CITY OF

MENIFEE

ACTIVE TRANSPORTATION PLAN

FINAL REPORT
December 2020

ACKNOWLEDGEMENTS

City of Menifee

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RESOLUTION NO. 20-976

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENIFEE, CALIFORNIA, APPROVING THE CITY OF MENIFEE ACTIVE TRANSPORTATION PLAN

WHEREAS, in order to receive regional and state funding for roadway improvements, the City of Menifee is required to consider and adopt an active transportation plan; and

WHEREAS, the objective of the Menifee Active Transportation Plan (ATP) is to provide recommended actions, projects and programs to support increasing bicycling and walking as well as improve non-motorized travel infrastructure to provide safer, walkable streets throughout the City for residents that are dependent on these modes; and

WHEREAS, Public Resources Code section 21080.20 states that the City can determine the approval of a bicycle transportation plan, such as the ATP, is exempt from CEQA review, provided the agency holds a noticed public hearing to consider the ATP, and prepares an assessment of any traffic and safety impacts of the project and include measures in the bicycle transportation plan to mitigate potential impacts, and the City has conducted a public hearing on November 18, 2020, and prepared the required assessment to comply with those requirements; and

WHEREAS, pursuant to the exemption in State CEQA Guidelines section 15262 (Feasibility and Planning studies) which applies to projects "involving only feasibility or planning studies for possible future actions which the agency . . . has not yet approved, adopted, or funded does not require the preparation of an EIR or negative declaration but does require consideration of environmental factors," the approval of the ATP is exempt from CEQA because it involves evaluation of the ATP and recommendations for possible future planning actions or projects, and the ATP itself includes an analysis of the relevant environmental factors; and

WHEREAS, pursuant to the "common sense exemption" in State CEQA Guidelines section 15061(b)(3), which states "that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA," the project is exempt from CEQA because it consists of approval of the ATP, which involves recommendations and projects that will be assessed through future planning applications and implementation, meaning that it can be seen with a certainty that the ATP itself will not have a significant effect, or any physical effect, on the environment; and

WHEREAS, the Council has independently reviewed and considered the basis for the statutory and categorical exemptions prior to taking any approval action on the ATP and, exercising its independent judgment, based on the entire record before it, has determined that the project is exempt from CEQA.

WHEREAS, the City Council for the City of Menifee conducted a public hearing considering the merits of the ATP on November 18, 2020.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the City Council of the City of Menifee, California as follows:

Section 1. The City Council finds and determines that the foregoing recitals, which are incorporated herein by reference, are true and correct.

Section 2. The City of Menifee hereby approves the Menifee Active Transportation Plan (ATP).

Section 3. Pursuant to Public Resources Code section 21080.20, the City has held a public hearing considering the ATP, and considered the assessment required under that section, and has determined that the project is exempt from CEQA.

Section 4. The City Council likewise finds and declares that consideration and approval of the ATP is exempt from CEQA review under CEQA Guidelines 15061(b)(3) and 15262.

Section 5. The City Council hereby directs the City Manager or their designee to record a notice of exemption with the Office of Planning and Research and the county clerk for the County of Riverside in accordance with these findings.

Section 6. This Resolution shall take effect immediately.

PASSED, APPROVED AND ADOPTED this 18th day of November 2020.

DocuSigned by:
A087DB9562C2428...

Bill Zimmerman, Mayor

Attest:

DocuSigned by:
Sarah A. Manwaring
276D93A0122A4CB...

Sarah A. Manwaring, City Clerk

Approved as to form:

DocuSigned by:
Jeffrey T. Melching, City Attorney
DABE8686180C4BB...

Jeffrey T. Melching, City Attorney

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss
CITY OF MENIFEE)

I, Sarah A. Manwaring, City Clerk of the City of Menifee, do hereby certify that the foregoing Resolution No. 20-976 was duly adopted by the City Council of the City of Menifee at a meeting thereof held on the 18th day of November 2020 by the following vote:

Ayes: August, Deines, Sobek, Liesemeyer, Zimmerman

Noes: None

Absent: None

Abstain: None

DocuSigned by:
Sarah A. Manwaring
276D93A0122A4CB...

Sarah A. Manwaring, City Clerk

RESOLUTION NO. 20-977

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENIFEE, CALIFORNIA, PLEDGING TO TAKE ACTION TO PROVIDE NON-MOTORIZED AND PEDESTRIAN SAFETY THROUGH EDUCATION, PLANNING, AND ENGINEERING - SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) SAFETY MODEL

WHEREAS, California has made progress in enhancing safety, the 2015 California Strategic Highway Safety Plan reports a 30.4 percent reduction in fatalities and a 17.5 percent reduction in severe injuries between 2005 and 2012 as vehicle-miles traveled remained fairly constant statewide; and

WHEREAS, however, traffic deaths are the second leading cause of deaths in the Southern California Association of Governments (SCAG) region of six counties, 191 cities, and roughly 19 million people; and

WHEREAS, on average, each year 1,500 people die in traffic collisions, 5,200 are seriously injured, and 136,000 are injured in the SCAG region; and

WHEREAS, children are disproportionately impacted by traffic collisions, and 446 children under age 16 were killed while walking in California between 2003 and 2010; and

WHEREAS, traffic injuries and deaths in the SCAG region disproportionately impact young adults, older adults, and people with disabilities, as 42 percent of collision victims were age 18-34 and 26 percent of pedestrian fatality victims were age 65 or older between 2001 and 2016; and

WHEREAS, non-motorized trips represented 12% of all trips, but 25% of all traffic fatalities, in the SCAG region between 2001 and 2016; and

WHEREAS, jurisdictions recognize that non-motorized safety is an equity issue, and that pedestrian injury rates in the SCAG region were significantly higher in high-poverty, predominately Black or African American, and predominately Hispanic or Latino census tracts between 2005 and 2014; and

WHEREAS, the National Safety Council reports that the calculable costs of motor-vehicle crashes are wage and productivity losses, medical expenses, administrative expenses, motor vehicle damage, and employers' uninsured costs; and

WHEREAS, an average cost of each traffic death is $1,542,000, traffic injury is $90,000 and property damage only is $4,200; and

WHEREAS, fatalities and injuries on our streets are unacceptable when they are preventable; and

WHEREAS, streets and transportation systems have traditionally been designed primarily for maximum vehicular capacity and mobility, rather than the safe accommodation of all modes and users; and

WHEREAS, the City of Menifee goals include protecting the safety, health and security of its residents, businesses, employees and visitors; and

WHEREAS, SCAG has developed safety targets to reduce fatalities by 3 percent and serious injuries by 1.5 annually and reach Towards Zero Deaths by 2050; and

WHEREAS, the SCAG Go Human Campaign focuses on safety and reducing traffic collisions and encouraging people to walk and bike more in the SCAG region; and

WHEREAS, successful traffic safety programs are a result of both a complete government approach (i.e. interdepartmental, coordinated initiatives) and community support of Safety goals and action plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Menifee pledges to take action on the essential elements of traffic safety, including activities related to education, enforcement, engineering, evaluation, encouragement, and equity.

PASSED, APPROVED AND ADOPTED this 18 day of November 2020

DocuSigned by:
A087DB9562C2428...
Bill Zimmerman, Mayor

Attest:

DocuSigned by:
Sarah A. Manwaring
276D93A0122A4CB...
Sarah A. Manwaring, City Clerk

Approved as to form:

DocuSigned by:
Jeffrey T. Melching, City Attorney
DABE8686180C4BB...
Jeffrey T. Melching, City Attorney

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss
CITY OF MENIFEE)

I, Sarah A. Manwaring, City Clerk of the City of Menifee, do hereby certify that the foregoing Resolution No. 20-977 was duly adopted by the City Council of the City of Menifee at a meeting thereof held on the 18th day of November 2020 by the following vote:

Ayes: August, Deines, Sobek, Liesemeyer, Zimmerman

Noes: None

Absent: None

Abstain: None

DocuSigned by:
Sarah A. Manwaring
276D93A0122A4CB...

Sarah A. Manwaring, City Clerk

EXECUTIVE SUMMARY

Overview of the Document

Introduction

Existing Conditions and Analysis

Community Engagement

Recommendations and Programs

Best Practices Toolkit, Funding, and Sources

I. OVERVIEW OF THE DOCUMENT

The Menifee Active Transportation Plan is organized by the following chapters:

- I. Introduction
- II. Existing Conditions and Analysis
- III. Community Engagement
- IV. Recommendations and Programs
- V. Best Practices Toolkit
- VI. Funding and Sources

II. INTRODUCTION

The Menifee Active Transportation Plan (ATP) provides recommended actions, projects and programs to support increasing bicycling and walking as well as improve non-motorized travel infrastructure to provide safer, walkable streets throughout the City for residents that are dependent on these modes. This ATP utilizes a Bicycle and Pedestrian Demand Model, Capital Improvement Projects, community and stakeholder input and proposes projects that will improve the City's bicycle and pedestrian network. The plan includes an inventory of existing bike and pedestrian infrastructure, identification of deficiencies, developing and prioritizing improvements, and strengthening active transportation policies.

ATP Goals

The following are the twelve goals that were developed throughout the community outreach process and vetted by the Project Advisory Team (PAT).

- **Goal 1:** Develop an active transportation network that ensures residents of all ages and abilities have access to safe streetscapes, especially the more vulnerable sectors of our community, such as low-income populations, populations of color, children, and seniors whose primary mode of transportation is walking, biking, skateboarding, and public transportation.
- **Goal 2:** Develop a comprehensive network and infrastructure to provide a safe and convenient, healthy and environmentally friendly mode of travel throughout the City for all ages and abilities.
- **Goal 3:** Develop non-motorized infrastructure to allow users of all ages and abilities to access transit, commercial and employment centers, neighborhoods, parks and schools to provide a viable alternative for transportation to reduce vehicle miles traveled and traffic congestion.
- **Goal 4:** Maintain non-motorized infrastructure to allow users of all ages and abilities to access transit, schools, neighborhoods, parks, and employment and commercial centers.
- **Goal 5:** Develop safety and monitoring programs to encourage non-motorized travel within the City.
- **Goal 6:** Develop non-motorized multimodal resources that will meet both commuter and recreation needs, including bicycle support facilities once they meet their destinations.
- **Goal 7:** Develop programs that will increase public awareness of the benefits of active transportation and develop programs to encourage residents to ride bikes and walk to transit, work, school, and for recreation.
- **Goal 8:** Coordinate City non-motorized improvement plans with interagency transportation plans and funding programs.
- **Goal 9:** Promote inclusive and sustainable economic growth by developing non-motorized facilities and improving existing infrastructure in commercial areas.
- **Goal 10:** Foster equitable enforcement practices that encourage rather than penalize multi-modal behaviors and prioritize education, particularly among low-income communities who rely solely on active transportation.
- **Goal 11:** Diversify local transportation options by encouraging the use of neighborhood electric vehicles (NEV) and golf carts.
- **Goal 12:** Develop a comprehensive network of hiking, biking, and equestrian recreation trails that provide benefit to the community by not negatively impacting the natural environment.

III. EXISTING CONDITIONS AND ANALYSIS

Understanding the existing roadway conditions, demographics, land use, and other context-sensitive information in Menifee and the adjacent region is imperative for planning for its future. This chapter summarizes various datasets used to provide meaningful discussions on how each of the topics support or impede pedestrian and bicycle facility development within the City. This chapter also includes sections on Menifee's land use, various relevant datasets, such as bicycle and pedestrian collisions, and existing infrastructure.

Bicycle and Pedestrian Collision Analysis

Bicycle and pedestrian collision data were obtained from the Statewide Integrated Traffic Records System (SWITRS) collision dataset managed by the California Highway Patrol (CHP), which captures reported bicycle-vehicle, pedestrian-vehicle, and bicycle-pedestrian collisions that resulted in injury or property damage in Menifee in the five-year period of 2014 through 2018. Collision density and locations data are displayed on Figure ES-1: Pedestrian and Bicycle-Related Collisions on the following page. Collisions on off-street paths are not reported in the dataset. 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. In these past five years, there were forty-seven bicycle-related collisions and fifty-three pedestrian-related collisions, ten of which resulted in fatalities. The bulk of both collision types resulted in visible injury or complaint of pain (seventy-nine percent), with twenty-one percent resulting in severe injury or death.

Existing and Previously Proposed Bicycle Facilities

The existing bicycle facility network in Menifee is comprised of multi-use paths, bicycle lanes, paved trails, soft surface trails, and combined trails making up 16.5 miles of existing bikeways, as shown in Figure ES-2: Existing Bikeways. Eighty-two percent of the existing bike facilities are class II bike lanes along Newport Road, Aldergate Drive, Heritage Lakes Drive, Ethanac Road, McCall Boulevard, Antelope Road, Domenigoni Parkway, and Craig Avenue. The previously proposed bicycle facilities documented in the General Plan provided a foundation for the recommended bicycle network of this plan (refer to Menifee's General Plan). This network was analyzed for connectivity within the City and with other surrounding jurisdictions and was presented to the City, stakeholders, and public to gather additional input on routes they felt were important and which should move forward as recommendations.

Bicycle and Pedestrian Propensity Model

To help define study focus areas, a Geographic Information Systems (GIS) model was created to reveal relationships between the many factors analyzed. A Bicycle-Pedestrian Priority Model (BPPM) was developed, considering all of the previously discussed analysis inputs, to establish where bicyclists and pedestrians are most likely to be, either currently or if improvements were to be made. The BPPM is comprised of three submodels: Attractor, Generator, and Barrier Models. These three sub-models are then combined to create the composite Bicycle-Pedestrian Priority Model.

Attractors are essentially activity centers known to attract bicyclists and pedestrians. Examples are schools, transit stops, and shopping centers. Generators are developed from demographic data and address potential pedestrian and bicyclist volume based on how many people live and work within the study area. Examples of generators are population density, employment density, primary mode of transportation to work and vehicle ownership. Barriers are features likely to discourage or detract people from bicycling or walking. These are generally physical limitations, such as areas with high numbers of bicycle- related collisions, high vehicle volumes and speeds, and missing sidewalks.

The resulting map displayed in Figure ES-3: Bicycle and Pedestrian Propensity Model, shows highest likely use along major corridors, especially along Newport Road, McCall Boulevard, Bradley Rd, Holland Road, Menifee Road, Murrieta Road, Goetz Road, Heritage Lakes Drive, Antelope Road and La Piedra Road. However, bicycle and pedestrian propensity is not only concentrated on the major roadways, it also permeates into local streets that people tend to use frequently.

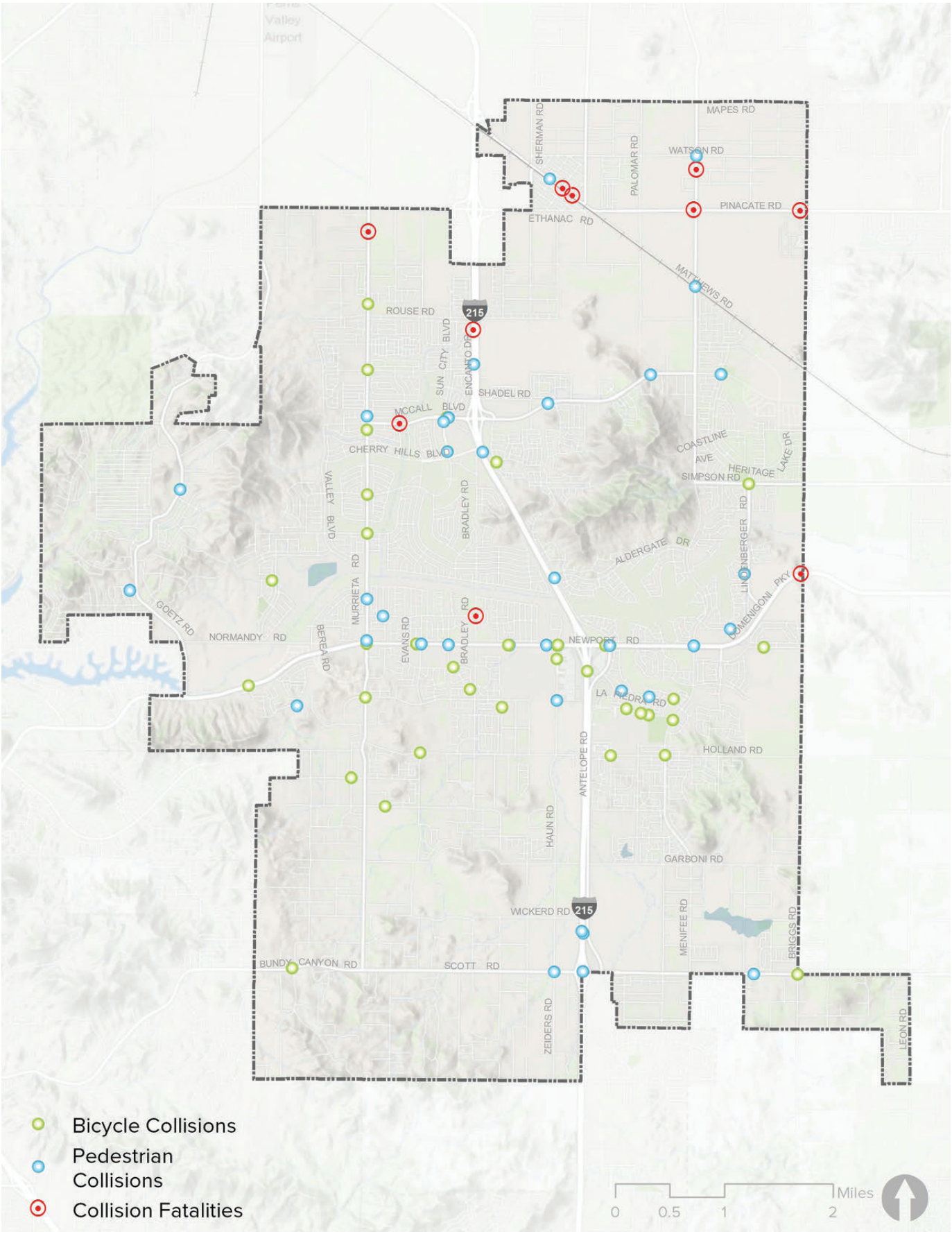


FIGURE ES-1: Pedestrian and Bicycle-Related Collisions

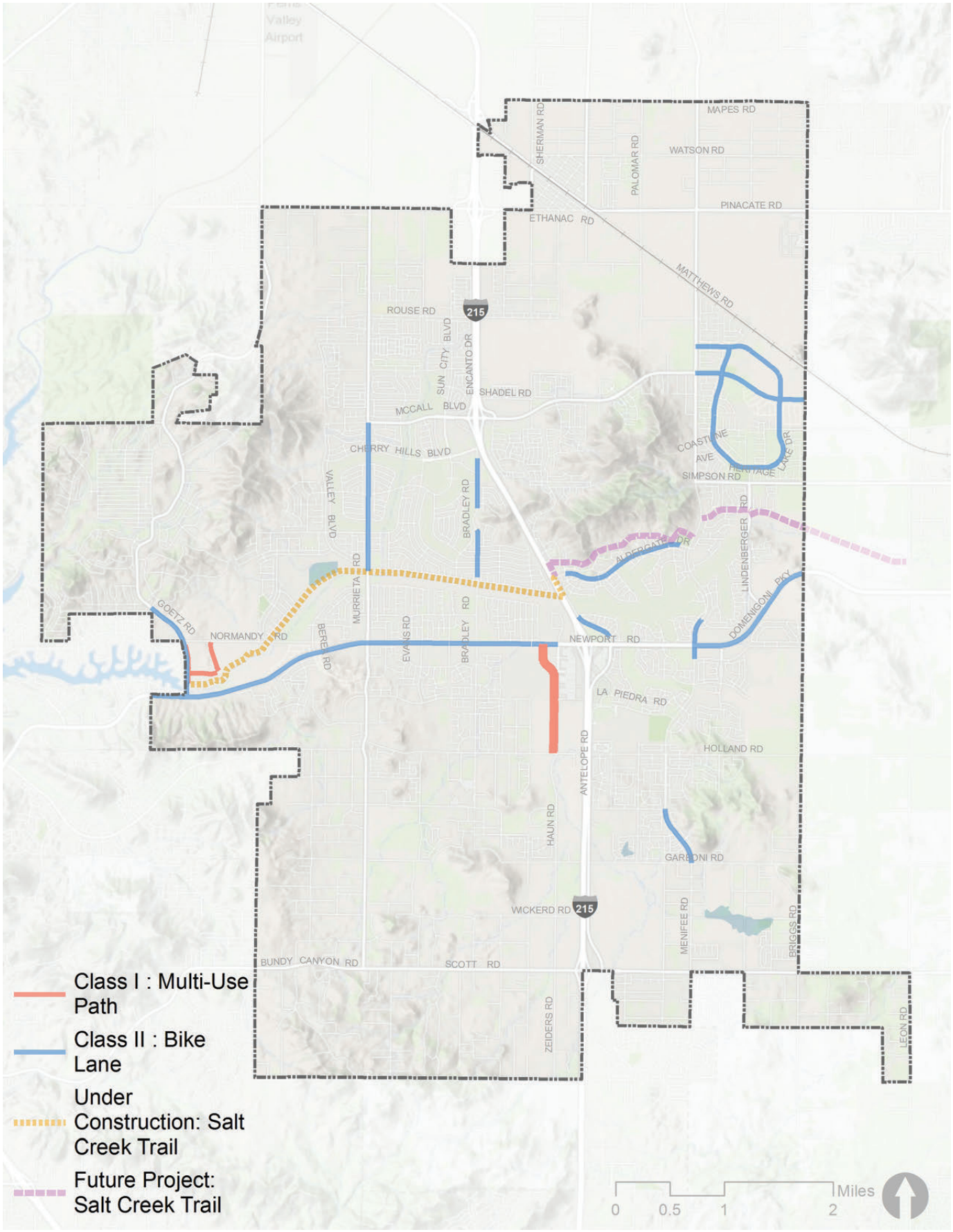


FIGURE ES-2: Existing Bikeways

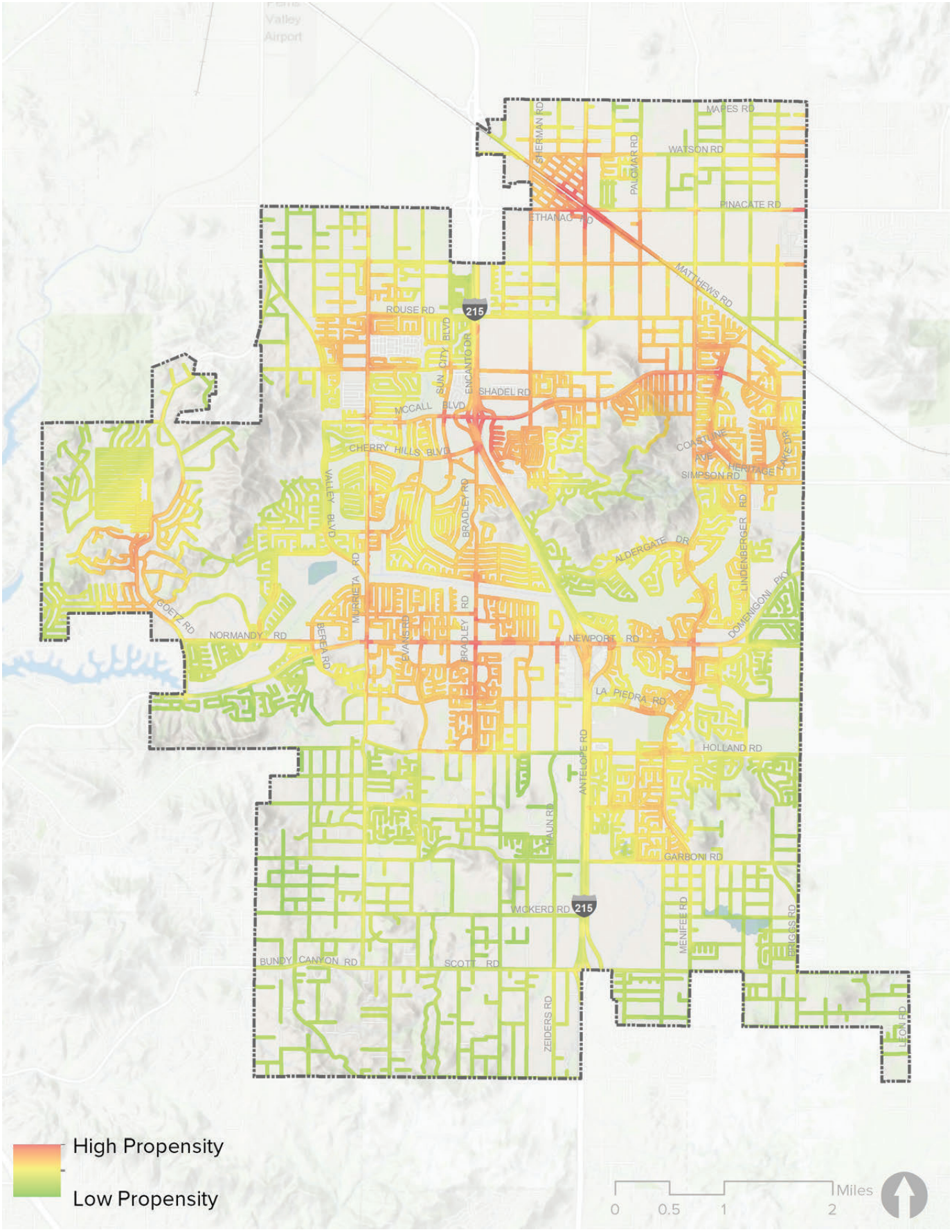


FIGURE ES-3: Bicycle and Pedestrian Propensity Model

IV. COMMUNITY ENGAGEMENT

The ATP planning process was conducted in an open and transparent manner to ensure that community members were included throughout the entire course of the project. Community input and involvement were crucial to identify barriers to walking, bicycling, skateboarding, or accessing transit. To achieve that, the community engagement process was designed to include stakeholder education and the involvement of a broad spectrum of stakeholders working towards a common goal, particularly people with little or no experience with civic engagement. Stakeholders included residents, city staff, local advocacy groups, and health organizations.

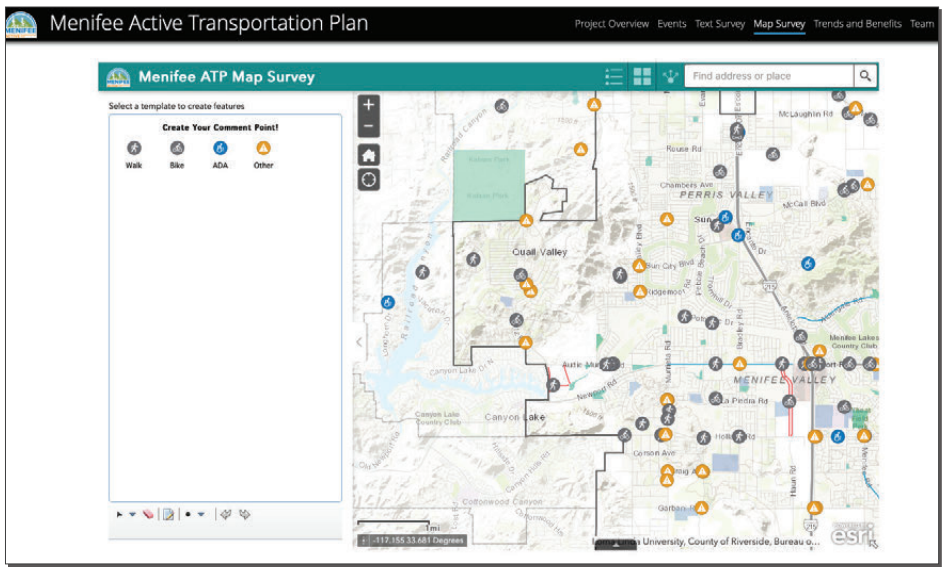
The five primary community engagement strategies that were utilized for the ATP were:

- Five community workshops
- Four Project Advisory Team (PAT) meetings
- Flyers and social media announcements
- Text-based and map surveys
- Online engagement tools

These strategies allowed to inform the public about the ATP, actively engaging community members and stakeholders in the process, and providing meaningful input.

Flyer

Informational handout



Online map survey

Community Workshops

A total of five community workshops were conducted throughout the ATP planning process to gather input and solicit feedback on recommendations. It was determined that the pop-up workshop approach would be a great avenue to gather input for the project. This would allow the project team to gather feedback at events where there is already an audience.. Residents and various stakeholders were engaged in open discussions regarding the community's needs, which assisted in developing the priorities for the recommended active transportation projects.

The events took place in key areas of the City on the following dates:

- June 29, 2019: Independence Day Celebration
- August 2, 2019: Farmer's Market Pop-up Booth
- October 26, 2019: Fall Festival Pop-up Booth
- October 8, 2019: Community Partners Meeting
- January 28 - January 30, 2020: Three-Day Charrette

A centerpiece of the project is the three-day charrette that took place from Tuesday, January 28, 2020, to Thursday, January 30, 2020, throughout Menifee. Flyers and posters were distributed, both in English and in Spanish, as well as surveys that allowed residents to share their thoughts and concerns regarding active transportation in Menifee. In addition to gathering community input, a temporary *GoHuman* installation was installed in front of Wheatfield Park on the corner of La Piedra Road and Menifee Road for all three days of the Charrette. *GoHuman* is a community outreach and advertising campaign led by the Southern California Association of Governments (SCAG) to reduce traffic collisions in Southern California and encourage people to walk and bike more.

Overall, the workshops and pop-up events were designed to encourage participation and included a series of activities, such as presentations, voting exercises, and providing map comments. During these outreach events, residents were asked to identify barriers to walking, bicycling, skateboarding and accessing transit in Menifee. Subsequently, participants were then asked to provide potential solutions to these issues.

Key Issues

Community input from the outreach events were collected via surveys that were prepared to determine satisfaction levels of current pedestrian and bicycle infrastructure, along with desired improvements. Issues regarding continuous sidewalks, connected bike lanes and bike paths away from the street, were identified. These results communicate the importance of improving the walking and biking infrastructure in the City.

Workshop #1: 4th of July Celebration

Resident providing map comments

V. RECOMMENDATIONS AND PROGRAMS

Bikeway Recommendations

After analyzing the findings obtained from the planning process, which included community and stakeholder input, field observations, and previous planning and CIP projects, several short-term and long-term improvements were developed. These recommendations are meant to serve as a guide to help the City in allocating funds as they become available through various sources. Chapter Four addresses the physical recommendations to help improve the non-motorized environment in Menifee. The ATP lists 183 miles of recommended bikeway projects with information such as location, route type, and facility type. Once the prioritization process was completed, a total of ten priority projects were selected to go into further design detail. The remaining projects are important nonetheless and can be used for future recommendations. These projects will create a network of complete streets that will improve non-motorized and transit use throughout Menifee. Each priority project represents a variety of street types that currently lack safe access and mobility for pedestrians, bicyclists, and other non-motorized modes. Table ES-1 on the top right is a summary of the total miles of facility type for the proposed bikeway projects and Figure ES-4 on the following page, exhibits all ninety-three proposed bikeway projects.

TABLE ES-1: Recommended Bikeway Projects Summary

FACILITY TYPE	MILES
Class I: Multi-Use Path	8.2
Class II: Bike Lanes	109.5
Class III: Bike Route	65.6
Total	**183.3**

Prioritization Criteria

Once the prioritization process was completed, the bikeway projects were sorted into three tiers of prioritization based on score. The first tier of priority projects is composed of the ten highest scoring bikeway projects that were selected for further analysis which sum up to fifty miles (refer to Figure ES-5 and Table ES-2). These Top Ten Projects will create a priority network of complete streets that will improve non-motorized travel and transit use throughout the City of Menifee. Due to funding and implementation purposes, the remaining proposed bikeway projects were organized into the second and third tiers of prioritization based on score. The second tier of bikeway projects was composed of bikeway projects scoring in the bottom half percentile which sum up to ninety-one miles (refer to Table ES-3 and Figure ES-6). The third tier of bikeway projects was composed of bikeway projects scoring in the bottom quarter percentile which sum up to forty-three miles (refer to Table ES-4 and Figure ES-7).

TABLE ES-2: Tier One - Top Ten Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
1	Menifee Rd	Mapes Rd	City limit	II	7.8	$5,051,129
2	Murrieta Rd	Ethanac Rd	Scott Rd	II	5.6	$6,900,219
3	Bradley Rd	Rouse Rd	Scott Rd	II	4.7	$4,851,999
4	Newport Rd	City limit	Menifee Rd	II	1.3	$155,475
5	Aldergate Dr/Antelope Rd/ Summoner/Tally	Evening Star Dr	City limit	II/III	5	$1,145,767
6	La Piedra Rd	Murrieta Rd	Menifee Rd	II	3.3	$218,714
7	McCall Blvd	Valley Blvd	Menifee Rd	II	3.5	$1,664,199
8	Goetz Rd	Ethanac Rd	Newport Rd	II	4.6	$5,599,607
9	Briggs Rd	Mapes Rd	City limit	II	8.6	$7,944,266
10	Barnett Rd/Phoenix Way/Sun City Blvd	Ethanac Rd	Ridgemoor Rd	II/III	4.4	$1,101,723

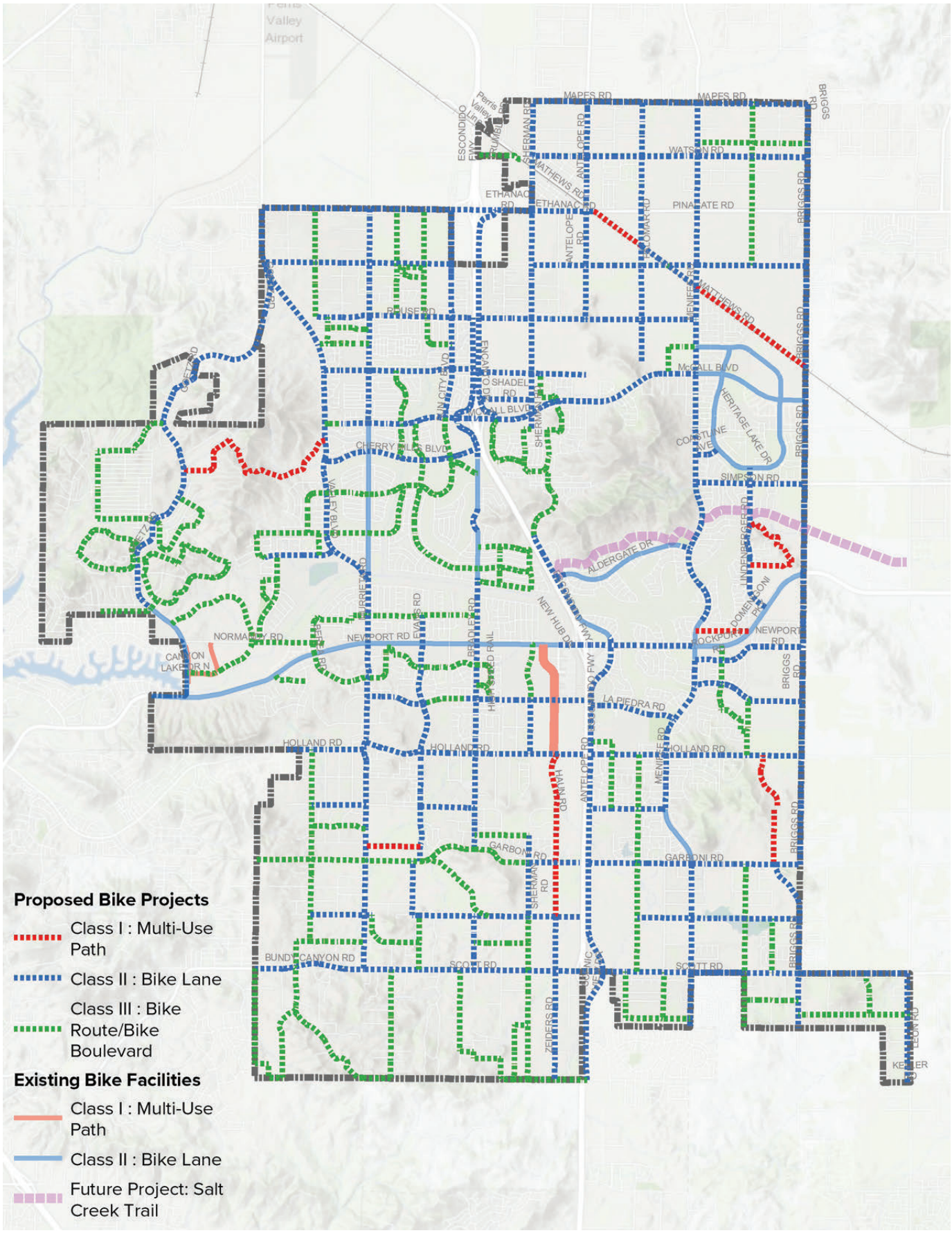


FIGURE ES-4: Bikeway Project Recommendations

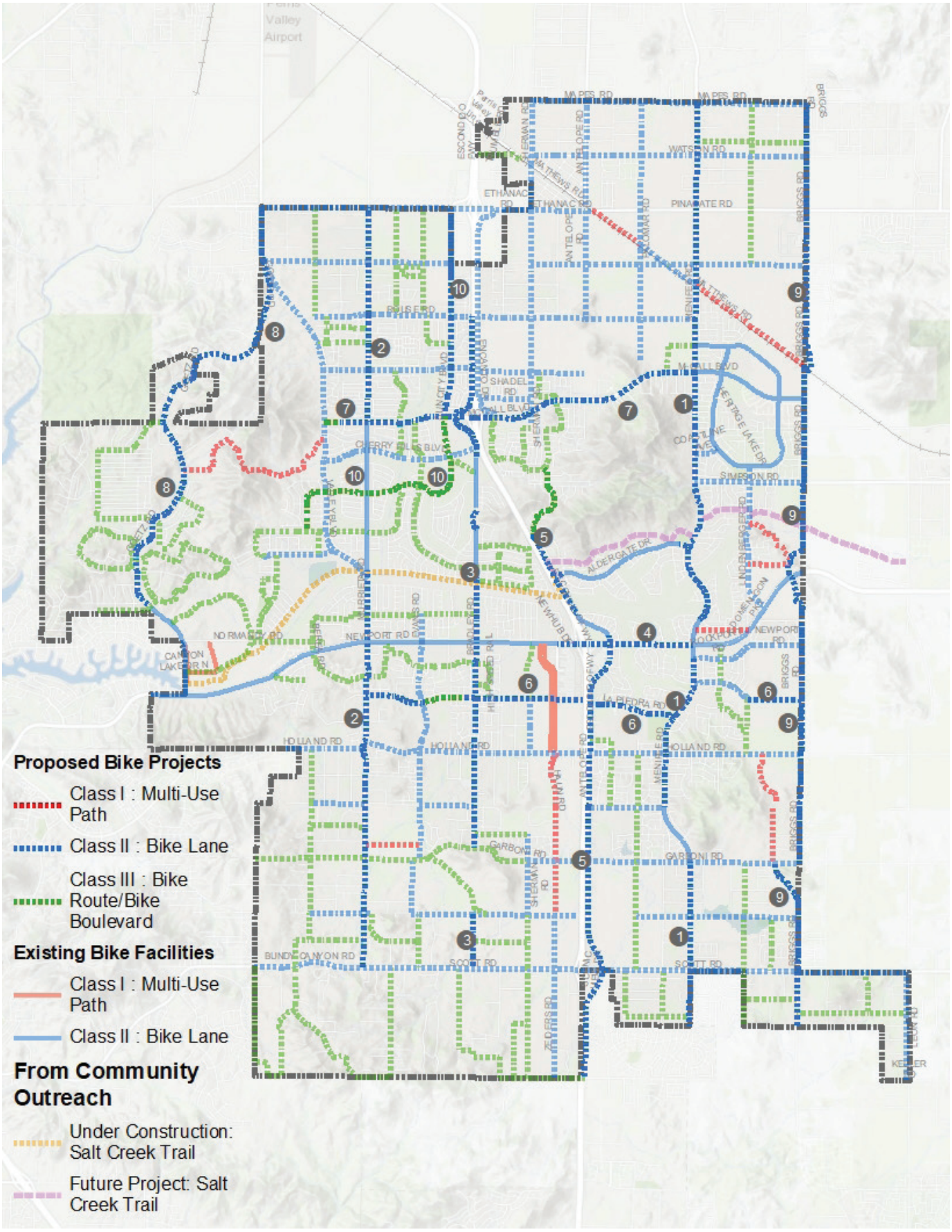


FIGURE ES-5: Tier One - Top Ten Bikeway Projects

TABLE ES-3: Tier Two Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
11	Sherman Rd/Laguna Vista Dr/Town Center	Newport Rd	Wickerd Rd	II/III	2.74	$215,062
12	East Dr/Kabian Park Rd/Mountain View Pl	Goetz Rd	Goetz Rd	III	1.87	$147,046
13	Encanto Dr	Ethanac Rd	El Puente St	II/III	2.49	$234,979
14	Canyon Heights/Cheyenne Canyon/Escalante	Goetz Rd	Canyon Heights Dr	III	1.52	$119,419
15	Lazy Creek Rd/Rim Creek Path/Pelion Rd	Bradley Rd	Evans Rd	III	3.84	$897,866
16	Holland Rd	City limit	Briggs Rd	II	4.69	$368,004
17	Lindenberger Rd	Heritage Lakes Dr	Domenigoni Pkwy	II	1.36	$106,876
18	McLaughlin Rd	Goetz Rd	Briggs Rd	II	4.25	$333,358
19	Evans Rd	Lazy Creek Rd	Wickerd Rd	II	2.79	$218,941
20	Sherman Rd	Mapes Rd	Alta Vista Way	II	3.02	$237,223
21	Watson Rd	I-215	Briggs Rd	II/III	2.94	$230,448
22	Alta Vista Way/Avenida Halago/Bavaria	McCall Blvd	Chambers Ave	III	2.09	$489,582
23	Rouse Rd	Byers Rd	Menifee Rd	II	3.44	$270,419
24	Conejo Dr/Juanita Dr/Las Flores Dr	Goetz Rd	Goetz Rd	III	2.38	$186,906
25	Lindenberger Rd	Garbani Rd	City Limit	III	1.53	$120,172
26	Pebble Beach Dr	McCall Blvd	Piping Rock Dr	III	2.27	$178,168
27	Avenida de las Flores/Paseo la Plaza	Goetz Rd	Goetz Rd	III	1.13	$88,325
28	Chambers Ave	Valley Blvd	Antelope Rd	II	2.36	$185,410
29	Ethanac Rd	Goetz Rd	Matthews Rd	II	3.05	$239,775
30	Matthews Rd	Ethanac Rd	Briggs Rd	I/II	2.42	$189,885
31	Newport Rd/Rockport Rd	Menifee Rd	Briggs Rd	II	1.04	$242,331
32	Valley Blvd	McLaughlin Rd	Murrieta Rd	II	3.27	$764,216
33	UNAMED	Menifee Rd	Domenigoni Pkwy	I	0.5	$117,619
34	Tres Lagos Dr	Menifee Rd	Southshore Dr	II	0.56	$43,796
35	Bundy Canyon Rd/Scott Rd	City limit	Leon Rd	II	6.49	$1,517,746
36	Palomar Rd	Mapes Rd	Boulder Ridge Elementary School	II	2.4	$560,345
37	Palomar Rd	Holland Rd	Scott Rd	III	1.99	$466,228
38	Malaga Rd	Mapes Rd	McLaughlin Rd	III	1.51	$352,559
39	Cherry Hills Blvd	Valley Blvd	Bradley Rd	II	1.45	$338,486
40	UNAMED	Lindenberger Rd	Lindenberger Rd	I	1.04	$242,425
41	Vista Way	Naranja Dr	Conejo Dr	III	0.59	$138,209
42	Shadel Rd	Encanto Dr	Sherman Rd	II	0.47	$37,283
43	Ridgemoor Rd/Boulder Crest/Springbrook	Sun City Blvd	Honeyrun Rd	III	1.99	$156,481
44	Simpson Rd	Menifee Rd	Briggs Rd	II	1	$78,653
45	Antelope Rd	Mapes Rd	Rouse Rd	II	1.96	$153,542
46	Mapes Rd	Sherman Rd	Briggs Rd	II	2.53	$198,364
47	El Rancho Dr/Piping Rock Rd/Potomac Dr	Bradley Rd	Bradley Rd	III	1.34	$312,597
48	Coastline Ave	Menifee Rd	Heritage Lakes Dr	II	0.22	$52,326
49	Junipero Rd	Menifee Rd	McCall Blvd	III	0.5	$117,485
50	Grosse Point Dr	Chambers Ave	Cherry Hills Blvd	III	0.84	$195,799
51	Albion Ln/Hanover Ln	Antelope Rd	Craig Ave	III	0.81	$190,119
52	Garbani Rd	City limit	Briggs Rd	II/III	5.8	$1,355,251
53	Chester Morrison Way/School Park Dr	Bradley Rd	La Piedra Rd	III	0.54	$126,231

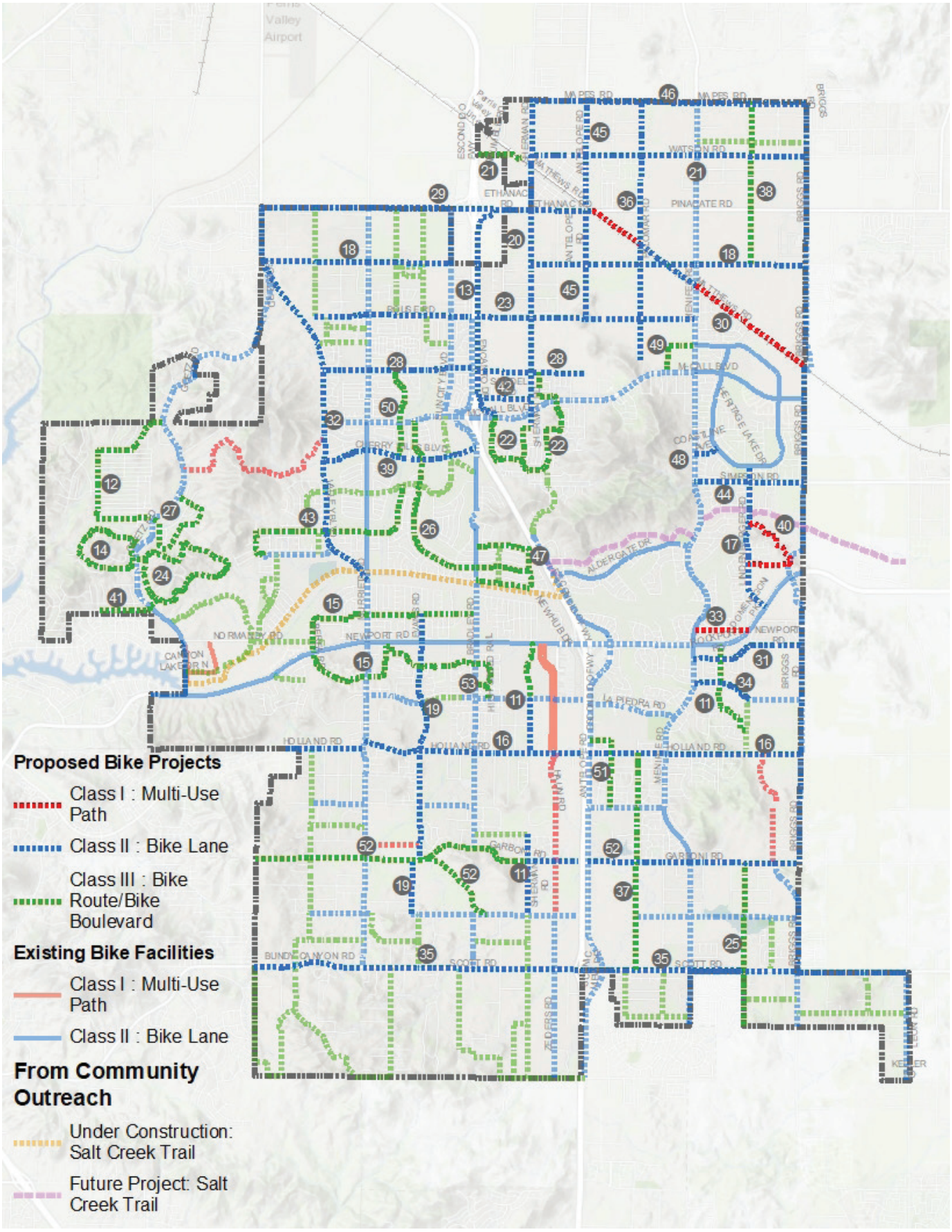


FIGURE ES-6: Tier Two Bikeway Projects

TABLE ES-4: Tier Three Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
54	Augusta Dr	Sun City Blvd	Bradley Rd	III	0.27	$62,112
55	Wickerd Rd	Byers Rd	Briggs Rd	II	3.6	$840,302
56	Los Carrizos Rd/Morgan Horse St	Holland Rd	Garbani Rd	I	1.02	$238,008
57	Cadena Dr/Citation Ave	Menifee Rd	Briggs Rd	III	1.01	$236,501
58	La Ladera Rd	Normandy Rd	Honeyrun Rd	III	0.84	$197,383
59	Craig Ave	Byers Rd	Menifee Rd	II	1.7	$396,997
60	Lindenberger Rd/Southshore Dr	La Piedra Rd	Tres Lagos Dr	III	0.5	$117,057
61	Lake Forest Dr	El Rancho Dr	Potomac Dr	III	0.35	$82,637
62	Canyon Dr	Goetz Rd	Valley Blvd	I	1.88	$440,080
63	Honeyrun Rd	Lone Pine St	Valley Blvd	II	0.65	$152,368
64	Haun Rd/Zeiders Rd	Holland Rd	Keller Rd	I/II	3.01	$703,153
65	Little Reb Pl/Bellamy Ln/Tulita Ln	Scott Rd	Menifee Rd	III	1.45	$338,530
66	Evans Rd	Ethanac Rd	Rouse Rd	III	0.99	$230,545
67	Butterwood Dr/Country Fair Dr	La Ladera Rd	La Ladera Rd	III	0.38	$88,044
68	Skyward Trl/Thornton Ave/Turfwood St	Rouse Rd/Murrieta Rd	Valley Blvd	III	1.1	$258,113
69	Normandy Rd	Audie Murphy Rd	Spirit Park	III	0.68	$159,863
70	Beth Dr	Byers St	Murrieta Rd	III	0.51	$118,245
71	Byers Rd	Ethanac Rd	Walden Rd	III	2.77	$646,653
72	Audie Murphy Rd	Goetz Rd	Goetz Rd	III	1.84	$4,134,559
73	Hull St	Ethanac Rd	Rouse Rd	III	0.98	$229,859
74	Hayden Rd/Walden Rd	Wickerd Rd	Tucker Rd	III	0.63	$146,469
75	Sequoia Springs Dr	Ridgemoor Rd	Honeyrun Rd	III	0.21	$48,118
76	UNAMED	Murrieta Rd	Evans Rd	I	0.5	$115,790
77	Presley St	Rouse Rd	Sun City Blvd	III	0.45	$106,163
78	Tucker Rd	Wickerd Rd	Scott Rd	III	0.5	$1,121,294
79	Daily Rd/Keller Rd/Wright Rd	Bundy Canyon Rd	Bundy Canyon Rd	III	2.63	$615,079
80	Keller Rd	Kasper Ln	Scenic View Dr	III	0.8	$185,839
81	Goodrich Dr/Nova Ln/Starr Dr	Hull St	Evans Rd	III	0.52	$121,220
82	Mira St	Wickerd Rd	Scott Rd	III	0.5	$39,253
83	Tupelo Rd	Sherman Rd	Bradley Rd	III	0.5	$39,279
84	Curzulla Rd/Merritt Rd	Briggs Rd/Scott Rd	Leon Rd	III	1.41	$330,453
85	Mc Bob Rd/Hoffman Ln	Scott Rd	Keller Rd	III	1.38	$322,246
86	Woodbine Ln	Lindenberger Rd	Briggs Rd	III	0.5	$1,119,329
87	Waldon Rd	Bundy Canyon Rd	Murrieta Rd	III	0.85	$199,293
88	Arcadia Ln/Barker Ln/Edmiston Rd	Bundy Canyon Rd	Wright Rd	III	1.96	$457,903
89	Ciccotti St/Gloria Rd	Howard Rd	Keller Rd	III	0.62	$145,569
90	Howard Rd	Keller Rd	Wickerd Rd	III	1.5	$3,373,036
91	Heim St	Bradley Rd	Howard Rd	III	0.5	$1,129,173
92	Leaon Rd	Scott Rd	Keller Rd	II	1	$78,679
93	Derby Hill Dr	Newport Rd	Taawila Elementary	III	0.31	$72,443

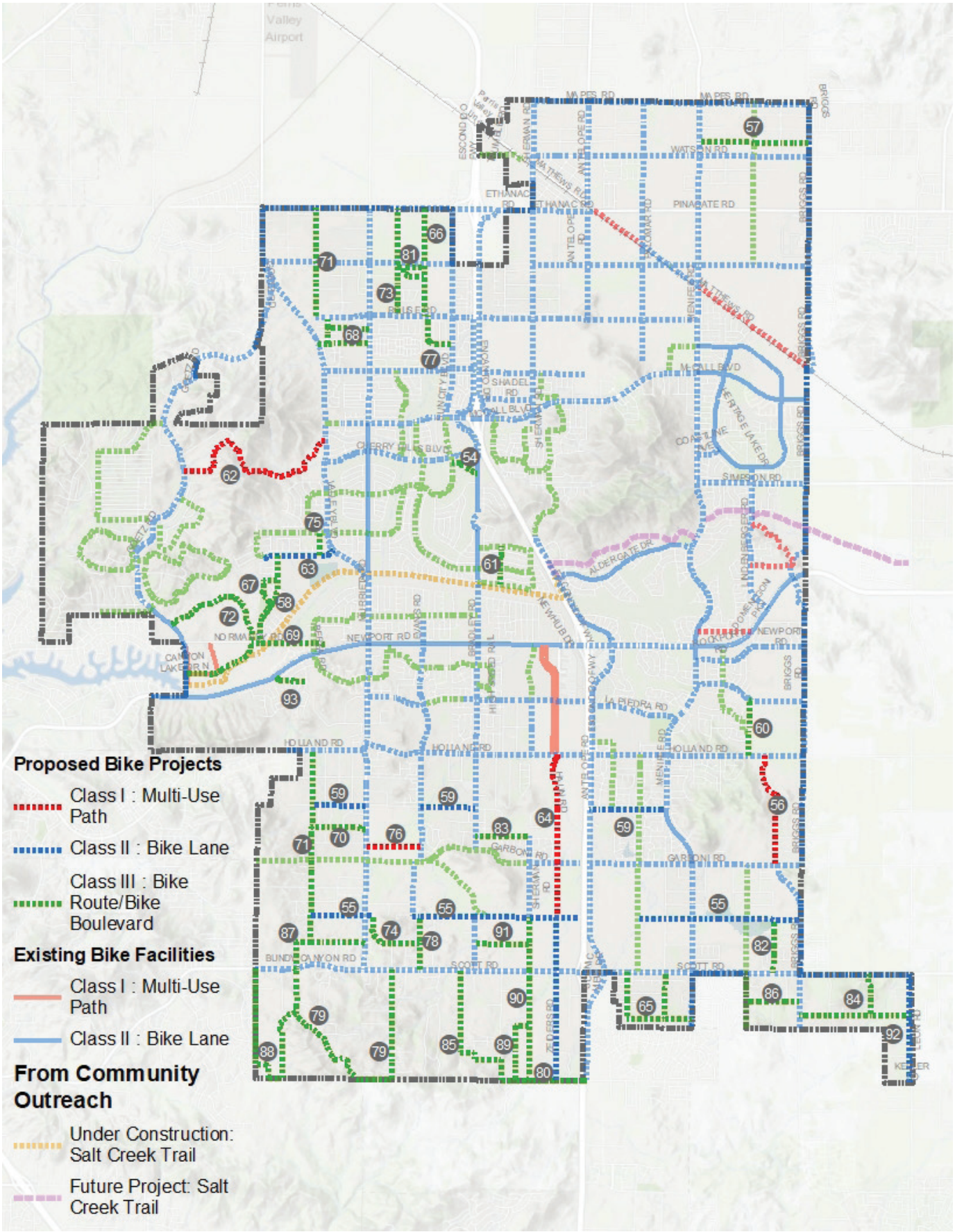


FIGURE ES-7: Tier Three Bikeway Projects

Pedestrian Recommendations

Through the community engagement process, access to schools and parks via walking, bicycling among other active transportation modes, were some of the top issues where residents wanted to see active transportation improvements. Residents primarily wanted to see a connected sidewalk network, more frequent and highly visible crosswalks, and other traffic calming measures. The analysis in Chapter Two identified some of the deficiencies such as missing sidewalks, curb ramps, and high-visibility crosswalks.

Using similar methodology as the City's Bicycle-Pedestrian Demand Model and first and last mile best practices, routes to schools and parks were identified and bicycle and pedestrian improvements were developed. Within the half-mile walksheds of these destinations, recommendations were developed based on community input, data from Chapter Three, field observations, previous planning efforts, CIP projects and vetted through the PAT. Chapter Four has a total of twenty pedestrian projects which includes schools, parks, and other pedestrian hotspot locations in Menifee (refer to Figure ES-8). The project sheets in this chapter can be used to help guide future development, CIP projects, and grant pursuits.

Pedestrian Projects

1. Romoland Elementary School
2. Bell Mountain Middle School
3. Chester W Morrison Elementary School
4. Callie Kirkpatrick Elementary School
5. Sun City Community
6. Lazycreek Park
7. Hans Christian Middle School
8. Bradley Road & Rio Vista Drive
9. Evans Ranch Elementary School
10. Ethan A Chase Middle School
11. Quail Valley Elementary School
12. Harvest Valley Elementary School & Heritage High School
13. Freedom Crest Elementary School
14. Central Park
15. Ridgemoor Elementary School
16. Mesa View Elementary School
17. Boulder Ridge Elementary School
18. Southshore Elementary School
19. Menifee Valley Middle School
20. Paloma Valley High School

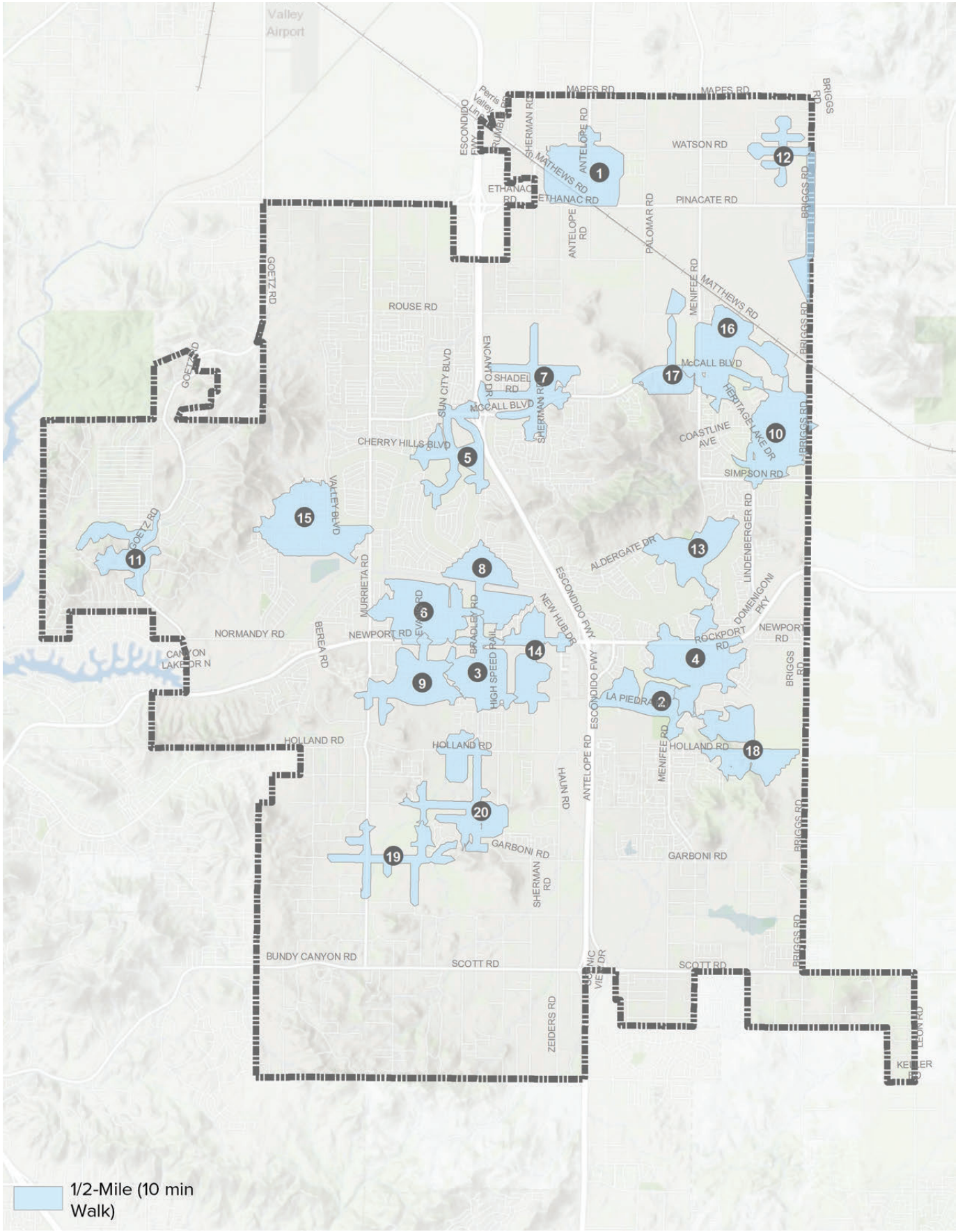


FIGURE ES-8: Top Twenty Pedestrian Projects

Programs

This section of Chapter Four comprises a diverse menu of programs intended to support the projects recommended in this plan. Due to a long history of routine accommodation for pedestrians (i.e. sidewalks, crosswalks, dedicated signals, etc.), programs targeting walking are relatively uncommon. Conversely, the historic lack of routine accommodation for bicyclists has fostered confusion about the role of bicycles in the overall transportation system and has necessitated an impressive diversity and breadth of bicycle-related programs. Despite a common emphasis on projects, bicycle programs remain an important element of a successful bicycle plan. The following sections offer some background on the evolving "state of practice" in bicycle programming, namely the increased integration of programs and projects, culminating in a comprehensive menu of bicycle and pedestrian programs.

Evolving State of Practice in Active Transportation

In order to realize local goals and objectives, communities should take a multifaceted approach to advance biking and walking and support development of safe, comfortable, and connected active transportation networks.

The principles articulated through the "Six Es" developed by the League of American Bicyclists (Engineering, Education, Encouragement, Enforcement, Equity, and Evaluation) can help create successful programs. In particular, many policy, programmatic, and design elements can be used to improve equity if they are targeted to address mobility needs of low-income residents, minorities, children, people with disabilities, and older adults.

In addition, there has been a shift in implementation strategies. Physical projects represent the most visible and perhaps most tangible evidence of a great place for bicycling or walking. Programs are increasingly targeted to occur in conjunction with the construction of specific bicycle and pedestrian projects to take advantage of the opportunity that capital project implementation represents for a city to promote bicycling and walking as attractive options.

A new multi-use path, for instance, represents a great opportunity to reach out to the area's walkers and parents of school-age children, as well as the neighborhood's "interested, but concerned" bicyclists. These target groups will benefit most by directly linking route improvements and supportive programs. In this way, bundling bicycling and walking programs with projects represents a much higher return on investment for both.

The programs recommended for the City of Menifee in this section are organized as a menu of initiatives, each listed under the broad categories below.

Engineering

Education

Encouragement

Enforcement

Equity

Evaluation

VI. BEST PRACTICES TOOLKIT, FUNDING, AND SOURCES

A toolkit was developed to provide additional guidance to the recommendations in Chapter Four and provide additional best practices in active transportation design. The City of Menifee should continue to pursue state level grants through programs such as Caltrans' Active Transportation Planning (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). Projects that are not awarded funding through the Caltrans ATP cycles are sent to the Southern California Association of Governments (SCAG), the local MPO, for consideration for funding through their programs. It will be important to coordinate efforts with adjacent jurisdictions on projects that affect and benefit both cities. Coordination and joint efforts also strengthen an application due to combined benefits for multiple jurisdictions. Chapter Six identifies potential federal, state, and local funding opportunities that may be used from design to maintenance phases of projects.

Funding Origin

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CHAPTER 1
INTRODUCTION

PURPOSE

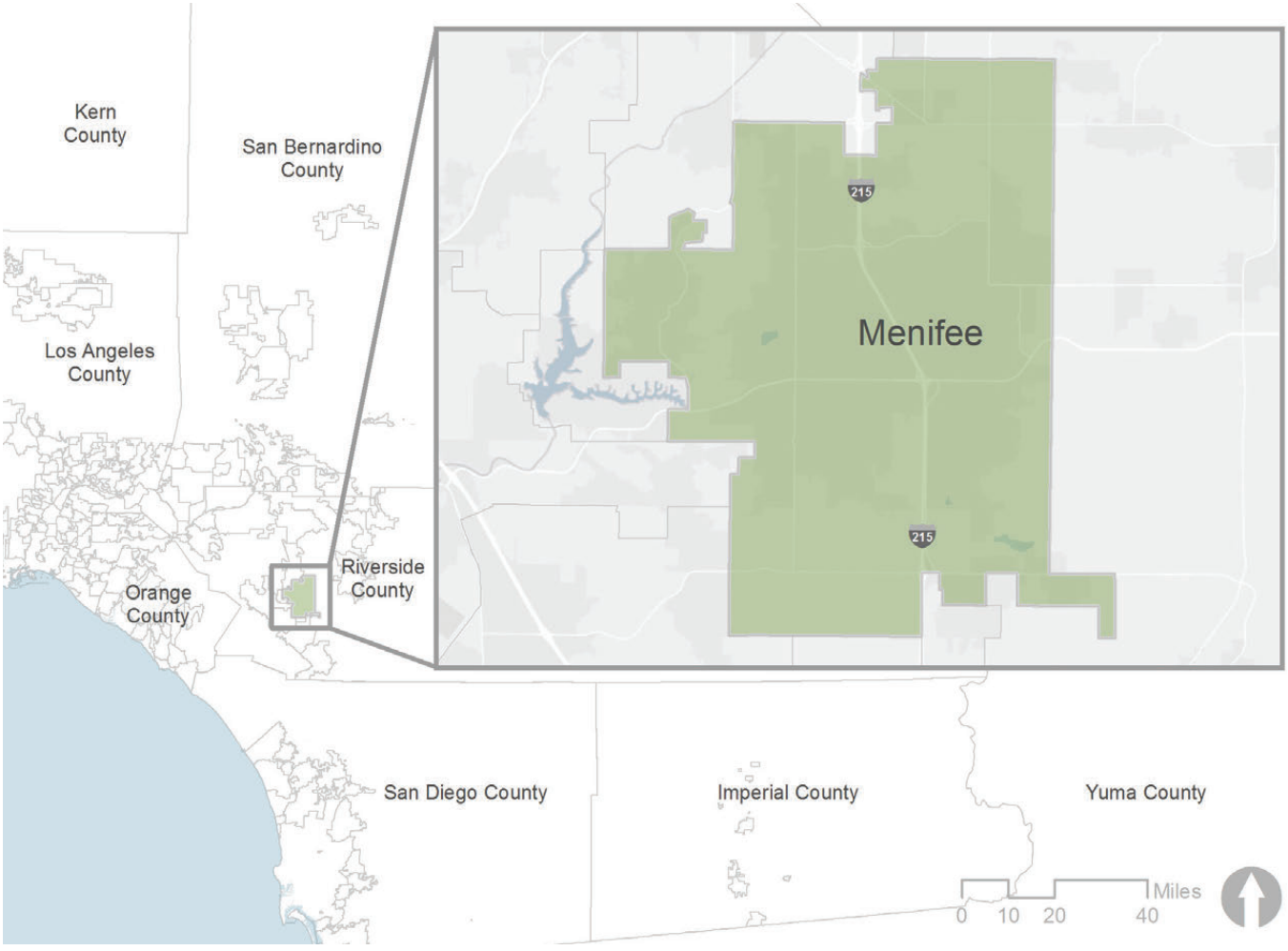
This comprehensive Active Transportation Plan (ATP) will provide safer, walkable streets for residents that are dependent on walking or bicycling for transportation every day in Menifee. The recommended actions included in this ATP are meant to support and increase bicycling and walking in Menifee and to enhance non-motorized travel infrastructure and create options to support the existing and future population. This ATP includes an inventory of existing bike and pedestrian infrastructure, identifying deficiencies, developing and prioritizing improvements, and producing materials for future grant applications for implementation.

STUDY AREA

The City of Menifee is located in Riverside County in Southern California, approximately twenty-six miles south of Riverside and sixteen miles north of Temecula. Menifee is bordered by the Cities of Perris to the north, Lake Elsinore and Canyon Lake to the west, Murrieta to the south, and the unincorporated community of Winchester to the east. Interstate 215 is the only major freeway running through Menifee, connecting it to other regions in Southern California.

According to the State of California Department of Finance, Menifee has a population of 97,093 within its forty-seven square mile city boundary. The City has a population density of 2,066 people per square mile in 28,586 households. Menifee has a large Hispanic community with over thirty-five percent of the population identifying as Latino. In addition, over ninety percent of workers in Menifee drive to work alone, while twelve percent carpool. These statistics communicate the importance of improving the walking and biking infrastructure in the City. The ATP recognizes the importance of addressing barriers that prevent non-motorized trips from being safe, especially for the younger and lower-income populations who cannot afford, operate, or choose to forgo vehicle ownership.

FIGURE 2-1: Location Map



PROJECT GOALS

The project goals were developed throughout the community outreach process and vetted by the Project Advisory Team (PAT).

- **GOAL 1:** Develop an active transportation network that ensures residents of all ages and abilities have access to safe streetscapes, especially the more vulnerable sectors of our community, such as low-income populations, populations of color, children, and seniors whose primary mode of transportation is walking, biking, skateboarding, and public transportation.
- **GOAL 2:** Develop a comprehensive network and infrastructure to provide a safe and convenient, healthy and environmentally-friendly mode of travel throughout the City for all ages and abilities.
- **GOAL 3**: Develop non-motorized infrastructure to allow users of all ages and abilities to access transit, commercial and employment centers, neighborhoods, parks, and schools to provide a viable alternative for transportation to reduce vehicle miles traveled and traffic congestion.
- **GOAL 4:** Maintain non-motorized infrastructure to allow users of all ages and abilities to access transit, schools, neighborhoods, parks, and employment and commercial centers.
- **GOAL 5:** Develop safety and monitoring programs to encourage non-motorized travel within the City.
- **GOAL 6:** Develop non-motorized multimodal resources that will meet both commuter and recreation needs, including bicycle support facilities once they meet their destinations.
- **GOAL 7:** Develop programs that will increase public awareness of the benefits of active transportation and develop programs to encourage residents to ride bikes and walk to transit, work, school, and for recreation.
- **GOAL 8:** Coordinate City non-motorized improvement plans with interagency transportation plans and funding programs.
- **GOAL 9:** Promote inclusive and sustainable economic growth by developing non-motorized facilities and improving existing infrastructure in commercial areas.
- **GOAL 10:** Foster equitable enforcement practices that encourage rather than penalize multi-modal behaviors and prioritize education, particularly among low-income communities who rely solely on active transportation.
- **GOAL 11:** Diversify local transportation options by encouraging the use of neighborhood electric vehicles (NEV) and golf carts.
- **GOAL 12**: Develop a comprehensive network of hiking, biking, and equestrian recreation trails that provide benefit to the community by not negatively impacting the natural environment.

ACTIVE TRANSPORTATION TRENDS

Many American cities were built on a foundation of auto-centric infrastructure, programs, and policies, but many of those same cities are embracing active transportation as a viable option to driving. Some of them are making minor improvements to support cycling and walking, while others are working hard to undo decades of planning that privileged motor vehicle throughput and speed above all else. Environmental, health, and economic benefits reinforce the task of retrofitting American cities to make them bicycle and pedestrian friendly. The movement to make cycling and walking viable transportation options are also supported by several recent pieces of California legislation.

Recent active transportation statistics and trends depict steps both forward and backward. For example, the Alliance for Biking and Walking released a Benchmarking Report in 2018 which communicated the importance of the distance between home and school. In the report, it is stated that while thirty-five percent of students who live less than a mile from school, walk or bike to school on most days, only two percent of students living two miles from school usually bike or walk to school.

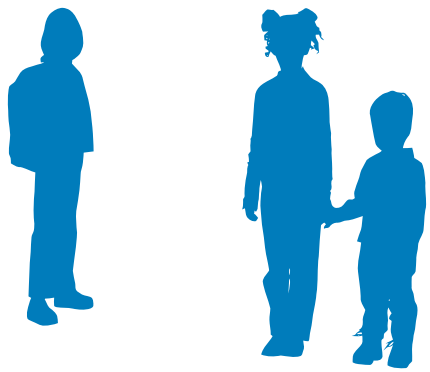
Empty nesters, particularly as the number of baby boomers reaching retirement age accelerates, are also showing a strong preference for communities that support walking. American Association of Retired Persons (AARP) surveys found that seventy percent of respondents age sixty-five and older agreed that living near where they want to go, such as grocery stores, health care providers, libraries and social or religious organizations, was extremely or very important. Additionally, fifty-one percent agreed that it was extremely or very important to be able to walk easily in their community. The City of Menifee, especially the Sun City neighborhoods, resemble this statistic.

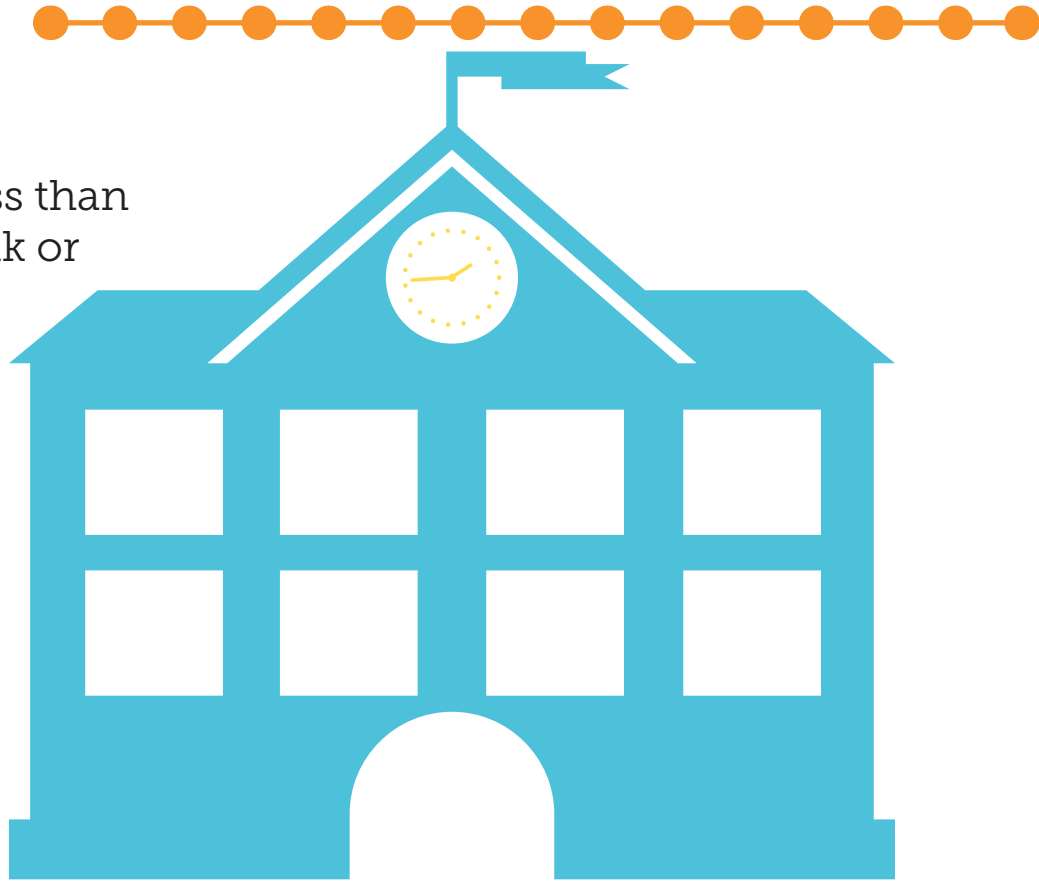
There has also been a growing preference for new facility types that enhance pedestrian and bicyclist safety, particularly protected bicycle lanes physically separated from motor vehicle traffic. In addition, acknowledging that most trips Americans make are within one mile, it is important to assess the infrastructure and make a genuine effort to entice people to walk or bike to their destinations through enhanced facilities.

Since the outbreak of COVID-19 and the stay-at-home order, commuting has shifted from room to room or pieces of furniture rather than to work

35%

of students who live less than a mile from school, walk or bike to school on most days.





and long distanced trips. This change has resulted in many people using alternative transportation for shorter trips and an increase in opportunity for outdoor recreation. According to a report from the San Diego Association of Governments (SANDAG), daily volumes of bike commuting has increased forty-two percent across San Diego County during five months in 2020 compared to 2019. This trend is seen in many cities and some have closed roads for pedestrian and bicycle access only. With many people utilizing biking as an option for their commute, we may see electronic bikes and other bike-sharing programs arrive to cities to help people with farther commutes post-COVID-19.

BICYCLING AND WALKING BENEFITS

Numerous environmental, health, and economic benefits are attributable to bicycling and walking, especially as substitutes for travel by motor vehicles. This section summarizes these benefits, some from research by the Pedestrian and Bicycle Information Center (PBIC).

Environmental Benefits

Active transportation via walking and biking results in decreased usage and dependency on motor vehicles and nonrenewable resources which can result in reduced greenhouse gas emissions and air pollution. According to the United States Environmental Protection Agency (EPA), the transportation sector accounted for the largest portion of greenhouse gas emissions (twenty-eight percent) in the United States in 2018. Building infrastructure for vehicles, such as streets and parking lots, increases the impervious surface of an area which leads to stormwater runoff, urban flooding, and the urban heat island effect. Encouraging pedestrian and bike infrastructure provides an opportunity to integrate green infrastructure into street design and mitigate the urban heat island effect, stormwater runoff, and flooding as well as promote pedestrian health and safety.

Health Benefits

Despite dramatic strides in recent decades through regulations and technological improvements, vehicle emissions still pose a significant threat to human health. Vehicle-generated air pollution contains harmful greenhouse gas emissions including carbon dioxide, carbon monoxide, methane, nitrous oxide, and volatile organic compounds. These pollutants and irritants can cause asthma, bronchitis, pneumonia, and decreased resistance to respiratory infections. Taking steps to reduce these emissions is particularly important in the United States, which leads the world in petroleum consumption. The conver-

30 min the Center for Disease Control (CDC) suggests a minimum of thirty minutes of moderate-intensity physical activity five days per week.

sion of driving to bicycling or walking offers a great opportunity to reduce emissions and improve public health.

In addition to the universal public health benefit, such as improved air quality, bicycling and walking has the potential to positively impact personal health. A significant percentage of Americans are overweight or obese and projections indicate forty-two percent of the population will be obese by 2030. To combat this trend and prevent a variety of diseases and their associated societal costs, the Center for Disease Control (CDC) suggests a minimum of thirty minutes of moderate-intensity physical activity five days per week. Not only does cycling and brisk walking qualify as "moderate-intensity activities," but they can also be seamlessly integrated into daily routine, especially if chosen for utilitarian purposes like commuting or running errands.

