

Goal 3: Coordinate Land Use and Transit Planning

Objective 3.1: Encourage coordination of land development to promote active transportation and transit use.

Strategy 3.1.1: Coordinate land use and transportation planning within Omnitrans' service area, given that it is one of the most important parts of improved transit use. Utilize a collaborative planning process such as project Technical Advisory Committees and Development Review Committees to encourage the integration of nonmotorized transportation modes in new and redevelopment projects and corridor studies with existing and future transit routes. As part of these discussions, encourage designing safe and pleasant bus stops near activated locations to provide more visibility around the bus stops. (Local jurisdictions)

Strategy 3.1.2: Continue coordination between Omnitrans and local jurisdictions of existing and future transit centers as TOD hubs to be included in future planning. Reference the Omnitrans Transit Design Guidelines (2013) for TOD guidance. (Omnitrans and Local jurisdictions)

Strategy 3.1.3: Plan and install bus stops to coordinate with the community and regional multi-modal transportation system and support existing land uses such as mixed-use development and high density housing. Providing bus stops in activated locations provides additional visibility and lighting around bus stops. (Omnitrans and Local jurisdictions)

Strategy 3.1.4: Locate and concentrate land uses and urban design to promote and facilitate safe pedestrian and bicycle access to public transportation and installation of new bus stops or improving existing ones. Design adjacent bus stops to provide increased bus stop access and safety while providing additional safety features at the bus stop itself such as shelters and additional lighting. (Local jurisdictions)

Objective 3.2: Improve the street-land use relationship to provide additional visibility and amenities for bus stops.

Strategy 3.2.1: Along transit routes, locate new buildings within a reasonable walking distance from the right of way line to allow easy access for transit users. In placing buildings along arterial or major collector streets, accommodate for the required space for bus shelters with adequate sidewalk and parkway widths. Refer to the Omnitrans Transit Design Guidelines (2013) for these requirements. (Local jurisdictions)

Strategy 3.2.2: Minimize parking and maximize land-use density within close proximity to transit facilities to provide additional visibility around the bus stop. (Local jurisdictions)

Strategy 3.2.3: Minimize walking distances between developments and bus stops and transit centers, especially those with walls or gates, to provide better access to transit. Where applicable, provide additional safety measures such as additional lighting and aesthetics such as an improved streetscape. (Local jurisdictions)

Goal 4: Programs to Encourage Transit Use and Promote Safety, Comfort, and Accessibility

Objective 4.1: Continue to improve public awareness of safety practices.

Strategy 4.1.1: Conduct annual public outreach events such as previous programs like the BRT Safety Campaign, to encourage and educate on safely accessing bus stops and bus stop safety. Continue to promote the WeTip and Text-a-Tip program. (SBCTA and Omnitrans)

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05

Implementation



5.1 Proposed Modifications to Omnitrans Transit Design Guidelines

The 2013 Omnitrans Transit Design Guidelines were reviewed and compared to current NACTO Transit Street Design Guide (<https://nacto.org/publication/transit-street-design-guide/>) and the 2018 Alameda County Transit (ACT) Multimodal Corridor Guidelines, to identify potential revisions. The ACT was selected because their guideline was considered Best Practice for transit design by the Association of Pedestrian and Bicycle Professionals (APBP). Through this process, two types of recommendations were identified: 1) revisions to the content of the guidelines, and 2) revisions to the structure of the guidelines.

5.1.1 Design Guideline Content

The NACTO guide includes additional ‘bus stop types’ and ACT introduces ‘typologies’ to address variations in adjacent bicycle facilities and ‘context zones’ to help organize the bus stop functions and placement of amenities. It is recommended that the additional bus stop types from NACTO be included and the ACT typology approach be evaluated for incorporation.

NACTO Bus stop type to be added include: Tiered Stop, Side Boarding Island Stop, Nearside Stop with Bike Channel, Farside Stop with Bike Channel, Shared Cycle Track Stop, and On-Street Terminal.

ACT typologies to consider incorporating include:

- » Typology 1: Class II Bicycle Facility between the Curb and a General Traffic Lane
- » Typology 2: Class II Bicycle Facility between Curbside Parking Lane and a General Traffic Lane
- » Typology 3: Class IV Bicycle Facility (Separated Bikeway) between the Curb and a General Traffic Lane
- » Typology 4: Class IV Bicycle Facility (Separated Bikeway) between the Curb and a Parking Lane
- » Typology 5: Class IV Bicycle Facility (Two-way Separated Bikeway) between the Curb and a Parking Lane

ACT context zones to consider incorporating include: Transit/Travel Lane Zone, Bus Stop Zone, Bus Stop Furnishing Zone, Bus Stop Bypass Zone, Furnishing Zone, and Pedestrian Zone

It is recommended that the existing narratives and graphics be evaluated against the NACTO guide to ensure current design standards, elements, and amenities are being presented. The inclusion of tabular summaries of design standards, elements, and amenities were also be evaluated.

It is also recommended that a bus stop graphic with all potential amenities be provided to ensure preferred placement and configuration is communicated.

Additionally, it is recommended that Omnitrans eliminate the average daily boardings requirements for amenities and evaluate all bus stops for the addition of shelters consistent with recent practice by Omnitrans.

5.1.2 Design Guideline Structure

The 2013 Guidelines currently presents bus stop type, minimum standards, design elements, and amenities for local bus stops and then separately for sbX stops. It is recommended that the guidelines be re-structured to present all bus stop types, minimum standards, design elements, and amenities together and then identify which are appropriate for each route/system as appropriate. In addition to bus stop standards, it’s recommended that Omnitrans revisit the threshold for placing benches and shelters. Eliminating this threshold would allow all bus stops the same requirement for installing shelter and benches. This provides a single location for each topic and facilitate updates over time.

5.2 Bus Stop Safety and Access Prioritization Framework

This section lays out a systemwide and flexible prioritization framework that was used to develop the recommendations in this plan. It describes the steps to assist Omnitrans to identify and prioritize bus stop improvements, programs and access throughout their service area. Omnitrans should update and revisit this process and data every eight years to stay up to date with the latest planning best practices and tools to continue improving bus stops. Omnitrans updates yearly ridership data in a GIS database which is very useful for spatially analyzing ridership trends and locations. The data is also very useful for local jurisdictions to use for transportation and general planning purposes. The identification and selection of bus stop locations for the Bus Stop Safety Pilot Projects utilized this data and approach within the Census Tracts. Utilizing the following framework builds upon Omnitrans GIS data and services while tying this approach with the objectives and strategies outlined in the plan for assessing bus stop needs.

This data driven approach follows the step in the Implementation Framework but outlines in more detail the steps from data collection, community input and program/project selection

1. Data Collection and Analysis

This initial step is to build upon Omnitrans' GIS ridership data collection by integrating bus stop amenities. Updates can be made when amenities have been installed or removed, which requires minimal effort. This data collection includes, but not be limited to the presence of:

1. Illumination (Solar or ambient lighting from nearby street light)
2. Bench (quantity and type)
3. Shelter (quantity and type)
4. Space for shelter and landing pad
5. Adjacent sidewalk width and conditions (if applicable)
6. Bus parking (bus pad or street)

An analysis can be employed to identify high rider stops that are missing shelters and assess the feasibility of installing them. This also helps with the next step which is to integrate ongoing surveys and focus groups to support the list of stops or identify new ones that need more attention than just amenities.

To further assist with prioritizing locations, collision analysis, crime mapping, planned bikeways and sidewalk data from SBCTA can be used as additional criteria to further rank priority bus stops. Location of bicycle and pedestrian related collisions can be analyzed at a high level focusing on the locations of the collisions, cause of the collision and physical features of the roadway that may have contributed to the collision. For example, the combination of motorists traveling at unsafe speeds, being distracted, and pedestrians crossing outside of an intersection was the overall cause of many of the pedestrian collisions in the nine Census Tracts. Analyzing further, they primarily occurred on long blocks where intersections were between a quarter-mile to half-mile apart, making crossing streets very inconvenient. To mitigate this, enhanced and signalized mid-block crossings were recommended since they are proven to have a high crash reduction factor.

2. Stakeholder Input

The recommendation is for Omnitrans to continue with the Focus Groups and bus rider surveys to regularly collect feedback on the bus stops and any improvements that might be needed to improve safety at the stop and access to them. This input also follows the approach of this plan where bus riders were interviewed, TAC input was integrated and survey collected to pin down several stops within our Pilot Project study areas. Through this engagement, non-data driven input such as the bus stops' surrounding environment, homelessness issues and feelings of safety assist with program development. The list from data analysis can be cross referenced to see if any stand out and can be prioritized. While crime and collision data can also be reviewed at and around the stops for other safety programs, rider input is very important since they are experiencing these stops on a daily basis and may solely rely on public transit.

3. Project Identification and Development

Upon completion of the data analysis and stakeholder engagement, identifying the projects is the next step. Ultimately the criteria was divided into five categories known as the “5-Cs.” Those 5-Cs are as follows:

1. Commuter / Ridership Volume

This information comes from Omnitrans ridership data published in 2021. Higher ridership volumes led to higher priority bus stops.

2. Crime and Safety incidents

Crime data was reviewed through www.crimemapping.com between the available timeframe of spring and summer 2021. It included both violent crime and non-violent crime.

3. Community input

Community input was solicited to find out where passengers reported feeling the most unsafe. The information came from three places:

- » An online project survey sent out fall of 2020. Community members filled out a survey for location selection, with the option to be involved in stakeholder interviews.
- » Stakeholder interviews conducted in the fall/winter of 2020.
- » To determine the locations of the project bus stop sites, the project team analyzed the results from the Omnitrans Bus Stop Safety Improvement Plan public survey and interviews and the 2017 on-board surveys and focus groups, in which residents identified bus stops at which they felt unsafe.

4. Collisions

Collisions were analyzed from the SWITRS database dating from 2014 to 2018, as discussed in chapter 2.

The data analyzed were bike/ped collisions and it included both injury and non-injury collisions.

5. Characteristics

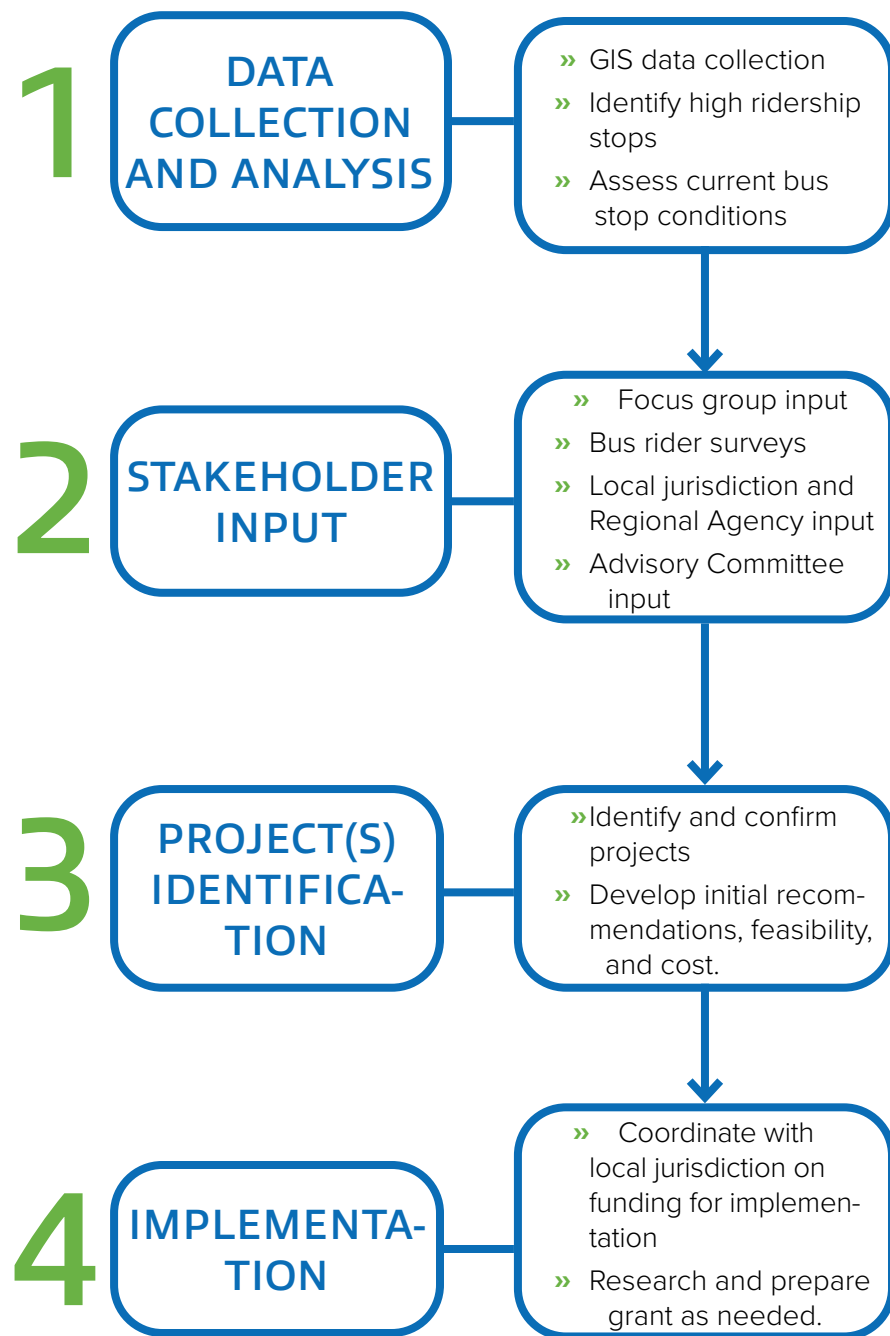
The criteria involving characteristics were street lighting, surrounding land uses, existing sidewalks, and bicycle facilities, including the presence or lack of bicycle and pedestrian facilities. Data came from SCAG and SBCTA.

The aforementioned 5-Cs were weighted equally, with each receiving 20% of the weight. Those 5-Cs were used to determine the highest priority bus stops from the nine census tracts. After the highest priority bus stops were chosen, they were presented to the TAC for further vetting, and ultimately recommendations were made to mitigate safety concerns at the chosen bus stops. Each project site is situated in one of the nine census tracts located in the most highly disadvantaged, low-income, and transit-dependent areas in Omnitrans’ service area, as described in the section in this report on equity.

4. Implementation/Coordination with Local Jurisdictions

Once stops, or series of stops have been identified, coordination with the local jurisdictions will be important to further refine the design, fund, and install the improvements. If priority bus stops are near or part of a redevelopment, Complete Street or reconstruction project, they should be integrated into the planning and design to be cost-efficient, which the city can require of the developer as part of mitigation measures. If improvements are stand alone projects, but have been identified as a high priority from an amenities and rider standpoint, then Omnitrans’ capital funds or grant funds might be used to install these improvements. Adjoining infrastructure such as sidewalks and additional lighting will be under the purview of the local jurisdiction.

Prioritizing bus safety infrastructure improvements comes down to safety concerns around bus stops and reported crime at or around bus stops. While available crime data did not directly occur at the Pilot Study bus stops themselves, crimes were occurring in close proximity to the stops. Through the focus groups and surveys, additional lighting was the number one amenity requested by bus riders at bus stops. The following are the prioritized physical amenities and programs that are based on bus rider, focus group, survey and TAC input and regional best practices to increase actual safety around bus stops and reduce the number of safety concerns reported by passengers.



5.2.1 Prioritized Bus Stop Safety Projects

1. Lighting

Omnitrans should continue to provide additional solar illumination at priority bus stops. Increased levels of lighting can lead to a 36 percent reduction in a subset of crimes such as robbery and aggravated assault. Omnitrans should continue to partner with local jurisdiction to plan and implement additional lighting or provide additional solar illumination at priority bus stops.

2. Shelter/Bench/Boarding Area/Lean Bar

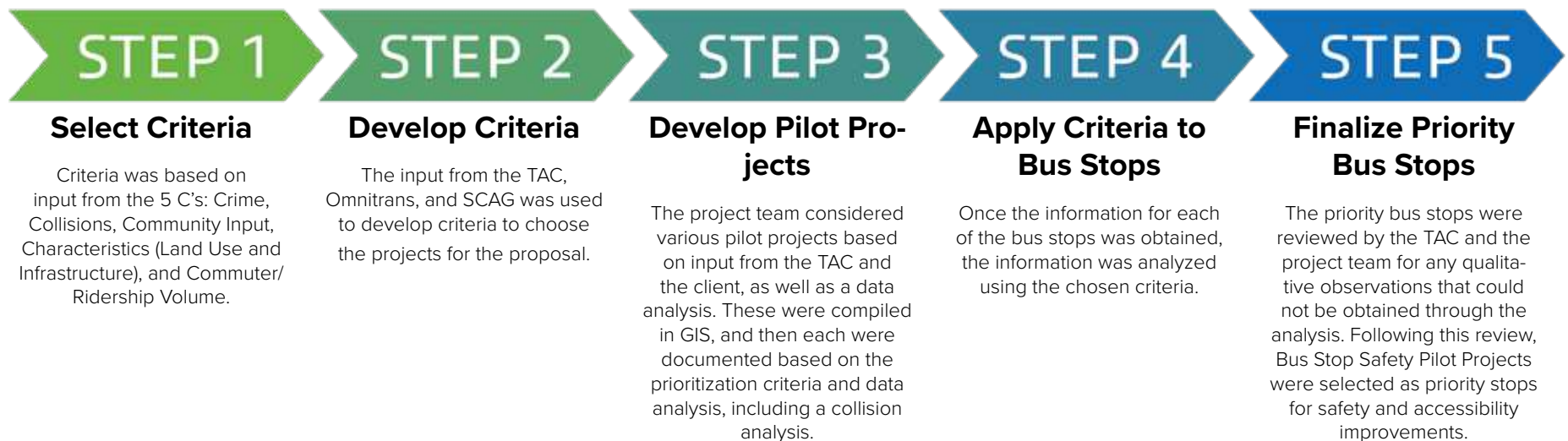
Shelters provide comfort from the extremes of the region's weather and provide additional lighting within the shelter itself. While the shelter itself is not a deterrent for crime, it does provide overall comfort to help retain or increase ridership through Omnitrans' system. Coordinate with the local jurisdiction and follow Omnitrans' Transit Design Guidelines on the amenities and requirements needed for shelter installation. It's estimated that an Omnitrans' Standard Shelter is \$13,000 and a Premium Shelter is \$38,000. If a bench is not provided, a lean bar should be provided at the bus stop for passengers to rest, which provides for more of an age-friendly bus stop. To install a bench/lean bar and shelter, there is a need for a large enough concrete, ADA-compliant boarding area and sidewalk.

3. Placemaking

While additional lighting can provide the bus rider with a sense of safety and deter potential crime at the bus stop, the adjacent surroundings of a bus stop plays an important part in the feelings of safety and actual safety. A study by Indiana University determined that the environment surrounding the bus stop was an important determinant of crime. Potential for crime are areas where potential victims are forced to wait in a public place with little or no obvious protection, particularly when these areas are in remote locations or deserted. A crime is more likely to occur near a criminal's nodes or along the paths between these nodes because they have a greater knowledge and awareness of these spaces.²

Explore opportunities to incorporate placemaking to provide space for people to gather and socialize. Repurposing space for people has been even more prevalent during the COVID-19 pandemic. Parking spaces have been converted to dining areas, small parks and seating which provides more activity in the areas. Activating the space around a bus stop to provide more visibility, limit a criminal's space of awareness, and attract more people can be installed as pilot projects as a possible long term solution. There are various ways to activate space, including painting the Traffic Control Cabinet, creating a mural either in the street or off the street (such as on the sidewalk), creating a "Little Free Library", or putting a publicly available ping pong table near the bus stop. A relatively easy and well received way to activate space is to install a system to play classical music at the bus stop. Space activation generally requires partnering with local jurisdictions and adjacent land-owners to plan and implement.

Explore programs such as SCAG's *Go Human* campaign to demonstrate and gain support to enhance priority bus stops. Initially they can be low cost and quick to install or an option for brief demonstration projects or longer term to monitor effectiveness. Through SCAG's *Go Human* campaign, mini-grants can be pursued for temporary project installation. Permanent installations vary greatly depending on the size and amenities.



5.2.2 Prioritized Bus Stop Safety Programs

1. Transit Ambassador Program

This is an implemented program by transit agencies such as Bay Area Rapid Transit and Long Beach Transit and other parts of the country. Omnitrans is currently working to implement an Ambassador program however it's travel training oriented.

2. Homelessness Programs

Homelessness was an important issue from the focus groups, stakeholders and surveys. Riders did not feel safe if shelters were littered or occupied by the unhoused. Programs such the Hub of Hope in Philadelphia and the Alpha Project in San Diego are good examples of agencies and programs that can relieve homelessness around bus stops and in general.

3. CAHOOTS Program

This is another successful program that can be explored along with various homelessness programs to help respond to mental illness and substance abuse. Instead of engaging law enforcement for non-violent offenders, which can be perceived in a negative light in certain neighborhoods, a crisis team is employed to intervene. Crisis teams are specifically trained in de-escalation techniques for individuals with mental illness and with addiction issues. Omnitrans does have a relationship with San Bernardino County Department of Public Health that can be tapped into to pursue additional partnering opportunities.

5.3 Prioritization Analysis

The team developed a proposed project list based on need, expected effectiveness/benefits, and implementability (cost and feasibility of implementation). Need for proposed projects was based on results of data analysis and input from the TAC such as locations with high incidences of crashes or safety incidents, or locations where passengers reported feeling the most unsafe.

To achieve effective prioritization, it is important to include stakeholders in the process and tailor the process to address stakeholder needs. The BSSIP TAC played an important role in the project and program identification and prioritization processes.

Cost

Feasibility relates to whether the estimated cost to construct an infrastructure project or develop and install a program. Costs vary from city to city in terms of construction and the extent of the project itself. Projects that require minimal infrastructure changes such as bike lane striping or installing high-visibility crosswalks may only require thermoplastic road markings and can be installed in a short period of time. Other physical countermeasures such as mid-block crossings may require a traffic study, warrant analysis, materials, and the construction costs, which would be the responsibility of the local jurisdiction. Programs vary depending on the purpose of the program, the geographic reach of the program, materials and staff time to design, produce materials, and implement. Some programs may also only run for a short period of time.

Currently, Omnitrans' typical annual budget is \$300,000-\$400,000/year of State and Federal capital funding to spend on safety and security. This allocation can only be used for projects over \$5,000 that are for design, construction, or purchase of physical amenities that would improve safety. This budget, however, may already be allocated to Omnitrans' projects and not all be available to spend immediately on the recommendations within this Plan. Through a prioritization process, Omnitrans will need to supplement these funds with outside sources for bus stop safety improvement or program design and implementation.

Feasibility of Implementation

These criteria should confirm if the specific project can be built or a program be designed and implemented? Are there funding sources available to pursue and implement these projects and programs? Is there sufficient right-of-way to build the project? Is there enough political will and support from the local jurisdictions, Omnitrans and/or other interested parties to pursue these projects and programs?

For infrastructure projects, are the projects part of a past or current planning effort to incorporate the recommendations. For example, if a travel lane is to be converted into a bus-bike lane, is there enough political support to implement the project?

Project/Program Benefit-Cost Ratio

Benefit-Cost criteria show a ratio to compare the cost relative to the benefit to be able to rank and prioritize projects. Benefit-cost framework makes use of an existing body of knowledge to assess the benefits between various improvements of programs. For infrastructure projects, implementing low-cost solutions across an entire system or corridor can be a more effective approach to addressing system-wide safety issues. While this approach may not address all safety issues for a given location or city, the deployment of low-cost countermeasures can often result in the highest overall safety benefit for an agency with limited safety funding. An example of this would be if Omnitrans chose Transit Signal Priority (TSP) instead of floating bus islands or low-cost bulb outs with flexposts and thermoplastic markings instead of higher-cost concrete curb extensions.

5.3.1 Infrastructure Benefits

Identifying bicycle, pedestrian and bus stop safety projects and programs are the key components of this Plan. However, with limited funds readily available to plan and construct infrastructure projects and design and implement programs, cost effective and measurable countermeasures must be taken into account and would likely be preferable in order to build political support for a larger project and pursue grant funding. For infrastructure projects, there is a body of knowledge regarding the benefit of countermeasures that are effective and cost efficient and improve overall bicycle and pedestrian safety.

The FHWA provides guidance on the proven safety countermeasures which are used in Local Road Safety Plans that analyzes collisions and identifies effective countermeasures for local agencies to consider. The countermeasures can then be further explored by the local jurisdiction based on project need, road geometry, location and cost. Benefits used for prioritizing project types uses Crash Reduction Factors (CRF)



Bus stop lean bar (Sacramento, CA)

to determine the effectiveness of the recommendation in reducing bicycle and pedestrian related collisions. Moreover, www.PedBikeInfo.org provides comprehensive information on costs and the effectiveness of countermeasures for safety.

Through research, communication with other transit agencies, Omnitrans' Focus Groups and the BSSIP's outreach efforts, lighting (at the stop and it's surroundings), homelessness issues around the bus stops, and shelters were identified as high priority improvements. While shelters are dependent on space provided on city sidewalks and available funding, they provide comfort and shelter from the elements and lighting for visibility. When shelters are not provided, some riders will seek out shade nearby until they see the bus arriving. At times, bus drivers may not see the rider at the bus stop and may skip the stop. If a bench is not provided, a lean bar should be provided when feasible which is especially helpful for senior citizens. An example of a lean bar can be seen at a bus stop in Sacramento, CA above.

5.3.2 Program Benefits

In many cases when a benefit-cost approach and/or monetized measures are used for programs, there are considered objectives that cannot be easily quantified. Thus, many of the examples in the literature include a combination of highly quantitative and more qualitative approaches. Both quantitative and qualitative measures can be combined within a multicriteria scoring framework where different categories of outcomes are assigned weights, which are then used to aggregate results and compare across projects. This is the case with the programs researched as part of this plan. Performance metrics, or benefits, were not readily available, if collected, so programs were derived from correspondence with other transit agencies on their programs and commonality between them.

Measuring the performance of safety programs and campaigns is complex and challenging. Existing efforts often lack hard data to support conclusions, providing anecdotal evidence of success at best. Yet reporting the results of a campaign is often expected by public officials. Output measures, the easiest data to obtain, quantify the volume or level of marketing activities. Examples include the number of materials distributed, the reach and frequency of the campaigns, and mentions in the news media.

A second category of outputs reflects the outcome (how citizens responded) to what the local jurisdiction did. These are called outcome measures. Possible values include whether people noticed the effort, whether it changed their level of knowledge, or whether it influenced their action or behavior. Internal records and tracking mechanisms can be used to measure outcomes by analyzing before and after effects. Surveys can also be reliable ways to measure outcomes from campaign efforts.

The third and perhaps most challenging category of measurement is impact measures. This measurement captures the actual effect that citizen actions had on social, economic, and/or environmental conditions. For transit security programs and campaigns, an example of an impact measure is how many unhoused individuals have been displaced with the improvement or has crime decreased around the bus stop. And

were these results tied to the improvements or other factors. Obviously, these types of examples are rare and/or involve more data driven analysis or annual and more technical surveys.

5.3.3 Equity

Lastly, the recommendation is to use demographic data to evaluate the equity implications of the needs of transit riders at bus stops. Equity considerations should follow state and national best practices and uses the following demographic variables:

CalEnviroScreen 3.0. CalEnviroScreen 3.0 is a screening methodology that can be used to help identify California communities that are burdened by environmental impacts. CalEnviroScreen 3.0 utilizes environmental, health, and socioeconomic indicators to identify communities that are disproportionately burdened by pollution. The following are the indicators used to identify disadvantaged communities throughout California.

- » Exposure Indicators (Pollutants)
- » Environmental Effect Indicators (Cleanup Sites, hazardous waste facilities, impaired waterbodies)
- » Sensitive Population Indicators (Asthma, cardiovascular disease, low birth-weight infants)
- » Socioeconomic Indicators (Education, linguistic isolation, poverty, unemployment, low-income households)

Omnitrans' Title VI Limited English Proficiency (LEP) Policy and Language Assistance Plan

- » Omnitrans is required to demonstrate that it does not discriminate against, exclude from, or deny service to individuals based on race, color, or national origin. The FTA requires that funding recipients develop a Language Assistance Plan that takes reasonable steps to ensure meaningful access to the benefits, services, information, and other important parts of its program for persons of Limited English Proficiency (LEP).