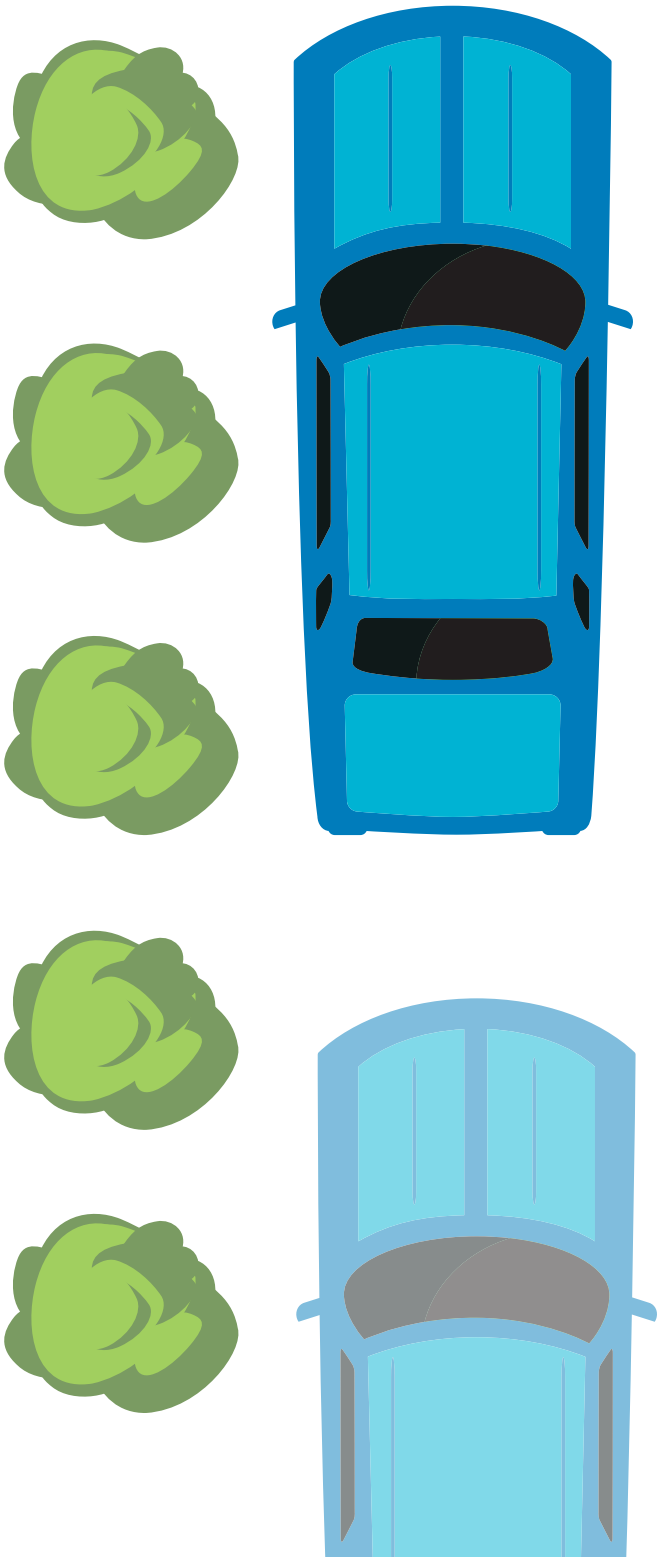
According to Harvard Medical School, walking reduces the risk of cardiovascular events by thirty-one percent. Other health benefits associated with moderate activity like bicycling or walking include improved strength and stamina through better heart and lung function. Regular exercise also reduces the risk of high blood pressure, heart attacks, and strokes. In addition to heart disease, regular exercise can help to prevent other health problems such as non-insulin dependent diabetes, osteoarthritis, and osteoporosis. Exercise has also been shown to improve mental health by relieving depression, anxiety, and stress. More importantly, in rural or low-income areas, many individuals may lack the opportunity to access gyms or fitness centers. Due to this, well-designed and located sidewalks, bike facilities, and shared use paths become even more critical in supporting community health.

Economic Benefits

Bicycling infrastructure and programs have increasingly been shown to deliver economic benefits to both individuals and society at large. The benefits of bicycling may outweigh its costs. Bicycling offers obvious cost savings to individuals. Beyond the upfront cost of operating a vehicle are additional maintenance, insurance, and often parking expenses. In 2019, according to the American Automobile Association (AAA), the average annual cost of vehicle ownership comes out to $9,282, or $773.50 per month. That is the highest cost associated with new vehicle ownership since AAA began tracking expenses. The remaining costs of owning a vehicle extend far beyond maintenance and fuel.

According to the American Automobile Association, the annual cost of owning a car comes out to

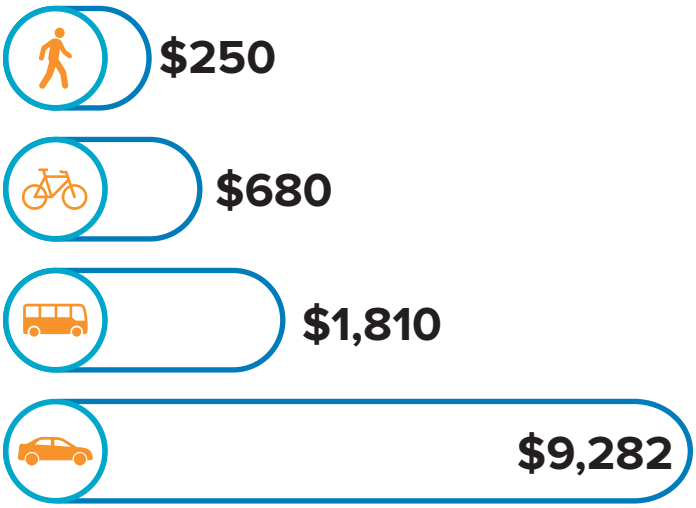
$9,282



Converting even a fraction of automobile trips to bicycling or walking trips can generate transportation-related savings, including reduced vehicle traffic congestion. Increased bicycling and walking also translates to health-related savings, for both individuals and taxpayers, in the form of less need for preventative care. More bicycling and walking has also been tied to increases in commercial and residential property values and retail sales. Shoppers who reach their destination by bicycle have been shown to make smaller purchases, but shop more often and to spend more money overall. Shoppers who arrive by bicycle or on foot, because of their more limited range, are also more likely to support local businesses and do not require the space for parking a motor vehicle compared to those who drive.

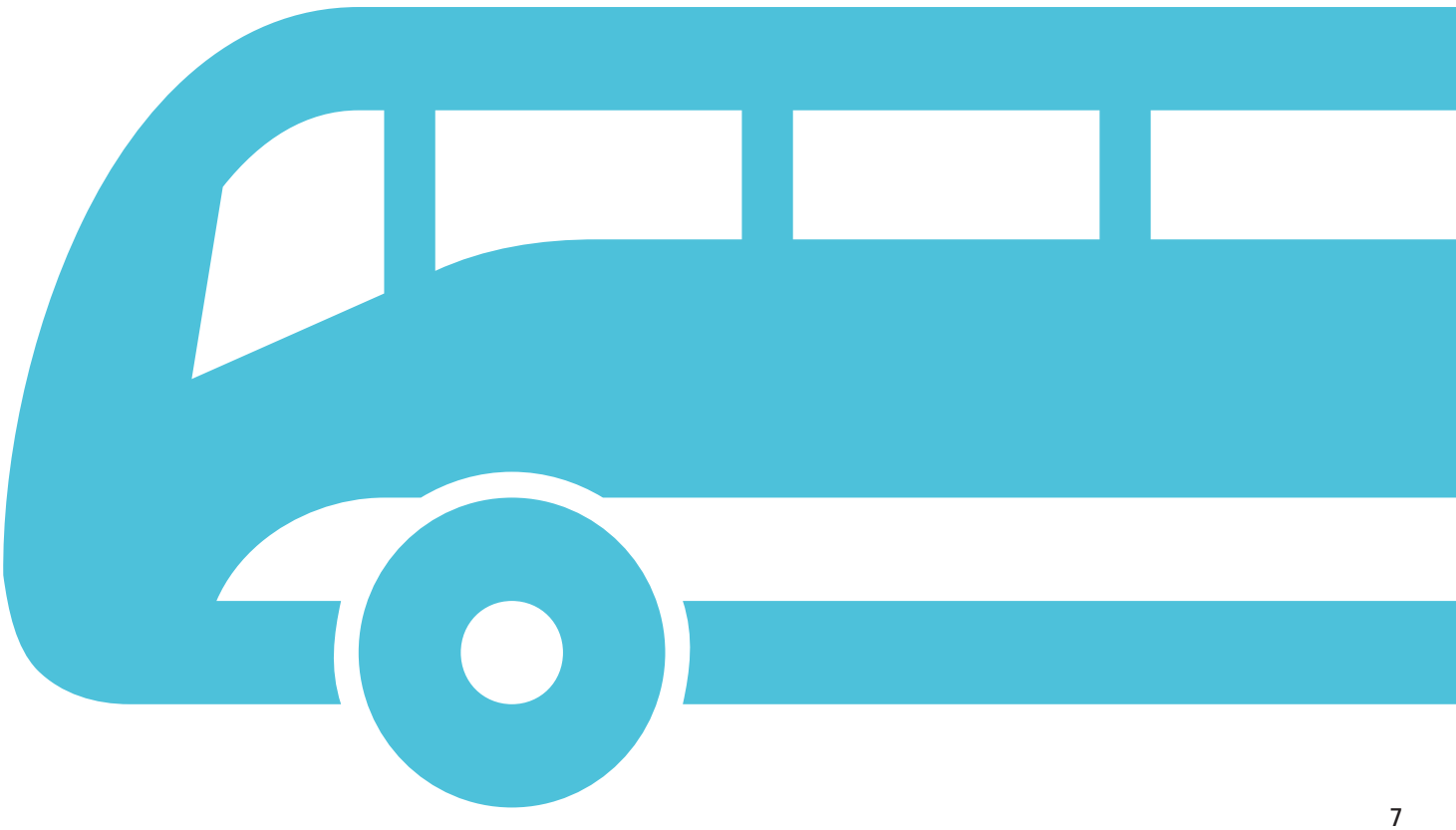
Perhaps more compelling than reducing greenhouse gas emissions or combating the obesity epidemic, is the benefits bicycling has to offer in terms of quality of life. Bicycling is increasingly seen as a fun, low-cost, healthy, and sustainable way of getting around.

THE COST OF TRANSPORTATION



Source: Transit for Liveable Communities, Minnesota

Transportation equity requires understanding the unique needs and safety concerns of different community backgrounds.



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Equity

Historically, many low-income communities and underserved populations have been excluded from the transportation planning process and due to this, pedestrians and bicyclists are over-represented in crashes. An equitable transportation system promotes justice and helps facilitate access to opportunities for all residents. In order to achieve transportation equity, communities must participate in outreach so that they are able to address the inequalities of access and prioritize equity during all stages of the planning and implementation processes. This encompasses building an accessible, affordable, and reliable transportation network that effectively serves all users.

Transportation equity requires understanding the unique needs and safety concerns of different community backgrounds and providing enough resources to these communities. Numerous studies have shown that enhancing the ability of traditionally underserved populations to travel via nonmotorized modes, can possibly lead to improved outcomes in public health, safety, and economic development. In addition, this can also promote economic development and resource efficiency, strengthen neighborhood relationships, and encourage public transit services.

PLANNING CONTEXT

The ATP incorporates regional and local planning efforts that are directly related to walking, biking, and trails. These efforts range from long-range regional planning to neighborhood-specific plans. The following information summarizes the planning documents that were evaluated as part of ATP development.

Menifee General Plan

The Menifee General Plan is the primary citywide comprehensive plan that guides future growth. The General Plan contains goals and objectives to guide decisions and preserve the quality of life within the City of Menifee. The Circulation and Land Use elements contain goals and objectives that contribute to the success of this ATP.

Menifee Parks, Trails, Open Space, and Recreation Master Plan

The City of Menifee's Parks, Trails, Open Space, and Recreation Master Plan (PTOSRMP) provides a coherent set of objectives to guide direction for development, re-development, expansion and enhancement of the City's park system, open spaces, trails, and recreation facilities program and services.

Riverside Transit Agency (RTA) First and Last Mile Plan

This regional First and Last Mile Mobility Plan is a collaboration between Riverside Transit Agency (RTA), Southern California Association of Governments (SCAG), and Caltrans. The goal of the plan is to increase transit ridership through developing strategies that address first and last mile barriers to transit use. The plan summarizes RTA's existing ridership characteristics, highlights the future needs of RTA's customers, identifies various strategies to improve First and Last Mile access, and provides an Implementation Plan.

Riverside County Transportation Commission (RCTC) Strategic Assessment

The Riverside County Transportation Commission (RCTC) has conducted a Strategic Assessment of Riverside County's transportation needs today and for the future. This countywide strategic review began in May 2015 and was completed in January 2016. The process included extensive public input and technical analysis. More than 200 community members participated in RCTC's Transportation Summits throughout Riverside County. The results of the public's feedback were integrated with data regarding the county's future growth and available funding.

One of the recommended strategic actions included developing a long-range transportation plan (LRTP) for Riverside County that involves creating plans and strategies for active transportation facilities to enable greater levels of trip making by bicycle, on foot, and low-speed electric vehicles.

Western Riverside Council of Governments (WRCOG) ATP

The Western Riverside Council of Governments ATP identifies facilities to enhance and increase active transportation options in the region. The ATP builds on the Western Riverside County Non-Motorized Transportation Plan (NMTP) published in June 2010, by updating active transportation network improvement projects, implementation strategies, and funding opportunities.

This Active Transportation Plan (ATP) focuses on enhancing the non-motorized infrastructure throughout the region, in hopes of developing a robust network for residents to walk and bike. The ATP was formulated to align with and support state and federal vehicle miles traveled (VMT) reduction efforts, the WRCOG Sustainability Framework, as well as GHG reduction objectives outlined in Riverside County's Climate Action Plan.

In addition, this plan reviewed other existing planning documents such as:

- Bradley Road Bridge Improvement
- CIP Fiscal Years 2019-2024
- CIP Fiscal Years 2018-2023
- Citywide Sidewalk Missing Gaps and Improvements Projects CIP 18-05

STATE OF PRACTICE

While pedestrians have long benefited from "routine accommodation," with amenities like sidewalks, curb ramps, crosswalks, dedicated signals, etc., it is only more recently that the state of practice for bicycle facilities in the United States has undergone a similar transformation. Much of this may be attributed to bicycling's changing role in the overall transportation system. Long viewed as an "alternative" mode, it is increasingly considered a legitimate transportation mode and one that should be actively promoted as a means of achieving environmental, social, and economic goals.

Recent research indicates that, beyond connectivity and convenience, "low-stress" bicycle facilities are essential to the increased acceptance and practice of daily bicycling. Facility types and specific design interventions intended to encourage ridership among the large "interested, but concerned" demographic, tend to be those that provide separation from high volume and high-speed vehicular traffic.

Just as the state of practice of bicycle facilities has evolved, so has the technical guidance. While bikeway design guidance in California has traditionally come from the State, especially Caltrans and the California Manual on Uniform Traffic Control Devices (CA MUTCD), cities are increasingly turning to national organizations for guidance on best practices. Primary organizations include the National Association of City Transportation Officials (NACTO), American Association of State Highway and Transportation Officials (AASHTO), and the Federal Highway Administration (FHWA).

Fortunately for California cities, there is increased flexibility in design guidance offered by both Caltrans and the FHWA. In 2014, Caltrans officially endorsed the NACTO Urban Street Design Guide and Urban Bikeway Design Guide as valuable toolkits for designing and constructing safe, attractive local streets. California cities may also apply for experimental designation from the FHWA for projects not in conformance with the CA MUTCD.

The guidance provided by these manuals supports the creation of more Complete Streets. The guidance is also supported by several pieces of important legislation. The following section provides a review of the state of practice for bicycle facilities, drawing on the AASHTO and NACTO guides. It also includes a discussion on Complete Streets/Routine Accommodation, as well as summaries of the relevant legislation at the local, regional, state, and national levels.

PRIMARY GUIDANCE

In 2014, the California Department of Transportation (Caltrans) updated the CA MUTCD to provide uniform standards and specifications for all official traffic control devices in California. This update is meant to implement Caltrans's 2014 mission to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. The purpose of the CA MUTCD is to improve safety and mobility for all travelers by setting minimum standards and providing guidance intended to balance safety and convenience for everyone in traffic, including drivers, pedestrians, and bicyclists.

The CA MUTCD contains the basic principles that govern the design and use of traffic control devices that aim to promote highway safety and efficiency by providing for the orderly movement of all road users on streets, highways, bikeways, and private roads open to public travel. Multimodal policies for safer crossings, work zones, and intersections are integrated as part of the CA MUTCD, with improvements including:

- Crosswalks Enhancements Policy
- Temporary Traffic Control Plans
- Work Zone and Higher Fines Signs and Plaques
- Traffic Control for School Areas

Additionally, NACTO guidance was analyzed to ensure flexibility and innovation in the design and operations of streets and highways in California. Much of the guidance provided in the CA MUTCD is consistent with the NACTO Urban Bikeway Design Guide.

Caltrans Highway Design Manual, Chapter 1000: Bicycle Transportation Design

Chapter 1000 of the Caltrans Highway Design Manual serves as the official design standard for bikeways in California. This chapter defines a "bikeway" as a facility that is provided primarily for bicycle travel and recognizes its importance in improving bicycling safety and convenience. Chapter 1000 intends to help accommodate motor vehicle and bicycle traffic on the roadway system, or as a complement to the road system to meet the needs of bicyclists. This chapter classifies bikeway facilities into five different types that include:

1. Shared Roadway (No Bikeway Designation)
2. Class I Bikeway (Bike Path)
3. Class II Bikeway (Bike Lane)
4. Class III Bikeway (Bike Route)
5. Class IV Bikeways (Separated Bikeways)

However, Chapter 1000 states that these designations should not be construed as a hierarchy of bikeways since each bikeway type has its appropriate application. Additionally, this chapter only provides design guidance for Class I bike paths, Class III bike routes, as well as trails.

FHWA Bike Lane Planning and Design Guide

This 2015 guide is the most recent national bike lane design guide and for many, the primary national resources for planning and designing bicycle facilities. It captures the state of practice of bicycle facility design within the street right of way. It provides a menu of design options covering typical one and two-way cycle tracks and provides detailed intersection design information covering topics such as turning movement operations, signalization, signage, and on-road markings.

FHWA Bikeway Selection Guide

This 2019 guide is an important complement to the 2015 FHWA Bike Lane Planning and Design Guide.

Class I Bikeway (Bike Path)

Class II Bikeway (Bike Lane)

Class III Bikeway (Bike Route)

It has a focus on designing for all ages and abilities. It gives the designer additional tools such as matrices, flow charts, and graphs that facilitate the design of the appropriate bikeway based both on roadway characteristics and the intended type of cyclist.

MassDOT Separated Bike Lane Planning & Design Guide

This guide draws on research and best practices from the United States and around the world to deliver a unique manual not covered in other manuals, such as protected intersections and cycle tracks within roundabouts. Although it is a state guide and not a national guide, the up-to-date information and the easy-to-read graphics make it an important reference guide for bicycle planners and designers.

AASHTO Guide to Bikeway Facilities

The AASHTO bicycle and pedestrian design guides are important national resources for planning, designing, and operating bicycle and pedestrian facilities, especially for bike path design outside a typical road right of way that is not covered in other guides. The NACTO Urban Bikeway Design Guide and the Institute of Transportation Engineers (ITE) Designing Urban Walkable Thoroughfares Guide, builds upon the flexibilities provided in the AASHTO guides, which can help communities plan and design safe and convenient facilities for pedestrians and cyclists. FHWA supports the use of these resources to further develop non-motorized transportation networks, particularly in urban areas. Moreover, in August of 2013, the FHWA issued a memo on Bicycle and Pedestrian Facility Design Flexibility issuing their support for taking a flexible approach to bicycle and pedestrian facility design. Moving away from standards and towards flexibility in design using the designer's judgment is an important step towards contextual design, implementing the appropriate facility based on location and context.

NACTO Urban Bikeway and Urban Street Design Guides

The NACTO guides represent the industry standard for innovative bicycle and streetscape facilities and treatments in the United States. In 2014, Caltrans officially endorsed the NACTO Urban Street Design Guide and Urban Bikeway Design Guide as valuable toolkits for designing and constructing safe, attractive local streets. At the time, Caltrans was only the third State Department of Transportation to officially endorse the Guides.

It is important to note that virtually all of the Urban Bikeway Design Guide design treatments (with two exceptions) are permitted under the Federal MUTCD. The NACTO Urban Street Design Guide is the more generalized of the two guides and organized into six sections. Each section is further subdivided, depending on the topic. The NACTO Urban Bikeway Design Guide is also organized into six sections, but its information is bicycle-specific. For each section, it offers three levels of guidance: Required Features, Recommended Features, and Optional Features. The following section introduces the broad facility types included in the NACTO Urban Bikeway Design Guide.

NACTO Transit Street Design Guide

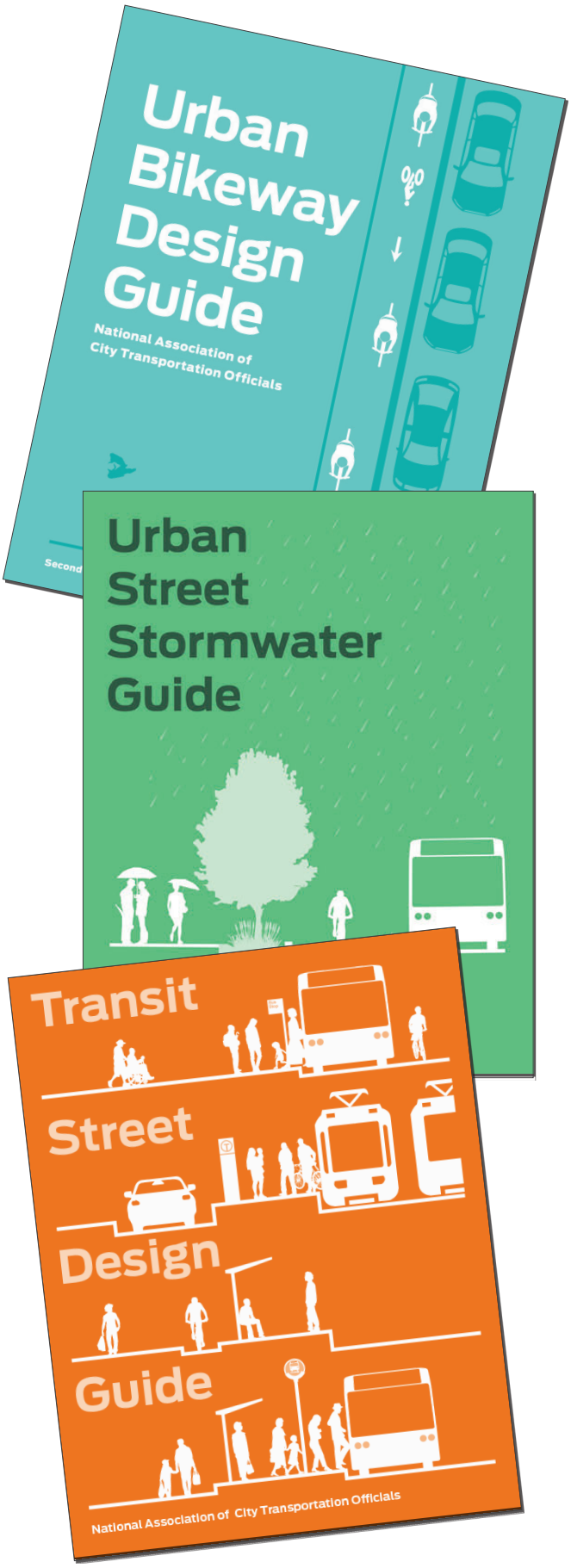
As transit gains a more prominent role in cities, more people are using buses, streetcars, and light rail than ever before. As a result, street design is shifting to give transit the space it deserves. The NACTO Transit Street Design Guides provide design guidance for the development of transit facilities on streets, as well as for prioritizing transit, improving its service quality, and to support other related goals.

The majority of design elements included in this guide are consistent with MUTCD standards, including signage, markings, and signal elements that have received interim approval. These guidelines were developed using other design guidance as a basis, along with city case studies, best practices, research and evaluation of existing designs, and professional consensus.

NACTO Urban Street Stormwater Guide

The NACTO Urban Street Stormwater Guide provides guidelines on how to create resilient cities that are better prepared for climate change while creating public spaces that deliver social and economic value to these places. This guide focuses on green infrastructure within urban streets, including the design and engineering of stormwater management practices that support and improve mobility. It also intends to reduce the impacts of runoff and human activity on natural ecological processes.

One of the main goals of this guide is to encourage interdepartmental partnerships around sustainable



infrastructure, which includes communicating the benefits of such projects. However, this guide does not address stormwater management strategies on private property, nor does it address drainage and infiltration around controlled-access highways.

Complete Streets and Routine Accommodation

An adopted Active Transportation Plan provides a roadmap to support planning and implementing a bicycle and pedestrian network, can help to integrate bicycle and pedestrian planning into broader planning efforts, and is required for State funding of bikeway and pedestrian projects.

For many cities, however, a bicycle and pedestrian plan alone is not enough to ensure the implementation of the plan's goals and projects. A hurdle many cities face is that their various plans are not well integrated. Despite many cities' attempts to support a "Complete Streets approach," entrenched and often contradictory policies can make implementation difficult. For instance, an ATP, an ADA transition plan, and a specific plan may address the same area, but ignore each other's recommendations. One plan may identify a certain project, but it may not be implementable due to prevailing policies and practices that prioritize vehicular flow and parking over other modes.

An adopted Complete Streets policy has the potential to address these shortcomings through the designation of some important corridors as Complete Streets, accommodating all roadway users, and other corridors as priority corridors for certain modes. A system that assigns priority for different modes to specific corridors, offset from one another, is referred to as a layered network.

Efforts to implement Complete Streets policy often highlight other significant obstacles, chief among them documents defining "significant impacts" to traffic, acceptable vehicular "Level of Service" thresholds, and parking requirements. Drafting a Complete Streets policy often means identifying roadblocks like these and ultimately mandating increased flexibility to allow for the creation of a more balanced transportation system. In the case of an ATP, the network identified could become the bicycle and pedestrian layers. Identification in such a plan, reiteration within a Complete Streets policy framework, and exemption from traditional traffic

analyses can make implementation more likely and much more affordable.

Legislative support for Complete Streets can be found at the State level (AB-1358) and is being developed at the national level (HR-2468). As explained in further detail in the following section on applicable legislation, AB-1358 requires cities and counties to incorporate Complete Streets in their general plan updates and directs the State Office of Planning Research (OPR) to include Complete Streets principles in its update of guidelines for general plan circulation elements. Examples of best practices in Complete Streets Policies from around the United States can be found at: http://www.smartgrowthamerica.org/complete-streets-2013-analysis.

APPLICABLE LEGISLATION

Several pieces of legislation support increased bicycling and walking in the State of California. Much of the legislation addresses greenhouse gas (GHG) reduction and employs bicycling and walking as a means to achieve reduction targets. Other legislation highlights the intrinsic worth of bicycling and walking and treats the safe and convenient accommodation of bicyclists and walkers as a matter of equity. The most relevant legislation concerning bicycle and pedestrian policy, planning, infrastructure, and programs are described in the following sections.

State Legislation and Policies

AB-32 California Global Warming Solutions Act

AB-32 calls for the reduction of greenhouse gas emissions and codifies a 2020 emissions reduction goal. This act also directs the California Air Resources Board (CARB) to develop specific early actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reach the 2020 limit.

SB-127 Complete Streets Bill

The new bill would require Caltrans to consider Complete Streets elements where State Highways function as local roads. In addition, it would require Caltrans and the California Transportation Commission to give high priority to safety for pedestrians and bicyclists and to building bicycle and pedestrian facilities.

ADA curb ramp with truncated domes

Bicycle lockers

California Bicycle Coalition Three Feet Passing for Safety Education Logo

SB 1000 Planning for Healthy Communities Act

Under SB 1000, cities and counties are required to adopt an Environmental Justice element, or integrate EJ-related policies, objectives, and goals throughout other elements of their General Plan. The bill also includes a process for communities to become meaningfully involved in the decision-making processes that govern land use planning in their neighborhoods.

SB-375 Redesigning Communities to Reduce Greenhouse Gases

This bill seeks to reduce vehicle miles traveled (VMT) through land use and planning incentives. Key provisions require the larger regional transportation planning agencies to develop more sophisticated transportation planning models and to use them to create "preferred growth scenarios" in their regional plans that reduce greenhouse gas emissions. The bill also provides incentives for local governments to incorporate these preferred growth scenarios into the transportation elements of their general land use plans.

AB-1358 Complete Streets Act

AB-1358 requires the legislative body of a city or county, upon revision of the circulation element of their general plan, to identify how the jurisdiction will provide for the routine accommodation of all users of the roadway including drivers, pedestrians, cyclists, individuals with disabilities, seniors, and public transit users. The bill also directs the OPR to amend guidelines for general plan circulation element development so that the building and operation of local transportation facilities safely and conveniently accommodate everyone, regardless of their travel mode.

AB-1581 Bicycle and Motorcycle Traffic Signal Actuation

This bill defines a traffic control device as a traffic-actuated signal that displays one or more of its indications in response to the presence of traffic detected by mechanical, visual, electrical, or other means. Upon the first placement or replacement of a traffic-actuated signal, the signal would have to be installed and maintained, to the extent feasible and in conformance with professional engineering practices, to detect lawful bicycle or motorcycle traffic on the roadway. Caltrans has adopted standards for implementing the legislation.

AB-1371 Passing Distance/Three Feet for Safety Act

This statute, widely referred to as the "Three Foot Passing Law," requires drivers to provide at least three feet of clearance when passing bicyclists. If traffic or roadway conditions prevent drivers from giving bicyclists three feet of clearance, they must "slow to a speed that is reasonable and prudent" and wait until they reach a point where passing can occur without endangering the bicyclists. Violations are punishable by a $35 base fine, but drivers who collide with bicyclists and injure them in violation of the law are subject to a $220 fine.

SB-743 CEQA Reform

Just as important as the aforementioned pieces of legislation that support increases in bicycling and walking infrastructure and accommodation is one that promises to remove a longstanding roadblock to them. That roadblock is vehicular Level of Service (LOS) and the legislation with the potential to remove it is SB-743.

For decades, vehicular congestion has been interpreted as an environmental impact and has often stymied on-street bicycle projects, in particular. Projections of degraded Level of Service have, at a minimum, driven up project costs and, at a maximum, precluded projects altogether. In many cases, it leads to high stress environment for cyclists and pedestrians. SB-743 removes LOS as a measure of vehicle traffic congestion that must be used to analyze environmental impacts under the California Environmental Quality Act (CEQA).

This is extremely important because adequately accommodating bicyclists, particularly in built-out environments, often requires reallocation of right-of-way and the potential for increased vehicular congestion. The reframing of Level of Service as a matter of driver inconvenience, rather than an environmental impact, allows planners to assess the true impacts of transportation projects and will help support bicycling projects that improve mobility for all roadway users.

CEQA for Bicycle and Pedestrian Plans

Based on Public Resources Code Section 15262 (Feasibility and Planning Studies) guidance, planning documents such as this ATP are exempt from CEQA analysis since they are planning and conceptual recommendations:

"A project involving only feasibility or planning studies for possible future actions which the agency, board, or commission has not approved, adopted, or funded does not require the preparation of an EIR or Negative Declaration but does require consideration of environmental factors."

As individual recommendations move forward toward further design and implementation, the City will then need to determine if there are environmental impacts that may warrant an EIR.

AB-1193 Bikeways

This act amends various code sections, all relating to bikeways in general, specifically by recognizing a fourth class of bicycle facility, cycle tracks. However, another component of AB-1193 may be even more significant to future bikeway development.

Existing law requires Caltrans, in cooperation with county and city governments, to establish minimum safety design criteria for the planning and construction of bikeways, and requires the department to establish uniform specifications and symbols regarding bicycle travel and traffic related matters. Existing law also requires all city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways to utilize all of those minimum safety design criteria and uniform specifications and symbols.

This bill revises these provisions to require Caltrans to establish minimum safety design criteria for each type of bikeway, and also authorizes local agencies to utilize different minimum safety criteria if adopted by resolution at a public meeting.

Design Information Bulletin 89-01

A Class IV Bikeway (separated bikeway) is a bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The purpose of Design Information Bulletin (DIB) 89-01 is to provide design criteria and guidance on best practices related to these separated bikeways to establish a uniform guidance that will facilitate consistent user expectations. DIB 89-01 intends to allow designers to exercise sound judgment when applying it while being consistent with Caltrans Highway Design Manual and the CA MUTCD. This DIB is written to allow for flexibility in applying design criteria, taking into consideration the context of the project's location, enabling designers to tailor the design and maximize safety and comfort.

Bicycle lane

Shared lane marking ("Sharrow")

Bike traffic signal

Best practices from cities, states, and countries currently operating separated bikeways have been used to formulate the DIB 89-01. This DIB will be updated as necessary based on lessons learned from engineers and practitioners as they gain more experience with the use of separated bikeways.

SB-1 Transportation Funding

This bill creates the Road Maintenance and Rehabilitation Program to address deferred maintenance on the state highway system and the local street and road system. A total of $5.4 billion will be invested annually over the next decade, which will undertake a backlog of repairs and upgrades. Additionally, cleaner and more sustainable travel networks will be ensured for the future, including upgrades to local roads, transit agencies, and an expansion of the state's growing network of pedestrians and bicycle routes.

SB-672 Traffic-Actuated Signals: Motorcycles and Bicycles

This bill extends indefinitely the requirement to install traffic-actuated signals to detect lawful bicycle or motorcycle traffic on the roadway. By extending indefinitely requirements regarding traffic-actuated signals applicable to local governments, this bill would impose a state-mandated local program.

Existing law requires the state to reimburse local agencies and school districts for certain costs mandated by the state.

SB-760 Transportation Funding: Active Transportation: Complete Streets

This bill seeks to establish a Division of Active Transportation within Caltrans to give attention to active transportation program matters to guide progress toward meeting the department's active transportation program goals and objectives. This bill requires the California Transportation Commission to give high priority to increasing safety for pedestrians and bicyclists and the implementation of bicycle and pedestrian facilities. The bill also directs the department to update the Highway Design Manual to incorporate "Complete Streets" design concepts, including guidance for the selection of bicycle facilities.

Electric bicycle

Pedestrian countdown timer

Intersection bicycle box

AB-1218 California Environmental Quality Act Exemption: Bicycle Transportation Plans

This bill extends CEQA requirements exemptions for bicycle transportation plans for an urbanized area until January 1, 2021. These exemptions include re-striping of streets and highways, bicycle parking and storage, signal timing to improve street and highway intersection operations, and related signage for bicycles, pedestrians, and vehicles under certain conditions. Additionally, CEQA will also exempt from its requirements projects consisting of restriping of streets and highways for bicycle lanes in an urbanized area that are consistent with a bicycle transportation plan under certain conditions.

Caltrans' Deputy Directive 64-R2

Deputy Directive 64-R2 is a policy statement affecting Caltrans mobility planning and projects requiring the agency to:

"...provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system. Caltrans views all transportation improvements as opportunities to improve safety, access. and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system."

The directive goes on to mention the environmental, health and economic benefits of more Complete St reets.

AB 902 Traffic Violations and Diversion Programs

Existing law provides that a local authority may not allow a person who has committed a traffic violation under the Vehicle Code to participate in a driver awareness or education program as an alternative to the imposition of those penalties and procedures unless the program is a diversion program for a minor who commits an infraction not involving a motor vehicle and for which no fee is charged.

This bill would instead allow any person of any age who commits an infraction not involving a motor vehicle to participate in a diversion program sanctioned by local law enforcement. The bill would eliminate the requirement that such a program charge no fee, as well as other technical changes.

AB 1096 Electric Bicycles as Vehicles

Existing law defines a "motorized bicycle" as a device that has fully operative pedals for propulsion by human power and has an electric motor that meets specified requirements. The bill would define an "electric bicycle" as a bicycle with fully operable pedals and an electric motor of fewer than 750 watts and would create three classes of electric bicycles.

The bill would prohibit the operation of the most powerful Class 3 electric bicycles on specified paths, lanes, or trails unless that operation is authorized by a local ordinance. The bill would also authorize a local authority or governing body to prohibit, by ordinance, the operation of Class 1 or Class 2 electric bicycles on specified paths or trails.

AB-390 Pedestrian Crossing Signals

This bill authorizes a pedestrian facing a flashing "DON'T WALK" or "WAIT" or approved "Upraised hand" symbol with a "countdown" signal to proceed, so long as the pedestrian completes the crossing before the display of the steady "DON'T WALK OR WALK" or "WAIT" or approved "Upraised Hand" symbol.

Bicycle detector pavement marking

AB-285 Forecast Impacts of Emerging Technologies

The California Transportation Plan (CTP), produced by Caltrans, is required to address how it will help meet state greenhouse gas emission and clean air goals. Starting in 2025, the CTP will have to forecast the potential impacts of future transportation technologies on infrastructure, access, and the overall transportation system. It will also be required to consider environmental justice in its planning for transportation and freight movement.

AB-1266 Bicycle Guidance Signs Through an Intersection

AB-1266 ultimately aims to make it safer for bicycle riding in California at busy intersections. The bill requires Caltrans to develop standards for lane striping, pavement markings, and appropriate regulatory signs that allow bicyclists to go straight from a right or left turn lane and to safely cross outside of the high-traffic lanes.

SB-400 Clean Cars 4 All Program

This bill would include e-bikes and bike sharing programs as options within California's Clean Cars 4 All program. CC4A aims to reduce car emissions by increasing the turnover of the existing vehicles and replacing them with newer, cleaner, and more efficient vehicles. Reducing emissions from existing vehicles is a component of California's State Implementation Plan for meeting air quality standards and also supports efforts to meet the state's 2030 climate change goals.

Executive Order N-19-19

California Governor Gavin Newsom signed Executive Order N-19-19 on September 20, 2019 to require the State to continue efforts to reduce greenhouse gas emissions and mitigate climate change impacts while building a sustainable economy. The California State Transportation Agency is directed to leverage strategies towards lowering vehicle miles traveled by supporting active modes of transportation such as biking and walking that also benefit public health.

Federal Legislation

Safe Streets Act (S-2004/HR-2468)

HR2468 encourages safer streets through policy adoption at the state and regional levels, mirroring an approach already being used in many local jurisdictions, regional agencies, and states governments. The bill calls upon all states and metropolitan planning organizations (MPOs) to adopt Safe Streets policies for federally funded construction and roadway improvement projects within two years. Federal legislation will ensure consistency and flexibility in road-building processes and standards at all levels of governance.

Interim Approval for Optional Use of an Intersection Bicycle Box (IA-18)

Intersection bicycle boxes are designated areas at signalized intersections that provide bicyclists with a space in which to wait in front of stopped motor vehicles during the red signal phase so that they are more visible to motorists. Since they are still considered an experimental traffic control device, the Federal Highway Administration issued an Interim Approval to allow the provisional use of intersection bicycle boxes in October 2016. This Interim Approval does not create a new mandate compelling the use of intersection bicycle boxes but will allow agencies to install intersection bicycle boxes, pending official rulemaking revising the MUTCD, to facilitate more efficient operations at intersections. Interim Approval of a provisional device typically results in its inclusion in a future Notice of Proposed Amendments to revise the MUTCD. However, this Interim Approval does not guarantee the adoption of the provisional device, either in whole or in part, in any future rulemaking that revises the MUTCD.

CHAPTER 2

EXISTING CONDITIONS & ANALYSIS

Existing Conditions

Analysis

Social Equity

Social Determinants of Health

The California Healthy Places Index

EXISTING CONDITIONS

Overview

Understanding the existing roadway conditions, demographics, land use, and other context-sensitive information in Menifee and the adjacent region is imperative for planning for its future. This chapter summarizes various datasets used to provide meaningful discussions on how each of the topics support or impede pedestrian and bicycle facility development within the City.

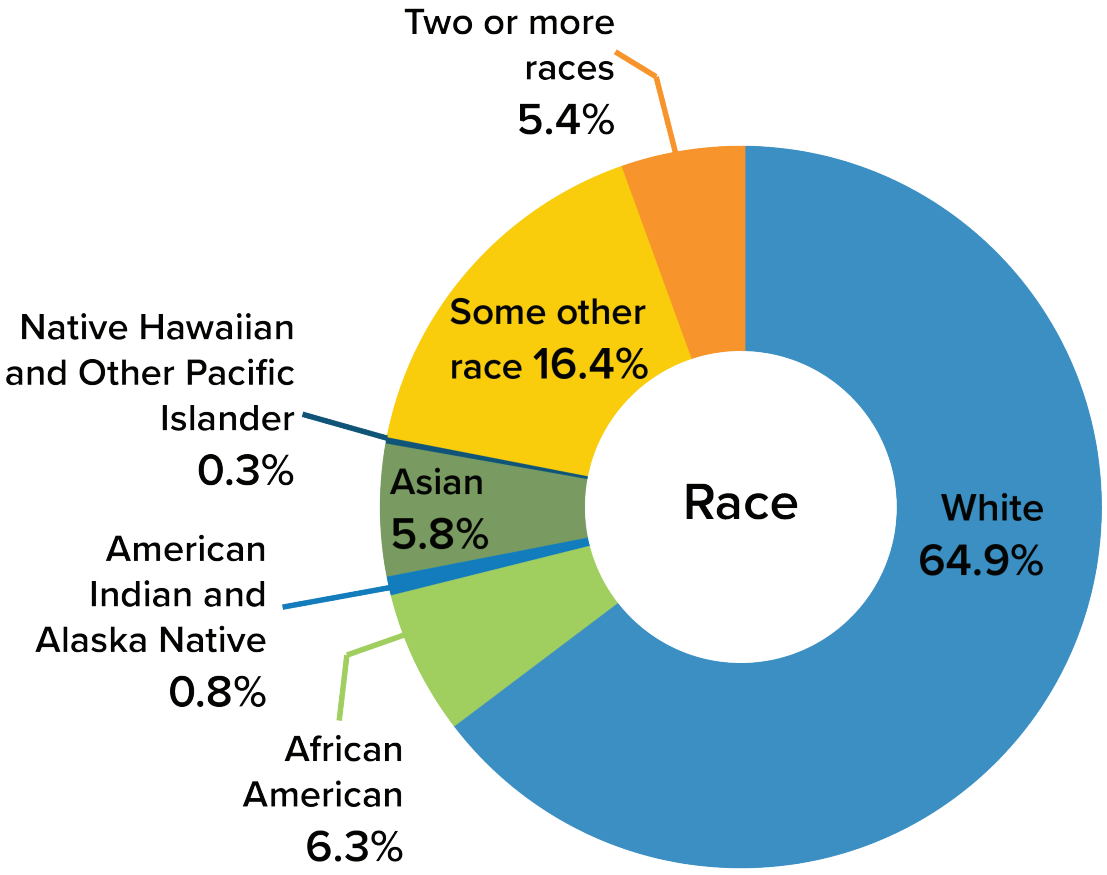
This chapter also includes sections on Menifee's land use, various relevant datasets, such as bicycle and pedestrian collisions, and existing infrastructure. In addition to physical characteristics, data from the 2018 American Community Survey and State of California Department of Finance were used to analyze the demographic and commuting characteristics of the City's residents. Each dataset provides valuable information that contributes to the comprehensive understanding of the street network and how to improve it.

Demographics

According to the State of California Department of Finance, Menifee has a population of 97,093 within its forty-seven square mile city boundary. The City has a population density of 2,066 people per square mile in 28,586 households.

The population of Menifee is relatively middle-age with fifty-four percent of the population being between the ages of twenty to sixty-four years old, while only nineteen percent being classified as seniors (over the age of sixty-five). The racial and ethnic makeup in Menifee is 64.9 percent White, 6.3 percent African American, .8 percent American Indian and Alaska Native, 5.8 percent Asian, 0.3 percent Native Hawaiian and Other Pacific Islander, 5.4 percent two or more races, and 16.4 percent of some other race. About thirty-six percent of the population identifies as Hispanic or Latino; this percentage is spread across all racial groups represented in the race chart.

The median household income in Menifee is $65,757. According to U.S. Census 2018 American Community Survey (ACS), the reported percentage of people in poverty is 9.9 percent.



Transportation Mode Share

Of the households surveyed in 2018, a majority of households have access to one or more vehicles, with 1.1 percent reporting lacking access to a vehicle. In addition, according to the U.S. Census 2018 American Community Survey, there are an estimated 34,097 workers in Menifee. Mode splits for workers' commute trips are:

- Car: 91 percent
- Transit: 1.2 percent
- Walk: .7 percent
- Bicycle: 0 percent
- Work from Home: 5.4 percent
- Other Means: 1.7 percent

Ninety-one percent of workers in Menifee drive to work. This suggests that investments in transit and other mobility choices should be done to reduce shorter, intra City commuter trips and reduce traffic congestion in Menifee.

Walking Mode Share

The walking mode share measures the percentage of workers aged sixteen years and over who commute to work by foot. Mode share reflects how well infrastructure and land-use patterns support travel to work by foot. Walking mode share patterns are connected to the relative proximity of housing to employment centers. In the City of Menifee, Menifee School District terminated busing to students in 2019 resulting in more children walking to school. However, it should also be noted that there have been numerous complaints by parents because of the apparent lack of sidewalks.

Bicycling Mode Share

Similar to the walking mode share, bicycling mode share measures the percentage of resident workers aged sixteen years and over who commute to work by bicycle.

Public Transit Mode Share

Transit mode share measures the percentage of workers aged sixteen years and over who commute to work by transit. This mode share reflects how well first mile-last mile infrastructure, transit routes, and land-use patterns support travel to work by transit.

Existing Land Use and Activity Centers

Menifee consists of distinct communities, each with very diverse characteristics and needs. Communities range from rural to suburban, agrarian to industrial, and established senior residential areas to newer planned communities accommodating families and a younger population.

Figure 2-1: Land Use on the following page, is a map directly from the City's General Plan and depicts existing land use patterns in Menifee that are defined by a fairly conventional urban street pattern of mostly medium density and lower density single family residential interspersed with pockets of other land uses, that include rural residential, commercial, industrial, and agriculture. The concentrations of commercial retail and office occur primarily along major thoroughfares, including Newport Road, McCall Boulevard, Goetz Road, and along Interstate-215. Concentrations of industrial facilities can be found on Antelope Road, Trumble Road, and Matthews Road. Urban neighborhoods can be found primarily near activity centers, especially along Newport Road, Antelope Road, and McCall Boulevard. Small pockets of open space can be found throughout the City, most of which are near schools. Refer to Figure 2-2: Activity Centers for activity centers located throughout Menifee.

To be eligible for State funding, a city's bicycle and pedestrian plan must address connections between specific activity center types. These activity centers are essential destinations, including the community's major employers, office buildings, industrial sites, government sites, retail centers, hospitals, tourist attractions, schools, and parks. Identifying these centers, and their draw for the community, is essential to creating useful bicycle and pedestrian networks. It is important to site facilities that connect the places people want to frequent.

Land Use Map Legend

- Rural Mountainout (RM) 10 ac min
- Rural Residential 5 ac min (RR5)
- Rural Residential 2 ac min (RR2)
- Rural Residential 1 ac min (RR1)
- Rural Residential 1/2 ac min (RR1/2)
- 2.1-5 du/ac Residential (2.1-5R)
- 5.1-8 du/ac Residential (5.1-8R)
- 8.1-14 du/ac Residential (8.1-14R)
- 14.1-20 du/ac Residential (14.1-20R)
- 20.1-24 du/ac Residential (20.1-24R)
- Commercial Retail (CR) 0.20 - 0.35 FAR
- Commercial Office (CO) 0.25 - 1.0 FAR
- Heavy Industrial (HI) 0.15 - 0.60 FAR
- Business Park (BP) 0.25 - 0.60 FAR
- Economic Development Corridor (EDC)
- Agriculture (AG)
- Conservation (OS-C)
- Recreation (OS-R)
- Water (OS-W)
- Public/Quasi Public Facilities (PF)
- Public Utility Corridor (PUC)
- Railroad
- Specific Plan (SP)

Source: Menifee General Plan

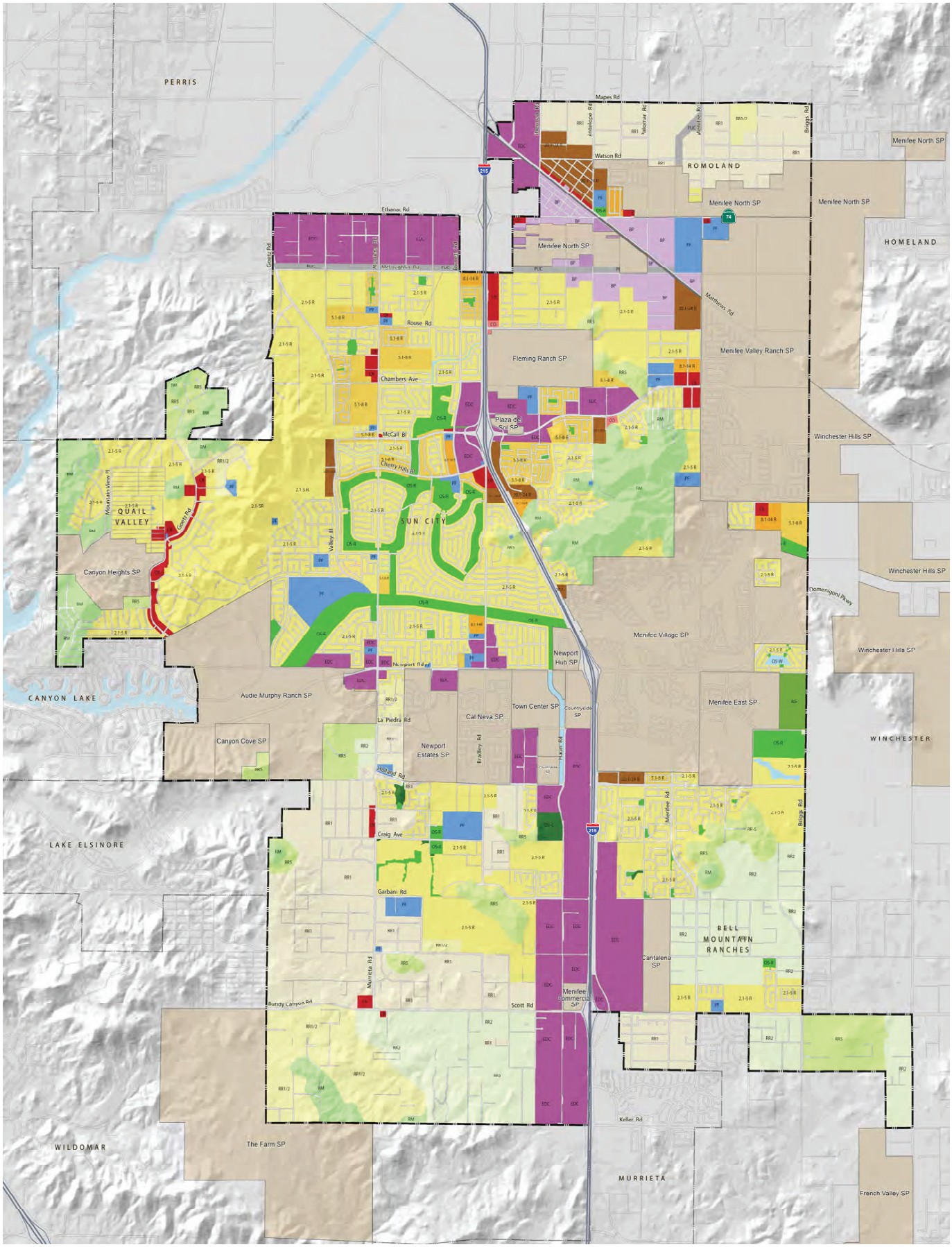


FIGURE 2-1: Land Use Map from City's General Plan

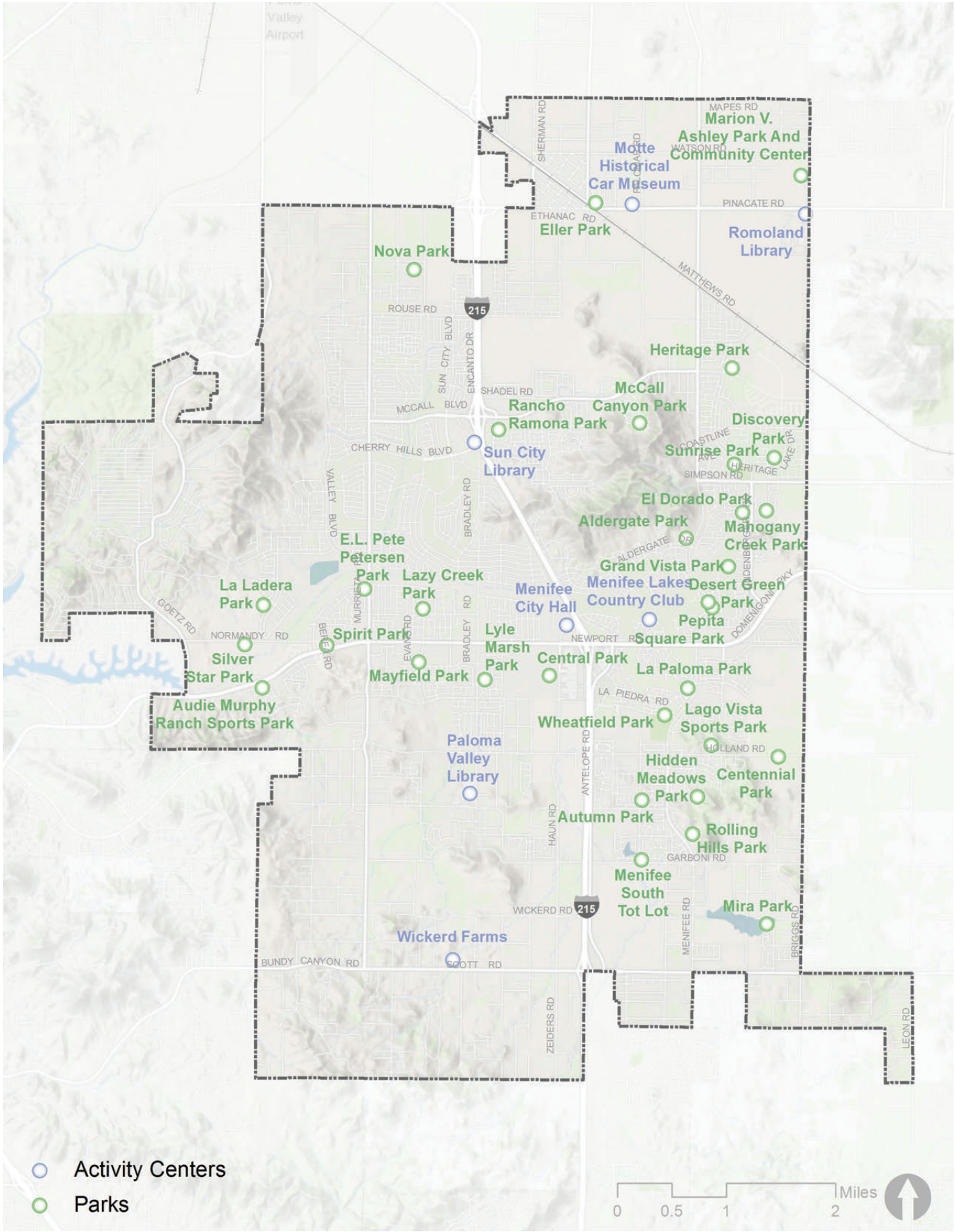


FIGURE 2-2: Activity Centers

Existing and Previously Proposed Bicycle Facilities

The existing bicycle facility network in Menifee is comprised of multi-use paths, bicycle lanes, paved trails, soft surface trails, and combined trails making up 16.5 miles of existing bikeways in addition to 7.8 miles of the Salt Creek Trail in which 4.2 miles are currently undergoing construction (Figure 2-3: Existing Bikeways). Eighty-two percent of the existing bike facilities are class II bike lanes along Newport Road, Aldergate Drive, Heritage Lakes Drive, Ethanac Road, McCall Boulevard, Antelope Road, Domenigoni Parkway, and Craig Avenue. The previously proposed bicycle facilities documented in the General Plan and the Parks, Trail, Open Space, and Recreation Master Plan provided a foundation for the recommended bicycle network of this plan (refer to Menifee's General Plan and Parks, Trail, Open Space, and Recreation Master Plan). This network was analyzed for connectivity within the City and with other surrounding jurisdictions and was presented to the City, stakeholders, and public to gather additional input on routes they felt were important and which should move forward as recommendations.

16.5 miles
of existing bicycle facilities

2.9 miles
of existing class I bicycle paths

13.5 miles
of existing class II bicycle lanes

Class II bike lane

Class III bike route

Class IV separated bikeway

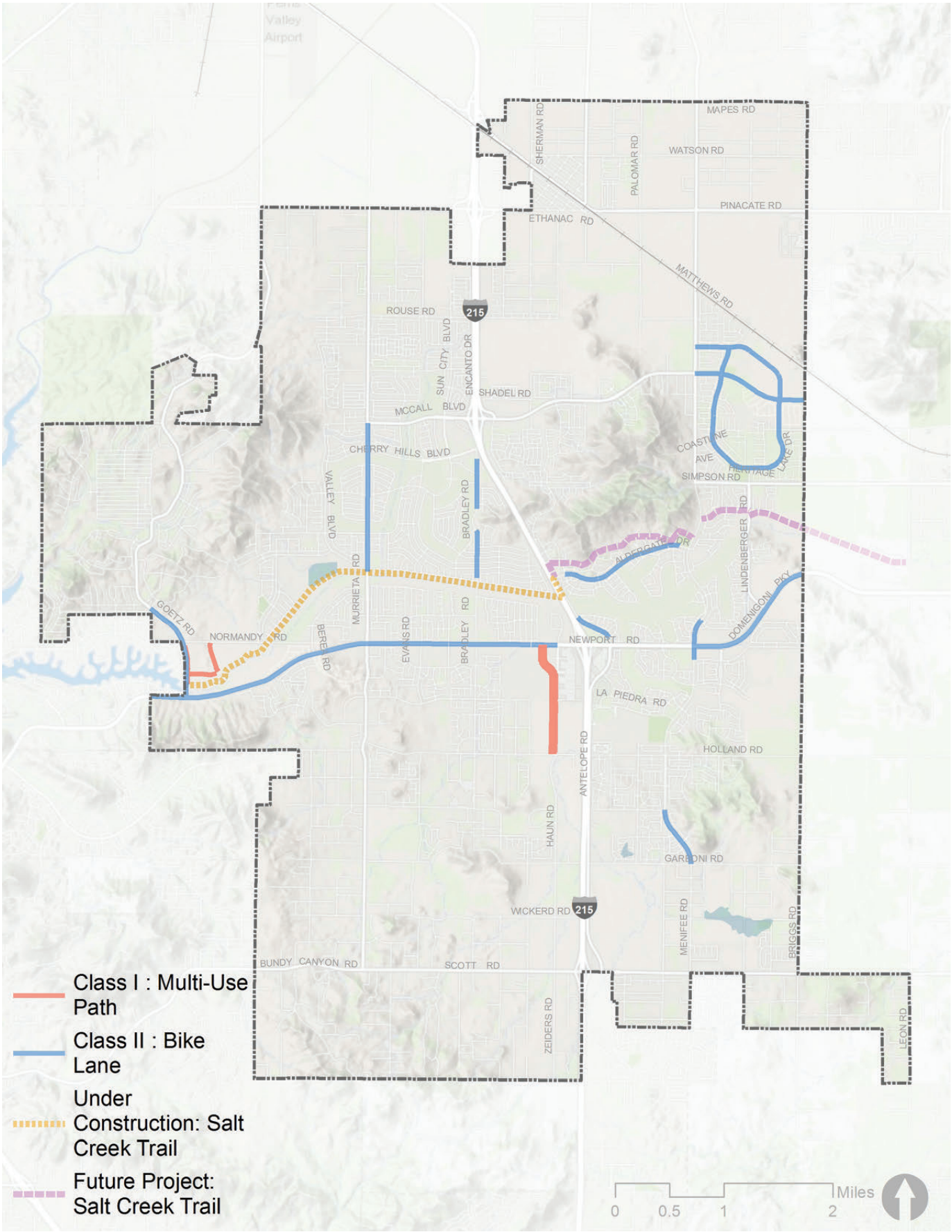


FIGURE 2-3: Existing Bikeways

Transit Routes and Stops

The Riverside Transit Agency (RTA) provides four fixed routes and Dial-a-Ride bus service within the City. These routes include Route 28, Route 40, Route 61, and Route 74. Route 28 is an Amtrak Thruway Bus Route and services northeast Menifee and the Romoland Community along Hlghway 74. Route 40 provides services to Lake Elsinore, Canyon Lake, Quail Valley, Menifee, and Sun City; Route 61 provides services to Perris Station Transit Center, South Perris Metrolink Station, Sun City, Menifee, Murrieta, and Temecula; Route 74 provides services to San Jacinto, Hemet, Winchester, Menifee, Sun City, South Perris Metrolink Station, and Perris.

As shown in Figure 2-4: Transit Routes and Stops on the following page, there are eighty-eight bus stops in Menifee. Other transit services include Fixed Routes, Community shuttles, Intracounty Express Routes, and an Amtrak station on Cherry Hills Boulevard. Table 2-1 displays bus routes and bus stops operating within Menifee. As part of the analysis, these routes and stops were collected to ensure improving access to them was integrated into the plan as major destinations. Approximately 1.2 percent of workers in Menifee use public transit as their primary mode of transportation (*source: 2018 American Community Survey*).

TABLE 2-5: Bus Routes and Bus Stops

BUS ROUTE	BUS STOPS ALONG ROUTE	MILES OF BUS ROUTE
28	10	3.9
40	33	17.2
61	49	14.9
74	35	10.5

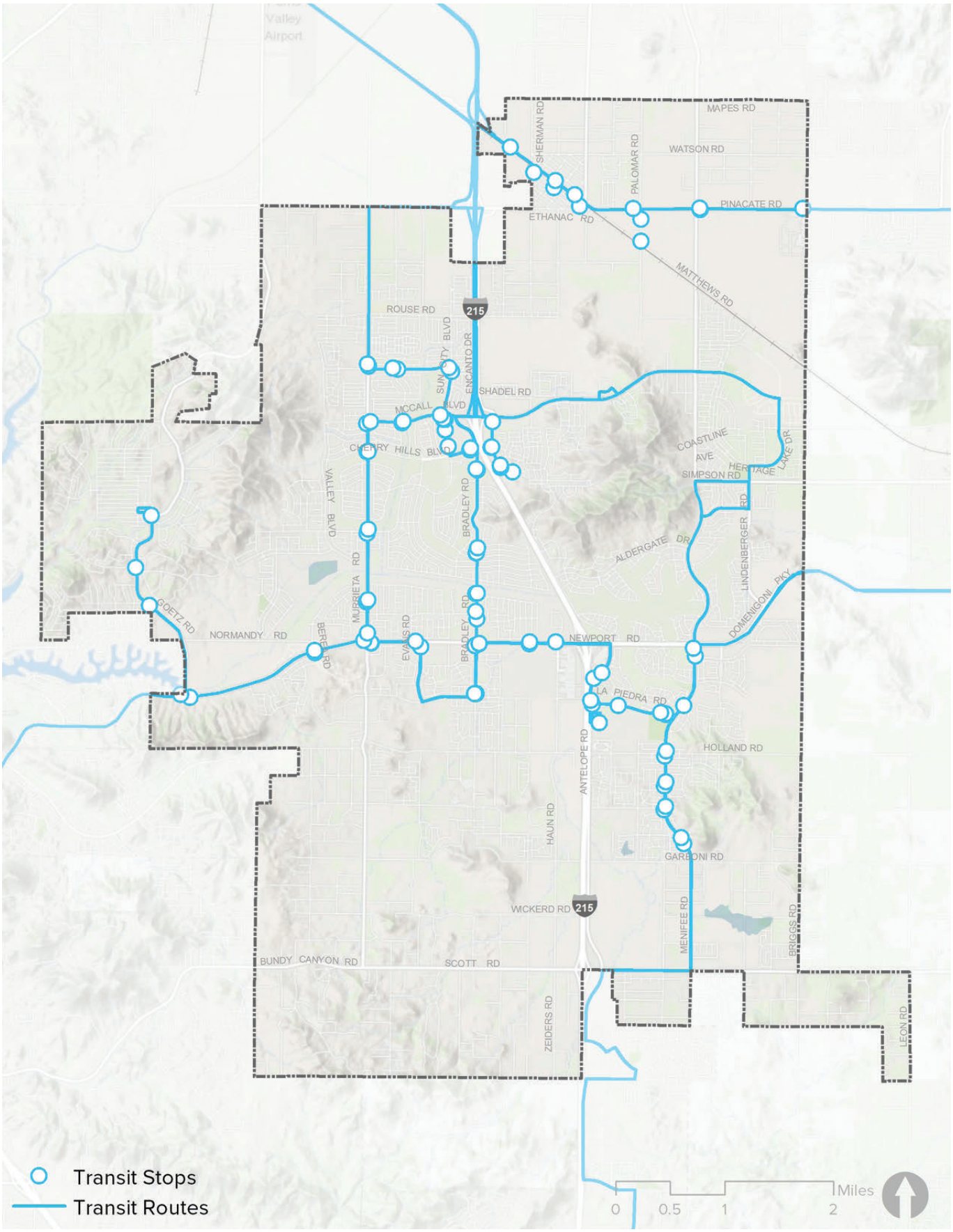


FIGURE 2-4: Transit Routes and Stops

ANALYSIS

To develop this ATP, a thorough analysis of existing conditions in Menifee was conducted that involved GIS analyses, fieldwork, community outreach, and meetings with City staff to gather data and input. GIS-specific analyses involved processing datasets from the City and open source databases, such as the Statewide Integrated Traffic Records System (SWITRS) and combining them to reveal patterns and relationships within Menifee.

Bicycle and Pedestrian Collision Analysis

Bicycle and pedestrian collision data were obtained from the Statewide Integrated Traffic Records System (SWITRS) collision dataset managed by the California Highway Patrol (CHP), which captures reported bicycle-vehicle, pedestrian-vehicle, and bicycle-pedestrian collisions that resulted in injury or property damage in Menifee in the five-year period of 2014 through 2018. Collision density and locations data are displayed in Figure 2-5: Bicycle and Pedestrian Related Collisions on the following page. Collisions on off-street paths are not reported in the dataset. 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. In these past five years, there were forty-seven bicycle-related collisions and fifty-three pedestrian-related collisions, ten of which resulted in fatalities. The bulk of both collision types resulted in visible injury or complaint of pain (seventy-nine percent), with twenty-one percent resulting in severe injury or death.

Bicycle and Pedestrian Propensity Model

To help define study focus areas, a Geographic Information Systems (GIS) model was created to reveal relationships between the many factors analyzed. A Bicycle-Pedestrian Priority Model (BPPM) was developed, considering all of the previously discussed analysis inputs, to establish where bicyclists and pedestrians are most likely to be, either currently or if improvements were to be made. The BPPM is comprised of three submodels: Attractor, Generator, and Barrier Models. These three sub-models are then combined to create the composite Bicycle-Pedestrian Priority Model.

Attractors are essentially activity centers known to attract bicyclists and pedestrians. Examples are schools, transit stops, and shopping centers. Generators are developed from demographic data and address potential pedestrian and bicyclist volumes based on how many people live and work within the study area. Examples of generators are population density, employment density, primary mode of transportation to work, and vehicle ownership. Barriers are features likely to discourage or detract people from bicycling or walking. These are generally physical limitations, such as areas with high numbers of bicycle- related collisions, high vehicle volumes and speeds, and missing sidewalks.

The resulting map displayed in Figure 2-6: Bicycle and Pedestrian Propensity Model was employed to aid in developing general recommendations and to help select priority projects described in the following chapter. When comparing the input from public workshops, stakeholders, and project surveys, there was a correlation between the high propensity areas for bicycling and walking with input provided.

The bicycle and pedestrian propensity map shows the highest likely use along major corridors, especially along Newport Road, McCall Boulevard, Bradley Rd, Holland Road, Menifee Road, Murrieta Road, Goetz Road, Heritage Lakes Drive, Antelope Road, and La Piedra Road. However, bicycle and pedestrian propensity is not only concentrated on the major roadways, it also permeates into local streets that people tend to use frequently.

*In these past five years, there were **47** bicycle-related collisions and **53** pedestrian-related collisions.*

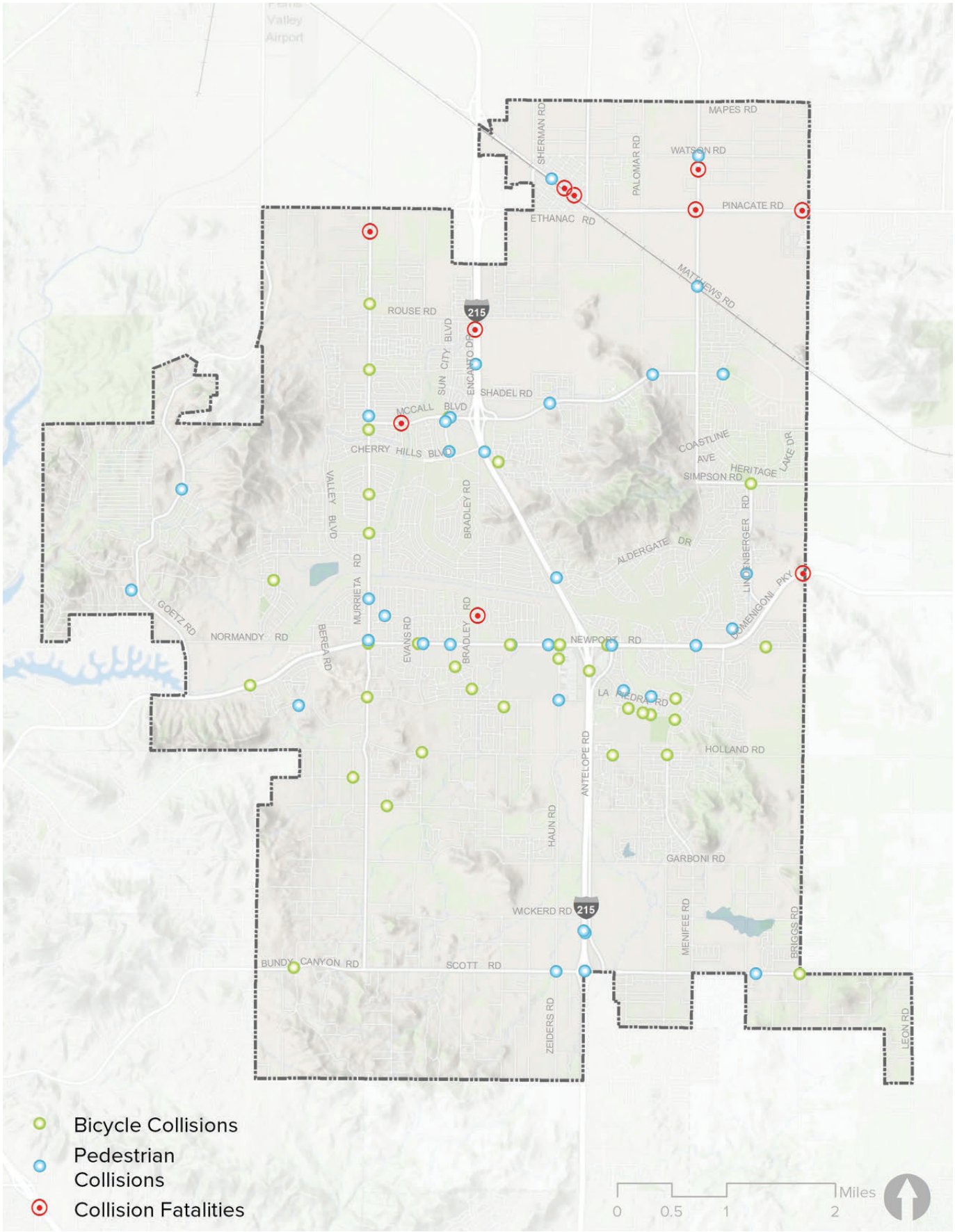


FIGURE 2-5: Bicycle and Pedestrian Related Collisions

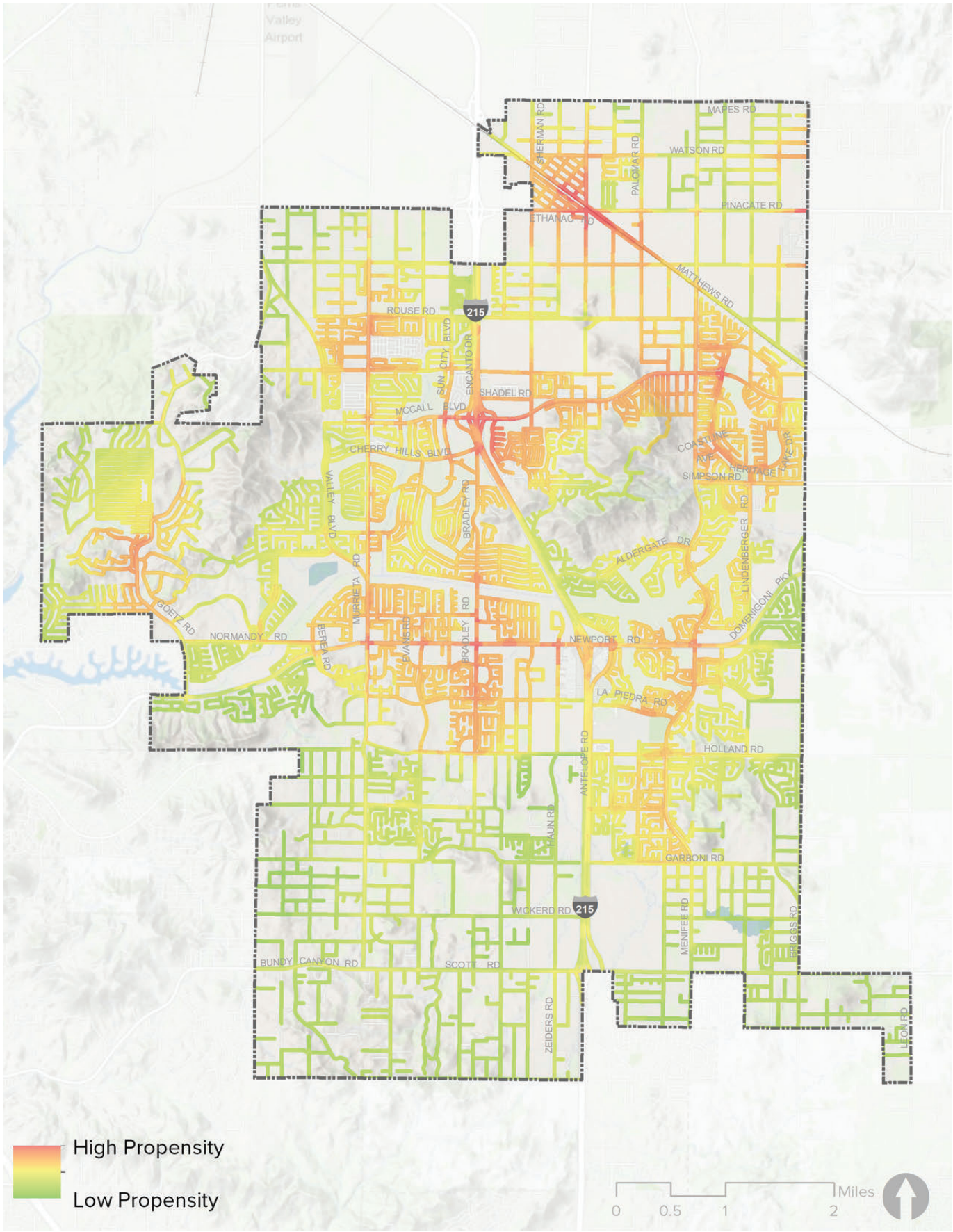


FIGURE 2-6: Bicycle and Pedestrian Propensity Model

SOCIAL EQUITY

Identifying barriers that hinder access to transit in disadvantaged communities can help improve and attain social equity in underserved areas. For this assessment, various sources of data were analyzed including CalEnviroScreen 3.0 and Free and Reduced-Price School Meals Program. Data and analyses from these sources are critical in leveraging funds from not only the Caltrans ATP grant, but other funding sources including urban greening and sustainable community grants.

CalEnviroScreen 3.0

CalEnviroScreen identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution. Identifying pollution burdened communities is a critical step towards improving public health, quality of life, and economic opportunity while reducing pollution that causes climate change. Disadvantaged communities are defined as the top 25% scoring areas from CalEnviroScreen. According to this data, 19% of Menifee falls within the top 25% score area with high amounts of pollution. Figure 2-7: CalEnvrioScreen 3.0 below shows the pollution burden present throughout Menifee.

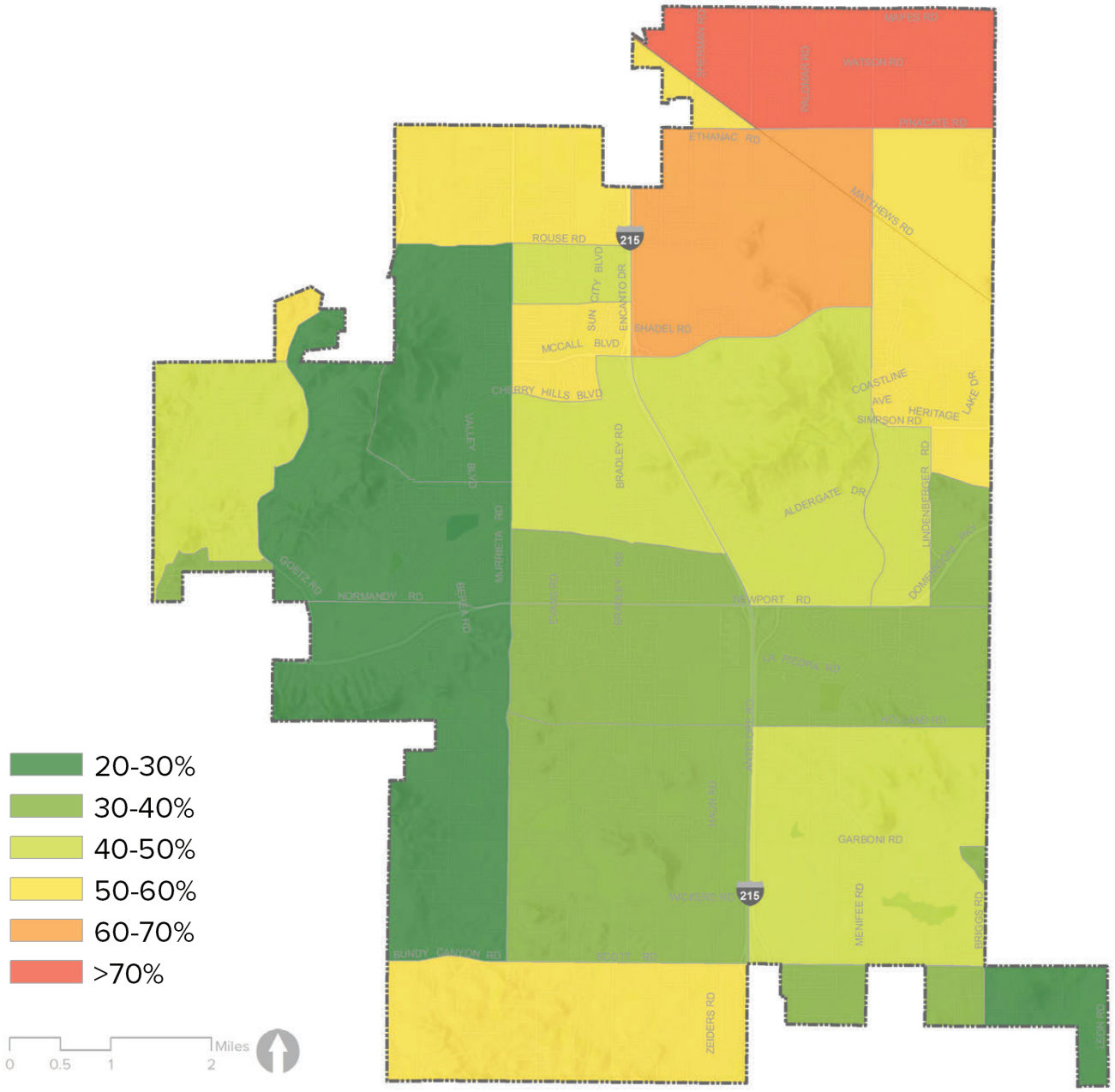


FIGURE 2-7: CalEnvrioScreen 3.0

Free & Reduced Price School Meals (FRPM) Program

The State Meal Program is a child nutrition program funded by California. The program provides funding to public school districts and county superintendents of schools that serve nutritious meals, free or at a reduced price to children in need. Free or reduced-price meals must be provided to those children who qualify for such benefits according to specified family size and income standards. The program is administered by the California Department of Education (CDE), Nutrition Services Division.