5.4 Prioritized Bus Stop Access Project Types

For both recommended programs and infrastructure projects, the decision criteria are similar. For example, Bus Stop Safety Pilot Projects were determined for the nine Census Tracts, with assistance from TAC input and data analysis. To prioritize those, one would use these criteria:

- » Cost
- » Benefits
- » Benefit-Cost Ratio
- » Feasibility
- » Equity Considerations
- » Collision Analysis
- » ADA Compliance
- » Community Support
- » TAC Support
- » Connectivity
- » Accessibility
- » Land-use/ Design
- » Bus Stop Amenities

As an example, if the recommendation was to remove a travel lane and replace it with a bus-bike lane, it might rank relatively low on the feasibility scale if there was not sufficient public support and political will to implement the project. However, a bus shelter would rank higher as it likely would have more public support and would be built within the public right-of-way so additional right-of-way would not need to be acquired.

For comparing cost and benefits, it would depend on measurements. For infrastructure, cost can be estimated and then use CRF to estimate how much the benefit would be in terms of reducing collisions. Figure 5-2 lists typical costs and CRFs for infrastructure that might be used near bus stops to increase safety.

As seen in the table, both the costs and the CRFs of the measures can vary significantly. Sidewalks have a relatively high CRF, at 65 percent to 89 percent, but at \$200,000 per block they can be expensive, which increases their cost to benefit ratio. Alternatively, pedestrian refuge islands cost significantly less, at only around \$15,000 each, and with a 56 percent CRF they still have a relatively high CRF. Pedestrian refuge islands are considered the “cadillac” of traffic calming measures because of their high effectiveness and medium cost. A measure with an even lower cost is implementing Leading Pedestrian Intervals (LPIs) which are relatively inexpensive, since only signal timing needs to be changed, and they are quite effective in improving actual safety, feelings of safety, and levels of comfort. Both LPIs and pedestrian refuge islands are highly recommended projects for Omnitrans’ BSSIP.

The most common priority recommendations for bus stop access in this Omnitrans’ Bus Stop Safety Improvement Plan are the following:

Infrastructure:

1. Sidewalks
2. High-vis/continental crosswalks
3. Mid-block crossings / pedestrian refuge islands
4. Bike lanes
5. Curb extensions
6. Curb ramps
7. Buffered bike lanes
8. Street lighting / signal timing
9. Maintenance
10. Bike Routes

Bus Stops:

1. Shelter
2. Lighting
3. Sidewalk widening / Protected Walking Lanes / providing footprint for shelter
4. Transit Ambassador Programs
5. Placemaking / space activation
6. CAHOOTS Program

TABLE 5-1: Crash Reduction Factor (CRF) and Conceptual Cost Estimates

	MIDBLOCK CRF (%)	INTERSECTION CRF (%)	SOURCE	COST	UNIT OF MEASURE
PEDESTRIAN					
Sidewalks (install new)	65 to 89%		1	\$200,000	Block
Street lighting	18 to 38%		2	\$58,333	Block
High-vis/continental crosswalks		19 to 40%	2	\$12,000	Intersection
Leading Pedestrian Interval (signal adjustment)		13 to 19%	2	\$2,000	Intersection
Curb extensions/ bulb-outs (w/ crosswalks)		25 to 48%	3	\$48,000	Intersection
Curb ramps (w/ crosswalks)		25 to 48%	3	\$24,000	Intersection
Signal Timing (ITE intervals-for pedestrian safety)		37%	1	\$1,000	Intersection
Pedestrian refuge islands		56%	1	\$15,000	Each
Mid-block pedestrian signal	47%		2	\$90,000	Each
Mid-block raised pedestrian crossings	8 to 36%		1	\$30,000	Each
Bicycle					
Bike lanes	26 to 49%		2	\$4,200	Block
Buffered bike lanes	36%		1	\$16,800	Block
Colored bike lane intersection markings		39%	2	\$6,000	Intersection
Bike box (green box at intersection)		35%	1	\$6,000	Intersection
Separated bikeway, full build	45%		2	\$400,000	Block

SOURCES:

1. https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwas1304/resources/CRF%20Desktop%20Reference.pdf
2. <http://www.cmfclearinghouse.org/results.cfm>
3. <https://www.cityofnapa.org/DocumentCenter/View/1002/Intersection-Safety-Countermeasures-PDF>

5.5 Bus Stop Safety Pilot Projects

This section provides bicycle, pedestrian and bus stop specific recommendations within the nine Census Tracts to serve as pilot studies that can be emulated throughout Omnitrans' service area. One pilot project bus stop or intersection was identified in each Census Tract. Each Census Tract is in the most highly disadvantaged, low-income, and transit-dependent areas in Omnitrans' service area.

Each pilot bus stop site was identified based on the results of the following criteria:

- » Omnitrans Bus Stop Safety Improvement Plan Public Survey
- » 2017 Onboard Surveys and Focus Groups
- » Ridership
- » Bicycle and pedestrian related collisions
- » Existing bicycle facilities
- » Existing sidewalks
- » Surrounding land uses
- » Safety incidents/reported crime

The process is graphically shown in the diagram on the next page, where nine out of 38 evaluated bus stops were identified as the focus for this Plans' Pilot Projects.

Additionally, the following four transit stops were chosen from the list for the virtual walk and bicycle audits based on the results of data analysis, as well as geographic diversity, variety of conditions, and Omnitrans' staff and TAC input:

- » Fontana Metrolink Station
- » San Bernardino Avenue and Locust Avenue
- » Baseline Street and Waterman Avenue
- » Golden Avenue and Highland Avenue

TABLE 5-2: Census Tract Transit Areas

Census Tract	City/Area	Transit Stop
1	Fontana	Fontana Transit Center
2	Rialto	Riverside Ave and Baseline Rd
3	Bloomington	San Bernardino Ave and Locust Ave
4	Grand Terrace/Colton	Barton Rd and Walin St
5	Downtown San Bernardino	Waterman Ave and 5th St
6	San Bernardino	Baseline St and Waterman Ave
7	San Bernardino	Golden Ave and Highland Ave
8	San Bernardino/Highland	Del Rosa Ave and Highland Ave
9	San Bernardino/Highland	Highland Ave and Eucalyptus Dr

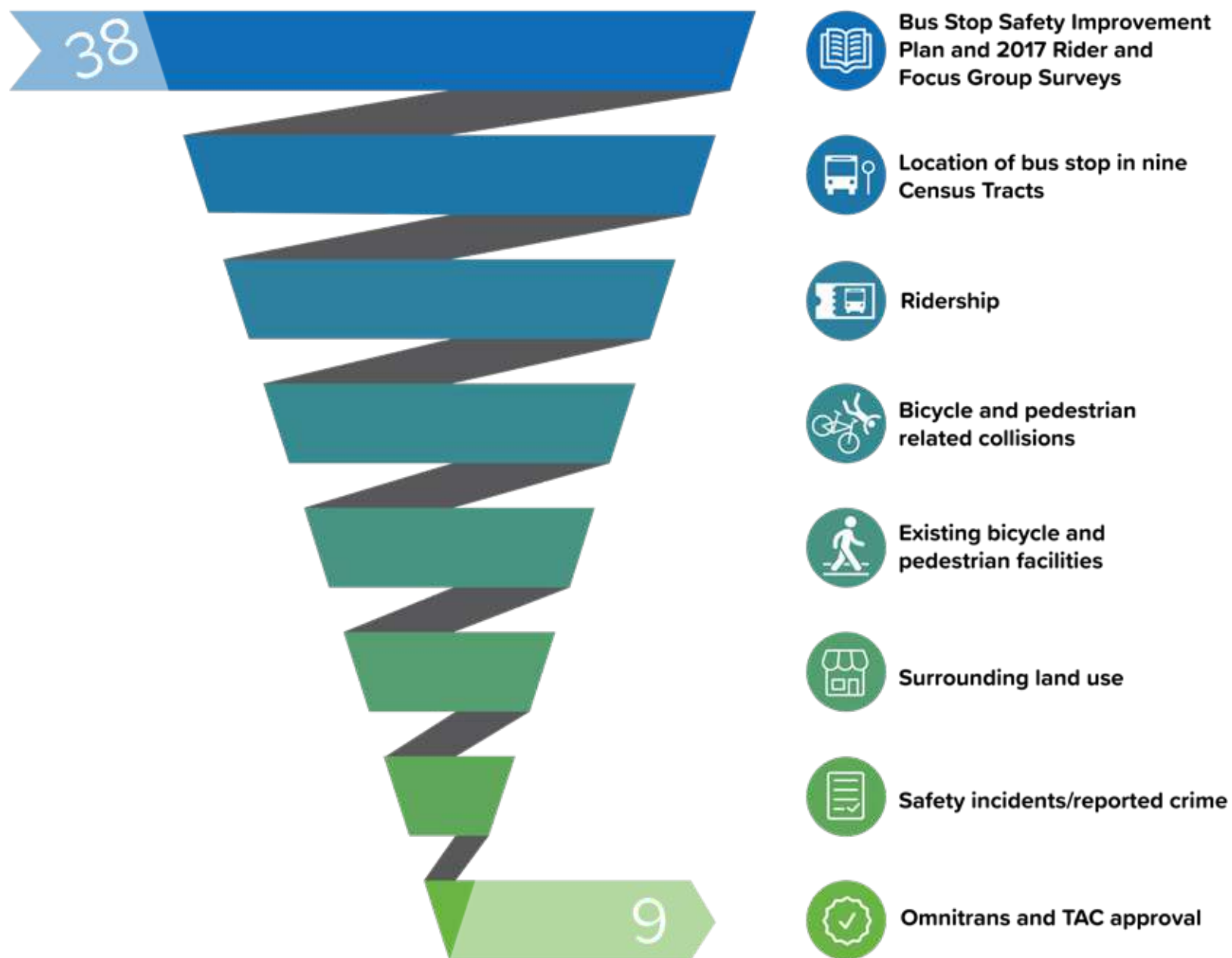


FIGURE 5-1: Evaluation Criteria

Census Tract 1

Fontana Transit Center

Selection Results

The Fontana Transit Center is located in the City of Fontana at the southwest corner of Sierra Avenue and Orange Way approximately 2 miles north of Interstate 10. The transit center was selected due to being collocated with the rail station, its high ridership and various surrounding land uses, including commercial, industrial, single- and multi-family uses. Through the Omnitrans On-Board Passenger Survey and Focus Group Meetings, and project surveys and stakeholder interviews, this location has a high number of complaints within the Census Tract study area. In addition, it was recommended by the TAC since it was the only transit center within the nine Census Tract study areas. Reported crimes include drug and alcohol violations, car theft and assaults.

Pedestrian Improvements

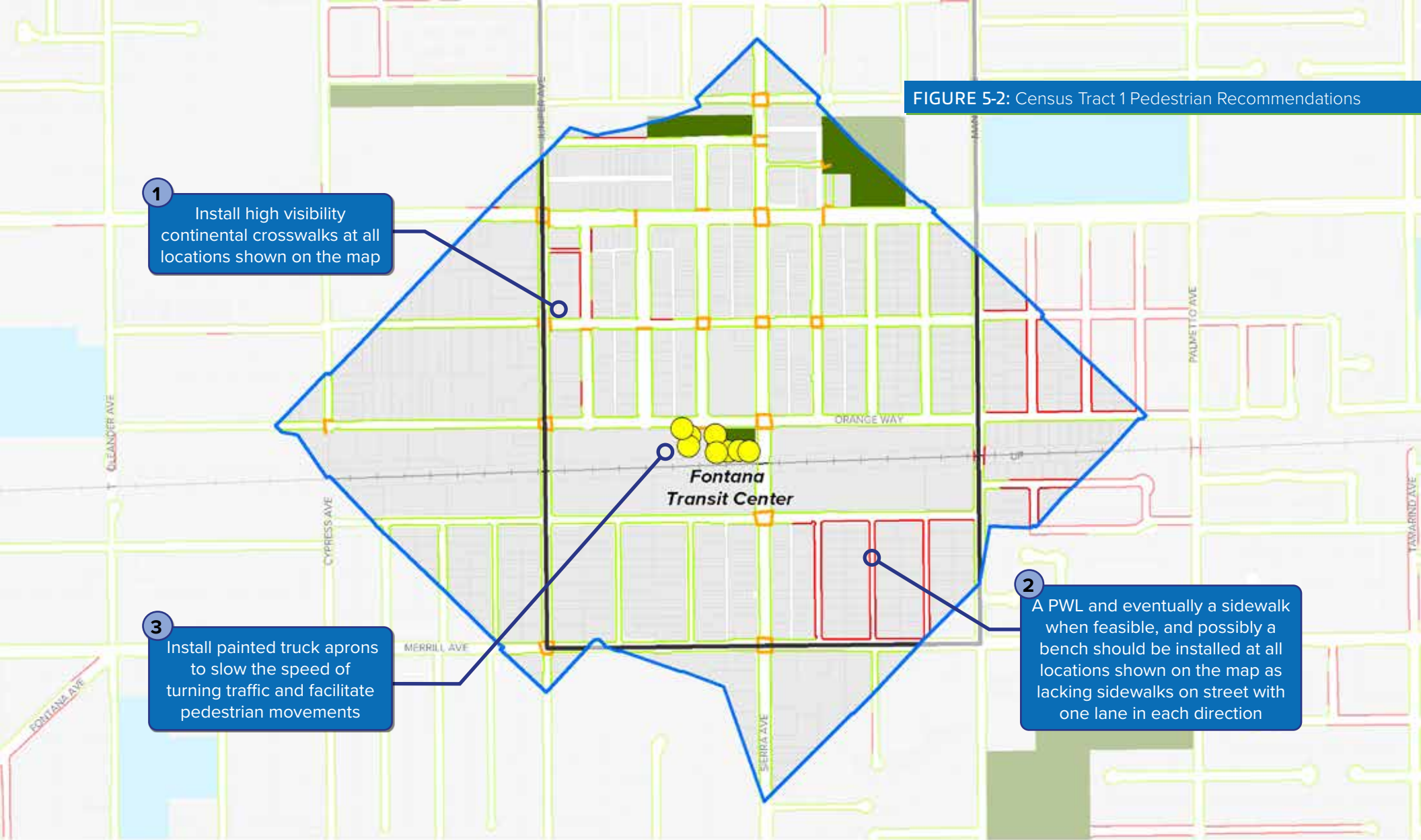
Pedestrian recommendations for the Fontana Transit Center are intended to provide safe crossing locations, reduce motor-vehicle speeds, and provide continuous sidewalks to bus stops. The following recommendations are derived from the SBCTA Access to Transit Plan which provides the framework for access to the Fontana Transit Center. As shown in Figure 5-2, recommended pedestrian improvements include construction, by the local jurisdiction, of missing sidewalks to close gaps that are half a mile from the bus stop. High-visibility continental crosswalks, with lines spacing to avoid wheel paths to help reduce re-painting frequency, are recommended at all major intersections. Finally, the City of Fontana should explore the feasibility of installing painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements.

If an existing curb ramp is too narrow or too steep they should be replaced with ramps that meet minimum ADA standards.

TABLE 5-3: Census Tract 1 Pedestrian Improvements

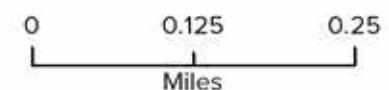
ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of Fontana to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements	

FIGURE 5-2: Census Tract 1 Pedestrian Recommendations



- Bus Stop
- Install High Visibility Continental Crosswalk
- 1/2 Mile Walkshed
- Metrolink Train Route
- Census Tract
- No Sidewalk
- Schools
- Sidewalk
- Parks

Data Sources: Omnitrans,
SCAG, SBCTA



Bicycle Improvements

Bicycle recommendations, within a three-mile bicycle shed, around the Fontana Transit Center will provide a safer and less stressful bicycle travel option to and from bus stops while supporting the needs of all users. The Fontana Active Transportation Plan provides a planned network of bicycle facilities throughout the City.

Where space is available, painted stripe buffers should be installed along existing and planned Class II bicycle lanes. If space is available within the public right-of-way, existing Class III bicycle routes, that typically use sharrows in the road travel lane, should be upgraded to Class II bicycle lanes with two foot wide painted stripe buffers. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

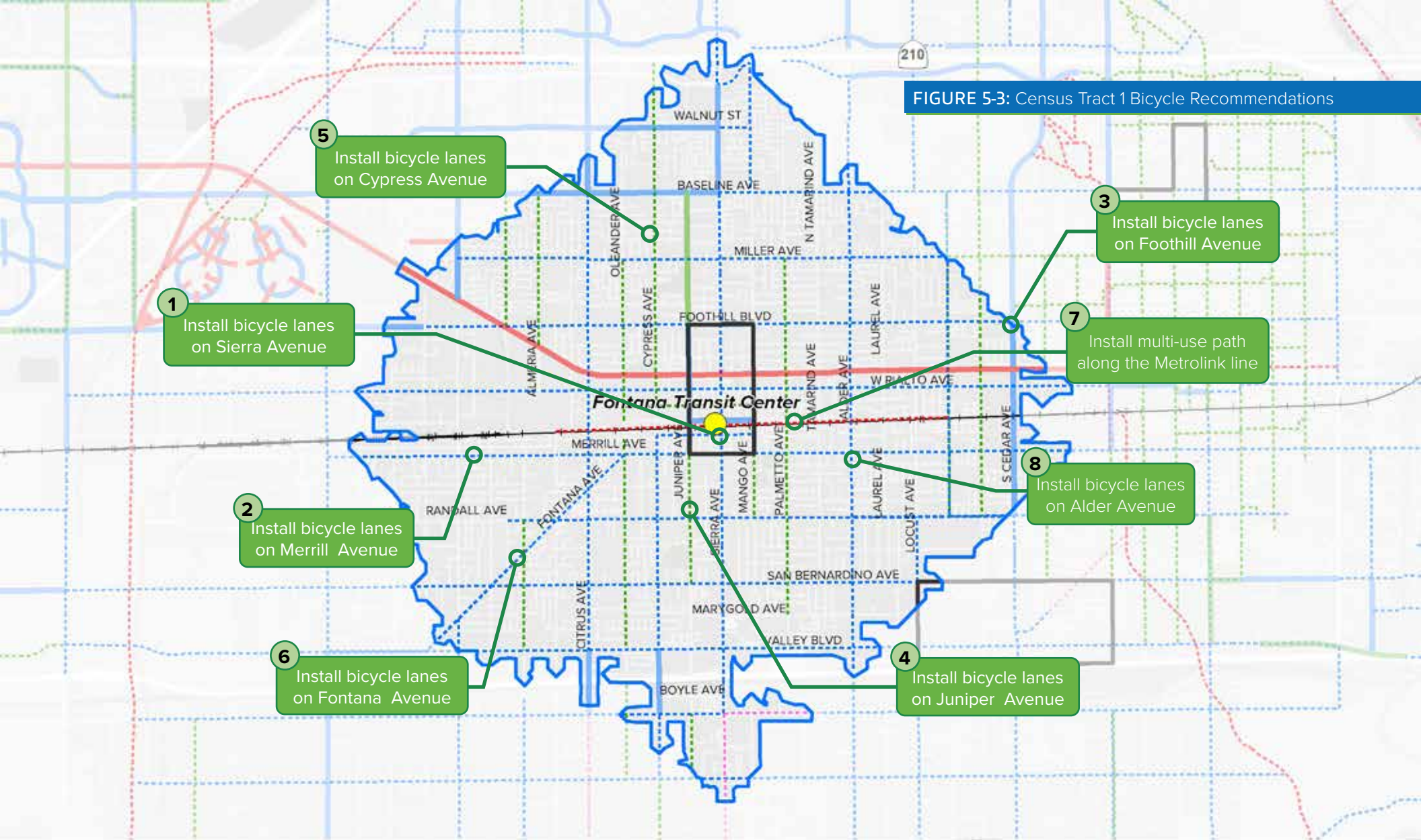
As shown in Figure 5-3, short sections of bicycle facilities exist on Orange Way and Juniper Avenue near the transit center. A three-mile multi-use path is proposed for the rail-line easement running about a mile east and west of the transit center. The primary constraints to new bicycle lanes and paths include funding to address narrow sections between curbs, and limits to the public right-of-way. Each road segment with planned bicycle lanes will require detailed site layouts to determine new construction requirements and costs.

The following list of bicycle projects are derived from the prioritized bicycle network in the Fontana Active Transportation Plan as they relate to proximity to the Fontana Transit Center.

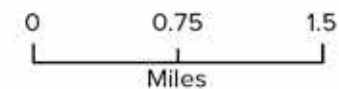
TABLE 5-4: Census Tract 1 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Sierra Avenue	1. City of Fontana to pursue grants for additional corridor and feasibility studies 2. Include bicycle lanes or stencil striping into road resurfacing projects 3. Condition bicycle lanes improvements into any local redevelopment project 4. Include in the City's CIP list
2	Install bicycle lanes on Merrill Avenue	
3	Install bicycle lanes on Foothill Avenue	
4	Install bicycle lanes on Juniper Avenue	
5	Install bicycle lanes on Cypress Avenue	
6	Install bicycle lanes on Fontana Avenue	
7	Install multi-use path along the Metrolink line	
8	Install bicycle lanes on Alder Avenue	

FIGURE 5-3: Census Tract 1 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

There are nine existing bus stops at the Fontana Transit Center. The nine bus stops support a high volume of riders with a park & ride lot, security patrols, lighting, and portable toilets.

The transit center resides in the middle of multi- and single-family residences with retail and light industry centers a short walk to the north, south and west. Transit users can get connections throughout the region on the connecting bus routes.

As shown in Figure 5-4, the feasibility of addition of shelters should be evaluated. Sidewalks are in good condition and stops with shelters are wide enough to support the additional amenity. Bench locations that currently do not have a shelter may have sidewalks that are too narrow to support a shelter and meet ADA requirements. Security cameras are not provided, but security patrols are provided. Recommendations at the Fontana Transit Center will include surveillance cameras, PA system, and electronic real-time screens.



Fontana Transit Center (source: Google Maps)

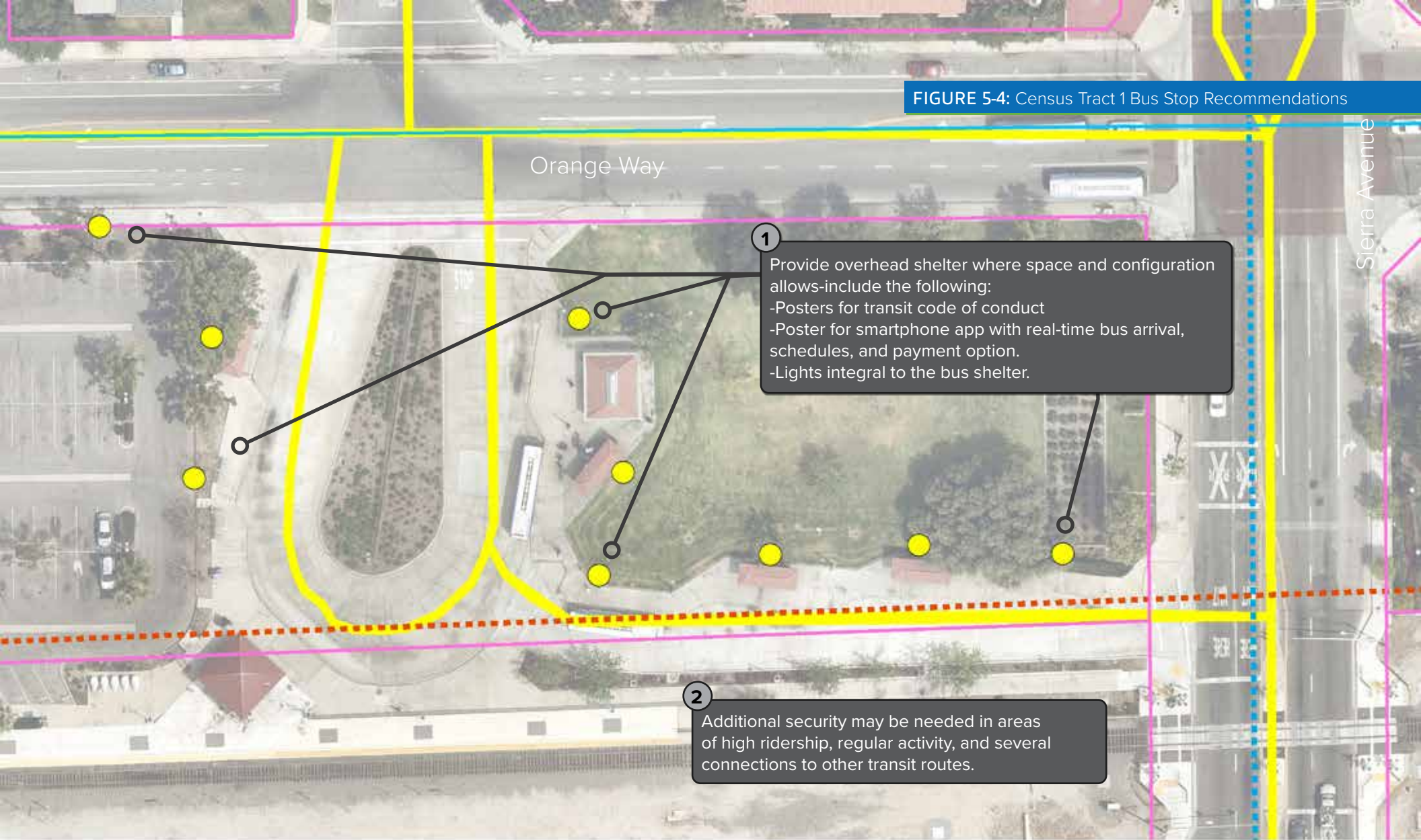
TABLE 5-5: Census Tract 1 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide 5 overhead shelters for shade-include the following: -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option. -Lights integrated into the bus shelter. -Surveillance cameras -PA system -Electronic real-time screens	1. City of Fontana is responsible for installation and maintenance of customer shelters and lighting
2	Additional security may be needed in areas of high ridership, regular activity, and several connections to other transit routes.	1. Explore an Transit or Fare Ambassador Program to assist transit users 2. Explore the CAHOOTS, or similar program if homelessness becomes an issue



Fontana Transit Center (source: Google Maps)

FIGURE 5-4: Census Tract 1 Bus Stop Recommendations



Aerial not set to scale



Census Tract 2

Baseline Road at Riverside Avenue

Selection Results

The Baseline Road at Riverside Avenue eastbound far-side bus stops in central Rialto are located near the center of a retail commercial center and a quarter mile from Eisenhower High School. Developments of single- and multi-family residential housing extend beyond the retail functions adjacent to the bus stops. The bus stops were selected due to having high ridership, bicycle and pedestrian collisions, on a large arterial and adjacent to various land uses. Reported crimes include driving under the influence (DUI), assault and buying and receiving stolen property.

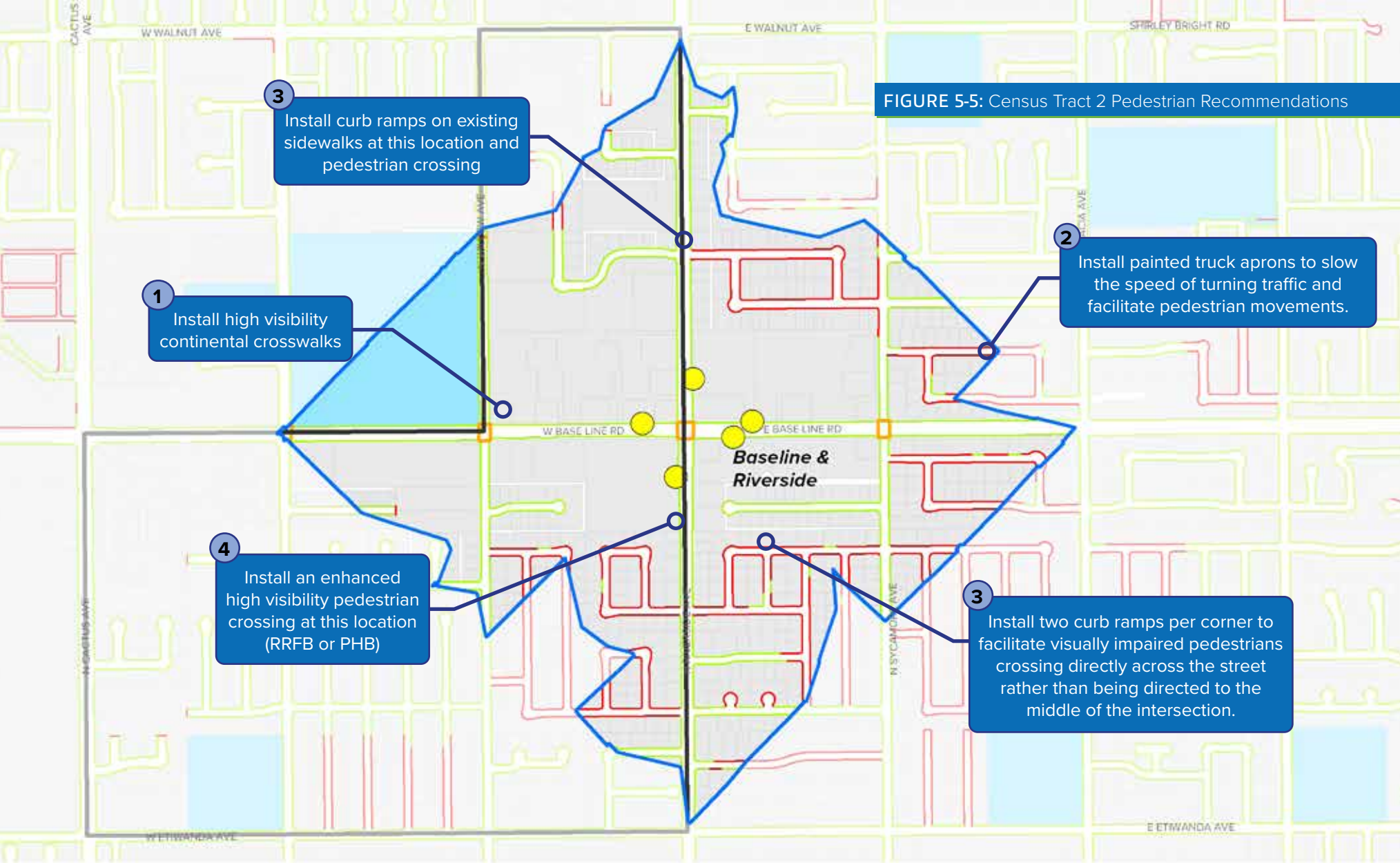
Pedestrian Improvements

Pedestrian recommendations near the Baseline Road at Riverside Avenue bus stops are intended to provide safe crossing points, increased visibility for people walking, and continuous sidewalks to bus stops. Recommendations for pedestrian improvements are built upon recommendations from the Rialto Active Transportation Plan (RATP). As shown in Figure 5-5 recommended improvements include new sidewalks within half a mile from the bus stop, high-visibility continental crosswalks with lines spacing to avoid wheel paths, curb ramps with truncated domes to ensure safety and access for all users. Two mid-block crossings are recommended on Riverside Avenue to provide pedestrian crossing points near retail areas for nearby residents walking to stores. The mid-block crossing should include a RRFB or PHB (See section 4.2.3 for a description). And finally, the City of Rialto should explore the feasibility of installing painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements.

TABLE 5-6: Census Tract 2 Pedestrian Improvements

ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of Rialto to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	Install painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements.	
3	Install two curb ramps at each corner of existing sidewalks at this location to facilitate visually impaired pedestrians crossing directly across the street rather than being directed to the middle of the street	
4	Install an enhanced high visibility pedestrian crossing midblock in the vicinity of this location (RRFB or PHB)	

FIGURE 5-5: Census Tract 2 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans, SCAG, SBCTA

0 0.125 0.25
Miles



Bicycle Improvements

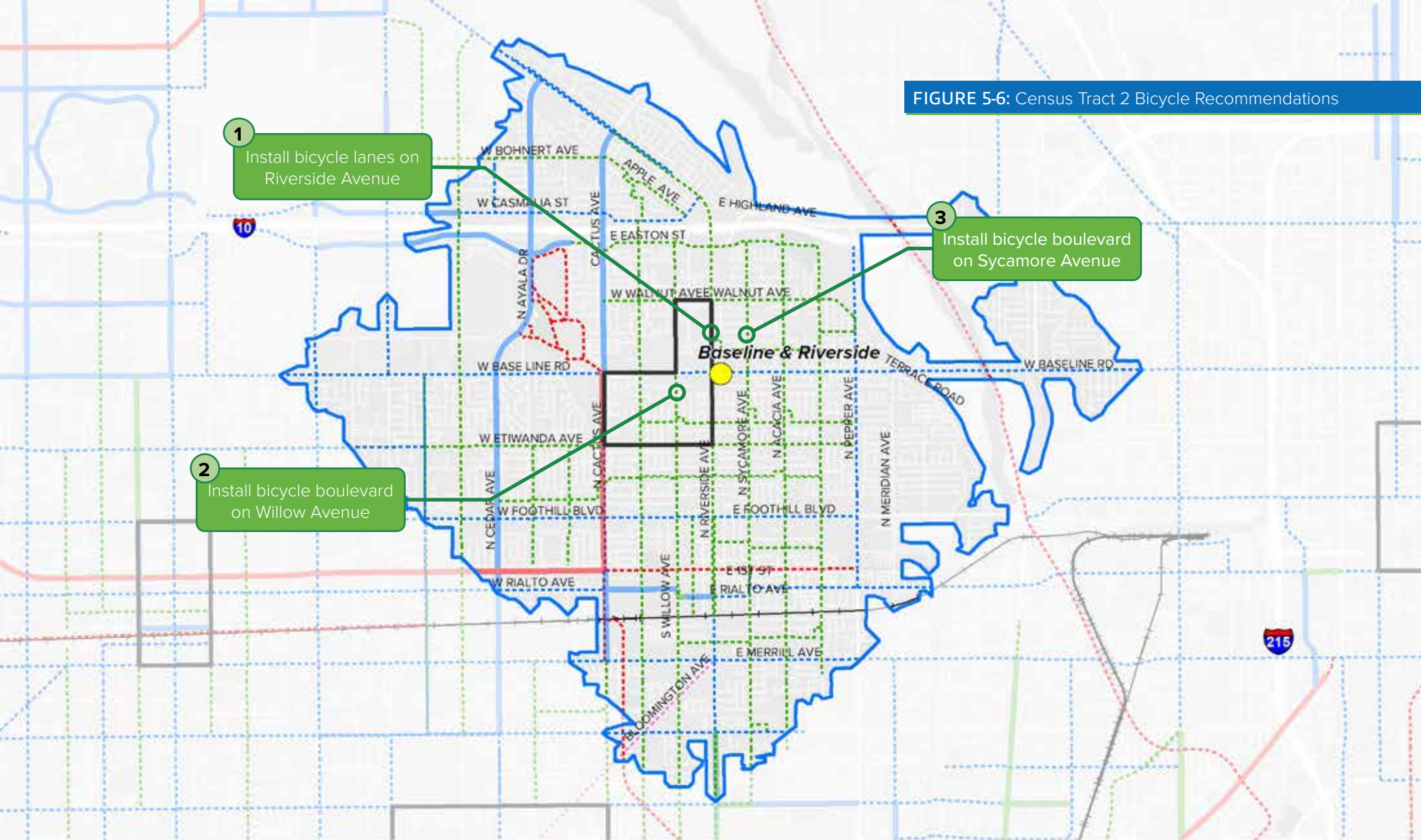
Bicycle recommendations around the Baseline Road at Riverside Avenue bus stops will provide a safer and less stressful bicycle travel option to and from bus stops while supporting the needs of all users. As shown in Figure 5-6, the Cactus Trail and bicycle lanes exist approximately half a mile west of the bus stop. Although there are right-of-way constraints, new bicycle lanes are planned on both Baseline Road and Riverside Avenue.

The recommended improvements are derived from the prioritized bicycle projects from RATP and have been recommended for their proximity to the pilot Census Tract. In coordination with the RATP, where space is available, painted stripe buffers should be installed along existing and planned Class II bicycle lanes. If space is available within the public right-of-way, existing Class III bicycle routes, that typically use sharrows in the road travel lane, should be upgraded to Class II bicycle lanes with two foot wide painted stripe buffers. Existing bicycle lanes should be extended to create contiguous paths that connect to planned regional Class I multi-use paths and all other bicycle facilities. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

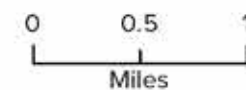
TABLE 5-7: Census Tract 2 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Riverside Avenue	1. City of Rialto to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes or stencil striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle boulevard on Willow Avenue	
3	Install bicycle boulevard on Sycamore Avenue	

FIGURE 5-6: Census Tract 2 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The bus stops located on Baseline Road at Riverside Avenue are located adjacent to retail land use and supports residential areas less than half a mile away. As shown in Figure 5-7, the eastbound bus stop on Baseline Road is currently missing a shelter but has the adequate eight-foot space available for a shelter and landing pad with the existing sidewalk. Plans to construct this stop are in place and are to be completed by 2021. Currently, the four-foot sidewalk is obstructed by a bus stop bench requiring people to walk around the bench into the grass planter strip. Nearby street lights and an Omnitrans solar pole mounted light provide illumination. Bus stop improvements to be made to all bus stops at the intersection.



Bus stop on Baseline Rd at Riverside Ave (source: Google Maps)

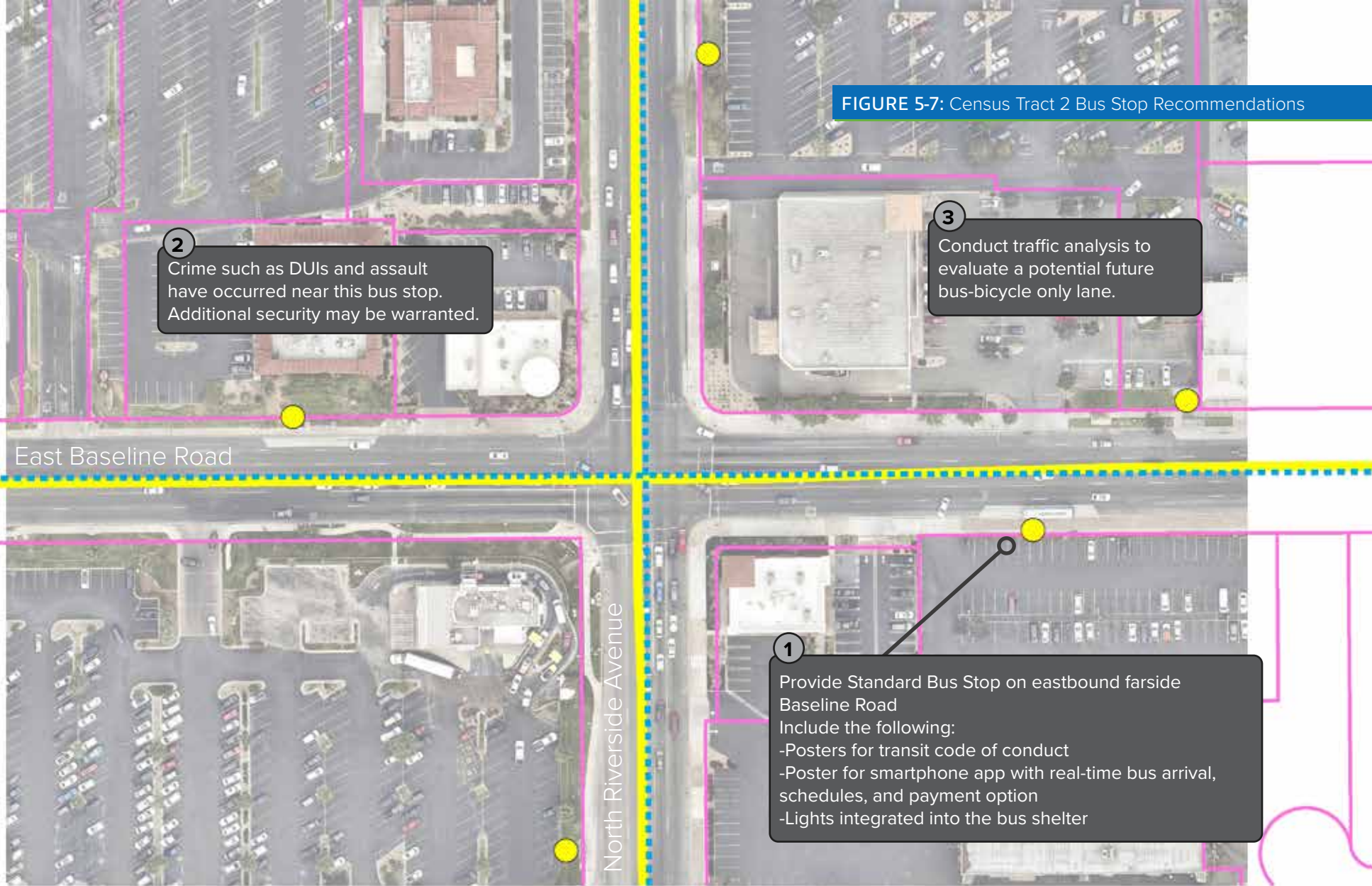


Bus stop on Baseline Rd at Riverside Ave (source: Google Maps)

TABLE 5-8: Census Tract 2 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide Standard Bus Stop for shade include the following: -Posters for transit code of conduct	Coordination between Omnitrans and City of Rialto to install additional shelters.
2	Crime such as DUIs and assault have occurred near this bus stop. Additional security may be warranted.	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Explore the CAHOOTS, or similar program is homelessness becomes an issue
3	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of Rialto to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of the City of Rialto.

FIGURE 5-7: Census Tract 2 Bus Stop Recommendations



Aerial not set to scale

- Existing Bus Stop Location
- Omnitrans Bus Lines
- Class II: Bikelane
- Parcel Line



Census Tract 3

San Bernardino Avenue at Locust Avenue

Selection Results

The San Bernardino Avenue at Locust Avenue bus stops are located in the community of Bloomington just north of Interstate 10. The surrounding land uses are predominantly single- and multi-family uses, with nearby schools and a church. The bus stops were selected due to a high number of mentions from the On-Board Passenger Survey and Focus Group Meetings, project surveys and stakeholder interviews. The bus stops lack amenities and bicycle and pedestrian infrastructure and are located in a disadvantaged area of the County. The sidewalks are currently too narrow to support minimum amenities such as benches. Sidewalks are also missing that connect the bus stops with the nearby neighborhoods. Reported crimes include assault and robbery.

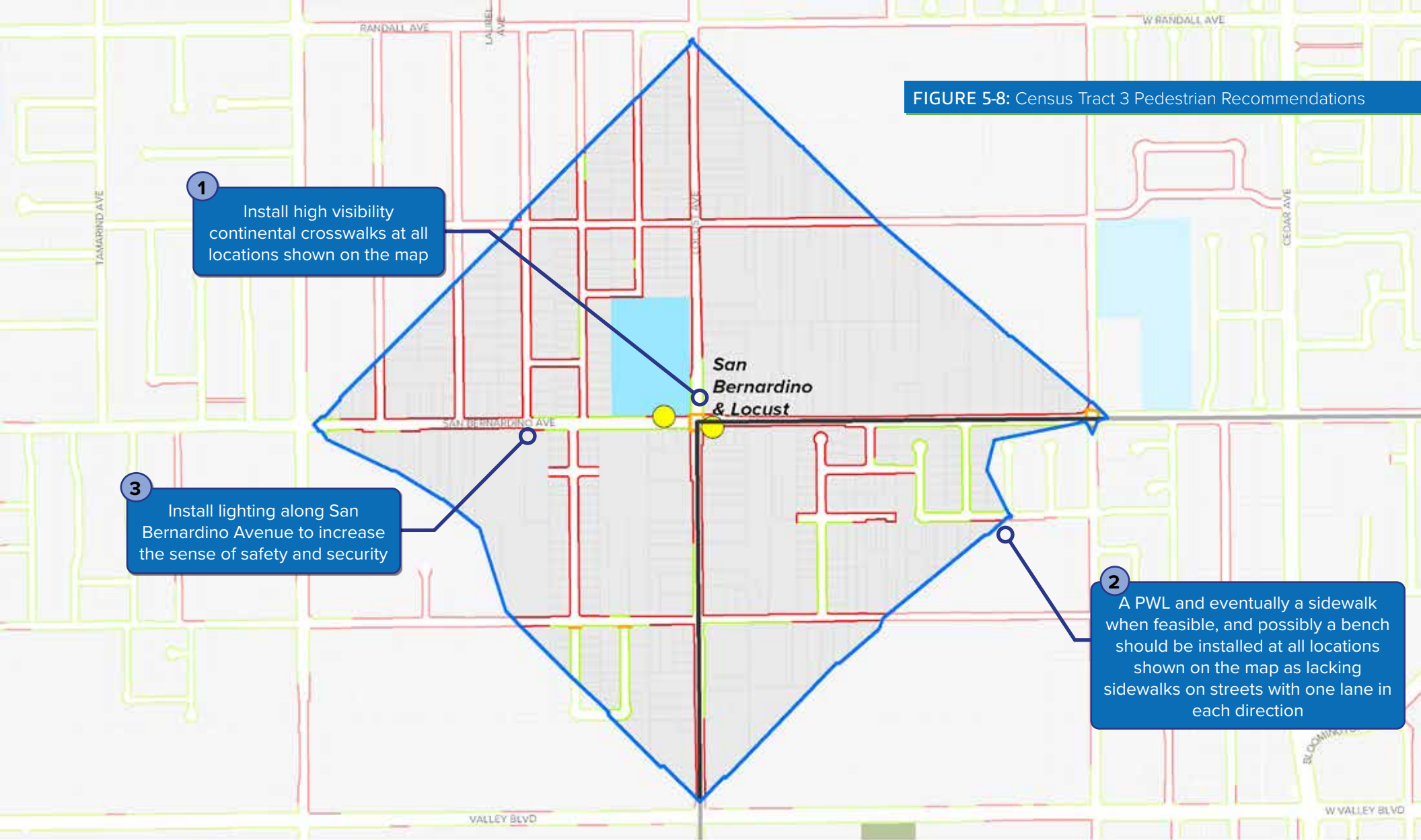
Pedestrian Improvements

Pedestrian recommendations for the bus stops are intended to provide safe crossing points, increase visibility of people walking, and provide continuous sidewalks to the bus stop. As shown in Figure 5-8, recommended pedestrian improvements include construction of missing sidewalks to close gaps within half a mile from the bus stop. High-visibility continental crosswalks, with lines spacing to avoid wheel paths to help reduce re-painting frequency, are recommended at all major intersections. Lighting along San Bernardino Avenue is also recommended to increase the sense of safety and security. Curb ramps with truncated domes and improved lighting should be installed by the local jurisdiction to ensure safety and access for all users. The county needs to construct adequate-sized bus pads so amenities can be installed.

TABLE 5-9: Census Tract 3 Pedestrian Improvements

ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. San Bernardino County to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the County's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install lighting along San Bernardino Avenue to increase the sense of safety and security	

FIGURE 5-8: Census Tract 3 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles



Bicycle Improvements

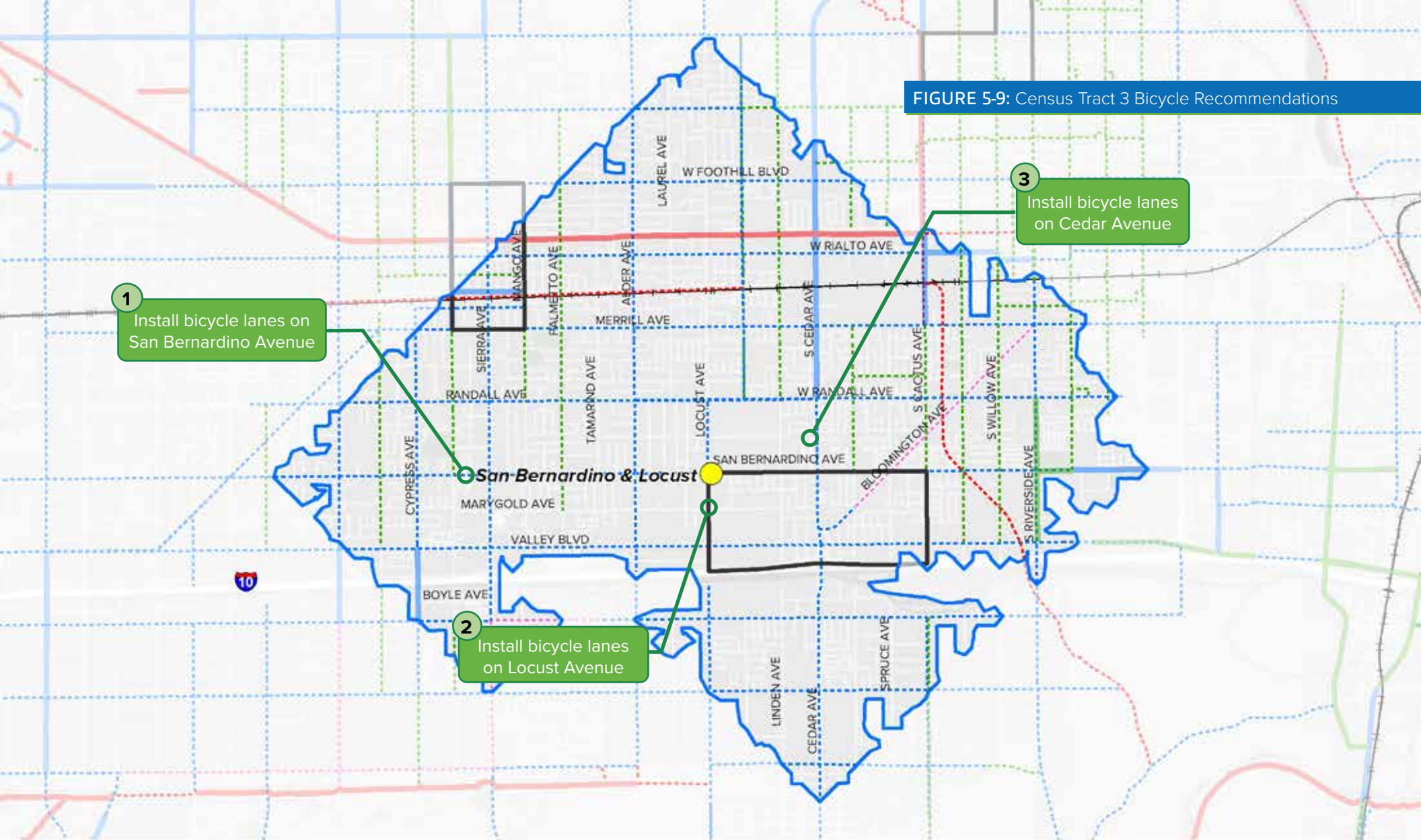
Currently there is no bicycle infrastructure serving the bus stops; however, bicycle lanes are planned along San Bernardino Avenue, Locust Avenue and Cedar Avenue. The San Bernardino County Non-Motorized Transportation Plan recommendations around this bus stop will provide a safer and less stressful bicycle travel option to and from the bus stop while supporting the needs of all users.

As shown in Figure 5-9, currently there are no bicycle facilities serving the bus stop directly, the nearest bicycle facility is a Class II bicycle lane on Cedar Avenue. Where space is available, painted stripe buffers should be installed along existing and planned Class II bicycle lanes. If space is available within the public right-of-way, existing Class III bicycle routes, that typically use sharrows in the road travel lane, should be upgraded to Class II bicycle lanes with two foot wide painted stripe buffers. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

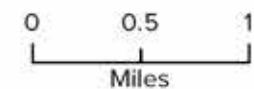
TABLE 5-10: Census Tract 3 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on San Bernardino Avenue	1. San Bernardino County to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes or stencil striping into road resurfacing projects or any local redevelopment 3. Include in the County's CIP program
2	Install bicycle lanes on Locust Avenue	
3	Install bicycle lanes on Cedar Avenue	

FIGURE 5-9: Census Tract 3 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The bus stops are located on San Bernardino Avenue at Locust Avenue. Due to the isolated location and lack of shade, a shelter is recommended.

As shown in Figure 5-10, the eastbound bus stop on San Bernardino Avenue is lacking a shelter and continuous sidewalks for people walking. The existing sidewalk is narrow and there is little space available for a new bus shelter. To add a bus shelter, San Bernardino County should explore feasibility of adjusting lane widths on San Bernardino Avenue to widen the sidewalk configuration and support a new bus shelter. Bus stop improvements to be made to all bus stops at the intersection.



Existing bus stop on San Bernardino at Locust Ave (source: Google Maps)

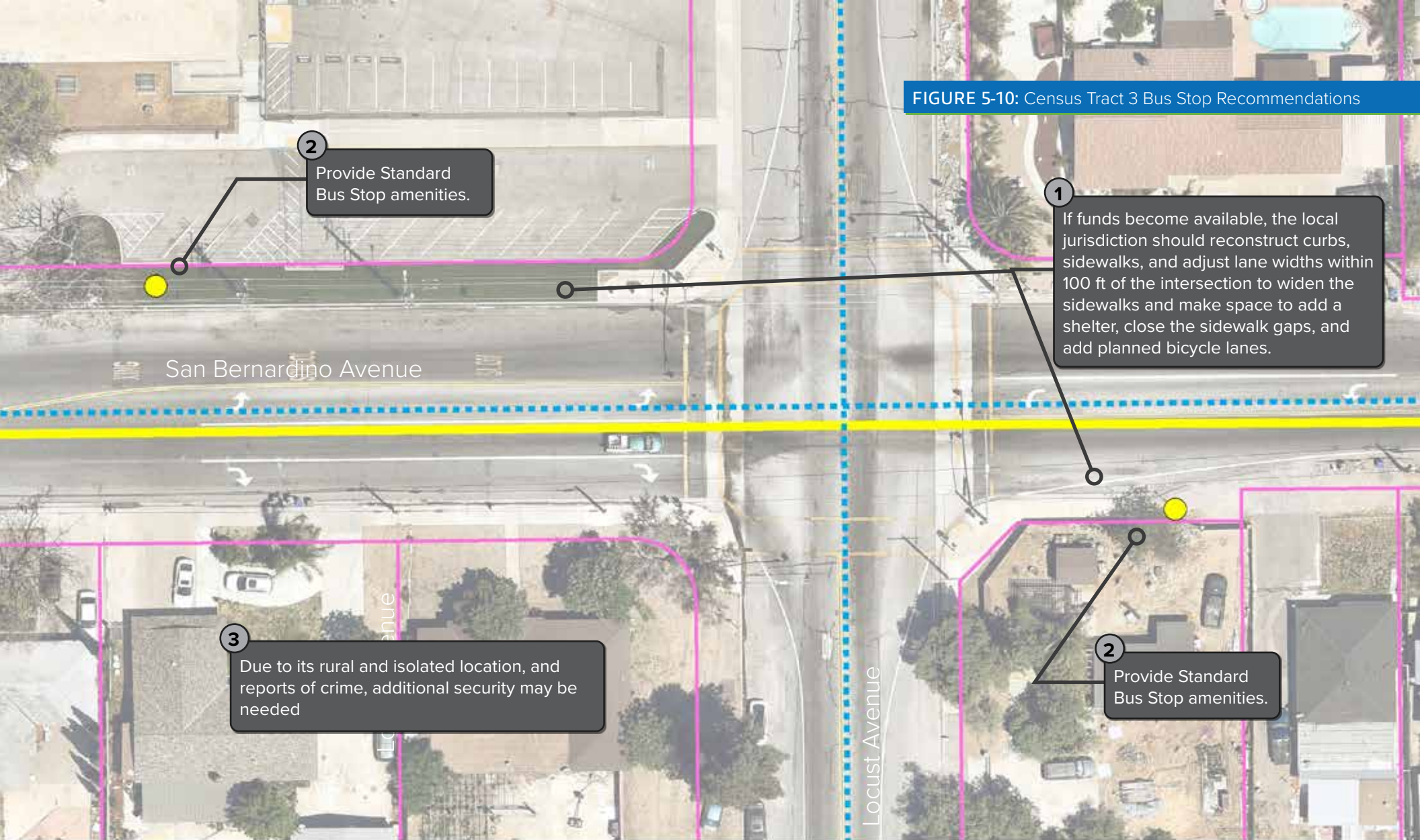


Existing bus stop on San Bernardino at Locust Ave (source: Google Maps)

TABLE 5-11: Census Tract 3 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	If funds become available, the local jurisdiction should explore feasibility of a project to reconstruct curbs, sidewalks, and adjust lane widths within 100 ft of the intersection to widen the sidewalks and make space to add a shelter, close the sidewalk gaps, and add planned bicycle lanes.	1. San Bernardino County to pursue grants for additional corridor and feasibility study 2. Include in the County's CIP program 3. Pursue grants for construction
2	Provide Standard Bus Stop amenities including the following: -Bus shelter -Posters for transit code of conduct	1. Coordination between Omnitrans and San Bernardino County to install Standard Bus Stop amenities
3	Due to its rural and isolated location, and reports of crime, additional security may be needed	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Install surveillance camera(s) at the shelter (County Sheriff's Department to monitor)

FIGURE 5-10: Census Tract 3 Bus Stop Recommendations



Aerial not set to scale



Census Tract 4

Barton Road at Walin Street

Selection Results

The Barton Road at Walin Street bus stops are located in southern Colton. The bus stops can be located on Barton Road and Washington Street, which are main thoroughfares to Interstate 215 and commercial land uses along Washington Street. The immediate surrounding land uses are almost exclusively single- and multi-family uses. The bus stops were selected within this Census Tract due to the lack of boarding area, seating, shelter, lighting, sidewalks and curb ramps. The Barton Road at Walin Street bus stop is located adjacent to a vacant parcel with an unmaintained sidewalk segment that does not connect to the bus stop. There have been no reported crimes near the bus stop.