Figure 2-8: Free and Reduced Price School Meals (FRPM) Program below shows all the schools within the City of Menifee that are eligible for the program, while Table 2-2: Eligibility for Free and Reduced Price School Meals (FRPM) Program on the following page, includes the eligibility percentages of Menifee's schools for the Free and Reduced Price School Meals Program.

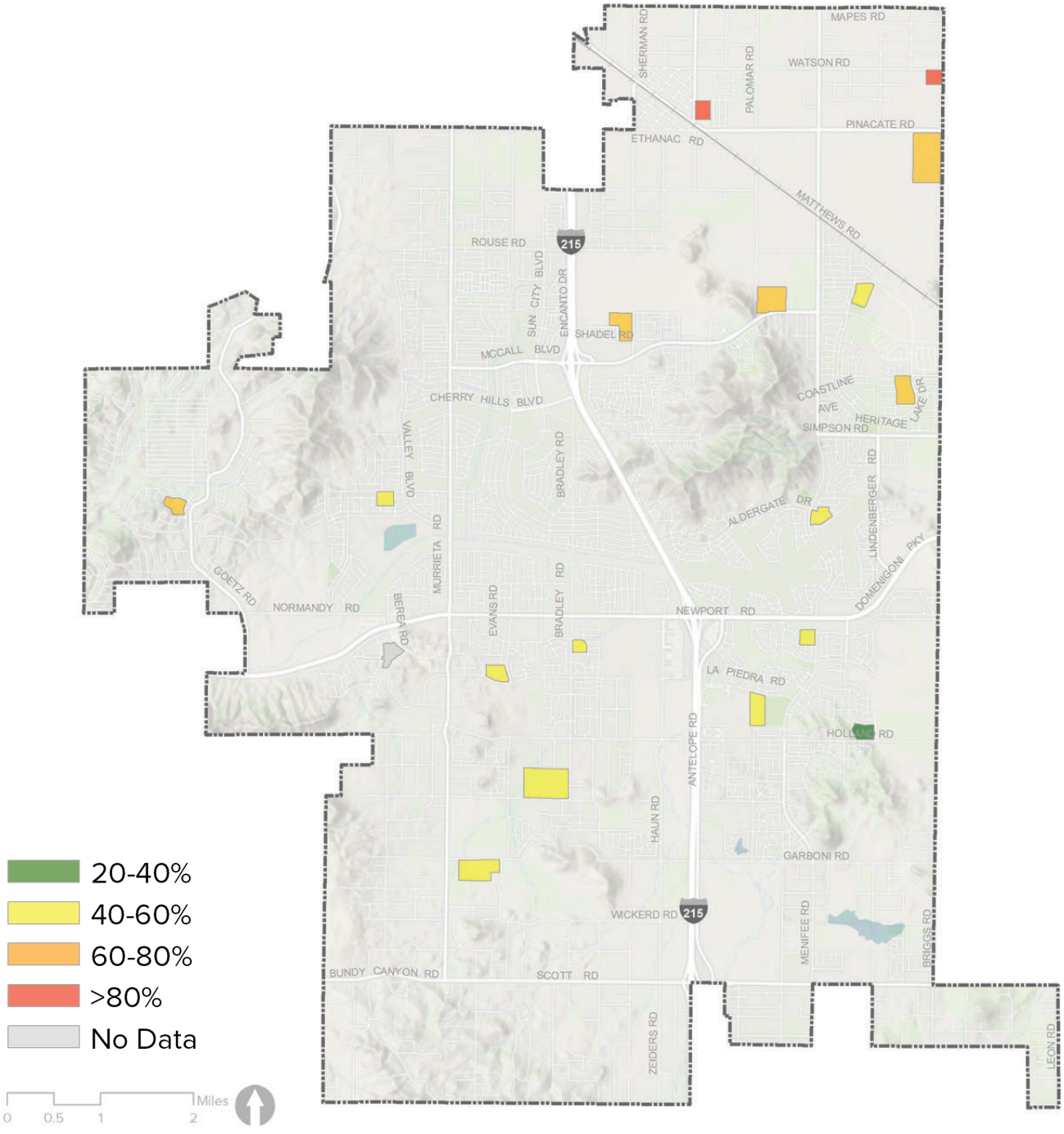


FIGURE 2-8: Free and Reduced Price School Meals (FRPM) Program

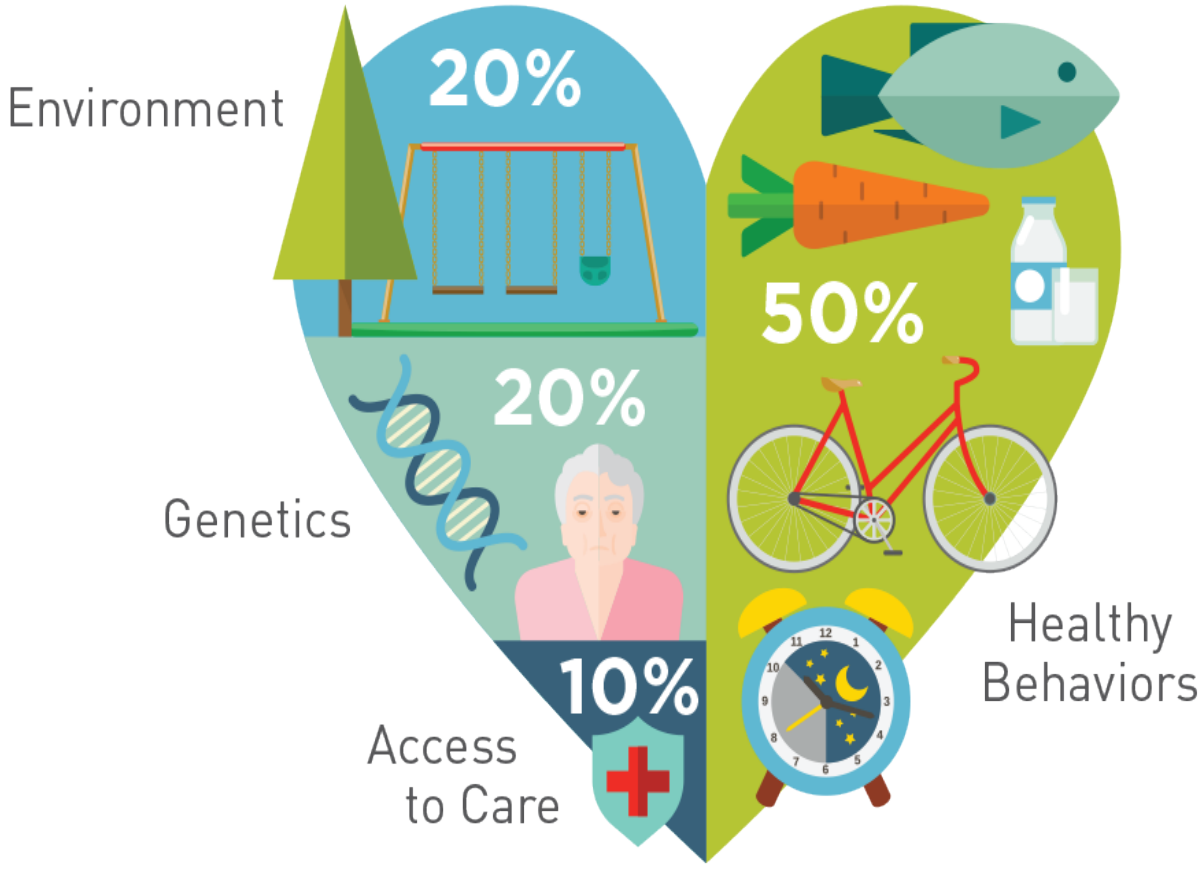
TABLE 2-6: Eligibility for Free and Reduced Price School Meal (FRPM) Program

SCHOOL	SCHOOL DISTRICT	ELIGIBILITY FOR FRPM (%)
Harvest Valley Elementary	Romoland Elementary	91.7%
Romoland Elementary	Romoland Elementary	87.6%
Boulder Ridge Elementary	Romoland Elementary	77.9%
Quail Valley Elementary	Menifee Union Elementary	77.2%
Ethan A Chase Middle	Romoland Elementary	75.5%
Heritage High	Perris Union High	67.2%
Hans Christensen Middle	Menifee Union Elementary	65.6%
Freedom Crest Elementary	Menifee Union Elementary	55.6%
Evans Ranch Elementary	Menifee Union Elementary	49.7%
Paloma Valley High	Perris Union High	48.3%
Ridgemoor Elementary	Menifee Union Elementary	48.2%
Menifee Valley Middle	Menifee Union Elementary	45.1%
Mesa View Elementary	Romoland Elementary	44.0%
Chester W. Morrison Elementary	Menifee Union Elementary	41.7%
Callie Kirkpatrick Elementary	Menifee Union Elementary	41.4%
Bell Mountain Middle	Menifee Union Elementary	41.3%
Southshore Elementary	Menifee Union Elementary	41.2%
Taawila Elementary	Menifee Union Elementary	-

SOCIAL DETERMINANTS OF HEALTH

The built environment including conditions in the places where people live, learn, work, and play affect a wide range of health risks and outcomes. These conditions are known as social determinants of health. The built environment is shaped by the amount of resources that communities have, all of which are influenced by policy choices. Social determinants of health affect factors that are related to health outcomes. We know that poverty limits access to healthy food options as well as safe neighborhoods and that higher educational attainment is a predictor of better health. We also know that differences in health are prominent in communities with poor social determinants of health, such as unstable housing, low income, unsafe neighborhoods, or substandard education. In a number of ways, the built environment can support or hinder active living. For instance, housing, workplaces, street design, access to open space, and transportation all influence prominent health factors including physical activity, safety, access to healthy food, community engagement, and affordable living. Addressing social determinants of health present in Menifee, is a primary approach towards improving the built environment and achieving health equity so that every resident has an equal opportunity to attain their full health potential, regardless of socioeconomic status.

WHAT MAKES US HEALTHY?



Source: HealthEdge.com

THE CALIFORNIA HEALTHY PLACES INDEX

The California Healthy Places Index (HPI) is a tool developed by the Public Health Alliance of Southern California to assist in research exploring local factors that predict life expectancy and comparing community conditions across the state. The HPI provides overall scores and more detailed data on specific policy action areas that shape health, including housing, transportation, and education.

The City of Menifee has an HPI score of 43.4 percent meaning that this city has healthier community conditions than 43.4 percent of other California cities.

Economic Conditions

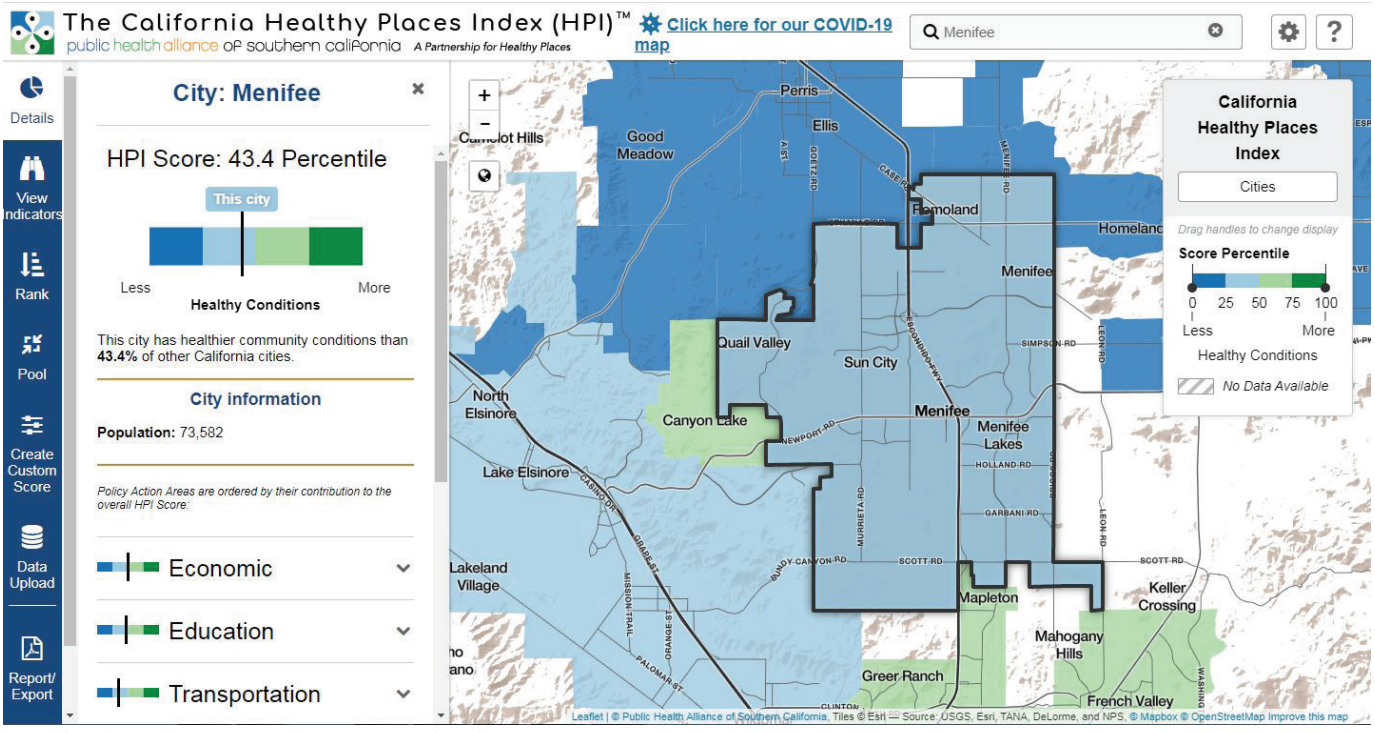
Thirty-seven percent of the population in Menifee lives below poverty. Every household should be able to afford the needs for a healthy life including medical care, healthy food, quality housing, education, and other basic needs. Research indicates that economic opportunity is one of the most powerful predictors of good health, and that impacts on health are especially pronounced for people in or near poverty.

Transportation

Two percent of workers in Menifee (16 years old and older) commute to work by transit, walking, or cycling. Every resident should have safe, accessible, and convenient transportation options to get to work and other key destinations. Active commuting by foot, bike, and transit creates opportunities for physical activity, provides transportation options for those without a car, encourages social cohesion, and reduces contributions to climate change and air pollution. Recommendations that support walking and biking include improving transit services, providing free or discounted transit passes, and offering equitable, low cost shared mobility services.

Social Conditions

Sixty-nine percent of registered voters in Menifee voted in the 2012 general election. Every resident should be able to contribute their voice to the political process and participate in their communities. Voting is an indicator of social power and social cohesion, which have been linked to a wide variety of health outcomes at the individual and community levels.



The California Healthy Places Index (HPI) website

Neighborhood Conditions

Two percent of land in Menifee has tree canopy (weighted by number of people per acre). Everyone should have trees and other plant life near their home. Trees are beneficial for mental and physical health in many ways. They can provide shade and cool surrounding areas, reduce stress, and promote health, wellness and physical activity. Trees are essential to mitigate the effects of climate change, especially extreme heat events.

Fourteen percent of people in urban areas within Menifee reside less than a half-mile from a supermarket and large grocery store. Everyone should have equal access to healthy food options in their community. Having access to a nearby supermarket can encourage a better diet and eating behaviors, lower the costs of obtaining food, reduce chronic diseases, and lower the risk of food insecurity. It is critical for communities to plan for and incentivize access to healthy and affordable food choices in areas that have historically lacked access.

Ten percent of people in Menifee live within walkable distance (half-mile) of a park or open space greater than 1 acre. Every resident should have access to high-quality parks and other open spaces in their neighborhoods, especially in underserved localities. Parks can encourage physical activity, reduce chronic diseases, improve mental health, foster community connections, and support community resilience to climate change and pollution.

Healthcare

Eighteen percent of people aged 18 to 64 years in Menifee are currently uninsured. Every resident should have access to quality medical care services including routine check-ups. Research indicates that health insurance dramatically improves health outcomes by allowing people to access necessary care.

Environmental Conditions

Ten micrograms per cubic meter is the yearly average of fine particulate matter concentration (extremely fine particles from vehicle tailpipes, tires and brakes, powerplants, factories, burning wood, construction dust, and many other sources) in Menifee. Residents should be able to live in neighborhoods where it is safe to breathe. Since fine particulate matter is so small, it can reach deep into individual's lungs, increasing the risk of cardiovascular and respiratory diseases and other unwanted outcomes.

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CHAPTER 3
COMMUNITY ENGAGEMENT

Community Engagement Overview

Community Workshops and Pop-Up Events

Survey Summary

COMMUNITY ENGAGEMENT OVERVIEW

The ATP planning process was conducted in an open and transparent manner to ensure that community members were included throughout the entire course of the project. Community input and involvement were crucial to identify barriers to walking, bicycling, skateboarding, or accessing transit. To achieve that, the community engagement process was designed to include stakeholder education and the involvement of a broad spectrum of stakeholders working towards a common goal, particularly people with little or no experience with civic engagement. Stakeholders included residents, city staff, local advocacy groups, and health organizations.

Community Engagement Strategies

The five primary community engagement strategies utilized for the ATP were:

- Community Workshops and Pop-ups
- Project Advisory Team (PAT)
- Flyers and Social Media Announcements
- Text-based and Map Surveys
- Online Engagement Tools

These strategies informed the public about the ATP, actively engaging community members and stakeholders in the process, allowing them to provide meaningful input.

Community input and involvement were crucial to identify barriers to walking, bicycling, skateboarding, or accessing transit.

Outreach Materials

As part of the community engagement process, outreach materials were developed to maximize public participation.

Project Branding

In order to be consistent with the City's branding and graphic requirements, a similar type of branding style was used for this ATP. The project's branding was used in all outreach materials, including flyers, surveys, online maps, and workshop exhibits.

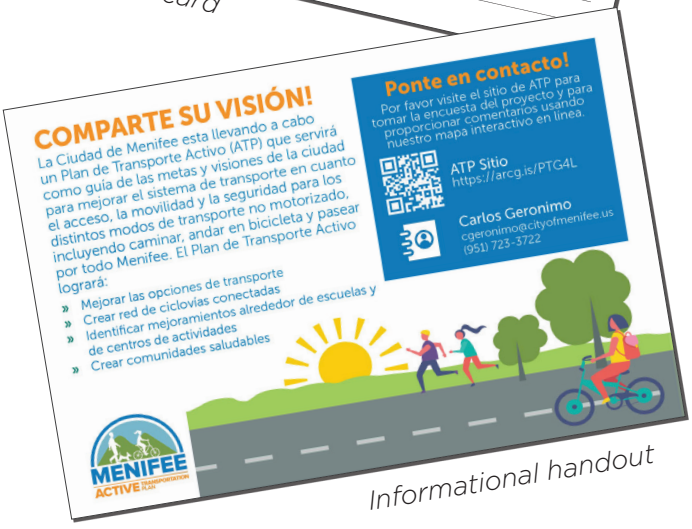
Flyers and Social Media Announcements

Because of Menifee's diverse population, the project needed to have a variety of outreach methods, including printed media and an online presence. Bilingual flyers were created to promote the five community workshops that took place at various parks and community centers. According to the 2018 American Community Survey, approximately 36 percent of Menifee's population is Hispanic or Latino. Because of these demographics, both illustrative and online outreach materials were created both in English and Spanish.

In addition to this, the project team developed social media messages, including Facebook, to reach out to interested members of the community. Furthermore, meeting notices and other communications were sent via email blast to notify the stakeholders about upcoming meetings and project updates.

Flyer

Comment card



Informational handout

ATP logo

Survey

A survey was prepared to determine satisfaction levels of current pedestrian and bicycle infrastructure, along with desired improvements. The survey asked people a variety of walking, bicycling, equestrian, and public transit questions, and prompted them to provide both general and site-specific comments. Additionally, questions regarding the feasibility of a bikeshare system were also included.

Surveys were distributed during the five community workshops, both in English and Spanish. Additionally, an online version was also made available to the public through March 2020. The last community workshop took place on January 30, 2020.

Online Map

An online comment map was created as a supplemental input method that Menifee residents and stakeholders could use to highlight location-specific constraints and opportunities. It also provided the opportunity to categorize the type of issues or improvements identified on the map (e.g. bike, pedestrian, transit, etc.) and allowed respondents to attach photos and include comments. All points were automatically geo-referenced and allowed anyone to see where others had similar issues. This platform allowed the team and the City to efficiently document and analyze comments identified by the community.

"Where would you like to see better pedestrian and bicycling routes to?"

"How often do you walk in Menifee?"

ATP survey

Project Advisory Team (PAT)

The Project Advisory Team (PAT) was a key component of the community engagement process. For consistency purposes, the PAT consisted of members who represented various community areas/neighborhoods, businesses, school districts, and city departments. Participating organizations included:

- Menifee Engineering
- Menifee Public Works
- Menifee Community Development
- Menifee Community Services
- Menifee Police Department
- Menifee Senior Advisory Committee
- Menifee Economic Development
- Caltrans District 8
- Riverside Transit Agency
- Cast A Shadow

The PAT met quarterly to share information, collaborate, and guide the ATP process and guidelines.

PAT meeting #4

Workshop #1: 4th of July Celebration

Resident providing map comments

COMMUNITY WORKSHOPS AND POP-UP EVENTS

A total of five community workshops were conducted throughout the ATP planning process to gather input and solicit feedback on recommendations. It was determined that the pop-up workshop approach would be a great avenue to gather input for the project. This would allow the project team to gather feedback at events where there is already an audience.

Workshop #1: Independence Day Celebration Pop-up Booth (June 29, 2019)

The first pop-up took place during the City of Menifee's Independence Day Celebration on July 4th, 2019. The team created an informational booth that featured interactive maps, surveys, promotional materials, incentives, and a "Spin the Wheel" active transportation game. A key incentive for this event was the raffle of two bicycles donated by Menifee Bicycles, a local bike shop.

Workshop #2: Farmer's Market Pop-up Booth (August 2, 2019)

The second pop-up was held during the summer Moonlight Market events featuring bazar vendors, music, and movie night at the park. The City provided an existing booth that featured the Active Transportation Plan. The team had an opportunity to talk to community members about the project and fill out surveys.

Workshop #3: Fall Festival Pop-up Booth (October 26, 2019)

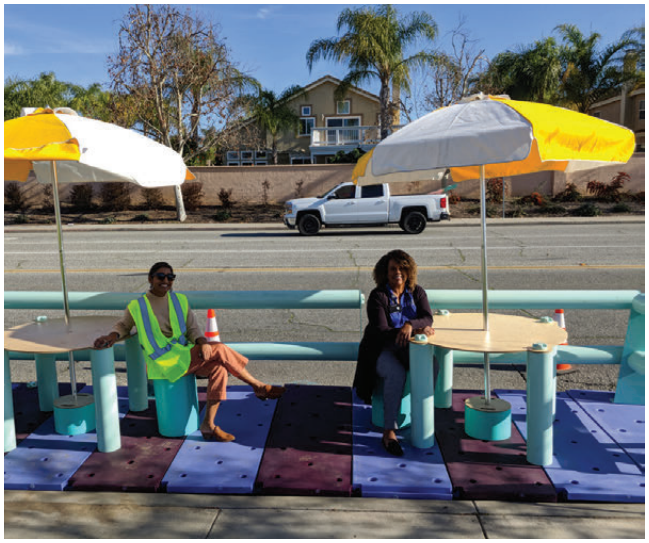
The third pop-up was conducted during the City of Menifee's Fall Festival. This event draws hundreds of young families with kids as Halloween is celebrated. In the same fashion as the first pop up, the team created an informational booth that featured interactive maps, surveys, promotional materials, incentives, and a "Spin the Wheel" active transportation game.

Workshop #4: Community Partners Meeting (October 8, 2019)

A brief presentation was conducted at the October 8, 2019 Community Partners Meeting to introduce

Resident providing map comments

Resident sharing comments with interactive board



SCAG GoHuman installation during Charrette

the project's goals, schedule and to gather input from community leaders. A series of information and visual preference boards along with table maps were available for participants to provide feedback on the walking and bicycling conditions in Menifee. An estimated 25 people were in attendance and several comments were recorded.

Workshop #5: Menifee Three-Day Charrette (January 28 – January 30, 2020)

A centerpiece of the project is the three-day charrette that took place from Tuesday, January 28, 2020, to Thursday, January 30, 2020, throughout Menifee. Flyers and posters were distributed, both in English and in Spanish, as well as surveys that allowed residents to share their thoughts and concerns regarding active transportation in Menifee. In addition to gathering community input, a temporary G*oHuman* installation was installed in front of Wheatfield Park on the corner of La Piedra Road and Menifee Road for all three days of the Charrette. *GoHuman* is a community outreach and advertising campaign led by the Southern California Association of Governments (SCAG) to reduce traffic collisions in Southern California and encourage people to walk and bike more.

DAY I

Menifee Unified School District (MUSD) Grandparents Raising Grandchildren Support Group

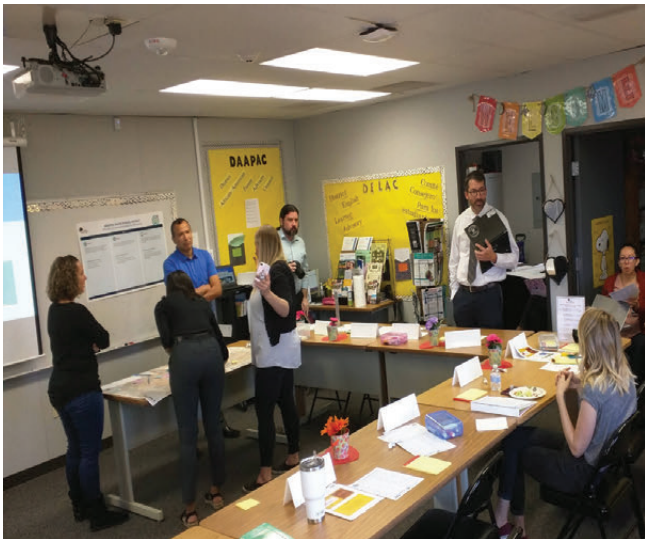
» This event took place at the Family Engagement Center and involved a facilitated group discussion on challenges and opportunities present in Menifee regarding active transportation. Participants were asked what types of changes should be made in Menifee when it comes to street and trail network infrastructure, public transit, and/or non-motorized infrastructure, safety, monitoring, and public awareness programs. Table maps, bilingual surveys, comment cards, and other corresponding materials were made available to ensure community participation.

Quail Valley Elementary School Group

» This event took place at Quail Valley Elementary School and involved a facilitated group discussion on challenges and opportunities present in

October 08, 2019 Presentation

Resident providing comments during Charrette



Parent Advisory Council Meeting

Menifee regarding active transportation. Participants were asked what types of changes should be made in Menifee when it comes to street and trail network infrastructure, public transit, and/or non-motorized infrastructure, safety, monitoring, and public awareness programs. Table maps, bilingual surveys, comment cards, and other corresponding materials were made available to ensure community participation.

Walk Audit at Wheatfield Park

» Residents of Menifee were asked to participate in a walk audit at Wheatfield Park and Bell Mountain Middle School before the workshop to assess safety conditions on the street, tell the planners and designers what they want to see happen in Menifee, and to learn about fun ways to improve the walking and bicycling environment.

Opening Workshop

» The opening workshop took place at Callie Kirkpatrick Elementary School. The workshop consisted of two table exercises using table maps, complete street booklets, and summary worksheets to gather community input. Participants were asked to identify the concerns and solutions they have with walking, bicycling, equestrian, transit, and other modes in Menifee and note these comments on an aerial map of the City. They were also asked to identify pedestrian and bicycle projects with the goal of developing a network. ATP team staff facilitated the tables exercises to guide discussion and summarized the top concerns provided.

DAY II

Romoland District School Principals Meeting and Walk Audit

» This event took place at Harvest Valley Elementary School and involved a facilitated group discussion on challenges and opportunities present in Menifee regarding active transportation. After a short presentation, attendees participated in a walk audit around Harvest Valley Elementary School to assess safety conditions on the street and to learn about fun ways to improve the walking and bicycling environment. Participants reconvened around table maps and discussed what types of changes should be made in Menifee when it comes to street and trail network infrastructure, public transit, and/or non-motorized in-

Residents providing map comments during Charrette

Workshop #1: 4th of July Celebration

Resident commenting on recommended bikeways

frastructure, safety, monitoring, and public awareness programs. This activity allowed participants to tell the planners and designers what improvements they want to see in Menifee. Bilingual surveys, comments cards, and other corresponding materials were made available to ensure community participation.

Session with Seniors

» This event took place at the local Senior Center and involved a facilitated group discussion on challenges and opportunities present in Menifee regarding active transportation. Participants were asked what types of changes should be made in Menifee when it comes to street and trail network infrastructure, public transit, and/or non-motorized infrastructure, safety, monitoring, and public awareness programs. Table maps, bilingual surveys, comment cards, and other corresponding materials were made available to ensure community participation.

DAY III

MUSD District English Learners Advisory Committee & MUSD Parent Advisory Council

» These back-to-back meetings took place at the Family Engagement Center and involved a facilitated group discussion on challenges and opportunities present in Menifee regarding active transportation. Participants were asked what types of changes should be made in Menifee when it comes to street and trail network infrastructure, public transit, and/or non-motorized infrastructure, safety, monitoring, and public awareness programs. Table maps, bilingual surveys, comment cards, and other corresponding materials were made available to ensure community participation.

Open House

» The Open House took place at Menifee's City Hall Council Chambers. The Open House was designed to present the public with the results that were summarized for each day of the Charrette. Several facility boards were presented which included results from the bilingual survey, a summary of comments provided from the table map exercises, as well as additional proposed bicycle routes provided from the feedback that residents shared.

Set-up at La Piedra Park during Charrette

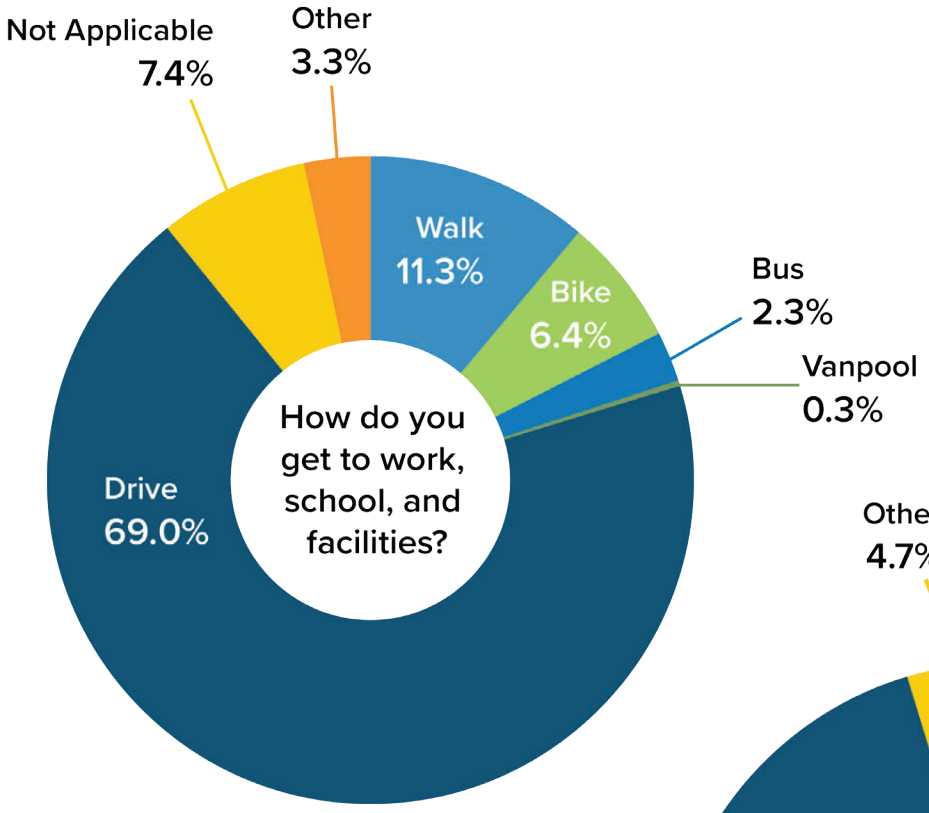
Charrette Open House

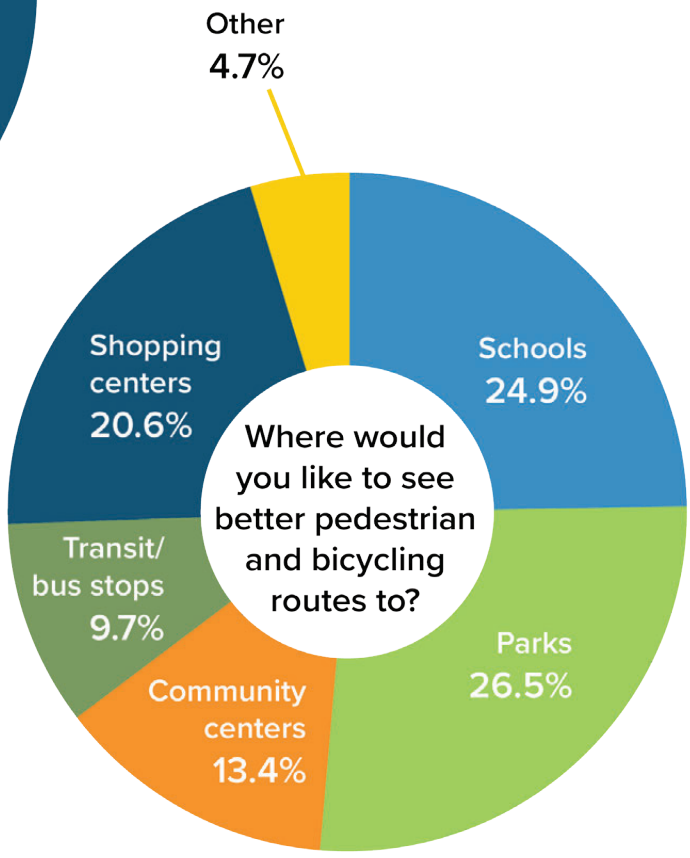
Feedback from Charrette

SURVEY SUMMARY

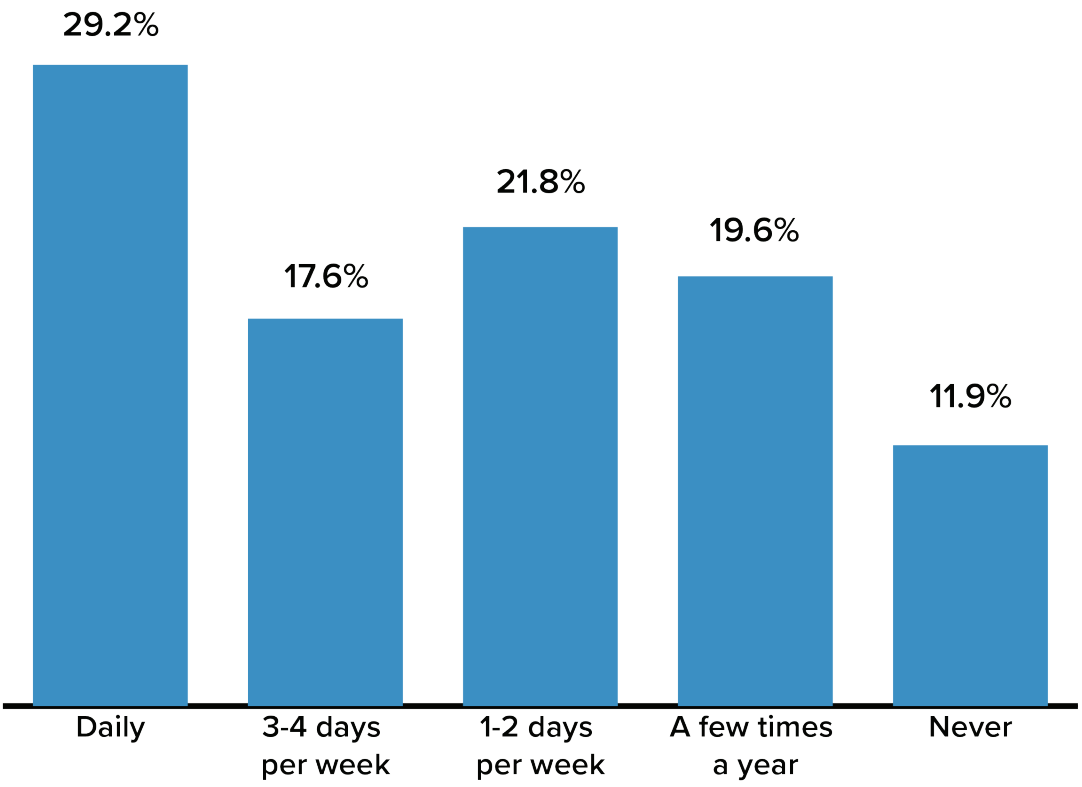
A total of 349 people completed the survey and provided comments. The results were analyzed and used for the development of potential pedestrian projects and bikeway routes list. The survey also provided the City with a current view of people's opinions, concerns, and desires for pedestrian and bicycle facilities.

The following figures depict results from the survey. About 69 percent of respondents walk more than once a week, while only 32 percent of respondents bike more than once a week. Over 68 percent of respondents drive to work or school and 50 percent of them drive to the park. In addition, when asked what would make walking and biking better in Menifee, respondents answered continuous sidewalks and bike paths away from the street. Figure 3-1: Geographic Comment Summary Map from Community Outreach, is a map showing a summary of geographic comments that were gathered throughout the various community outreach events. Some of the comments included suggested bicycle routes, identified problem intersections, and missing sidewalks. These results communicate the importance of improving the walking and biking infrastructure in the City.

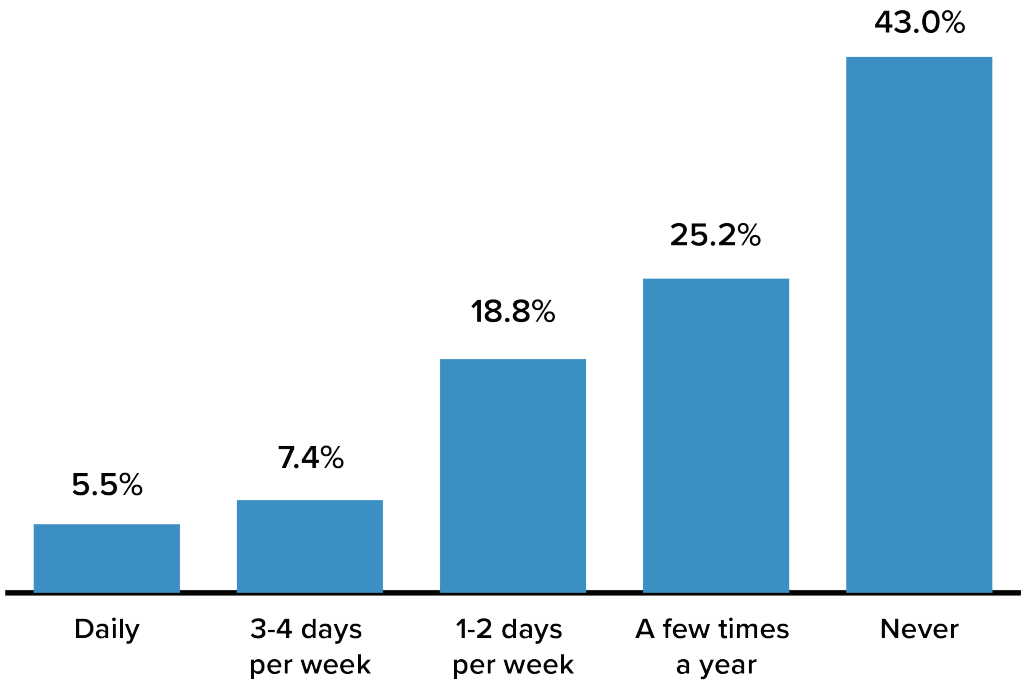




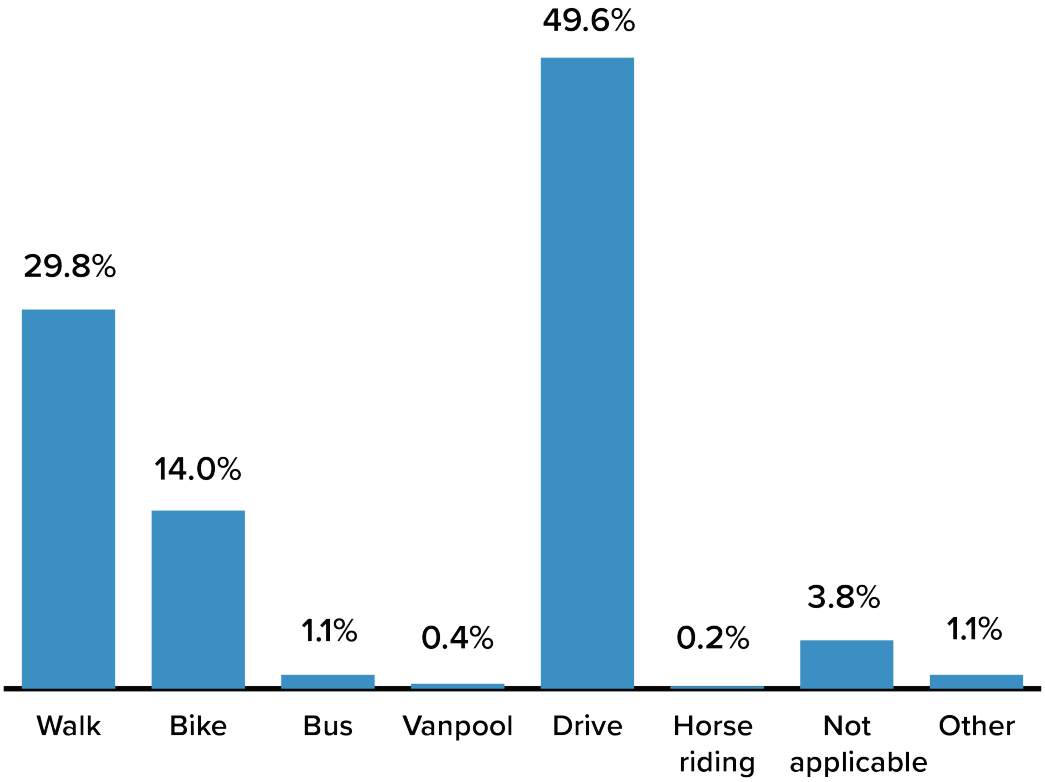
How often do you *walk* in Menifee?



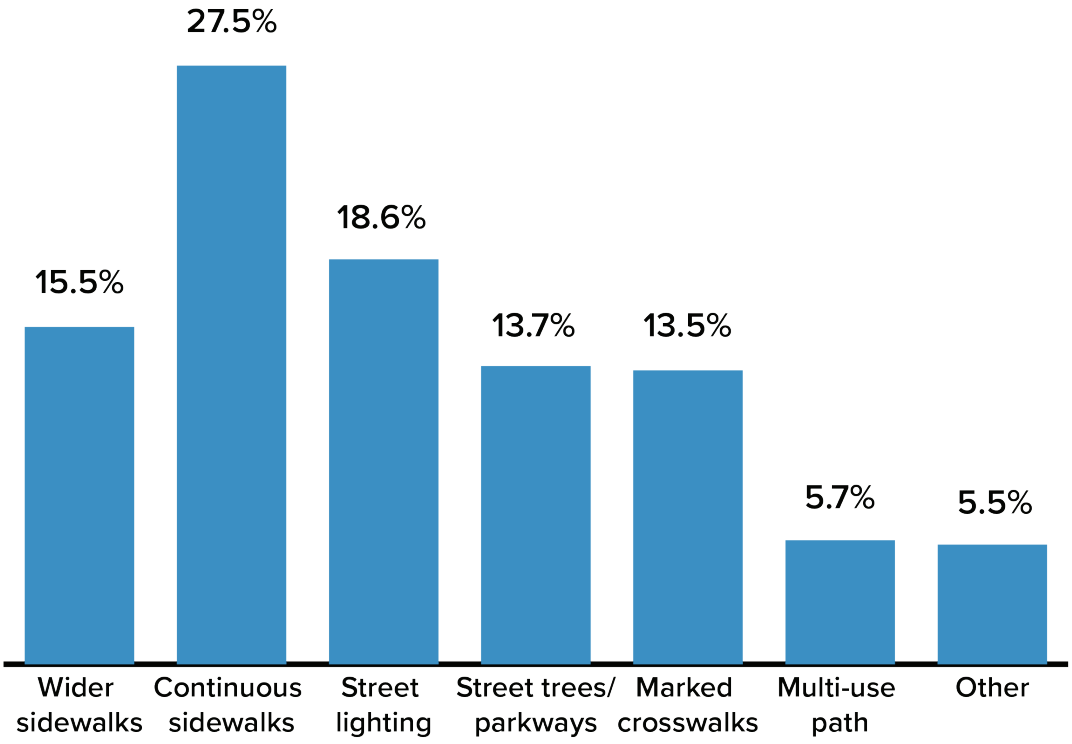
How often do you *bike* in Menifee?



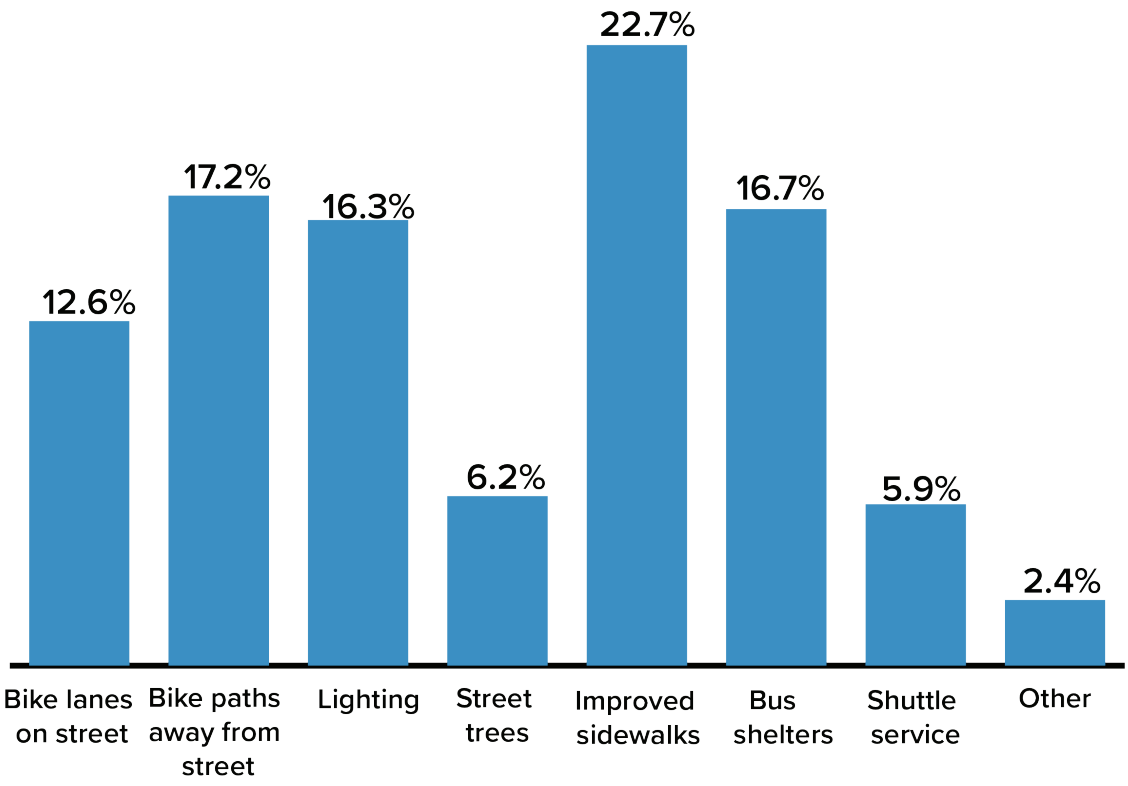
Do you visit city parks or recreation facilities? If so, how do you get there?



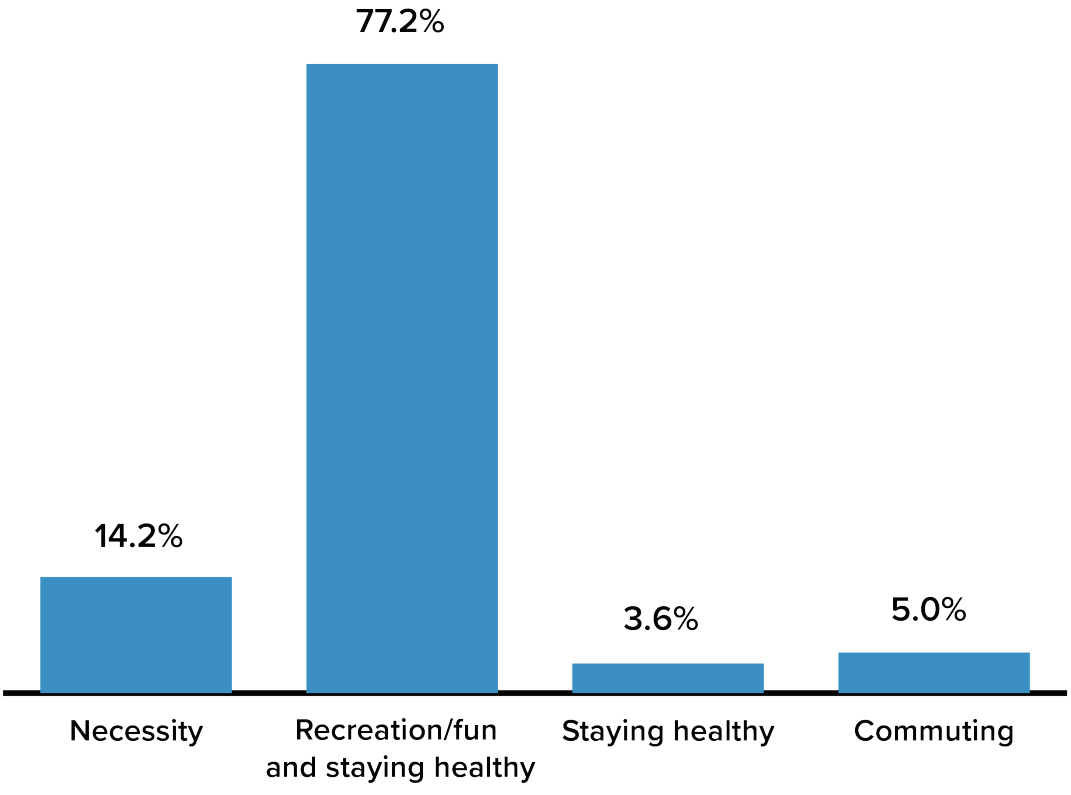
What would make it easier for you to *walk more* in Menifee?



What would make it easier for you to reach transit stops in Menifee?



When you walk, bike, or roll, do you do it for:



GEOGRAPHIC COMMENT SUMMARY FROM WORKSHOPS

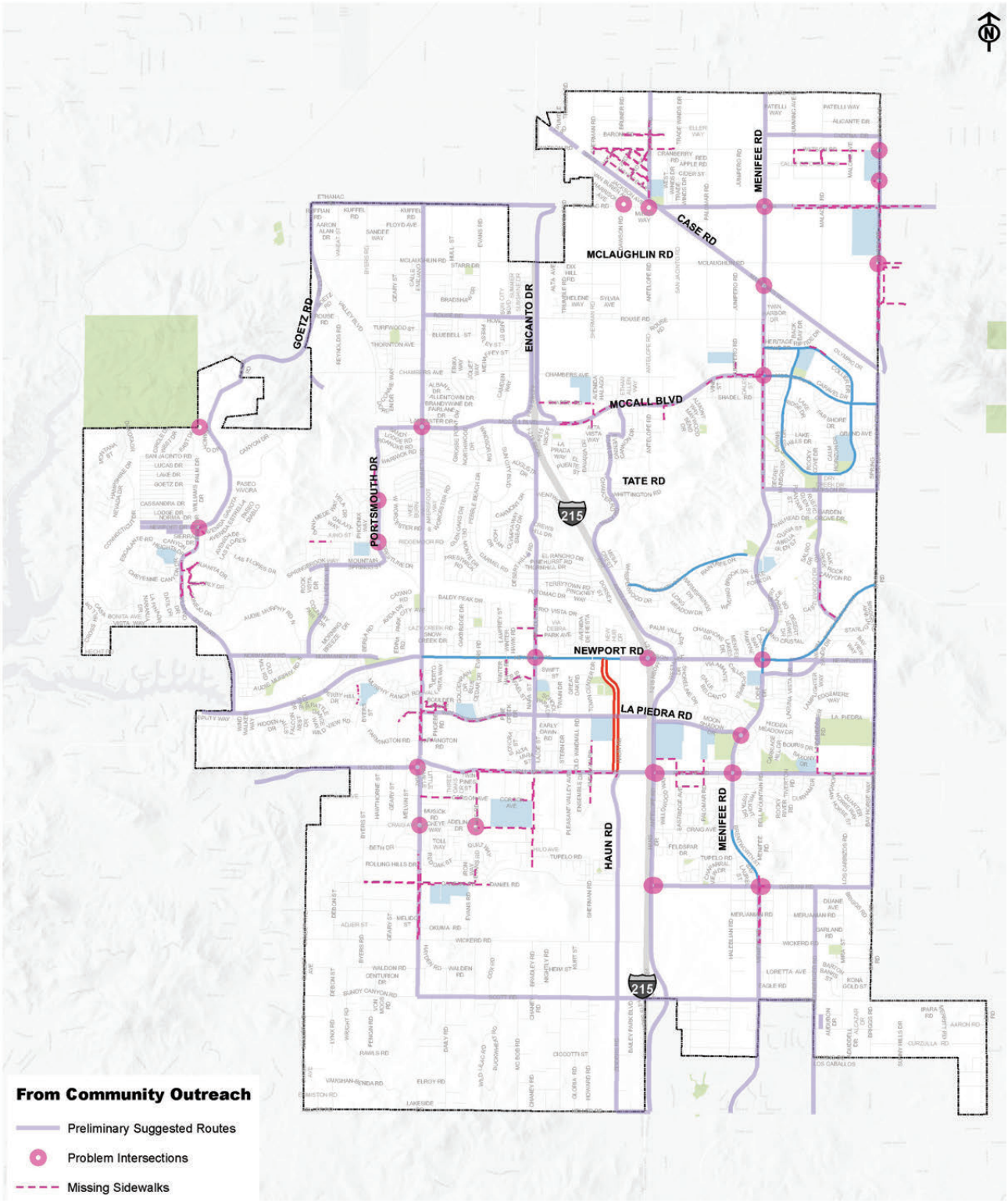


FIGURE 3-1: Geographic Comment Summary Map from Community Outreach

CHAPTER 4

RECOMMENDATIONS & PROGRAMS

RECOMMENDATIONS AND PROGRAMS

Recommendations Overview

This chapter addresses the physical improvements recommended to enhance bicycling and walking in Menifee. The recommended bicycle and pedestrian improvements includes both short-term and long-term improvements and is meant to serve as a guide to help the City in allocating funds as they become available through various sources. The chapter contains maps and tables that detail improvement location, extent, and type.

It is important to note that the success of recommended projects is closely tied to programs and adopted standards, codes, and policies. Engineering, Education, Encouragement, Enforcement, Equity and Evaluation can be used to leverage investments in these projects. Similarly, the effectiveness of bicycle and pedestrian programs is maximized by actual project implementation. Likewise, changes to city standards, codes, and policies may be needed to implement bicycle and pedestrian improvements. Project implementation may, in turn, facilitate changes to city standards, codes, and policies.

Bicycle and Pedestrian Treatments

While not universally applied, in general, pedestrian travel in urban areas has long tended to be accommodated with features like sidewalks, crosswalks, dedicated signals, and curb extensions. Suggested pedestrian treatments address a wide variety of issues identified in the analysis and community engagement process to enhance connectivity to transit, school zones, senior zones, activity centers, parks, and other community destinations. 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.

A 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 five years. 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. The route types recommended in this plan, and described in the following section, are consistent with this evolving state of practice.

Conventional Bicycle Treatments

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 MUTCD and CA Highway Design Manual.

Class I: Multi-Use Paths

Class I multi-use paths (frequently referred to as "bicycle paths") are physically separated from motor vehicle travel routes, with exclusive rights-of-way for non-motorized users like 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 can be on the left side) and are between the adjacent travel lane and curb, road edge, or parking lane. They are not physically separated from motor vehicle traffic.

Class III: Bicycle Routes

A bicycle route is a suggested bicycle path of travel marked by signs designating a preferred path between destinations. They are recommended where traffic volumes and roadway speeds are fairly low (35 mph or less).

Class IV: Separated Bikeways (Cycle Tracks)

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

Haun Rd multi-use path

Class II bicycle lane along Newport Rd

Class III bicycle route

Class IV separated bikeway

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, but the safety of two-way separated bikeways must be carefully evaluated, 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.

Enhanced Bicycle Treatments

While the conventional bicycle route types can be found throughout the United States, there has been a distinct shift towards further enhancement. For example, the CA MUTCD has approved the installation of buffered bicycle lanes, while Shared Lane Markings or "Sharrows" have been in use since 2004 throughout the State.

These enhancements are low cost, easy to install, and 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. The use of green markings has also become a simple and effective way to communicate the likely presence of bicyclists. It is also used to denote potential conflict zones between bicyclists and vehicles.

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. 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 green background to enhance visibility.

Buffered bicycle lane

Shared lane "sharrow" marking

Bike box

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. This positioning helps encourage bicyclists traveling straight through not to wait against the curb for the signal change.

Advisory Bike Lanes

An advisory bike lane is a preferred space for bicyclists and motorists to operate on narrow streets that would otherwise be a shared roadway. Roads with advisory bike lanes accommodate low to moderate volumes of two-way motor vehicle traffic and provide a safer space for bicyclists with little or no widening of the paved roadway surface. Due to their reduced cross section requirements, advisory bike lanes have the potential to open up more roadways to accomodate comfortable bicycle travel.

Low Stress Bicycle Treatments

There are a number of other non-conventional route types that the City may find useful in specific situations. In many cases, the conventional bicycle route types previously mentioned may not meet the community's perceptions of safe and comfortable bikeways. Protected, low-stress streets, and bicycle-prioritized route types are constantly being revised and improved to meet the community's needs.

The improvements described in this section have been implemented in other states in the United States as well as other countries with great success and are quickly becoming standard recommendations.

Details of these route types and other treatments can be found in the NACTO Urban Bikeway Design Guide, FHWA Separated Bike Lane Planning and Design Guide, or the AASHTO Guide for the Development of Bicycle Facilities.

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 often parallel higher volume, higher speed arterials. Bicycle boulevard

Bicycle boulevard

Wayfinding signage

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 roadway conditions.

Colored Bicycle Lanes

Colored pavement increases the visibility of bicycle routes, identifying potential areas of conflict or transition, and reinforces bicyclists' priority in these areas. Colored pavement can be used as a corridor treatment, along the length of a bicycle lane or within a protected bikeway. Additionally, it can be used as a spot treatment, such as crossing markings at particularly complex intersections where the bicycle path may be unclear. Consistent application of color across a bikeway corridor is important to promote clear understanding for all roadway users.

Green Colored Conflict Striping

Intersection or mid-block crossing 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.

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 special signal phasing.

Two-Stage Left Turn Queue Box

Two-stage turn queue boxes can provide a more comfortable left-turn crossing for many bicyclists because they entail two low stress crossings, rather than one potentially high stress one. They also provide a degree of separation from vehicular traf-

Colored bicycle lane

Green transition striping

Protected intersection

Two-stage left turn queue box

fic, because they do not require merging with vehicle traffic to make left turns. Bicyclists wanting to make a left turn can continue into the intersection when they have a green light and pull into the green queue box. Bicyclists then turn 90 degrees to face their intended direction and wait for the green light of a new signal phase to continue through.

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."

Bicycle Detection

Bicycle detection is used at intersections with traffic signals to alert the signal controller that a bicycle crossing event has been requested. Bicycle detection can occur either through the use of push buttons or by automated means, and are marked by standard pavement symbols.

Traffic Calming

Traffic calming involves changes in street alignment, installation of barriers, 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 apply to Menifee.

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 counter-clockwise 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 can be implemented on most streets, but may require additional right-of-way.

Traffic circle

Bicycle signal

Bicycle detection

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.

Signals and Warning Devices

Traditional pedestrian signals remain the gold standard for high quality pedestrian crossings, although some cases warrant new signal technologies. Pedestrian Hybrid Beacons (PHBs) and Rectangular Rapid Flashing Beacons (RRFBs) are special signals used to warn and control traffic at unsignalized locations to assist pedestrians 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 percents 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.

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 crashes 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.

Speed Displays

Speed displays measure the speed of approaching vehicles by radar and inform drivers of their speeds using an LED display. Speed displays contribute to increased traffic safety because they are particularly effective in getting drivers traveling ten or more miles per hour over the speed limit to reduce their speed.

Signal and warning devices

Speed table

Speed displays


Chicanes

Chicanes

Chicanes are a series of narrowings or curb extensions that alternate from one side of the street to the other forming an S-shaped path. Chicanes reduce drivers' speeds by causing them to shift their horizontal path of travel.

Traffic Diverters

A traffic diverter is a roadway design feature placed in a roadway to prohibit vehicular traffic from entering into or exiting from the street, or both.

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.

Pedestrian Treatments

Most streets in Menifee have sidewalks, and the network has been evaluated to determine if appropriate sidewalk widths and ADA compliant curb ramps are present (ADA Transition Plan). 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 reduce "jaywalking" and unsafe crossings between intersections.

Enhanced Crosswalk Markings

Enhanced crosswalk markings can be installed at existing or proposed crosswalk locations. They are designed to both guide pedestrians and to alert drivers of a crossing location. The bold pattern is intended to enhance visual awareness.

Curb Extensions

Also called bulb-outs or neck-downs, curb extensions extend the curb line outward into the travel way, reducing the pedestrian crossing distance. Typically occurring at intersections, they increase pedestrian visibility, reduce the distance a pedestrian must cross, and reduce vehicular delay. Curb extensions must be installed in locations where they will not interfere with bicycle lanes or separated bikeways. If both treatments are needed, additional design features such as ramps, or half-sized curb extensions should be considered.

Traffic diverter

Enhanced crosswalk

Curb extensions

Refuge island

Refuge Island

Refuge islands provide pedestrians and bicyclists a relatively safe place within an intersection and mid-block crossing to wait if they are unable to complete their crossing in one movement.

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, PHBs, RRFBs, LED enhanced flashing signs, and/or refuge islands.

Lighting

Pedestrian-scale lighting provides many practical and safety benefits, such as illuminating the path and making crossing walkers and bicyclists more visible to drivers. Lighting can also be designed to be fun, artistic, and interactive.

Leading Pedestrian Intervals (LPIs)

A Leading Pedestrian Interval (LPI) is a signal timing technique that typically gives pedestrians a 3–7 second head start when entering a crosswalk with a corresponding green signal in the same direction of travel. LPIs enhance the visibility of pedestrians in the intersection and reinforce their right-of-way over turning vehicles, especially in locations with a history of conflict. Generally, this leads to a greater likelihood of vehicles yielding. Depending on intersection volume and safety history, a normal right-turn-on-red (RTOR) might be explicitly prohibited during the LPI phase.

Pedestrian Scramble

Pedestrian scrambles, also known as all-way pedestrian phases, stop vehicular traffic flow simultaneously in all directions to allow pedestrians to cross the intersection in any direction. They are used at intersections with particularly heavy pedestrian crossing levels. Unless cycle lengths can be kept under 90 seconds, Leading Pedestrian Intervals (LPIs) are generally preferred over pedestrian scrambles.

Modified Traffic Signal Timing

Adjusting the time, phasing, and actuation needed to cross high-volume and wide streets, provides additional safety and comfort for pedestrians and bicyclists.

Senior Zones

Potential future city designated senior zones can be enhanced with street signage, increased crossing times at traffic signals, benches, bus stops with shelters, and pedestrian lighting.

Lighting

Mid-block crossing

Pedestrian scramble

Senior zone

Transit stop shelter

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.

Placemaking

The inclusion of urban elements such as parklets and community gardens encourages walking and provides usable space for all ages. In many cities, these urban elements have helped to transform urban villages and downtowns into walkable destinations. Coordinating with local Menifee businesses and organizations may provide collaborative design and funding opportunities between the City, its businesses, residents, and visitors.

Parklets

Parklets are small, outdoor seating areas that take over one or two parking spots, reclaiming the space for the community, and improving the urban environment's aesthetics and streetscape.

Community Gardens

Community gardens provide fresh produce and plants and assist in neighborhood improvement through a sense of community and connection to the environment. They are typically managed by local governments or non-profit associations.

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.

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 and comfortable place to be and provide visual detail and interest.

Parklet

Community garden

Crosswalk art

Public art

BIKEWAY RECOMMENDATIONS

Through the community engagement process, access throughout Menifee via bicycling among other active transportation modes, were some of the top issues where residents wanted to see active transportation improvements. Residents primarily wanted to see both bike paths away from the street and on the street. The analysis in Chapter two identified some of the deficiencies such as lack of bicycle facilities, bike parking, and lighting. Using similar methodology as the City's Bicycle and Pedestrian Demand Model, proposed bicycle projects were identified and bicycle improvements were developed for the top ten projects.

The proposed projects form a comprehensive, low-stress network, including bicycle facilities on every major (arterial) street and several smaller (local) streets. **The plan recommends a total of 93 bikeway projects that equate to 183.3 miles of new bikeways. Of these, 4 percent are multi-use paths, 60 percent are bicycle lanes, and 36 percent are bicycle routes.** Opportunities for separated bikeways/cycle tracks should be explored when developing detailed concepts for class 2 bike lanes where right-of-way is available.

Along the top ten proposed routes, recommendations were developed based on community input and data from Chapters Two and Three, field observations, and previous planning and CIP projects. The Recommended Projects are mapped by facility types and identification number accompanied with tables listing detailed information such as location, route type, and extent. The following project sheets provide a brief description, maps, and metrics associated with each of the top ten bikeway projects. These project sheets can be used to help guide future development, CIP projects, and grant pursuits. Please refer to Figure 4-1: Bikeway Project Recommendations for all 93 bikeway project locations.

Each of these proposed projects represent a variety of street types that currently lack safe access and mobility for pedestrians, bicyclists, and other non-motorized modes. These treatments are important to mending existing safety and connectivity gaps within the City's current bicycle network. They can be implemented at the interval that best fits funding cycles, city discretion, or to take into consideration the availability of new information, new funding sources, updated collision statistics, updated CIP lists, etc.

PRIORITIZATION CRITERIA

Once the prioritization process was completed, the bikeway projects were sorted into three tiers of prioritization based on score. The first tier of priority projects is composed of the ten highest scoring bikeway projects that were selected for further analysis. These Top Ten Projects will create a priority network of complete streets that will improve non-motorized travel and transit use throughout the City of Menifee. Due to funding and implementation purposes, the remaining proposed bikeway projects were organized into the second and third tiers of prioritization based on score. The second tier of bikeway projects was composed of bikeway projects scoring in the bottom half percentile. The third tier of bikeway projects was composed of bikeway projects scoring in the bottom quarter percentile. Listed below is a brief description of Tables 4-1 through 4-3 and Figures 4-2 through 4-4

- Table 4-1 and Figure 4-2: Tier One - Top Ten Bikeway Projects, include the Top Ten Priority Projects that sum up to 49.5 miles of proposed bicycle facilities.
- Table 4-2 and Figure 4-3: Tier Two Bikeway Projects, include the Tier Two recommended projects that sum up to 91 miles of proposed bicycle facilities.
- Table 4-3 and Figure 4-4: Tier Three Bikeway Projects, include the Tier Three recommended projects that sum up to 42.8 miles of proposed bicycle facilities.

The following detailed cut sheets (Figures 4-5 through 4-14) highlight each of the Top Ten priority corridors including existing conditions as well as their proposed recommendations. Design concepts, cost estimates and characteristics are also included for each corridor. Schools, parks, and other metrics were derived from data included in a quarter-mile buffer from the corridor. All bikeway priority projects within this section are planning level concepts. Further evaluation regarding funding and implementation will be required for these concepts.

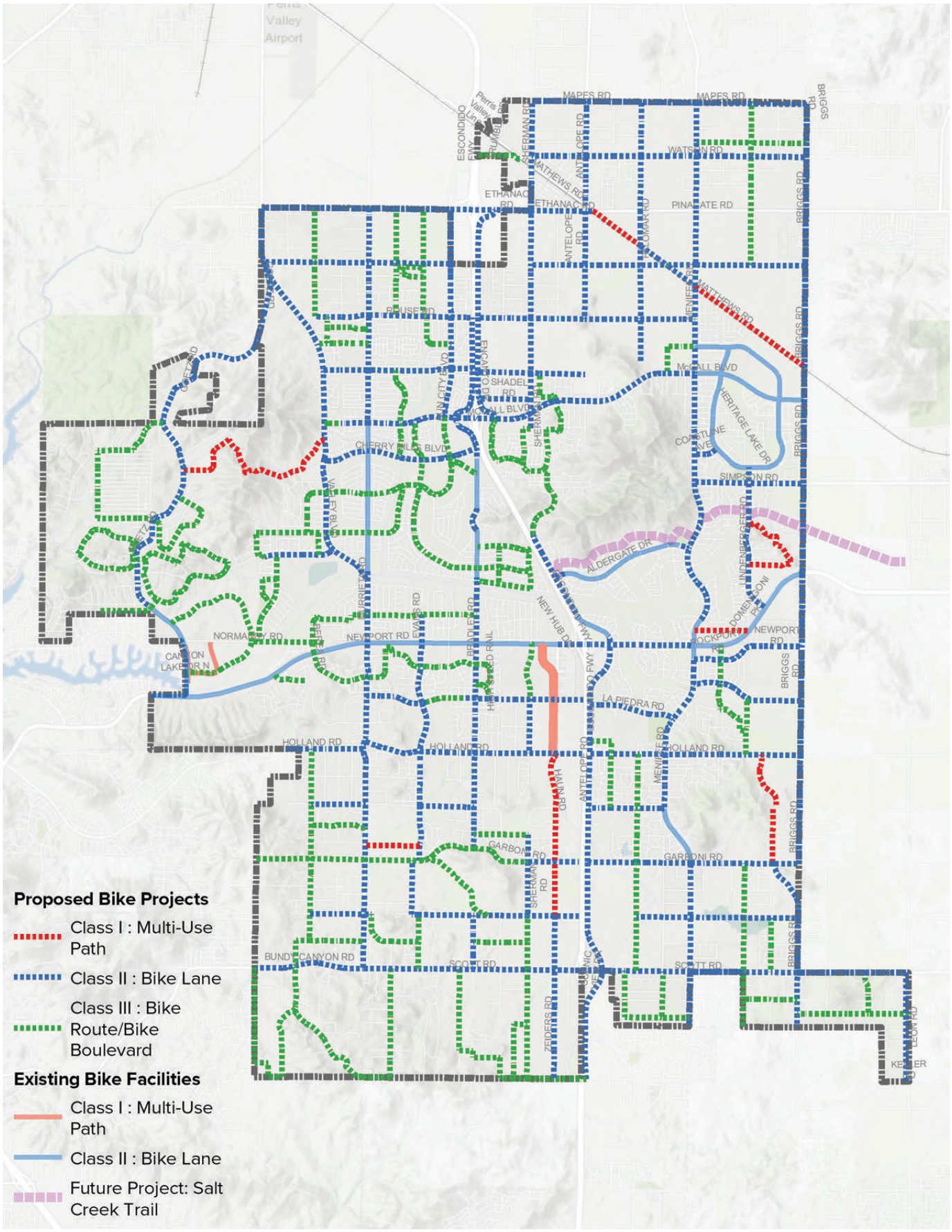


FIGURE 4-1: Bikeway Project Recommendations

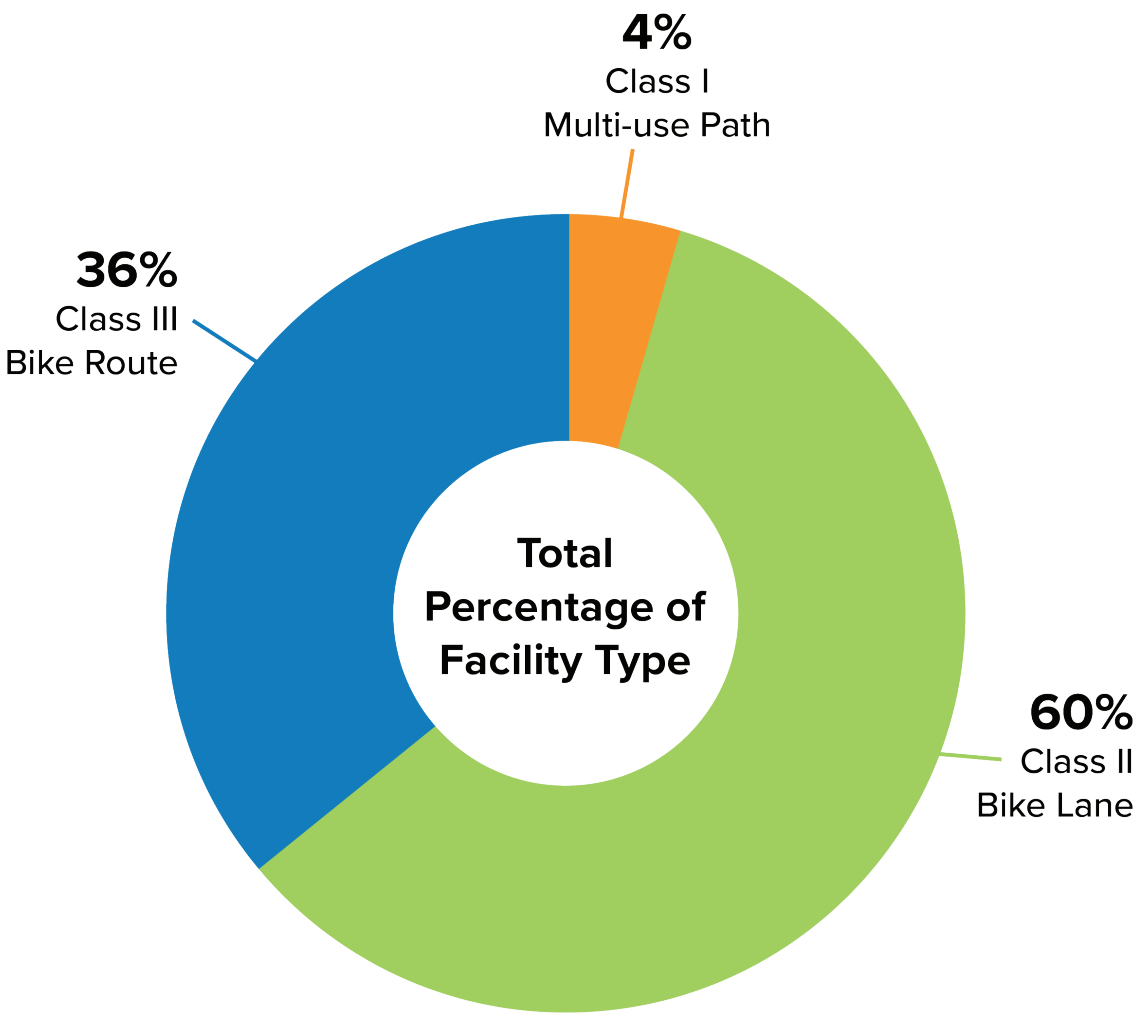


TABLE 4-1: Tier One - Top Ten Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
1	Menifee Rd	Mapes Rd	City limit	II	7.8	$5,051,129
2	Murrieta Rd	Ethanac Rd	Scott Rd	II	5.6	$6,900,219
3	Bradley Rd	Rouse Rd	Scott Rd	II	4.7	$4,851,999
4	Newport Rd	City limit	Menifee Rd	II	1.3	$155,475
5	Aldergate Dr/Antelope Rd/ Summoner/Tally	Evening Star Dr	City limit	II/III	5	$1,145,767
6	La Piedra Rd	Murrieta Rd	Menifee Rd	II	3.3	$218,714
7	McCall Blvd	Valley Blvd	Menifee Rd	II	3.5	$1,664,199
8	Goetz Rd	Ethanac Rd	Newport Rd	II	4.6	$5,599,607
9	Briggs Rd	Mapes Rd	City limit	II	8.6	$7,944,266
10	Barnett Rd/Phoenix Way/Sun City Blvd	Ethanac Rd	Ridgemoor Rd	II/III	4.4	$1,101,723

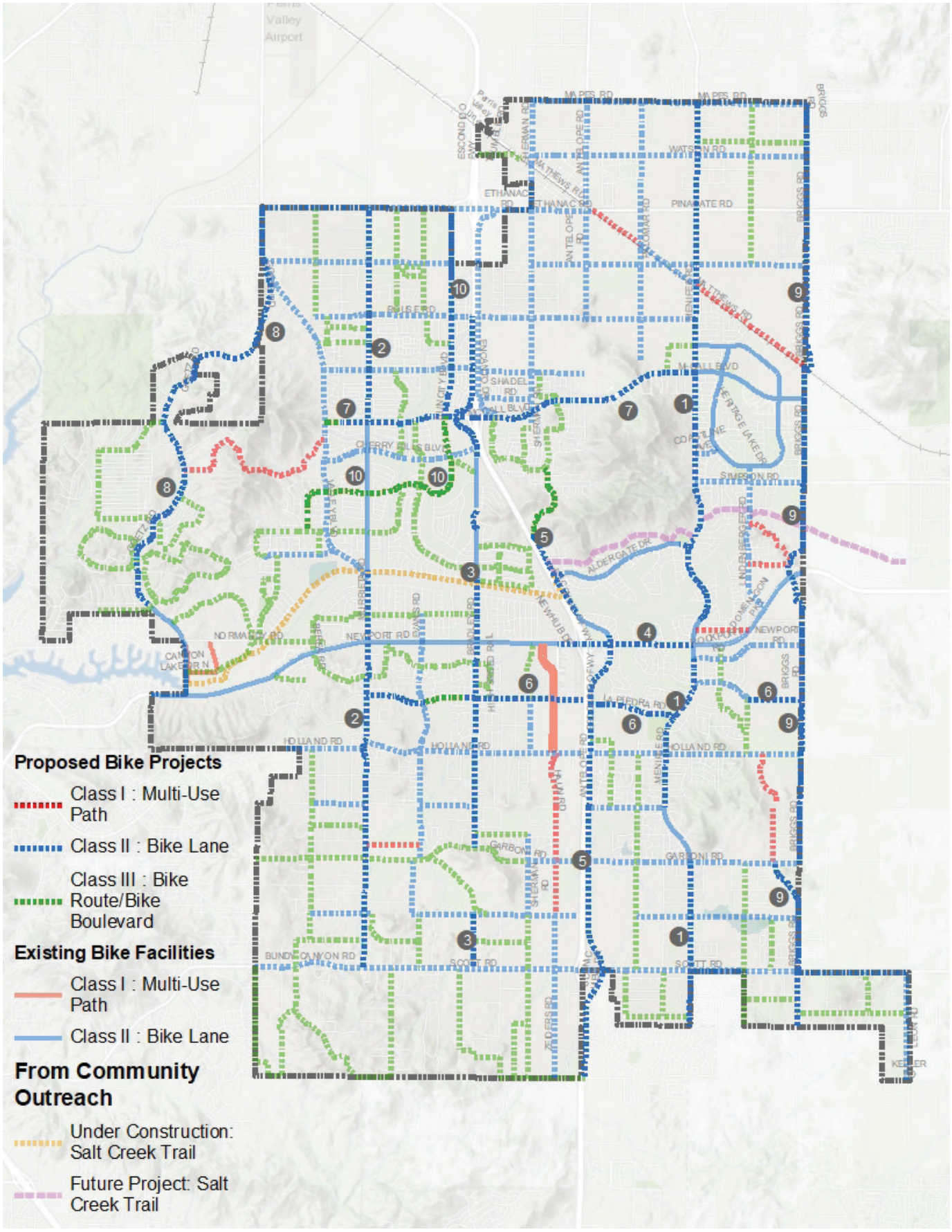


FIGURE 4-2: Tier One - Top Ten Bikeway Projects

TABLE 4-2: Tier Two Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
11	Sherman Rd/Laguna Vista Dr/Town Center	Newport Rd	Wickerd Rd	II/III	2.74	$215,062
12	East Dr/Kabian Park Rd/Mountain View Pl	Goetz Rd	Goetz Rd	III	1.87	$147,046
13	Encanto Dr	Ethanac Rd	El Puente St	II/III	2.49	$234,979
14	Canyon Heights/Cheyenne Canyon/Escalante	Goetz Rd	Canyon Heights Dr	III	1.52	$119,419
15	Lazy Creek Rd/Rim Creek Path/Pelion Rd	Bradley Rd	Evans Rd	III	3.84	$897,866
16	Holland Rd	City limit	Briggs Rd	II	4.69	$368,004
17	Lindenberger Rd	Heritage Lakes Dr	Domenigoni Pkwy	II	1.36	$106,876
18	McLaughlin Rd	Goetz Rd	Briggs Rd	II	4.25	$333,358
19	Evans Rd	Lazy Creek Rd	Wickerd Rd	II	2.79	$218,941
20	Sherman Rd	Mapes Rd	Alta Vista Way	II	3.02	$237,223
21	Watson Rd	I-215	Briggs Rd	II/III	2.94	$230,448
22	Alta Vista Way/Avenida Halago/Bavaria	McCall Blvd	Chambers Ave	III	2.09	$489,582
23	Rouse Rd	Byers Rd	Menifee Rd	II	3.44	$270,419
24	Conejo Dr/Juanita Dr/Las Flores Dr	Goetz Rd	Goetz Rd	III	2.38	$186,906
25	Lindenberger Rd	Garbani Rd	City Limit	III	1.53	$120,172
26	Pebble Beach Dr	McCall Blvd	Piping Rock Dr	III	2.27	$178,168
27	Avenida de las Flores/Paseo la Plaza	Goetz Rd	Goetz Rd	III	1.13	$88,325
28	Chambers Ave	Valley Blvd	Antelope Rd	II	2.36	$185,410
29	Ethanac Rd	Goetz Rd	Matthews Rd	II	3.05	$239,775
30	Matthews Rd	Ethanac Rd	Briggs Rd	I/II	2.42	$189,885
31	Newport Rd/Rockport Rd	Menifee Rd	Briggs Rd	II	1.04	$242,331
32	Valley Blvd	McLaughlin Rd	Murrieta Rd	II	3.27	$764,216
33	UNAMED	Menifee Rd	Domenigoni Pkwy	I	0.5	$117,619
34	Tres Lagos Dr	Menifee Rd	Southshore Dr	II	0.56	$43,796
35	Bundy Canyon Rd/Scott Rd	City limit	Leon Rd	II	6.49	$1,517,746
36	Palomar Rd	Mapes Rd	Boulder Ridge Elementary School	II	2.4	$560,345
37	Palomar Rd	Holland Rd	Scott Rd	III	1.99	$466,228
38	Malaga Rd	Mapes Rd	McLaughlin Rd	III	1.51	$352,559
39	Cherry Hills Blvd	Valley Blvd	Bradley Rd	II	1.45	$338,486
40	UNAMED	Lindenberger Rd	Lindenberger Rd	I	1.04	$242,425
41	Vista Way	Naranja Dr	Conejo Dr	III	0.59	$138,209
42	Shadel Rd	Encanto Dr	Sherman Rd	II	0.47	$37,283
43	Ridgemoor Rd/Boulder Crest/Springbrook	Sun City Blvd	Honeyrun Rd	III	1.99	$156,481
44	Simpson Rd	Menifee Rd	Briggs Rd	II	1	$78,653
45	Antelope Rd	Mapes Rd	Rouse Rd	II	1.96	$153,542
46	Mapes Rd	Sherman Rd	Briggs Rd	II	2.53	$198,364
47	El Rancho Dr/Piping Rock Rd/Potomac Dr	Bradley Rd	Bradley Rd	III	1.34	$312,597
48	Coastline Ave	Menifee Rd	Heritage Lakes Dr	II	0.22	$52,326
49	Junipero Rd	Menifee Rd	McCall Blvd	III	0.5	$117,485
50	Grosse Point Dr	Chambers Ave	Cherry Hills Blvd	III	0.84	$195,799
51	Albion Ln/Hanover Ln	Antelope Rd	Craig Ave	III	0.81	$190,119
52	Garbani Rd	City limit	Briggs Rd	II/III	5.8	$1,355,251
53	Chester Morrison Way/School Park Dr	Bradley Rd	La Piedra Rd	III	0.54	$126,231

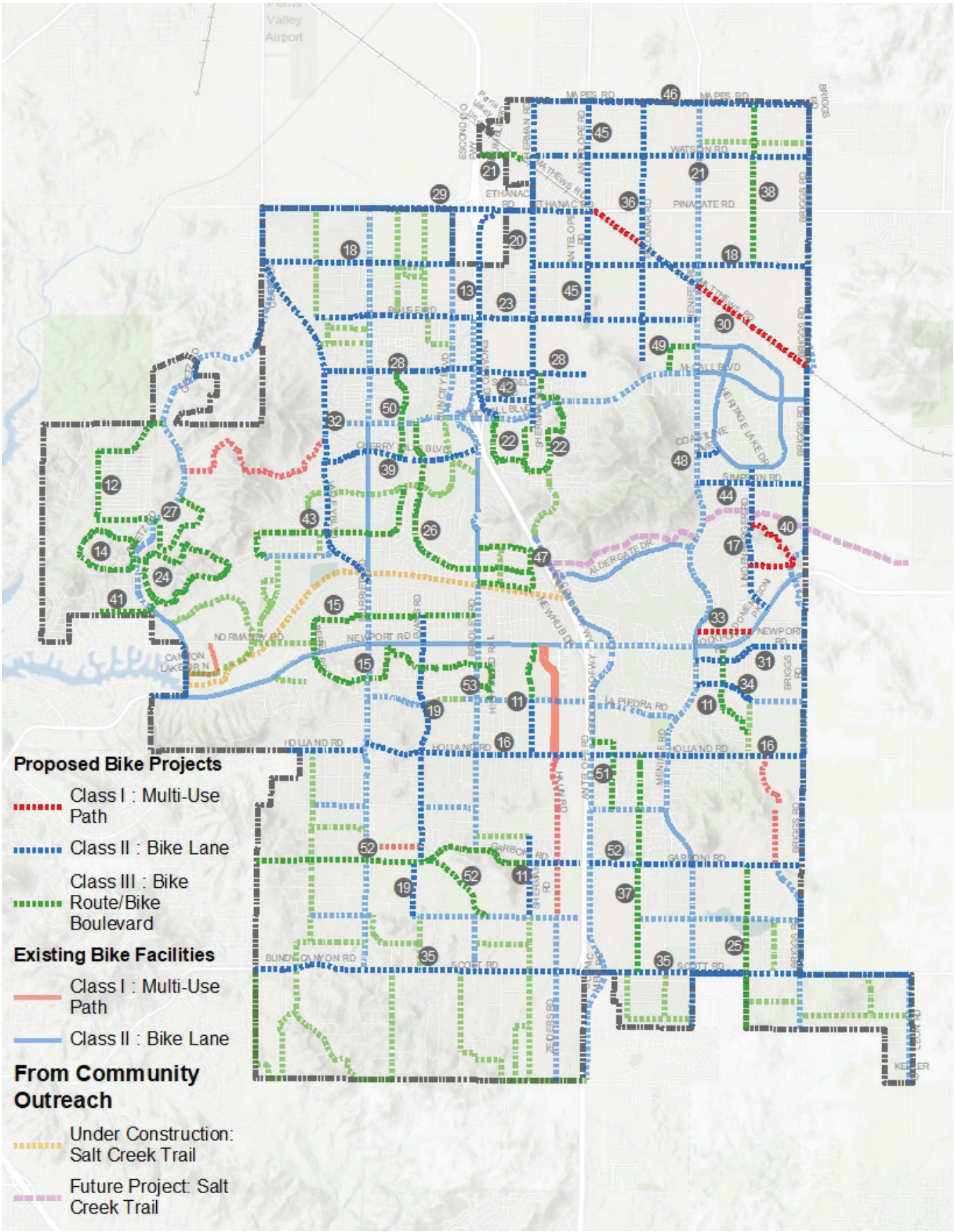


FIGURE 4-3: Tier Two Bikeway Projects

TABLE 4-3: Tier Three Bikeway Projects

RANK	CORRIDOR	FROM STREET	TO STREET	CLASS	LENGTH (MILES)	COST
54	Augusta Dr	Sun City Blvd	Bradley Rd	III	0.27	$62,112
55	Wickerd Rd	Byers Rd	Briggs Rd	II	3.6	$840,302
56	Los Carrizos Rd/Morgan Horse St	Holland Rd	Garbani Rd	I	1.02	$238,008
57	Cadena Dr/Citation Ave	Menifee Rd	Briggs Rd	III	1.01	$236,501
58	La Ladera Rd	Normandy Rd	Honeyrun Rd	III	0.84	$197,383
59	Craig Ave	Byers Rd	Menifee Rd	II	1.7	$396,997
60	Lindenberger Rd/Southshore Dr	La Piedra Rd	Tres Lagos Dr	III	0.5	$117,057
61	Lake Forest Dr	El Rancho Dr	Potomac Dr	III	0.35	$82,637
62	Canyon Dr	Goetz Rd	Valley Blvd	I	1.88	$440,080
63	Honeyrun Rd	Lone Pine St	Valley Blvd	II	0.65	$152,368
64	Haun Rd/Zeiders Rd	Holland Rd	Keller Rd	I/II	3.01	$703,153
65	Little Reb Pl/Bellamy Ln/Tulita Ln	Scott Rd	Menifee Rd	III	1.45	$338,530
66	Evans Rd	Ethanac Rd	Rouse Rd	III	0.99	$230,545
67	Butterwood Dr/Country Fair Dr	La Ladera Rd	La Ladera Rd	III	0.38	$88,044
68	Skyward Trl/Thornton Ave/Turfwood St	Rouse Rd/Murrieta Rd	Valley Blvd	III	1.1	$258,113
69	Normandy Rd	Audie Murphy Rd	Spirit Park	III	0.68	$159,863
70	Beth Dr	Byers St	Murrieta Rd	III	0.51	$118,245
71	Byers Rd	Ethanac Rd	Walden Rd	III	2.77	$646,653
72	Audie Murphy Rd	Goetz Rd	Goetz Rd	III	1.84	$4,134,559
73	Hull St	Ethanac Rd	Rouse Rd	III	0.98	$229,859
74	Hayden Rd/Walden Rd	Wickerd Rd	Tucker Rd	III	0.63	$146,469
75	Sequoia Springs Dr	Ridgemoor Rd	Honeyrun Rd	III	0.21	$48,118
76	UNAMED	Murrieta Rd	Evans Rd	I	0.5	$115,790
77	Presley St	Rouse Rd	Sun City Blvd	III	0.45	$106,163
78	Tucker Rd	Wickerd Rd	Scott Rd	III	0.5	$1,121,294
79	Daily Rd/Keller Rd/Wright Rd	Bundy Canyon Rd	Bundy Canyon Rd	III	2.63	$615,079
80	Keller Rd	Kasper Ln	Scenic View Dr	III	0.8	$185,839
81	Goodrich Dr/Nova Ln/Starr Dr	Hull St	Evans Rd	III	0.52	$121,220
82	Mira St	Wickerd Rd	Scott Rd	III	0.5	$39,253
83	Tupelo Rd	Sherman Rd	Bradley Rd	III	0.5	$39,279
84	Curzulla Rd/Merritt Rd	Briggs Rd/Scott Rd	Leon Rd	III	1.41	$330,453
85	Mc Bob Rd/Hoffman Ln	Scott Rd	Keller Rd	III	1.38	$322,246
86	Woodbine Ln	Lindenberger Rd	Briggs Rd	III	0.5	$1,119,329
87	Waldon Rd	Bundy Canyon Rd	Murrieta Rd	III	0.85	$199,293
88	Arcadia Ln/Barker Ln/Edmiston Rd	Bundy Canyon Rd	Wright Rd	III	1.96	$457,903
89	Ciccotti St/Gloria Rd	Howard Rd	Keller Rd	III	0.62	$145,569
90	Howard Rd	Keller Rd	Wickerd Rd	III	1.5	$3,373,036
91	Heim St	Bradley Rd	Howard Rd	III	0.5	$1,129,173
92	Leaon Rd	Scott Rd	Keller Rd	II	1	$78,679
93	Derby Hill Dr	Newport Rd	Taawila Elementary	III	0.31	$72,443

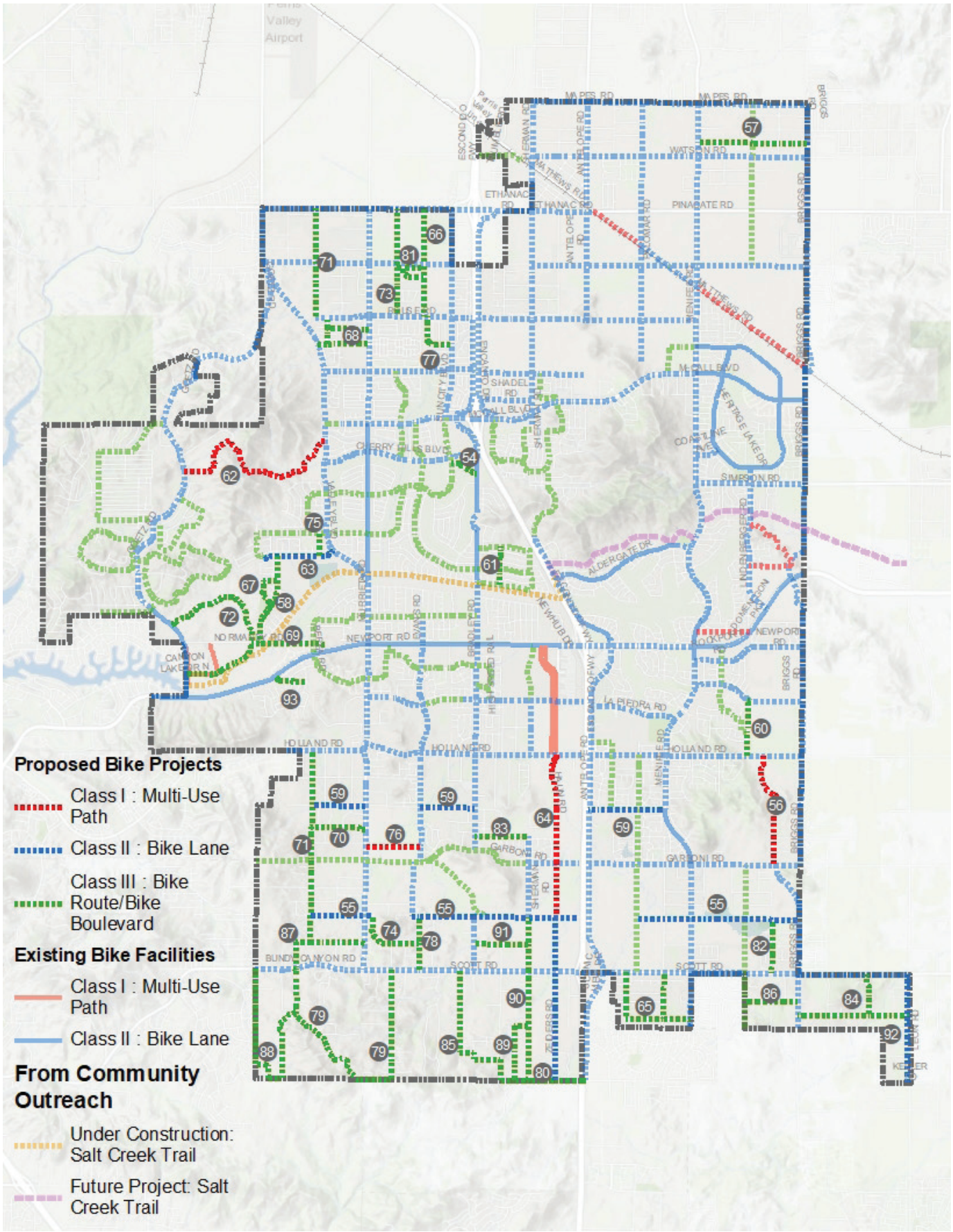


FIGURE 4-4: Tier Three Bikeway Projects

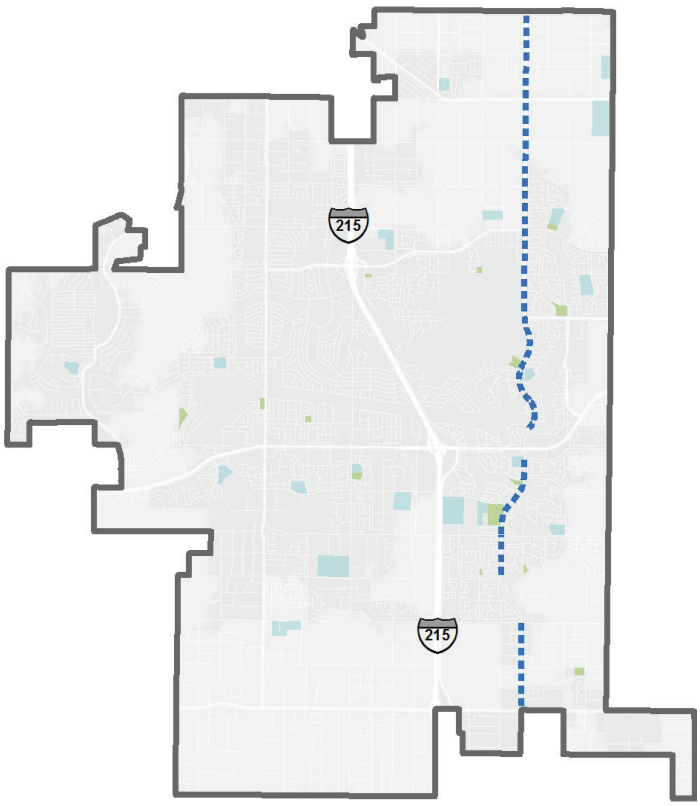
PROPOSED BIKEWAY PROJECT 1

MENIFEE ROAD

(FROM MAPES RD TO CITY LIMIT)

Project Length:
7.8 miles

Cost Estimate: $5,051,129



EXISTING CONDITIONS

The Menifee Road corridor is located in east Menifee and runs north to south. The corridor passes through a number of schools and parks including Aldergate Park, Wheatfield Park, Freedom Crest Elementary, and Callie Kirkpatrick Elementary. Three pedestrian collisions have been reported along this route as well as two bicycle collisions.

RECOMMENDATIONS

The Menifee Road proposed improvements include Installing Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, road width modifications and roadway restriping should be implemented to improve the corridor. The Future Roadway Classification for this segment is a 4-Lane Arterial.

AT A GLANCE

2
Schools

3
Parks

3
Pedestrian Collisions

2
Bicycle Collisions

2.5 miles
Missing Sidewalk

17
Crosswalk Improvements

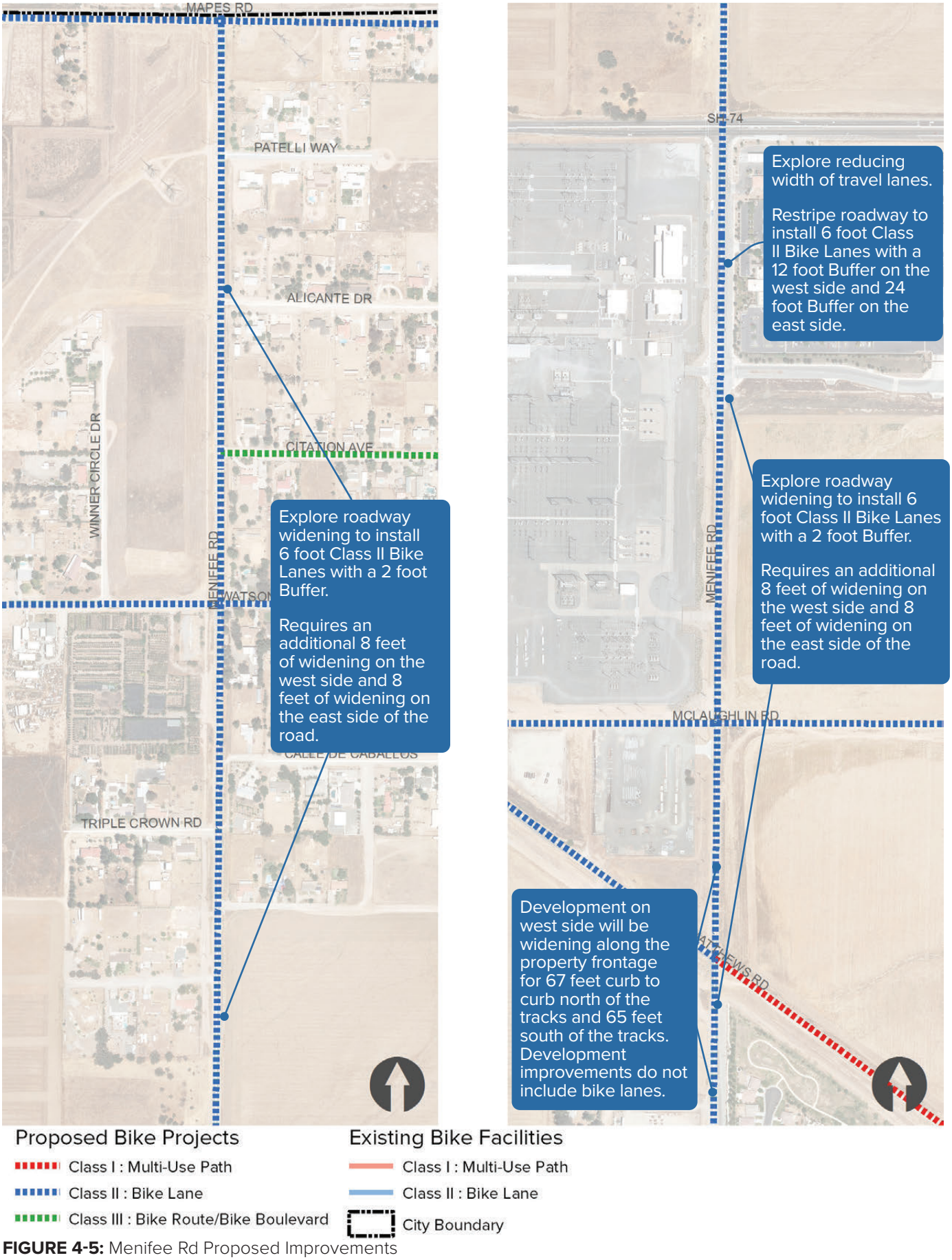


FIGURE 4-5: Menifee Rd Proposed Improvements

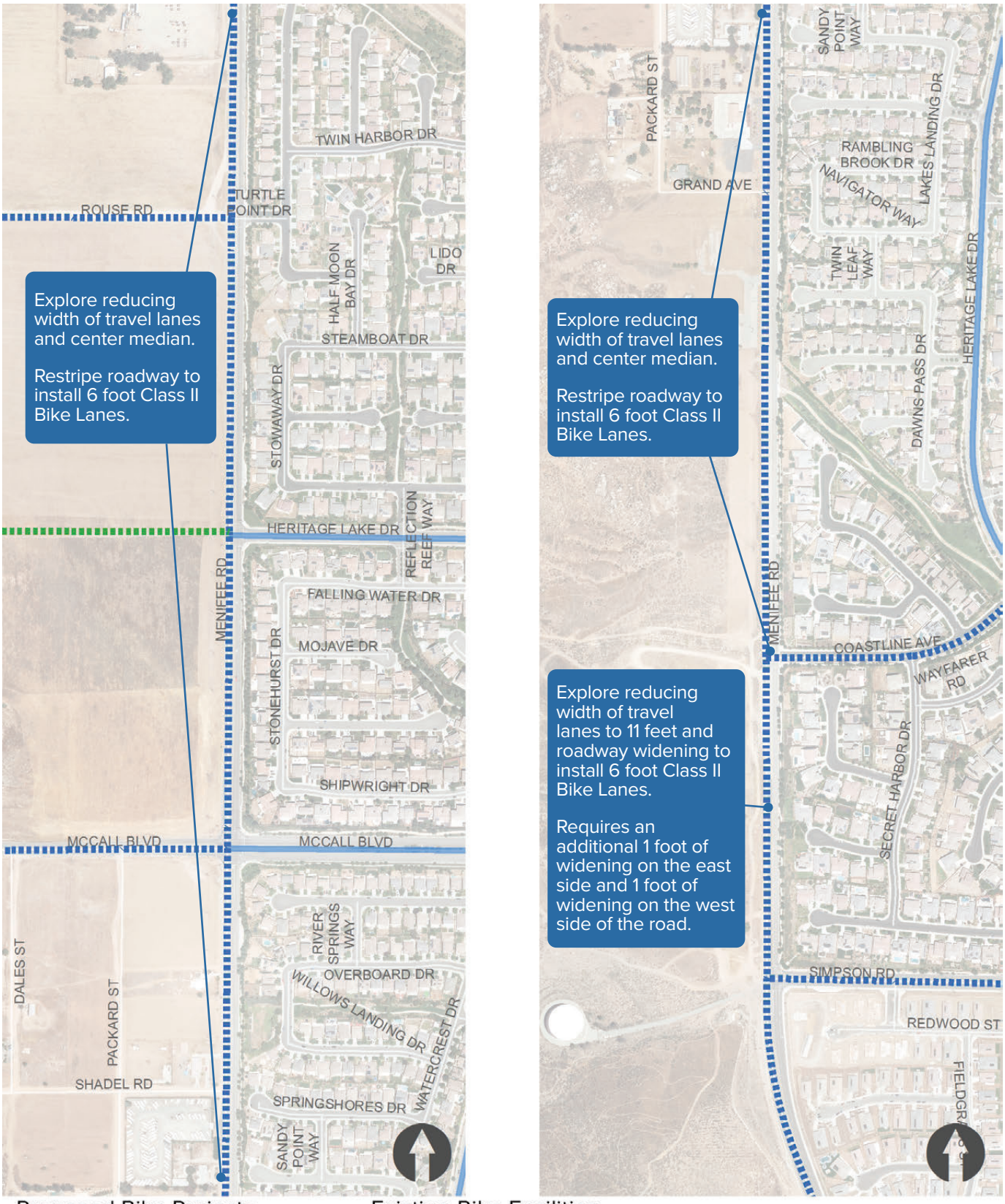


FIGURE 4-5: Menifee Rd Proposed Improvements (Cont.)

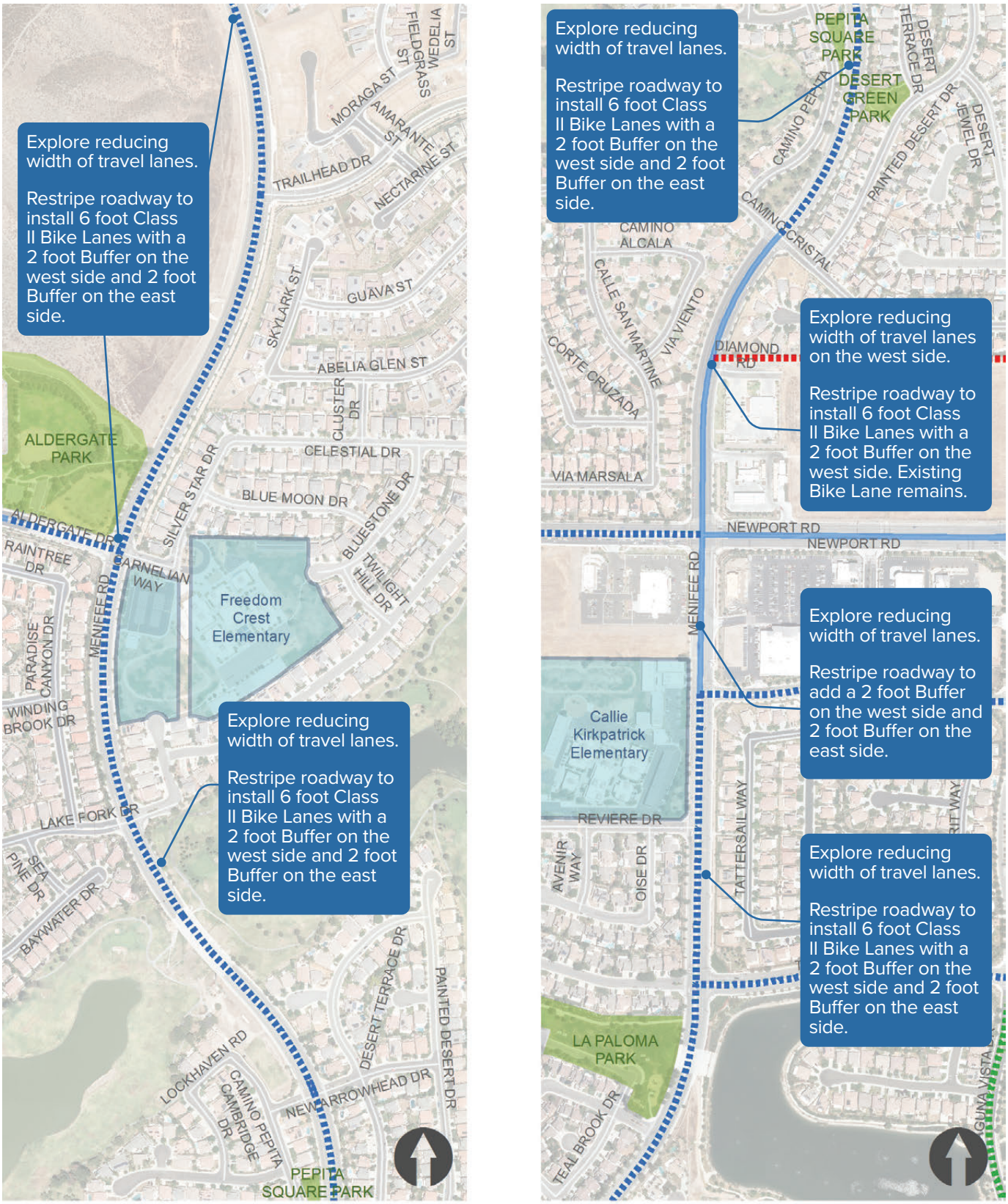


FIGURE 4-5: Menifee Rd Proposed Improvements (Cont.)

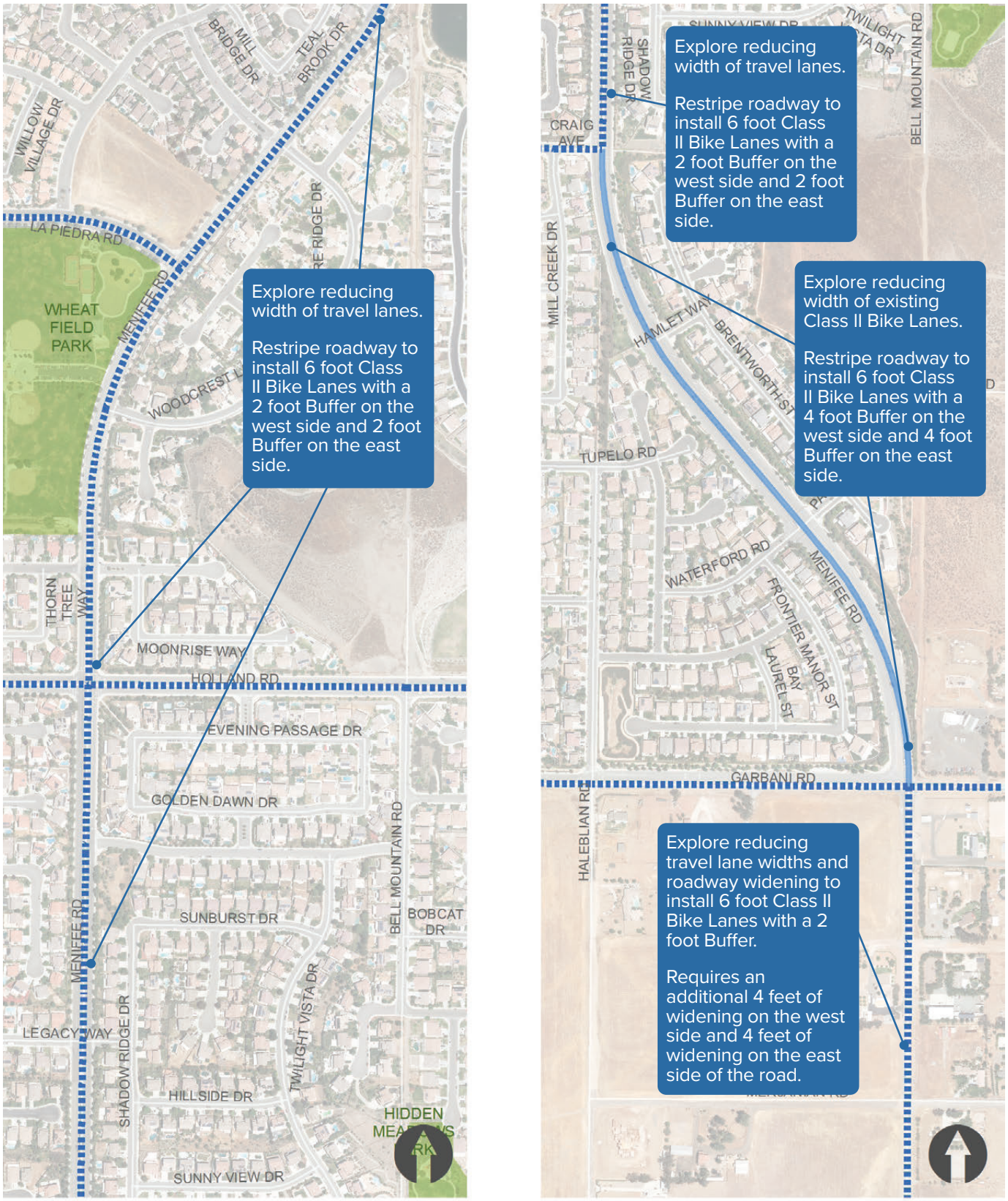


FIGURE 4-5: Menifee Rd Proposed Improvements (Cont.)

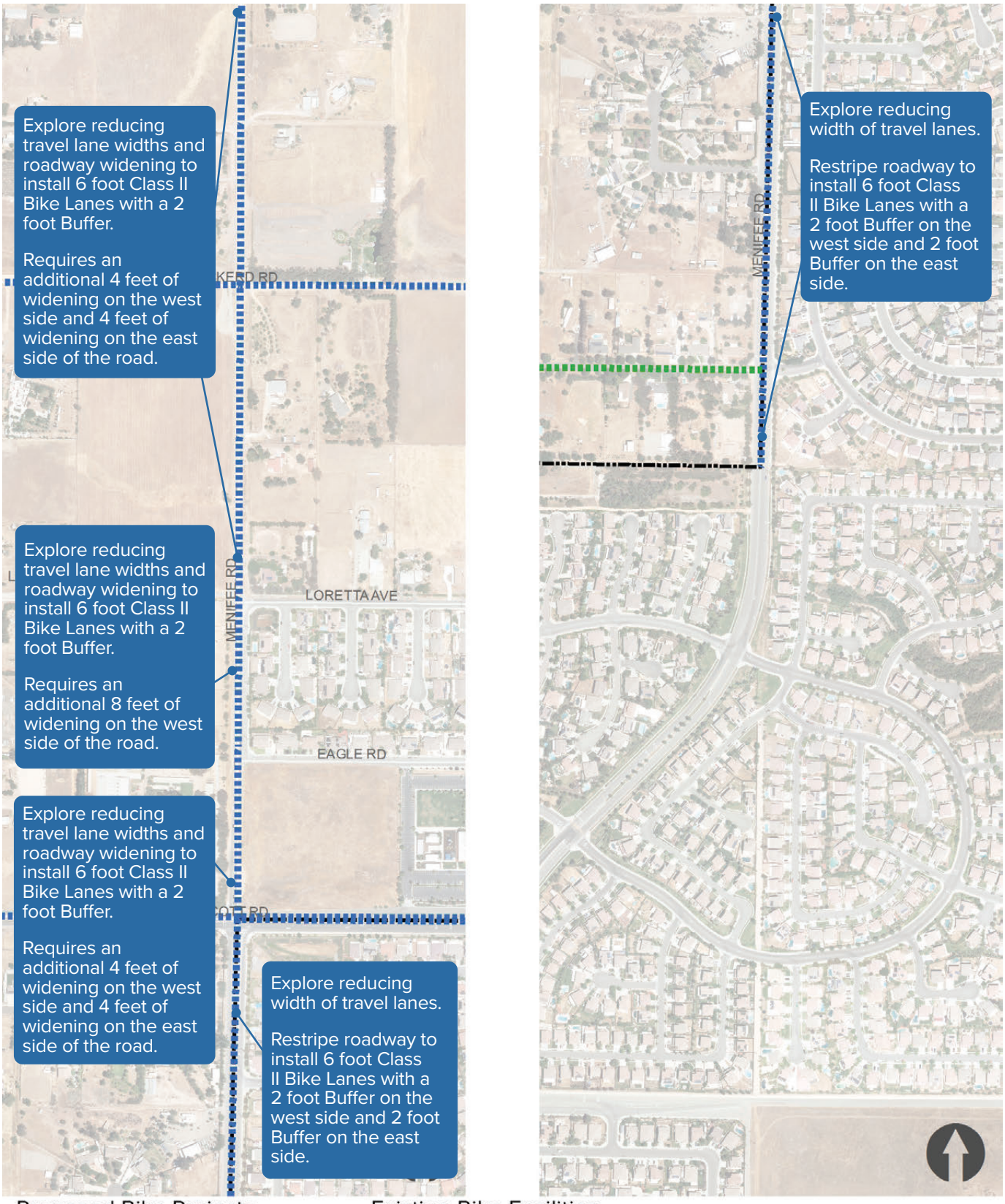


FIGURE 4-5: Menifee Rd Proposed Improvements (Cont.)

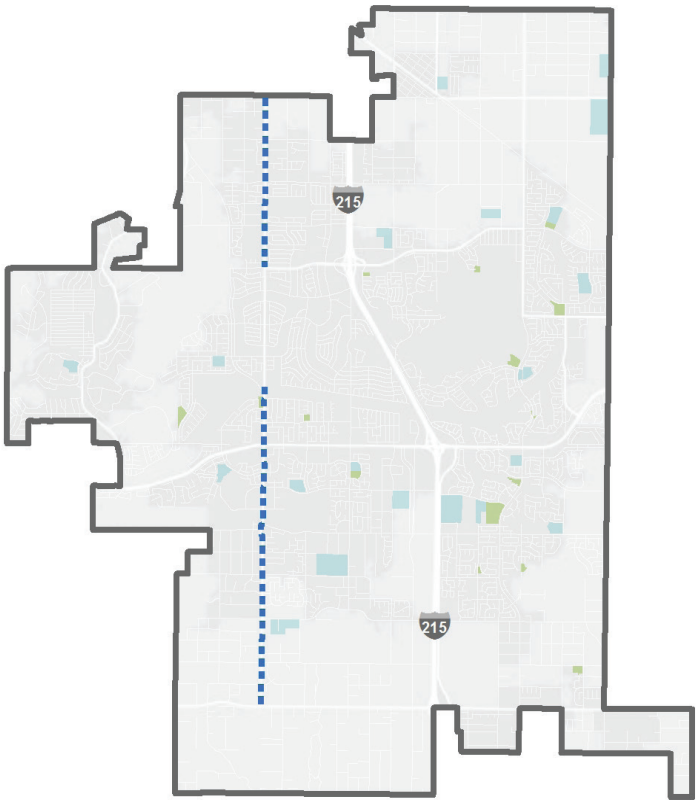
PROPOSED BIKEWAY PROJECT 2

MURRIETA ROAD

(FROM ETHANAC RD TO SCOTT RD)

Cost Estimate: $6,900,219

Project Length:
5.6 miles



EXISTING CONDITIONS

The Murrieta Road corridor is located in west Menifee and runs north to south. The corridor passes through a number of churches including the Menifee Bible Church, St. Vincent Ferrer Church, Valley Christian Fellowship of Menifee. Four pedestrian collisions have been reported along this route as well as four bicycle collisions.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible; along with, adding road width modifications, bike lanes, and roadway restriping to improve the corridor. The Future Roadway Classifications for this segment are 4-Lane Secondary to the north and 4-Lane Arterial to the south.

AT A GLANCE

0
Schools

1
Parks

4
Pedestrian Collisions

4
Bicycle Collisions

2.6 miles
Missing Sidewalk

9
Crosswalk Improvements

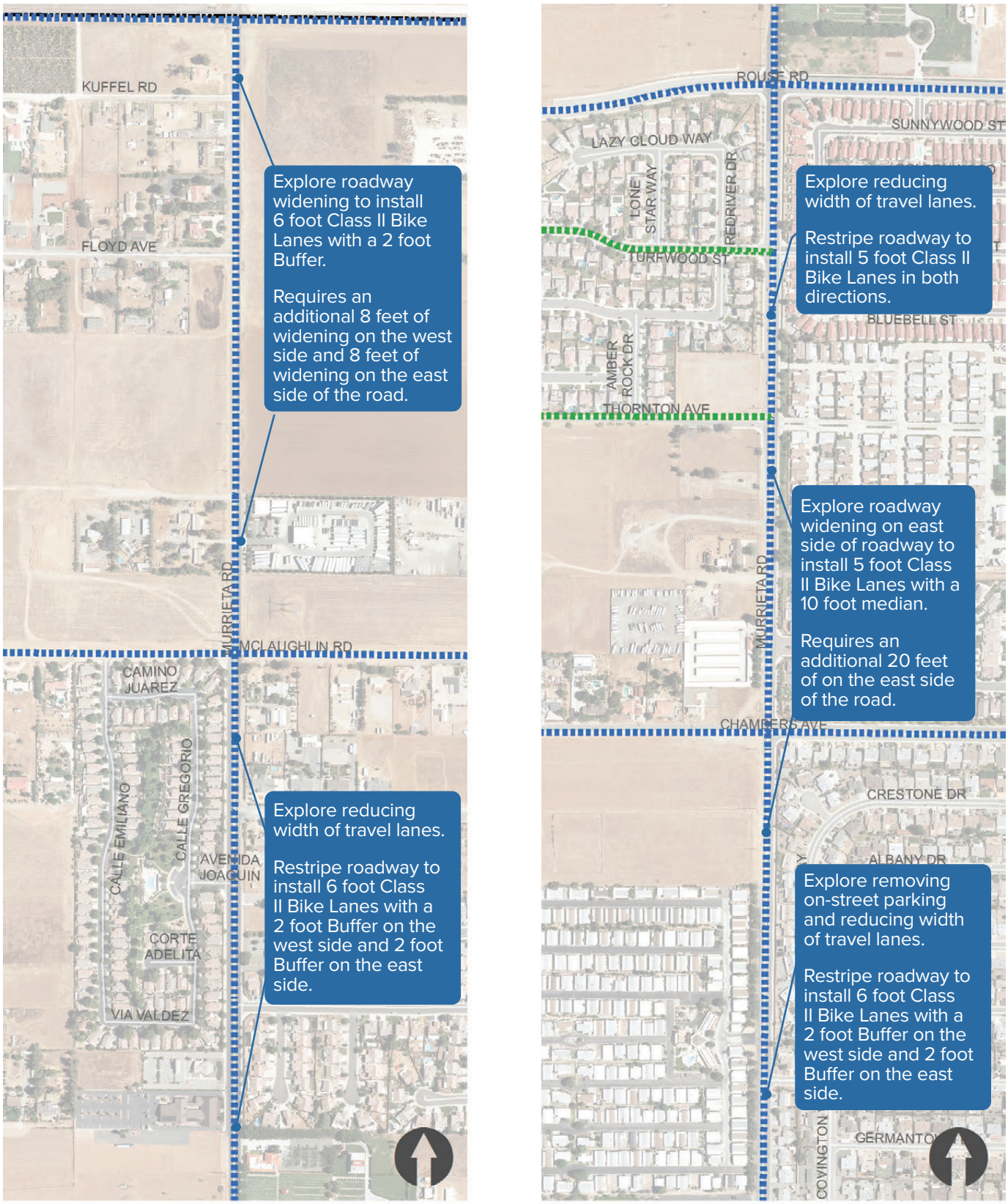


FIGURE 4-6: Murrieta Rd Proposed Improvements

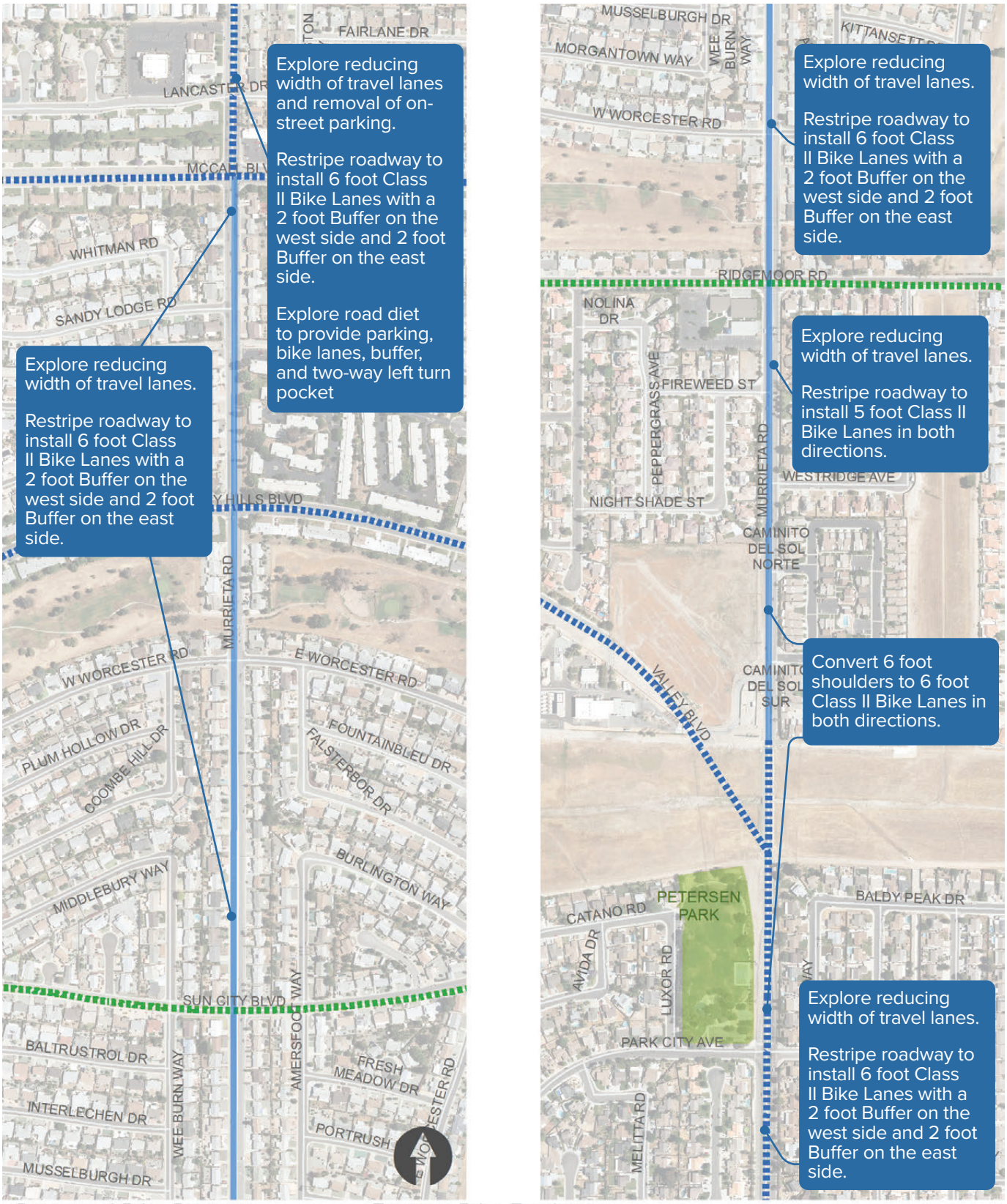


FIGURE 4-6: Murrieta Rd Proposed Improvements (Cont.)

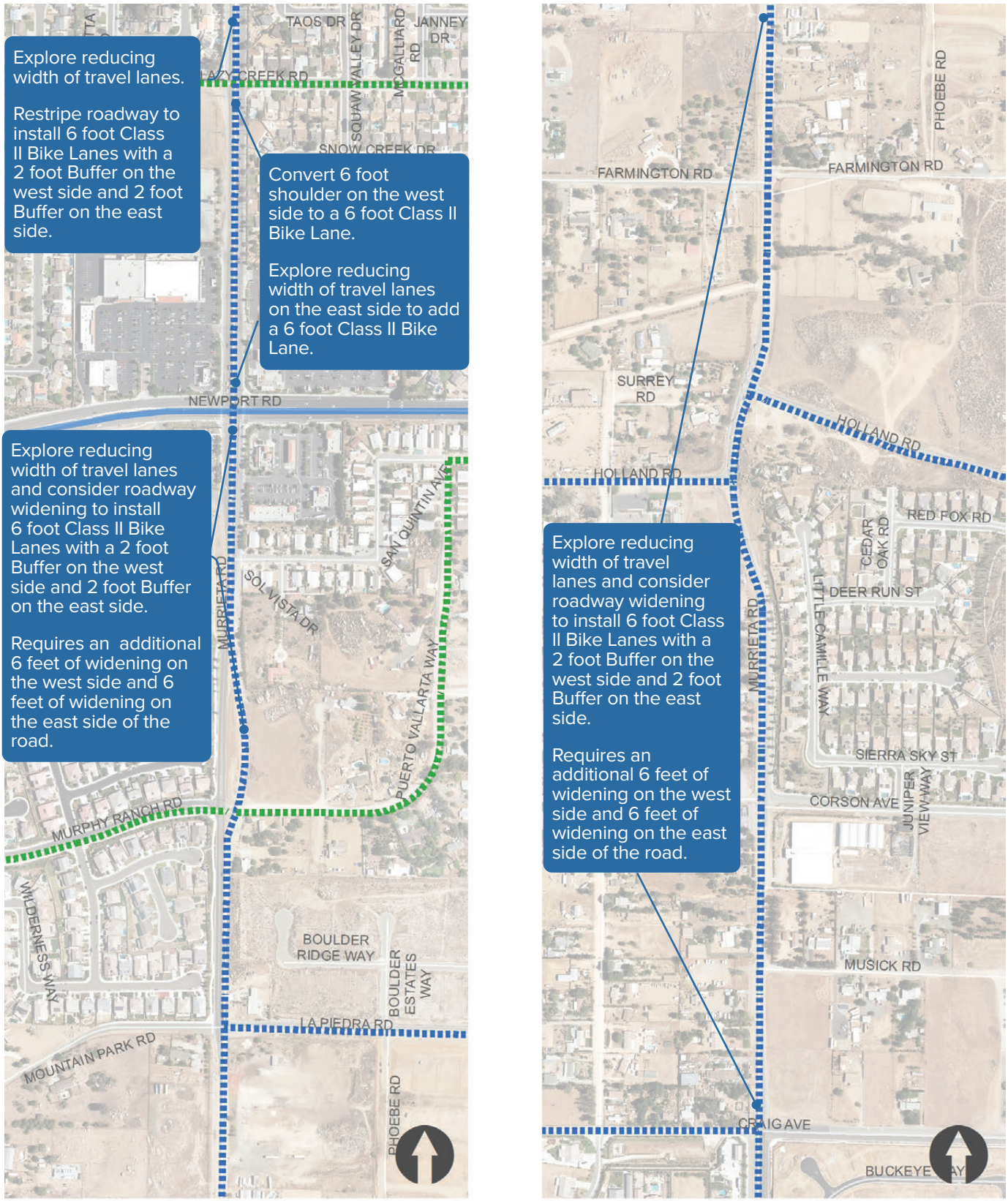


FIGURE 4-6: Murrieta Rd Proposed Improvements (Cont.)

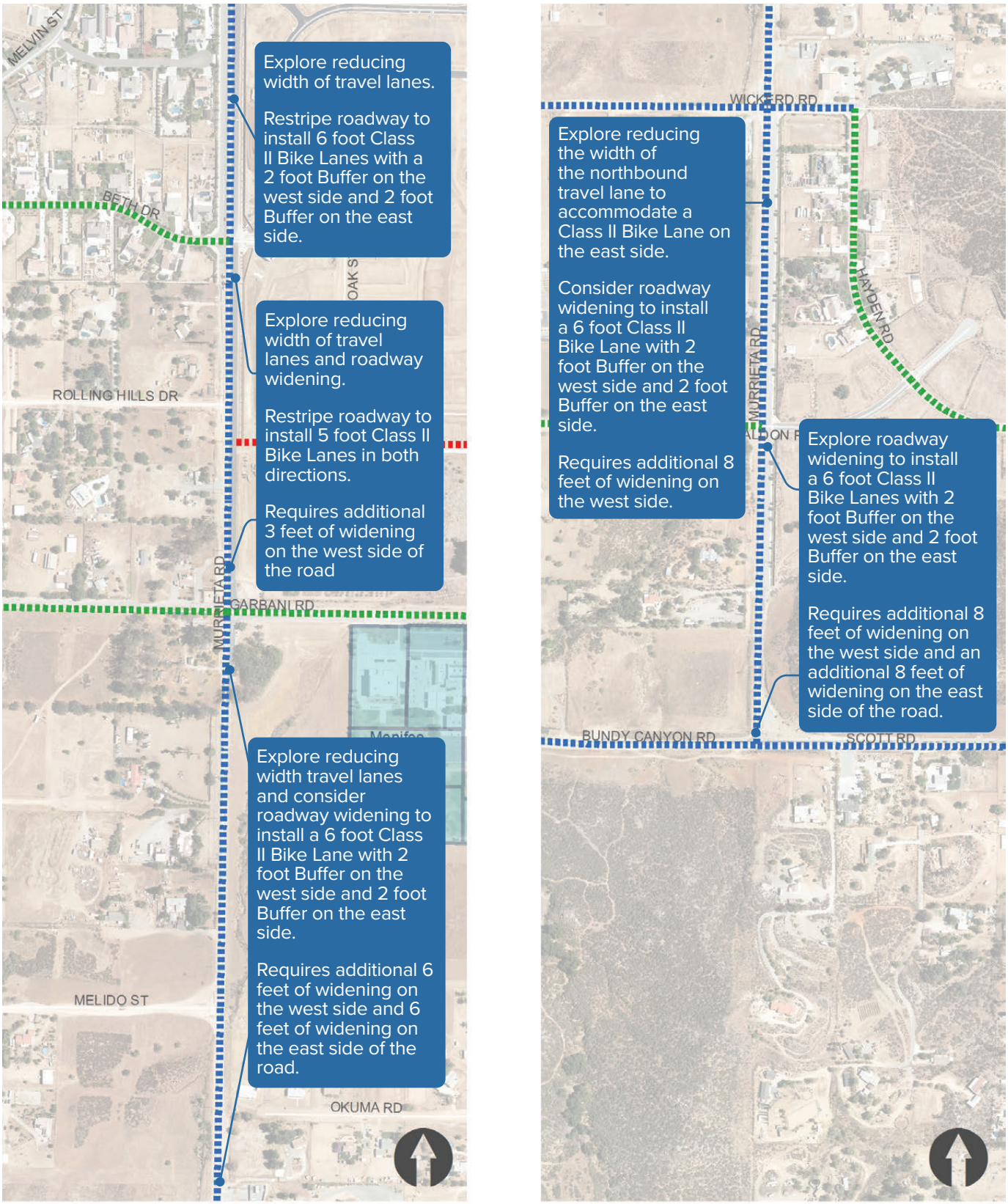
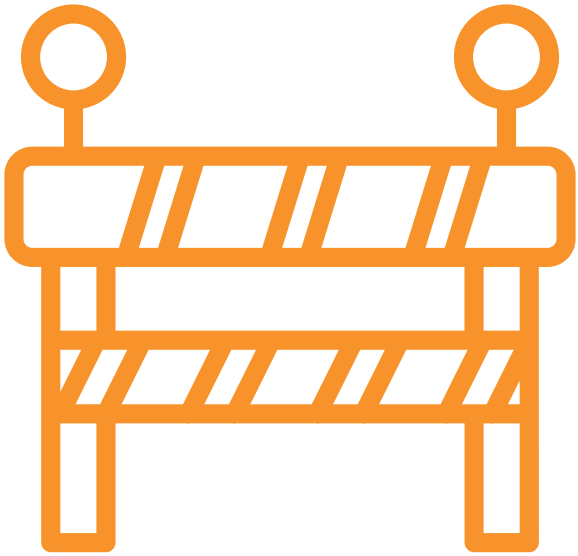


FIGURE 4-6: Murrieta Rd Proposed Improvements (Cont.)



END OF CORRIDOR

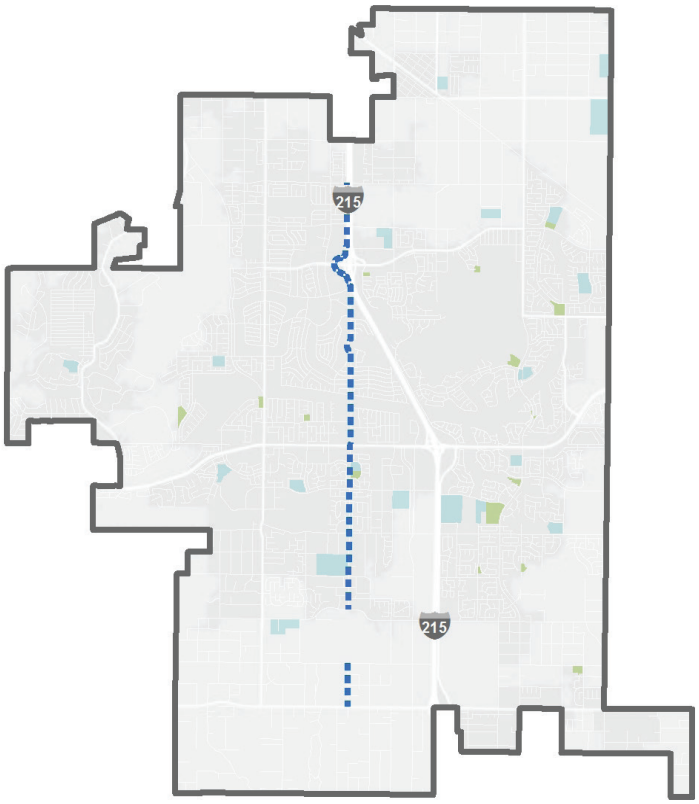
PROPOSED BIKEWAY PROJECT 3

BRADLEY ROAD

(FROM ROUSE RD TO SCOTT RD)

Cost Estimate: $4,851,999

Project Length:
4.7 miles



EXISTING CONDITIONS

The Bradley Road corridor is located in west Menifee and runs north to south. The corridor passes through Chester W Morrison Elementary and Lyle Marsh Park and a number of churches including Heritage Church, New Life Church, Menifee United Church of Christ, Church of Jesus Christ of Latter-day Saints, and Valley Seventh Day Adventist Church. One pedestrian collision has been reported along this route.

RECOMMENDATIONS

Install Class II Bike lanes along this corridor with Buffered Bike Lanes where feasible. In addition, road width modifications, converting the shoulder to a bike lane, and roadway restriping to accommodate for bike lanes should be implemented to improve the corridor. The Future Roadway Classification varies for this segment is a 4-Lane Secondary to the north to a 4-Lane Major to the south.

AT A GLANCE

2
Schools

1
Parks

1
Pedestrian Collisions

0
Bicycle Collisions

1.7 miles
Missing Sidewalk

23
Crosswalk Improvements

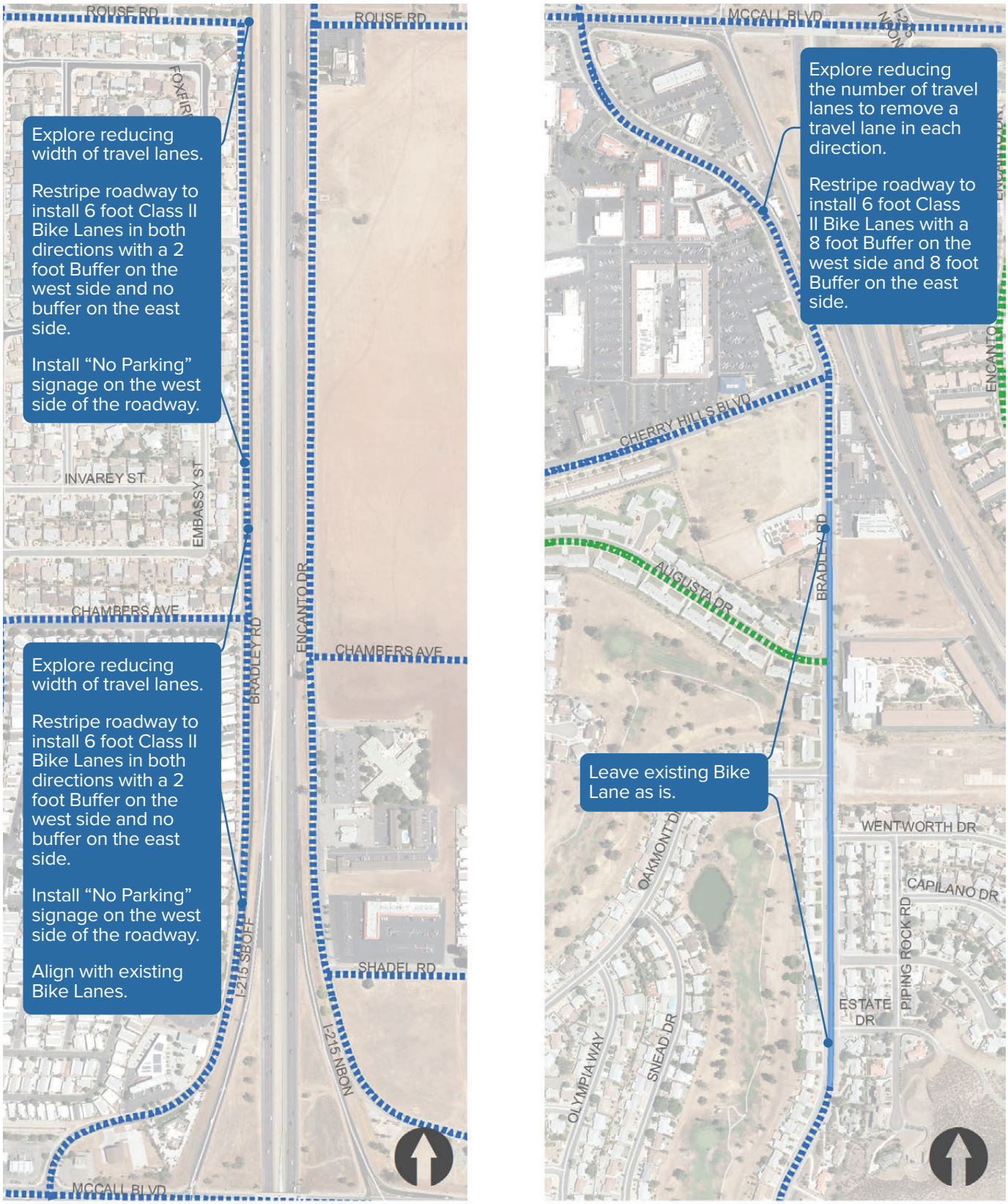


FIGURE 4-7: Bradley Rd Proposed Improvements

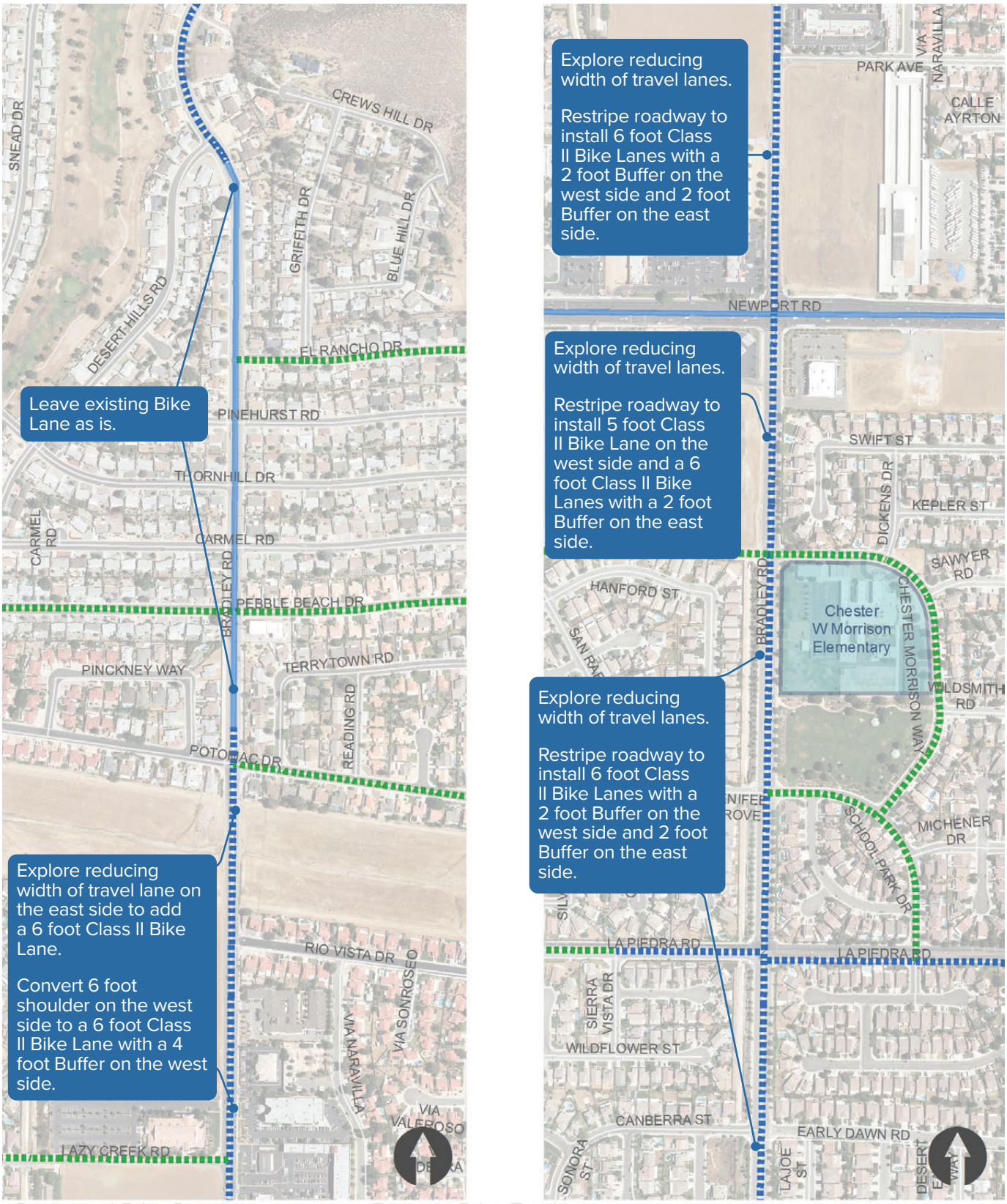


FIGURE 4-7: Bradley Rd Proposed Improvements (Cont.)

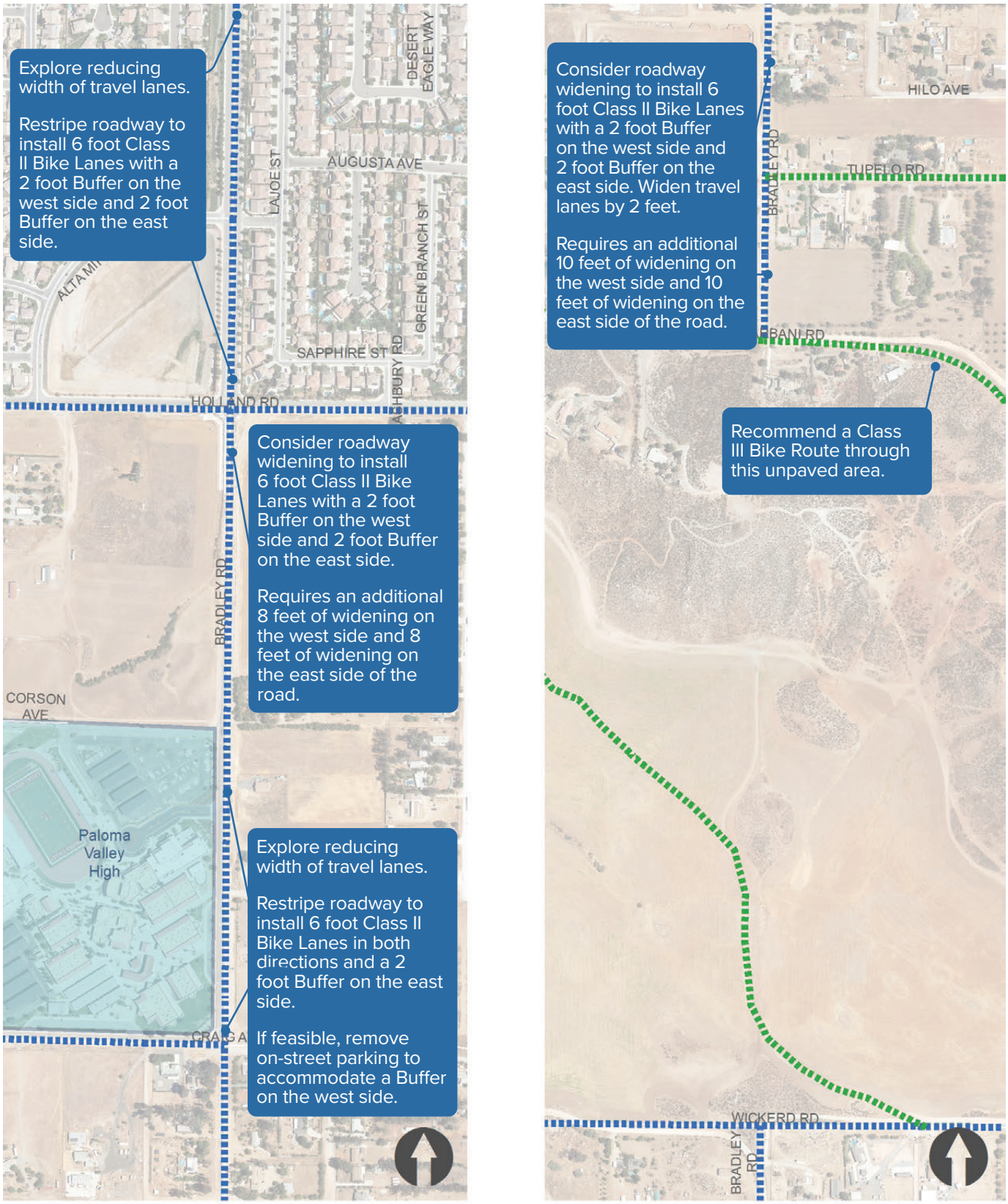


FIGURE 4-7: Bradley Rd Proposed Improvements (Cont.)

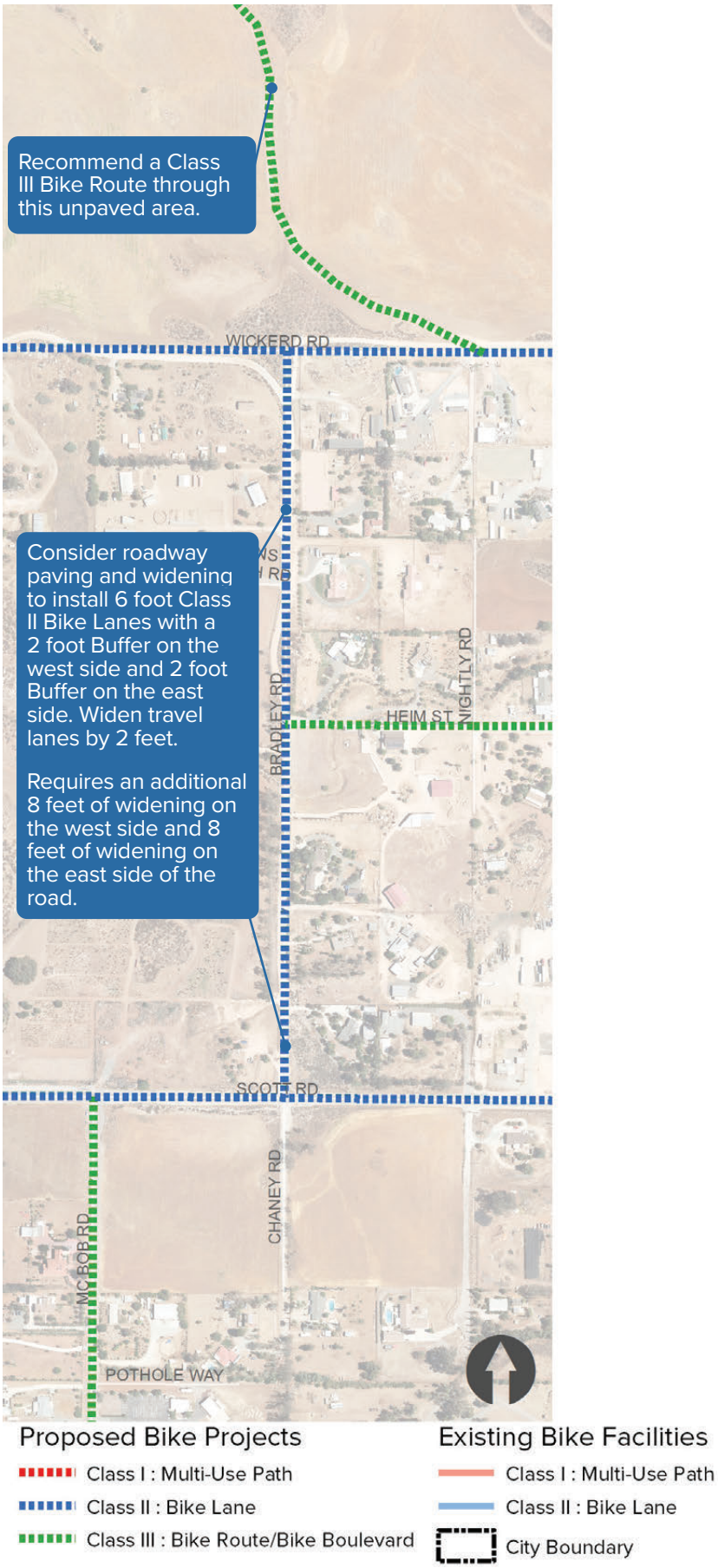
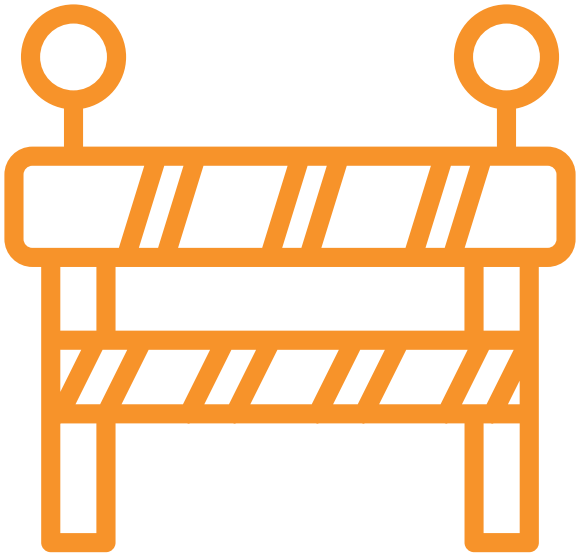


FIGURE 4-7: Bradley Rd Proposed Improvements (Cont.)



END OF CORRIDOR

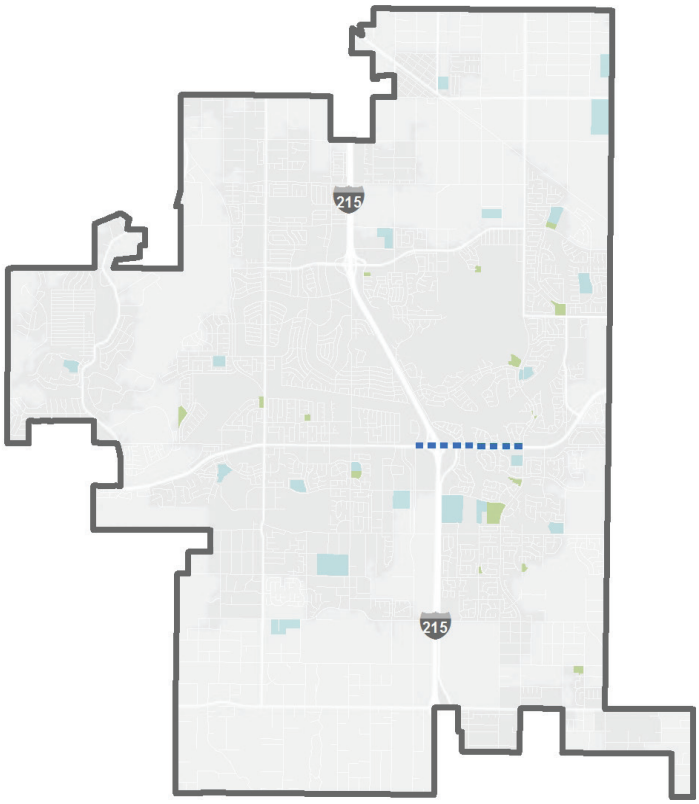
PROPOSED BIKEWAY PROJECT 4

NEWPORT ROAD

(FROM CITY LIMIT TO MENIFEE RD)

Cost Estimate: $155,475

Project Length:
1.3 miles



EXISTING CONDITIONS

The Newport Road corridor is centrally located in Menifee and runs east to west. The commercial areas located to the west end of this segment connects to the residential uses located to the east. Additionally, this segment grants access to Interstate 215. Four pedestrian collisions have been reported along this route as well as seven bicycle collisions.

RECOMMENDATIONS

Consider roadway narrowing to Install Class II Bike lanes along this corridor with Buffered Bike Lanes. In addition, reducing the number of travel lanes to remove one travel lane in each direction and restriping the roadway to install six foot Class II Bike Lanes are recommended to improve the corridor. The Future Roadway Classification varies for this segment is a 6-Lane Urban Arterial.