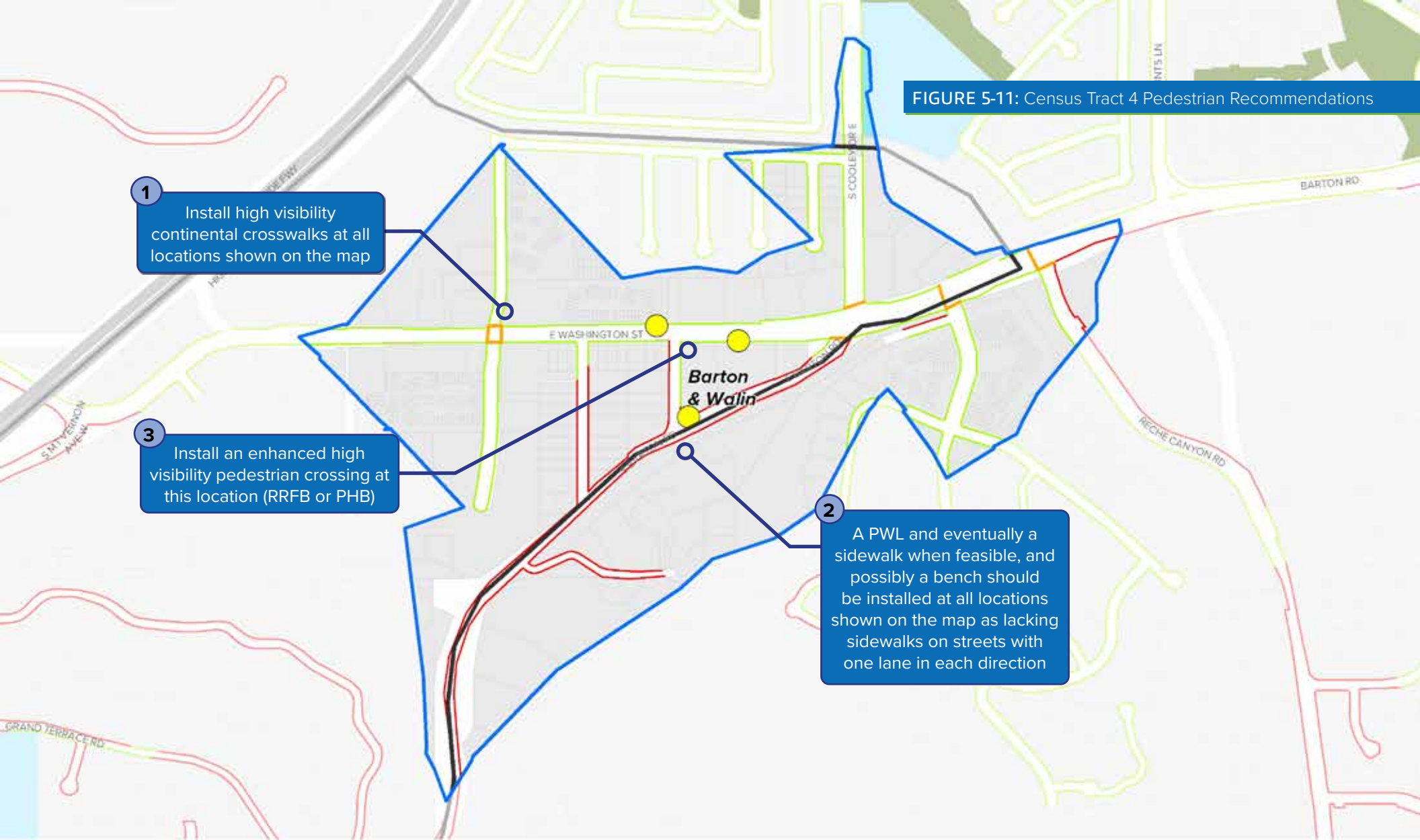
Pedestrian Improvements

Pedestrian recommendations near the Barton Road and Walin Street bus stops are intended to provide safe crossing points, and provide a continuous sidewalk to the bus stop. As shown in Figure 5-11, recommended improvements include new sidewalks within half a mile from the bus stop, high-visibility continental crosswalks with lines spacing to avoid wheel paths, curb ramps with truncated domes to ensure safety and access for all users.

TABLE 5-12: Census Tract 4 Pedestrian Improvements

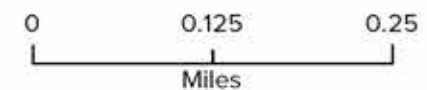
ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of Colton to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install an enhanced high visibility pedestrian crossing at this location (RRFB or PHB)	

FIGURE 5-11: Census Tract 4 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Freeway Barrier
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA



Bicycle Improvements

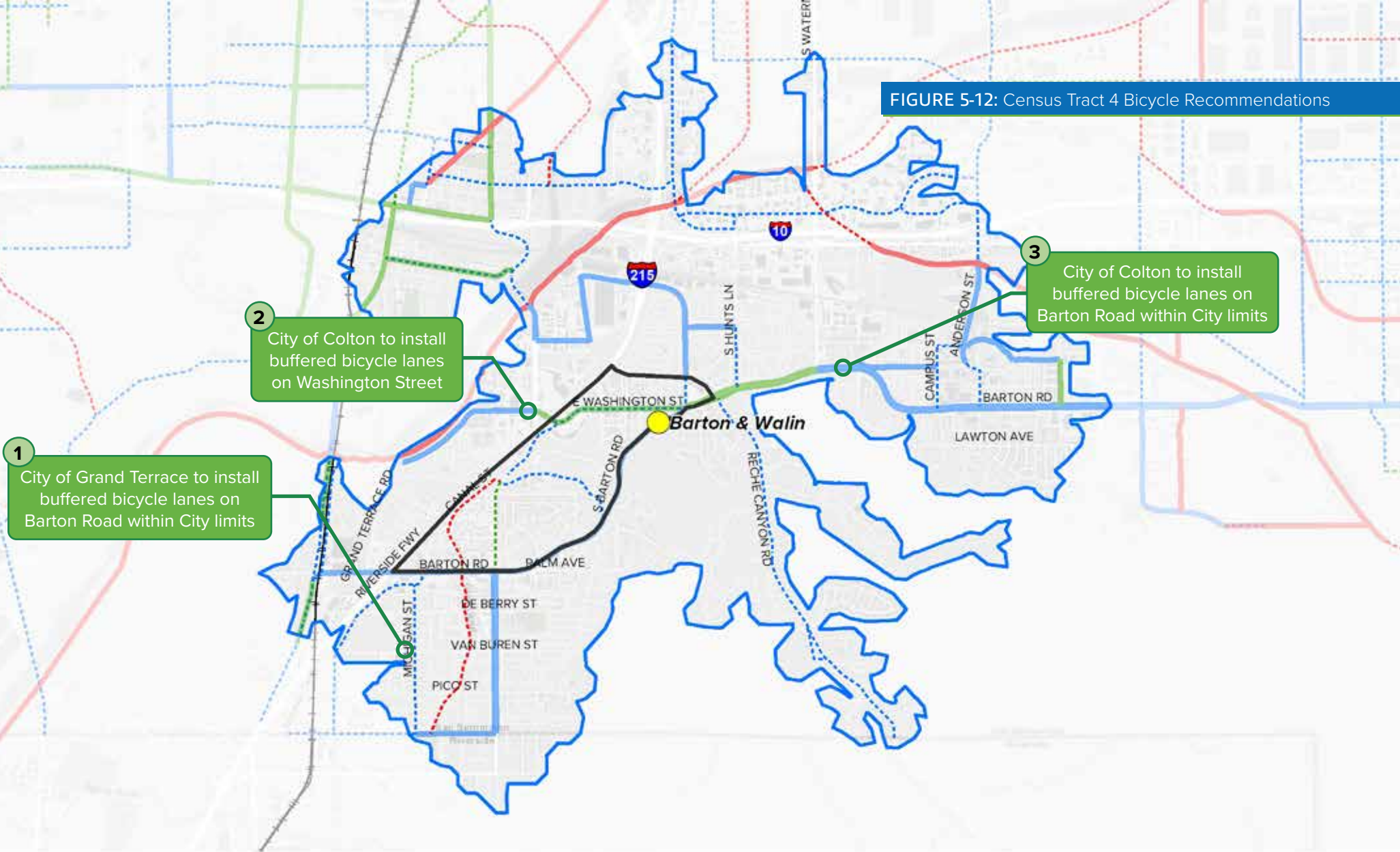
Improved bicycle recommendations around the Barton Road at Walin Street bus stops will provide a safer and less stressful bicycle travel option to and from bus stops while supporting the needs of all users. Bicycle recommendations were derived from the Grand Terrace Active Transportation Plan and the Colton Active Transportation Plan.

As shown in Figure 5-12, an existing bicycle lane serves the bus stop on Barton Road between Washington Street and La Cadena Drive. Washington Street is currently served by a Class III bicycle route and there are plans to improve the Class III bicycle route to a Class II buffered bicycle lane. Barton Road is also being planned as a buffered bicycle lane.

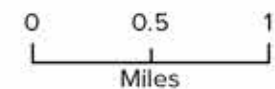
TABLE 5-13: Census Tract 4 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	City of Grand Terrace to install buffered bicycle lanes on Barton Road within City limits	1. Cities of Grand Terrace and Colton to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes striping into each City's road resurfacing projects or any local redevelopment 3. Include in each City's CIP program
2	City of Colton to install buffered bicycle lanes on Washington Street	
3	City of Colton to install buffered bicycle lanes on Barton Road within City limits	

FIGURE 5-12: Census Tract 4 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The eastbound bus stop on Barton Road at Walin Street is missing a landing pad and connecting sidewalks. The stop is located in a residential area close to retail in Grand Terrace and Colton.

As shown in Figure 5-13, this particular bus stop is directly adjacent to a large overgrown lot with a steep slope where a PWL, and eventually a sidewalk when feasible, and possibly a bench should be installed. Connected sidewalks with a standard concrete landing pad would allow riders to safely board or alight the bus. Riders must currently walk in the street to access the last 1,000 feet to the bus stop.

An adjacent streetlight and a solar pole light provides illumination to the bus stop. However, the poor road condition, steep slope on the road, and lack of safe sidewalks leading to the bus stop, will limit who can access the bus stop safely and securely. Bus stop improvements to be made to all bus stops at the intersection.

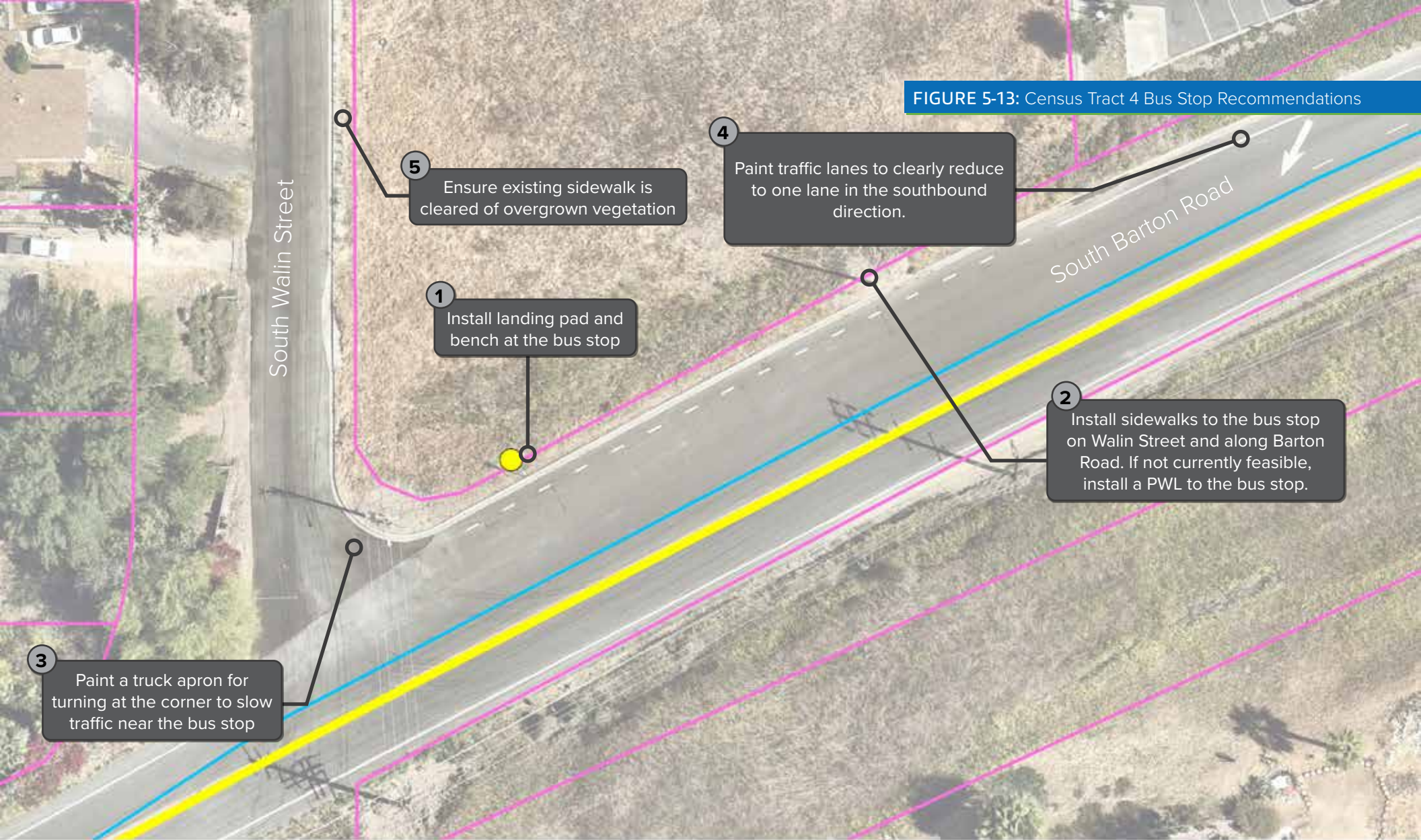


Existing bus stop at Barton Road and Walin Street

TABLE 5-14: Census Tract 4 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install landing pad and bench at the bus stop	1. Include in the cities of Grand Terrace's and Colton's CIP programs 2. Pursue grants for construction 3. Coordinate with Omnitrans on amenities
2	Install sidewalks to the bus stop on Walin Street and along Barton Road. If not currently feasible, install a Protected Walking Lanes (PWL) to the bus stop.	1. Include in the City's CIP program 2. Include PWL striping into road resurfacing projects or any local redevelopment 3. Pursue grants for construction
3	Paint a truck apron for turning at the corner to slow traffic near the bus stop	1. Include striping into road resurfacing projects or any local redevelopment 2. Include in the City's CIP program
4	Paint traffic lanes to clearly reduce to one lane in the southbound direction, then explore opportunity for a bus bulb with a bicycle bypass lane.	1. Include lane re-striping into road resurfacing projects or any local redevelopment 2. Include in the City's CIP program 3. Coordinate with Omnitrans on design of the bus bulb out
5	Ensure existing sidewalk is cleared of overgrown vegetation	1. City to provide regular maintenance of sidewalk condition on Walin Street

FIGURE 5-13: Census Tract 4 Bus Stop Recommendations



Aerial not set to scale



CENSUS TRACT 5

5th Street at Waterman Avenue

Selection Results

The Waterman Avenue at 5th Street bus stops are located near a mix of several land uses ranging from parks, elementary school, residential, industrial, and commercial land uses in the City of San Bernardino. Seccombe Lake Recreation Area, downtown San Bernardino and Anderson Elementary School are within a half-mile walking distance from the bus stop. The bus stops were selected as a pilot study due to the vacant adjacent property and industrial land uses nearby, high ridership, bicycle and pedestrian collisions along the corridors and reported crime such as homicide, assaults, robbery and theft. In addition, the bus stops lack amenities such as a shelter and lighting, due to the lack of sidewalk width needed for a shelter.

Pedestrian Improvements

Pedestrian recommendations near the Waterman Avenue at 5th Street bus stops are intended to provide safe crossing points, increase visibility of people walking and provide continuous sidewalks to bus stops.

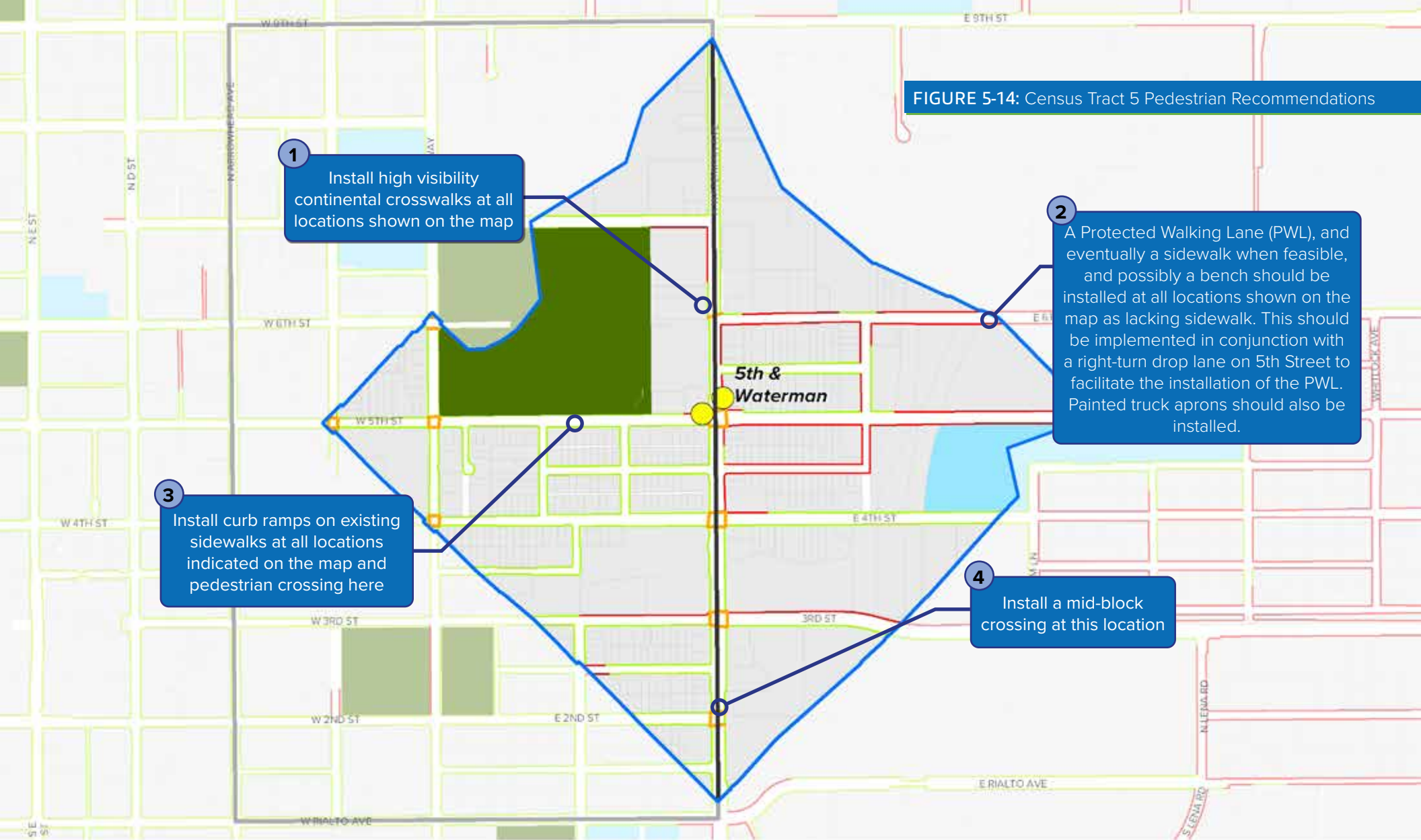
As shown in Figure 5-14, recommended improvements include installing sidewalks where absent within half a mile from the bus stop, high-visibility continental crosswalks with lines spacing to avoid wheel paths, curb ramps with truncated domes to ensure safety and access for all users. A PWL should be implemented where needed. It should be done in conjunction with a right-turn drop lane on 5th Street to facilitate the installation of the PWL. Painted truck aprons should also be installed.

A mid-block crossing is recommended on Waterman Avenue to provide pedestrian crossing points to access nearby retail and shorten the walking distance between intersections and improve the safety of people walking. The midblock crossing would include a PHB.

TABLE 5-15: Census Tract 5 Pedestrian Improvements

ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of San Bernardino to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalk. This should be implemented in conjunction with a right-turn drop lane on 5th Street to facilitate the installation of the PWL. Painted truck aprons should also be installed.	
3	Install curb ramps on existing sidewalks at all locations indicated on the map and pedestrian crossing	
4	Install a mid-block crossing in the vicinity of this location	

FIGURE 5-14: Census Tract 5 Pedestrian Recommendations



1
Install high visibility continental crosswalks at all locations shown on the map

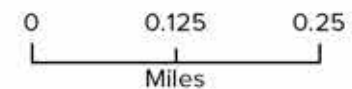
2
A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalk. This should be implemented in conjunction with a right-turn drop lane on 5th Street to facilitate the installation of the PWL. Painted truck aprons should also be installed.

3
Install curb ramps on existing sidewalks at all locations indicated on the map and pedestrian crossing here

4
Install a mid-block crossing at this location

- Bus Stop
- 1/2 Mile Walkshed
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans, SCAG, SBCTA



Bicycle Improvements

Bicycle recommendations around the Waterman Avenue at 5th Street bus stops will provide a safer and less stressful bicycle travel option to and from bus stops while supporting the needs of all users.

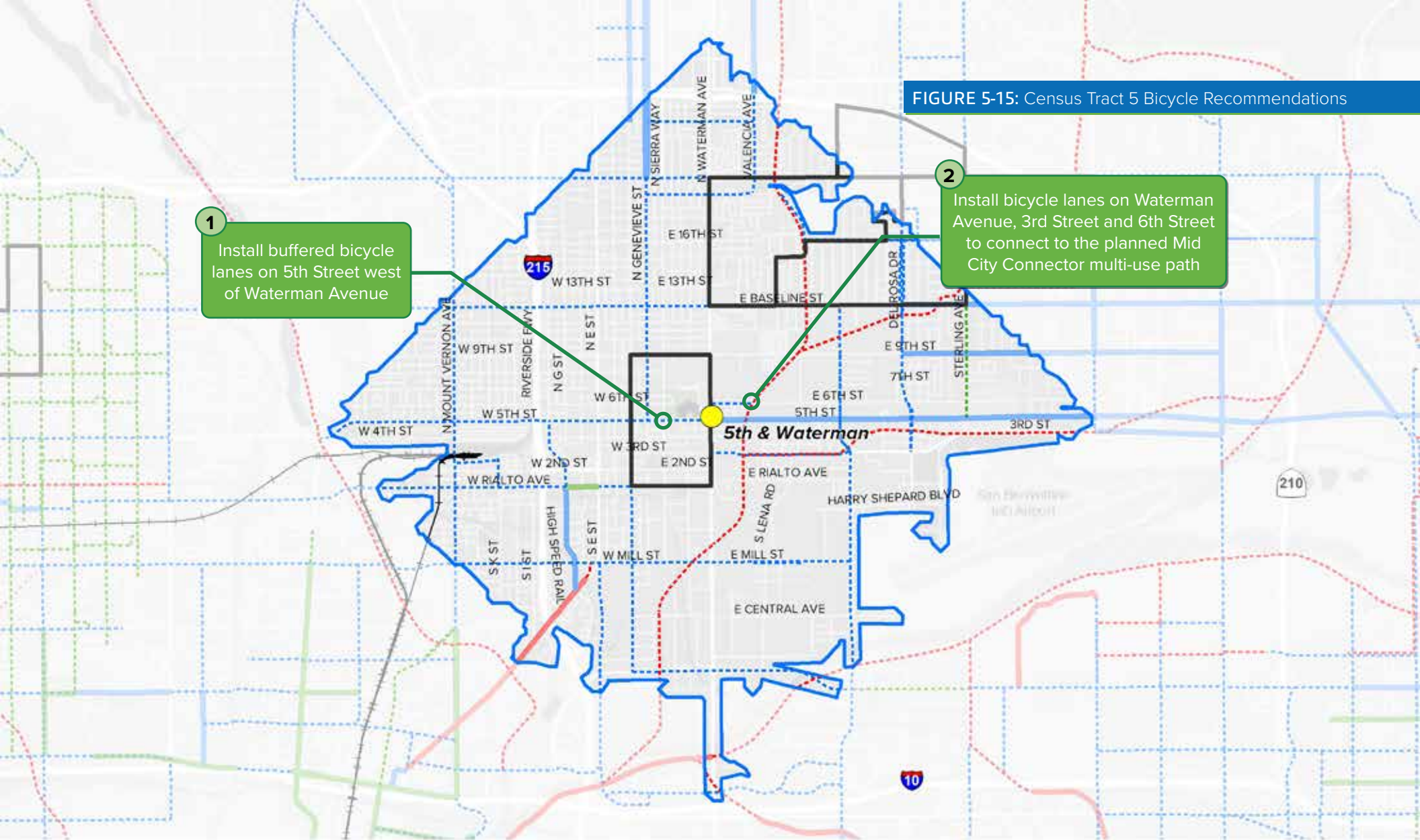
As shown in Figure 5-15, the bus stops is currently served by an existing bicycle lane east of the bus stops. Proposed bicycle facilities serving the bus stops includes a Class II bicycle lane west of the bus stops, as well as a Mid City Connector multi-use path that intersects 5th Street just east of the bus stops. The San Bernardino County Non-Motorized Transportation Plan provides a planned network of bicycle facilities throughout the County. The City of San Bernardino is currently developing an Active Transportation Plan which further assesses the bicycle network in more detail.

Where space is available, painted stripe buffers should be installed along existing and planned Class II bicycle lanes. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

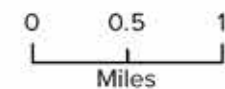
TABLE 5-16: Census Tract 5 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install buffered bicycle lanes on 5th Street west of Waterman Avenue	1. City of San Bernardino to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle lanes on Waterman Avenue, 3rd Street and 6th Street to connect to the planned Mid City Connector multi-use path	

FIGURE 5-15: Census Tract 5 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The northbound bus stop on Waterman Avenue at 5th Street supports a high volume of riders and should be developed as Standard Bus Stop according to Omnitrans' Transit Design Guidelines. The northbound bus stop is adjacent to a parcel currently in development. This bus stop is currently being improved with sidewalks and a shelter. Recommended bus stop improvements at this intersection include a shelter, reconstruction of a curb and sidewalk, and a concrete bus pad. Bus stop improvements to be made to all bus stops at the intersection.



Existing bus stop on 5th St at Waterman Ave (source: Google Maps)

TABLE 5-17: Census Tract 5 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide Standard Bus Stop amenities including the following: -Bus shelter -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option -Lights integrated into the bus shelter	1. Condition the improvements as part of the developing adjacent parcel 2. Include in the City of San Bernardino's CIP program 3. Pursue grants for construction 4. Coordinate with Omnitrans on Standard Bus Stop amenities
2	Install sidewalks on Waterman Avenue to connect the bus stop	
3	Crime such as assaults and robbery have occurred near this bus stop. Additional security, such as surveillance cameras, may be warranted.	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Explore the CAHOOTS, or similar program is homelessness becomes an issue
4	Due to the proximity of downtown San Bernardino, explore opportunities for placemaking near this stop with the adjacent vacant/developing parcel. Art, additional lighting, and a small pocket park are options to explore.	1. Pursue programs to install a demonstration project such as SCAG's Go Human campaign 2. If well received, pursue funding to create a design and implementation
5	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of San Bernardino to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of the City of San Bernardino.