AT A GLANCE

0
Schools

0
Parks

4
Pedestrian Collisions

7
Bicycle Collisions

0 miles
Missing Sidewalk

3
Crosswalk Improvements

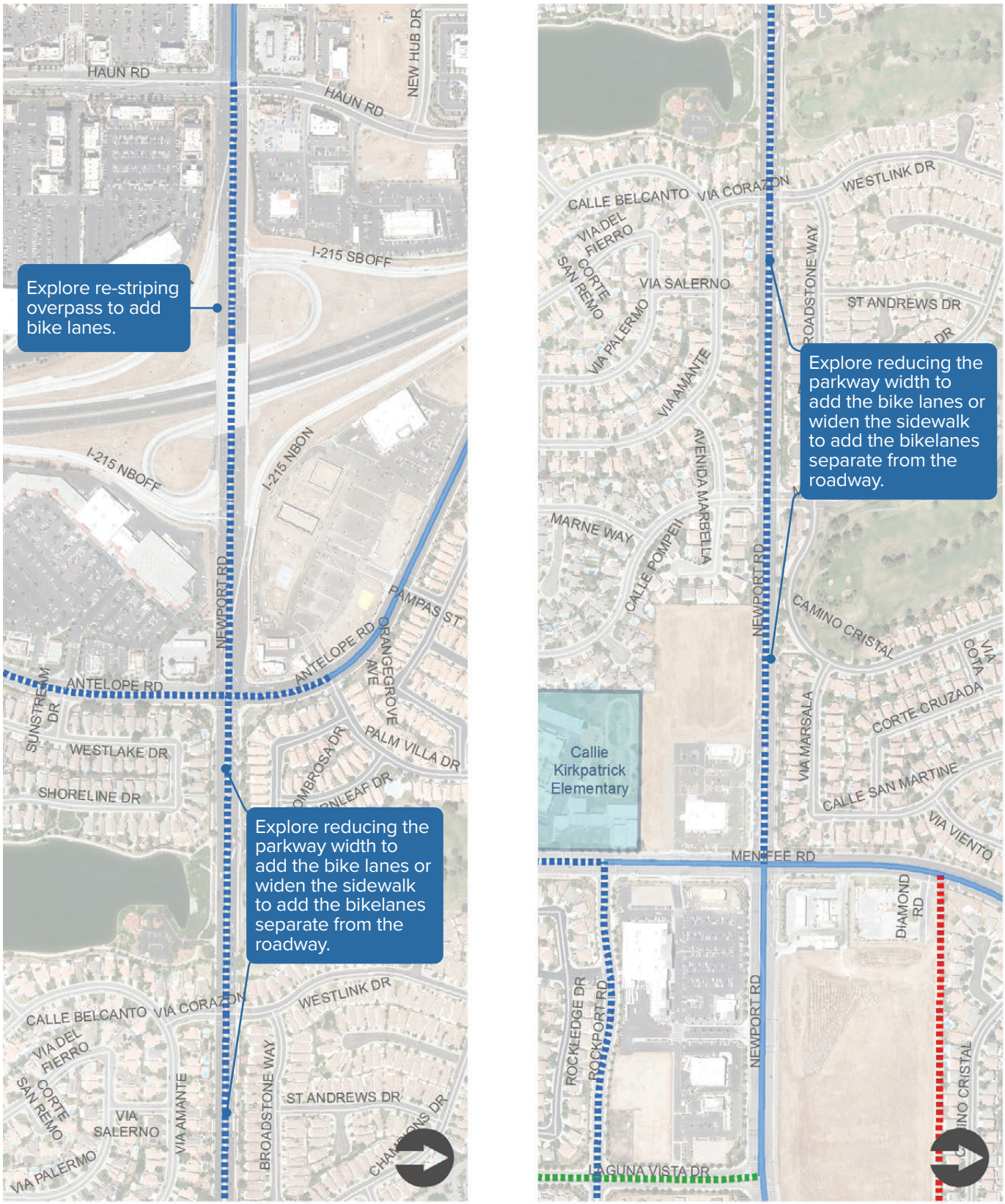


FIGURE 4-8: Newport Rd Proposed Improvements

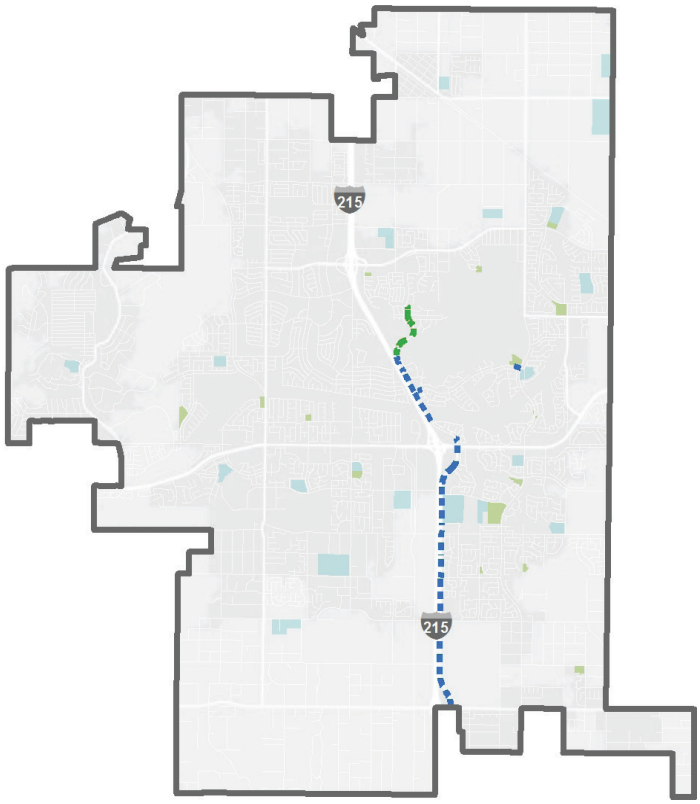
PROPOSED BIKEWAY PROJECT 5

ALDERGATE DRIVE/ ANTELOPE ROAD/TALLY ROAD/SUMMONER ROAD

(FROM EVENING STAR DR TO CITY LIMIT)

Cost Estimate: $1,145,767

Project Length:
5 miles



EXISTING CONDITIONS

The Antelope Road/Tally Road/Summoner Road corridor is located in east Menifee and runs north to south. The corridor connects to residential and commercial uses as well as Mt. San Jacinto College and several churches. It should also be noted that the existing bike lanes located in The Oasis, a private community, are only accessible to those residents living there. Two pedestrian collisions have been reported along this route as well as four bicycle collisions.

RECOMMENDATIONS

Install Class II Bike lanes along this corridor with Buffered Bike Lanes. In addition, road width modifications and roadway restriping are recommended to improve the corridor. The Future Roadway Classification varies for this segment from north to south is a 2-Lane Collector, 4-Lane Secondary, and 4-Lane Major.

AT A GLANCE

1
Schools

1
Parks

2
Pedestrian Collisions

4
Bicycle Collisions

0 miles
Missing Sidewalk

5
Crosswalk Improvements

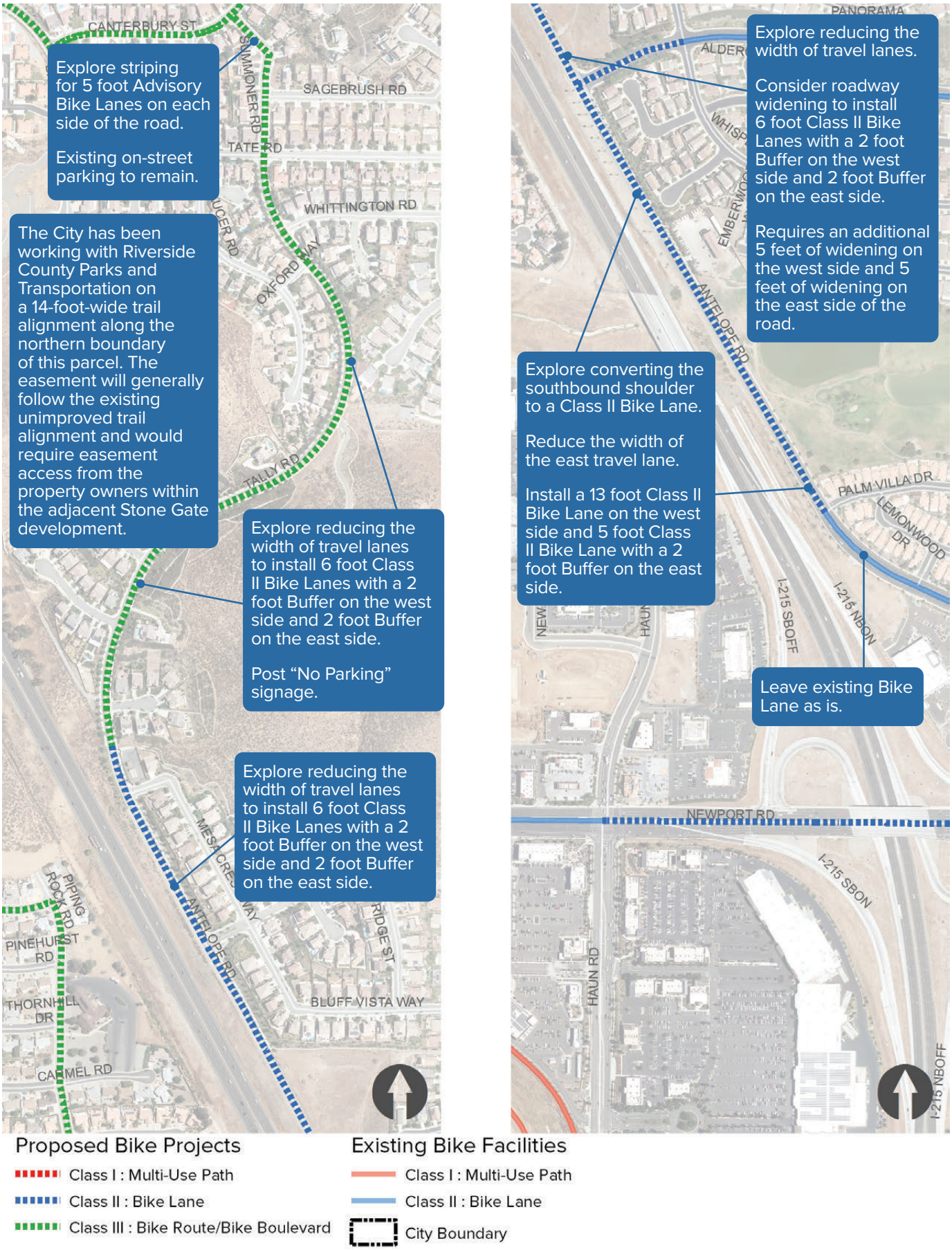


FIGURE 4-9: Aldergate Dr/Antelope Rd/Tally Rd/Summoner Rd Proposed Improvements

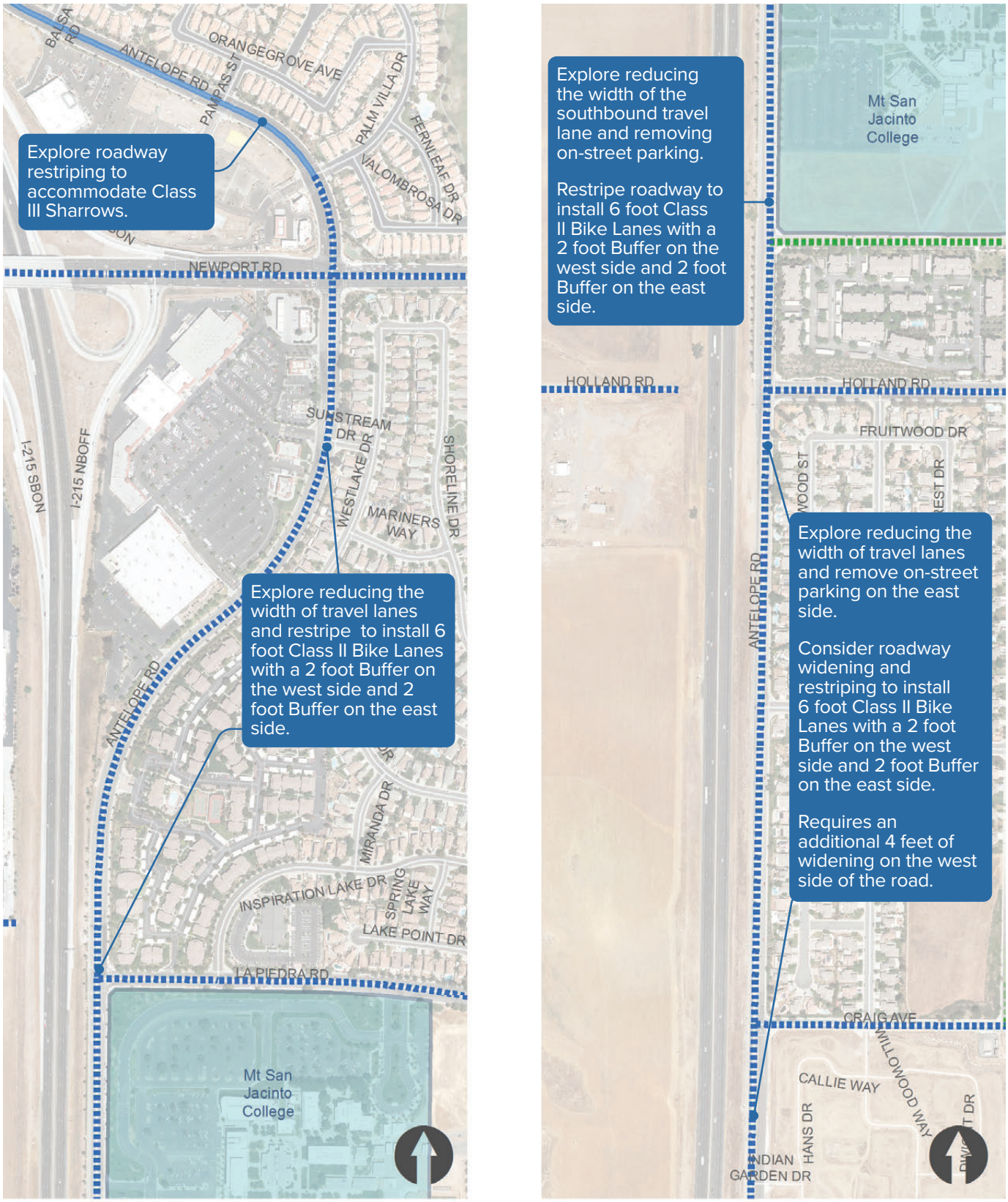


FIGURE 4-9: Aldergate Dr/Antelope Rd/Tally Rd/Summoner Rd Proposed Improvements (Cont.)

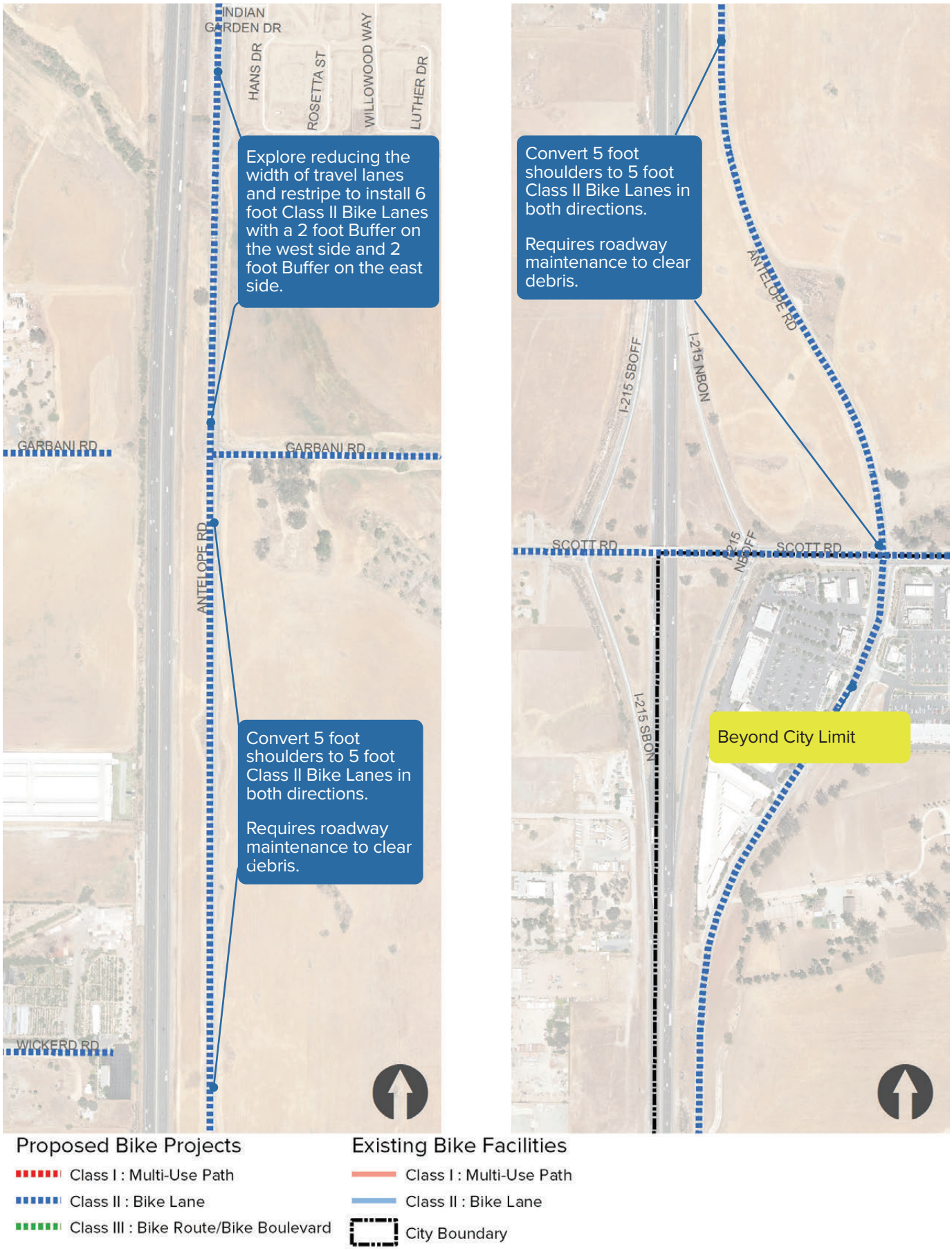


FIGURE 4-9: Aldergate Dr/Antelope Rd/Tally Rd/Summoner Rd Proposed Improvements (Cont.)

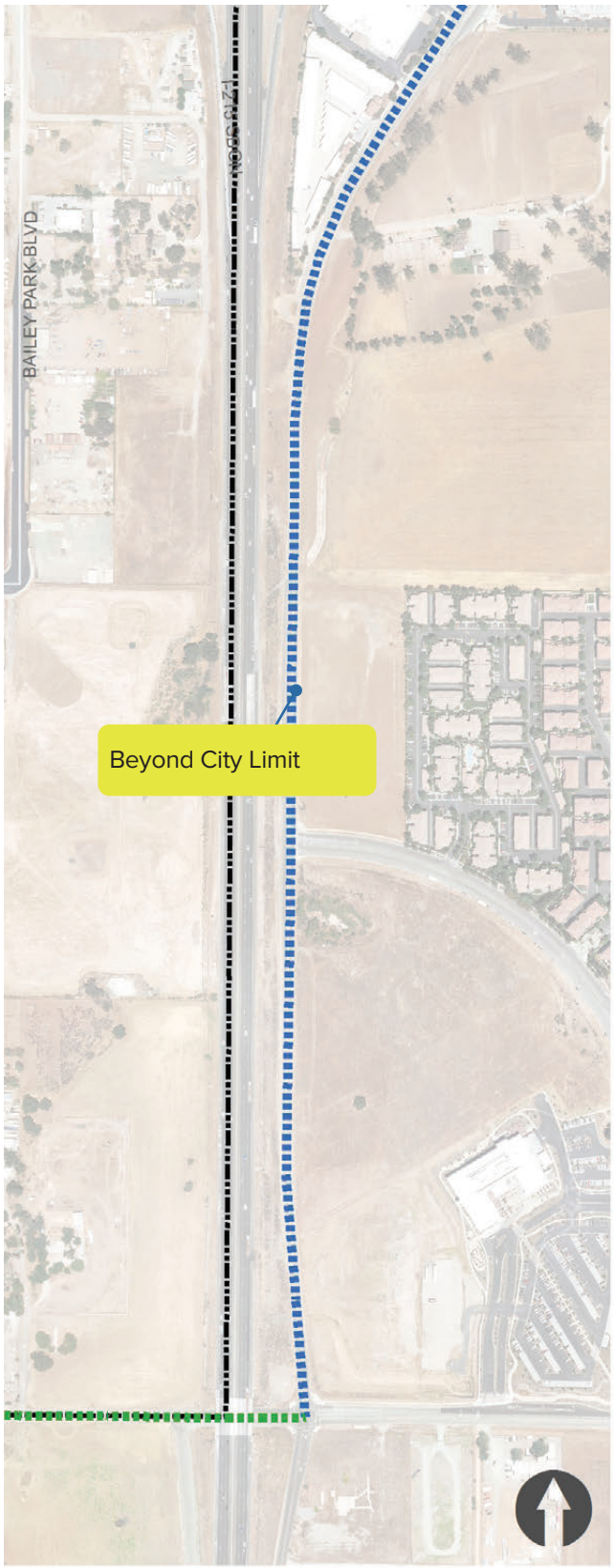
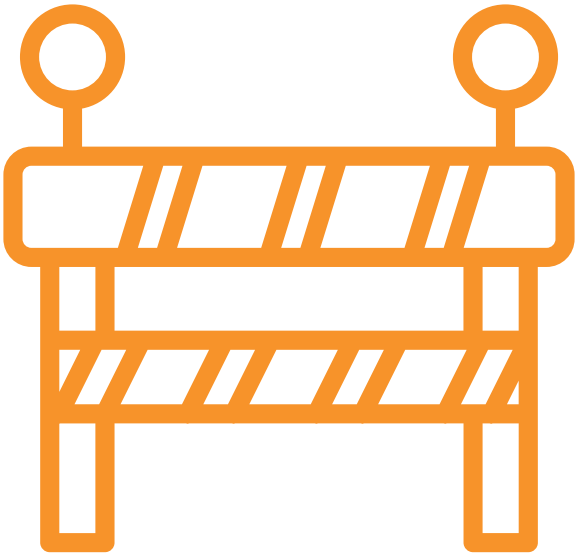


FIGURE 4-9: Aldergate Dr/Antelope Rd/Tally Rd/Summoner Rd Proposed Improvements (Cont.)



END OF CORRIDOR

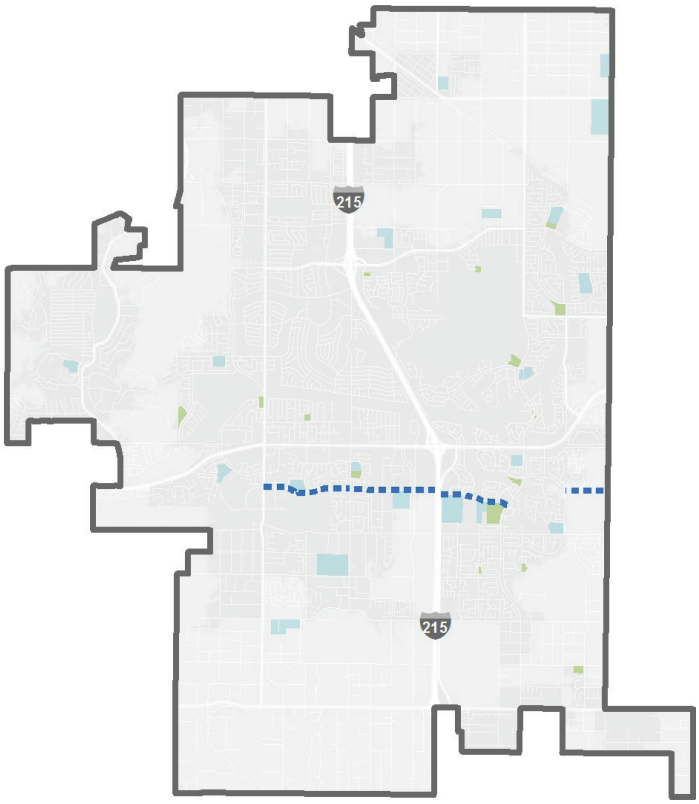
PROPOSED BIKEWAY PROJECT 6

LA PIEDRA ROAD

(FROM MURRIETA RD TO MENIFEE RD)

Cost Estimate: $218,714

Project Length:
3.3 miles



EXISTING CONDITIONS

The La Piedra Road corridor is located in south Menifee and runs east to west. The corridor passes through a number of schools and churches including Evans Ranch Elementary, Santa Rosa Academy, Bell Mountain Middle School, Mt. San Jacinto College, and the Church of Jesus Christ of Latter Day Saints. One pedestrian collision has been reported along this route as well as five bicycle collisions.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, reducing width of travel lanes and restriping roadways for bike lanes are recommended to improve the corridor. The Future Roadway Classification for this segment is a 4-Lane Secondary Road.

AT A GLANCE

2
Schools

1
Parks

1
Pedestrian Collisions

5
Bicycle Collisions

0.9 miles
Missing Sidewalk

27
Crosswalk Improvements

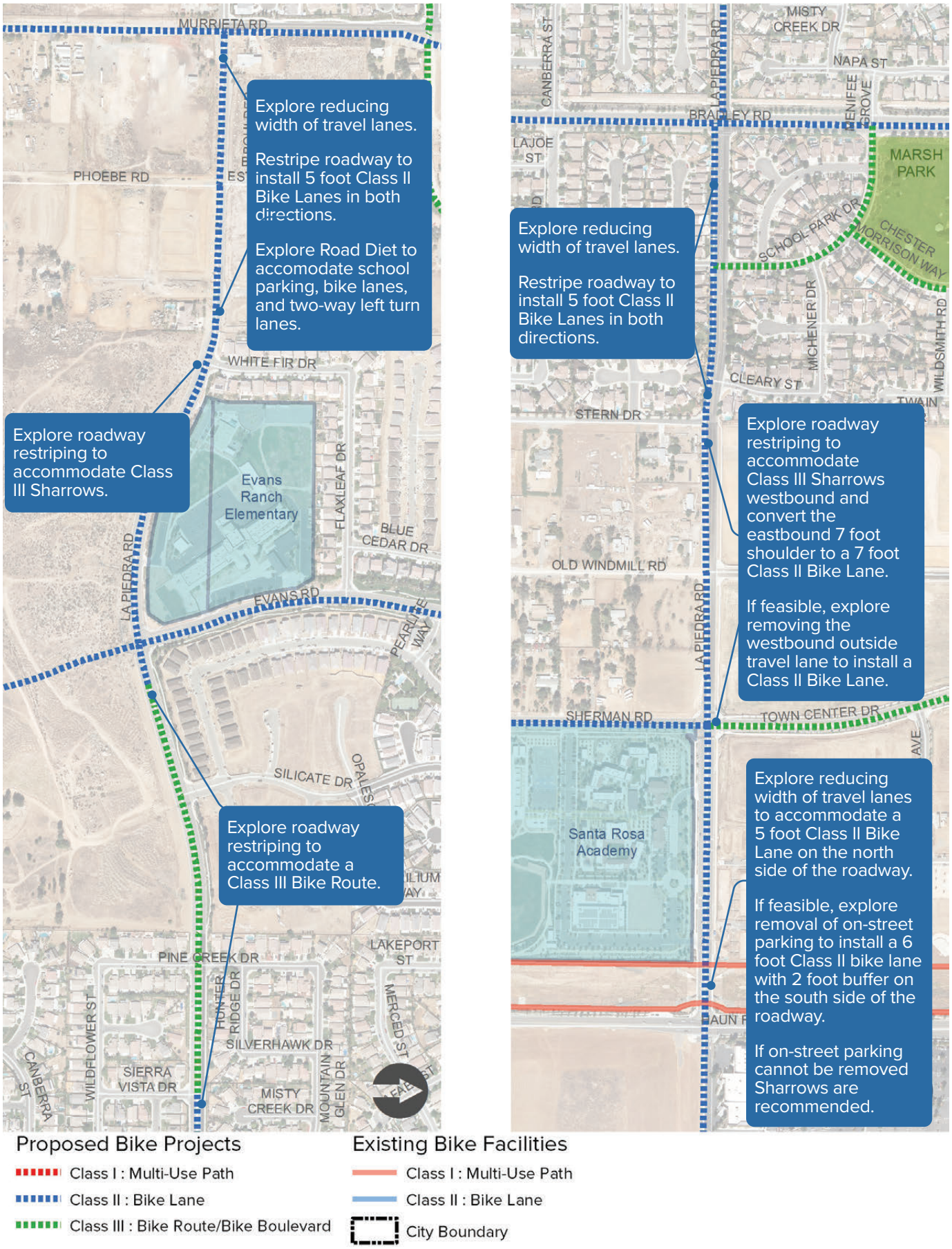


FIGURE 4-10: La Piedra Rd Proposed Improvements

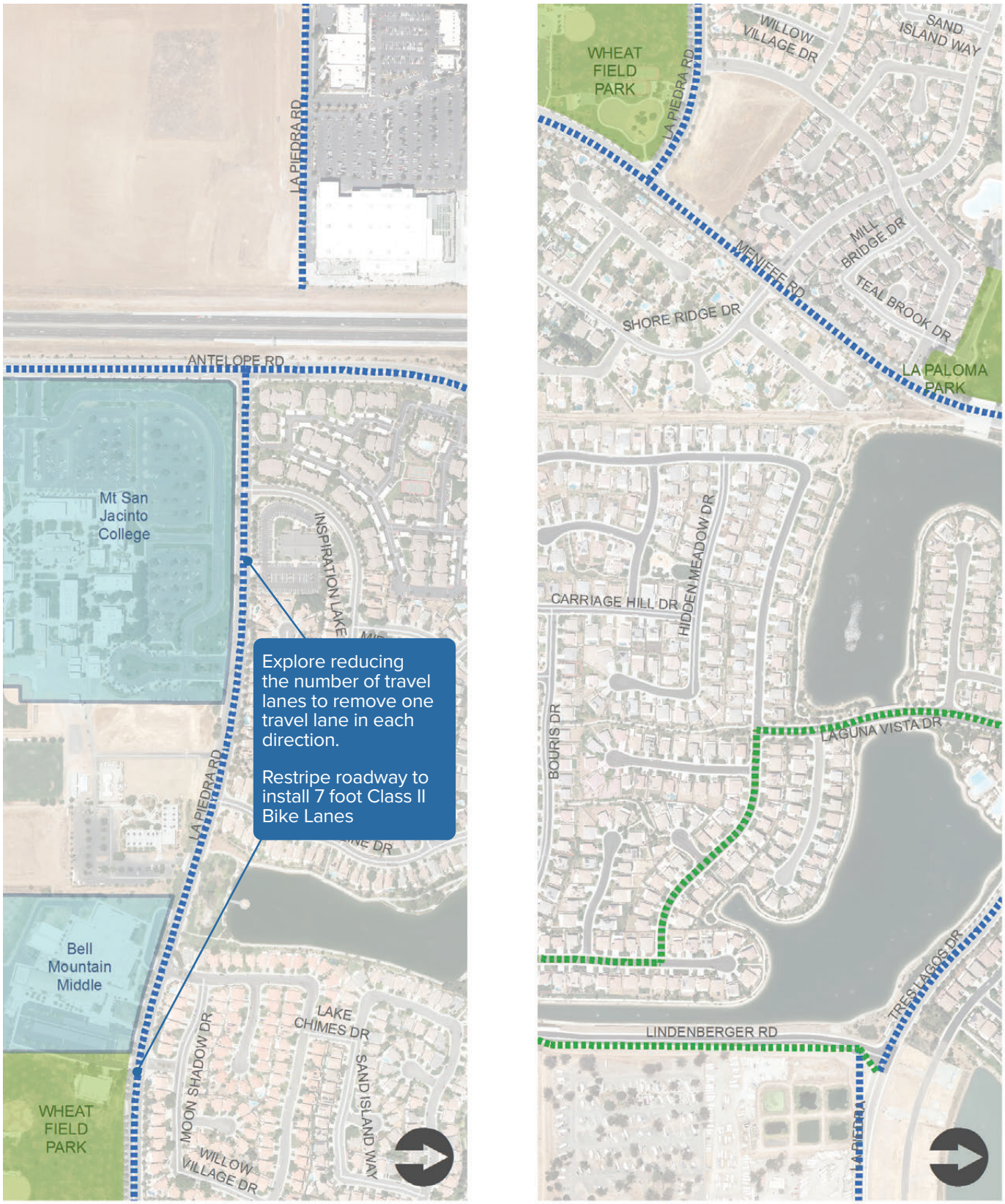


FIGURE 4-10: La Piedra Rd Proposed Improvements (Cont.)

FIGURE 4-10: La Piedra Rd Proposed Improvements (Cont.)

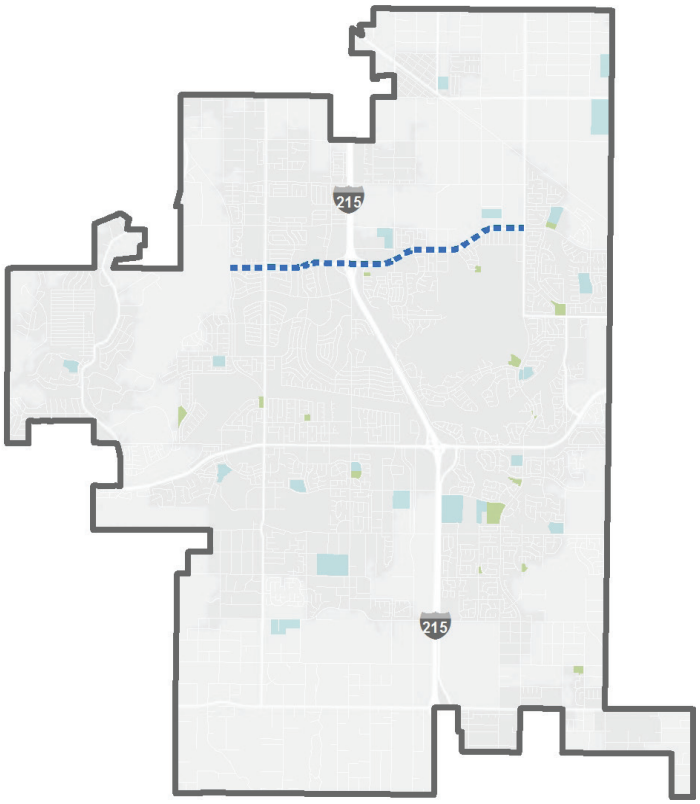
PROPOSED BIKEWAY PROJECT 7

McCALL BOULEVARD

(FROM VALLEY BLVD TO MENIFEE RD)

Cost Estimate: $1,664,199

Project Length:
3.5 miles



EXISTING CONDITIONS

The McCall Boulevard corridor is located in south Menifee and runs east to west. The corridor passes through a number of commercial uses and connects to residential communities. This corridor serves as a primary access point to Interstate 215. Four pedestrian collisions have been reported along this route as well as one bicycle collision.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, modifying road width and restriping roadways for bike lanes are recommended to improve the corridor. The Future Roadway Classifications for this segment are a 4-Lane Major Road to the west of I-215 and a 6-Lane Urban Arterial east of I-215.

AT A GLANCE

1
Schools

0
Parks

4
Pedestrian Collisions

1
Bicycle Collisions

1.7 miles
Missing Sidewalk

10
Crosswalk Improvements

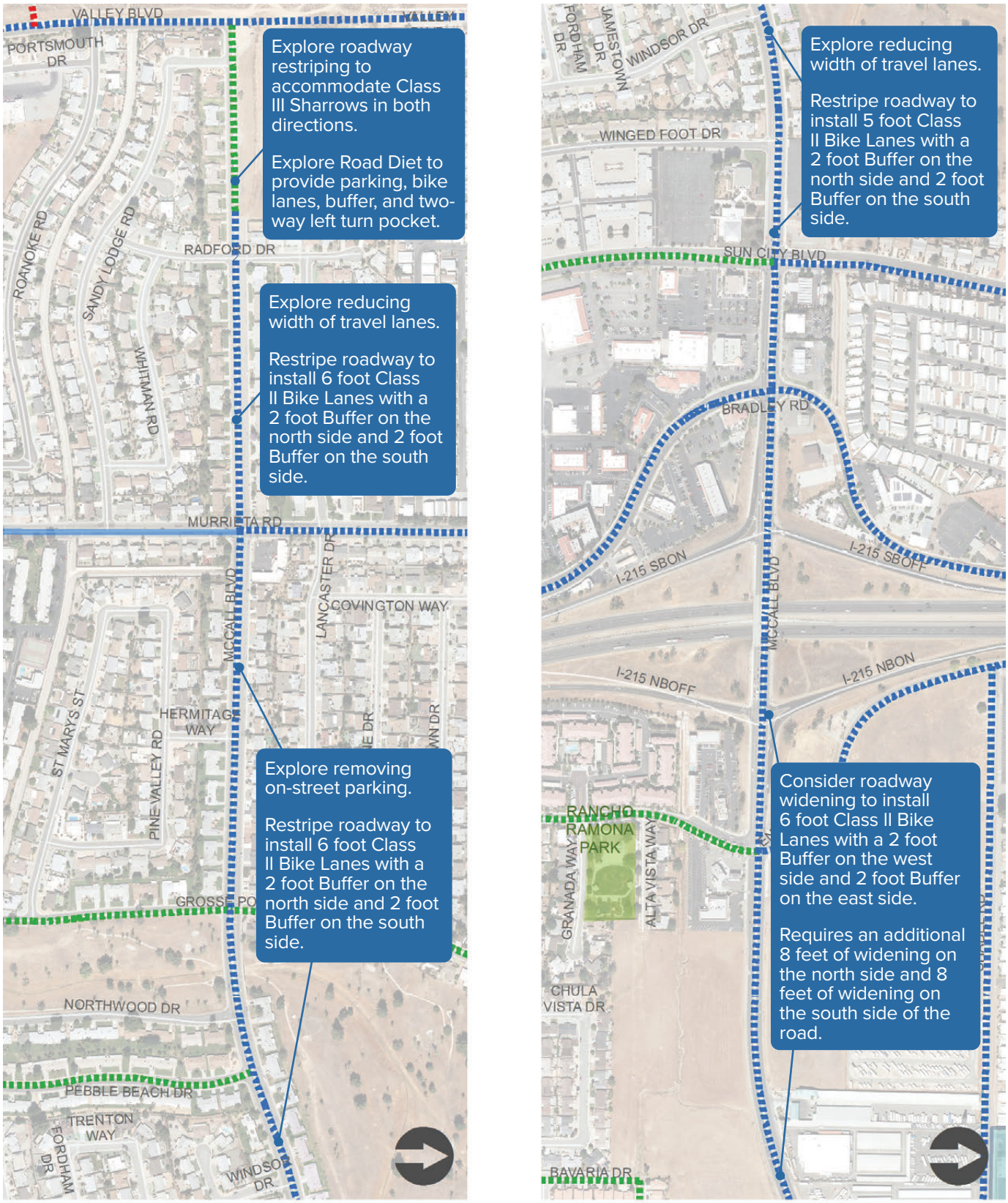


FIGURE 4-11: McCall Blvd Proposed Improvements

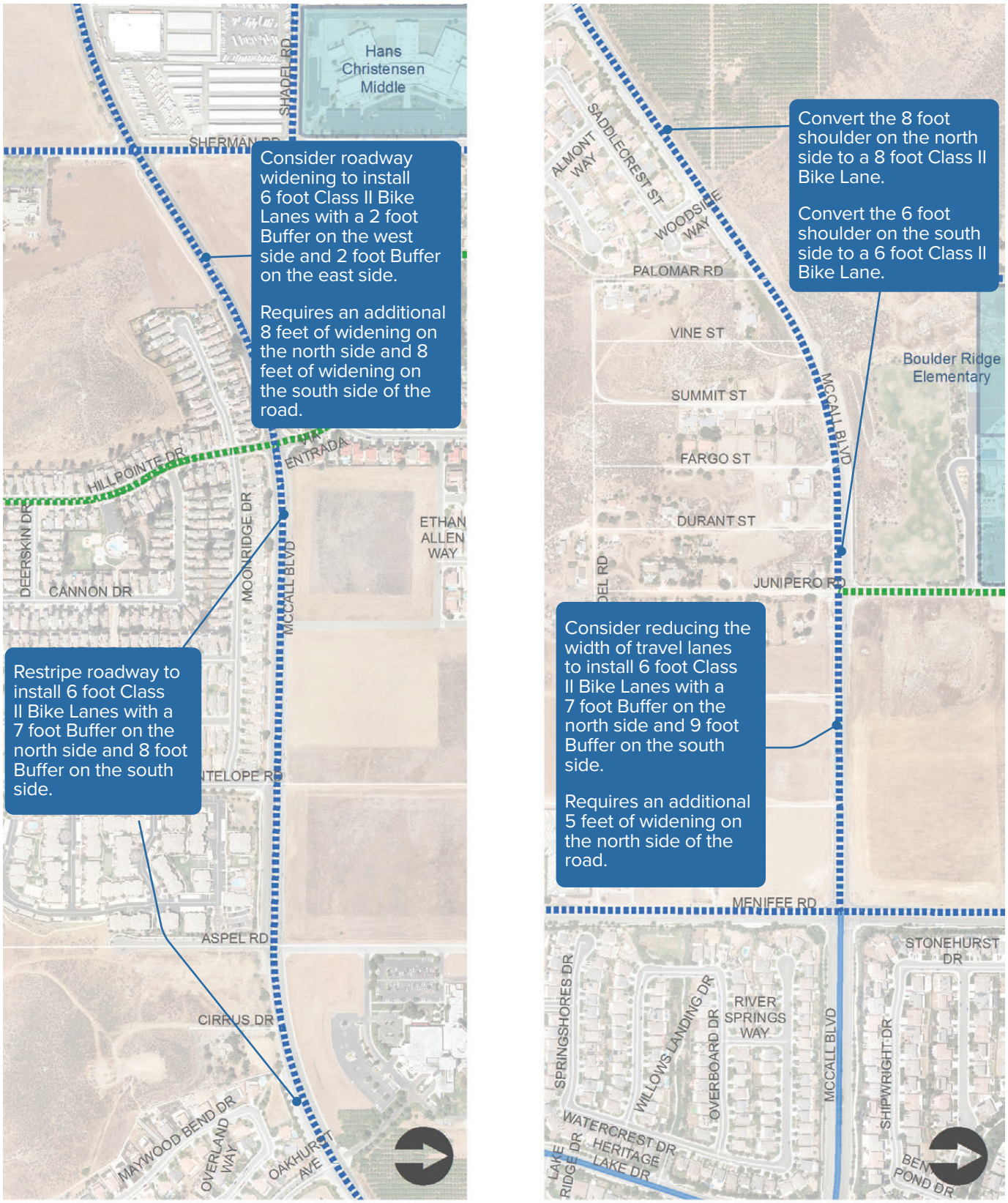
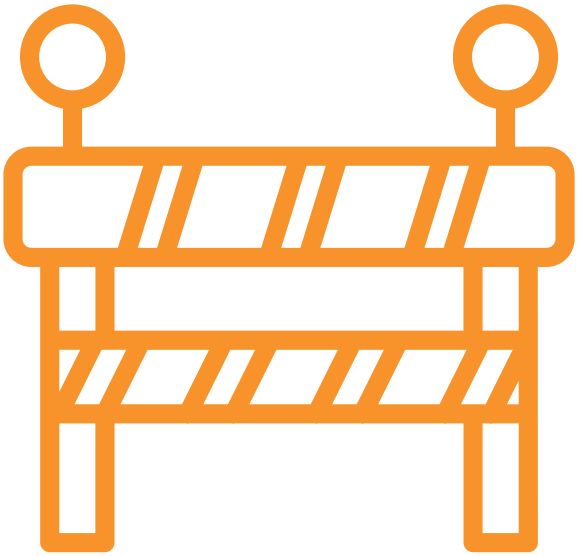


FIGURE 4-11: McCall Blvd Proposed Improvements (Cont.)



END OF CORRIDOR

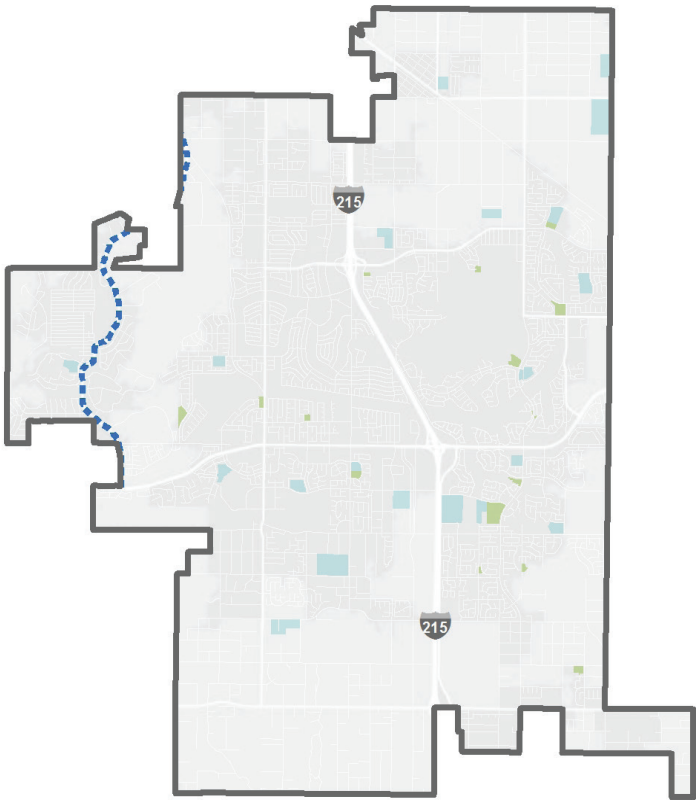
PROPOSED BIKEWAY PROJECT 8

GOETZ ROAD

(FROM ETHANAC RD TO NEWPORT RD)

Cost Estimate: $5,599,607

Project Length:
4.6 miles



EXISTING CONDITIONS

The Goetz Road corridor is located in west Menifee and runs north to south. The corridor passes through a number of residential and vacant land parcels. Additionally, this corridor serves as primary access to the Quail Valley Fire Station, Quail Valley Elementary, Grace Evangelical Free Church, and East Port Park. One pedestrian collision has been reported along this route.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, modifying road width, restriping roadways for bike lanes, and relocating detection loops are recommended to improve the corridor. The Future Roadway Classifications for this segment is a 4-Lane Arterial to the north and a 4-Lane Major to the south.

AT A GLANCE

1
Schools

0
Parks

1
Pedestrian Collisions

0
Bicycle Collisions

1 mile
Missing Sidewalk

7
Crosswalk Improvements

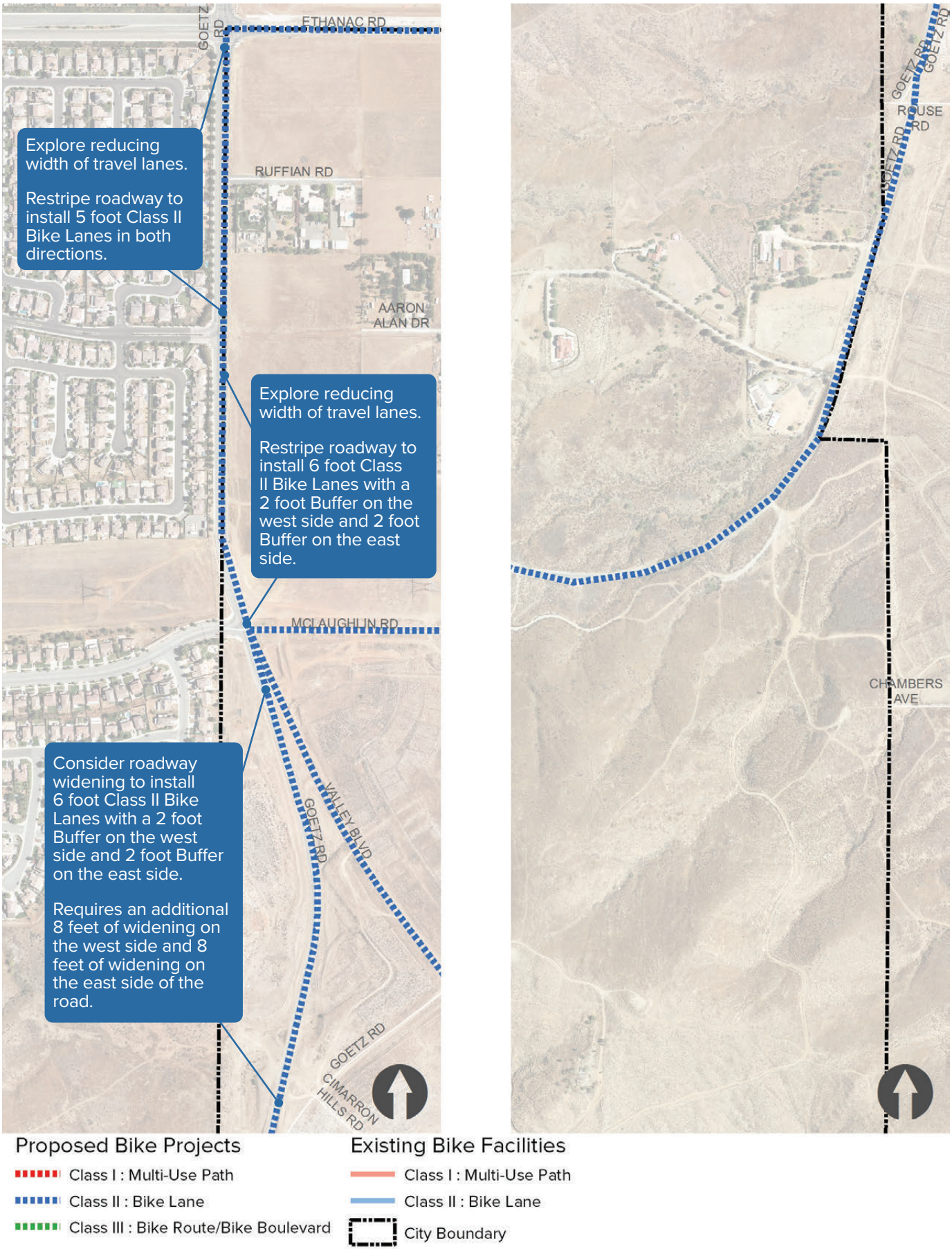


FIGURE 4-12: Goetz Rd Proposed Improvements

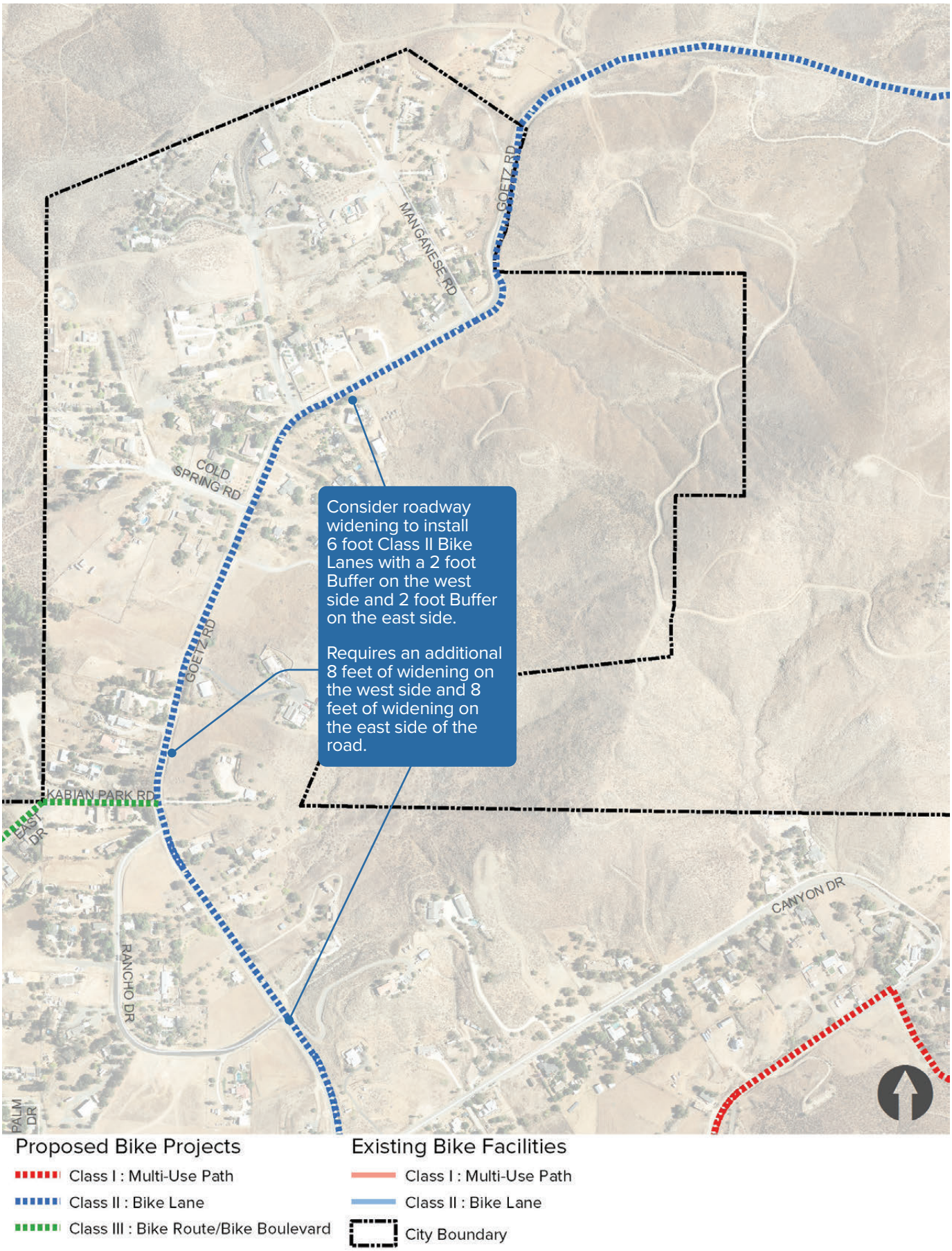


FIGURE 4-12: Goetz Rd Proposed Improvements (Cont.)

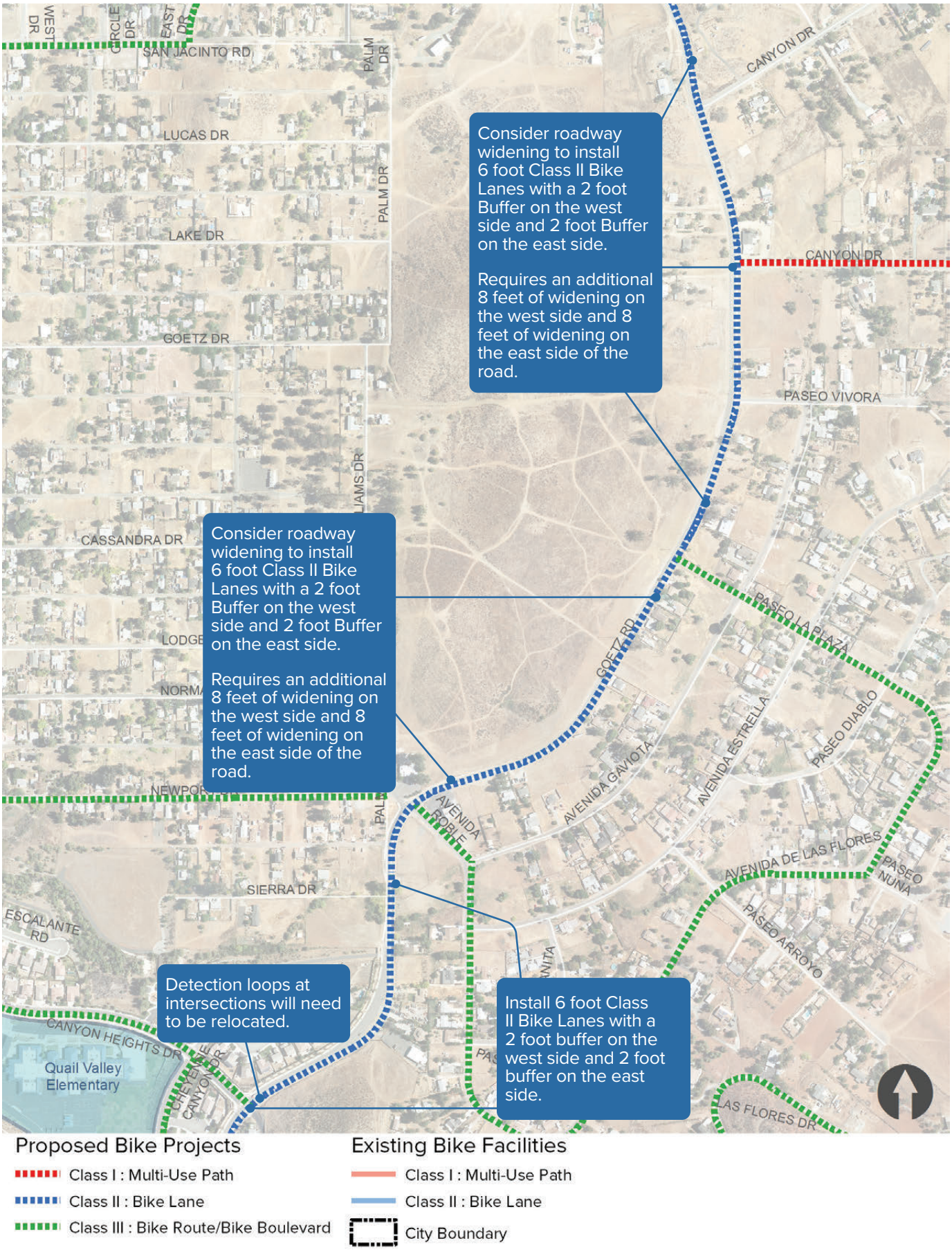


FIGURE 4-12: Goetz Rd Proposed Improvements (Cont.)

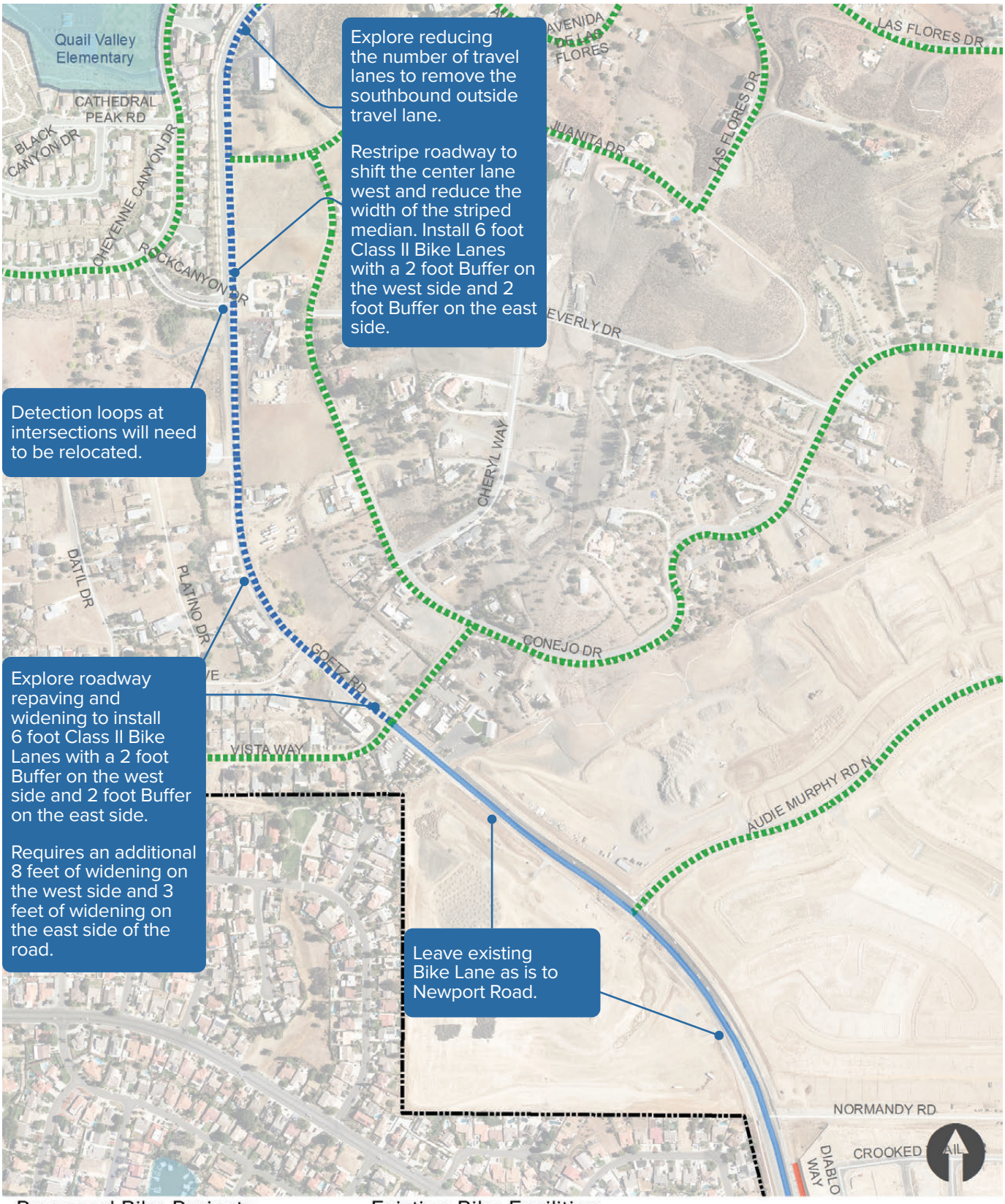
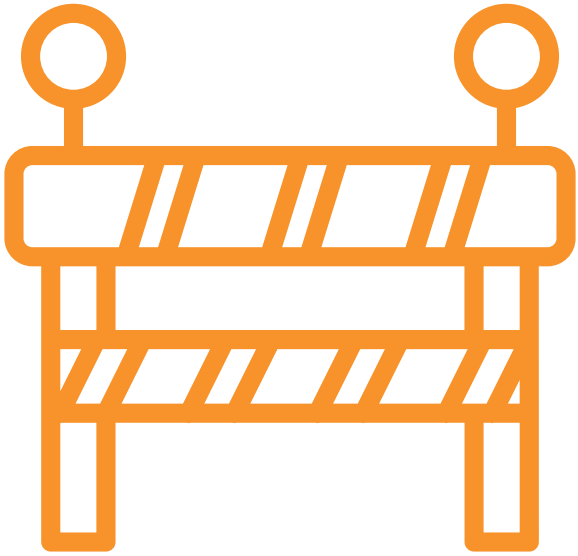


FIGURE 4-12: Goetz Rd Proposed Improvements (Cont.)



END OF CORRIDOR

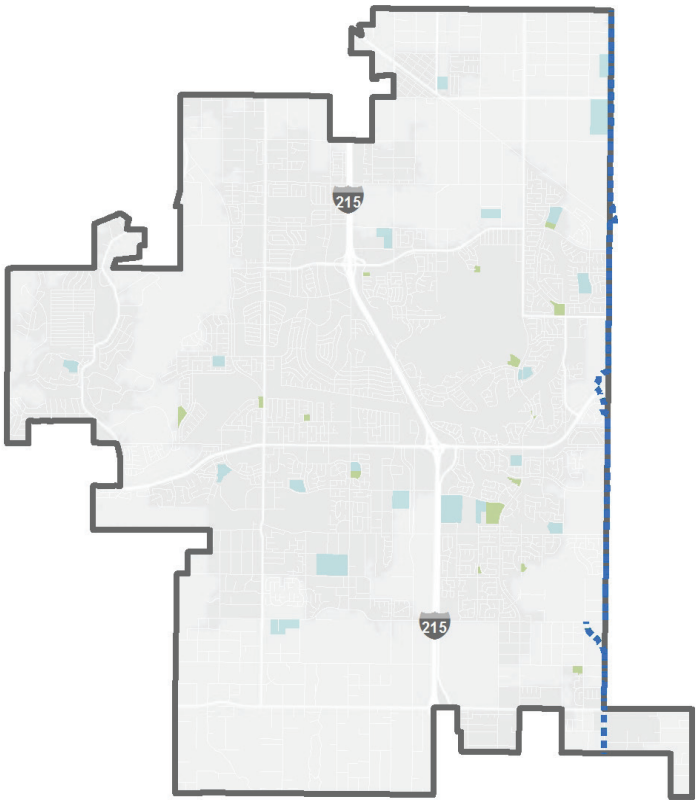
PROPOSED BIKEWAY PROJECT 9

BRIGGS ROAD

(FROM MAPES RD TO CITY LIMIT)

Cost Estimate: $7,944,266

Project Length:
8.6 miles



EXISTING CONDITIONS

The Briggs Road corridor is located in east Menifee and runs north to south. The corridor passes through two schools- Harvest Valley Elementary and Heritage High School. There is a gap in connectivity along this corridor due to open space. One bicycle collision has been reported along this route.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, modifying road width, restriping roadways for bike lanes, and designating bike trails are recommended to improve the corridor. The Future Roadway Classification for this segment is a 4-Lane Arterial.

AT A GLANCE

2
Schools

1
Parks

0
Pedestrian Collisions

1
Bicycle Collisions

2.5 miles
Missing Sidewalk

18
Crosswalk Improvements

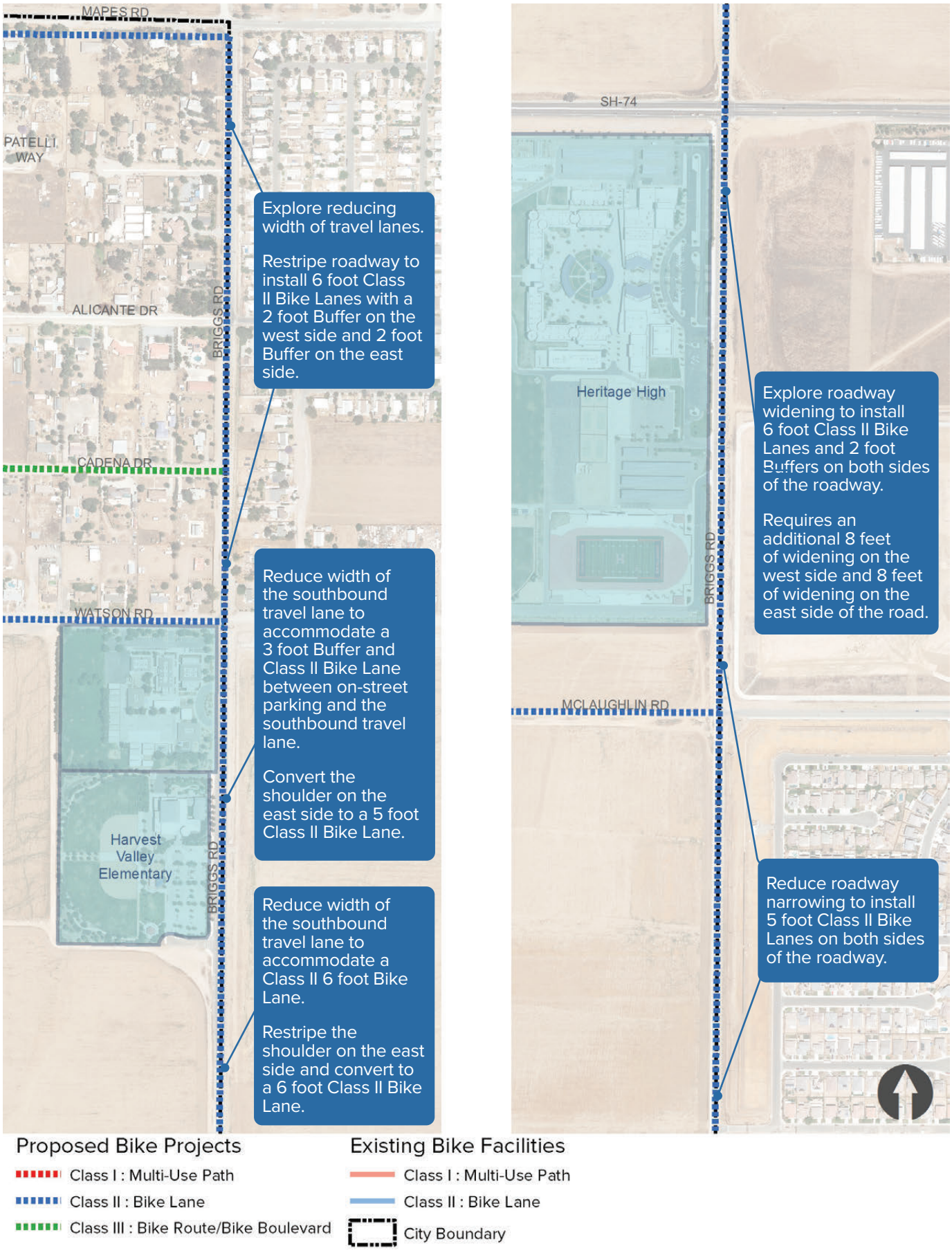


FIGURE 4-13: Briggs Rd Proposed Improvements

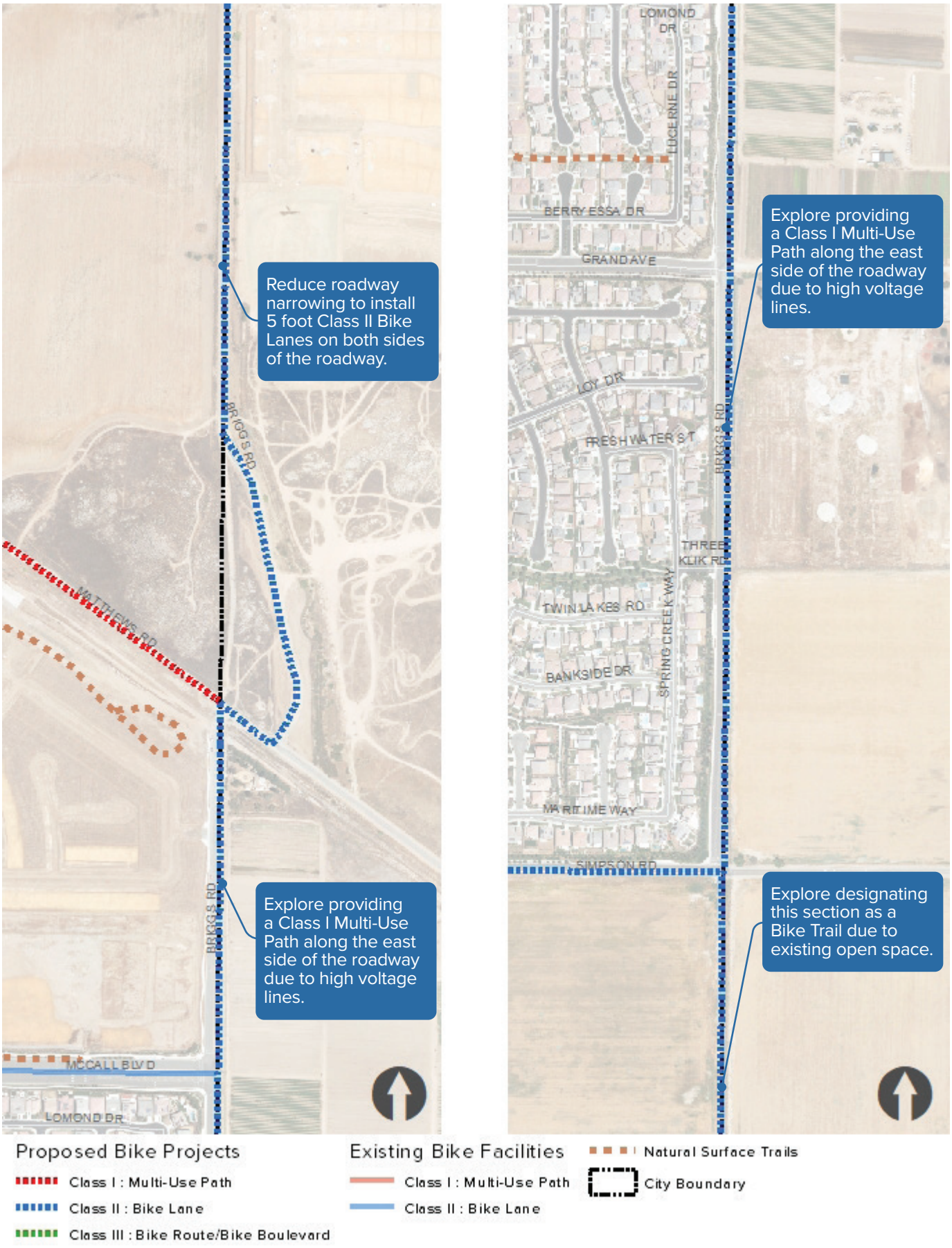


FIGURE 4-13: Briggs Rd Proposed Improvements (Cont.)

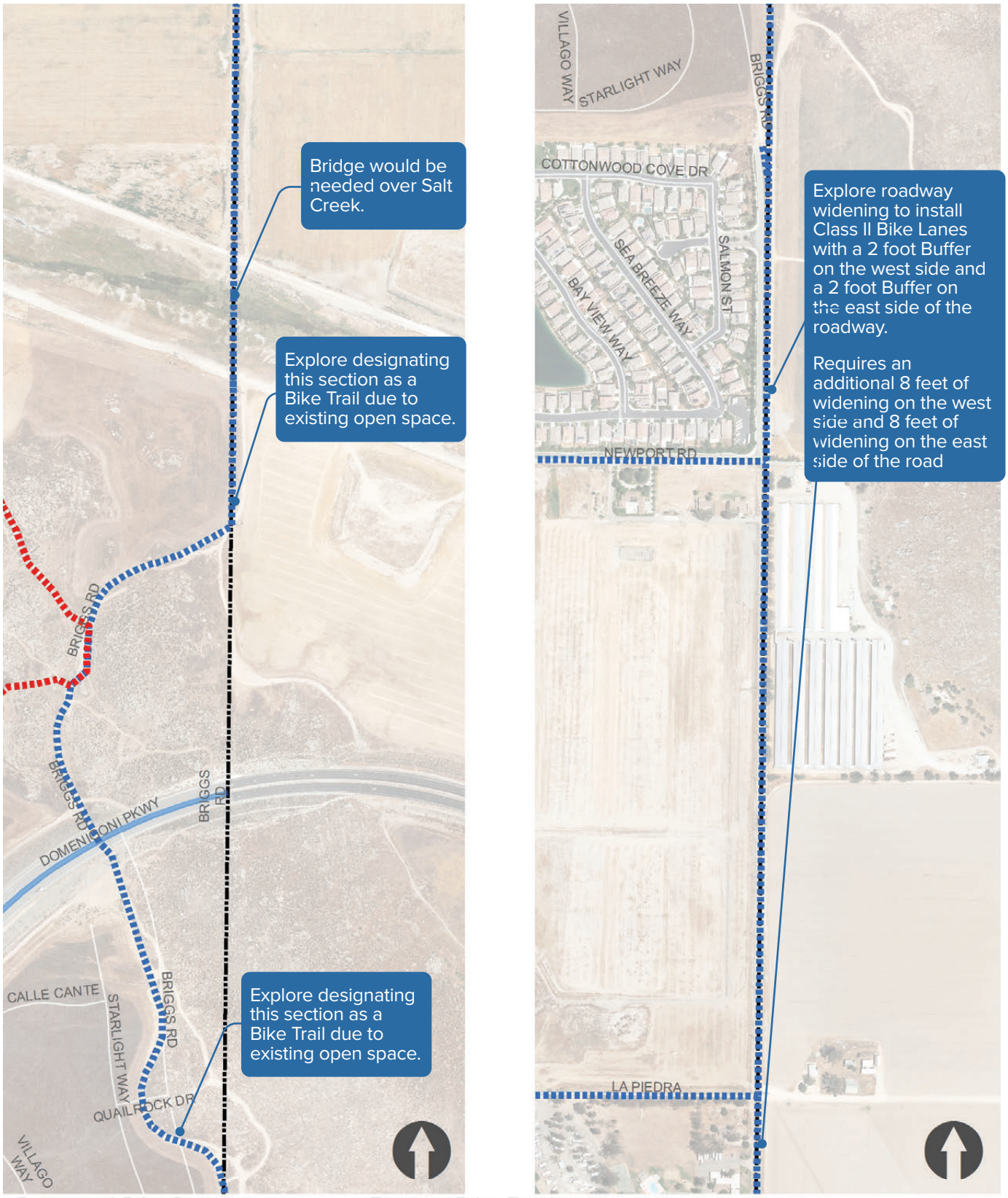


FIGURE 4-13: Briggs Rd Proposed Improvements (Cont.)

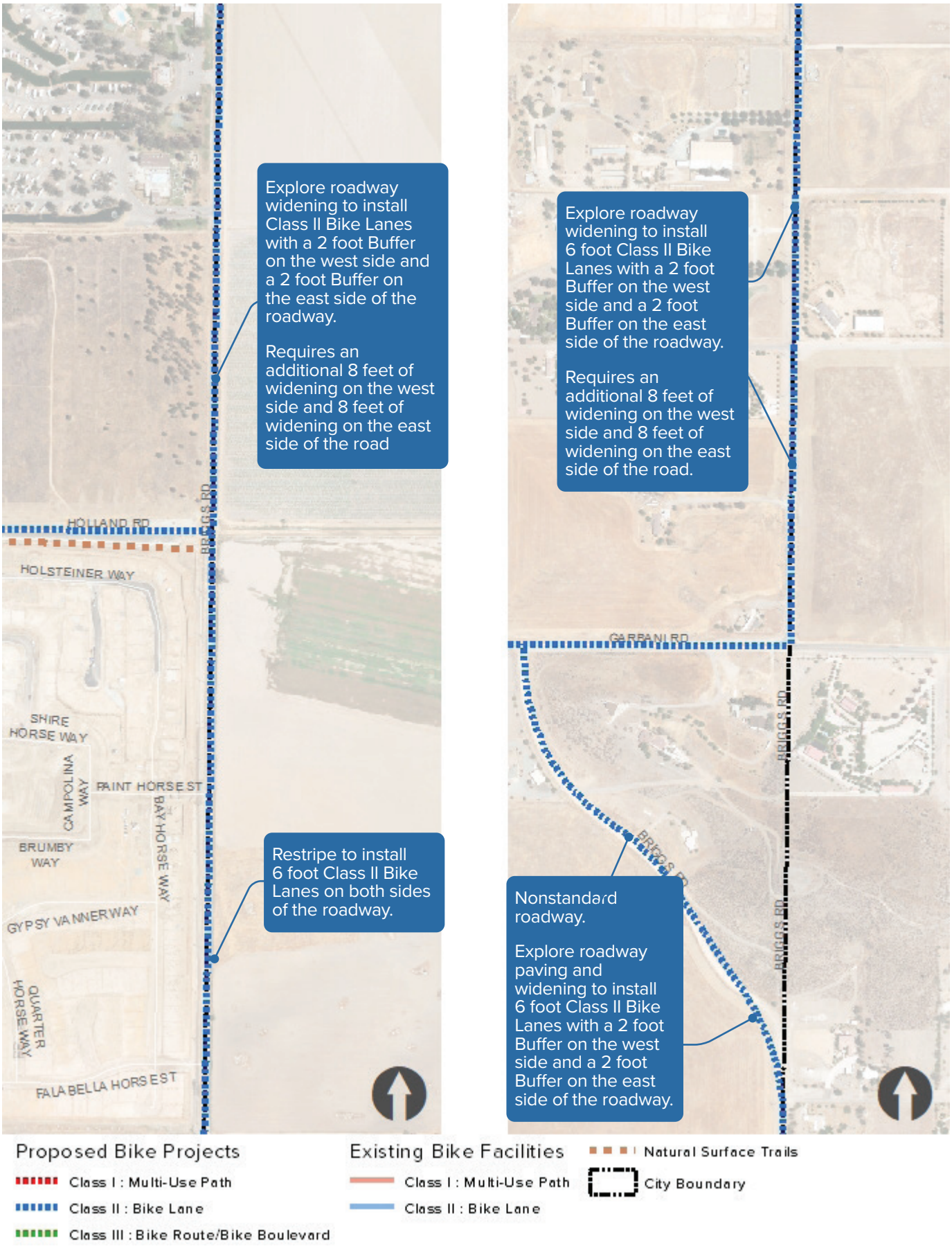


FIGURE 4-13: Briggs Rd Proposed Improvements (Cont.)