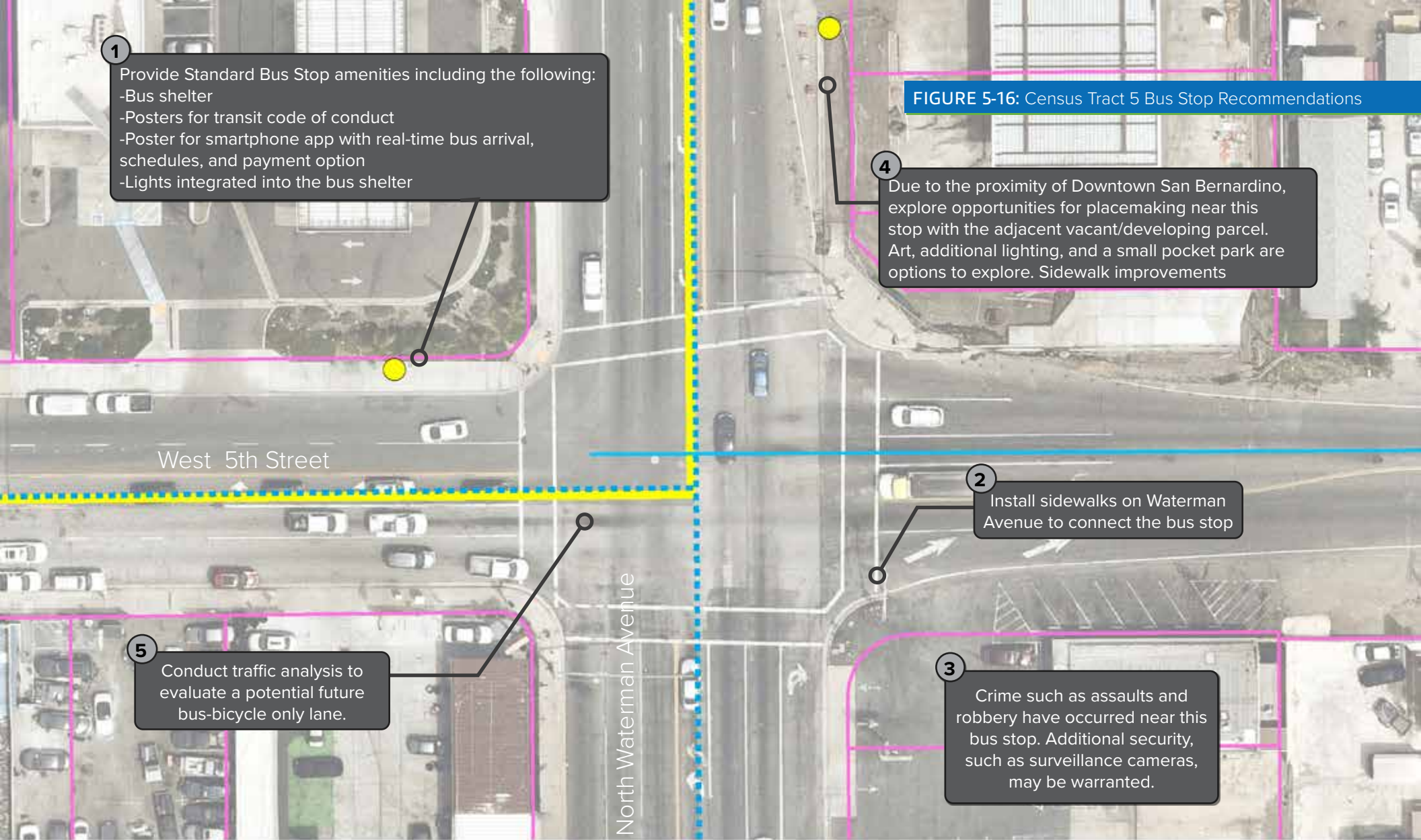
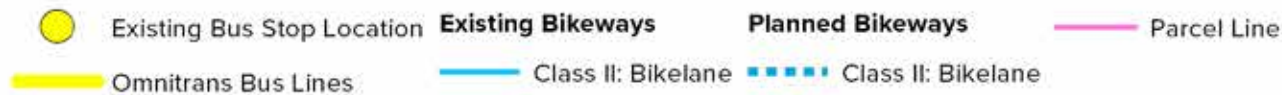


FIGURE 5-16: Census Tract 5 Bus Stop Recommendations

Aerial not set to scale



Census Tract 6

Baseline Street at Waterman Avenue

Selection Results

The Baseline Street at Waterman Avenue bus stops in the City of San Bernardino, are located near a mix of several land uses ranging from parks, schools, residential, single- and multi-family residential, and commercial land uses. The bus stops were selected due to the highest number of complaints regarding safety and considered as one with the most improvements needed. A high number of concerns were raised through the Omnitrans' On-Board Passenger Survey and Focus Group Meetings. Several reported crimes near the bus stops have included robbery, multiple assaults, drug and alcohol violations, car theft, vandalism, and disorderly conduct.

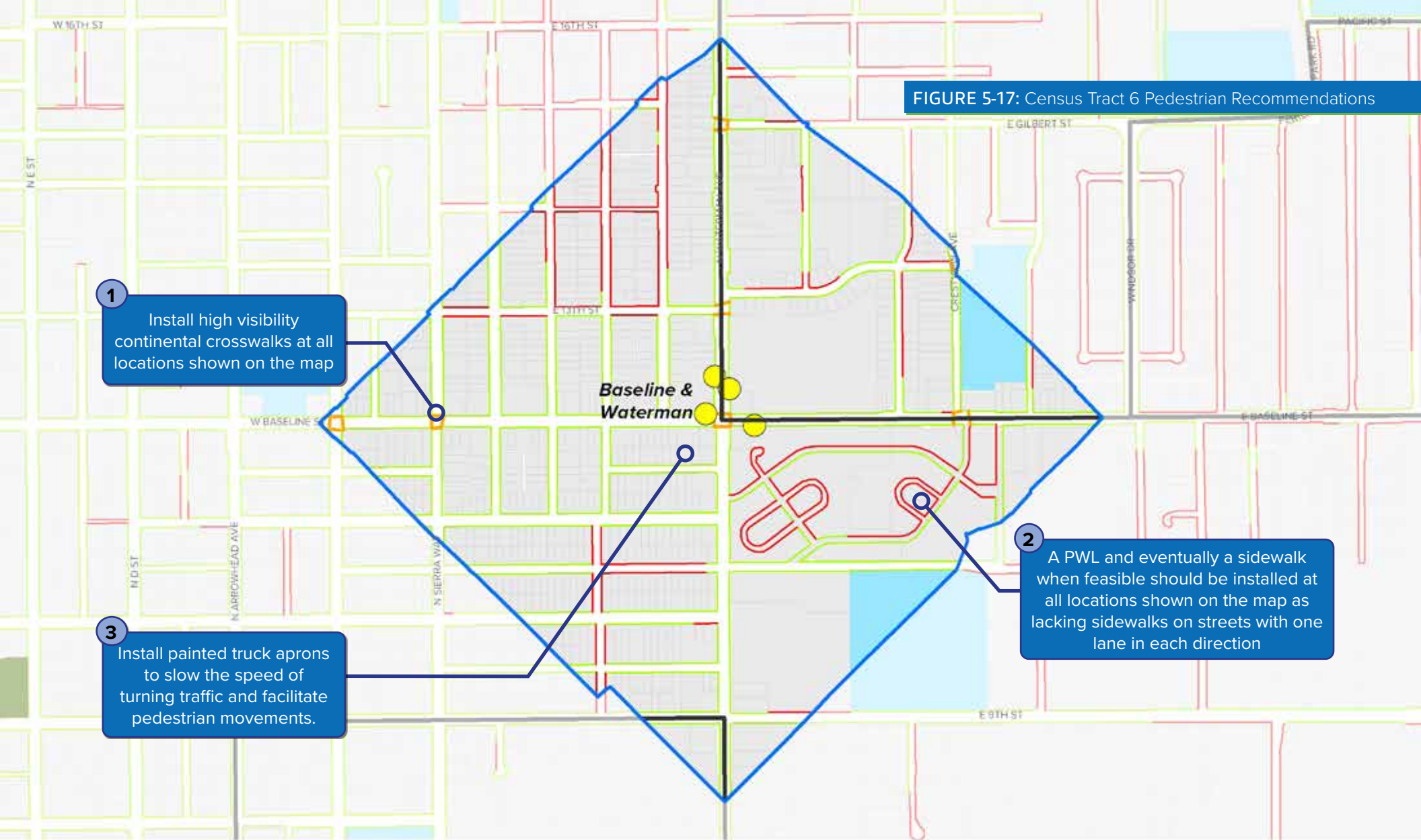
Pedestrian Improvements

Pedestrian recommendations near the Baseline Street at Waterman Avenue bus stops are intended to provide safe crossing points, reduce motor-vehicle speeds, and provide continuous sidewalks to bus stops. As shown in Figure 5-17, recommended improvements include new sidewalks within half a mile from the bus stop, high-visibility continental crosswalks with lines spacing to avoid wheel paths, curb ramps with truncated domes to ensure safety and access for all users. Identified existing curb or missing curb ramps to be replaced with ramps that meet minimum ADA standards. And finally, the City of San Bernadino should explore the feasibility of installing painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements.

TABLE 5-18: Census Tract 6 Pedestrian Improvements

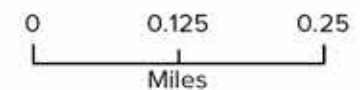
ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of San Bernardino to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install painted truck aprons to slow the speed of turning traffic and facilitate pedestrian movements.	

FIGURE 5-17: Census Tract 6 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans, SCAG, SBCTA



Bicycle Improvements

Bicycle recommendations around the Baseline Street at Waterman Avenue bus stops will provide better connectivity to the bus stop, particularly along Baseline Street. The San Bernardino County Non-Motorized Transportation Plan provides a planned network of bicycle facilities throughout the County.

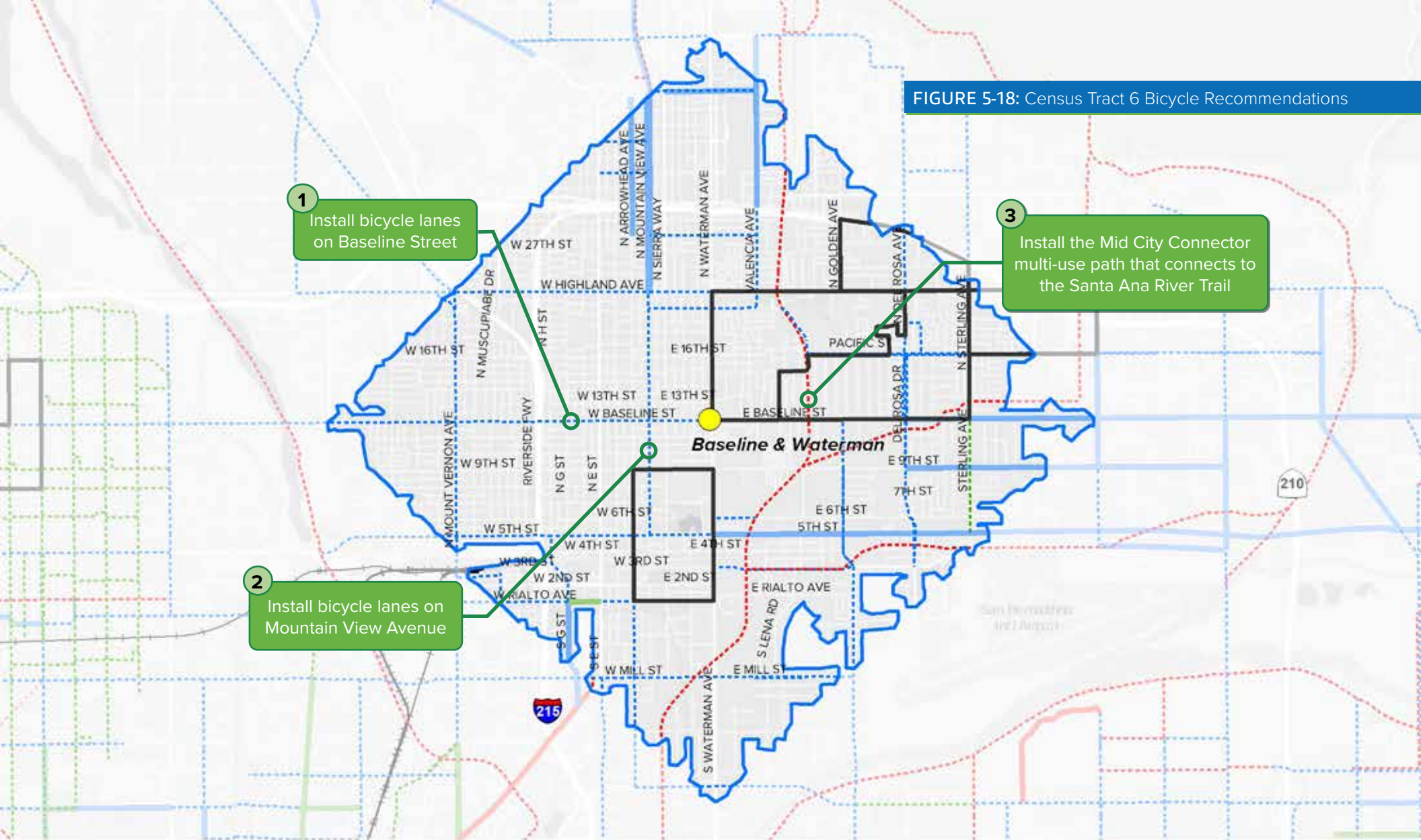
As shown in Figure 5-18, the bus stops are not currently served by an existing bicycle facility; the nearest bicycle facility to the bus stops is a mile to the south on 5th Street. Proposed bicycle facilities are recommended along Baseline Street that will directly serve the bus stops. Other nearby proposed bicycle facilities include a Class II bicycle lane on Mountain View Avenue, and a Class I multi-use path on the Mid City Connector that leads to the Santa Ana River Trail.

Where space is available, painted stripe buffers should be installed along existing and planned Class II bicycle lanes. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

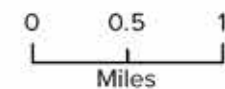
TABLE 5-19: Census Tract 6 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Baseline Street	1. City of San Bernardino to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle lanes on Mountain View Avenue	
3	Install the Mid City Connector multi-use path that connects to the Santa Ana River Trail	

FIGURE 5-18: Census Tract 6 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The bus stop on Baseline Street at Waterman Avenue supports a high volume of riders and should be developed as a Standard Bus Stop per Omnitrans' Transit Design Guidelines to provide the amenities needed for transit users to feel safe.

The stop is located north side of the street heading westbound in a retail zone but also supports residential areas nearby. Existing amenities at the bus stop include seating, signage, and trash receptacle. The sidewalk is currently not wide enough to provide adequate space for a bus shelter. Recommended bus stop improvements include improvement to curb and sidewalk to accommodate a shelter and a concrete bus pad. Opportunities to expand the bus stop to provide these amenities can be coordinated with the adjacent property owner and City of San Bernardino. With regular activity due to the adjacent retail stores and restaurants, explore opportunities for placemaking such as re-purposing or activating parking spaces, bulb outs, and other areas near the bus stop with art or a pocket park.

Funding for a shelter on Baseline and Waterman westbound farside is currently in place and should be installed in the next year. Bus stop improvements to be made to all bus stops at the intersection.

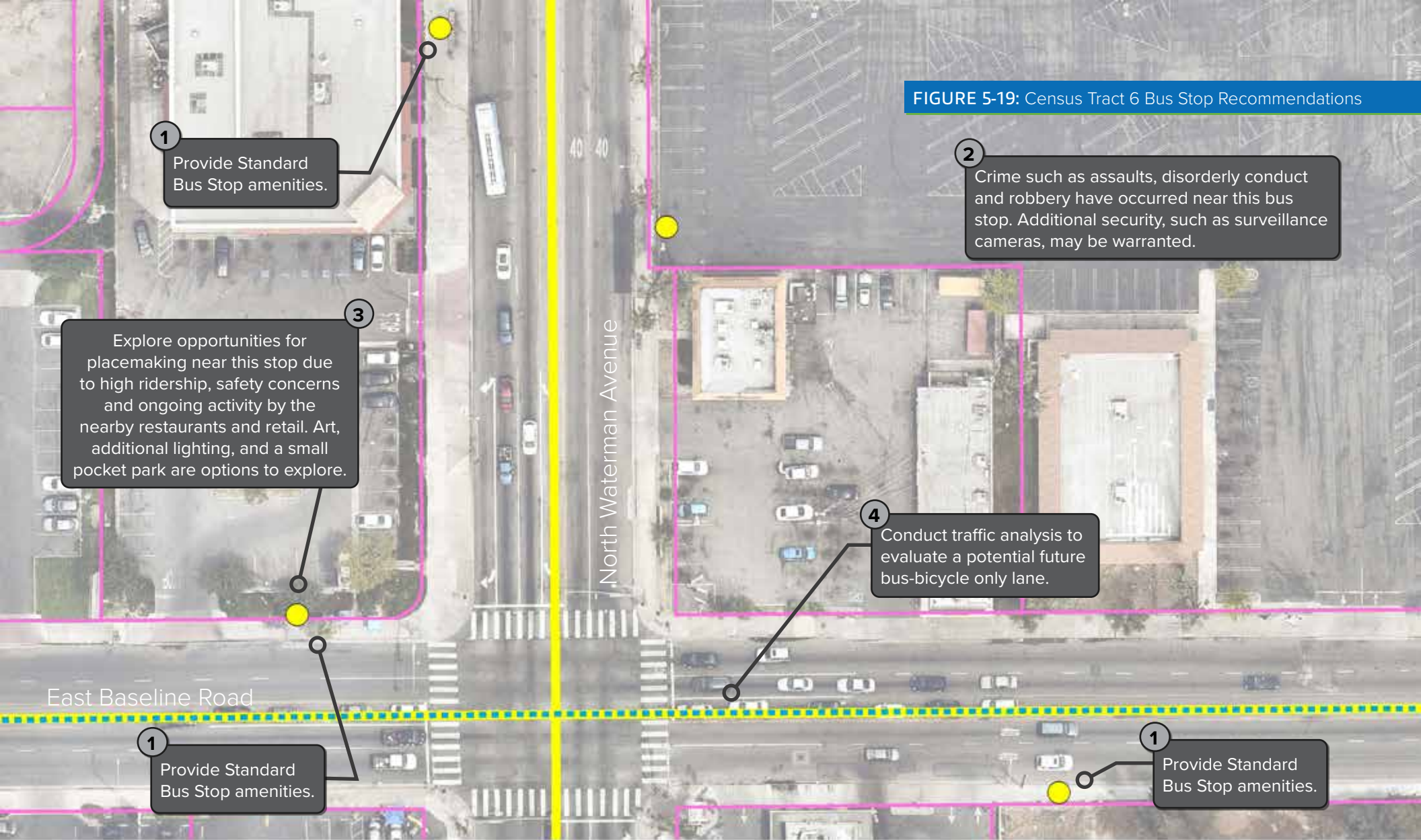


Existing bus stop on Baseline Rd at Waterman Ave (source: Google Maps)

TABLE 5-20: Census Tract 6 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide Standard Bus Stop amenities including the following: <ul style="list-style-type: none"> -Bus shelter -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option -Lights integrated into the bus shelter -Blue light call box 	1. Coordination between Omnitrans and City of San Bernardino to pursue funding to install bus shelter 2. Coordinate with adjacent property owners to expand the bus stop into the parking lot. 3. Include in the City's CIP program
2	Crime such as assaults, disorderly conduct and robbery have occurred near this bus stop. Additional security, such as surveillance cameras, may be warranted.	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Explore the CAHOOTS, or similar program is homelessness becomes an issue
3	Explore opportunities for placemaking near this stop due to high ridership, safety concerns and ongoing activity by the nearby restaurants and retail. Art, additional lighting, and a small pocket park are options to explore.	1. Pursue programs to install a demonstration project such as SCAG's Go Human campaign 2. If well received, incorporate the placemaking space into a future redevelopment project for the vacant parcel. 3. Pursue funding to create a design and implement
4	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of San Bernardino to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of the City of San Bernardino

FIGURE 5-19: Census Tract 6 Bus Stop Recommendations



Aerial not set to scale



Census Tract 7

Golden Avenue at Highland Avenue

Selection Results

The Golden Avenue at Highland Avenue bus stops in the City of San Bernardino, are in a mixed-use area that includes residential to the north and commercial and civic facilities to the south. The bus stops were selected through input from Omnitrans' On-Board Passenger Survey and Focus Group Meetings, and project surveys and stakeholder interviews, collisions near the bus stop, demographics, and Technical Advisory Committee input. Several reported crimes near the bus stops have included assault and robbery.

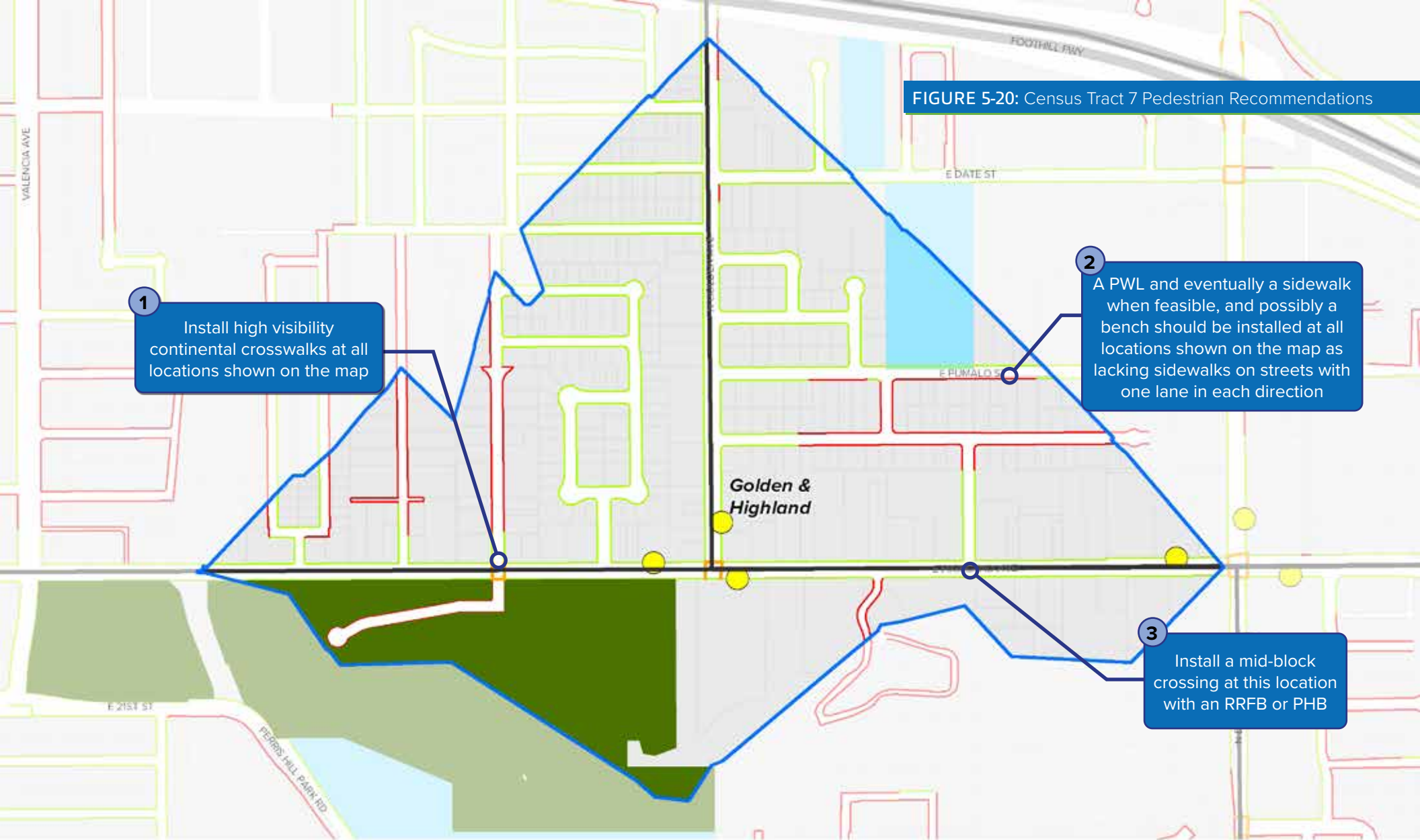
Pedestrian Improvements

Pedestrian recommendations near the Golden Avenue at Highland Avenue bus stops are intended to provide safe crossing points, provide additional pedestrian visibility and continuous sidewalks to bus stops. As shown in Figure 5-20, recommended pedestrian improvements include installation of missing sidewalks to close gaps within a half a mile from the bus stops. High-visibility continental crosswalks, with lines spacing to avoid wheel paths to help reduce re-painting frequency, are recommended at all major intersections. Curb ramps with truncated domes and improved lighting should be installed to ensure safety and access for all users. Identified existing curb or missing curb ramps to be replaced with ramps that meet minimum ADA requirements. A mid-block crossing is recommended on Highland Avenue approximately a quarter mile to the east to provide a safe pedestrian crossing point at Mountain Avenue intersection. The midblock crossing includes either a RRFB or PHB (See section 4.2.3 for a description).

TABLE 5-21: Census Tract 7 Pedestrian Improvements

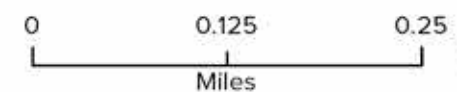
ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of San Bernardino to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install a mid-block crossing at this location with an RRFB or PHB	

FIGURE 5-20: Census Tract 7 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Freeway Barrier
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans, SCAG, SBCTA



Bicycle Improvements

Bicycle recommendations around the Golden Avenue and Highland Avenue bus stops will provide a connected and less stressful bicycle travel option to and from the bus stops. The San Bernardino Non-Motorized Transportation Plan provides a planned network of bicycle facilities throughout the City which these recommendations are derived from. The City is currently developing an Active Transportation Plan that should assess these recommendations in further detail.

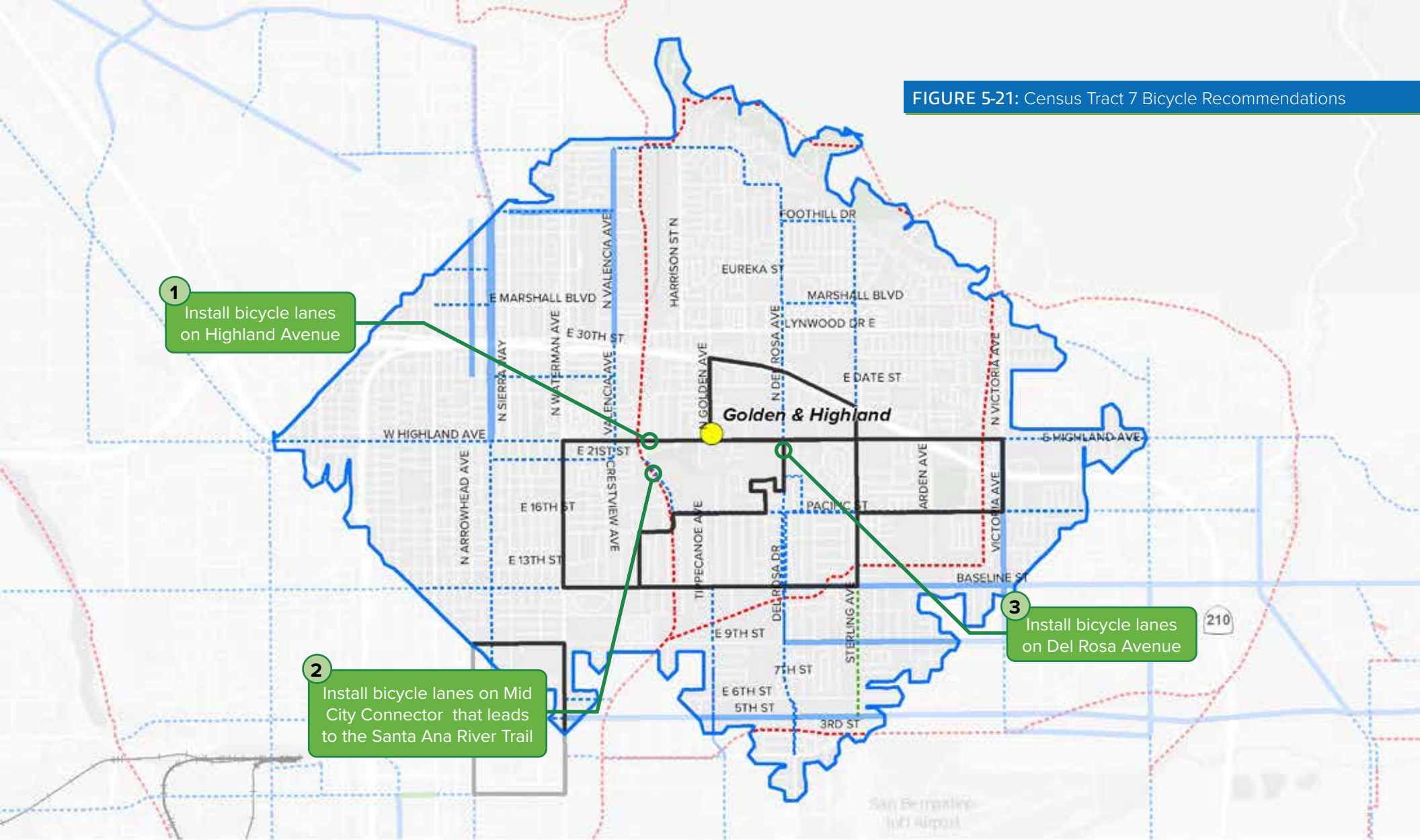
As shown in Figure 5-21, the bus stops are not currently served by an existing bicycle facility, however, the bus stops are planned to be supported with Class II bicycle lanes running east and west on Highland Avenue. Other nearby proposed bicycle facilities include a Class I multi-use path on the Mid City Connector that connects to the Santa Ana River Trail about half a mile to the west and a Class II bicycle lane on Del Rosa Avenue half a mile to the east of the bus stops.