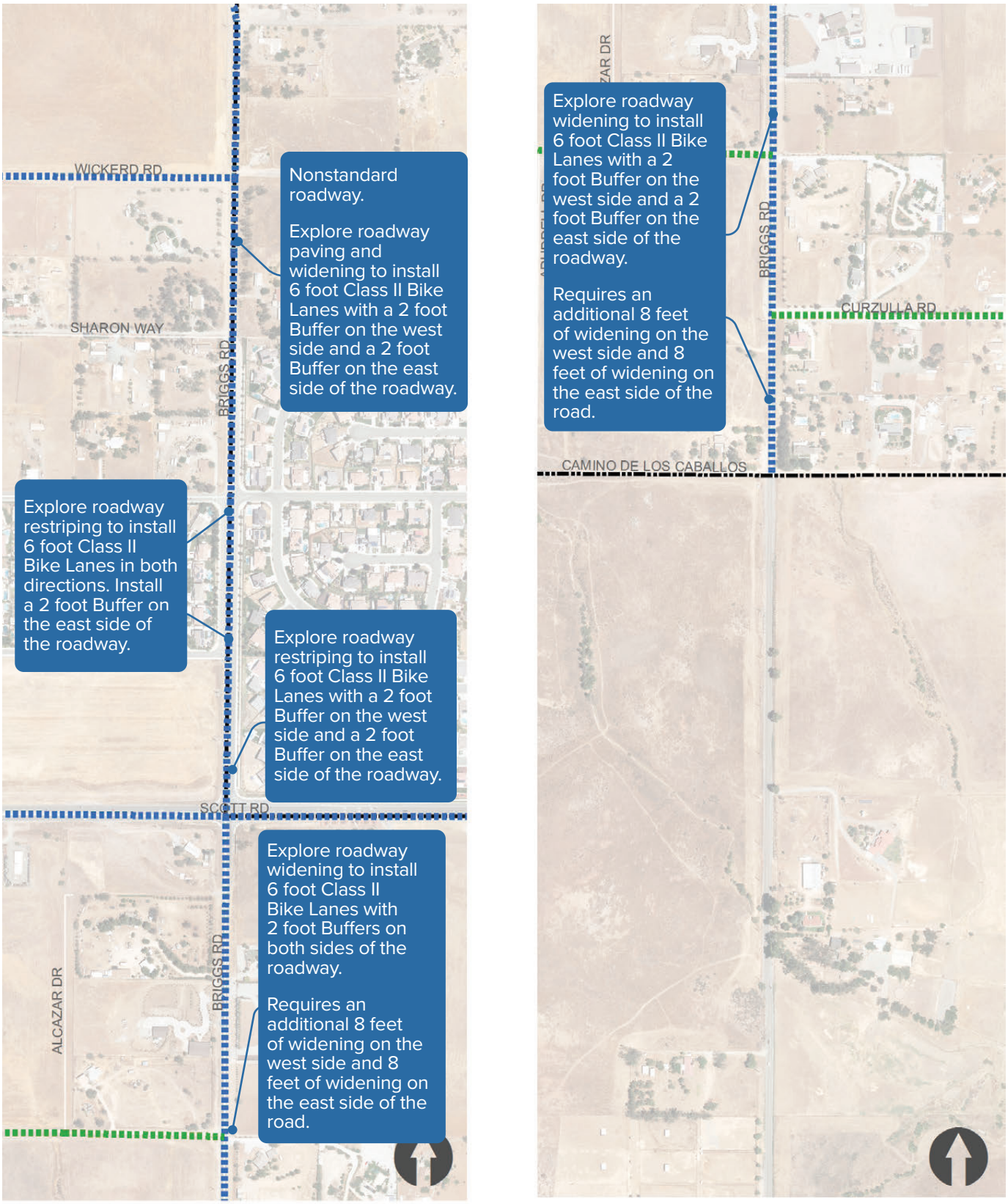


FIGURE 4-13: Briggs Rd Proposed Improvements (Cont.)

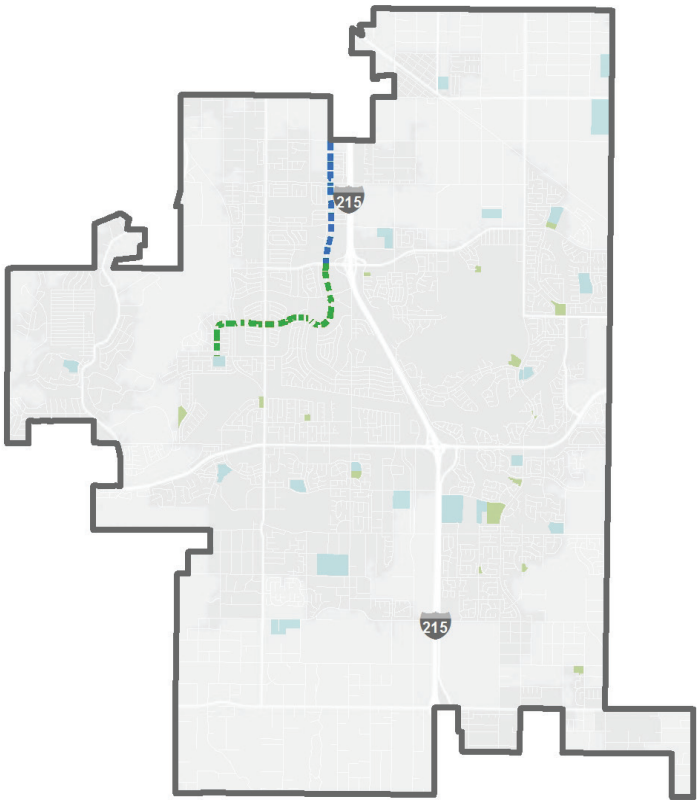
PROPOSED BIKEWAY PROJECT 10

BARNETT ROAD/SUN CITY BOULEVARD/PHOENIX WAY

(FROM ETHANAC RD TO RIDGEMOOR RD)

Cost Estimate: $1,101,723

Project Length:
4.4 miles



EXISTING CONDITIONS

The Barnett Road corridor is located in west Menifee and runs north to south. The corridor primarily connects residential parcels to the Sun City Civic Association and Ridgemoor Elementary School. Two pedestrian collisions have been reported along this route as well as one bicycle collision.

RECOMMENDATIONS

Install Class II Bike lanes along this segment with Buffered Bike Lanes where feasible. In addition, road width modifications, restriping roadways for bike lanes, and maintaining on-street parking are recommended to improve this corridor. The Future Roadway Classification for this segment is a 4-Lane Secondary and 2-Lane Secondary.

AT A GLANCE

1
Schools

0
Parks

2
Pedestrian Collisions

1
Bicycle Collisions

0 miles
Missing Sidewalk

5
Crosswalk Improvements

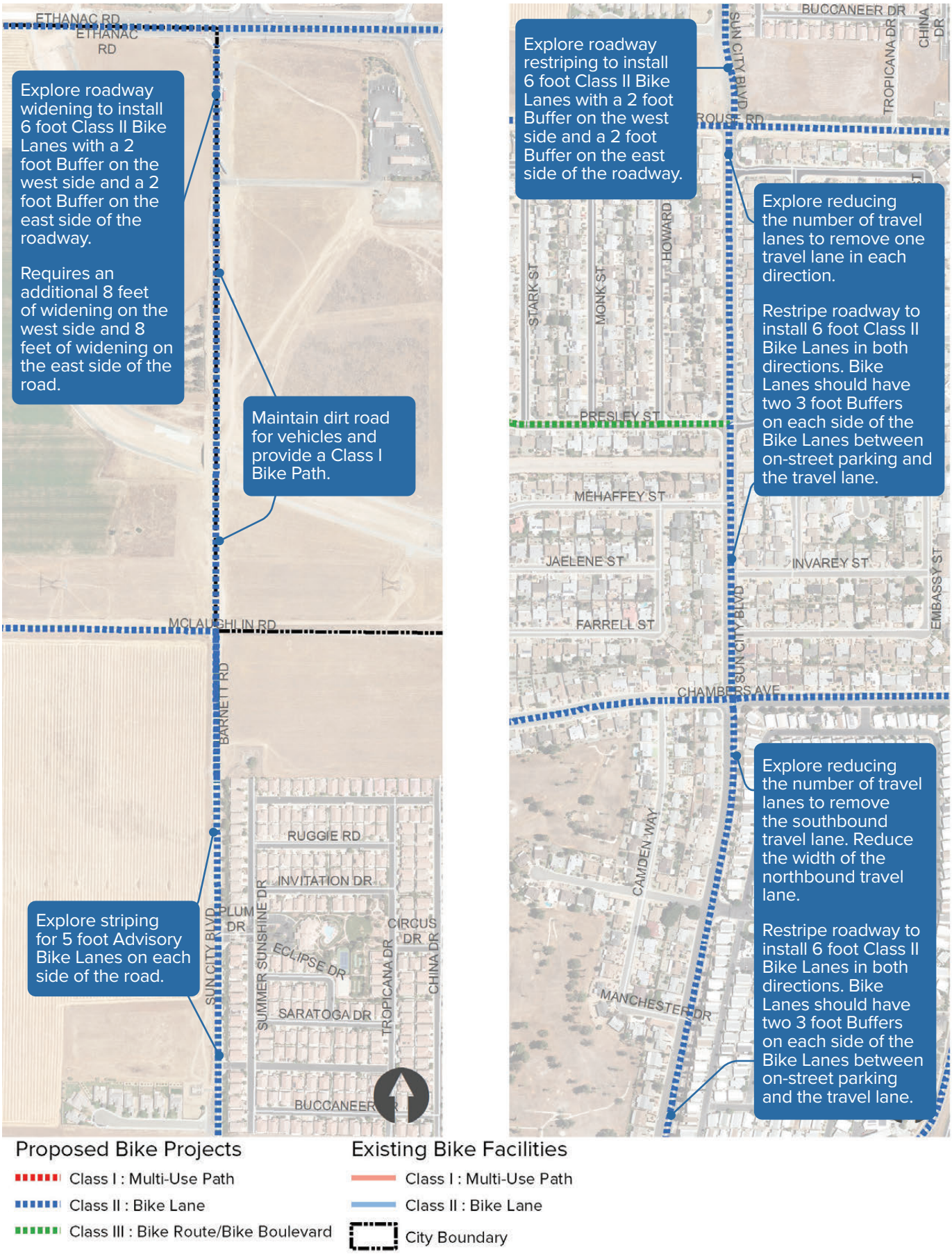


FIGURE 4-14: Barnett Road/Sun City Boulevard/Phoenix Way Proposed Improvements

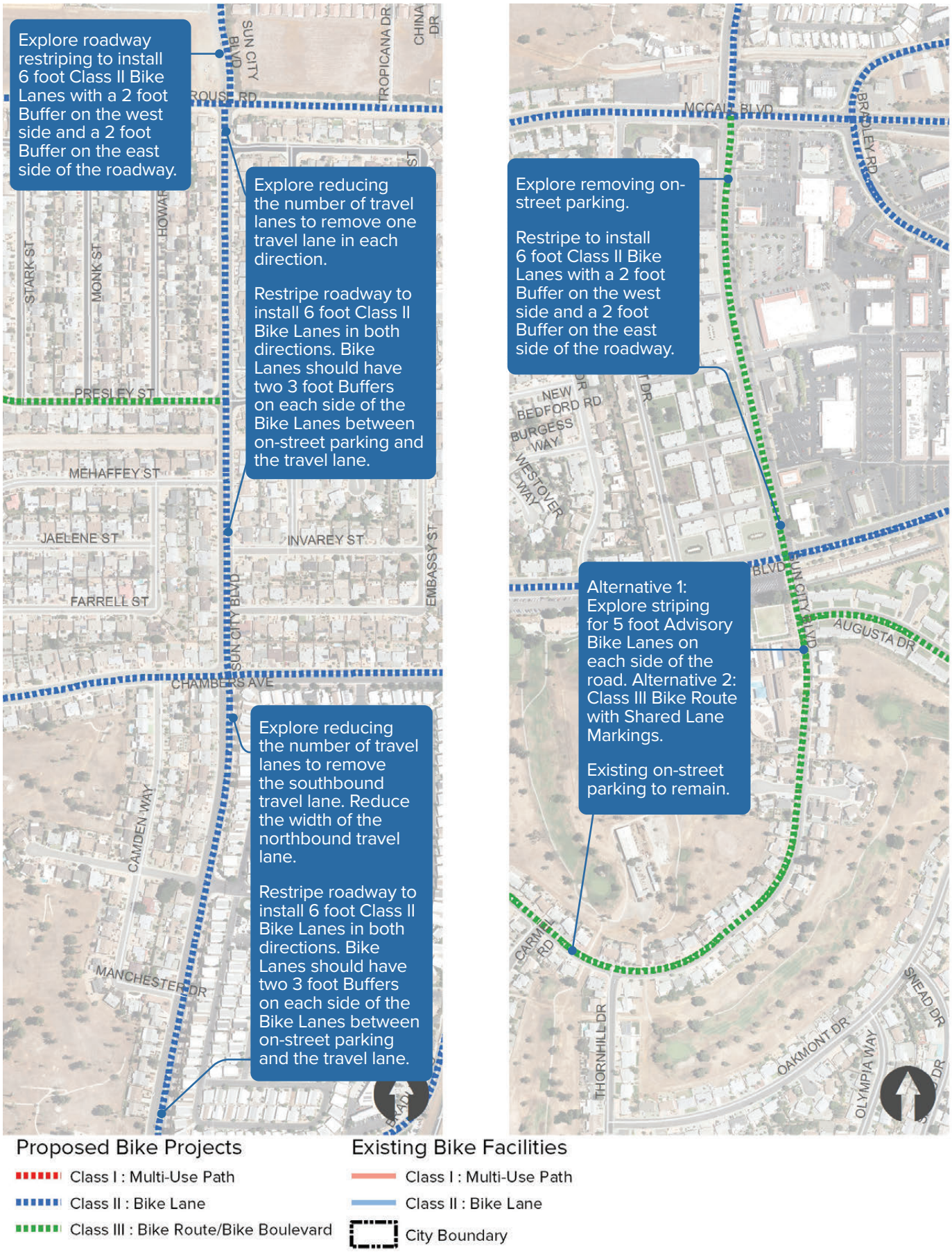


FIGURE 4-14: Barnett Road/Sun City Boulevard/Phoenix Way Proposed Improvements (Cont.)

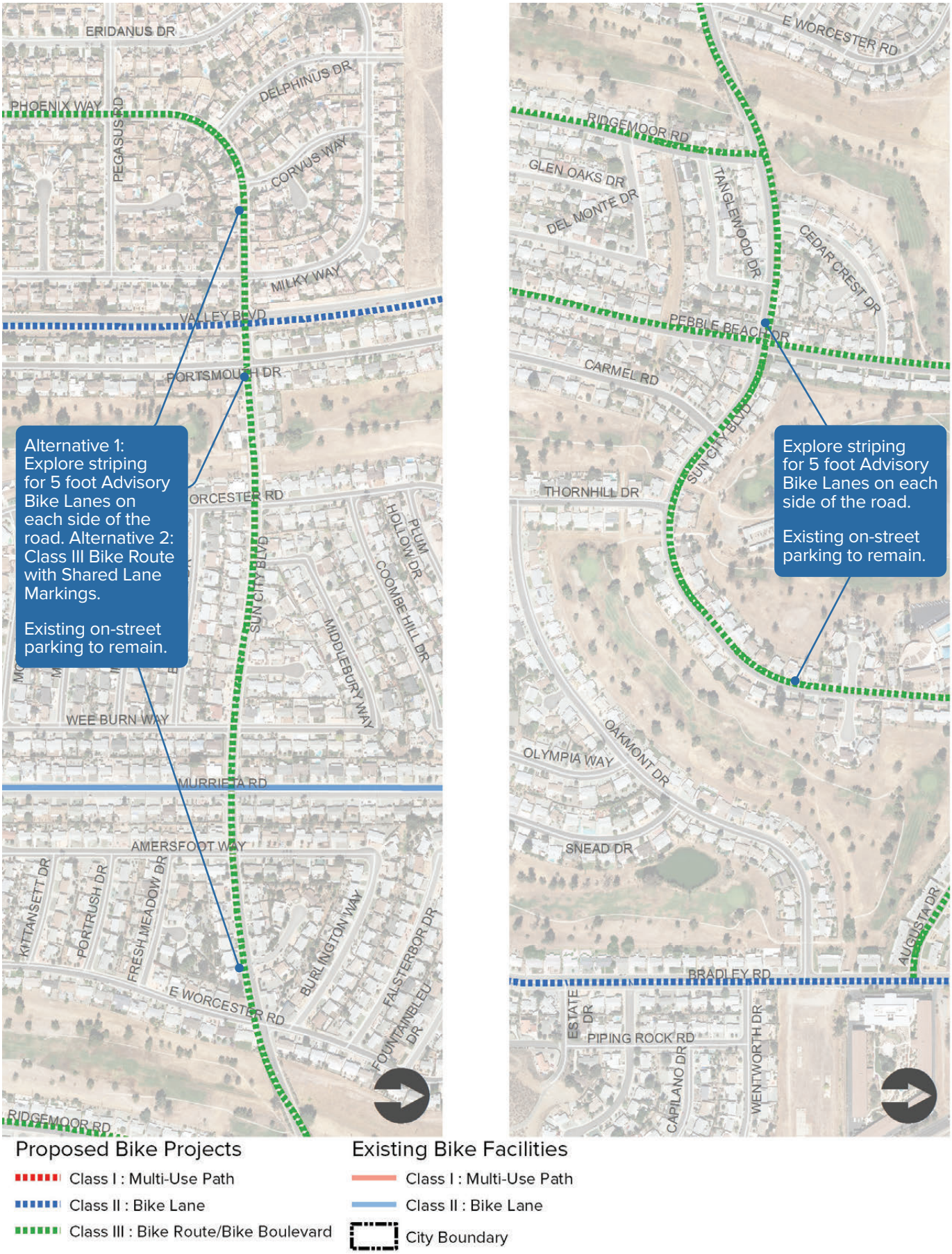


FIGURE 4-14: Barnett Road/Sun City Boulevard/Phoenix Way Proposed Improvements (Cont.)

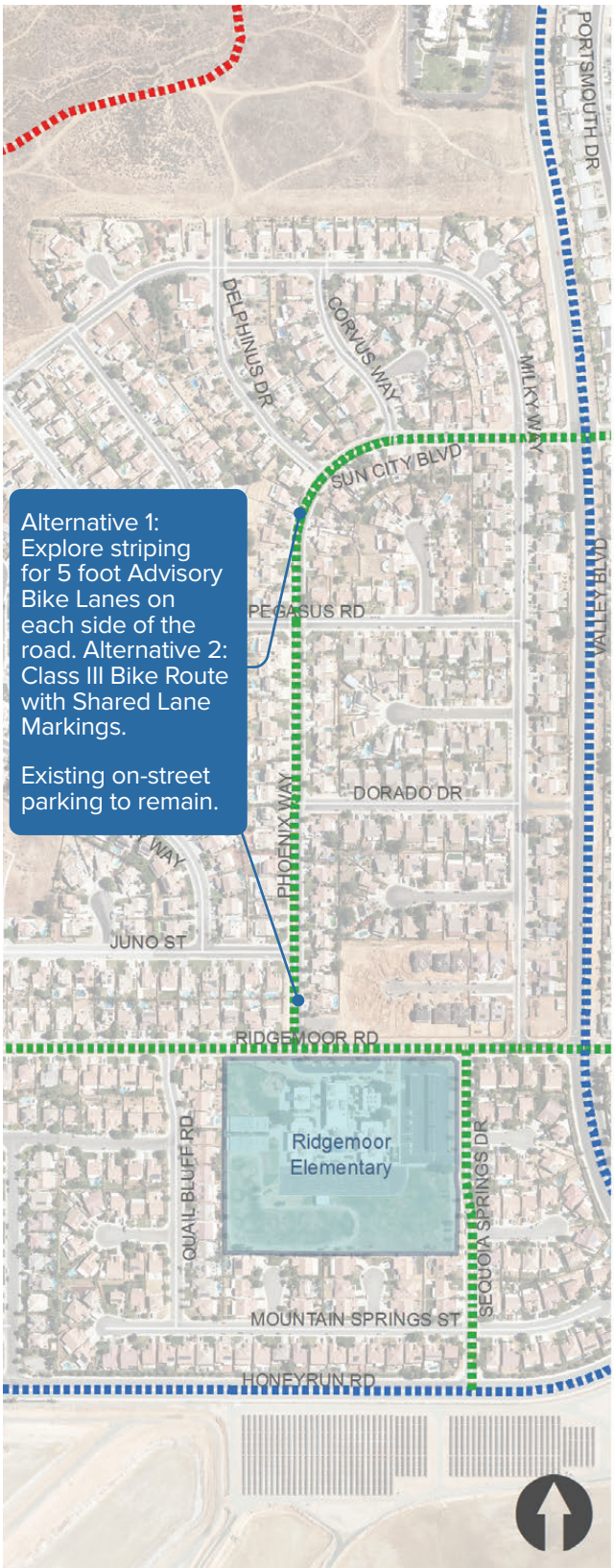
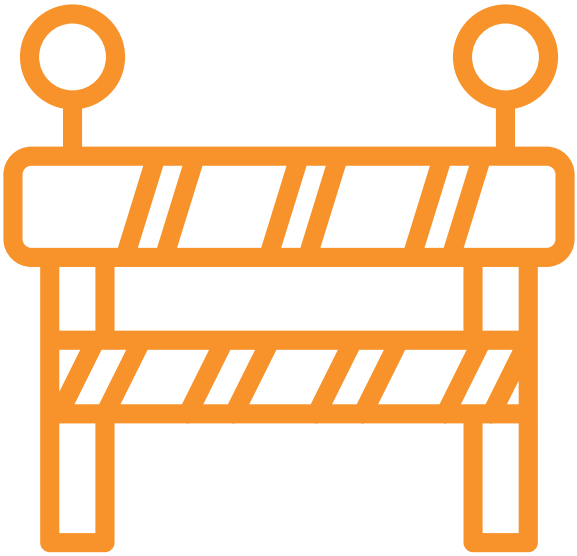


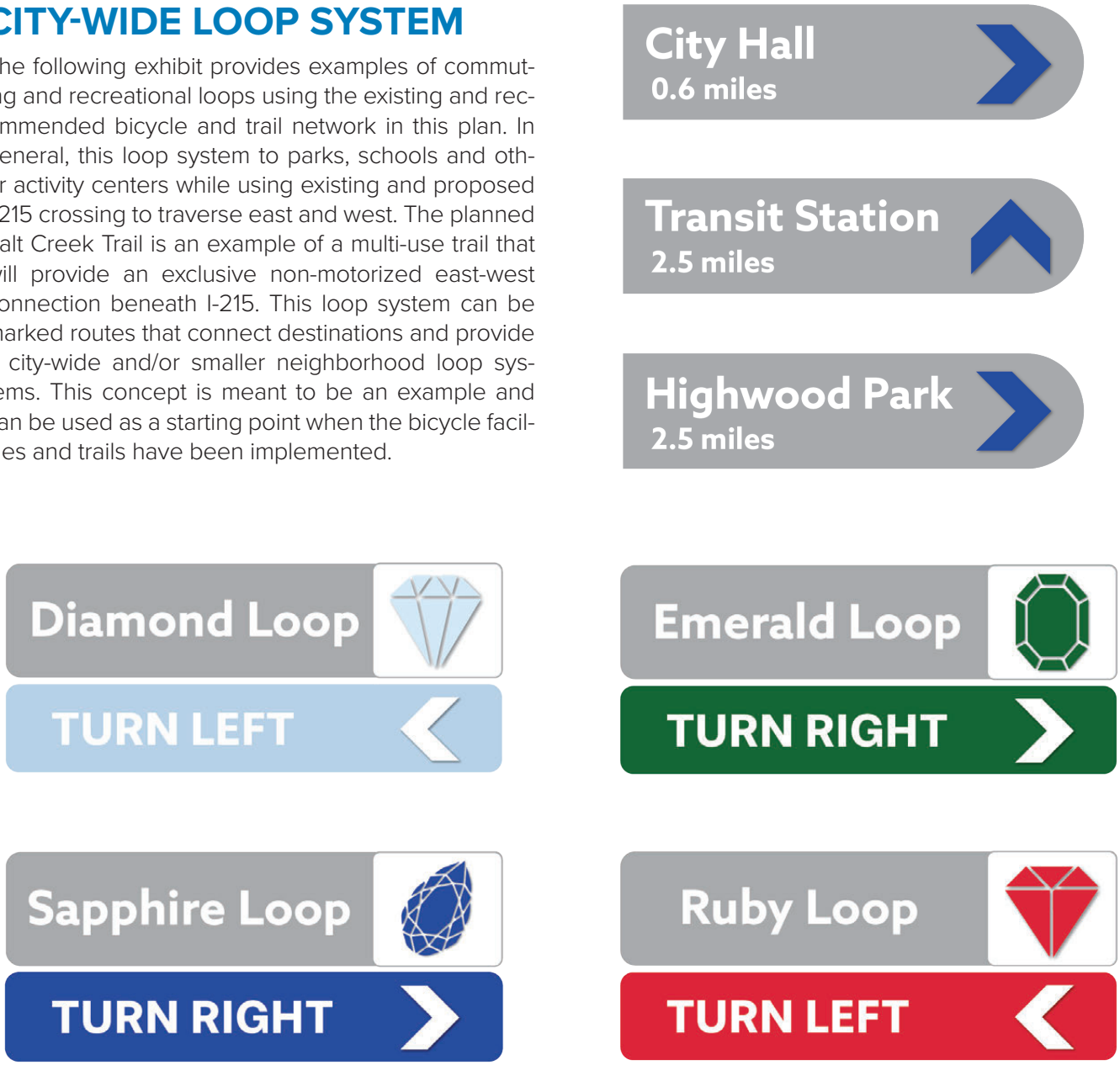
FIGURE 4-14: Barnett Road/Sun City Boulevard/Phoenix Way Proposed Improvements (Cont.)



END OF CORRIDOR

CITY-WIDE LOOP SYSTEM

The following exhibit provides examples of commuting and recreational loops using the existing and recommended bicycle and trail network in this plan. In general, this loop system to parks, schools and other activity centers while using existing and proposed I-215 crossing to traverse east and west. The planned Salt Creek Trail is an example of a multi-use trail that will provide an exclusive non-motorized east-west connection beneath I-215. This loop system can be marked routes that connect destinations and provide a city-wide and/or smaller neighborhood loop systems. This concept is meant to be an example and can be used as a starting point when the bicycle facilities and trails have been implemented.



Examples of wayfinding signage that can be used to brand the various loop system

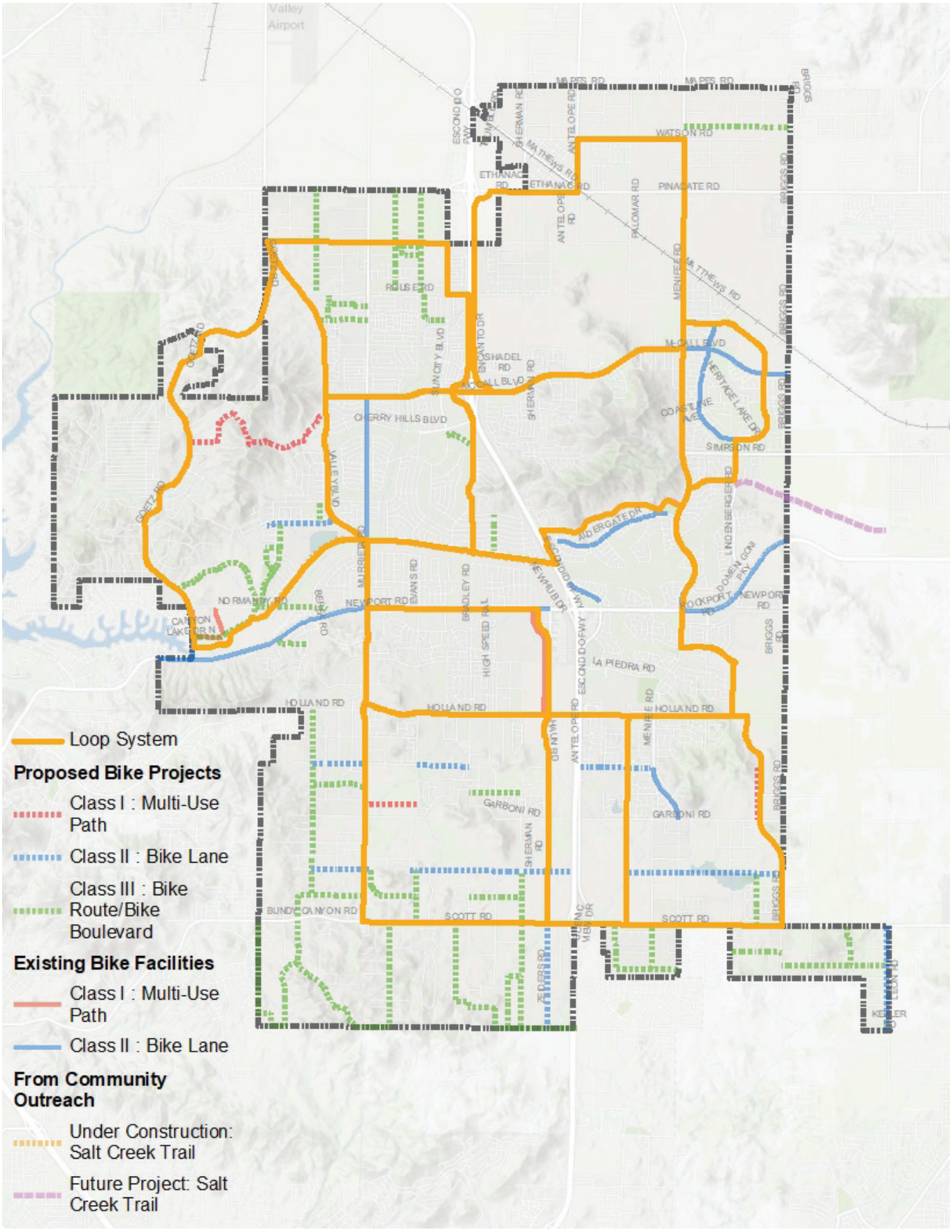


FIGURE 4-15: City-Wide Loop System

PEDESTRIAN RECOMMENDATIONS

Through the community engagement process, access to schools and parks via walking, bicycling among other active transportation modes, were some of the top issues where residents wanted to see active transportation improvements. Residents primarily wanted to see a connected sidewalk network, more frequent and highly visible crosswalks, and other traffic calming measures. The analysis in Chapter Two identified some of the deficiencies such as missing sidewalks, curb ramps, and high-visibility crosswalks. Using similar methodology as the City's Bicycle-Pedestrian Demand Model and first and last mile best practices, routes to schools were identified and bicycle and pedestrian improvements were developed.

Within the walksheds of these destinations, recommendations were developed based on community input, data from Chapter Three, field observations, and previous planning and CIP projects. The following project sheets (Figures 4-17 through 4-36) provide a brief description, maps, and metrics associated with each pedestrian project. These project sheets can be used to help guide future development, CIP projects, and grant pursuits. Please refer to Figure 4-16: Top 20 Pedestrian Projects, for pedestrian project locations.

Pedestrian Projects

1. Romoland Elementary School
2. Bell Mountain Middle School
3. Chester W Morrison Elementary School
4. Callie Kirkpatrick Elementary School
5. Sun City Community
6. Lazycreek Park
7. Hans Christian Middle School
8. Bradley Road & Rio Vista Drive
9. Evans Ranch Elementary School
10. Ethan A Chase Middle School
11. Quail Valley Elementary School
12. Harvest Valley Elementary School & Heritage High School
13. Freedom Crest Elementary School
14. Central Park
15. Ridgemoor Elementary School
16. Mesa View Elementary School
17. Boulder Ridge Elementary School
18. Southshore Elementary School
19. Menifee Valley Middle School
20. Paloma Valley High School

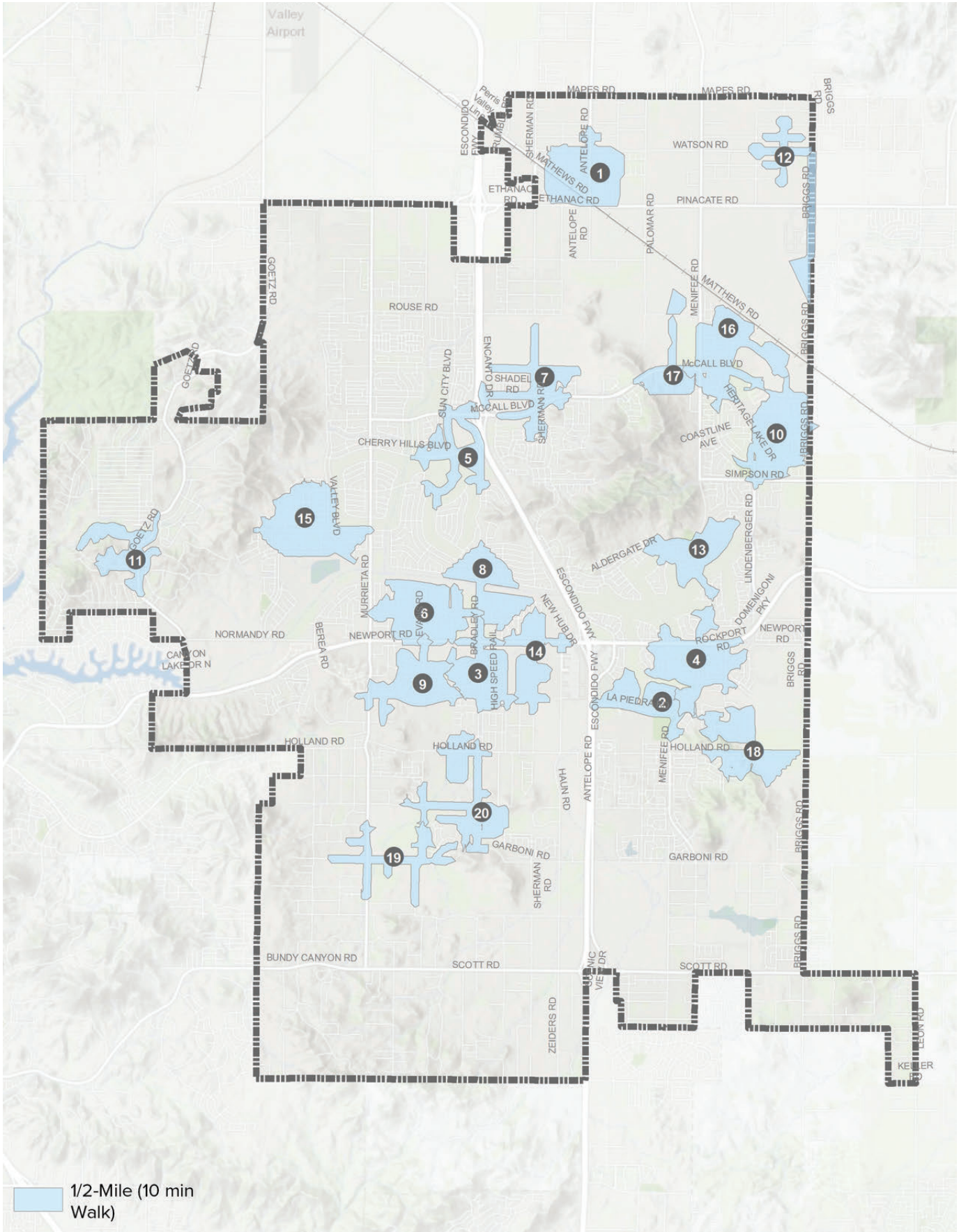


FIGURE 4-16: Top 20 Pedestrian Projects

PEDESTRIAN PROJECT 1

ROMOLAND ELEMENTARY SCHOOL

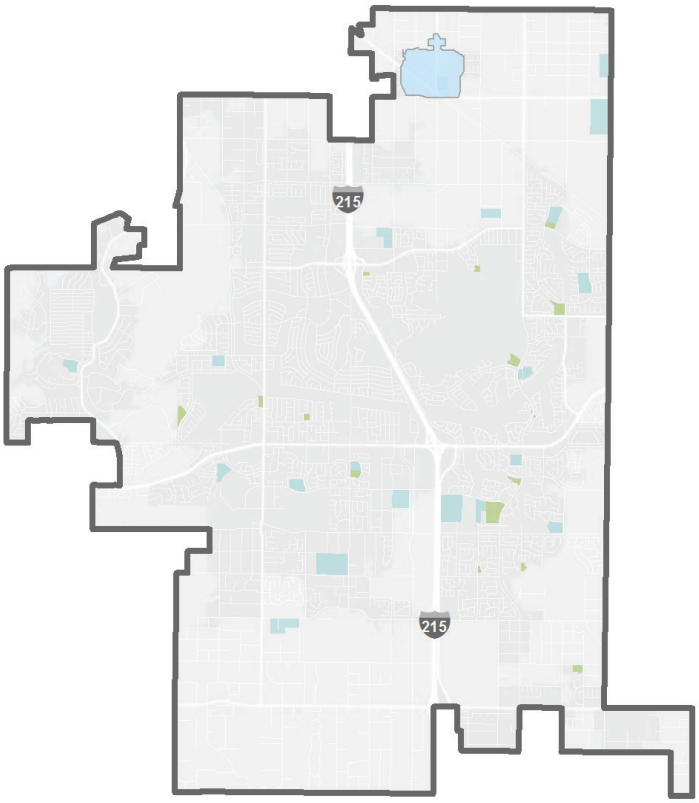
COST ESTIMATE: $3,704,355

EXISTING CONDITIONS

Romoland Elementary School is a part of the Romoland School District and is located in north Menifee. The elementary school is accessible via Antelope Road and is surrounded by residential and agricultural land uses. From 2018-2019, Romoland Elementary School enrolled 493 students and 88% of students enrolled qualified for the Free and Reduced-Priced Meals Program. This qualifies the school for potential ATP funding for infrastructure improvements.

RECOMMENDATIONS

With 8.3 miles of missing sidewalks and 71 missing curb ramps, it is recommended that curb extensions, rectangular rapid flashing beacons (RRFBs), high-visibility crosswalks, and truncated domes are installed in the areas surrounding Romoland Elementary School in order to ensure the safety of residents and provide safe routes to school for students.



AT A GLANCE

3
Pedestrian Collisions

0
Bicycle Collisions

8.3 miles
Missing Sidewalk

71
Missing Curb Ramps

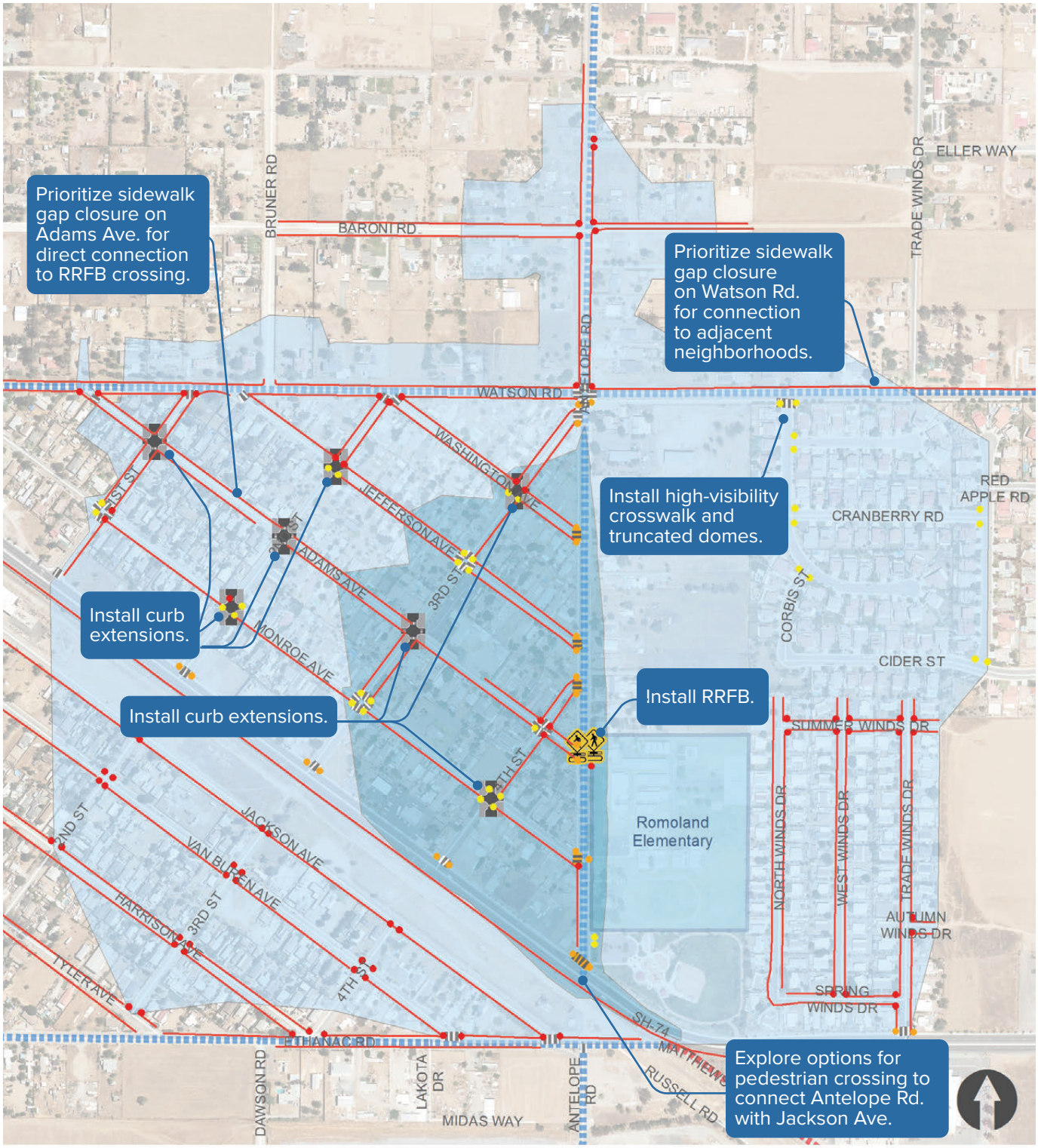


FIGURE 4-17: Romoland Elementary School Proposed Improvements

PEDESTRIAN PROJECT 2

BELL MOUNTAIN MIDDLE SCHOOL

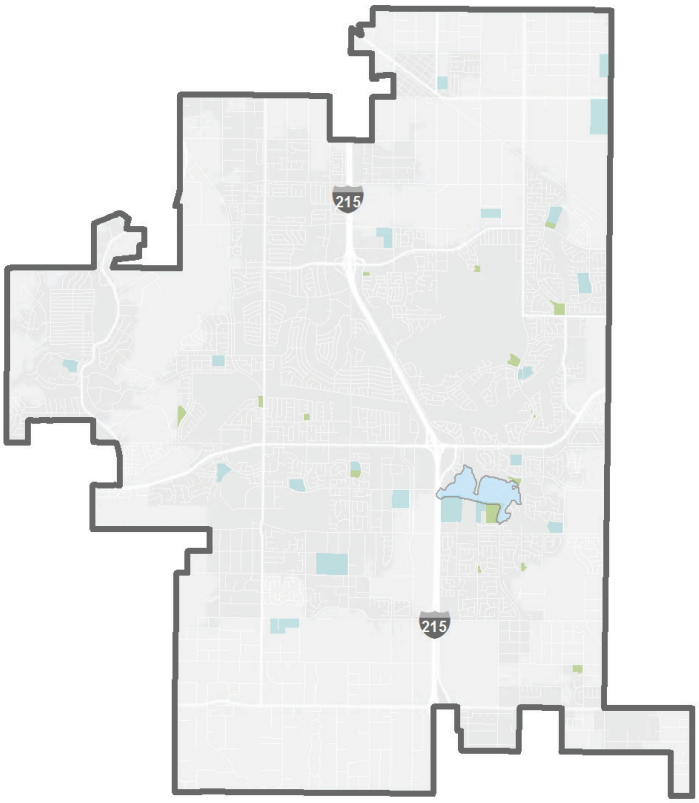
COST ESTIMATE: $191,674

EXISTING CONDITIONS

Bell Mountain Middle School is a part of the Menifee Union School District and is located near the center of Menifee near an I-215 interchange. The middle school is accessed via La Piedra Road and is surrounded primarily by residential land uses and is nestled between Mount Jacinto College and Wheatfield Park. From 2018-2019, Bell Mountain Middle School enrolled 1,204 students.

RECOMMENDATIONS

With two reported pedestrian collisions and five bicycle collisions, it is recommended that rectangular rapid flashing beacons (RRFBs), high-visibility crosswalks, and truncated domes are installed in the areas surrounding Bell Mountain Middle School. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes in the surrounding area.



AT A GLANCE

2
Pedestrian Collisions

5
Bicycle Collisions

0 miles
Missing Sidewalk

0
Missing Curb Ramps

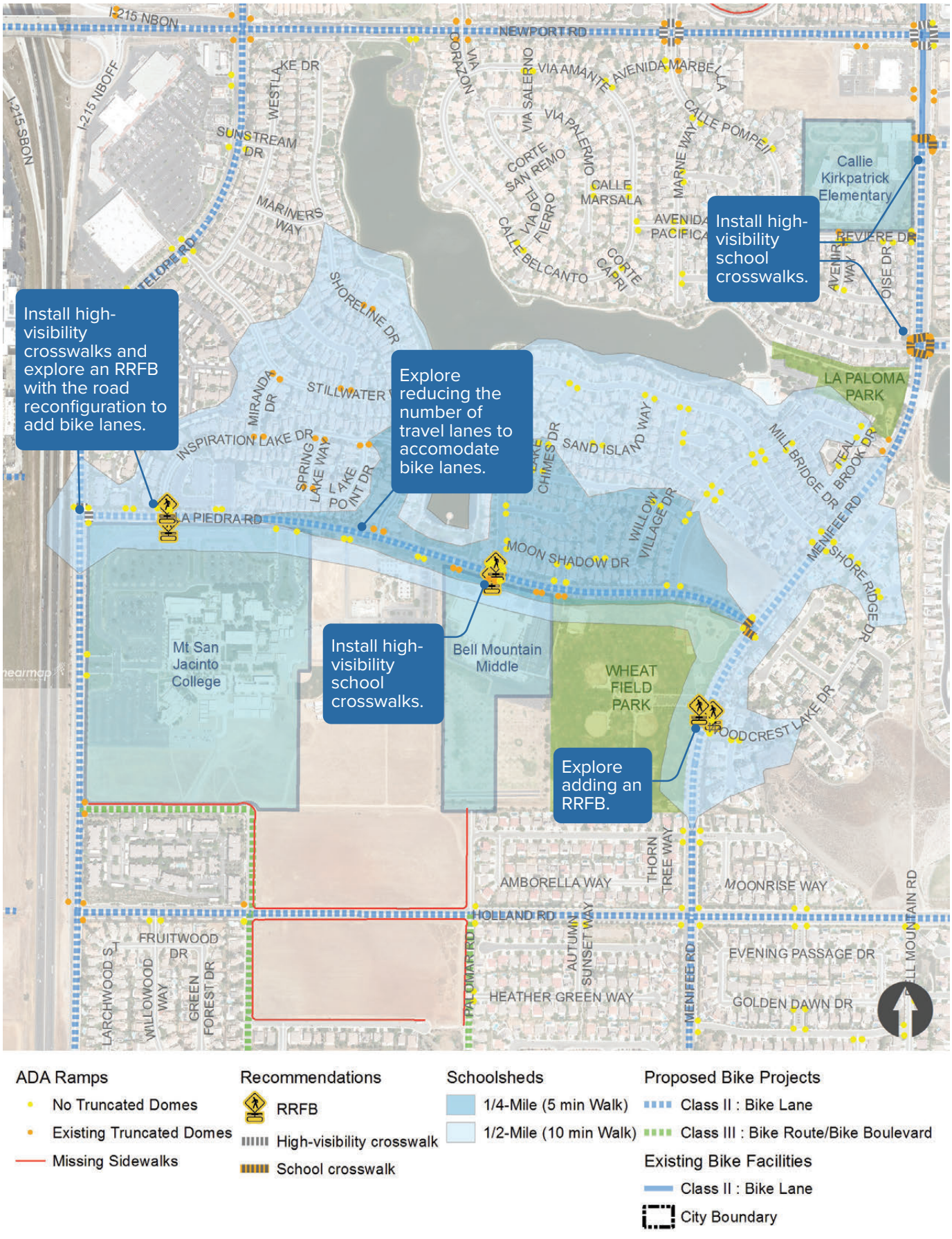


FIGURE 4-18: Bell Mountain Middle School Proposed Improvements

PEDESTRIAN PROJECT 3

CHESTER W. MORRISON ELEMENTARY SCHOOL

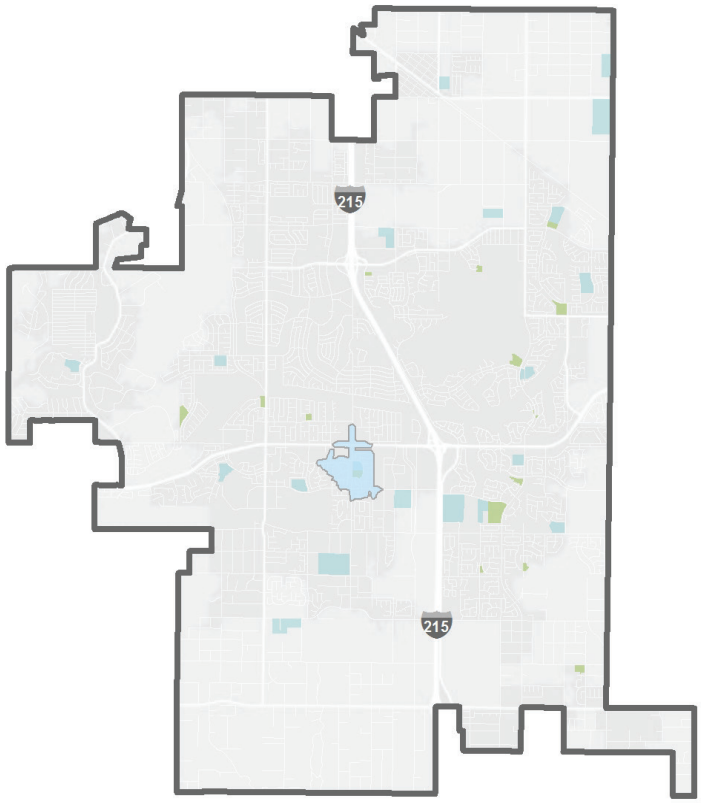
COST ESTIMATE: $533,672

EXISTING CONDITIONS

Chester W. Morrison Elementary School is a part of the Menifee Union School District and is located near the center of Menifee and nearby I-215 interchange. The elementary school is accessed via Chester Morrison Way and is surrounded primarily by residential land uses, and some agricultural land uses. From 2018-2019, Chester W. Morrison Elementary School enrolled 408 students.

RECOMMENDATIONS

With 0.9 miles of missing sidewalks and six missing curb ramps, it is recommended that rectangular rapid flashing beacons (RRFBs) and high-visibility crosswalks are installed in the areas surrounding Chester W. Morrison Elementary School. In addition to the existing bike lanes in the area, it is important to consider the addition of bike lanes on La Piedra Road and Bradley Road to improve connectivity.



AT A GLANCE

0
Pedestrian Collisions

3
Bicycle Collisions

0.9 miles
Missing Sidewalk

6
Missing Curb Ramps

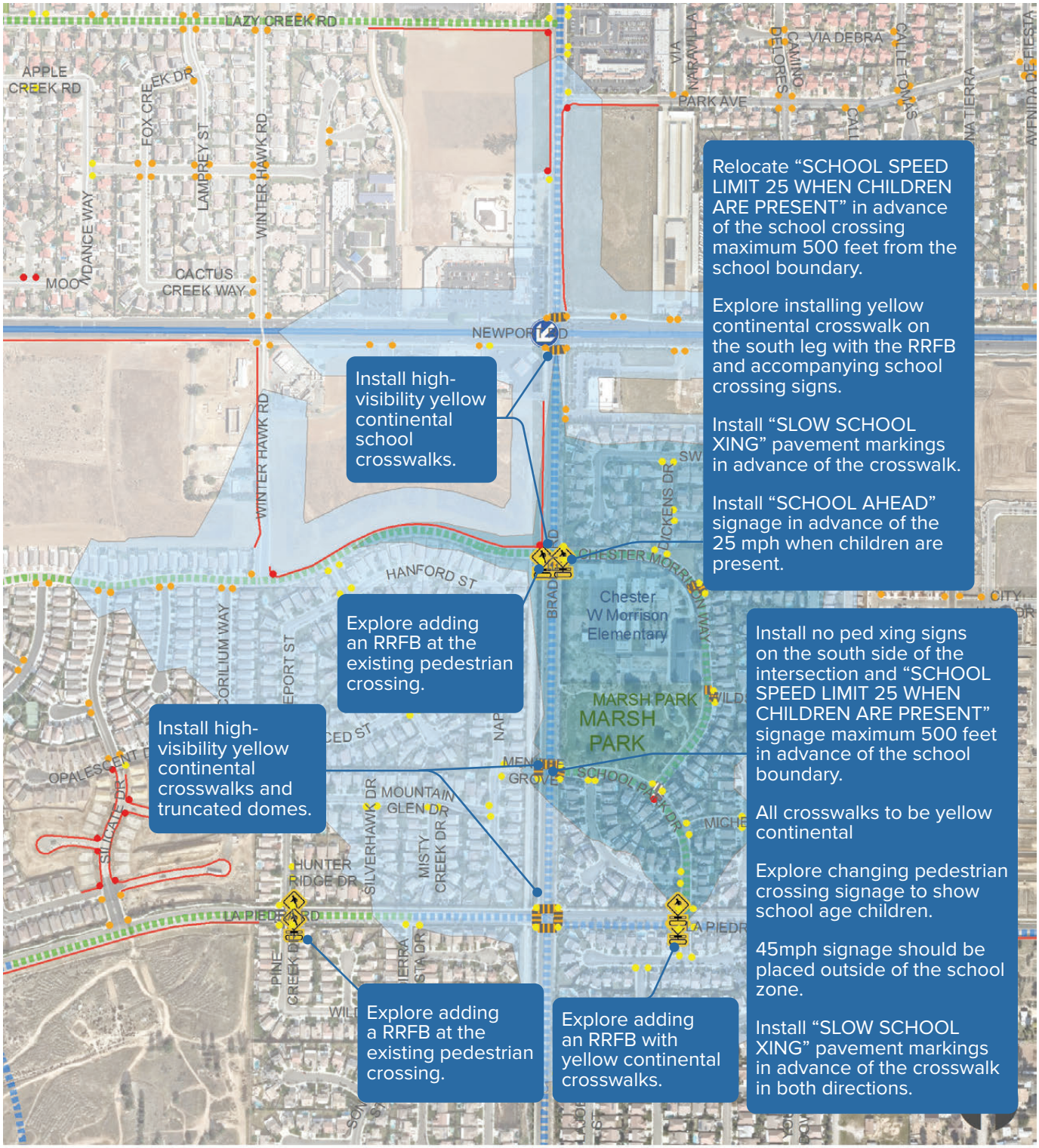


FIGURE 4-19: Chester W Morrison Elementary School Proposed Improvements

PEDESTRIAN PROJECT 4

CALLIE KIRKPATRICK ELEMENTARY SCHOOL

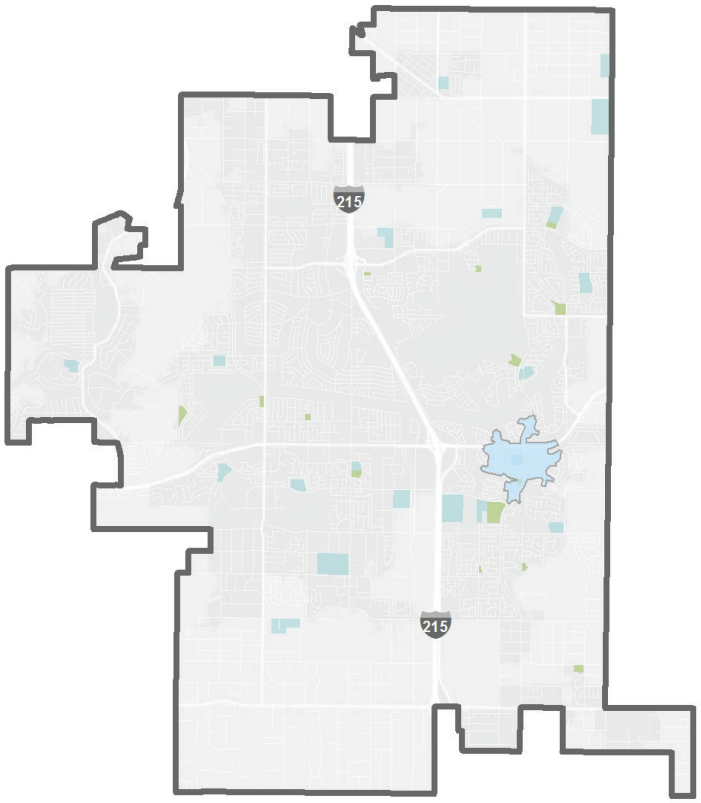
COST ESTIMATE: $338,106

EXISTING CONDITIONS

Callie Kirkpatrick Elementary School is a part of the Menifee Union School District and is located near the center of Menifee. The elementary school can be accessed via Riviere Drive and is surrounded primarily by residential land uses, and is nestled between Menifee Lakes and Menifee Lakes County Club. From 2018-2019, Callie Kirkpatrick Elementary enrolled 723 students.

RECOMMENDATIONS

With one reported pedestrian collision and one bicycle collision, it is recommended that high-visibility crosswalks and truncated domes are installed in the areas surrounding Callie Kirkpatrick Elementary School. In addition to the existing bike facilities in the area, it is also recommended to add bike lanes on Newport Road and Menifee Road to promote kids safely getting to and from school.



AT A GLANCE

1
Pedestrian Collisions

1
Bicycle Collisions

0.6 miles
Missing Sidewalk

1
Missing Curb Ramps

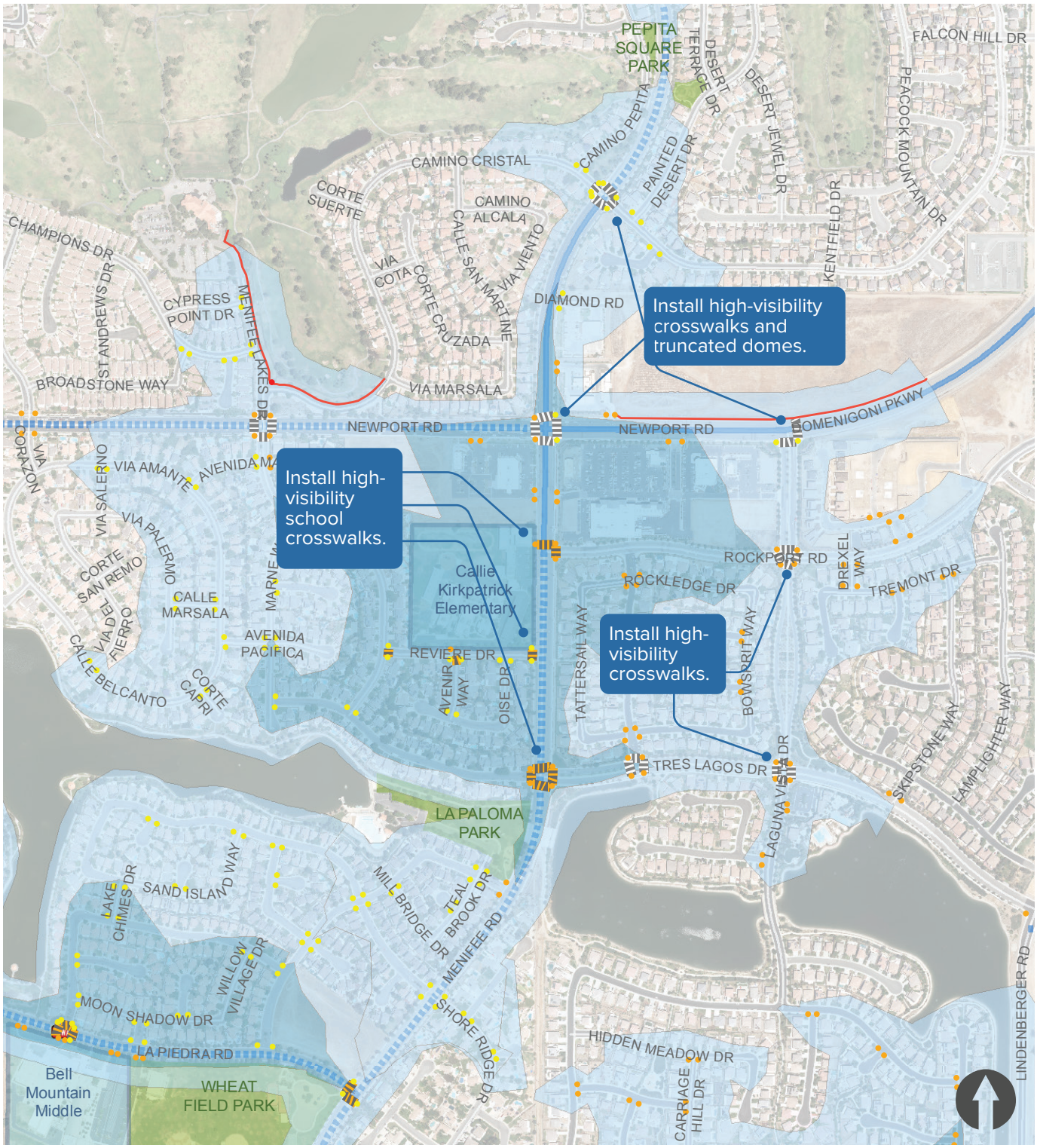


FIGURE 4-20: Callie Kirkpatrick Elementary School Proposed Improvements

PEDESTRIAN PROJECT 5

SUN CITY COMMUNITY

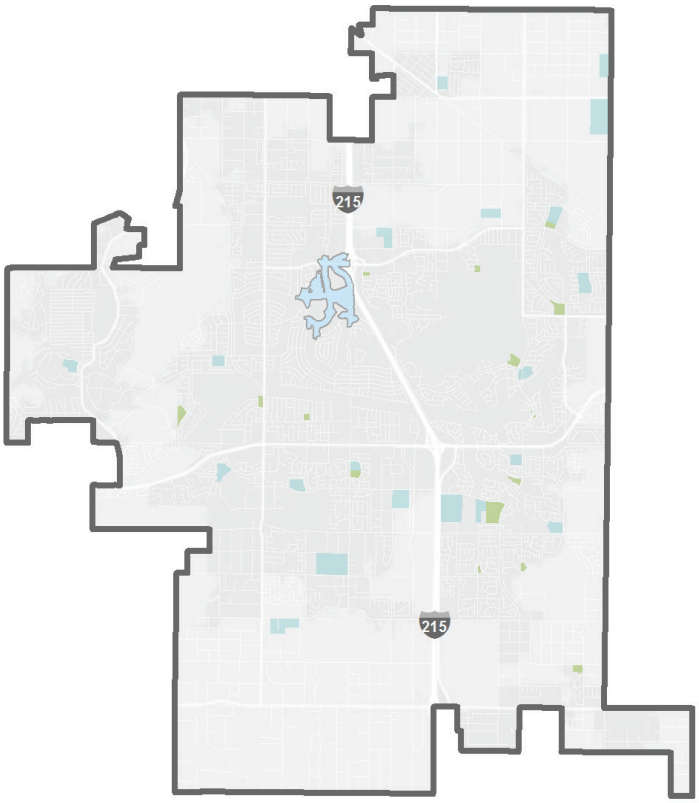
COST ESTIMATE: $157,938

EXISTING CONDITIONS

The Sun City Community pedestrian project is located in northern Menifee. The pedestrian project includes residential and commercial land uses. The Sun City Community pedestrian project encompasses the Sun City Civic Association as well as several commercial plazas.

RECOMMENDATIONS

With three reported pedestrian collisions, one bicycle collision, and fifteen missing curb ramps, it is recommended that rectangular rapid flashing beacons (RRFBs), median refuge islands, and curb ramps are installed in the areas surrounding Sun City community. In addition, there are no existing bike facilities in the area. To improve connectivity, it is also recommended to add bike lanes and bike routes in the surrounding area.



AT A GLANCE

3
Pedestrian Collisions

1
Bicycle Collisions

0 miles
Missing Sidewalk

15
Missing Curb Ramps

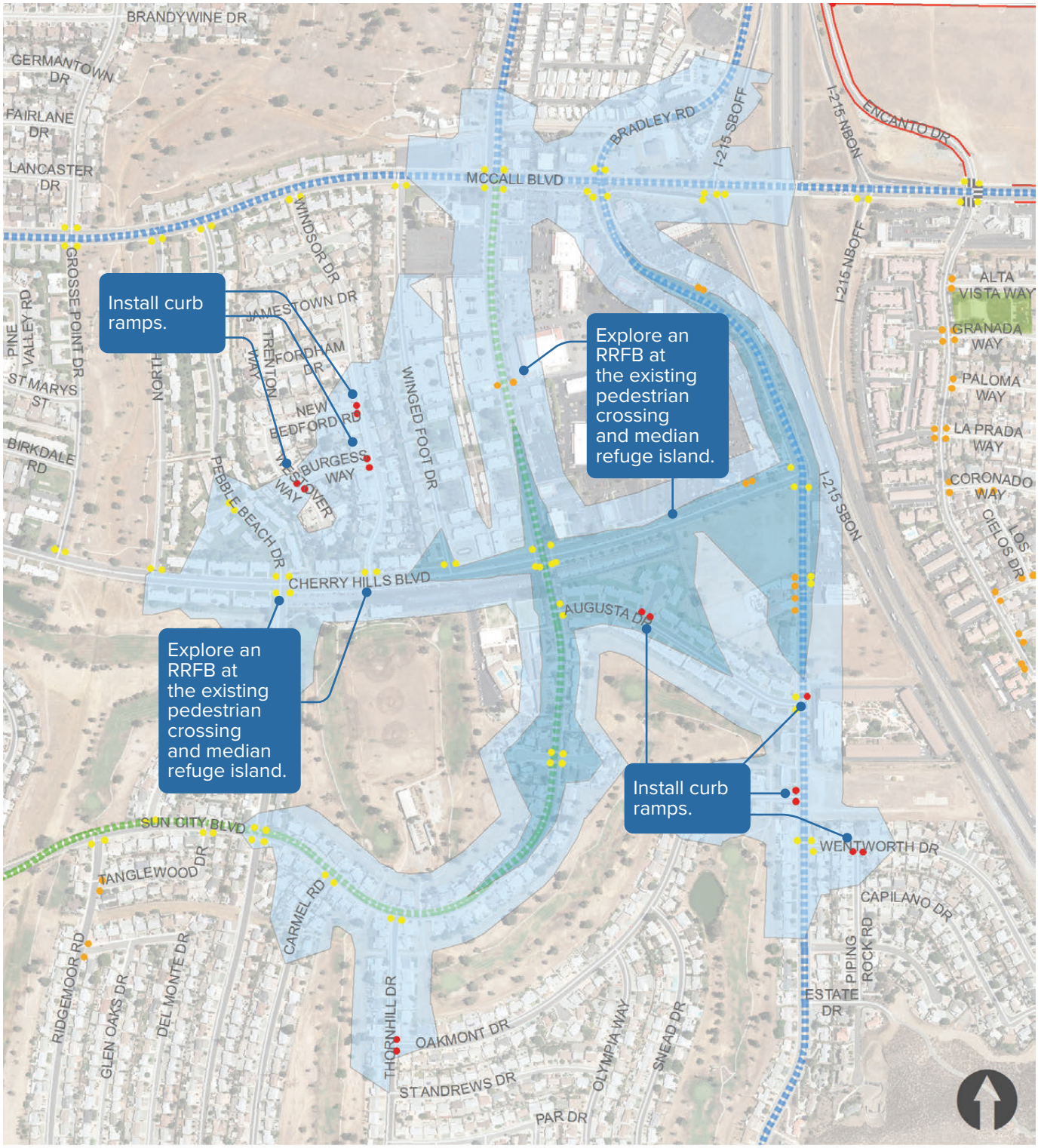


FIGURE 4-21: Sun City Proposed Improvements

PEDESTRIAN PROJECT 6

LAZYCREEK PARK

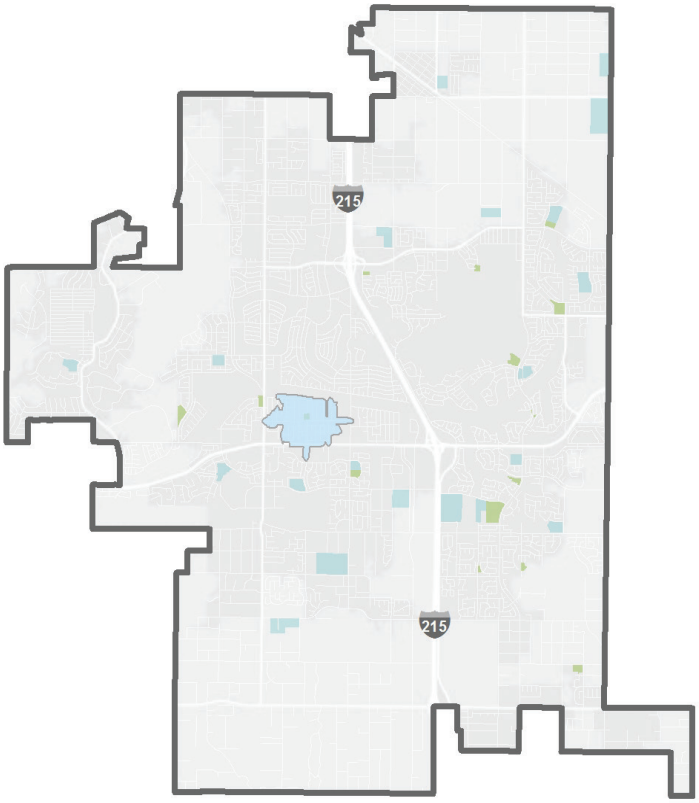
COST ESTIMATE: $285,648

EXISTING CONDITIONS

Lazy Creek Park is a medium-sized park near the center of Menifee. The park is primarily accessed via Lazy Creek Road. Lazy Creek Park and is primarily surrounded by residential land uses. Lazy Creek Park features a recreational center, one multi-use fields, two half-court basketball courts, picnic area, volleyball court, children's playground, restrooms, and parking.

RECOMMENDATIONS

With 0.6 miles of missing sidewalks and four missing curb ramps, it is recommended that high-visibility crosswalks and sidewalks are installed in the areas surrounding Lazycreek Park to close the gaps in connectivity. In addition to the existing bike lanes in the area, it is also recommended to add bikes lanes on Bradley Road and Murrieta Road to improve connectivity.



AT A GLANCE

4
Pedestrian Collisions

2
Bicycle Collisions

0.6 miles
Missing Sidewalk

4
Missing Curb Ramps

FIGURE 4-22: Lazycreek Park Proposed Improvements

PEDESTRIAN PROJECT 7

HANS CHRISTENSEN MIDDLE SCHOOL

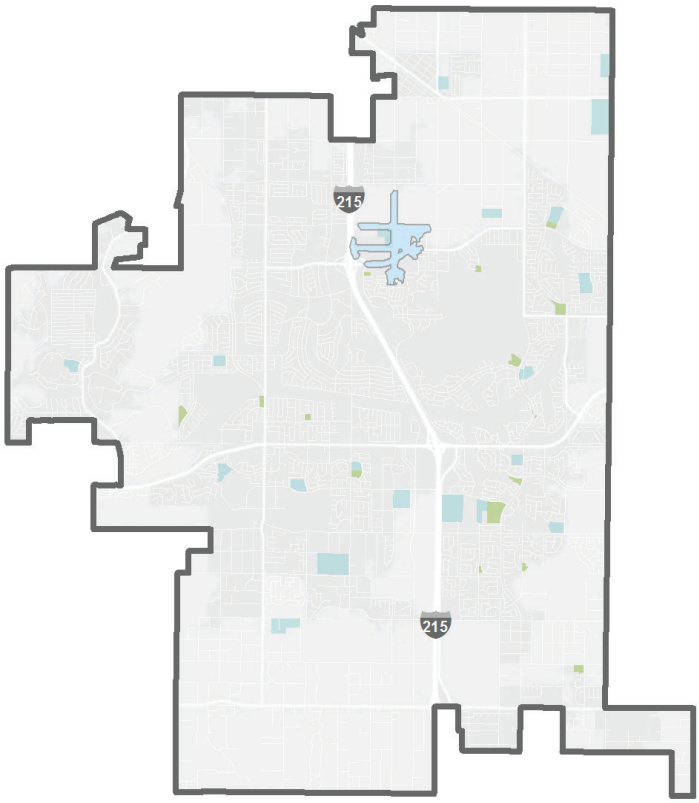
COST ESTIMATE: $967,703

EXISTING CONDITIONS

Hans Christensen Middle School is a part of the Menifee Union School District and is located in northern Menifee. The middle school is accessible via Sherman Road and is surrounded by residential and agricultural land uses. From 2018-2019, Hans Christensen Middle School enrolled 780 students.

RECOMMENDATIONS

With 2.7 miles of missing sidewalks and two missing curb ramps, it is recommended that high-visibility crosswalks and truncated domes are installed. In addition, there are no existing bike facilities in the area. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes on McCall Boulevard to improve connectivity.



AT A GLANCE

1
Pedestrian Collisions

0
Bicycle Collisions

2.7 miles
Missing Sidewalk

2
Missing Curb Ramps

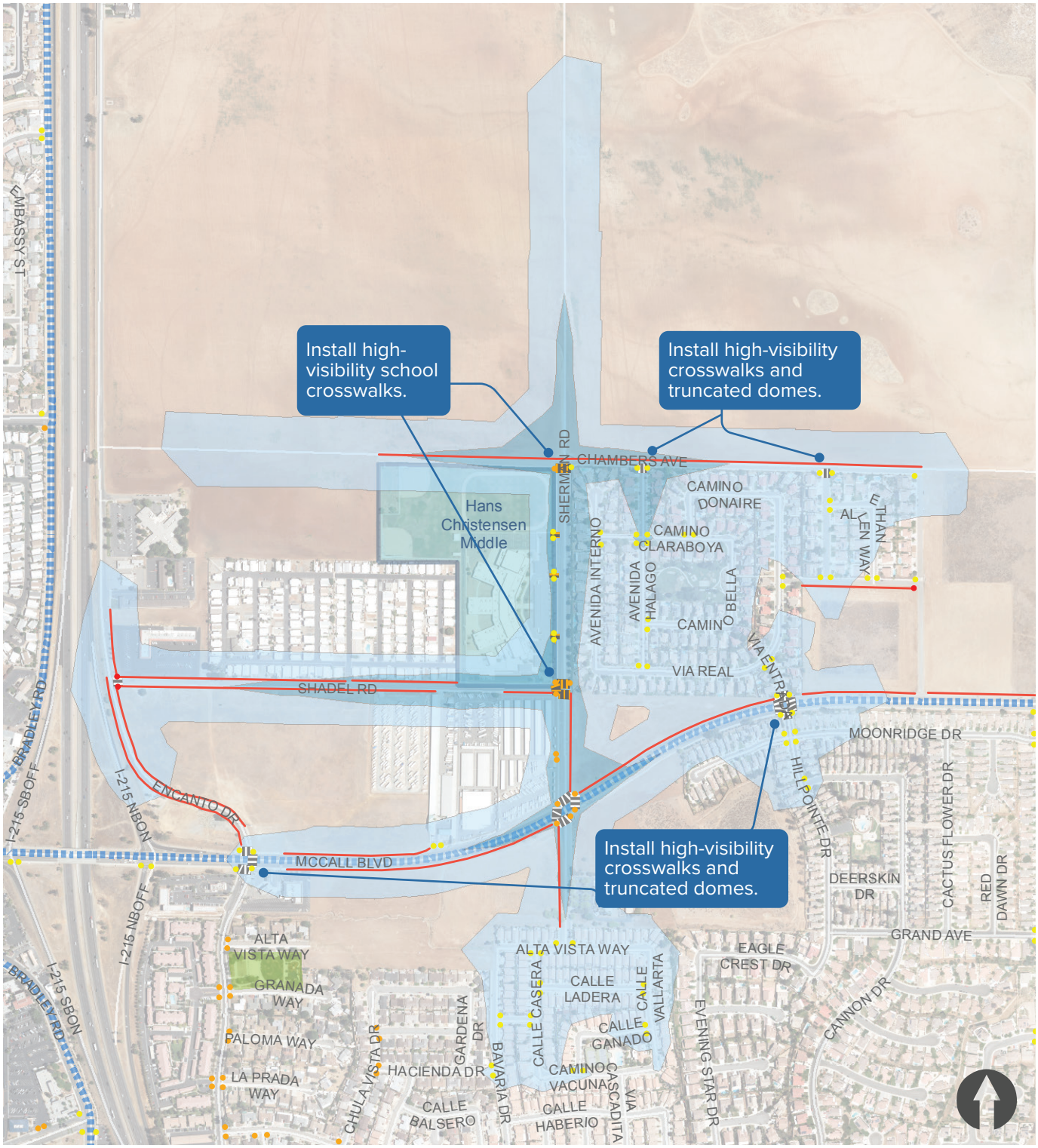


FIGURE 4-23: Hans Christensen Middle School Proposed Improvements

PEDESTRIAN PROJECT 8

BRADLEY ROAD/RIO VISTA DRIVE

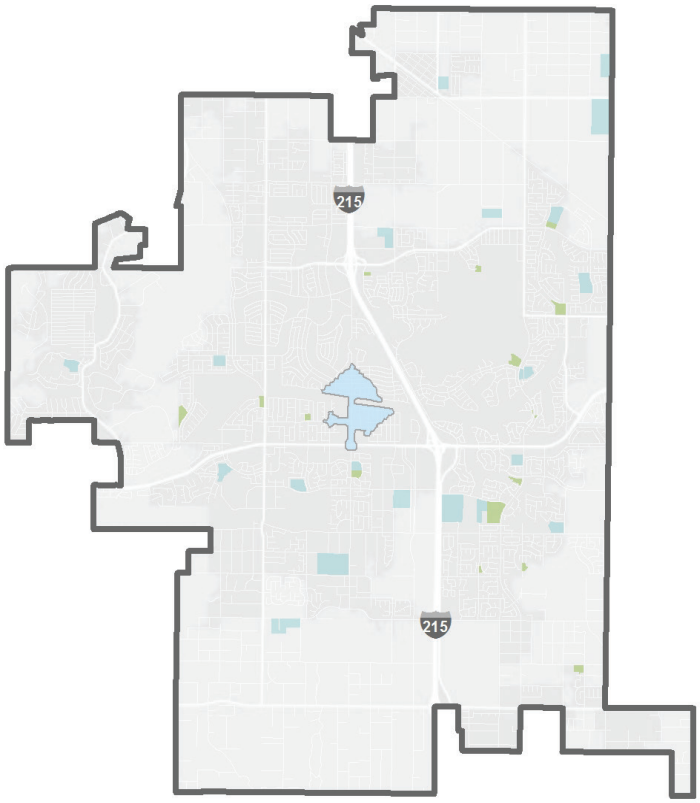
COST ESTIMATE: $379,421

EXISTING CONDITIONS

The Bradley Road and Rio Vista Drive pedestrian project is located near the center of Menifee. The pedestrian project includes residential, agricultural, and commercial land uses, as well as underdeveloped parcels of land. The Bradley Road and Rio Vista Drive pedestrian project encompasses the Bradley Road Bridge Project that crosses the Salt Creek.