Where space is available, painted stripe buffers should be installed along all planned Class II bicycle lanes. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

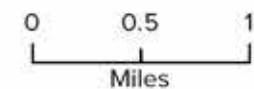
TABLE 5-22: Census Tract 7 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Highland Avenue	1. City of San Bernardino to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes or stencil striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle lanes on Mid City Connector that leads to the Santa Ana River Trail	
3	Install bicycle lanes on Del Rosa Avenue	

FIGURE 5-21: Census Tract 7 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The northbound bus stop on Golden Avenue and Highland Avenue typically supports a high volume of riders and should be developed as a Standard Bus Stop per Omnitrans' Design Guidelines.

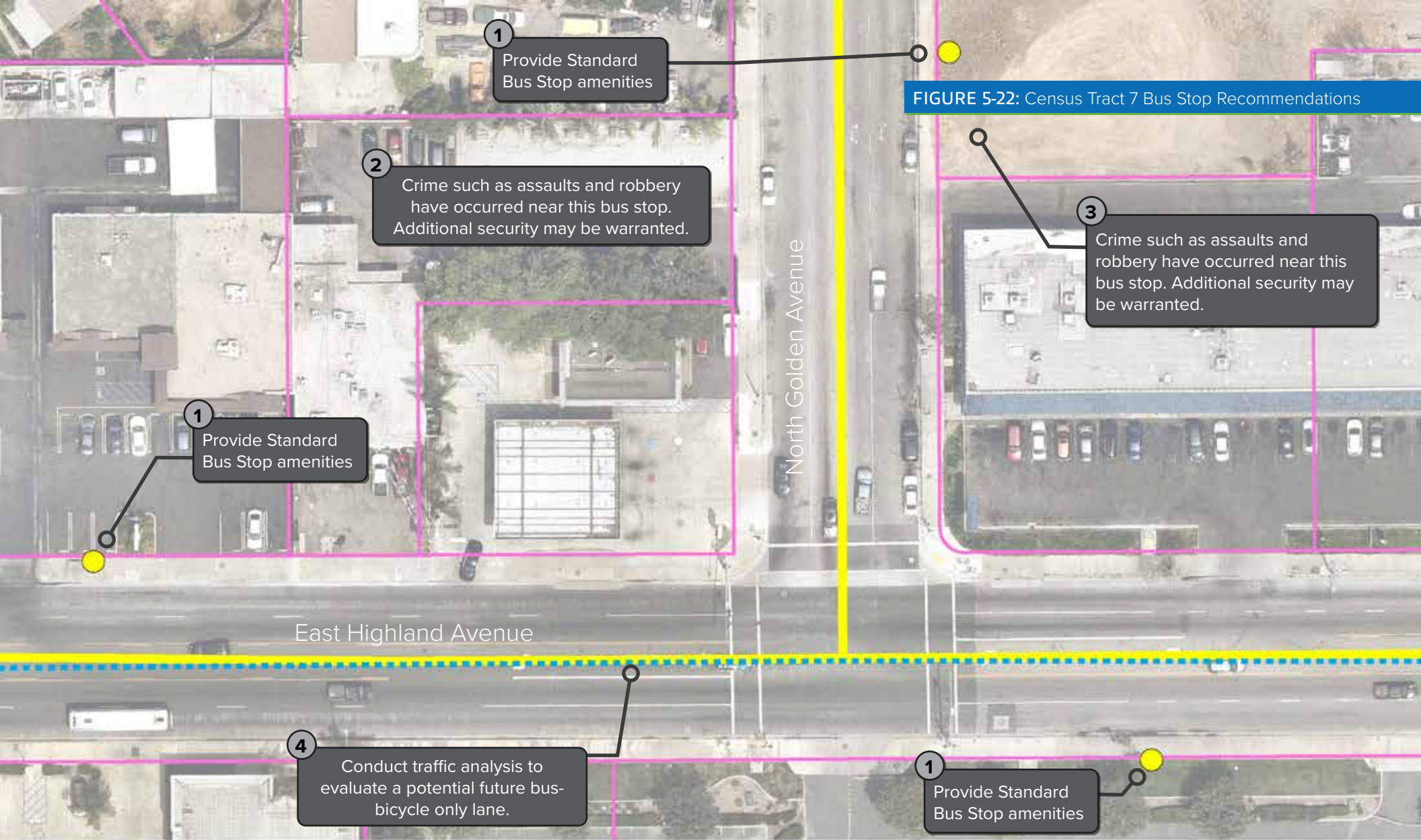
As shown in Figure 5-22, the required space needed to install a bus shelter is not available along the sidewalk in its current configuration. The stop is adjacent to a vacant lot that may get developed into retail or multi-family residential. Long-term plans may include coordination and collaboration with the future site developer to accommodate a bus stop shelter on the property that does not block sidewalk traffic as well as the potential for a placemaking opportunity such as a pocket park, public art, additional bus stop amenities, or streetscape improvements. An adjacent streetlight provides illumination to the bus stop, however the City should provide additional lighting along the corridor especially along the residential areas. A concrete bus pad would help with reducing pavement maintenance. Bus stop improvements to be made to all bus stops at the intersection.



Existing bus stop on Golden Ave at Highland Ave (source: Google Maps)

TABLE 5-23: Census Tract 7 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide Standard Bus Stop amenities including the following: -Bus shelter -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option. -Lights integrated into the bus shelter	1. Integrate bus stop improvements with adjacent vacant parcel with future redevelopment project 2. Include in the City of San Bernardino's CIP program 3. Coordination between Omnitrans and City of San Bernardino to pursue funding to install bus shelter
2	Crime such as assaults and robbery have occurred near this bus stop. Additional security may be warranted.	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Explore the CAHOOTS, or similar program if homelessness becomes an issue
3	Crime such as assaults and robbery have occurred near this bus stop. Additional security may be warranted.	Pursue programs to install a demonstration project such as SCAG's <i>Go Human</i> campaign. If well received, incorporate the placemaking space into a future redevelopment project for the vacant parcel. Pursue funding to create a design and implementation
4	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of San Bernardino to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of San Bernardino.



Aerial not set to scale



CENSUS TRACT 8

Del Rosa Avenue at Highland Avenue

Selection Results

The Del Rosa Avenue at Highland Avenue bus stops are located in the City of San Bernardino, approximately 0.4 miles south of State Route 210. The bus stops were selected by the TAC due to its high ridership and the various land uses surrounding it, including commercial, industrial, single- and multi-family residential and the reported crimes in the area. A high number of bicycle and pedestrian collisions have occurred near the bus stops. Several reported crimes near the bus stops have included homicide, assaults, thefts, and narcotics.

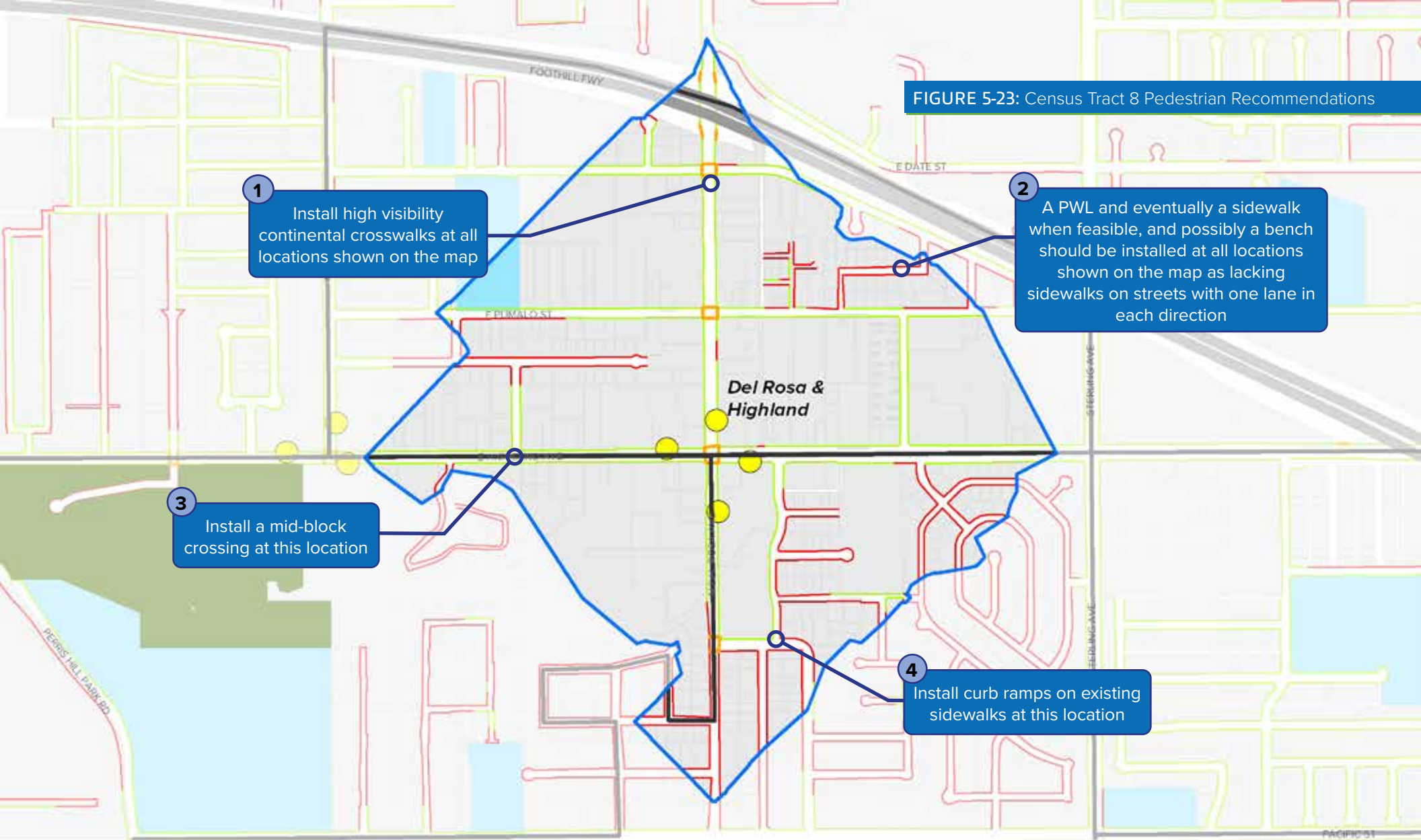
Pedestrian Improvements

Pedestrian recommendations for the Del Rosa Avenue at Highland Avenue bus stops intend to improve the pedestrian environment around it to ensure safe crossing points, increase visibility of people walking, and continuous sidewalks. As shown in Figure 5-23, improvement recommendations include installing missing sidewalks to close gaps along certain streets, as well as the installation of high visibility crosswalks at major intersections for enhanced safety and comfort. Mid-block crossings are also recommended to provide pedestrians with crossing points between intersections, particularly with the existing longer block lengths.

TABLE 5-24: Census Tract 8 Pedestrian Improvements

ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of San Bernardino to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install a mid-block crossing at this location	
4	Install curb ramps on existing sidewalks at this location	

FIGURE 5-23: Census Tract 8 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Freeway Barrier
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA

0 0.125 0.25
Miles



Bicycle Improvements

Bicycle recommendations around the Del Rosa Avenue at Highland Avenue bus stops will provide a connected and less stressful bicycle travel option to and from the bus stops. The San Bernardino County Non-Motorized Transportation Plan provides a planned network of bicycle facilities throughout the City.

As shown in Figure 5-24, the bus stops are not currently served by an existing bicycle facility, however, the bus stops are planned to be supported with Class II bicycle lanes running east to west on Highland Avenue and north to south on Del Rosa Avenue. Another nearby proposed bicycle facility includes a Class II bicycle lane on Sterling Avenue half a mile to the east of the bus stops.

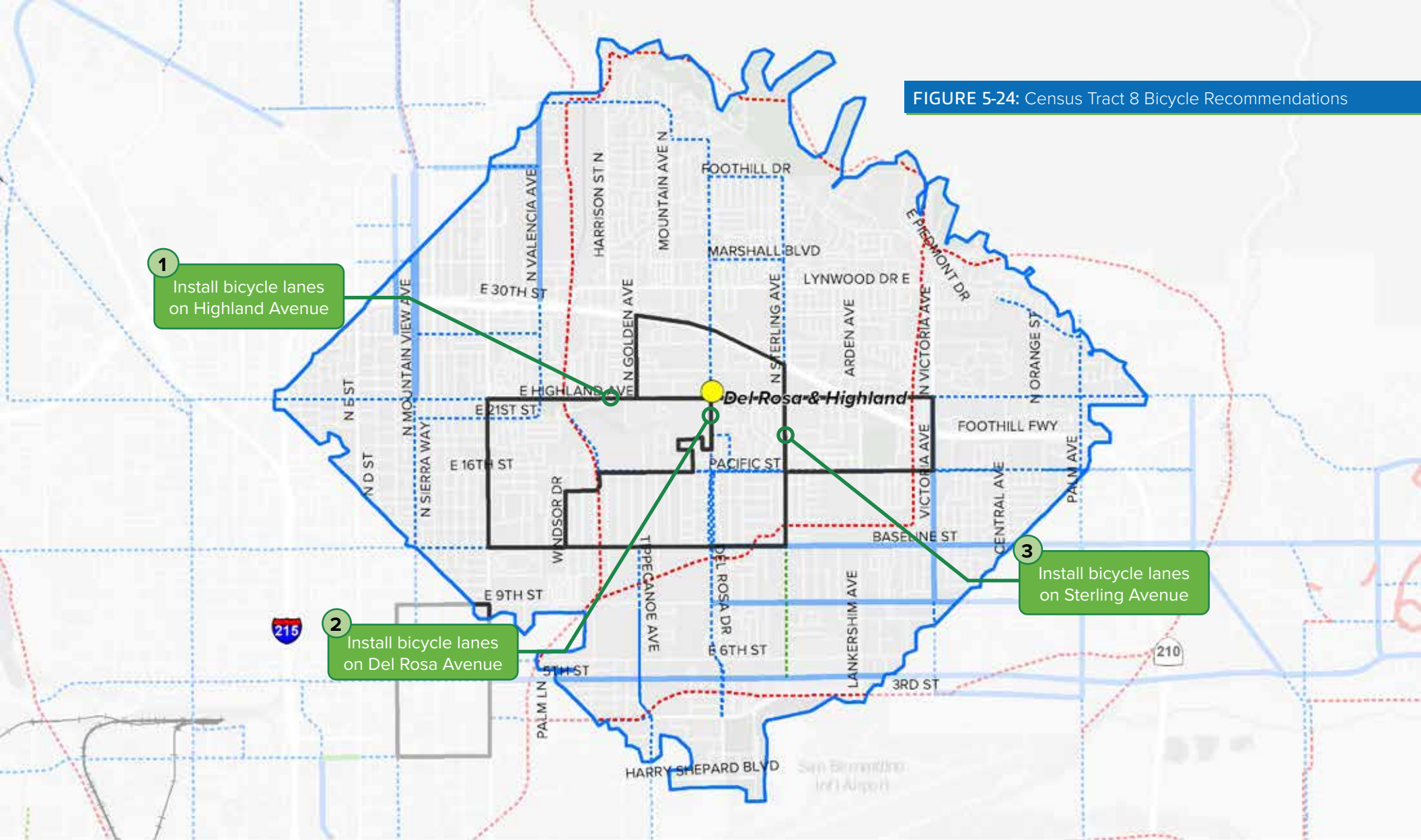
Where space is available, painted stripe buffers should be installed along all planned Class II bicycle lanes. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

The following list of bicycle projects are derived from the prioritized bicycle network in the San Bernardino Non-Motorized Transportation Plan as they relate to proximity to the Baseline and Waterman bus stops.

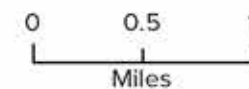
TABLE 5-25: Census Tract 8 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Highland Avenue	1. City of San Bernardino to pursue grants for additional corridor and feasibility study 2. Include bicycle lanes or stencil striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle lanes on Del Rosa Avenue	
3	Install bicycle lanes on Sterling Avenue	

FIGURE 5-24: Census Tract 8 Bicycle Recommendations



Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The bus stops on Del Rosa Avenue at East Highland Avenue supports a high volume of riders and should be developed as a Standard Bus Stop based on Omnitrans' Transit Design Guidelines criteria.

As shown in Figure 5-25, the northbound stop on Del Rosa Avenue is adjacent to a commercial shopping center with numerous stores and restaurants. This bus stop has one shelter and another bench without a shelter.

Bus stops at this location are on wide sidewalks that support the bus shelters in both the eastbound and westbound directions, on both the north and south sides of the street. Adjacent parking lot lighting provides additional illumination at night. As shown in street-view photo, the roadway's gutter pan is in need of repair at the Del Rosa northbound farside. With regular activity due to the adjacent retail stores and restaurants, explore opportunities for placemaking such as re-purposing or activating parking spaces, bulb outs, and other areas near the bus stop with art or a pocket park. Bus stop improvements to be made to all bus stops at the intersection.



Existing bus stop on Del Rosa Ave at Highland Ave (source: Google Maps)

TABLE 5-26: Census Tract 8 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	APPLICABLE STRATEGIES
1	Provide Standard Bus Stop amenities including the following: -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option. -Lights integrated into the bus shelter	1. Integrate bus stop improvements with adjacent vacant parcel with future redevelopment project 2. Include in the City of San Bernardino's CIP program 3. Coordination between Omnitrans and City of San Bernardino to pursue funding to install bus shelter
2	Crime such as assaults and robbery have occurred near this bus stop. Additional security may be warranted. Recommend adding surveillance cameras that feeds to San Bernardino Police Department at bus stops.	1. Explore a Transit Ambassador Program to provide additional security and transit user assistance 2. Explore the CAHOOTS, or similar program if homelessness becomes an issue.
3	Explore opportunities for placemaking near this stop due to high ridership, safety concerns and ongoing activity by the nearby restaurants and retail. Art, additional lighting, and a small pocket park are options to explore.	1. Pursue programs to install a demonstration project such as SCAG's <i>Go Human</i> campaign 2. If well received, incorporate the placemaking space into a future redevelopment project for the vacant parcel. 3. Pursue funding to create a design and implementation
4	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of San Bernardino to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of San Bernardino.

FIGURE 5-25: Census Tract 8 Bus Stop Recommendations



Aerial not set to scale

- Existing Bus Stop Location
- Omnitrans Bus Lines
- Planned Bikeways
- Class II: Bikelane
- Parcel Line



Census Tract 9

Highland Avenue at Eucalyptus Drive

Selection Results

The Highland Avenue at Eucalyptus Drive bus stops are in the City of San Bernardino adjacent to the City of Highland. The bus stops were selected due to the various land uses surrounding it, including commercial, vacant, and single- and multi-family residential. A high number of bicycle and pedestrian collisions have occurred near the bus stops. Several reported crimes near the bus stop have included vandalism and multiple assaults.

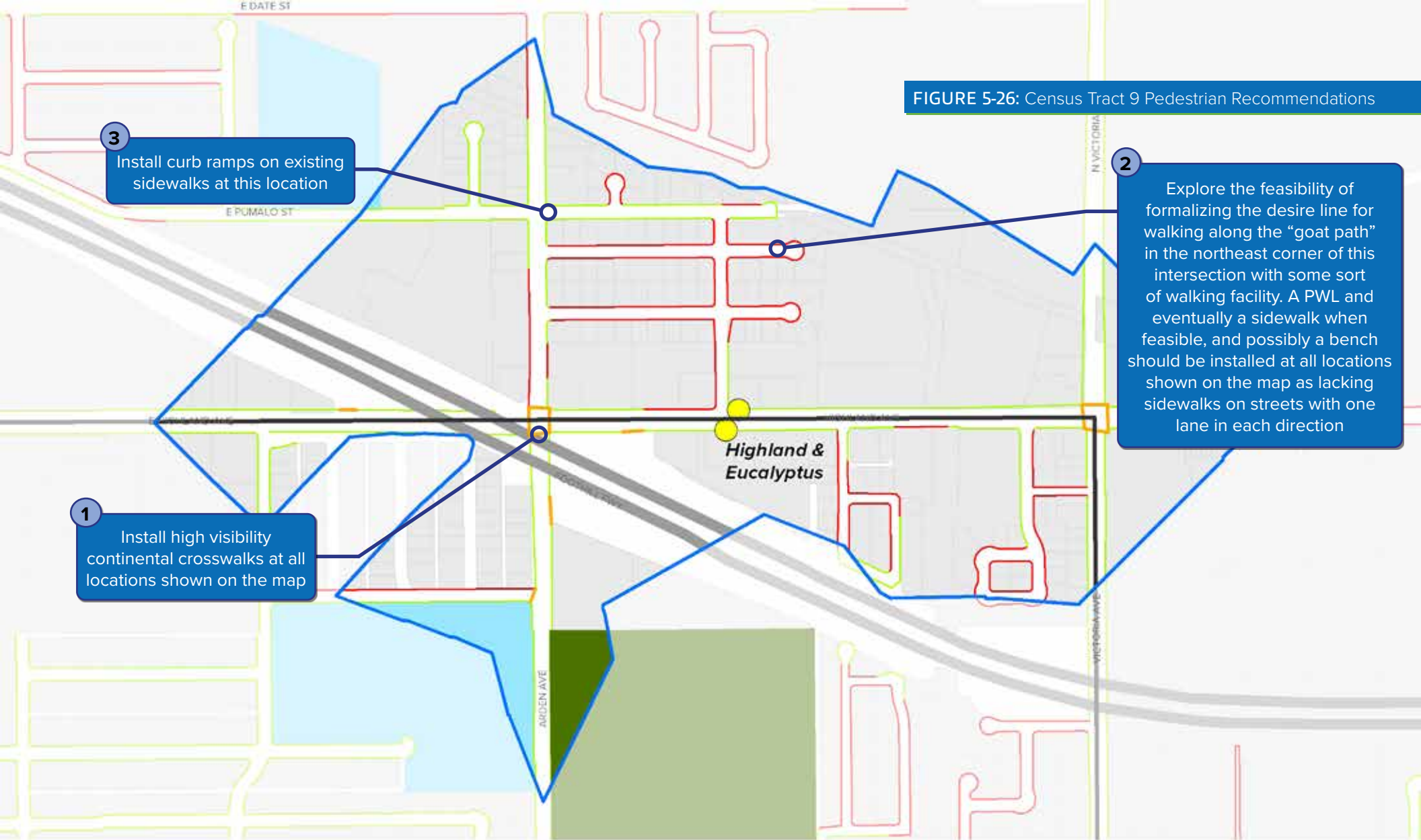
Pedestrian Improvements

Pedestrian recommendations near the Highland Avenue at Eucalyptus Drive bus stops are intended to provide safe crossing points and provide continuous sidewalks to bus stops. As shown in Figure 5-26, recommended pedestrian improvements include the installation of missing sidewalks to close gaps within half a mile from the bus stop. High-visibility continental crosswalks, with lines spacing to avoid wheel paths to help reduce re-painting frequency, are recommended at all major intersections. Curb ramps with truncated domes and improved lighting should be installed by the local jurisdiction to ensure safety and access for all users. Identified existing curb or missing curb ramps to be replaced with ramps that meet minimum ADA requirements. The City of San Bernadino should explore the feasibility of formalizing the desire line for walking along the “goat path” in the northeast corner of this intersection with some sort of walking facility.

TABLE 5-27: Census Tract 9 Pedestrian Improvements

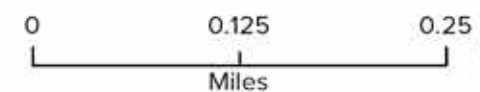
ITEM #	RECOMMENDED PEDESTRIAN IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install high visibility continental crosswalks at all locations shown on the map	1. City of San Bernardino to pursue grants for pedestrian improvements 2. Integrate crosswalk restriping with resurfacing or redevelopment projects 3. Integrate improvements into the City's CIP program
2	Explore the feasibility of formalizing the desire line for walking along the “goat path” in the northeast corner of this intersection with some sort of walking facility. A Protected Walking Lane (PWL), and eventually a sidewalk when feasible, and possibly a bench should be installed at all locations shown on the map as lacking sidewalks on streets with one lane in each direction	
3	Install curb ramps on existing sidewalks at this location	

FIGURE 5-26: Census Tract 9 Pedestrian Recommendations



- Bus Stop
- 1/2 Mile Walkshed
- Census Tract
- Schools
- Parks
- Freeway Barrier
- Install High Visibility Continental Crosswalk
- No Sidewalk
- Sidewalk

Data Sources: Omnitrans,
SCAG, SBCTA



Bicycle Improvements

Bicycle recommendations around the Highland Avenue at Eucalyptus Drive bus stops will provide a safer and less stressful bicycle travel option particularly along Highland Avenue. The San Bernardino Non-Motorized Transportation Plan provides a planned network of bicycle facilities throughout the City.

As shown in Figure 5-27, the bus stops are not currently served by an existing bicycle facility, however, the bus stops are planned to be supported with Class II bicycle lanes on Highland Avenue. Other nearby proposed bicycle facilities include a Class 1 multi-use path on the Sand Canyon Trail about a quarter mile to the east, and a Class II bicycle lane on Sterling Avenue slightly over half a mile west of the bus stops. Where space is available, painted stripe buffers should be installed along all planned Class II bicycle lanes. Signage should be considered to provide users destination information and bring attention to changes in roadway conditions.

The following list of bicycle projects are derived from the prioritized bicycle network in the San Bernardino Non-Motorized Transportation Plan as they relate to proximity to the Highland Avenue at Eucalyptus Drive bus stops.