RECOMMENDATIONS

With 0.9 miles of missing sidewalks and seven missing curb ramps, it is recommended that high-visibility crosswalks, curb ramps, and a pedestrian island are installed in the areas surrounding Bradley Road and Rio Vista Drive intersection. In addition to the existing bike lanes in the area, it is also recommended that bike lanes and bike routes are installed on Bradley Road, Potomac Drive, Pebble Beach Drive, and Lazy Creek Drive to improve connectivity.



AT A GLANCE

1
Pedestrian Collisions

0
Bicycle Collisions

0.9 miles
Missing Sidewalk

7
Missing Curb Ramps

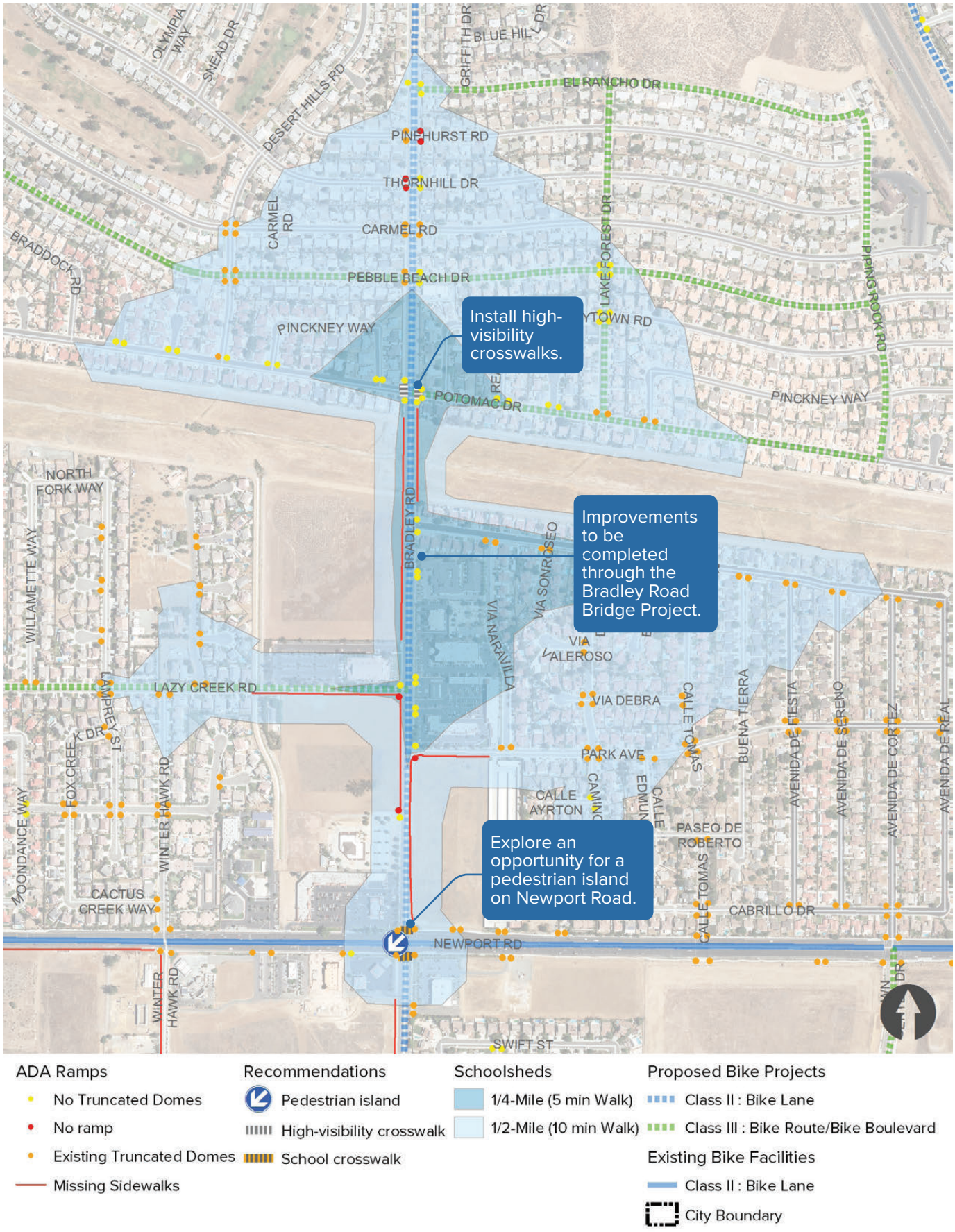


FIGURE 4-24: Bradley Rd & Rio Vista Dr Proposed Improvements

PEDESTRIAN PROJECT 9

EVANS RANCH ELEMENTARY SCHOOL

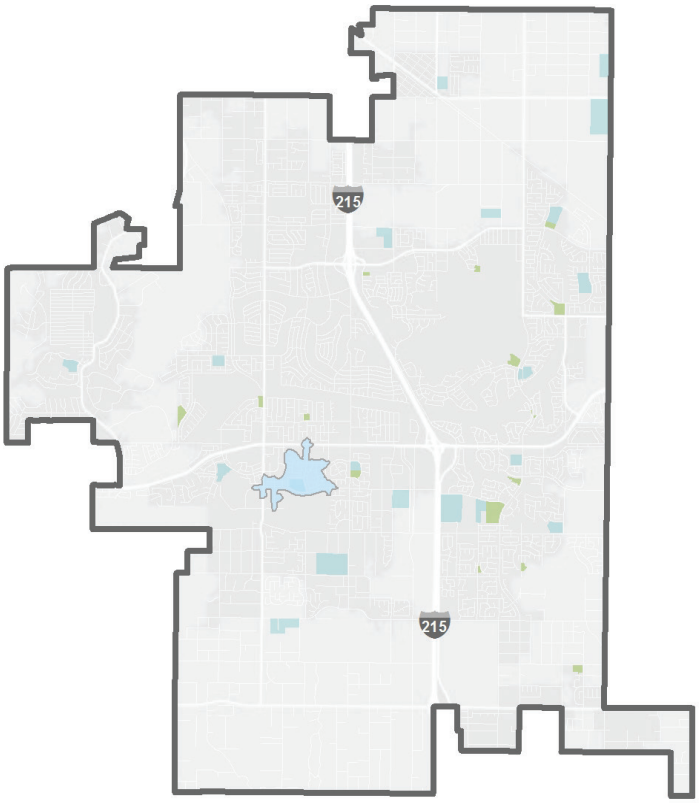
COST ESTIMATE: $1,140,818

EXISTING CONDITIONS

Evans Ranch Elementary School is a part of the Menifee Union School District and is located in western Menifee. The elementary school is accessed via La Piedra Road and is surrounded by newly-developed residential land uses and vacant land uses. From 2018-2019, Evans Ranch Elementary School enrolled 662 students.

RECOMMENDATIONS

With 3.2 miles of missing sidewalks and twenty-two missing curb ramps, it is recommended that rectangular rapid flashing beacons (RRFBs), high-visibility crosswalks, and curb ramps are installed in the areas surrounding Evans Ranch Elementary School to provide added enhanced pedestrian crossings. In addition to the existing bike lanes in the area, it is also recommended to install bike lanes on La Piedra Road and Murrieta Road to improve connectivity.



AT A GLANCE

1
Pedestrian Collisions

3
Bicycle Collisions

3.2 miles
Missing Sidewalk

22
Missing Curb Ramps

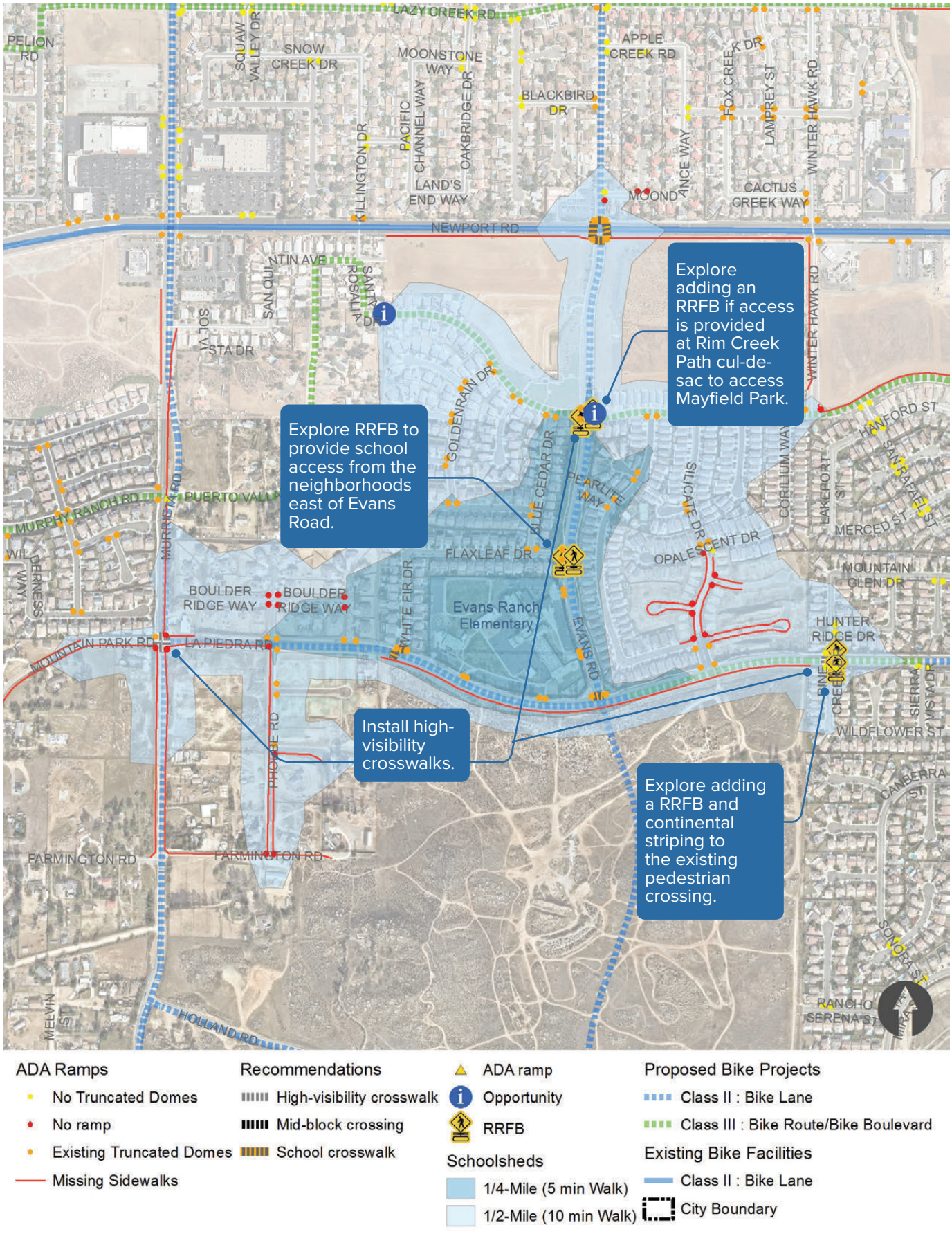


FIGURE 4-25: Evans Ranch Elementary School Proposed Improvements

PEDESTRIAN PROJECT 10

ETHAN A. CHASE MIDDLE SCHOOL

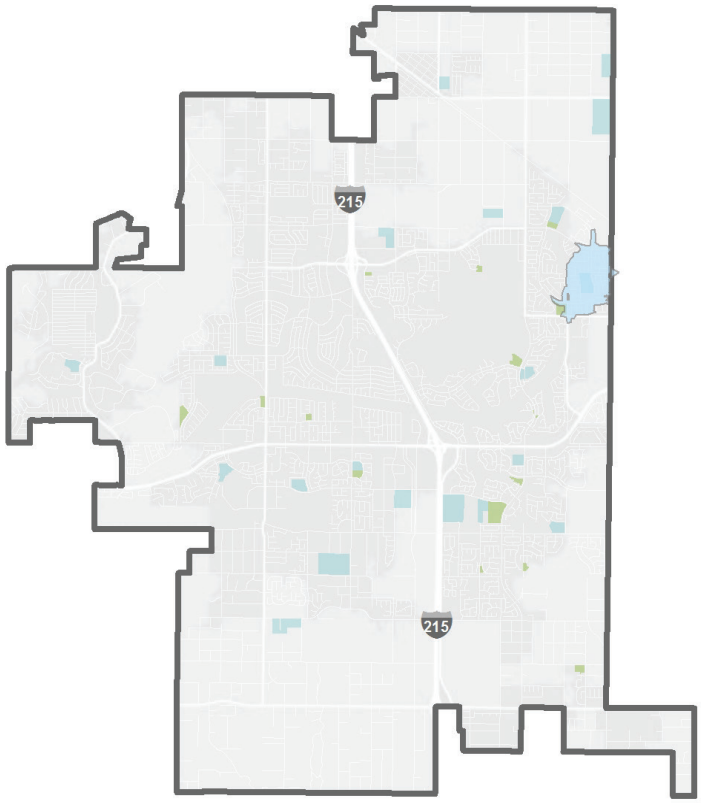
COST ESTIMATE: $247,177

EXISTING CONDITIONS

Ethan A. Chase Middle School is a part of the Romoland School District and is located in eastern Menifee. The middle school is accessible via Grand Avenue and is surrounded primarily by residential land uses, and is nearby Discovery Park and Heritage Lake. From 2018-2019, Ethan A. Chase Middle School enrolled 1,333 students and 75% of students enrolled qualified for the Free and Reduced-Price Meals Program. This qualifies the school for potential ATP funding for infrastructure improvements.

RECOMMENDATIONS

It is recommended that high-visibility crosswalks, traffic lights, and rectangular rapid flashing beacons (RRFBs) are installed in the areas surrounding Ethan A. Chase Middle School. In addition to the existing bike lanes in the area, it is also recommended to install bike lanes on Simpson Road to improve connectivity.



AT A GLANCE

0
Pedestrian Collisions

1
Bicycle Collisions

0 miles
Missing Sidewalk

0
Missing Curb Ramps

FIGURE 4-26: Ethan A Chase Middle School Proposed Improvements

PEDESTRIAN PROJECT 11

QUAIL VALLEY ELEMENTARY SCHOOL

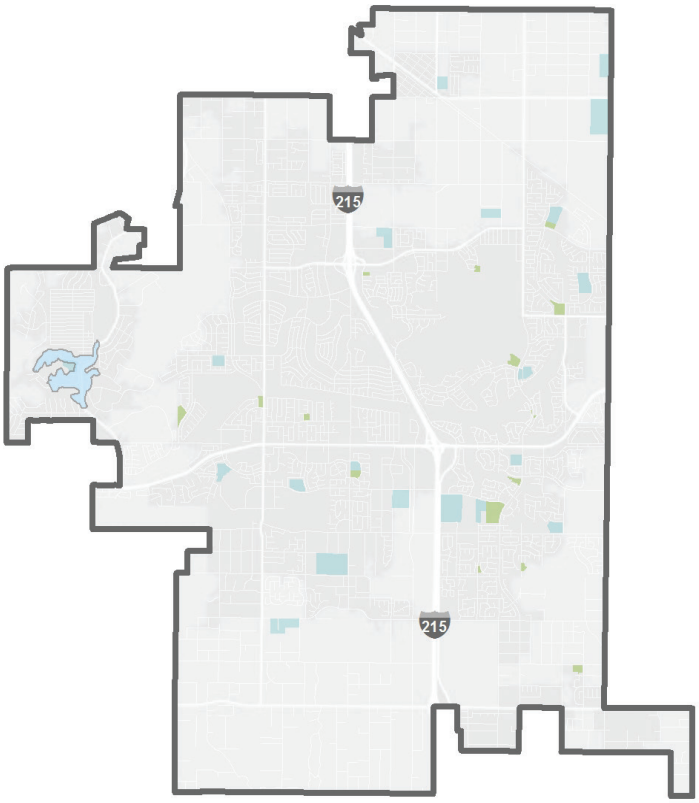
COST ESTIMATE: $709,241

EXISTING CONDITIONS

Quail Valley Elementary School is a part of the Menifee Union School District and is located in western Menifee. The elementary school is accessible via Canyon Heights Drive and is surrounded by residential and open space land uses. From 2018-2019, Quail Valley Elementary School enrolled 517 students and 77% of students enrolled qualified for the Free and Reduced-Price Meals Program. This qualifies the school for potential ATP funding for infrastructure improvements.

RECOMMENDATIONS

With 1.8 miles of missing sidewalks and seven missing curb ramps, it is recommended that rectangular rapid flashing beacons (RRFBs), high-visibility crosswalks, and sidewalks are installed in the areas surrounding Quail Valley Elementary School. In addition, there are no existing bike facilities in the area. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes in the surrounding area.



AT A GLANCE

1
Pedestrian Collisions

0
Bicycle Collisions

1.8 miles
Missing Sidewalk

7
Missing Curb Ramps

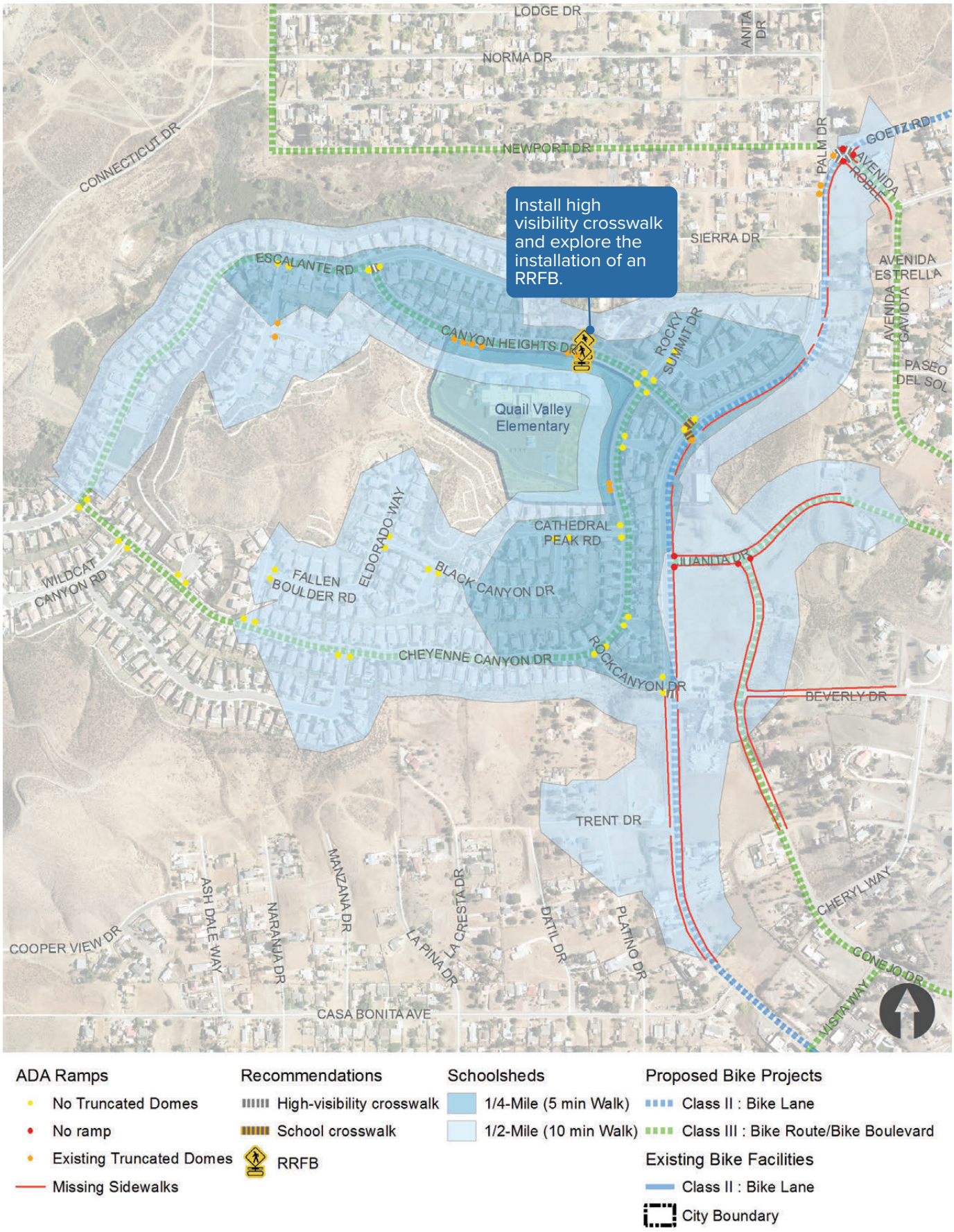


FIGURE 4-27: Quail Valley Elementary School Proposed Improvements

PEDESTRIAN PROJECT 12

HARVEST VALLEY ELEMENTARY SCHOOL/ HERITAGE HIGH SCHOOL

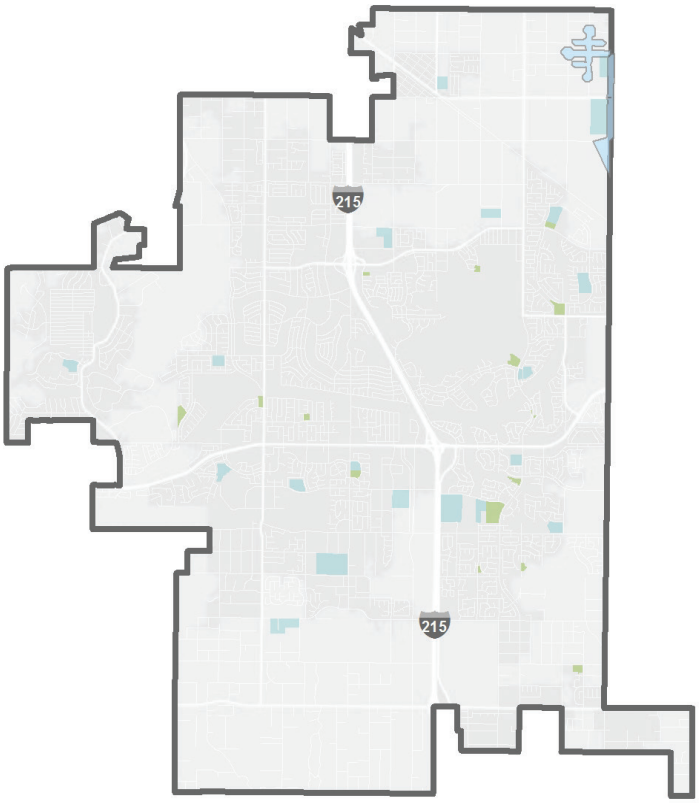
COST ESTIMATE: $1,375,422

EXISTING CONDITIONS

Harvest Valley Elementary School is a part of the Romoland School District and Heritage High School is a part of the Perris Union High School District and are both located in northeastern Menifee. Both schools are accessible via Briggs Road and are surrounded primarily by vacant and residential land uses near Harvest Valley Elementary School. From 2018-2019, Harvest Valley Elementary School enrolled 714 students and 92% of students enrolled qualified for the Free and Reduced-Price Meals Program. This qualifies the school for potential ATP funding for infrastructure improvements. Heritage High School enrolled 2,875 students and 67% of students enrolled qualified for the Free and Reduced-Price Meals Program.

RECOMMENDATIONS

With 3.5 miles of missing sidewalks and twenty-one missing curb ramps, it is recommended that high-visibility crosswalks, sidewalks, curb ramps and truncated domes are installed in the areas surrounding Harvest Valley Elementary School and Heritage High School. In addition, there are no existing bike routes in the area. To further promote kids safely getting to and from school, it is important to consider the addition of multi-use paths, bike lanes, and bike routes in the surrounding area.



AT A GLANCE

1
Pedestrian Collisions

0
Bicycle Collisions

3.5 miles
Missing Sidewalk

21
Missing Curb Ramps

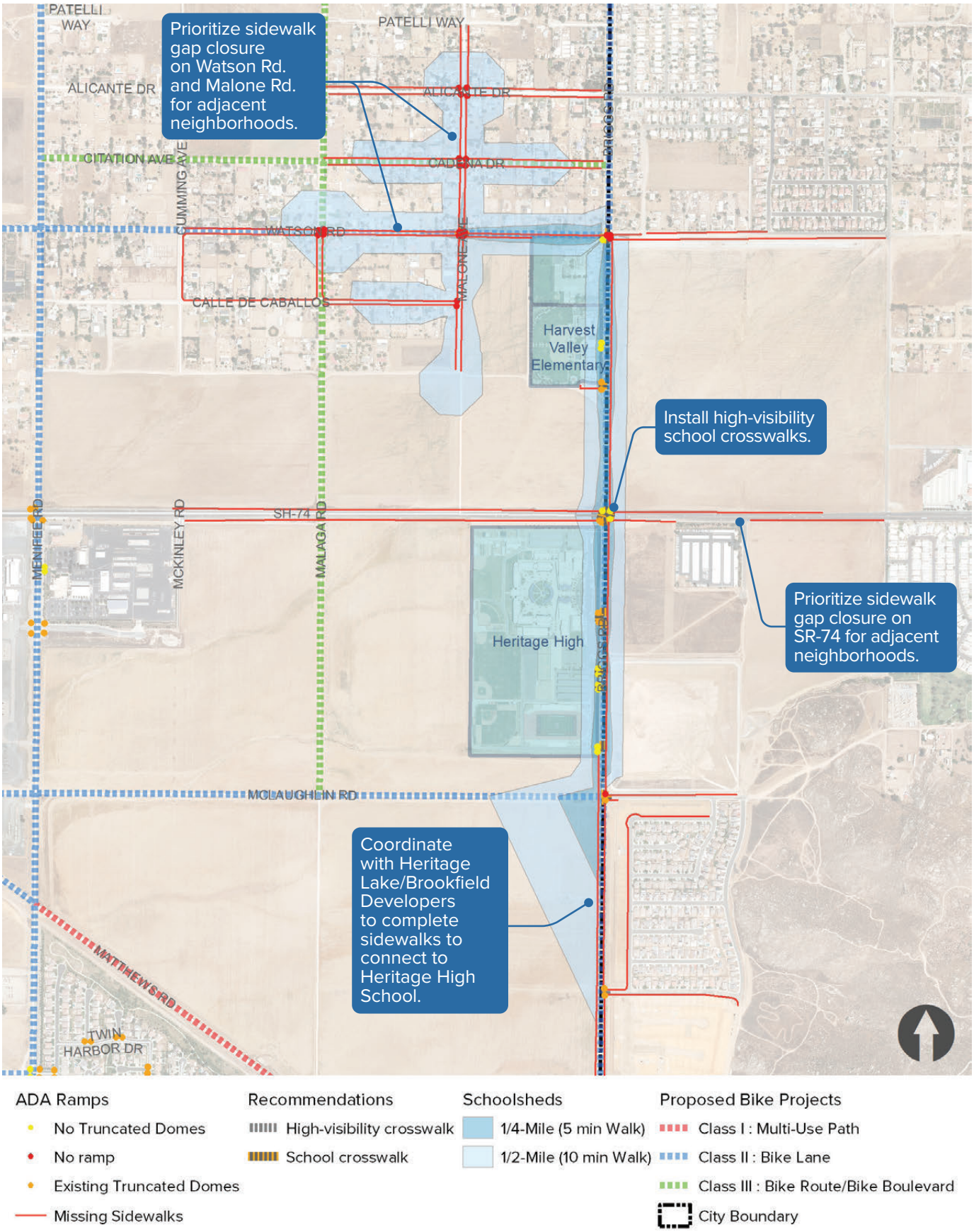


FIGURE 4-28: Harvest Valley Elementary School & Heritage High School Proposed Improvements

PEDESTRIAN PROJECT 13

FREEDOM CREST ELEMENTARY SCHOOL

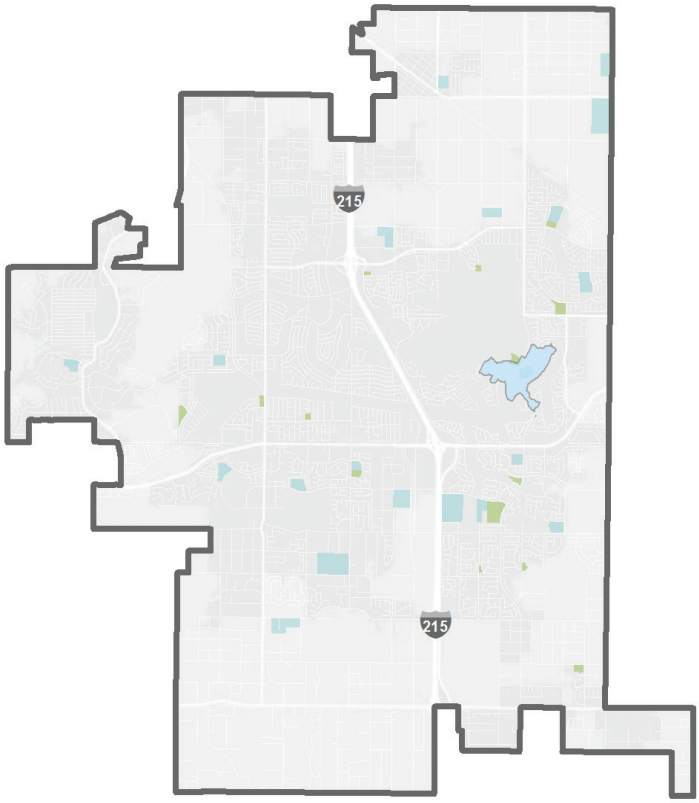
COST ESTIMATE: $59,268

EXISTING CONDITIONS

Freedom Crest Elementary School is a part of the Menifee Union School District and is located in eastern Menifee. The elementary school is accessible via Menifee Road and is surrounded by residential land uses and open space land uses. From 2018-2019, Freedom Crest Elementary School enrolled 716 students.

RECOMMENDATIONS

It is recommended that high-visibility crosswalks and truncated domes are installed in the areas surrounding Freedom Crest Elementary School. In addition, there are existing bike lanes on Aldergate Drive. It should be noted that the existing bike lanes located in The Oasis, a private community, are only accessible to those residents living there. To further promote kids safely getting to and from school, it is also important to consider the addition of bike lanes along Menifee Road to improve connectivity.



AT A GLANCE

0
Pedestrian Collisions

0
Bicycle Collisions

0 miles
Missing Sidewalk

0
Missing Curb Ramps

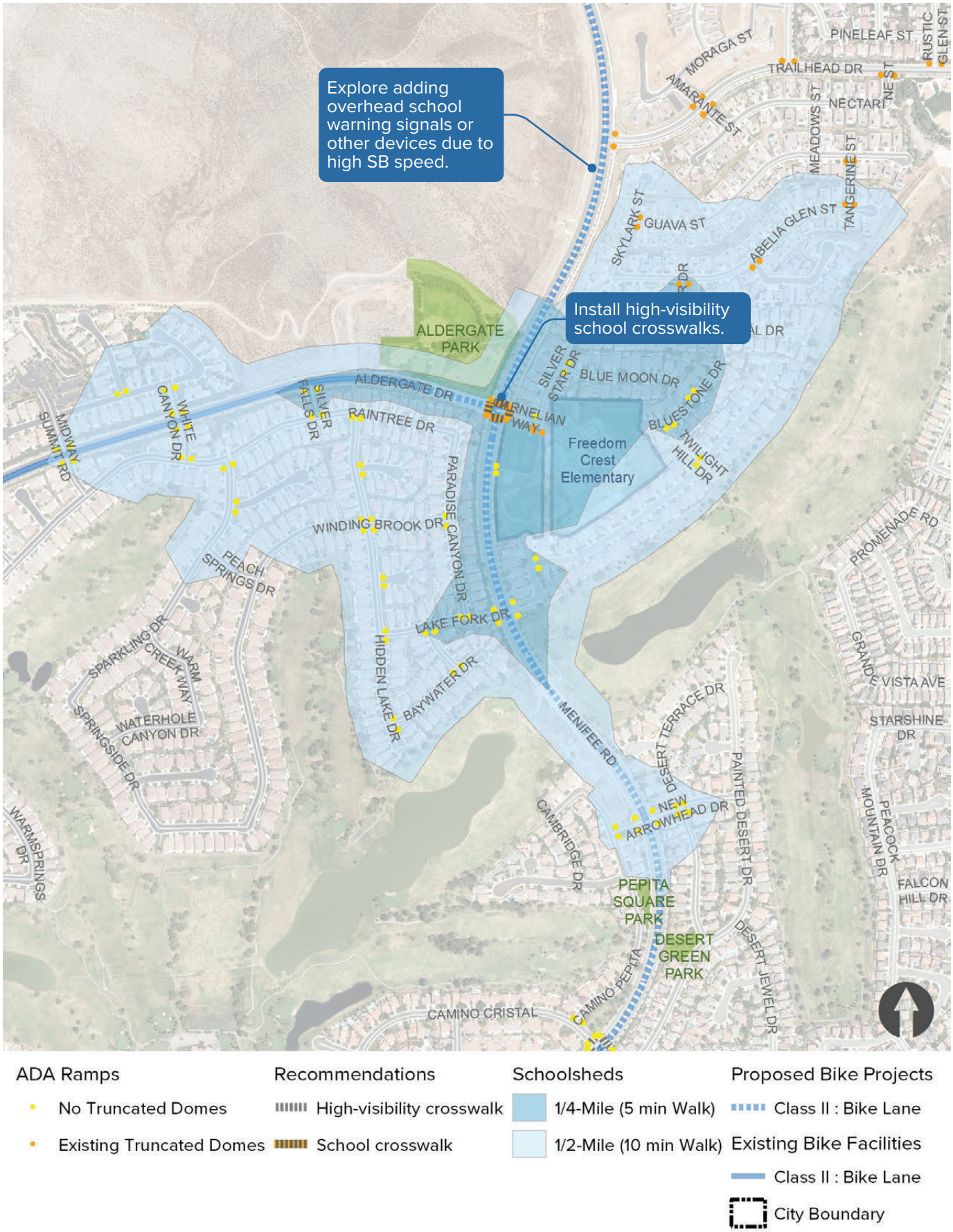


FIGURE 4-29: Freedom Crest Elementary School Proposed Improvements

PEDESTRIAN PROJECT 14

CENTRAL PARK

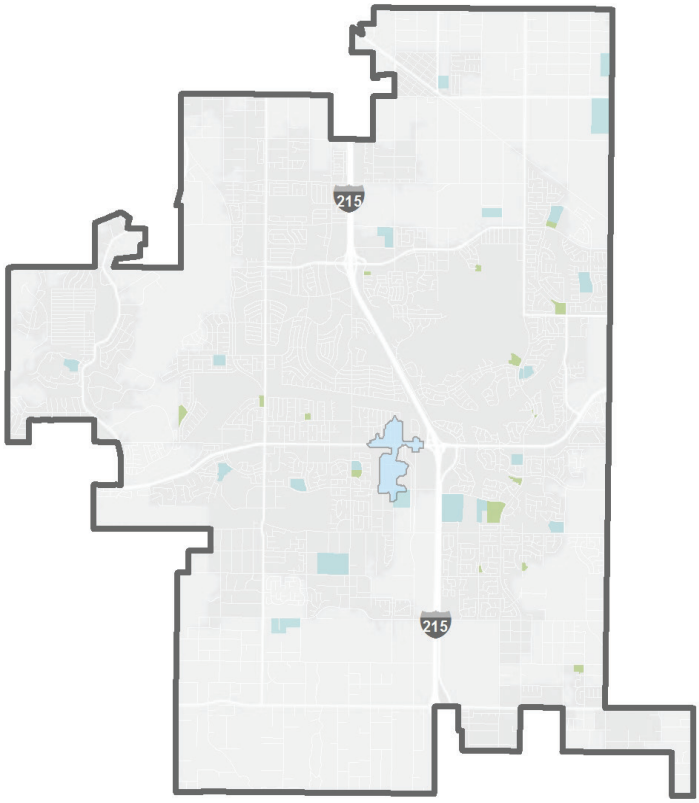
COST ESTIMATE: $151,675

EXISTING CONDITIONS

Central Park is a large park at the center of Menifee near an I-215 interchange. The park is accessed via Civic Plaza Drive and is surrounded by residential land uses and large commercial land uses. Central Park features three multi-use fields, picnic shelters, a children's playground, restrooms, and parking.

RECOMMENDATIONS

With four reported pedestrian collisions and three bicycle collisions, it is recommended that wayfinding signage and a rectangular rapid flashing beacon (RRFB) are installed in the area surrounding Central Park. It might be beneficial to explore the opportunity for a pedestrian bridge between Central Park and Marketplace. In addition to the existing bike lanes in the area, it is also recommended to install bike lanes and bike routes on Town Center Drive and La Piedra Road to address the gaps in connectivity.



AT A GLANCE

4
Pedestrian Collisions

3
Bicycle Collisions

0.5 miles
Missing Sidewalk

0
Missing Curb Ramps

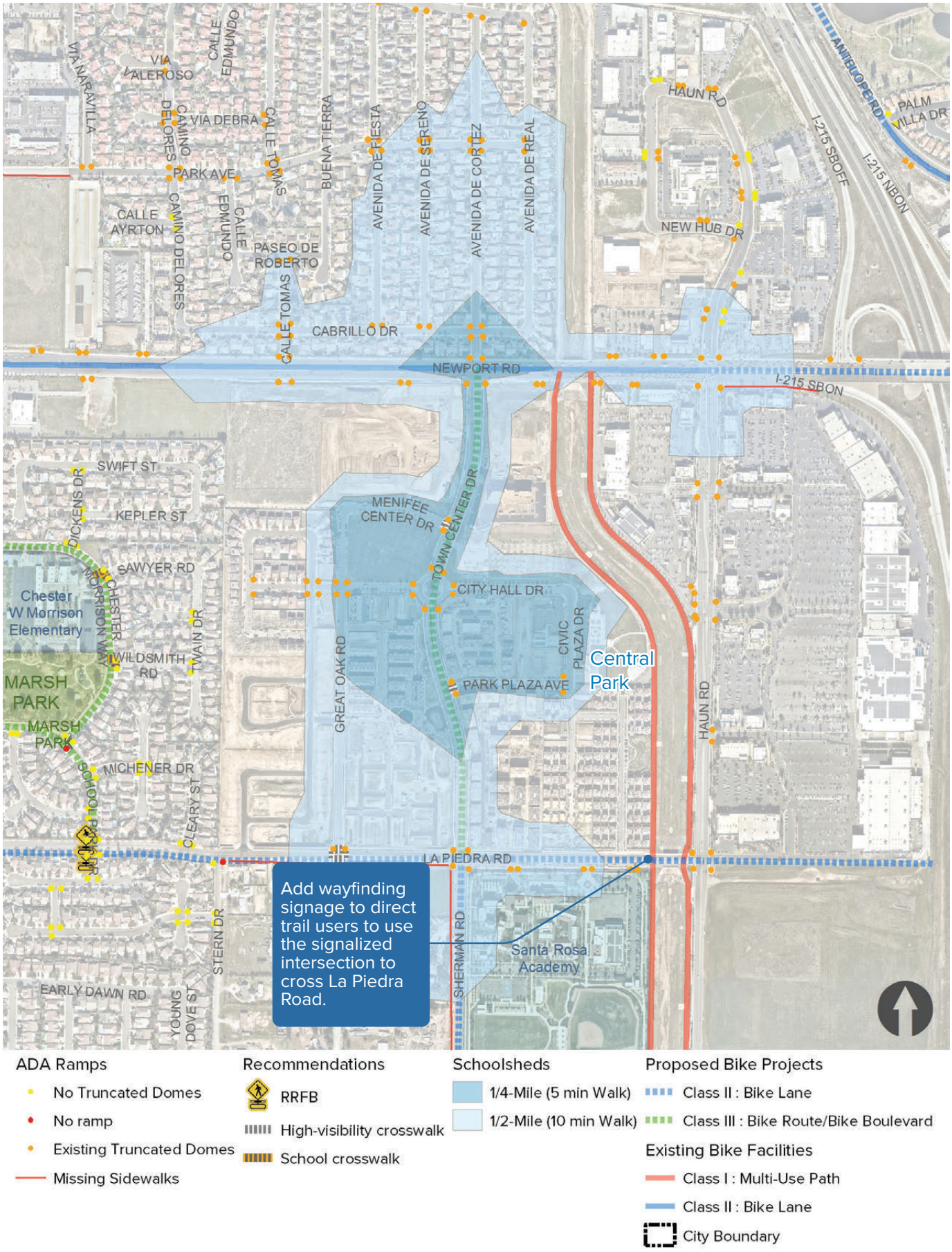


FIGURE 4-30: Central Park Proposed Improvements

PEDESTRIAN PROJECT 15

RIDGEMOOR ELEMENTARY SCHOOL

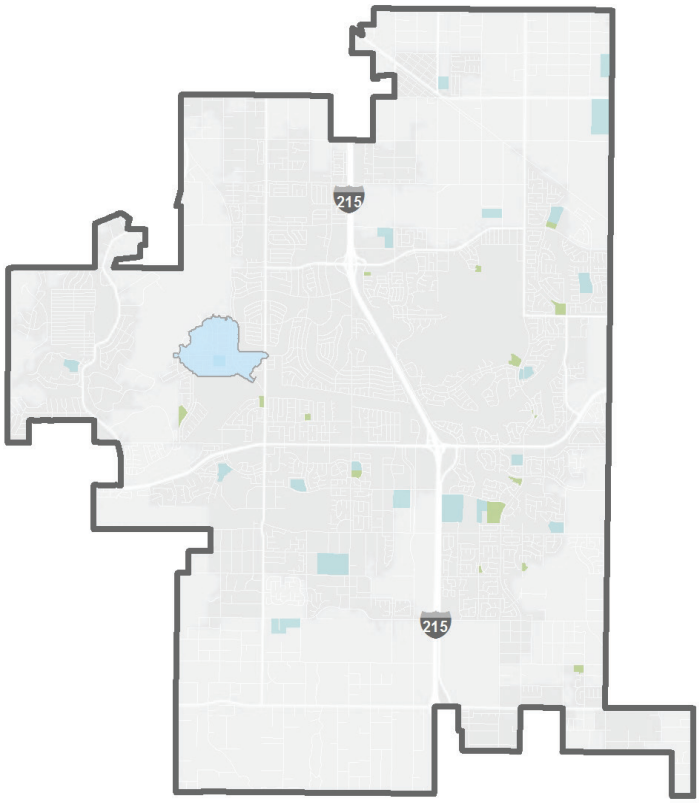
COST ESTIMATE: $295,292

EXISTING CONDITIONS

Ridgemoor Elementary School is a part of the Menifee Union School District and is located in western Menifee. The elementary school is accessible via Ridgemoor Road and is surrounded by residential and civic land uses including a water reclamation facility. From 2018-2019, Ridgemoor Elementary School enrolled 710 students.

RECOMMENDATIONS

With 0.2 miles of missing sidewalks and seven missing curb ramps, it is recommended that high-visibility crosswalks, curb ramps, and stop signs are installed in the areas surrounding Ridgemoor Elementary School. To further promote kids safely getting to and from school, it is important to also consider the addition of bike lanes and bike routes in the surrounding area.



AT A GLANCE

0
Pedestrian Collisions

1
Bicycle Collisions

0.2 miles
Missing Sidewalk

7
Missing Curb Ramps

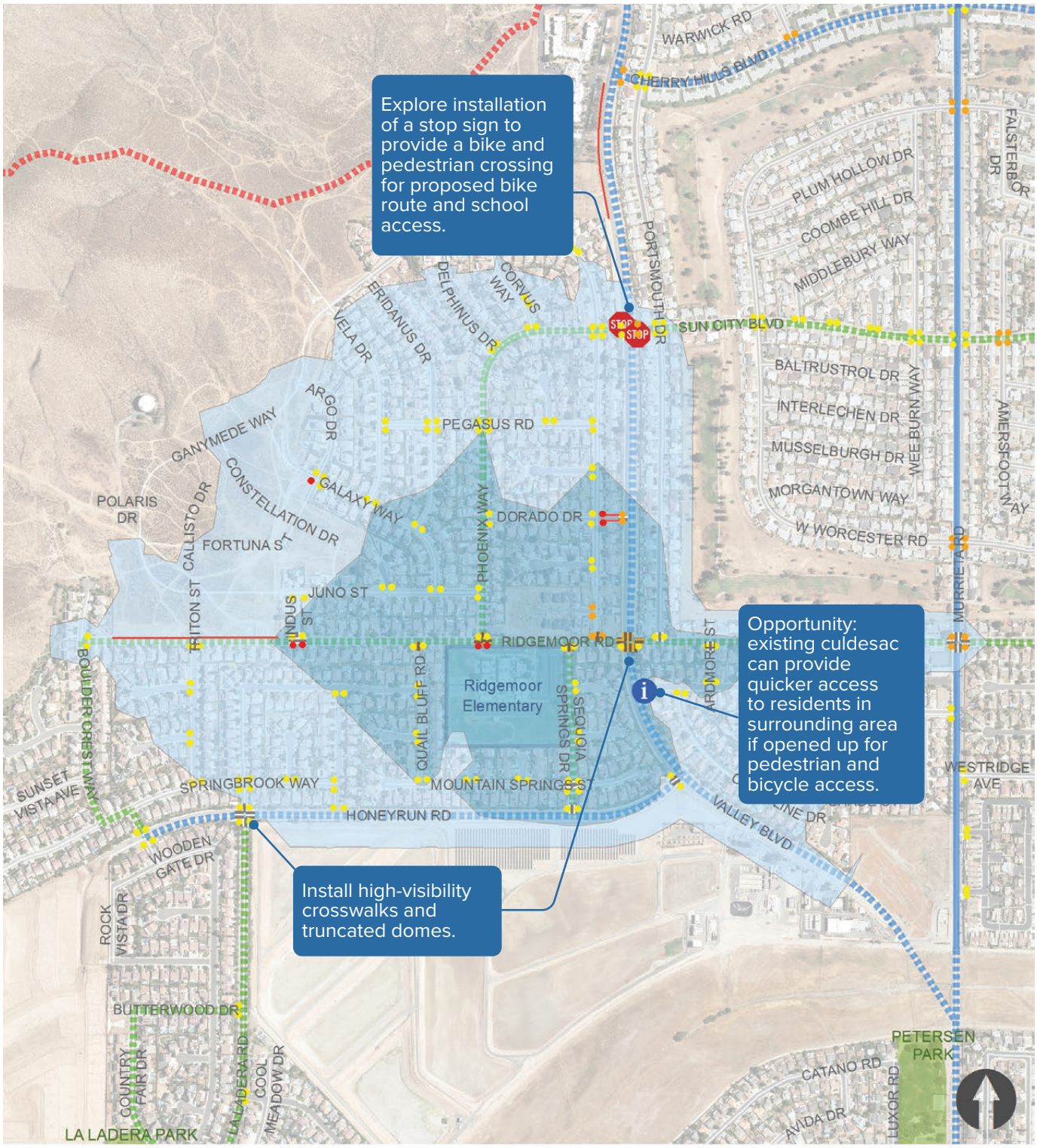


FIGURE 4-31: Ridgemoor Elementary School Proposed Improvements

PEDESTRIAN PROJECT 16

MESA VIEW ELEMENTARY SCHOOL

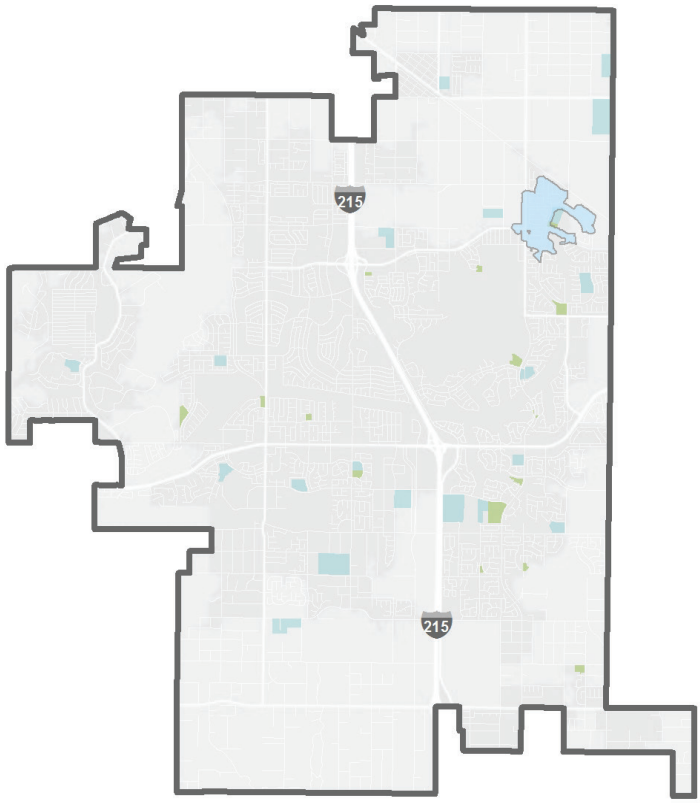
COST ESTIMATE: $480,242

EXISTING CONDITIONS

Mesa View Elementary School is a part of the Romoland School District and is located in northeastern Menifee. The elementary school is accessible via Heritage Lake Drive and is surrounded by residential and agricultural land uses. From 2018-2019, Mesa View Elementary School enrolled 891 students.

RECOMMENDATIONS

With one mile of missing sidewalk and two pedestrian collisions, it is recommended that traffic signals, rectangular rapid flashing beacons (RRFBs), high-visibility crosswalks, and pedestrian islands are installed in the areas surrounding Mesa View Elementary School. In addition to the existing bike lanes in the area, it is recommended to install bike lanes along Menifee Road and McCall Boulevard to close gaps in connectivity.



AT A GLANCE

2
Pedestrian Collisions

1
Bicycle Collisions

1 mile
Missing Sidewalk

0
Missing Curb Ramps

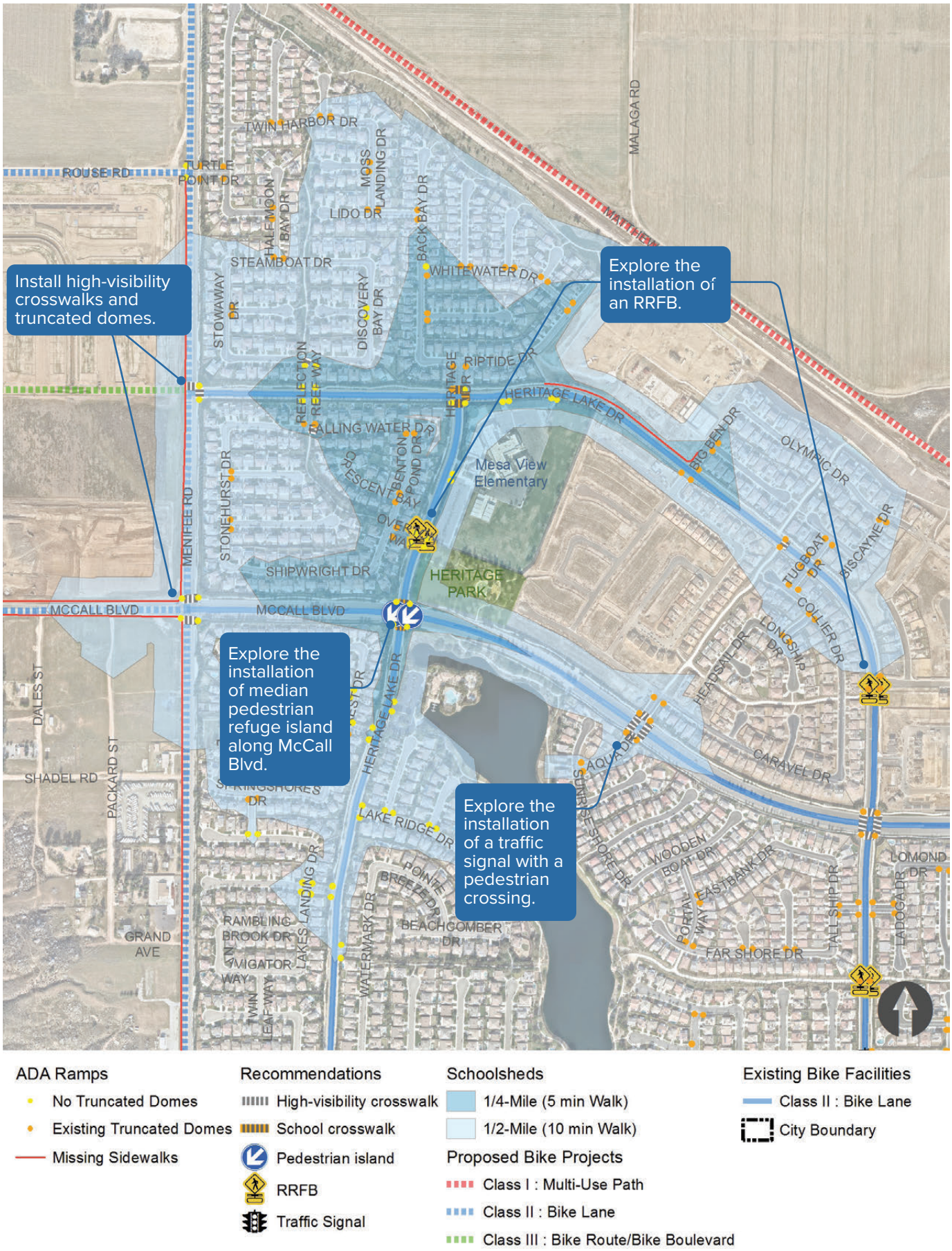


FIGURE 4-32: Mesa View Elementary School Proposed Improvements

PEDESTRIAN PROJECT 17

BOULDER RIDGE ELEMENTARY SCHOOL

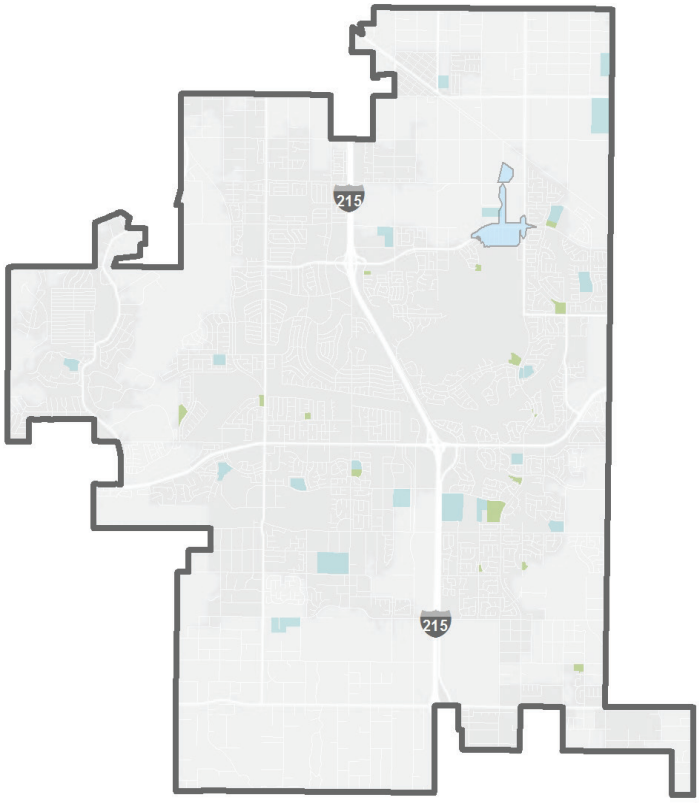
COST ESTIMATE: $368,681

EXISTING CONDITIONS

Boulder Ridge Elementary School is a part of the Romoland School District and is located on the northeast side of Menifee. The elementary school is accessed via McCall Boulevard and is surrounded primarily by agricultural land use and open space, as well as some light residential land uses. From 2018-2019, Boulder Ridge Elementary School enrolled 655 students and 78% of students enrolled qualified for the Free and Reduced-Price Meals Program. This qualifies the school for potential ATP funding for infrastructure improvements.

RECOMMENDATIONS

With 1.1 miles of missing sidewalks and one reported pedestrian collision, it is recommended that sidewalks and high-visibility crosswalks are installed in the areas surrounding Boulder Ridge Elementary School. In addition to the existing bike facilities, it is also recommended to install bike routes, bike lanes, and multi-use paths in the surrounding area to further promote kids safely getting to and from school.



AT A GLANCE

1
Pedestrian Collisions

0
Bicycle Collisions

1.1 miles
Missing Sidewalk

0
Missing Curb Ramps

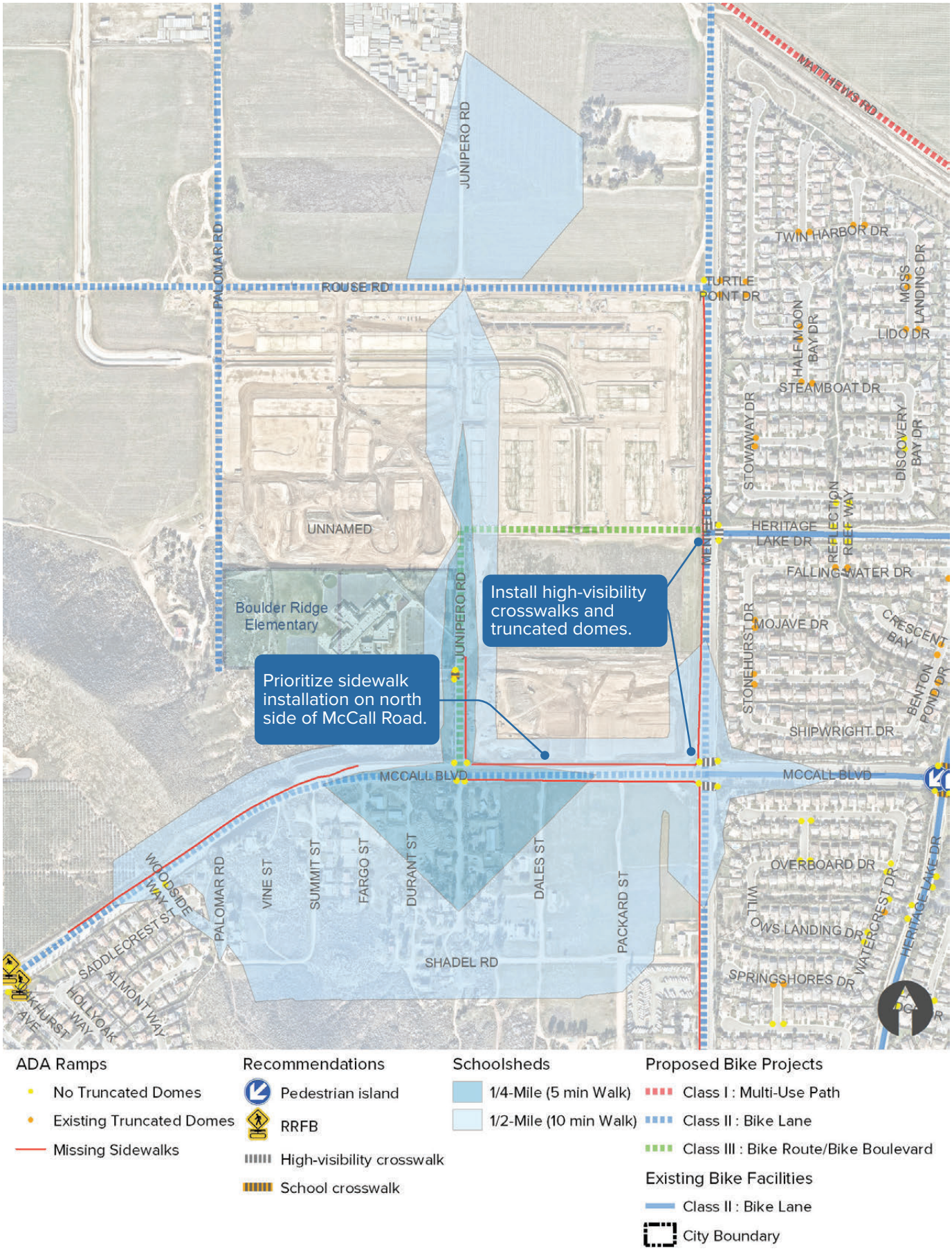


FIGURE 4-33: Boulder Ridge Elementary School Proposed Improvements

PEDESTRIAN PROJECT 18

SOUTHSHORE ELEMENTARY SCHOOL

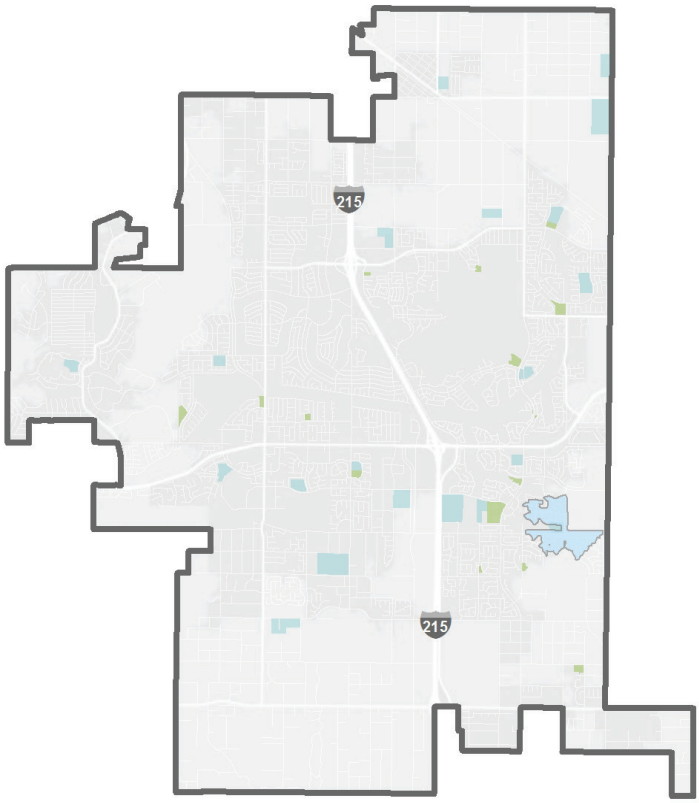
COST ESTIMATE: $266,240

EXISTING CONDITIONS

Southshore Elementary School is a part of the Menifee Union School District and is located in eastern Menifee. The elementary school is accessible via Antelope Road and is surrounded by residential, open space, and agricultural land uses. From 2018-2019, Southshore Elementary School enrolled 807 students.

RECOMMENDATIONS

To address gaps in connectivity, it is recommended that sidewalks and high-visibility crosswalks are installed in the areas surrounding Southshore Elementary School. In addition, there are no existing bike routes in the area. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes in the surrounding area.



AT A GLANCE

0
Pedestrian Collisions

0
Bicycle Collisions

0.7 miles
Missing Sidewalk

1
Missing Curb Ramps

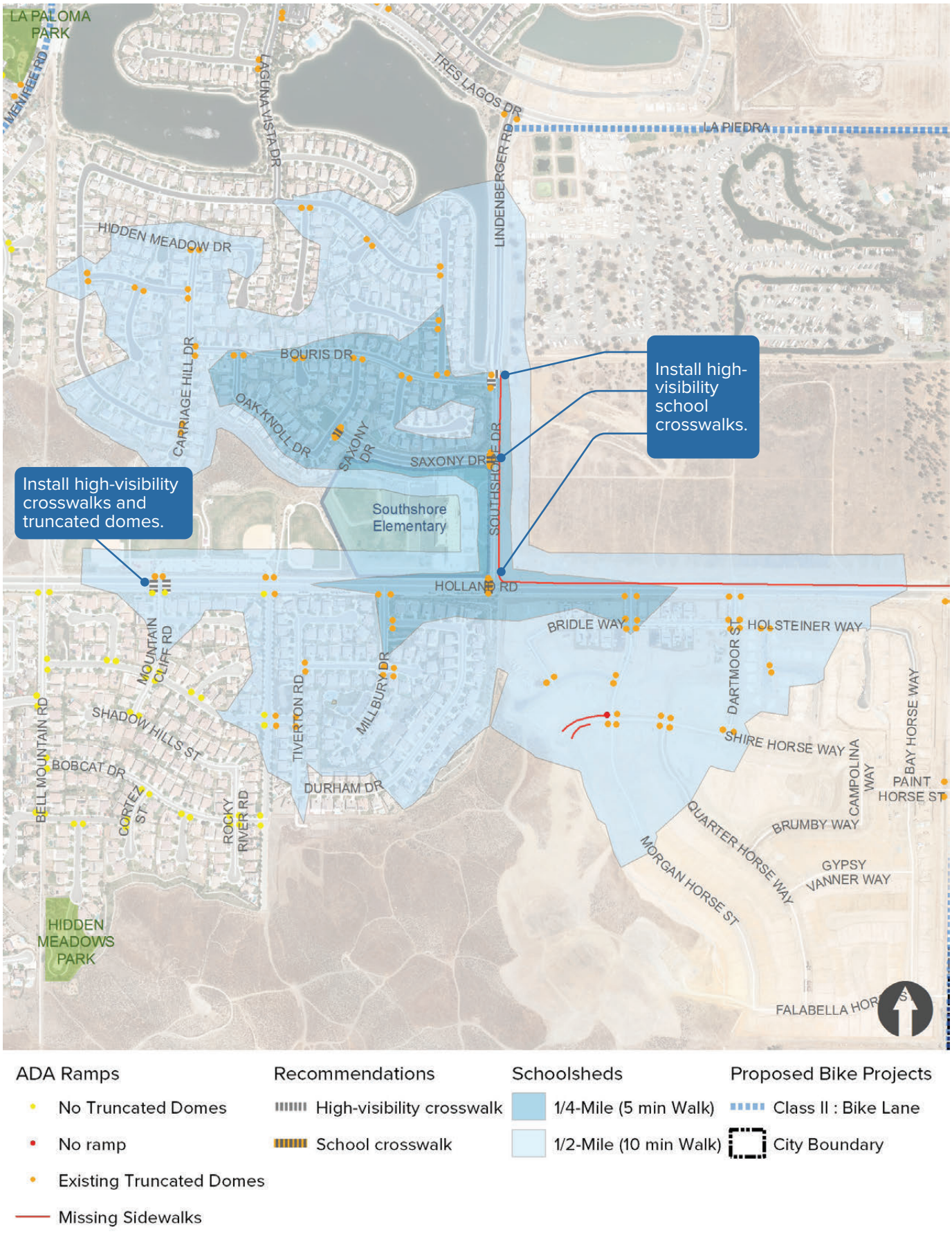


FIGURE 4-34: Southshore Elementary School Proposed Improvements

PEDESTRIAN PROJECT 19

MENIFEE VALLEY MIDDLE SCHOOL

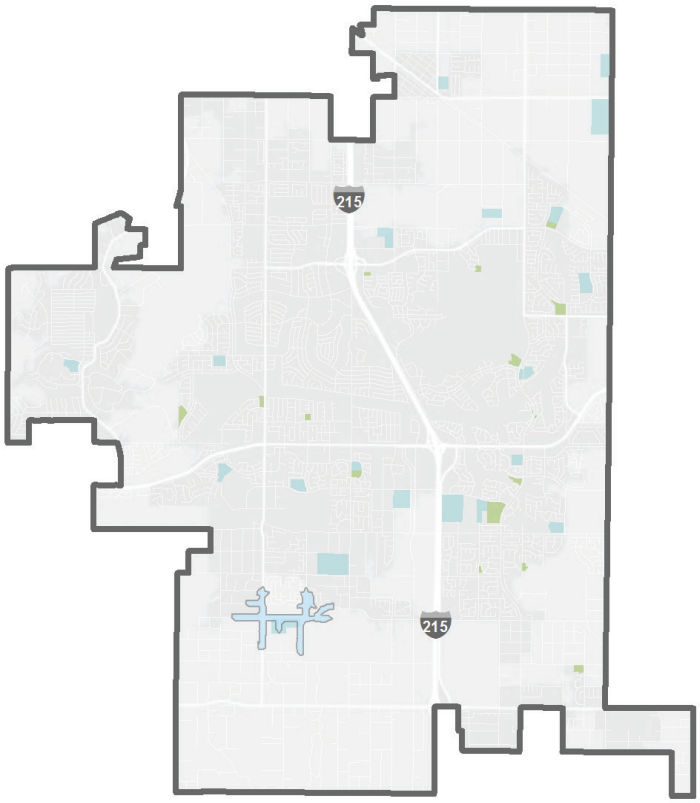
COST ESTIMATE: $1,402,636

EXISTING CONDITIONS

Menifee Valley Middle School is a part of the Menifee Union School District and is located in southwestern Menifee. The school is accessible via Garbani Road and is surrounded primarily by agricultural land uses and residential land uses. From 2018-2019, Menifee Valley Middle School enrolled 1,192 students.

RECOMMENDATIONS

With 4.2 miles of missing sidewalks and five missing curb ramps, it is recommended that high-visibility crosswalks and sidewalks are installed in the areas surrounding Menifee Valley Middle School. In addition, there are no existing bike facilities in the area. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes in the surrounding area.



AT A GLANCE

0
Pedestrian Collisions

0
Bicycle Collisions

4.2 miles
Missing Sidewalk

5
Missing Curb Ramps

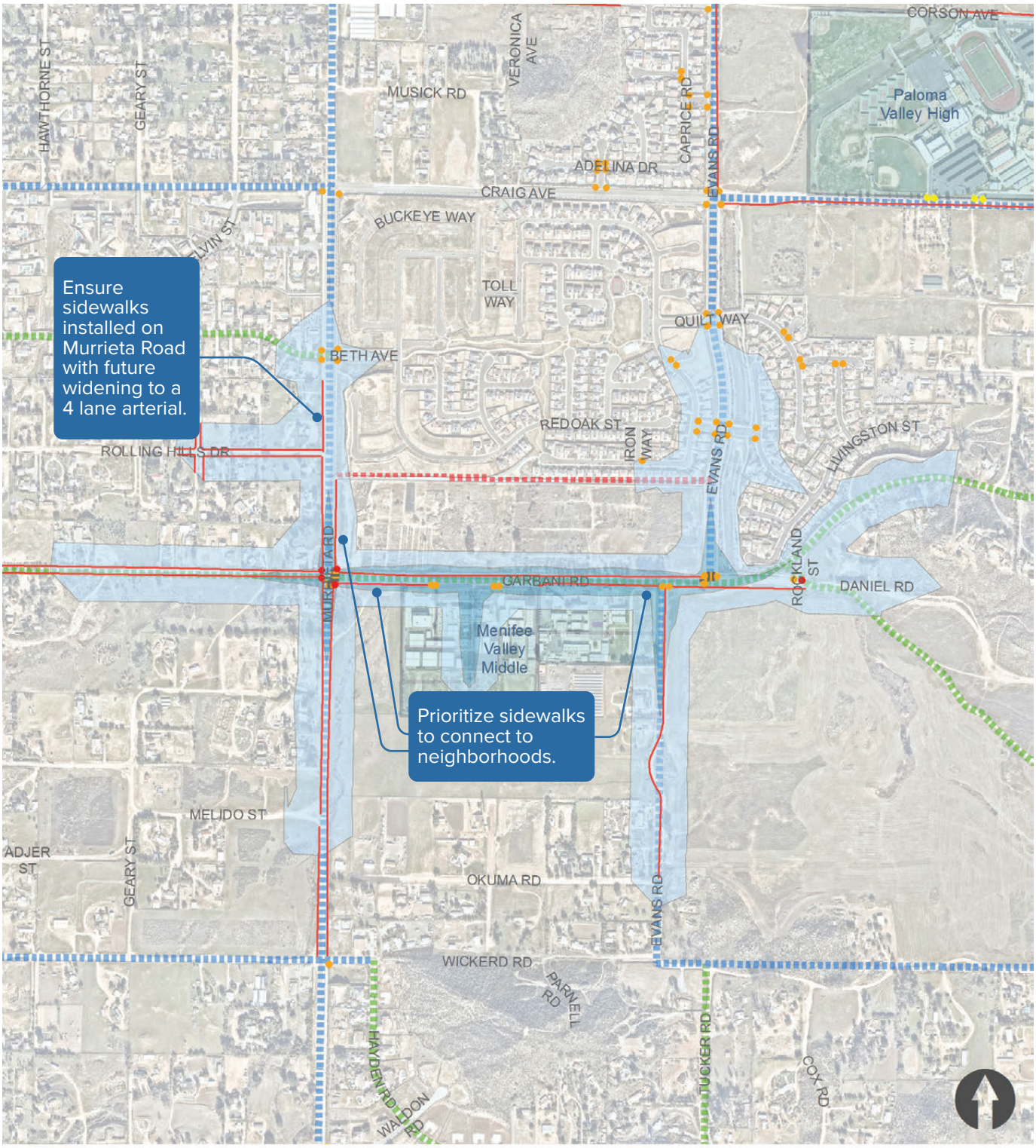


FIGURE 4-35: Menifee Valley Middle School Proposed Improvements

PEDESTRIAN PROJECT 20

PALOMA VALLEY HIGH SCHOOL

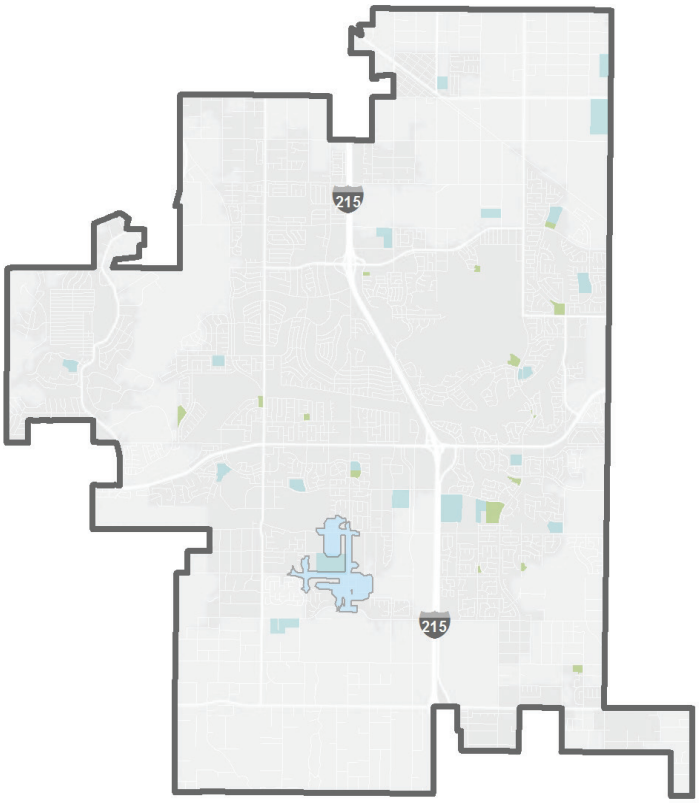
COST ESTIMATE: $1,023,709

EXISTING CONDITIONS

Paloma Valley High School is a part of the Perris Union High School District and is located in southwest Menifee. The high school is accessible via Craig Avenue and Bradley Road and is surrounded by residential and agricultural land uses. From 2018-2019, Mesa View Elementary School enrolled 3,146 students.

RECOMMENDATIONS

With 3.1 miles of missing sidewalks and four missing curb ramps, it is recommended that high-visibility crosswalks, truncated domes, and sidewalks are installed in the areas surrounding Paloma Valley High School in order to address gaps in connectivity. In addition, there are no existing bike facilities in the area. To further promote kids safely getting to and from school, it is important to consider the addition of bike lanes in the surrounding area.



AT A GLANCE

0
Pedestrian Collisions

0
Bicycle Collisions

3.1 miles
Missing Sidewalk

4
Missing Curb Ramps

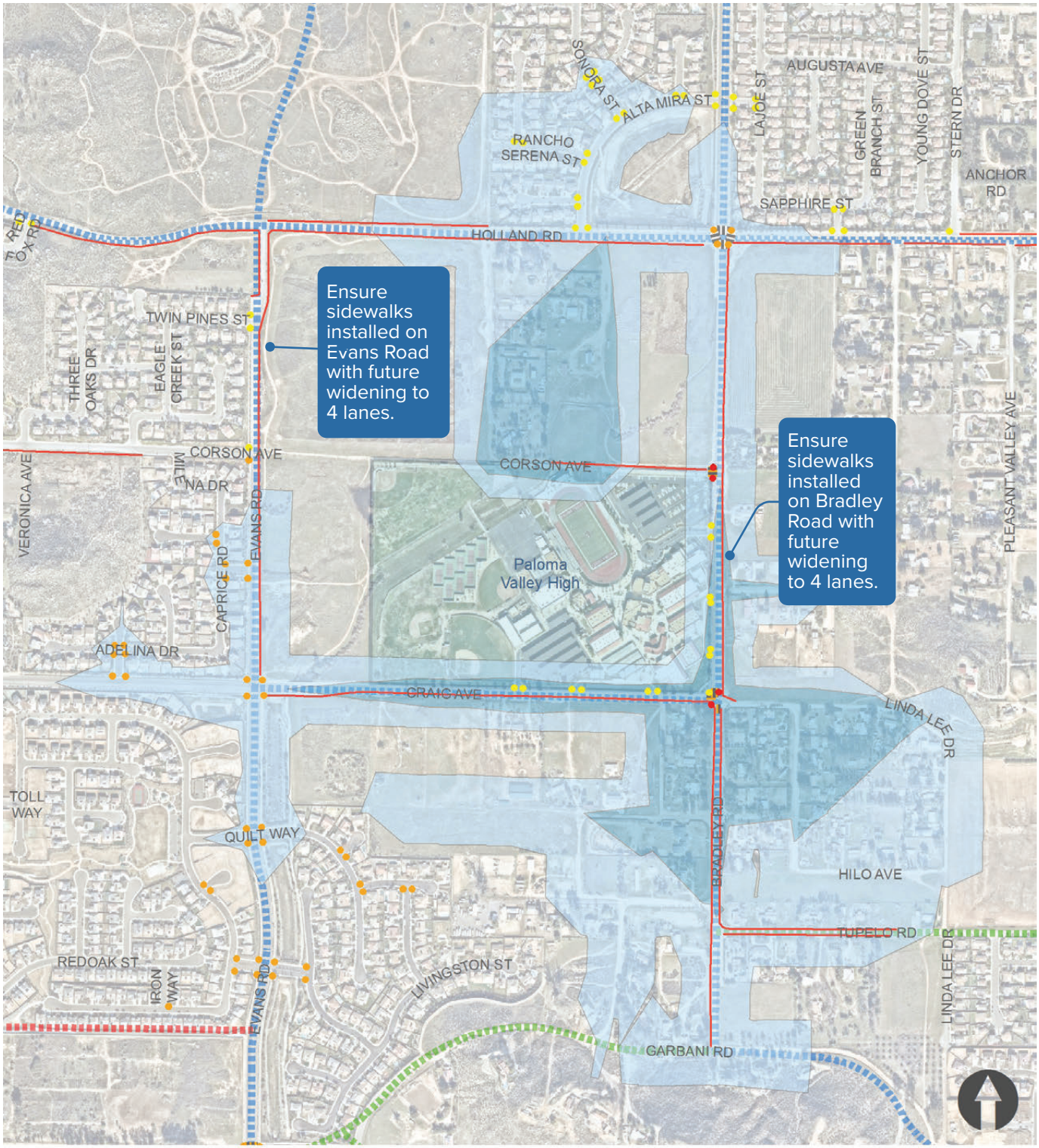


FIGURE 4-36: Paloma Valley High School Proposed Improvements

PROGRAMS

This section comprises a diverse menu of programs intended to support the projects recommended in this plan. Due to a long history of routine accommodation for pedestrians (i.e. sidewalks, crosswalks, dedicated signals, etc.), programs targeting walking are relatively uncommon. Conversely, the historic lack of routine accommodation for bicyclists has fostered confusion about the role of bicycles in the overall transportation system and has necessitated an impressive diversity and breadth of bicycle-related programs. Despite a common emphasis on projects, bicycle programs remain an important element of a successful bicycle plan. The following sections offer some background on the changing "state of practice" in bicycle programming, namely the increased integration of programs and projects, culminating in a comprehensive menu of bicycle and pedestrian programs.