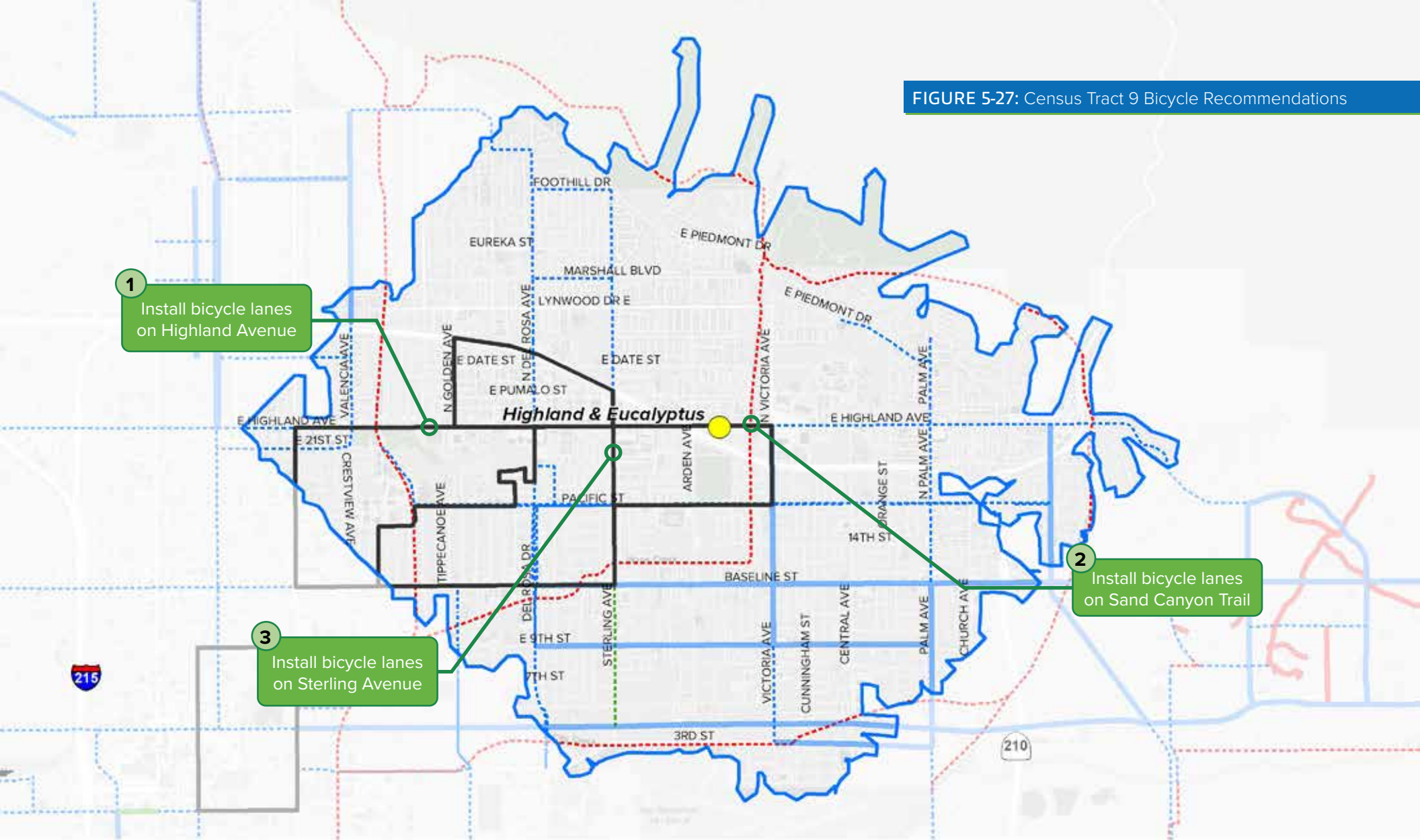
TABLE 5-28: Census Tract 9 Bicycle Improvements

ITEM #	RECOMMENDED BICYCLE IMPROVEMENTS	APPLICABLE STRATEGIES
1	Install bicycle lanes on Highland Avenue	1. City of San Bernardino to pursue grants for additional corridor and feasibility study 2. Include bicycle lane striping into road resurfacing projects or any local redevelopment 3. Include in the City's CIP program
2	Install bicycle lanes on Sand Canyon Trail	
3	Install bicycle lanes on Sterling Avenue	



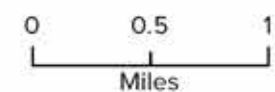
Existing bus stop on Highland Ave at Eucalyptus Dr (source: Google Maps)

FIGURE 5-27: Census Tract 9 Bicycle Recommendations



- | | | |
|--|---|---|
|  Bus Stops | Existing Bikeways | Planned Bikeways |
|  3 Mile Bikeshed |  Class I Multi-Use Path |  Class I Multi-Use Path |
|  Census Tract |  Class II Bicycle Lane |  Class II Bicycle Lane |
| |  Class III Bicycle Route |  Class III Bicycle Route |

Data Sources: Omnitrans,
SCAG, SBCTA



Bus Stop Improvements

The westbound bus stop on Highland Avenue at Eucalyptus Drive supports a moderate volume of riders and should be developed as a Standard Bus Stop per Omnitrans' Transit Design Guidelines.

The bus stop is in a mixed-use zone with retail stores directly adjacent to the stop with small pockets of residential units to the north and east. The stop is adjacent to restaurants that have a large turf frontage area as shown in Figure 5-28.

Due to the lack of space along the sidewalk to install a shelter, there is no bus shelter, bench and other amenities, and is only identifiable through signage. Coordination with the adjacent property owner would be required for the potential space acquisition required for a small concrete pad and shelter that could extend over the private property line. It may also be possible to install a bus shelter slightly east of the stop location in the turf area but still outside of the private property line.

Streetlights and adjacent parking lot lights provide lighting at night. A concrete bus pad would help with road maintenance and damage caused by frequent bus activity at the stop. Bus stop improvements to be made to all bus stops at the intersection.

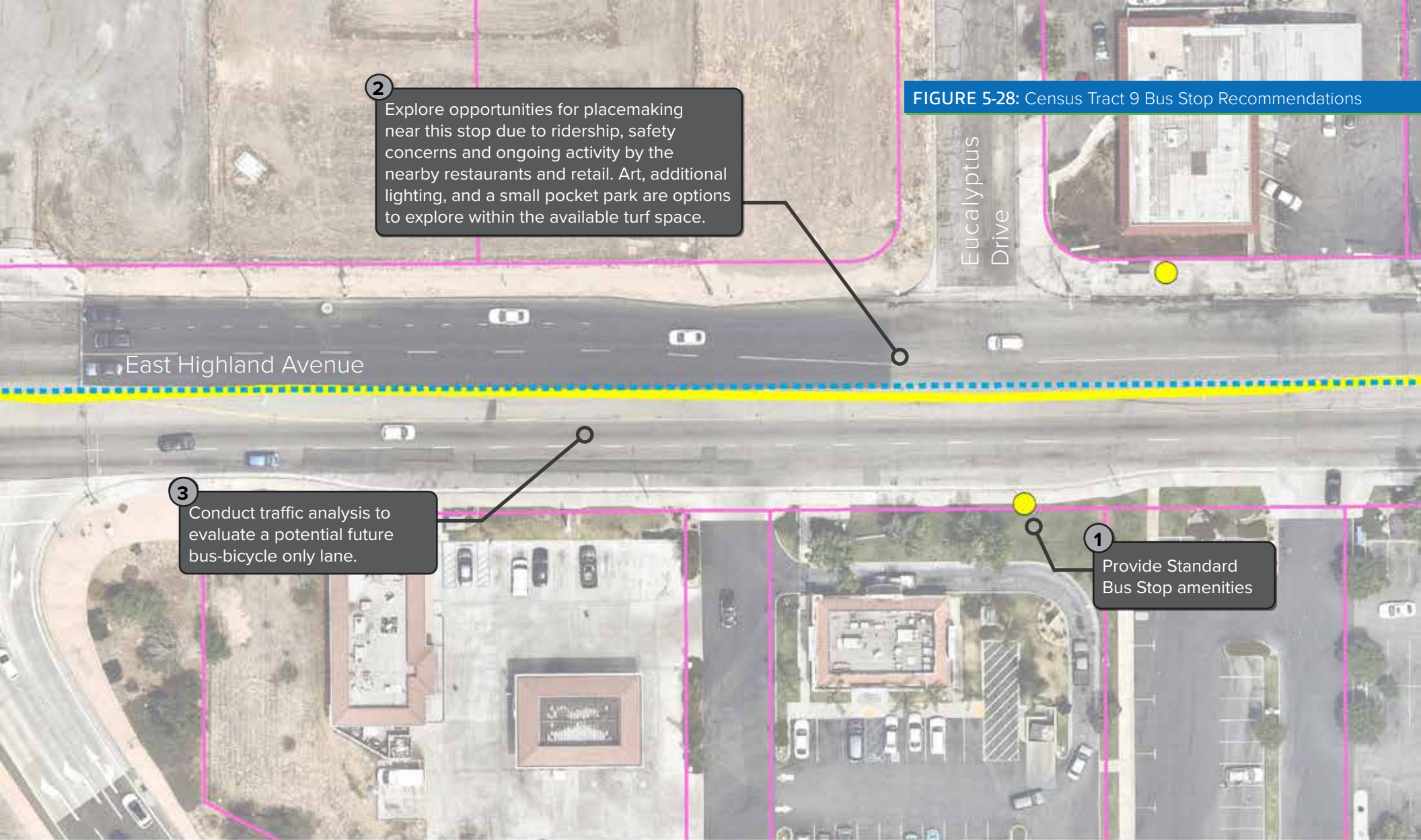


Existing bus stop on Highland Ave at Eucalyptus Dr (source: Google Maps)

TABLE 5-29: Census Tract 9 Bus Stop Improvements

ITEM #	RECOMMENDED BUS STOP IMPROVEMENTS	
1	Provide Standard Bus Stop amenities including the following: -Bus shelter -Seating -Trash receptacle -Posters for transit code of conduct -Poster for smartphone app with real-time bus arrival, schedules, and payment option -Lights integrated into the bus shelter	1. Coordination between Omnitrans and City of San Bernardino to pursue funding to install bus shelter
2	Explore opportunities for placemaking near this stop due to ridership, safety concerns and ongoing activity by the nearby restaurants and retail. Art, additional lighting, and a small pocket park are options to explore within the available turf space.	1. Pursue programs to install a demonstration project such as SCAG's <i>Go Human</i> campaign 2. If well received, incorporate the placemaking space into a future redevelopment project for the vacant parcel. 3. Pursue funding to create a design and implementation
3	Conduct traffic analysis to evaluate a potential future bus-bicycle only lane.	City of San Bernardino to coordinate with Omnitrans on feasibility of bus-bike only lanes. Implementation is the responsibility of San Bernardino.

FIGURE 5-28: Census Tract 9 Bus Stop Recommendations



Aerial not set to scale

- Existing Bus Stop Location
- Planned Bikeways
- Parcel Line
- Omnitrans Bus Lines
- Class II: Bikelane



5.6 Implementation Framework

Omnitrans serves numerous cities and unincorporated areas where transit routes routinely cross jurisdictional boundaries. Addressing personal safety is the primary goal of this plan, coordinating planning and implementing projects between local jurisdictions and Omnitrans is necessary for improving bus stop conditions and accessibility.

Several cities in the Omnitrans service area have completed or have ongoing active transportation planning efforts for improving bicycle and pedestrian safety as well as first and last mile planning. Coordination between these agencies, Omnitrans and regional agencies such as SBCTA is needed to create a seamless and consistent framework for reducing bicycle and pedestrian related collisions and encouraging transit use. While bus stop amenities are under the purview of Omnitrans, the surrounding infrastructure is the responsibility of the local jurisdiction. Efforts should continue to be made to improve the overall bicycle and pedestrian network that encourages people of all ages and abilities to access public transit.

From an infrastructure perspective, the Existing Conditions chapter analyzed collision data from the nine Census Tract study areas to find trends and high-collision rate corridors where infrastructure improvements can be made. Eighty-one percent of reported bicycle related collisions occurred on roadways that did not have designated bike lanes with the primary cause being bicyclists riding on the wrong side of the road. All the pedestrian related collisions occurred along high speed and high-volume roadways where there are long blocks with limited crossing locations. Limited safe crossing locations in conjunction with pedestrian desire lines to reach destinations can lead to unsafe crossings and more crashes. In general, pedestrian non-compliance increases with relative detour, as well as delay at intersections. Delays exceeding 40 seconds at signalized crosswalks and 20 seconds at unsignalized or yield-controlled crosswalks can cause risk-taking behavior and increase crashes. There are numerous strategies to assist people walking. Countdown signals and shorter cycle lengths can help to increase compliance, and may be paired with other strategies. Shorter cycle lengths also tend to increase motorist safety due to increasing

saturated flow and will help reduce the length of turn pockets. Local jurisdictions will need to lead these efforts from an infrastructure standpoint, especially as it relates to accessing bus stops and transit centers.

From a programmatic perspective, such as the CAHOOTS program or a Transit Ambassador program, is where coordination between Omnitrans, local public health advocates and agencies, CBOs, law enforcement and local jurisdictions can join forces to improve bus stop safety and encourage ridership.

Previous chapters highlighted the best practice programs, strategies, and infrastructure project development that can be emulated by local jurisdictions. The following implementation framework has been developed to provide the general phases to improve bus stop safety and active transportation improvements from initial assessment to implementation. Table 5-30 through 5-32 summarizes in more detail the overarching project or program, who's responsibility, and potential grant funding sources for a comprehensive overview. These phases have been categorized into the following sections:

- 1** Identify the Needs
- 2** Planning and Assessment
- 3** Program Implementation
- 4** Infrastructure Implementation

5.6.1 Identify the Needs

The recommendation is for Omnitrans to update the data in this plan in conjunction with data collection and analysis. The recommended time frame is every eight years. The first phase for local jurisdictions and Omnitrans is to better understand the safety needs by assessing the existing infrastructure and listening to transit users. Strategies to accomplish this is to continue with Bus Stop Amenity and Safety Survey Focus Groups, reviewing bicycle and pedestrian collisions around bus stops and coordinating between Omnitrans, local jurisdictions and

regional agencies such as SBCTA and law enforcement to share concerns. For example, prioritizing where bus stop improvement needs can be collected through the surveys and focus groups, then analyzing bicycle and pedestrian collisions around these high priority bus stops, and then implementing improvements to the stops themselves, including additional personal safety and security measures. When identifying needs, it is important to include equity considerations such as demographics and socio-economic levels as well as consider the needs of the most vulnerable populations, such as the blind and the disabled. These steps are in line with the process of this Plan and the development of the pilot projects.

TABLE 5-30: Implementation Chart - Identify the Needs

Category	Project/ Program Examples	Responsibility				Funding Source Examples (...but not limited to)
		Omnitrans	Local Jurisdictions	Regional Agency	Law Enforcement	
Identify the Needs	Annual review of pedestrian and bicycle collisions		✓			Local CIP, Highway Safety Improvement Program, SCAG Sustainable Communities
Identify the Needs	Bus Stop Amenity and Safety Surveys and Focus Groups	✓				Helping Obtain Prosperity for Everyone Program, California Air Resources Board Sustainable Transportation Equity Project (STEP): Planning grant program and Implementation grant program.
Identify the Needs	Continue to participate in the SBCTA Active Transportation Network Meetings	✓	✓	✓	✓	N/A
Identify the Needs	Develop a bus stop access assessment checklist to assist in assessing non-motorized access to bus stops for local jurisdictions to use.	✓	✓			SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Local CIP
Identify the Needs	Revamp bus stop assessment checklist to annually assess the condition of high use bus stops.	✓				SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Omnitrans

✓ Project/Program Lead

✓ Supporting Agency or Agencies

5.6.2 Planning and Assessment

The second step formalizes the program and infrastructure development to address the items found in the 'Identify the Needs' phase. The planning and assessment phase can entail various scales of effort from a single bus stop site design to a citywide ATP or a citywide collision analysis such as a Local Road Safety Plan. Citywide planning can vary from the macro, such as network analysis (potentially modifying the location of the network based on analysis) to the micro, such as design

ideas for bus stops. Depending on the need of the local jurisdiction a citywide ATP can assess collisions, first and last mile connectivity, Complete Streets planning and design, and providing a list of recommendations citywide. ATP's can also include programs for bicycle, pedestrian, and transit user safety, not just infrastructure. If a corridor has been identified as a priority, a stand-alone Complete Streets plan can also be pursued to design and implement improvements at a more detailed level. Grants can be pursued for these planning efforts through, but not limited to, the Caltrans Active Transportation Program and SCAG's Sustainable Communities Program.

TABLE 5-31: Implementation Chart - Planning and Assessment

Category	Project/ Program Examples	Responsibility				Funding Source Examples (...but not limited to)
		Omnitrans	Local Jurisdictions	Regional Agency	Law Enforcement	
Planning & Assessment	Develop a Local Road Safety Plan / Systemic Safety Analysis Reporting Program		✓			Local CIP, Highway Safety Improvement Program
Planning & Assessment	Develop an area specific Complete Streets Plan		✓			Caltrans ATP, SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Local CIP
Planning & Assessment	Develop a First and Last Mile Access Plan	✓	✓	✓		Caltrans ATP, SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Local CIP
Planning & Assessment	Develop or update an Active Transportation Plan		✓			Caltrans ATP, SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Local CIP
Planning & Assessment	Grant pursuits or CIP Integration	✓	✓			Varies due to the nature of the project and/or program
Planning & Assessment	Project and Program Design	✓	✓			Caltrans ATP, SCAG Sustainable Communities Program, Caltrans Sustainable Transportation Planning Program, Local CIP, California Air Resources Board Sustainable Transportation Equity Project (STEP): Planning grant program and Implementation grant program.

✓ Project/Program Lead

✓ Supporting Agency or Agencies

5.6.3 Program Implementation

Program and Infrastructure implementation (phases 3 and 4) can be pursued concurrently but can be implemented separately. Both program and infrastructure pursuits have the same goal, which is to improve safety for the transit user, but the approaches are different. Programs entail marketing, communications and community engagement activities and can be implemented much quicker than infrastructure projects since they don't require time intensive tasks such as surveying, engi-

neering, permits, etc. Depending on the program being developed, they can be integrated into an infrastructure project, especially if it's a new facility type in a city such as a traffic circle or a BRT line, that the community might not be familiar with. For example, in 2014 Omnitrans launched a safety campaign for their sbX Rapid Transit Line which was new to the region. Programs such as a Transit Ambassador program does require more coordination since this potentially involves unarmed officers patrolling bus stops and transit centers within local jurisdictions. There are also programs and grants available that assist with issues of homelessness, mobile crisis-intervention, and to educate passengers to be aware of their surroundings.

TABLE 5-32: Implementation Chart - Program Implementation

Category	Project/ Program Examples	Responsibility				Funding Source Examples (...but not limited to)
		Omnitrans	Local Jurisdictions	Regional Agency	Law Enforcement	
Program Implementation	Develop annual bus and transit use safety campaigns for transit dependent populations.	✓	✓			SCAG <i>Go Human</i> , Helping Obtain Prosperity for Everyone Program, Mobility for All Pilot Program Grants, California Air Resources Board Clean Mobility Options Voucher Program, California Air Resources Board Sustainable Transportation Equity Project (STEP): Planning grant program and Implementation grant program.
Program Implementation	Develop a Transit Ambassador Program (Omnitrans partner with local jurisdictions to start program)	✓			✓	Integrated into law enforcement program budget, Human Resources & Training - 5314 (b), FTA Innovations in Transit Public Safety.
Program Implementation	Maintain visible level of systemwide security presence and surveillance coverage.		✓		✓	Integrated into law enforcement program budget, Human Resources & Training - 5314 (b), FTA Innovations in Transit Public Safety.

✓ Project/Program Lead

✓ Supporting Agency or Agencies

5.6.4 Infrastructure Implementation

Phase 4 focuses on infrastructure improvements which are primarily the responsibility of the local jurisdiction (typically a city or county). In some cases, the responsibility may fall to an agency such as Caltrans who have jurisdiction over some large arterials that traverse Omnitrans' service area as well as right-of-way on streets that travel above and below freeways. Infrastructure improvements are temporary or permanent solutions that can improve bicycle and pedestrian access and there are many grant opportunities available for implementation. Often permanent infrastructure improvements are made, but they are considered temporary, such as for pilot projects and tactical urbanism projects that can last weeks, months, or even a couple years. They can also be coordinated with placemaking opportunities to help activate the space around bus stops and transit centers, encouraging more people to interact and use the space, and improve the sense of safety in the area.

These improvements are the most sought after since they provide built solutions that can have an immediate impact on safety such as installing bike lanes, sidewalks and improving roadway crossings. They also entail other benefits such as traffic calming, wayfinding, and bus stop improvements. Grants that support these projects include the Caltrans' Active Transportation Program, Proposition 68 Urban Greening Grants and Highway Safety Improvement Planning grants. Depending on the project type, elements of the project such as stormwater runoff and capture, can be combined into one grant application. To stand out in these competitive grants, multiple project benefits that improve bicycle and pedestrian safety, provide environmental benefits, are near schools, and are in disadvantaged communities are encouraged.

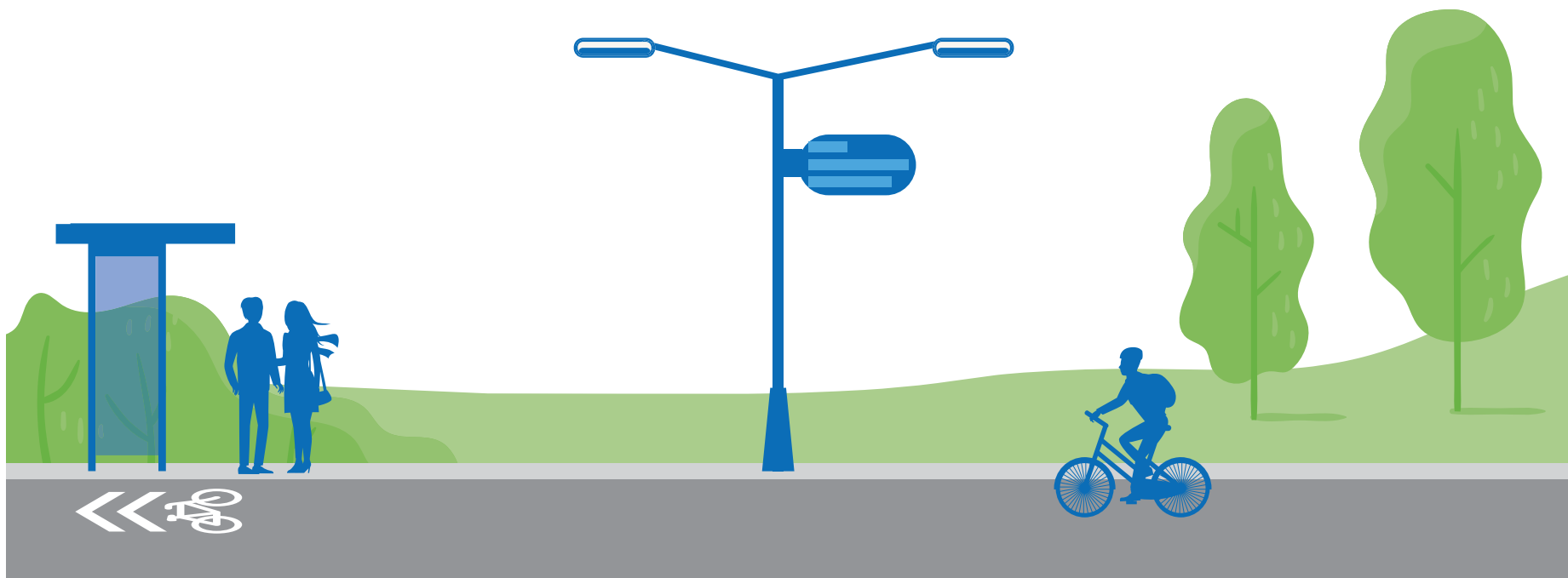


TABLE 5-33: Implementation Chart - Infrastructure Implementation

		Responsibility				Funding Source Examples (...but not limited to)
Category	Project/ Program Examples	Omnitrans	Local Jurisdictions	Regional Agency	Law Enforcement	
Infrastructure Implementation	Bus stop and transit center improvements (ex: lighting, surveillance cameras, emergency telephones, etc.)	✓	✓		✓	Integration with CIP Projects, Caltrans ATP, Prop 68 Urban Greening, Highway Safety Improvement Program (HSIP), Smart Growth, CTC Congested Corridors Program, Metropolitan & Statewide Planning and NonMetropolitan Transportation Planning - 5303, 5304, 5305, FHWA Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant Program, FHWA Transportation and Congestion Management Technologies Deployment Initiative, FTA Integrated Mobility Innovation (IMI) Demonstrations Program.
Infrastructure Implementation	Access improvements (sidewalks, midblock crossings, crosswalks, curb ramps, bike facilities, etc.)		✓	✓		Integration with CIP Projects, Caltrans ATP, Prop 68 Urban Greening, Highway Safety Improvement Program (HSIP), Smart Growth, CTC Congested Corridors Program, Metropolitan & Statewide Planning and NonMetropolitan Transportation Planning - 5303, 5304, 5305, FHWA Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant Program, FHWA Transportation and Congestion Management Technologies Deployment Initiative
Infrastructure Implementation	Short-Term/Quick-Build placemaking improvements	✓	✓			SCAG <i>Go Human</i> , Helping Obtain Prosperity for Everyone Program, Mobility for All Pilot Program Grants
Infrastructure Implementation	Long-Term Placemaking improvements (street-scape, plazas, park space, activated areas, etc.)	✓	✓	✓		Integration with CIP Projects, Caltrans ATP, Prop 68 Urban Greening, Smart Growth

✓ Project/Program Lead

✓ Supporting Agency or Agencies

Endnotes

- ¹ Crime Lab New York. Can Street Lighting Reduce Crime? <https://urbanlabs.uchicago.edu/projects/crime-lights-study>
- ² Thomas D. Stucky, Sarah L. Smith. Exploring the Conditional Effects of Bus Stops on Crime. Indiana University–Purdue University Indianapolis. 2013

06

Funding



6.1 Funding Sources

Federal, state, and local government agencies invest billions of dollars every year in the nation's transportation system. Only a fraction of that funding is used to develop policies, plans, and projects to improve conditions for bicyclists and people who walk. Even though appropriate funds are available, they are limited and often hard to find. Desirable projects sometimes go unfunded because communities may be unaware of a fund's existence or may apply for the wrong type of grant. In addition, there is increasing competition between municipalities for the limited available funds.

Whenever federal funds are used for bicycle and pedestrian projects and programs, a certain level of state and/or local matching funding is generally required. State funds are often available to local governments on similar terms. Almost every implemented active transportation or Complete Streets program and infrastructure in the United States has had more than one funding source and it often takes a good deal of coordination to pull the various sources together.

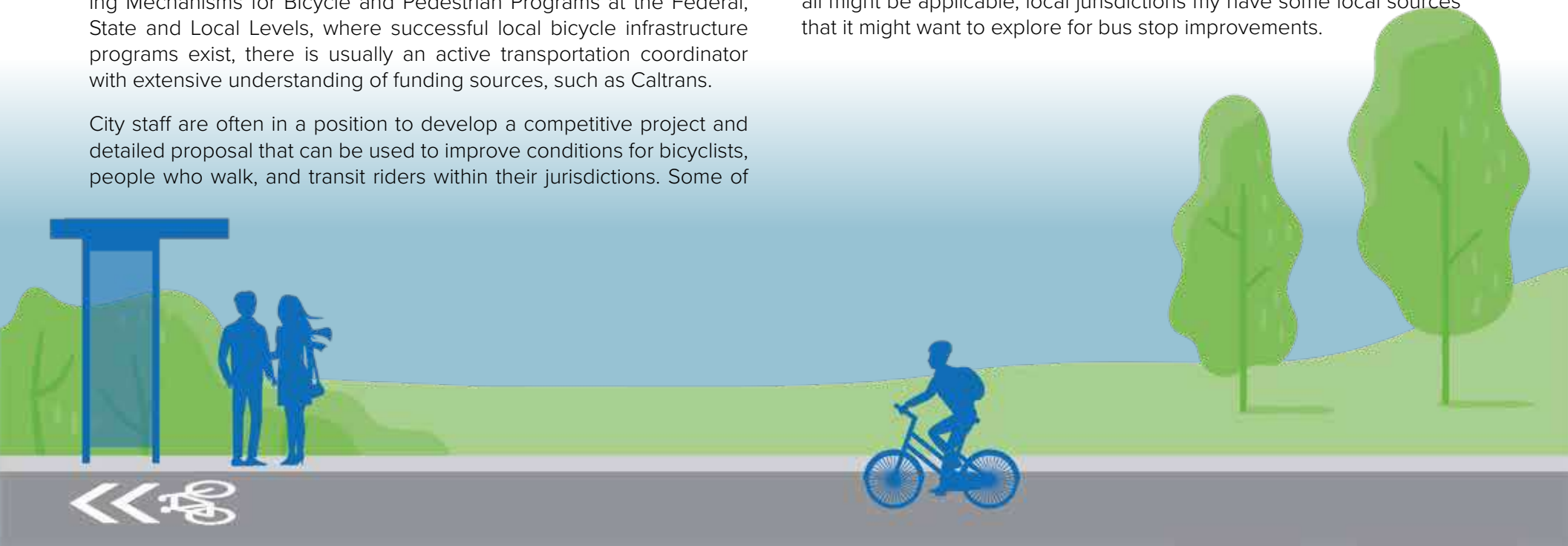
According to the publication by the FHWA, *An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels*, where successful local bicycle infrastructure programs exist, there is usually an active transportation coordinator with extensive understanding of funding sources, such as Caltrans.

City staff are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for bicyclists, people who walk, and transit riders within their jurisdictions. Some of

the following information on federal and state funding sources was derived from the previously mentioned FHWA publication.

Local jurisdictions should continue to pursue state level grants through programs such as Caltrans' ATP and Sustainable Transportation Planning grants, the Strategic Growth Council's Sustainable Community Planning Grants, Urban Greening Grants and through the Highway Safety Improvement Program (HSIP). Other resources like the Federal Transit Administration (FTA) provide grants to local public transit systems across the nation. It will be important to coordinate efforts between Omnitrans and local jurisdictions on projects and programs that affect and benefit both agencies. Coordination and joint efforts also strengthen an application due to combined benefits for multiple jurisdictions.

Tables 6-1 through 6-3 identify potential federal, state, and local funding opportunities that may be used from design to maintenance phases of projects. These funding sources may include combined infrastructure and program projects that will strengthen an application, such as Caltrans' ATP grants. These tables are meant to provide an overview of available grants at the state, federal, local and private levels. While not all might be applicable, local jurisdictions may have some local sources that it might want to explore for bus stop improvements.



Funding Origin



Federal

22



State

35



Local

45



TABLE 6-1: Federal Funding Sources:

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
				INF	NI	PLAN				
Enhanced Mobility of Seniors and Individuals with Disabilities	FTA	The goal of this program is to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options.	Unavailable	X	X		<ul style="list-style-type: none"> • Mobility management programs • Building an accessible path to a bus stop • Improving signage, or way-finding technology 	https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310	F C	CC OM
Safe Routes to Parks, Activating Communities Program	National Center for Safe Routes to School and Caltrans	The program framework provides a structured process to increase safe and equitable access to parks and green spaces. The framework includes four main areas of activity: 1) Assessment, 2) Planning, 3) Implementation, and 4) Sustainability, with each area heavily infused with proactive community engagement.	Unavailable	X		X	<ul style="list-style-type: none"> • Safe Routes to Parks action plans • Implementation activities such as acquiring rights-of-way, maintenance, and street design 	https://www.saferoutespartnership.org/healthy-communities/saferoutestoparks/2019	C	501 c3

Notes:

1- Column Heading “C / F” = Grant Type: C=Competitive or F=Formula

2 Column Heading “CC / OM” = Eligibility for the Grant: CC=City and County or OM=Omnitrans

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
				INF.	NI	PLAN				
Pilot Program for Transit-Oriented Development Planning - Section 20005(b)	FTA	Provides funding to local communities to integrate land use and transportation planning with a transit capital investment that will seek funding through the Capital Investment Grant (CIG) Program.	Annual	X			• TOD projects and plans	https://www.transit.dot.gov/notices-funding/pilot-program-transit-oriented-development-planning-fy2021-notice-funding	C	CC
Public Transportation COVID-19 Research Demonstration Grant Program		This program will fund grants through public transit agencies to develop, deploy, and demonstrate innovative solutions that address COVID-19 related concerns to increase operating efficiencies and improve mobility.	Unavailable			X	• Plans and measures for innovative solutions that improve the operational efficiency of transit agencies and enhance the mobility of transit users affected by the COVID-19 public health emergency	https://www.transit.dot.gov/grant-programs/public-transportation-covid-19-research-demonstration-grant-program		
Public Transportation Innovation - 5312		Provides funding to develop innovative products and services assisting transit agencies in better meeting the needs of their customers.	Unavailable	X			• Research, development, demonstration and deployment projects	https://www.transit.dot.gov/funding/grants/public-transportation-innovation-5312	C	CC OM
Safety Research and Demonstration Program		The Safety Research and Demonstration (SRD) Program is part of a larger safety research effort at the U.S. Department of Transportation that provides technical and financial support for transit agencies to pursue innovative approaches to eliminate or mitigate safety hazards. The SRD program focuses on demonstration of technologies and safer designs.	Annual			X	• Operational safety programs	https://www.transit.dot.gov/research-innovation/safety-research-and-demonstration-program	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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State of Good Repair (SGR) Grants - 5337	FTA	Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans.	Four Fiscal Years			X	• Fixed guideway and high intensity motorbus systems	https://www.transit.dot.gov/funding/grants/state-good-repair-grants-5337	F	CC OM
Urbanized Area Formula Grants - 5307		Provides funding to public transit systems in Urbanized Areas (UZA) for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.	Annual			X	• Planning, engineering, design and evaluation of transit projects and other technical transportation-related studies	https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307	F	CC OM
Accelerating Innovative Mobility (AIM)		AIM will highlight FTA's commitment to support and advance innovation in the transit industry.	Unavailable			X	• Research and technology programs and plans	https://www.transit.dot.gov/aim	C	CC OM
Access and Mobility Partnership Grants		This program provides competitive funding to support innovative capital projects for the transportation disadvantaged that will improve the coordination of transportation services and non-emergency medical transportation services.	Unavailable			X	• Coordination of non-emergency medical transportation services program	https://www.transit.dot.gov/funding/grants/grant-programs/access-and-mobility-partnership-grants	C	CC OM
Better Utilizing Investments to Leverage Development (BUILD) Transportation Grants Program		US DOT's BUILD Transportation Discretionary Grants program funds investments in transportation infrastructure, including transit.	Annual	X			• Construction projects	https://www.transit.dot.gov/funding/grants/better-utilizing-investments-leverage-development-build-transportation-grants-program	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Capital Investment Grants - 5309	FTA	Provides funding through a multi-year competitive process for transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking CIG funding to complete a series of steps over several years to be eligible for funding.	Annual	X			<ul style="list-style-type: none"> Design and construction of new fixed-guideways or extensions to fixed guideways Omnitrans and SBCTA processing grant for West Valley Connector BRT safety, security, amenities upgrade. 	https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/5309_Capital_Investment_Grant_Fact_Sheet.pdf	C	CC OM
Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310		Formula funding to states for the purpose of assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities.	Annual			X	<ul style="list-style-type: none"> Planning program to meet the special transportation needs of seniors and individuals with disabilities 	https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310	F	CC OM
Flexible Funding Programs - Congestion Mitigation and Air Quality Program - 23 USC 149		CMAQ provides funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate matter. States that have no nonattainment or maintenance areas still receive a minimum apportionment of CMAQ funding for either air quality projects or other elements of flexible spending. Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit.	Annual		X	X	<ul style="list-style-type: none"> Transportation project or program that is likely to contribute to the attainment or maintenance of a national ambient air quality standard 	https://www.transit.dot.gov/funding/grants/flexible-funding-programs-national-highway-performance-program-23-usc-119	F	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Flexible Funding Programs - National Highway Performance Program - 23 USC 119	FTA	Provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of Federal funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.	Annual	X			• Construction projects of highways, bridges, ferry boats, and facilities	https://www.transit.dot.gov/funding/grants/flexible-funding-programs-national-highway-performance-program-23-usc-119	F	CC OM
Flexible Funding Programs - Surface Transportation Block Grant Program - 23 USC 133		Provides funding that may be used by states and localities for a wide range of projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle and pedestrian projects.	Annual					https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm	F	CC OM
Grants for Buses and Bus Facilities Formula Program - 5339(a)		Provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. In addition to the formula allocation, this program includes two discretionary components: The Bus and Bus Facilities Discretionary Program and the Low or No Emissions Bus Discretionary Program.	Annual	X			• Projects to replace, rehabilitate and purchase buses, vans, and related equipment, and to construct bus-related facilities	https://www.transit.dot.gov/funding/grants/busprogram	F	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Areas of Persistent Poverty Program	FTA	In keeping with the U.S. Department of Transportation's focus on addressing the deteriorating conditions and disproportionately high fatality rates on our rural transportation infrastructure, FTA's Areas of Persistent Poverty Program supports projects that will address the transportation challenges faced by areas of persistent poverty.	June			X	• Improve transit service and facilities in areas of persistent poverty	https://www.transit.dot.gov/HOPE		
Integrated Mobility Innovation (IMI)		FTA's IMI Program funds projects that demonstrate innovative and effective practices, partnerships and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety and improve the traveler experience.	Annual			X	• Trip planning services, planning and developing business models, obtaining equipment and service, acquiring or developing software and hardware interfaces to implement the project, operating the demonstration, and providing data to support performance measurement and evaluation.	https://www.transit.dot.gov/IMI	C	CC OM
Mobility for All Pilot Program Grants		This funding opportunity seeks to improve mobility options through employing innovative coordination of transportation strategies and building partnerships to enhance mobility and access to vital community services for older adults, individuals with disabilities, and people of low income.	January			X	• Transportation projects with a focus on employing mobility management strategies, vehicle purchase, IT purchase, leasing equipment or a facility for use in public transportation etc	https://www.transit.dot.gov/funding/grants/grant-programs/mobility-all-pilot-program-grants	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Mobility on Demand (MOD) Sandbox Demonstration Program - 5312	FTA	Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.	Annual			X	<ul style="list-style-type: none"> • Private for-profit and not-for-profit organizations, including shared use mobility providers, and technology system suppliers • Operators of transportation services, such as employee shuttle services, airport connector services, university transportation systems, or parking and tolling authorities • State or local government entities • Other organizations that may contribute to the success of the project team including consultants, research consortia or not-for-profit industry organizations, and institutions of higher education 	https://www.transit.dot.gov/funding/grants/grant-programs/mobility-all-pilot-program-grants	C	CC / OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Our Town	National Endowment for the Arts	Our Town is the National Endowment for the Arts' creative placemaking grants program. These grants support projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes.	Aug-21		X		<ul style="list-style-type: none"> • Arts Engagement (Artist residency, art festivals, community co-creation of art, performances, public art) • Cultural planning (district, asset, and art) • Design (Artist/designer-facilitated community planning, Design of artist space and cultural facilities, public space design) • Artist and creative industry support (Creative business and professional artist development) 	https://www.arts.gov/grants/our-town	C	CC OM

TABLE 6-2: State Funding Sources:

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Clean Mobility Options	Air Resources Board	The Program makes \$20 million available for zero-emissions shared mobility projects (such as car sharing, bike sharing, and on-demand sharing) in disadvantaged and low-income communities, including some tribal and affordable housing communities (California Climate Investments)	July	X			<ul style="list-style-type: none"> • Bikeshare programs • “Quick build” right-of-way safety improvements for bicycles and scooters • Omnitrans recently awarded \$1M CMO grant. 	https://www.cleanmobilityoptions.org/	F	CC OM
Sustainable Transportation Equity Project (STEP)	Air Resources Board	<p>The Program makes \$2 million available for planning and capacity building grants. Funding is intended to help low-income and disadvantaged communities identify residents’ transportation needs and prepare to implement clean transportation and land use projects.</p> <p>The Program makes \$20 million available for one to three implementation block grants to fund clean transportation and land use projects in disadvantaged communities. Funded projects will work together to increase community residents’ access to key destinations so they can get where they need to go without the use</p>	August	X	X	X	<ul style="list-style-type: none"> • New bike routes (Class I, Class II, or Class IV) and supporting infrastructure • Publicly-accessible bike parking, storage, and repair infrastructure (e.g., bike racks, bike lockers, bike repair kiosks) • New walkways that improve mobility/access/safety of pedestrians (nonmotorized users) • Street crossing enhancements, including accessible pedestrian signals • Omnitrans recently awarded STEP grant. 	https://ww3.arb.ca.gov/msprog/ct/opportunitiesgov/step.htm	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Local Streets and Roads (LSR) Program	California Transportation Commission	The purpose of the program is to provide approximately \$1.5 billion per year to cities and counties for basic road maintenance, rehabilitation, and critical safety projects on the local streets and roads system.	Unavailable	X			<ul style="list-style-type: none"> • Implement enhanced crosswalk signing and striping • Create safety separation between motorists, bicyclists and pedestrians • Design and construction of school access and safety improvements to six schools (SRTS) 	https://catc.ca.gov/programs/sb1/local-streets-roads-program	F	CC
Solutions for Congested Corridors (SCCP)	California Transportation Commission	The purpose of the program is to provide funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion throughout the state. This statewide, competitive program makes \$250 million available annually for projects that implement specific transportation performance improvements and are part of a comprehensive corridor plan by providing more transportation choices while preserving the character of local communities and creating opportunities for neighborhood enhancement.	Every Two Years	X			<ul style="list-style-type: none"> • Construct Class I and Class II bikeways • Pedestrian improvements and plaza at a transit station • Intersection improvements 	https://catc.ca.gov/programs/sb1/solutions-for-congested-corridors-program	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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State Transportation Improvement Program (STIP)	California Transportation Commission/ California Department of Transportation (Caltrans)	The STIP is the biennial five-year plan adopted by the Commission for future allocations of certain state transportation funds for state highway improvements, intercity rail, and regional highway and transit improvements. Local agencies should work through their Regional Transportation Planning Agency (RTPA), County Transportation Commission, or Metropolitan Planning Organization (MPO), as appropriate, to nominate projects for inclusion in the STIP.	Every Two Years	X			<ul style="list-style-type: none"> • Bike/ped Overcrossing and Access Improvements and bicycle and pedestrian bridge • Class I, II, III, & IV bike lanes • Multi-Use paths • Complete Streets improvements 	https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/state-transportation-improvement-program	C	CC OM
Urban Forestry Program	California Department of Forestry and Fire Protection (CAL FIRE)	This program funds Urban Greening projects that result in the conversion of an existing built environment into green space that uses natural and green infrastructure approaches to create sustainable and vibrant communities.	Unavailable	X		X	Urban Forest Expansion and Improvement <ul style="list-style-type: none"> • Urban Forest Management Activities • Urban Wood and Biomass Utilization 	https://www.fire.ca.gov/grants/urban-and-community-forestry-grant-programs/	C	CC OM
Infill Infrastructure Grant Program for Small Jurisdictions	California Department of Housing and Community Development	The purpose of the program is to provide grants for Capital Improvement Projects in support of Qualifying Infill Projects or Qualifying Infill Areas. Funding for this NOFA and program requirements are provided under Assembly Bill 101 (Stats. 2019, ch. 159, § 20) and Part 12.5 (commencing with section 53559) of Division 31 of the Health and Safety Code.	Varies	X				https://www.hcd.ca.gov/grants-funding/active-funding/iigp.shtml	C	CC

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Land and Water Conservation Fund (LCWF)	California Department of Parks and Recreation	The LWCF is a program to conserve irreplaceable lands and improve outdoor recreation opportunities. The program can be used for local efforts to support state and local parks and playgrounds and to provide the tools that communities need to meet their diverse conservation and recreation needs.	Annual	X	X		<ul style="list-style-type: none"> • Recreational areas, trails • Support for community parks, trails recreational access sites and open spaces 	https://www.lwcfcoalition.com/	F	CC
Regional Park Program (Prop 68)		This program provide competitive grants to create, expand, or improve regional parks and regional park facilities. This is a Proposition 68 (2018 Bond Act) program.	Unavailable	X	X		<ul style="list-style-type: none"> • Acquisition for public access and use • Multiuse trails 	https://www.parks.ca.gov/?page_id=29940	C	CC
Statewide Park Program		The goal of this program is to create new parks and new recreation opportunities in underserved communities across California.	December	X	X		<ul style="list-style-type: none"> • Acquisition of land • Jogging and walking loop, par course, running track • Non-motorized trail, pedestrian/ bicycle bridge, greenbelt/linear 	https://www.parks.ca.gov/?page_id=29939	C	CC
Recreational Trails Program (RTP) (Prop 68)		The RTP provides funds to the States to develop and maintain Recreational Trails and trail-related facilities for both non-motorized and motorized Recreational Trail uses.	Annually	X	X		<ul style="list-style-type: none"> • Acquisition of land • Rehabilitation of trails, Trailside and Trailhead Facilities • Construction of new trails • Maintenance of existing trails 	https://www.parks.ca.gov/?page_id=24324	C	CC

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Habitat Conservation Fund (Prop 117)	California Department of Parks and Recreation	The Habitat Conservation Fund allocates approximately \$2 million each year to cities, counties, and districts for nature interpretation programs to bring urban residents into park and wildlife areas, protection of various plant and animal species, and acquisition and development of wildlife corridors and trails.	Unavailable	X	X		<ul style="list-style-type: none"> Acquisition of land Trail Development 	https://www.parks.ca.gov/?page_id=21361	C	CC

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Active Transportation Planning Grants (ATP)	California Department of Transportation (Caltrans)	Funding for Sidewalks, bike lanes, trails, Safe Routes to School programs, and pedestrian and bicycle plans. The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SRTS), into a single program.	July-September	X	X	X	<ul style="list-style-type: none"> • Capital Improvements • Bicycle, pedestrian Plan • Safe Routes to School Plan • Active Transportation Plan • Education, Encouragement, and Enforcement Activities • Quick-Build Project 	https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/active-transportation-program	C	CC OM
Transportation Development Act (TDA) Article 3 (SB 821)		The goal of this act is to improve existing public transportation services and encourage regional transportation coordination. TDA established two funding sources; the Local Transportation Fund (LTF), and the State Transit Assistance (STA) fund. Providing certain conditions are met, counties with a population under 500,000 (according to the 1970 federal census) may also use the LTF for local streets and roads, construction and maintenance. The STA funding can only be used for transportation planning and mass transportation purposes.	Annually <ul style="list-style-type: none"> • Article 3 Bicycle and Pedestrian projects and Article 3 Transit Stop Access Improvement Program. 	X		X	<ul style="list-style-type: none"> • Omnitrans regularly partners with its member jurisdictions to apply for the Transit Stop Access Improvement Program for ADA bus stop improvements and amenities 	https://dot.ca.gov/programs/rail-and-mass-transportation/transportation-development-act	F	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Sustainable Transportation Planning Grants	California Department of Transportation (Caltrans)	The program includes \$29.5 million to encourage local and regional planning that furthers state goals, including, but not limited to, the goals and best practices cited in the Regional Transportation Plan Guidelines adopted by the California Transportation Commission.	Annually			X	<ul style="list-style-type: none"> • Safe Routes to School Plan • Active Transportation Plan • Bike/ped Trail/Path Feasibility Study • Complete Streets Plan • Sustainable Communities Plan • Transit-Oriented Development Plan • First/Last Mile Connectivity Plan 	https://dot.ca.gov/programs/transportation-planning/regional-planning/sustainable-transportation-planning-grants	C	CC OM
Urban Greening	California Natural Resources Agency	<p>The Program supports the development of green infrastructure projects that reduce GHG emissions and provide multiple benefits. Must include at least one of the following:</p> <ul style="list-style-type: none"> • Sequester and store carbon by planting trees • Reduce building energy use by strategically planting trees to shade buildings • Reduce commute vehicle miles traveled by constructing bicycle paths, bicycle lanes or pedestrian facilities that provide safe routes for travel between residences, workplaces, commercial centers, and schools. <p>(California Climate Investments)</p>	Unavailable	X			<ul style="list-style-type: none"> • Non-motorized urban trails that provide safe routes for both recreation and travel between residences, workplaces, commercial centers, and schools • Projects that expand or improve the usability of existing active transportation routes (e.g., walking or bicycle paths) or create new active transportation routes that are publicly accessible by walking • Complete Green Streets 	https://resources.ca.gov/grants/urban-greening	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Environmental Enhancement and Mitigation (EEMP)	California Natural Resources Agency and Caltrans	The EEMP is an annual program established by legislation in 1989 and amended on September 26, 2013. It offers grants to local, state and federal governmental agencies and to nonprofit organizations for projects to mitigate the environmental impacts caused by new or modified public transportation facilities.	Unavailable	X				https://resources.ca.gov/grants/environmental-enhancement-and-mitigation-eem/	C	CC OM
Local Partnership Program - Competitive and Formulaic	California Transportation Commission	The primary objective of this program is to provide funding to counties, cities, districts, and regional transportation agencies in which voters have approved fees or taxes dedicated solely to transportation improvements or that have imposed fees, including uniform developer fees, dedicated solely to transportation improvements. Funding includes \$200M/year to improve aging Infrastructure, Road Conditions, Active Transportation, Transit and rail, Health and Safety Benefits	March - June	X	X	X	<ul style="list-style-type: none"> • Close sidewalk gap, install class II bike lanes and cycle track, curb extensions, pedestrian enhancements, improvements to lighting and signage • Construct 4 single-lane and 1 multi-lane roundabouts, and improvements to street, pedestrian and bicycle facilities • Expressway pedestrian overcrossing 	https://catc.ca.gov/programs/sb1/local-partnership-program	F & C	CC

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Transit and Intercity Rail Capital Program (TIRCP)	CalSTA and Caltrans Division of Rail and Mass Transportation	The TIRCP provides grants from the Greenhouse Gas Reduction Fund to fund transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems, to significantly reduce emissions of greenhouse gases, vehicle miles traveled, and congestion.	January	X	X	X	<ul style="list-style-type: none"> • Pedestrian and bike trail • First/last mile connections via bike lanes and separated paths • Bike share programs • Bike parking facilities • Plans 	https://calsta.ca.gov/subject-areas/transit-intercity-rail-capital-prog https://dot.ca.gov/programs/rail-and-mass-transportation/transit-and-intercity-rail-capital-program	F & C	CC OM
State Highway Operations and Protection Program (SHOPP)	Caltrans Office of SHOPP Management	The Office of SHOPP Management is responsible for planning, developing, managing and reporting the four year SHOPP portfolio of projects. The Program is the State Highway System's "fix it first" program that funds repairs and preservation, emergency repairs, safety improvements, and some highway operational improvements on the State Highway System.	Unavailable	X			<ul style="list-style-type: none"> • Upgrade sidewalks to ADA compliance • Reconstruct damaged pavement • Add bike lanes to updated corridors • Upgrade pedestrian push buttons, refresh striping, and improve pedestrian and bicycle access 	https://dot.ca.gov/programs/transportation-programming/state-highway-operation-protection-program-shopp-minor-program-shopp		
Office of Traffic Safety Grant Program	Office of Traffic Safety	The Program provides annual funds to prevent serious injury and death resulting from motor vehicle crashes so that all roadway users arrive at their destination safely. Funds can be used for bicycle and pedestrian safety	Due in January		X		<ul style="list-style-type: none"> • Safety education and encourage • Campaigns to promote safety • SRTS safety programs 	https://www.ots.ca.gov/Grants/	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
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Affordable Housing and Sustainable Communities Program	Strategic Growth Council and Department of Housing and Community Development	The Program funds land-use, housing, transportation, and land preservation projects to support infill and compact development that reduce greenhouse gas emissions. The Program included \$550M in its latest round. (California Climate Investments)	February	X	X		<ul style="list-style-type: none"> • Class I, II, III, & IV bike facilities • Active transportation projects to encourage connectivity to transit networks • Bikeways and sidewalks to affordable housing and transit center • Install dedicated bicycle facilities • Pedestrian facilities such as bulb-outs 	https://hcd.ca.gov/grants-funding/active-funding/ahsc.shtml	C	CC OM
California Energy Commission Blueprints for Medium- and Heavy-Duty Zero -Emission Vehicle Infrastructure	California Energy Commission	For planning “blueprints” that will identify actions and milestones needed for implementation of medium- and heavy- duty zero-emission vehicles and the related electric charging and/or hydrogen refueling infrastructure. This is a planning grant to: <ul style="list-style-type: none"> • Build upon, but not be duplicative of previous planning efforts funded through the CEC. • Be comprehensive and implementable to assist fleets in the complete transition to MD/ HD zero-emission vehicles and infrastructure. • Identify electric charging and/or hydrogen refueling requirements needed for the planned transition to or acquisition of MD/HD vehicles. 	Unavailable	X			Planning funds to chart next steps for: <ul style="list-style-type: none"> • Zero-emission buses • Electric charging of buses • Hydrogen refueling stations 	https://www.energy.ca.gov/filebrowser/download/1166	C	CC OM

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California Energy Commission Zero-Emission Transit Fleet Infrastructure Deployment	California Energy Commission	To fund electric vehicle charging or hydrogen refueling infrastructure needed to support the large-scale conversion of transit bus fleets to zero-emission vehicles at multiple transit agencies serving diverse geographic regions and populations. Total available funding: \$20 million	Annual	X			Planning funds to chart next steps for: • Zero-emission buses • Electric charging of buses • Hydrogen refueling stations	https://www.energy.ca.gov/solicitations/2020-07/gfo-20-602-zero-emission-transit-fleet-infrastructure-deployment	C	CC OM
Local Partnership Grant Program	California Transportation Commission	Improvements to transit facilities, including guideways, that expand transit services, increase transit ridership, improve transit safety, enhance access or convenience of the traveling public, or otherwise provide or facilitate a viable alternative to driving.	Summer 2021		X		• Alternative fuel buses acquisition • Charging infrastructure to fuel/power alternative fuel buses • Maintenance facility upgrades or construction of new O&M facilities • Innovative fare payment systems • New operational model • Bus shelter improvements • Fare collection upgrades	https://catc.ca.gov/programs/sb1/local-partnership-program	C & F	CC OM

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Placemaking Grants	National Association of Realtors (NAR)	Placemaking means many things to different people, but NAR looks as placemaking as a way to make communities better places to live by transforming unused and underused sites and “eyesores” into welcoming destinations accessible to everyone in a community.	October 15, 2021		X		<ul style="list-style-type: none"> • Amenities (street furniture, paint, signage, materials, landscaping, murals, etc.) • Site preparation • Artist fees 	https://realtorparty.realtor/community-outreach/placemaking/	C	CC OM
Levitt AMP Music Series	Levitt Foundation	An exciting matching grant program made possible by the Mortimer & Mimi Levitt Foundation, a national creative placemaking funder dedicated to strengthening the social fabric of America through the power of free, live music. With Levitt AMP, the joy of free, live music is bringing communities together in small and mid-sized towns and cities across the country.	Annual		X		• Free Music Series	https://grant.levittamp.org/submit-a-registration/	C	CC OM

FUNDING SOURCE	FUNDING ORIGIN	PURPOSE/DESCRIPTION	FUNDING CYCLE	ACTIVE TRANSPORT			PROJECT EXAMPLES	WEBSITE	C / F	CC / OM
				INF.	NI	PLAN				
Online Fundrasing Platform	IOBY	<p>ioby stands for “in our backyards,” but it also stands for taking care of each other, for civic participation, and for trusting neighbors to know what’s best for the neighborhood.</p> <p>ioby gives local leaders the ability to crowdfund the resources they need to build real, lasting change from the ground up. Our crowdfunding platform helps connect local leaders with support and funding from their communities to make our neighborhoods more sustainable, healthier, greener, more livable, and more fun.</p>	Ongoing		X		<ul style="list-style-type: none"> • Clear air programs • Clean water programs • Climate change programs • Compost programs • Education programs • Mutual Aid programs • Open Space & Greening programs • Public Health & Nutrition programs • Recycling programs 	https://ioby.org/		CC / OM

TABLE 6-3: Local and Private Funding Sources:

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION		
			INF.	NI	PLAN
Special Habitat Conservation Programs	Regional MPOs/Local Cities	Unavailable			
Special Parks and Recreation Bond Revenues		Unavailable			
Special Transportation Bonds and Sales Tax Incentives		Unavailable			
Transportation Development Act Article 3 Biennial Call for Projects for Transit Stop Access Improvements	San Bernardino County Transportation Authority	Unavailable			

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION		
			INF.	NI	PLAN
Advertising Sales/Naming Rights	Local Jurisdictions	Annual Budget			
Community Facilities District (CFD)					
Infrastructure Financing District (IFD)					
Facilities Benefit Assessment District (BFA)					
Easement Agreements/Revenues					
Equipment Rental Fees					
Facility Use Permits Fees					
Fees and Charges/Recreation Service Fees					
Food and Beverage Tax					
General Fund					
General Obligation Bonds					
Intergovernmental Agreements					
Lease Revenues					
Mello Roos Districts					
Residential Park Improvement Fees					
Park Impact Fees					
Traffic Impact Fees					
In-Lieu Fees					
Pouring Rights Agreements					
Private Development Agreements					
Surplus Real Estate Sale Revenues					
Revenue Bond Revenues	Local Jurisdictions	Annual Budget			
Sales Tax Revenues					
Transient Occupancy Tax Revenues					
Wastewater Fund Reserves					
Utility Taxes					

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION		
			INF.	NI	PLAN
Business Improvement Districts (BID)	Non-profits, Business Organizations or City	Unavailable			
Maintenance Assessment Districts (MAD)		Unavailable			
Property Based Improvement Districts (PBID) Landscape Maintenance District (LMD)		Unavailable			
Various Sports Field Grants	Various Agencies, Foundations and Corporations	Unavailable			
Community Health Initiatives	Kaiser Permanente	Unavailable			
America's Historical Planning Grants	National Endowment for Humanities	Unavailable			
Corporate Sponsorships	Private Corporations	Unavailable			
Private Sector Partnerships		Unavailable			
Non-Profit Partnerships	Non-Profit Corporations	Unavailable			
Foundation Grants	Private Foundations	Unavailable			
Private Donations	Private Individuals	Unavailable			
Irrevocable Remainder Trusts		Unavailable			
Targeted Fund-raising Activities	Local Jurisdictions	Unavailable			
Healthy Places by Design	Robert Wood Johnson Foundation	Unavailable		X	
PeopleForBikes Community Grant Program	PeopleForBikes/Partners	Twice a year	X	X	