EVOLVING STATE OF PRACTICE IN ACTIVE TRANSPORTATION

In order to realize local goals and objectives, communities should take a multifaceted approach to advance biking and walking and support development of safe, comfortable, and connected active transportation networks.

The principles articulated through the "Six Es" developed by the League of American Bicyclists (Engineering, Education, Encouragement, Enforcement, Equity, and Evaluation) can help create successful programs. In particular, many policy, programmatic, and design elements can be used to improve equity if they are targeted to address mobility needs of low-income residents, minorities, children, people with disabilities, and older adults.

In addition, there has been a shift in implementation strategies. Physical projects represent the most visible and perhaps most tangible evidence of a great place for bicycling or walking. Programs are increasingly targeted to occur in conjunction with the construction of specific bicycle and pedestrian projects to take advantage of the opportunity that capital project implementation represents for a city to promote bicycling and walking as attractive options.

A new multi-use path, for instance, represents a great opportunity to reach out to the area's walkers and parents of school-age children, as well as the neighborhood's "interested, but concerned" bicyclists. These target groups will benefit most by directly linking route improvements and supportive programs. In this way, bundling bicycling and walking programs with projects represents a much higher return on investment for both.

The programs recommended for the City of Menifee are organized as a menu of initiatives, each listed under a broad category:

These categories are not definitive. They are merely intended to offer some level of organization to the many program initiatives, the majority of which fall into at least one category.

Engineering

Education

Encouragement

Enforcement

Equity

Evaluation

Engineering

The Public Works Agency is responsible for building and maintaining all public streets in Menifee to ensure that the community is able to travel around the City efficiently. A variety of engineering tools are used to make sure that the roadways in Menifee are designed to keep bicyclists and pedestrians safe at all times. Some of these tools include street design techniques that are meant to reduce traffic congestion, decrease vehicular speeds, and enhance pedestrian and bicycle safety and comfort.

Some examples of engineering and traffic enhancements that provide a safer environment for pedestrians and bicyclists include:

- Traffic control signs
- Curb and high visibility pavement markings
- Signal timing
- Parking controls
- Traffic safety monitoring

Education

Menifee has had a number of collisions involving pedestrians and bicyclists. According to the Statewide Integrated Traffic Records System (SWITRS) bicycle and pedestrian collision dataset, there were 87 bicycle-related collisions and 154 pedestrian-related collisions in the past five years in Menifee. The City should consider carrying out public education campaigns to improve pedestrian and bicyclist safety. These education campaigns can help teach motorists, pedestrians, and bicyclists how to share the road safely.

Example of education campaigns include:

Safety Assemblies

Safety assemblies can be organized as interactive gatherings or festivals that consist of various stations throughout a school gymnasium or park. Each station can have a bicycle, pedestrian, and teen driver safety component that allows students to participate in various activities while learning the basics of "on the road" safety.

Bike Safety Workshops

A two-hour long class intended to build habits and skills, and an in-depth exploration of rights and responsibilities of bicyclists, including an "on bike" maneuvers class intended to increase confidence. Participants get a free helmet and bike lights.

Safety Assembly

Bicycle Safety Workshop

Walk to School logo

Ped and Bike Traffic Safety Fairs

An obstacle course to teach pedestrians and bicyclist how to identify different street signs and use street infrastructure to increase safety. Youth and children navigate the obstacle course to win free helmets and lights.

Family Cycling Education

Family-friendly interactive training and infrastructure tour intended to increase the confidence of pedestrians and bicyclists. Participants get a free helmet and bike lights.

Safety Resource Event

Safety resource distribution events where people learn about the importance of wearing a helmet. Participants receive free helmets and bike lights and are taught about the bicycle rules of the road, as well as how to be visible and predictable when riding.

Bike and Maintenance and Ride Workshops

Bike maintenance and ride workshops can include a series of classes for youth between 12-18 years. These classes teach riders how to fix and ride a bicycle. Participants learn the rules of the road, as well as their rights and responsibilities as bicyclists. These classes can offer the opportunity for participants to receive a free bike.

Motorist-Targeted Messaging

Billboards and changeable message signs can be an effective tool to inform motorists of pedestrian and bicycling safety. Such messaging can also encourage drivers to be more cognizant when sharing the road with cyclists.

Bike Rodeo

Like school pedestrian and bicycle safety rodeos, community pedestrian and bike rodeos provide participants with an interactive hands-on experience in traffic situations that involve pedestrians and bicyclists. Bike rodeos are a great way to provide community members with an opportunity to learn and practice safe pedestrian and bicycling skills.

Encouragement

Vehicle usage can be decreased in part by actively encouraging residents and visitors to bike, walk, and ride transit for a variety of trips and purposes.

Bike Rodeo Logo

Changeable Message Sign

National Bike Month logo

Encouragement is all about making bicycling and walking more fun, healthy, and easy to do. In order to achieve this, the City, along with other local organizations, can organize a series of activities and events that promote alternate modes of transportation and healthier lifestyles.

National Bike Month in May

During the month of May, cities across the country organize events and campaigns to educate people about biking and to encourage them to bike more to their destinations. Activities such as Bike Week, Bike to Work, and Bike Fridays can be organized and promoted.

Cargo Bike Lending Program

While bike shares are growing in prevalence in almost all major metropolitan cities, the unique benefits of cargo bikeshares can also be utilized. Introducing a cargo bike rental program in various neighborhoods throughout Menifee can offer residents a unique mode of active transportation to carry out daily tasks such as carrying children, groceries, small furniture, and even pets.

Open Streets Events

Open streets events are increasingly popular in Southern California. They provide families and friends an opportunity to walk, bike, skate, or scooter down streets in their city free of cars.

Family Friendly Bike Rides

Fun family-friendly summer bike rides meant to encourage bike usage. This event teaches about bicycle and road safety.

Walk to School

This is a fun, educational event involving children, parents, and community leaders. This event gives students and families the opportunity to socialize and start the day off with enthusiasm while encouraging them to build connections with other members of the community.

Menifee should consider implementing a Safe Routes to School (SRTS) Program as an effort to promote walking and biking as a safe and healthy way to get to and from school in the City. SRTS is an international movement to both increase the number of students using active modes of transportation to get to and from school and improve pedestrian and bicycle travel around schools.

Ride and Walk of Lights

Annual winter evening family-friendly walk and bike ride where participants use battery lights and/or bike lights to be more visible while they walk or bike.

5K Running / Walking Events

Free 5 kilometers running and walking events that takes place in the City are an excellent way to encourage people to explore their city on foot. Post-race refreshments and healthy snacks can be provided to participants. Programs like these can encourage communities to get more involved and promote safety and awareness.

Food-Focused Bike Rides

Bike ride events where participants get together to enjoy food while cruising through this city's streets and neighborhoods are an innovative way of bridging bike riding with community building.

Female Focused Group Rides

Local groups can identify individuals that can host all-femme rides that promote social interactions, healthy lifestyles, and advocacy efforts in Menifee. It also provides participants with the opportunity to ride as part of a group, increasing their sense of safety.

Walking Tours

The City and other local groups can organize family-friendly themed walks. Specific destinations in Menifee can be explored as a local example of a walking tour where participants have the opportunity to explore key locations including historical buildings, parks, murals, and businesses.

Walk to School Day logo example

Enforcement

Enforcement, especially when it targets high-risk behaviors and maximizes educational benefits, will help make road users more compliant and make both driving and bicycling behaviors more predictable.

Educate Police Department Staff Regarding Bicycle and Pedestrian Issues

If the ultimate aim is to promote bicycling as a legitimate form of transportation, all officers should receive some form of bicycle training. Appropriate training regarding pedestrian issues and solutions should be provided as well.

Designate a Law Enforcement Liaison Responsible for Bicycling and Walking Concerns

This liaison would perform the important function of communication between the law enforcement agency and bicyclists and pedestrians. The liaison would be in charge of the supplemental education of officers regarding bicycle and pedestrian rules, etiquette, and behavior.

Targeted Enforcement

Many law enforcement departments employ targeted enforcement to educate drivers, bicyclists, and pedestrians about applicable traffic laws and the need to share the road. These efforts are an effective way to expand mobility education, such as in the form of a brochure or tip card explaining each user's rights and responsibilities

Implement a Bicycle Diversion Program

A bicycle diversion program allows for adult bicyclists who commit traffic violations to receive reduced fines in exchange for taking a bicycle education class. It could encourage bicycling by treating violations as opportunities to educate people, as well as to impart confidence and skills.

Institute Law Enforcement Referral Process

Communication process that encourages students and parents to notify the school and law enforcement of the occurrence of a crash or near-miss during school commute trips involving auto, bus, pedestrian or bicycle transportation.

Equity

The ATP prioritizes the safety of Menifee residents whose primary mode of transportation is walking, biking, skateboarding, and public transportation. Special emphasis is given to low-income neighborhoods and streets where the risk for collisions is greater. This plan intends to reduce barriers for low income and senior neighborhoods while mitigating potentially harmful long-term impacts.

Strategies and practices to address bicycle and pedestrian inequities include:

Consider the Transportation Needs of Traditionally Underserved Populations

Recognize the importance to address the barriers that prevent trips from being safe, especially for the younger and lower income populations who cannot afford, operate, or choose to forgo vehicle ownership.

Examine Organizational Practices and Policies

Existing practices and policies may have unintended consequences when it comes to transportation equity. A systematic review of its practices should be performed to identify potential equity issues and opportunities.

Increase Staff Diversity

A recent survey has shown disparity between the sociodemographics of transportation decision-makers and the community they are meant to serve. Agencies should continually seek to increase the diversity of its staff at all levels of leadership and decision-making so that its workforce represents the community it serves.

Prioritize Projects in Light of Equity Considerations

Agencies can aim to implement improvements in areas that are disproportionally affected by health and safety burdens, acknowledging that policies and designs that improve conditions for vulnerable groups can benefit everyone in the community.

Encourage Public Involvement

Collaboration with the community is an integral part of the planning process. Individuals, especially those belonging to traditionally underserved communities, need to be empowered to participate in the transportation planning processes and have their needs heard.

Evaluation

In order to improve programs and ensure that the bicycle and pedestrian conditions in Menifee are adequate, audits, traffic-safety data collection, analysis, and reporting are necessary. Additionally, surveys allow the City to gain input from users on existing issues and potential solutions.

Some ways to evaluate and monitor programs and infrastructure include:

Create or Assign City Staff as an Active Transportation Liaison.

An active transportation liaison would assist the City's current active transportation coordinator in reviewing project plans and built projects, as well as ensuring consistency and cooperation between city departments. The liaison would also assist with completing grant applications, maintaining a prioritized list of improvements, researching appropriate funding sources, and updating cost estimates. This investment in staff is often returned since this position is usually responsible for securing state and federal funding.

Active Transportation Advisory Committee

While the City created a Project Advisory Team that provided valuable oversight for this Active Transportation Plan, many municipalities have developed bicycle and pedestrian or active transportation advisory committees to address walking along with bicycling, and some address overall mobility, including transit. This group can act as a community liaison and support city staff, volunteers, and advocate efforts to address issues concerning local bicycling and walking, as well as regularly evaluate the progress of improvements in this Active Transportation Plan. City support is imperative for creating the committee, budgeting time and resources for city staff, and for elected officials to attend and to support the committee.

Conduct Bicycle and Pedestrian Counts and Review Collision Data

Conduct regular bicyclist and pedestrian counts throughout the City to determine baseline mode share and subsequent changes. Conducting counts would allow the City to collect information on where the most bicycling and walking occurs. This assists in prioritizing and justifying projects when funding is solicited and received. Counts can also be used to study bicycling and walking trends throughout the City. Analysis that could be conducted includes:

- Changes in volumes before and after projects have been implemented
- Prioritization of local and regional projects
- Research on clean air change with increased bicycle use

Bicycle Advisory Committee

Police Bicycle Patrol

Counts should be conducted at the same locations and at the same times every year. Conducting counts during different seasons within the year may be beneficial to understanding the differences in bicycle and pedestrian traffic volumes based on seasonal weather. In addition, bicycle and pedestrian counts should be collected as part of any existing traffic counts. Results should be regularly recorded for inclusion in the bicycle and pedestrian report card.

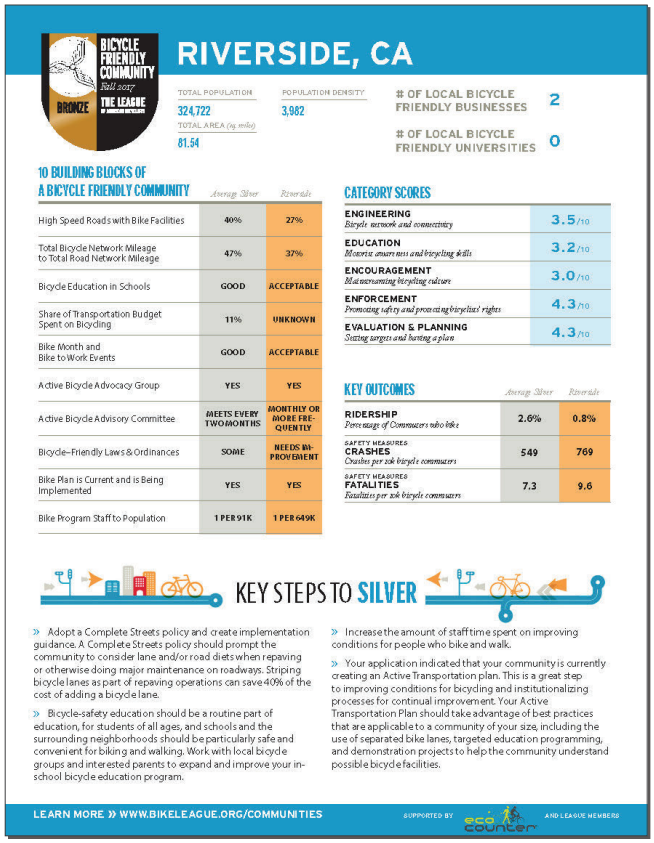
The Menifee Police Department should collect and track collision data. Regular reports of traffic collisions should be presented to the advisory committee. Traffic collisions involving bicyclists and pedestrians should be regularly reviewed and analyzed to develop plans to reduce their frequency and severity. Any such plans should include Police Department involvement and should be monitored to determine their effectiveness. Results of the number of collisions should be recorded in a bicycle and pedestrian report card described in the next section.

Bicycle and Pedestrian Report Card

The City could develop a bicycle and pedestrian report card, a checklist used to measure the success of plan implementation, as well as effort made within the City. The report card could be used to identify the magnitude of accomplishments in the previous year and general trends. The report card could include, but not be limited to, keeping track of system completion, travel by bicycle or on foot (counts) and safety.

The City can use the report card to track trends, placing more value on relative than absolute gains (in system completion, mode share, and safety). For example, an upward trend in travel by bicycle or on foot would be viewed as a success, regardless of the specific increase in the number of bicyclists or walkers. Safety should be considered relative to the increase in bicyclists and walkers. Sometimes crash numbers go up simply because bicycling and walking increases, at least initially. Instead, measure crashes as a percentage of an estimated overall mode share count.

A major portion of the report card would be an evaluation of system completion. An upward trend would indicate that the City is progressing in its efforts to complete the bicycle and pedestrian network identified in this document. The report card could be developed to utilize information collected as part of annual and on-going evaluations, as discussed in the previous sections. The report card is not intended to be an additional task for city staff, but rather



Sample report card

Bicycle friendly community logos

a means of documenting and publicizing the City's efforts related to bicycle and pedestrian planning. It can be a task of the advisory committee to review annual report cards and to suggest future plan and goal adjustments.

In addition to quantifying accomplishments related to the bicycle plan, the City should strive to quantify its efforts. These may be quantified as money spent, staff hours devoted, or other in-kind contributions. The quantified effort should be submitted as a component of the bicycle and pedestrian report card. Some cities publish their report cards online.

Update Bicycle Friendly Community Designation

Bicycle Friendly Community designation is part of a program offered by the League of American Bicyclists (LAB) intended to provide communities with guidance on becoming more bicycle friendly and to award recognition for their achievements. Like the report card described previously, Bicycle Friendly Community designation provides a standard by which the City of Menifee can measure its progress toward bicycle friendliness. It could be a function of city staff to develop the application.

Automated Count Measures

A traffic counter device with publicly available data can be deployed at certain locations, such as bike paths through Town Center and arterials with existing bike facilities, to count, classify, and/or measure the speed of active users passing along a given route. This data can help measure non-motorized travel and monitor trends of a facility or network.

Bicyclists

League of American Bicyclists logo

HEALTH-RELATED PROGRAMS

There are a number of actions and programs that can be made available in communities to further promote healthy lifestyle choices through active transportation modes. Active transportation has many proven physical, social, and mental health benefits through increased levels of physical activity. Opportunities for residents of Menifee to engage in physical activity and improve their well-being, include the following health programs:

Healthy Menifee

Healthy Menifee includes several program components, each designed to serve residents of all ages, abilities, and geographic location within the City to live a healthier lifestyle through exercise, better nutrition, and disease prevention. Recreational activities and nutrition workshops will be run at school sites after school and during school wide special events, as well as local parks and city-wide special events through the Fun & Fitness Rec Mobile. Programs and activities will feature the Menifee Mobile Kitchen, Recreate Your Health games and sports, and Evaluate Your Plate workshops. The Program also includes a video/podcast which will feature local chefs and their healthy recipes once a month that will be accessible on smart phones, tablets, or computers from the comfort of residents' homes.

HEALTHY MENIFEE
New. Better. Best.

Healthy Menifee logo

Walking for Weight Loss

Walking for Weight Loss is a program hosted by the City of Menifee and Kate Anderson Fitness that takes place in Creek View Park. The program helps residents start their fitness goals with a variety of exercises, mainly involving walking. Classes are adaptable for all fitness levels and open to ages 5 and up.

Fitness in the Parks

Fitness in the Parks is a program hosted by the City of Menifee and Kate Anderson Fitness that takes place in a number of Menifee's parks including Central Park, Centennial Park, Audie Murphy Park and Spirit Park. This program is designed for users of all ages and includes high-intensity interval training (HIIT) circuit training, games, competitions and more.

Fitness in the Park

Athletic Kids

Athletic Kids is a program designed for ages 5-15 to get outside and be physically active. The program is hosted by the City of Menifee and Kate Anderson Fitness and takes place in Silverstar Park.

Summer Sports Camp

Summer Sports Camp is a program put on by the City of Menifee for ages 7-12. It gives the opportunity for young youth to get outdoors, experience Menifee's local parks and try new activities with community staff in a safe and active environment. The program takes place in La Ladera Park, Audie Murphy Park, Spirit Park, and Silverstar Park.

Summer Slimdown

Summer Slimdown is a 30-day program open to all ages and is designed to challenge residents to lose weight or tone up. The program includes meal plans, fitness workouts, daily workouts and mini challenges. Participants can workout at their own pace. All exercises can be modified to meet individual needs. The program is hosted by the City of Menifee and Kate Anderson Fitness.

Lazy Creek Recreation Center

The Lazy Creek Recreation Center is where kids can find fun activities all-year round. The City of Menifee officially attained ownership of the Lazy Creek Recreation Center on July 1, 2014. Originally, built as a homeowner's clubhouse, the building was turned into the County of Riverside Lazy Creek Recreation Center and opened in 1989 with a few programs and classes. Today, the City of Menifee offers a variety of programs, camps, and events year-round for all ages to enjoy including Summer Adventure Camp and Tiny Tots Summer Camp.

Kay Ceniceros Senior Center

The Kay Ceniceros Senior Center was originally constructed in 1990 and includes two large multi-purpose rooms and two smaller classrooms that are available for residents and interested community groups to rent. A wide variety of classes, programs, and activities are offered to senior residents as well as residents of all ages including T'ai Chi, Bereavement Group, Chair Volleyball, Chess, Computers 101, a Walking Club and more. Other programs and activities include the Free Senior Nutrition Program, opportunities for volunteers, a variety of exercise and dance classes, as well as special events throughout the year.

Menifee Better Together

Every year, the City of Menifee, Quail Valley, and Sun City Communities are enhanced by enormous volunteer efforts during the annual Menifee Better Together Event. Hundreds of volunteers come together to clean up and beautify these areas of the City with the help of local partners including Habitat for Humanity. This annual event gives residents the opportunity to get outside, get active, and get involved in their own community.

Kay Ceniceros Senior Center

Menifee
BETTER TOGETHER
SERVE | PRESERVE | UNITE

Menifee Better Together logo

Skates and Sounds at Audie Murphy Ranch Skatepark

The City of Menifee presents a new free monthly event at the Audie Murphy Ranch (AMR) Skatepark. The Skates & Sounds event is held every last Saturday of the month. The event features skate and scooter competitions for different age groups, games, giveaways, and music.

Riverside Bicycle Club

Membership in the Riverside Bicycle Club is open to everyone. It is a fun way to meet others who share the enjoyment of cycling. Seasoned racers, mountain bikers, and recreational riders are welcome. The club offers multiple rides at different paces and terrain, off road rides, monthly membership meetings, and other social events throughout the year.

Inland Valley Mountain Bike Association (IVMTB)

The Inland Valley Mountain Bike Association (IVMTB) is a non-profit organization located in Western Riverside County, California. The association is dedicated to the development and care of sustainable, multiple-use trails while fostering a community that participates in healthy activities, preserving the environment and stimulating the local economy through advocacy, education and participation. The association is made up of mountain bike riders of all ages, skill levels and disciplines. Members thrive on educating others on the benefits of mountain biking, the responsible use of trails, how to increase riding skills, and encourage camaraderie within the mountain bike community.

Cycling Connection

Cycling Connection is a multi-level recreational bicycling club. The club hosts a variety of weekend rides throughout the Inland Empire area. The length of their rides average from 30-70 miles in distance. They offer two levels of riding groups- level one riding average is from 16-18mph and the level two's riding average is from 13-15mph. As a club, they believe that "no rider is left behind" and regroup after rides to ensure that everyone makes it back safely.

Audie Murphy Ranch Skatepark

Menifee Bicycle, Inc. Shop

EDUCATION • PARTICIPATION
INLAND VALLEY MOUNTAIN BIKE
ASSOCIATION
IVMTB.ORG

Inland Valley Mountain Bike Association logo

CHAPTER 5
BEST PRACTICES TOOLKIT

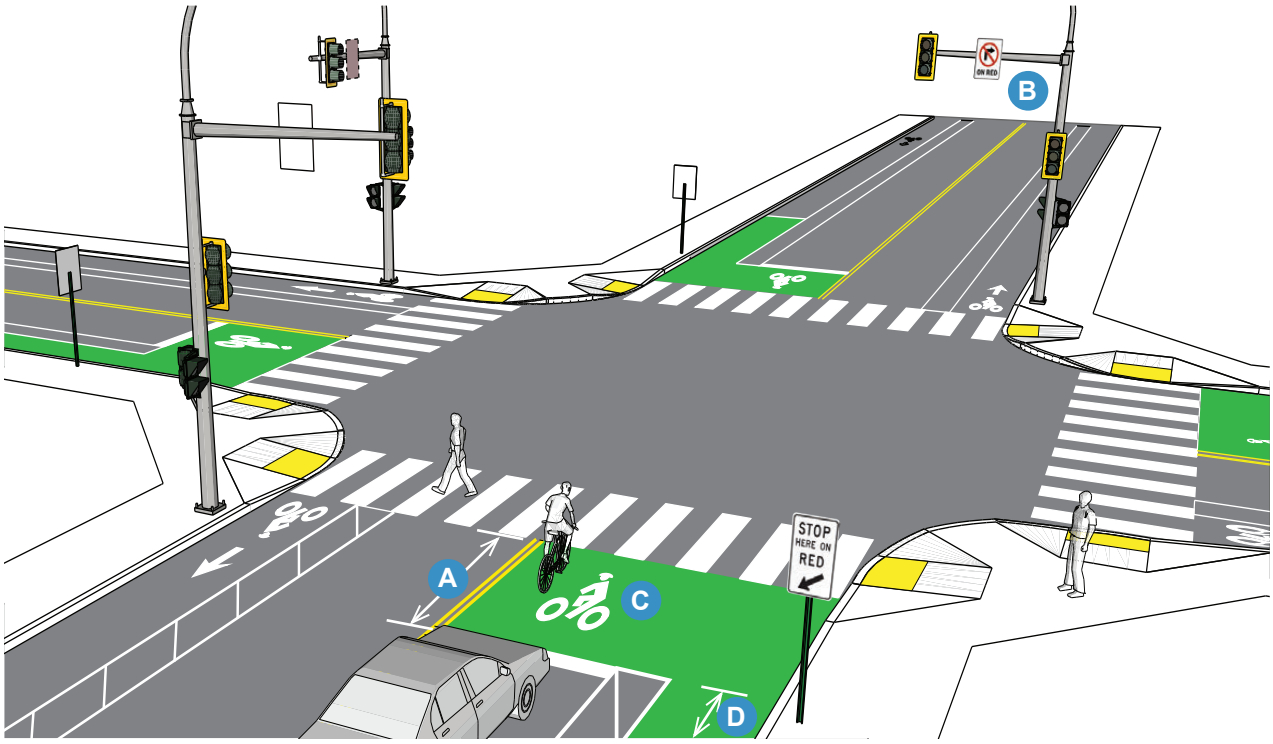
Bicycle Treatments

Pedestrian Treatments

Emerging Technologies

BIKE BOX

Bike Boxes may be used at signalized intersections to designate an area for bicyclists to wait ahead of traffic during red signal phases to increase visibility.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Typically 10 -16' deep, and stop lines should be used to indicate where motor vehicles should stop during a red signal.
- **B** A "No Turn on Red" sign should be used with bike boxes to prevent vehicles from entering the Bike Box area during red phase.
- **C** A bicycle symbol shall be placed within the center of the Bike Box where bicyclists are intended to queue.
- **D** At least 50' of bike lane should be provided on the approach to the Bicycle Box.

REFERENCES

- NACTO, *Urban Street Design Guide*
- NACTO, *Urban Bikeway Design Guide*
- FHWA, *Interim Approval for the Optional Use of Intersection Bicycle Boxes IA-18*

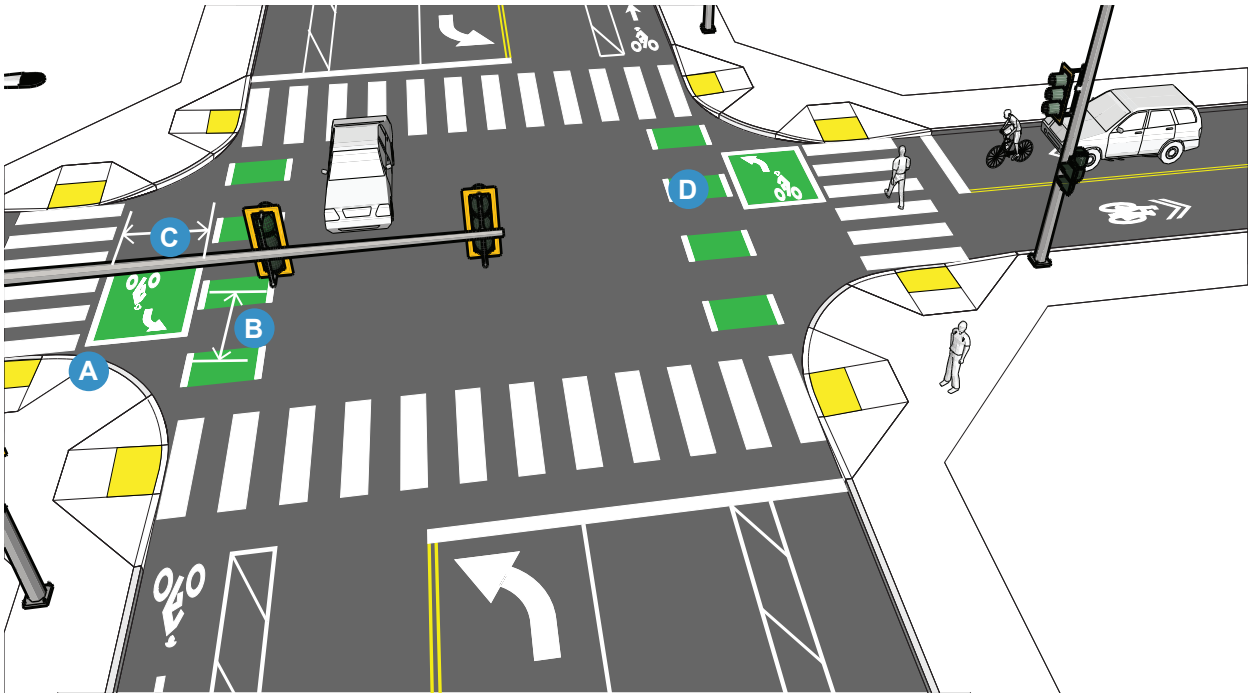
OTHER CONSIDERATIONS

- Bike Boxes may be appropriate at intersections of major roadways where a separate right-turn lane is not present. Positioning bicycles ahead of traffic can reduce "right-hook" conflicts of turning vehicles.
- Bike Boxes provide additional separation and comfort levels for pedestrians.
- Bicyclists should only use the Bike Box to get ahead of vehicles during a red phase.

Source: Courtesy of Greg Ralsman

TWO-STAGE BICYCLE TURN BOX

A Two-Stage Bicycle Turn Box should be considered where bike lanes or protected bikeways continue to an intersection and a protected intersection is not provided. Two-Stage Bicycle Turn Boxes provide a safe space outside the path of travel for bicyclists to make a two-stage left turn at a signalized intersection from a right-side bike lane or protected bikeway, or a right turn from a left-side bike lane or protected bikeway.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Bicycle queuing areas shall be designated with a bicycle stencil and turn arrow and bounded by a solid white line on all sides.
- **B** The queue box should be at least 10' long.
- **C** The queue box should be at least 6.5' wide.
- **D** Dashed bike lane extension marking or green conflict markings may be used to indicate the path of travel across the intersection.
- A "No Turn on Red" sign must be installed within jurisdictions that permit right turns on red signal indications.

REFERENCES

- NACTO, *Urban Bikeway Design Guide*
- FHWA, *Interim Approval for the Optional Use of Two-Stage Boxes Bicycle Turn Boxes IA-20*

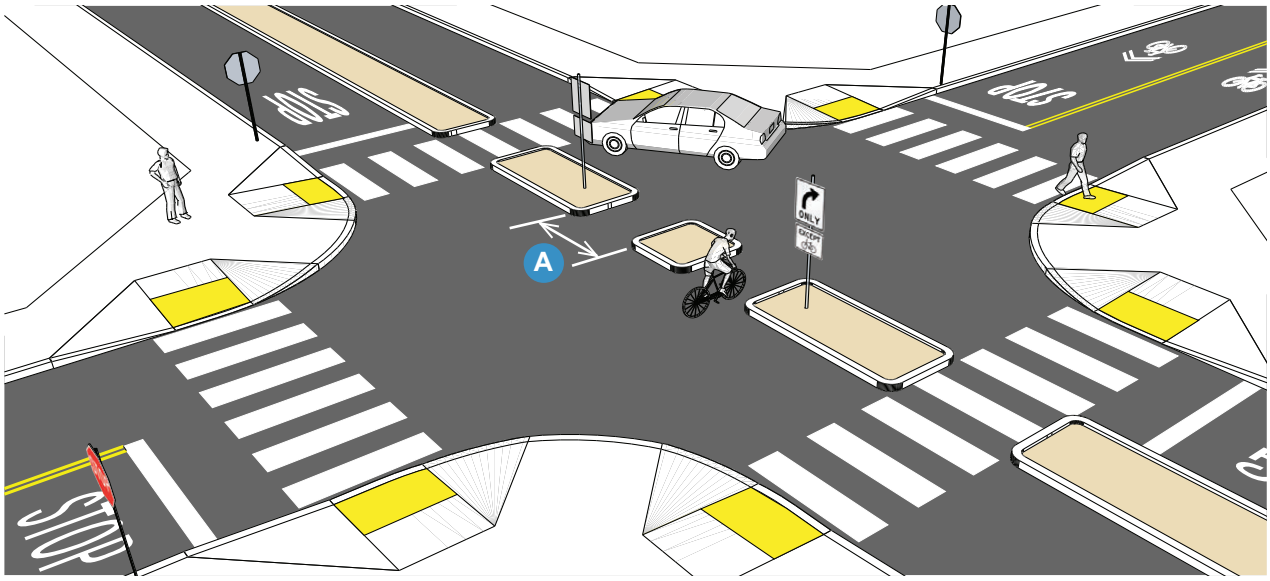
OTHER CONSIDERATIONS

- Two-Stage Bicycle Turn Boxes should be placed in a protected area, within an on-street parking lane, between the bicycle lane or bikeway and the pedestrian crossing, or as a "jughandle" turn cutting in to the sidewalk space (applicable for offset of T intersections).
- This configuration results in increased delay for bicyclists, as they must now receive two separate green signal indications.
- Two-Stage Bicycle Turn Boxes are typically installed on high volume or high-speed roadways, or where a significant number of bicyclists make left turns.

Source: NACTO, Transit Street Design Guide

DIVERTERS

Diverters are a form of volume management used to reduce or discourage through vehicle traffic on bicycle boulevards, streets with low motorized traffic volumes and speeds designed to provide priority to bicyclists or to prevent cut-through traffic on residential/local roadways. Diverters force vehicular turning movements and close road entrances to vehicles while allowing passage for bicyclists and pedestrians. Diverters can be installed in the form of channelized islands, partial road closures, median islands, diagonal medians requiring turning movements, or full road closures.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Bicycle access shall be provided via a 5-6' minimum opening between vertical curbs.
- Diverters should be signed appropriately to alert drivers of emerging pedestrians and bicyclists and modified traffic patterns.
- Diagonal, median, and forced-turn diverters should have sufficient widths to allow single-unit trucks to complete turning movements.
- The design of diverters should consider emergency vehicle and neighborhood access – if provided, 10' of clear space is required for emergency vehicles.

REFERENCES

- NACTO, *Urban Street Design Guide*

OTHER CONSIDERATIONS

- Diverter implementation should be part of a larger strategy for traffic calming.
- Diverters and other volume management strategies are commonly used to reduce vehicular volumes along potential bicycle boulevards to under 1,500 vpd.
- Corridors identified for diverter implementation should have parallel alternative options for through traffic, typically in areas with a grid street system.

Source: Silicon Valley Bicycle Coalition

BIKE SIGNALS

Bike signals are used at signalized intersection to indicate an additional phase for bicyclists to navigate through the intersection without conflicting with vehicular movements. Bicycle signal heads are typically smaller than vehicular signal heads, and contain the same red, yellow and green indicators with bicycle shaped plates in front of the lenses.

Source: NACTO, Urban Bikeway Design Guide

DESIGN FEATURES

- Typically the bicycle phase will not be on recall for each cycle. Therefore, bicycle detection shall be installed for Bike Signals.
- Bike Signal clearance intervals should be calculated assuming a speed of 14 feet per second.
- A BICYCLE SIGNAL sign should be installed to increase visibility of the Bike Signal.
- No turn on red signs should be installed if the Bike Signal phase would conflict with a right turn movement.
- Bike Signals can be used to create a lead bike interval ahead of the vehicle through movement similar to a Lead Pedestrian Interval.
- While a far-side Bike Signal is required, a near-side Bike Signal is optional for improved visibility.

OTHER CONSIDERATIONS

- Passive detection methods such as loop or video detection is preferred over active detection such as push buttons so bicyclists don't have to dismount. Push button extenders are an option for avoiding dismounting.
- Advance bicycle detection should also be considered to allow continuous bicycle through movements along a premium bicycle corridor.

Source: NACTO, Urban Bikeway Design Guide

REFERENCES

- NACTO, *Urban Bikeway Design Guide*
- AASHO, *Guide for the Development of Bicycle Facilities*

CLASS I BIKE PATHS

Class I Bike Paths and Shared-Use Paths are two-way facilities dedicated to non-motorized users with an alignment independent of the roadway system. The Class I Paths are typically installed along bodies of water, utility rights-of-way, abandoned railroad rights-of-way, or within schools, parks, or planned developments.

Source: Google Earth

DESIGN FEATURES

A. The paved width of a Class I Bike Path shall be 8' minimum (acceptable only at constrained locations), 10' preferred for two-way travel. If the path is anticipated to accommodate high volumes of non-motorized users, the preferred width is 14'. The minimum paved width for a one-way Bike Path shall be 5'.

B. A minimum 2' shoulder shall be provided on either side of the Bike Path.

C. A minimum 2' clearance from the edge of pavement to any obstructions should be provided, 3' is preferred.

- Pavement markings and signing can be used to designate direction of travel or speed of travel.
- Class I Paths must be designed to be accessible per ADA requirements.

REFERENCES

- California Highway Design Manual, *Chapter 1000*

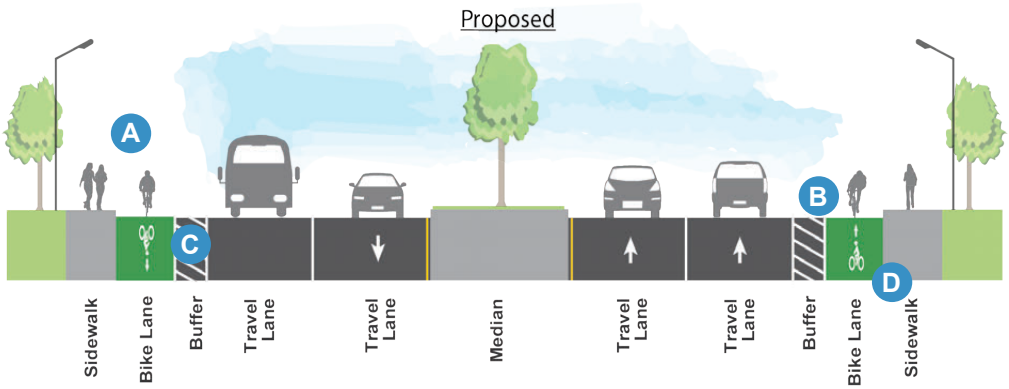
OTHER CONSIDERATIONS

- Path entrances should be designed to prevent entry from vehicles. Design options such
- A Class I Path differs from a trail in that it is required to be paved.
- A sidepath differs from a Class I Path in that the sidepath runs parallel to a roadway.
- If an adjacent sidewalk is provided, pedestrians are required to use the sidewalk, and the Class I Path would be dedicated to bicycles only.
- Lighting for bicycle paths is important and should be considered where nighttime use is not prohibited

Source: San Gabriel Valley Bike Master Plan

CLASS II BIKE LANES

Class II Bike Lanes are one-way facilities that dedicate right-of-way to bicyclists within the roadway using a combination of pavement markings and signing. Bike Lanes should include buffer space whenever feasible to separate bicyclists and vehicles.



Source: Kimley-Horn and Associates

DESIGN FEATURES

A Width of a Class II bike lane should be 5' minimum, 6' preferred. The width should not exceed 8' to avoid confusion for a vehicle travel lane. The width of the bike lane should not include the gutter pan.

B Horizontal buffers should be provided and should be a minimum of 2', 3' preferred.

C Diagonal cross hatching at 45 degree angles should be provided within the buffer spaced 20'-40' apart.

D Bike Lane markings should be installed at the beginning of every block, and at regular intervals along lane.

- Bike Lanes should be provided on streets with moderate traffic volumes and relatively low travel speeds. Class IV Bikeways should be considered on roadways with volumes over 10,000 ADT and speeds over 30 MPH.
- Bike Lanes should be designed and installed according to the latest version of the CA MUTCD.

OTHER CONSIDERATIONS

- Buffers can be installed between the bike lane and vehicle travel lane, or between the bike lane and parking lane.
- Bike Lanes are typically found on the right side of the roadway, but can be installed on the left side.
- Bike Lanes are typically installed in the same direction of vehicle travel, but can be contra-flow.

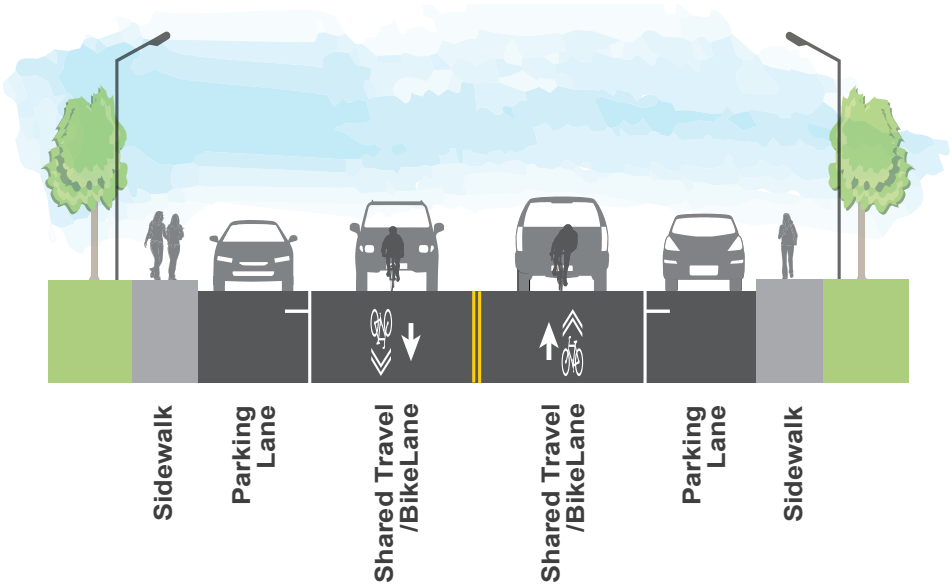
Source: Google Earth

REFERENCES

- California Highway Design Manual, Chapter 1000
- CA Manual on Uniform Traffic Control Devices, 2014, Revision 5

CLASS III BIKE ROUTES

Class III Bike Routes are designated routes on low speed, low volume roadways that do not necessitate dedicated space for bicyclists where bicyclists and motorists are expected to share the road. These roadways can be designated as bicycle boulevards with enhancements including signing and pavement markings, volume management strategies such as diverters, and speed management strategies such as neighborhood traffic circles.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- At a minimum, signing should indicate the roadway is a Bike Route, and sharrows should be provided immediately after an intersection and at regular intervals (250' minimum) along the route.
- Sharrows should be placed where bicyclists should travel within the shared lane.
- Bike Routes should be continuous (at least 2 miles long) and have minimal turns
- Bike Routes should be implemented on streets with very low traffic volumes and travel speeds. Bike Routes should not be considered on roadways with volumes over 3,000 ADT and speeds over 25 MPH, unless traffic volume and speed management strategies are proposed and anticipated to achieve these thresholds.
- Bicycle boulevards should be designed to prioritize bicycles at intersections.

OTHER CONSIDERATIONS

- Sharrows not only indicate to a bicyclists where to ride in the lane, but also remind motorists that bicyclists can be expected to be traveling in the roadway.
- Sharrow chevrons can be angled to provide route guidance if the route makes a turn on a new roadway.

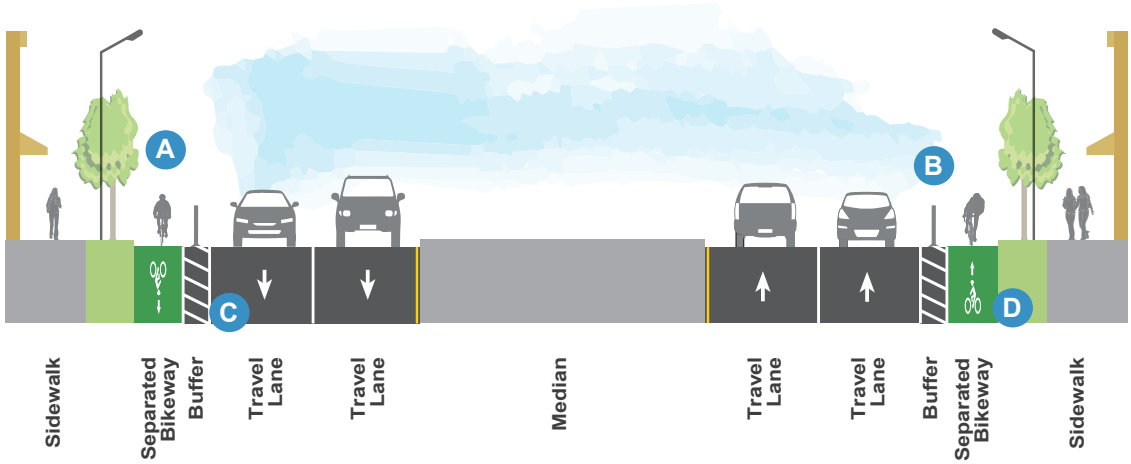
Source: BG Independent Media

REFERENCES

- California Highway Design Manual, *Chapter 1000*
- CA Manual on Uniform Traffic Control Devices, 2014, Revision 5

CLASS IV BIKEWAY

Prior to implementation of a Class IV bikeway, a feasibility study should be performed by a PE/TE to ensure proper design and location of this type of facility. Class IV Bikeways, commonly referred to as cycle tracks, are on-street bike facilities that includes horizontal buffer separation from vehicles, similar to a Class II Bike Lane, as well as vertical separation from vehicles to improve the comfort and safety of bicyclists. Class IV Bikeways can be one-way or two-way facilities.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Width of a one-way Class IV Bikeway should be 5' minimum, 7' preferred. Width of a two-way Bikeway is 10' minimum, 12' preferred. The width of the Bikeway should not include the gutter pan.
- **B** The Bikeway shall include a vertical element to separate bicyclists and vehicles such as a raised facility, flexible posts or similar, an inflexible barrier, on-street parking, or a raised island. When parking vehicles are used as vertical separation, the facility is commonly referred to as a parking-protected bike lane.
- **C** Horizontal buffers should be provided and should be a minimum of 2', 3' preferred, except where the on-street parking is provided, in which case the minimum horizontal separation is 3'.
- **D** Bikeway markings should be installed at the beginning of every block, and at regular intervals along lane.
- Bicycle Signals are required for Class IV Bikeways at most signalized intersections.
- Shifts in the Bikeway alignment should use a minimum 5:1 approach taper transition, 10:1 taper is preferred.
- For two-way Class IV Bikeways, a solid yellow line shall be installed to separate the two directions of travel.

OTHER CONSIDERATIONS

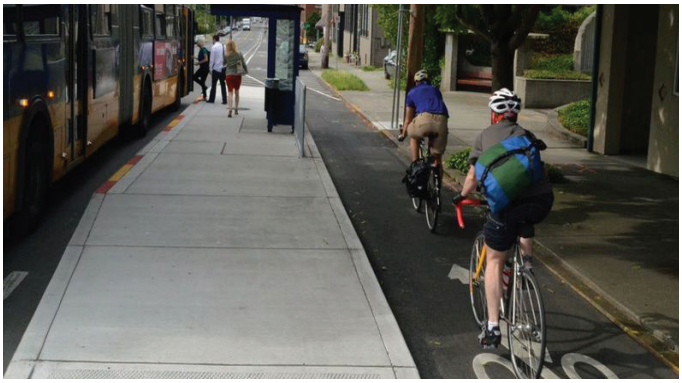
- Raised Bikeways should be designed to accommodate drainage.
- Raised Bikeways are required to transition to the roadway at intersections and driveways.
- Maintenance of Class IV Bikeways is extremely important since entering and exiting the bikeway is limited for bicyclists.
- Two-way Bikeways are typically installed on stretches of roadway with few driveways or intersections.

REFERENCES

- California Highway Design Manual, *Chapter 1000*
- CA Manual on Uniform Traffic Control Devices, 2014, Revision 5
- FHWA, *Separated Bikeway Design Guide*

BIKE TREATMENTS - TRANSIT

Bicyclists and transit often use the same travel corridors; therefore, it is important to ensure bicyclists and transit vehicles integrate safely and efficiently by providing bicyclists safe and accessible routes. Strategies such as floating bus islands, left-side bike lanes, and shared bus-bike lanes are strategies that can be implemented to eliminate or reduce the conflict zones between buses and bicycles.



Source: NACTO, Transit Street Design Guide

DESIGN FEATURES

Floating Bus Islands

Where feasible, bike lanes should be routed behind bus stops by constructing a floating Bus Island, a dedicated waiting area that improves accessibility for transit passengers and bicyclists by creating an area separated from the sidewalk by a bike path or bike lane. This design may be used at locations where the transit vehicle may stop in a travel lane. Separating bicycles from bus flow also eliminates "leapfrogging" which improves bicyclist comfort and bus operating speeds.

- The loading area is typically 8' wide by 5' long at a minimum. The loading area must at least span the length of the front door and rear door of a typical bus, but may be longer at high capacity stations to accommodate people waiting.
- Bus Islands must be designed to a height that permits accessible boarding
- The bike facility may be at street level or raised to sidewalk level. If raised, there should be some delineation such as pavement markings or paving materials to differentiate the two spaces.
- Pedestrian crossings should be provided in the bike lane with yield lines to indicate bicyclist must yield to pedestrians.
- Shelters should be located at least 10' from crosswalks over the bike lane to allow visibility between people on bicycles and people exiting the island.

Left-Side Bike Lanes

Left-Side Bike Lanes are typically installed on one-way streets or two-way median divided streets that have frequent bus stops or truck loading zones on the right side.

- Bike lanes located on the left side of the street minimize bicycle-transit conflicts.
- Conventional bike lane design guidelines apply to this treatment.
- Signage should accompany left-side bicycle lanes to clarify proper use by bicyclists to reduce wrong-way riding.
- A "Yield to Bikes" sign should be installed in advance of and in conjunction with a left turn lane to reinforce that bicyclists have the right-of-way going through the intersection.

Source: NACTO, Transit Street Design Guide

DESIGN FEATURES (CONTINUED)

Shared Bus-Bicycle Lanes

Shared Bus-Bike Lanes can accommodate both bicyclists and buses on low speed streets with moderate bus headways. On streets without dedicated bicycle infrastructure, curbside bus lanes may be appropriate for bicycle traffic.

- Pavement markings should include a solid white line and BIKE BUS ONLY marking.
- Buses must operate on the right side of the lane and pull to the curb at stops when possible.
- Install signs permitting buses and bicycles and excluding other traffic
- Typical width of a shared bus-bike lane is 11' for offset lanes, and 12' for curbside lanes.
- Sharrow pavement markings should be placed in the center or left side of the lane.

OTHER CONSIDERATIONS

- Floating Bus Islands are the preferred treatment for bus and bike lane conflict zones, however, constrained roadway widths will not always be able to accommodate this treatment.
- Consider Left-Side Bike Lanes on one-way streets with high parking turnover, rush hour parking restrictions, high volume of right turn movements, or on streets where traffic enters into an add lane on the right-hand side, as from a freeway off-ramp.
- Colored pavement may be used along the facility to draw attention to the unique function of the lane, or within conflict areas for increased visibility of bicyclists.

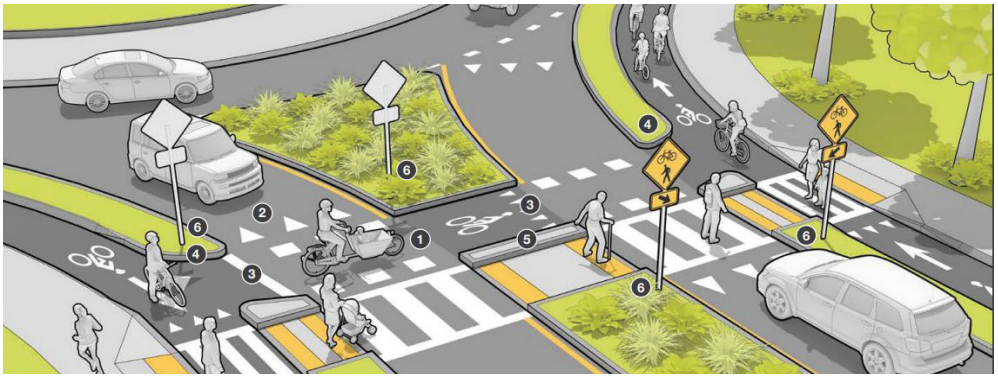
REFERENCES

- NACTO, *Urban Bikeway Design Guide*
- NACTO, *Transit Street Design Guide*
- FHWA, *Separated Bike Lane*
- Better Market Street SF, *Best Practices – Transit and Bicycle Integration*
- MassDOT, *Separated Bike Lane Planning & Design Guide*

BIKE TREATMENTS - ROUNDABOUT

Roundabouts need to be designed to be able to accommodate bicyclists and pedestrians. There are many ways to accommodate bikes at roundabouts including:

- Shared-use (in-road) - bike lanes will end just before the roundabout and allow bicyclists to merge with traffic,
- Shared-use (sidewalk) - bicycle ramps may be provided so that bicyclists can share the sidewalk and travel through the pedestrian crosswalks, or
- Separated facility - separated bikeways can be provided adjacent to the roundabout, allowing a continuous path along the roadway.



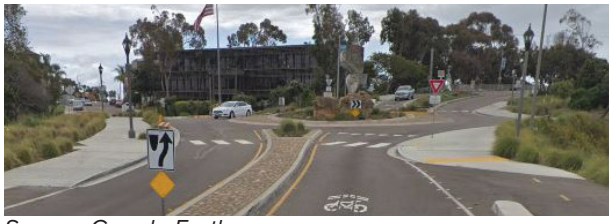
Source: MassDOT Separated Bike Lane Planning and Design Guide

DESIGN FEATURES

- A well-designed roundabout should have proper operating speeds in order for bicyclists to maneuver through the roundabout comfortably in mixed traffic.
- Bike lanes should stop at least 100' before the crosswalk if provided, if there are no crosswalks provided at least 100' before the yield line. Bicyclists would either merge into the travel lane or use a bike ramp at this point.
- If bicyclists are expected to merge into the travel lane, sharrows should be provided at the merge point. Sharrows shall be provided within the circulatory lane of the roundabout.
- Separated bikeways can continue along the side of the of the roundabout with crossings that are similar and sometimes adjacent to pedestrian crosswalks.
- Motorists approach the crossings at a perpendicular angle, maximizing visibility of approaching bicyclists.

OTHER CONSIDERATIONS

- Single-lane roundabouts provide safety, and operational benefits of a roundabout with a smaller footprint and lower cost and have higher yielding rates than multilane roundabouts.
- Multilane roundabouts tend to have higher vehicle speeds and create more conflicts between bicycles, pedestrians, and vehicles.



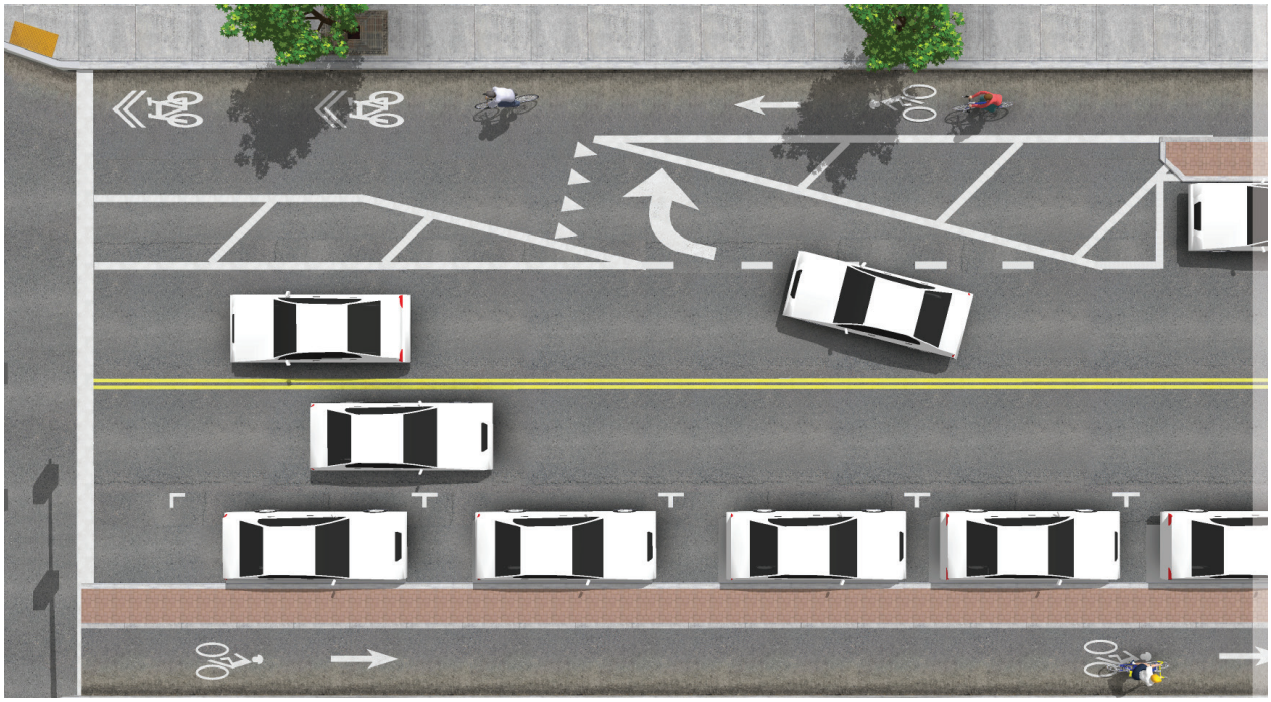
Source: Google Earth

REFERENCES

- FHWA, *Bicycle Safety Guide and Countermeasure Selection System*
- CA Manual on Uniform Traffic Control Devices (CA MUTCD), 2014, Revision 5, *Part 9*
- MassDOT, *Separated Bike Lane Planning and Design Guide*

MIXING ZONES

Mixing Zones, also referred to as Combined Bike Lane / Turn Lanes are designated areas in which turning motorists are required to merge with bicyclists in advance of an intersection or driveway. Mixing Zone treatments are installed to establish a defined merge space, limit bicyclists exposure to vehicles, and provide guidance for both users. Many treatments require a buffered bike lane or protected bikeway to transition into a shared use lane or merging zone.



Source: NACTO Urban Bikeway Design Guide

DESIGN FEATURES

- A Mixing Zone should be clearly defined using flex posts, warning signs, pavement markings, or pavement coloring.
- A buffer space should be considered before the Mixing Zone area to increase reaction time before a maneuver.
- Minimizing entrance speed into the Mixing Zone can be accomplished by limiting the merge area and allowing a smaller turn pocket.
- On-street parking should be prohibited 30'-50' prior to the Mixing Zone.
- Bike lane markings or sharrows shall be used to indicate the ideal position of the bicyclists through the Mixing Zone. If a bike lane is provided within the shared lane, the minimum width of the bike lane should be 4'.

OTHER CONSIDERATIONS

- Mixing Zones are not generally favorable over a protected intersection design but may be a design alternative if space is limited.
- A Mixing Zone may not be recommended for a location that experiences high vehicular right-turn volumes.
- Mixing Zones are not be appropriate in locations where there are two-way bike lanes or contraflow bike lanes.

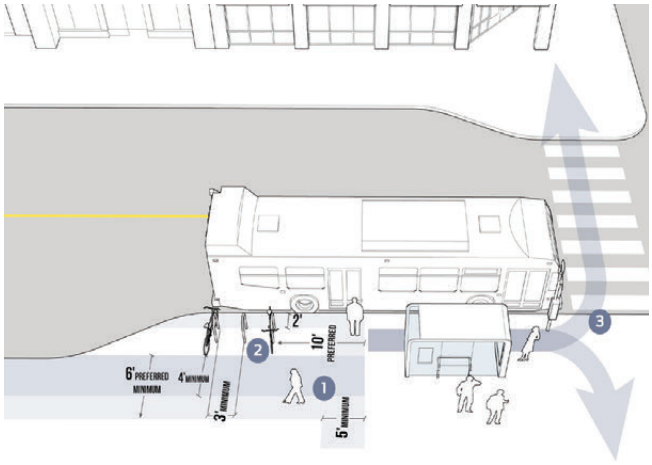
Source: SFMTA

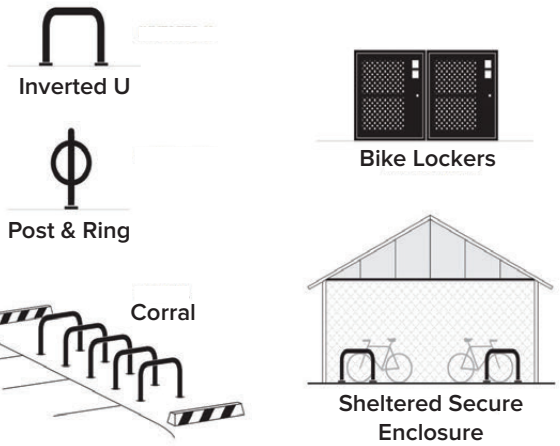
REFERENCES

- NACTO, *Urban Bikeway Design Guide*

BIKE PARKING

The availability, location, and design of bicycle parking is essential to a successful multi-modal transportation system. Well-designed bicycle parking has the benefit of both preventing theft and creating an orderly appearance to sidewalks and building sites. The availability of bike racks that are conveniently located and functional make the overall experience of bicycling more enjoyable. The most common types of bike parking are the inverted U-rack and the post and ring rack. Bike lockers and secure shelters provide long-term bike parking options.





Source: NACTO Urban Bikeway Design Guide

DESIGN FEATURES

Bike Racks

- Racks should allow the frame and one or both wheels to be secured.
- Racks should be spaced appropriately from curbs, building walls, and other racks to allow ease of access and use of both sides of the rack. Minimum of 3' spacing between racks, 2' from edge of sidewalk, with at least 4' of unobstructed sidewalk space.
- Various designs of Bike Racks may be used if they provide the same level of security, with the "inverted U" style being one of the most simple and effective.

Bike Corrals

- Corrals can be used where sidewalk space is limited and bicycle activity is strong (e.g., downtown areas).
- On-street parking spaces may be used as a bike parking corral, which can accommodate 8-12 bikes.

Bike Lockers

- Bike Lockers provide long-term parking with increased security, and are typically installed at park-and-ride or transit stations.
- Bike Lockers can be metal boxes with individual keys, a room with residential or employer access, or a secure enclosure within a parking garage.

OTHER CONSIDERATIONS

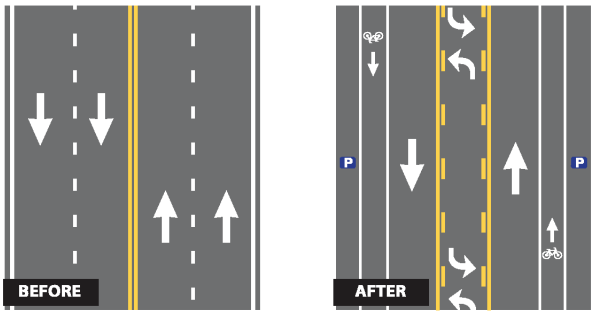
- Bike parking should be easily accessible from the street and protected from motor vehicles.
- Racks should be installed in an area visible to passers-by to enhance security and comfort of use.
- Bike parking should not block access to buildings

REFERENCES

- NACTO, *Transit Street Design Guide*
- APBP, *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works*

ROAD DIETS

A Road Diet is a design technique that involves changing the cross-section of a roadway by reducing the number of vehicle travel lanes available and reallocating roadway space for other travel modes or uses. Improvements can include physical changes to the cross-section geometry or restriping of the roadway. Road Diets are often used as a traffic calming measure that enhance the pedestrian and bicycle environment.



Source: FHWA, Road Diet Case Studies

DESIGN FEATURES

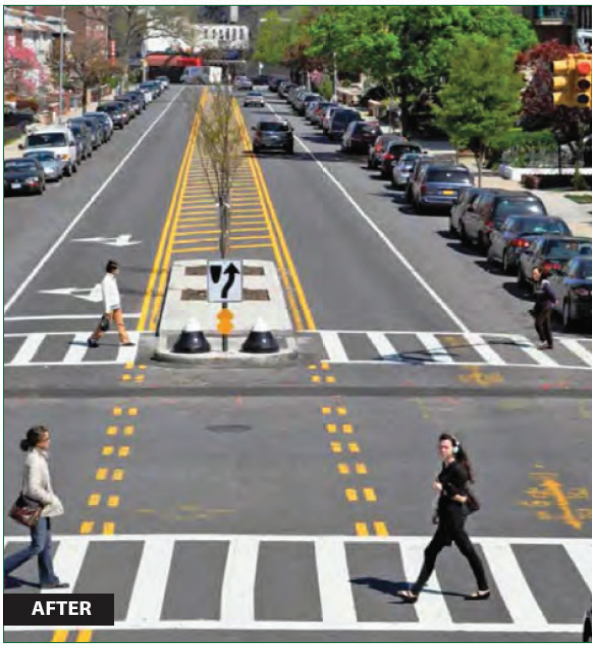
- The most common design change involved with a Road Diet typically includes the implementation of a striped two-way left-turn lane. A dedicated left-turn lane can reduce operating speeds and decrease the number of travel lanes required to cross during a left-turn movement.
- Roadway space gained during a Road Diet can be allocated to bike lanes, pedestrian sidewalks, on-street parking, or shoulder space, among other uses.
- Roadways with less than 15,000 ADT are typically good candidates for a four- to three-lane road diet. Roadways with between 15,000 and 20,000 ADT are good candidates for a feasibility study to determine if a 4- to 3-lane Road Diet could be implemented. Road diets have been implemented on roadways with up to 24,000 ADT.

REFERENCES

- FHWA, *Road Diet Informational Guide*
- FHWA, *Road Diet Case Studies*

OTHER CONSIDERATIONS

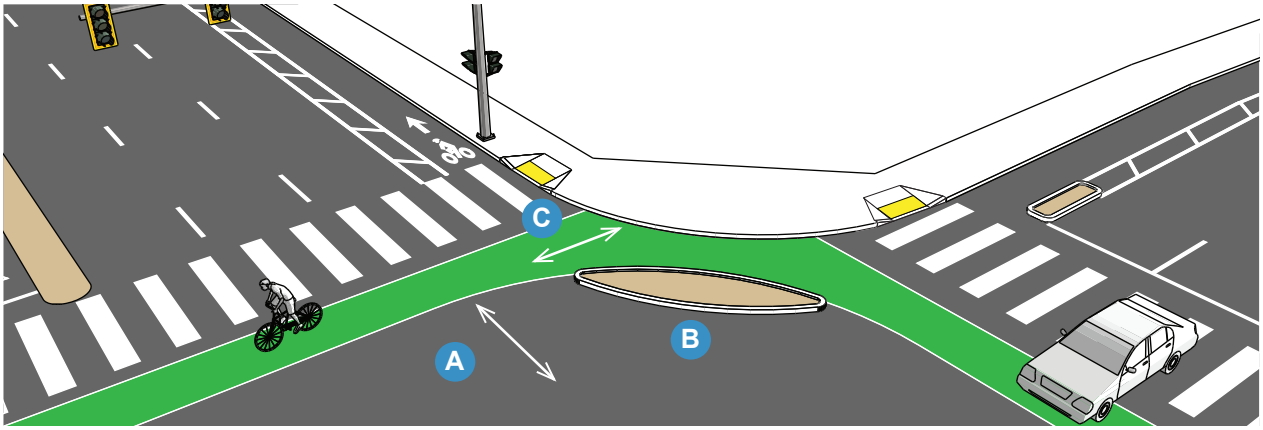
- Road Diets typically result in dedicated space for bicyclists, more separation between vehicles and pedestrians, and shorter crossing distances for pedestrians.
- The implementation of a Road Diet may reduce the available road capacity because of the reduced number of travel lanes; however, if an undivided roadway had no prior designated left-turn lanes the capacity reduction may not be drastic since previous left-turn movements may have caused congestion.
- Traffic volume, vehicle speed, number of collisions, transit stops, and accessibility may all be factors to consider when determining the feasibility of a Road Diet.
- The quality of service provided by a road should be assessed by bicyclist, pedestrian, transit user, and driver experience.



Source: FHWA, Road Diet Case Studies

PROTECTED/DEDICATED INTERSECTIONS

A Protected Intersection is a specific intersection treatment that limits the conflict zone by separating motor vehicles, pedestrians, and bicyclists. Dedicated Intersections provide dedicated paths for bicyclists through the intersection when there is not sufficient space for a full setback, as created in Protected Intersections. Both Protected Intersections and Dedicated Intersections are most commonly found on streets with buffered or separated bike facilities.



Source: Kimley-Horn and Associates

DESIGN FEATURES

Protected Intersections:

A The bikeway setback dimension determines most other dimensions of the protected intersection. A setback of 14' – 20' is preferred, with a minimum of 10'. Setbacks smaller than 12' may require longer clear distances and speed reduction strategies. The setback increases the visibility of pedestrians and bicyclists due to the angle at which a vehicle approaches the crossings, and allows a turning vehicle to yield to a pedestrian or bicyclists and queue without blocking through traffic.

B Corner island radii should discourage passenger vehicles from turning at faster than 10 mph – this is typically accomplished with a 10' – 20' curb radius.

C Bike queue areas must be at least 6.5' deep, but 10' dimensions are desirable.

- No stopping zones should be long enough to provide visibility for both bicyclists and drivers – in many cities, this zone is 20' – 30' long.
- Signage and/or pavement markings to designate right-of-way and proper yielding for vehicles and bicyclists is desired.
- A Protected Intersection must design corner radii and vertical features considering selected design (largest typical vehicle user), control (largest infrequent vehicle user), and managed (most common vehicle user) vehicles. A mountable apron or device may be desirable.

Dedicated Intersections:

- Vertical Elements are recommended for use in the buffer
- Dedicated Intersections can be paired with Leading Bike and Pedestrian Interval traffic signal movements to increase safety and reduce bicycle – vehicle conflict
- Buffer markings can help maintain a safe distance between vehicles and bicyclists. Buffer markings are recommended to be 2' – 4' wide.

Source: NACTO, Don't Give Up at the Intersection

OTHER CONSIDERATIONS

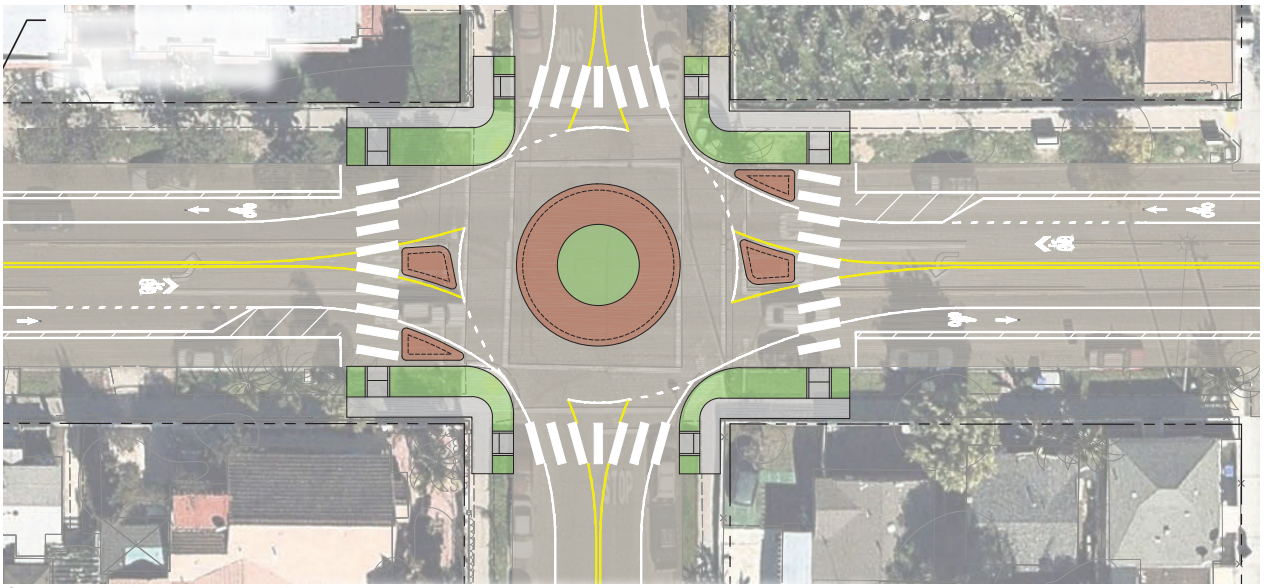
- Protected/Dedicated Intersections can be paired with existing bicycle/pedestrian strategies to create seamless movement through intersections for all users.
- Protected/Dedicated Intersection designs work best when both intersecting roadways provide bike lanes or separated bikeways.
- Vehicle setbacks are typically much longer at protected and dedicated intersections than conventional intersections.
- If a dedicated right turn lane is required due to high turning movement volumes, a protected turn signal phase is recommended.
- Traversable separation, meaning flush buffers, should be considered to allow riders the option to exit the bike lane upstream of an intersection.
- Protected Intersection elements may not always be feasible at all approaches to an intersection, and can be implemented on some intersection legs and not others.

REFERENCES

- NACTO, *Dont Give Up at the Intersection*

TRAFFIC CALMING

Traffic Calming is a way to promote responsible motorist behavior and safe driving speeds through street design without relying on traffic control devices such as signals, signs or police enforcement. If implemented correctly, these design strategies can reduce the number and severity of crashes, as well as noise level for adjacent land uses. The Traffic Calming strategies should be predictable and easy to understand by all road users.



Source: Kimley-Horn and Associates

DESIGN FEATURES

Neighborhood Traffic Circles:

- Neighborhood Traffic Circles are raised or delineated islands placed at intersections that reduce vehicle speeds by narrowing turning radii, narrowing the travel lane, and, if planted, obscure the visual corridor along the roadway. Islands can consist of raised medians or can be a combination of striping and low-cost vertical separation devices such as flexible delineators.
- A mountable curb may be installed along the outer portion of the circle to accommodate larger vehicles going through the intersection (e.g., fire truck or moving van).
- Traffic Circles are considered a horizontal deflection measure. Without adequate deflection, motorists can pass through the traffic circle without lowering vehicle speed.

Chicanes:

- Chicanes are a series of raised or delineated curb extensions or edge islands on alternating sides of a street forming an S-shaped travel way.
- Curb extensions and edge islands should be tapered at 45 degrees.
- Edge lines should be marked to designate the travel lane.
- Chicanes may require drainage design, and may have a 1’ to 2’ gap from the curb to resolve drainage issues.

Chicanes (Continued):

- Signing may be used to alert drivers of a downstream shift in the roadway alignment.
- Chicanes often require parking removal, but may allow for public space and street activation.

Raised Intersections:

- Raised intersections involve elevating an entire intersection to the level of the adjacent sidewalk and ramping each approach to the intersection. The raised portion is the width of the intersection and should extend 10-15' on each leg.
- Signing may be added to encourage vehicles to slow down and yield to pedestrians.
- Tactile warning strips shall be added at edges to enable site impaired people to detect the crossing.
- Raised Intersections can be built with a variety of materials including asphalt, concrete or pavers.
- The crosswalks on each approach are also elevated as part of the treatment, to enable pedestrians to cross the road at the same level as the sidewalk.
- Bollards or other vertical separation device should be installed at the intersection corners to prevent vehicles from driving onto the sidewalk.

OTHER CONSIDERATIONS

- Successful implementation often involves local neighborhood participation to best identify issues and educate users on the intent of the new design.
- A variety of techniques may be used together and are typically most effective when spaced appropriately throughout an entire roadway length.

Source: NACTO, Urban Street Design Guide

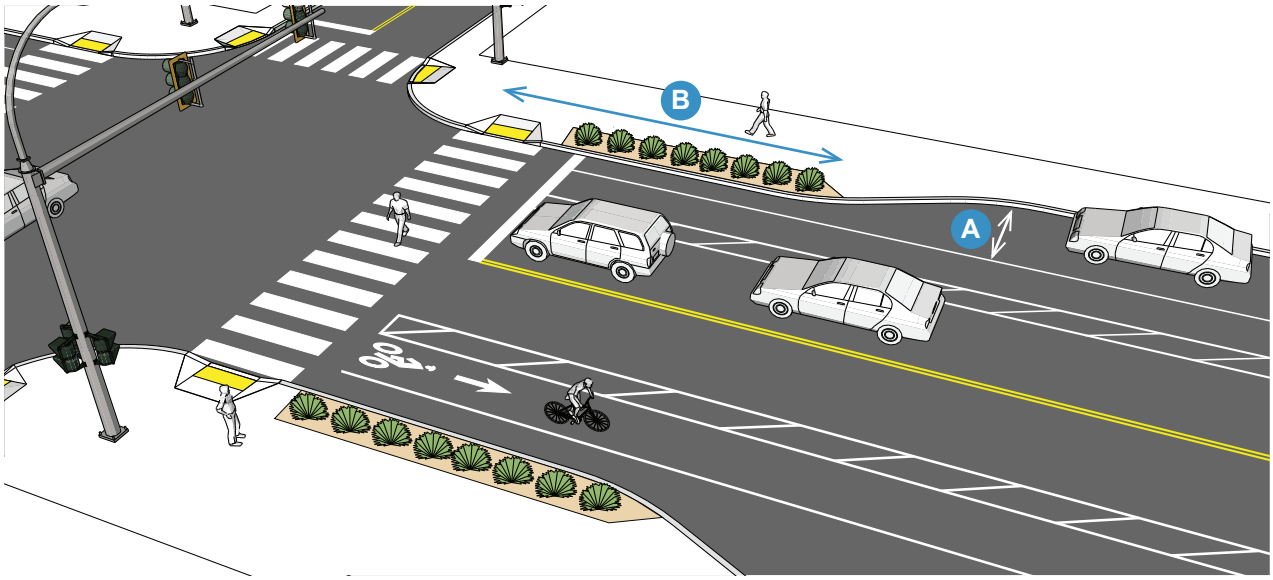
Source: NACTO, Urban Street Design Guide

REFERENCES

- FHWA, *Traffic Calming Countermeasures*
- NACTO, *Urban Street Design Guide*
- APA, U.S. *Traffic Calming Manual*

CURB EXTENSIONS/PEDESTRIAN BULB-OUTS

Bulb-outs (also known as curb extensions) are extensions of the curb line at intersections and mid-block crossings that reduce pedestrian crossing distance, increase pedestrian visibility, and reduce vehicle travel speeds by narrowing the roadway width and reducing curb radii. Bulb-outs can also provide extra space along sidewalks for users and amenities, such as street furniture, benches, plantings, and trees.



Source: Kimley-Horn and Associates

DESIGN FEATURES

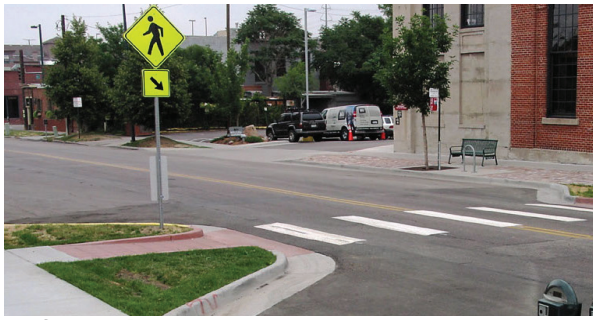
- **A** Bulb-outs extend approximately the width of a parked car (minimum 6' from the curb).
- **B** The minimum length of a Bulb-out is the width of the crosswalk, allowing the curvature of the Bulb-out to start after the crosswalk to deter parking. Preferably the Bulb-out would extend to the advance stop bar, or to the parking minimum setback.
- The length of a Bulb-out can vary depending on the intended use (i.e., stormwater management, transit stop waiting areas, parking restrictions).

REFERENCES

- NACTO, *Urban Street Design Guide*

OTHER CONSIDERATIONS

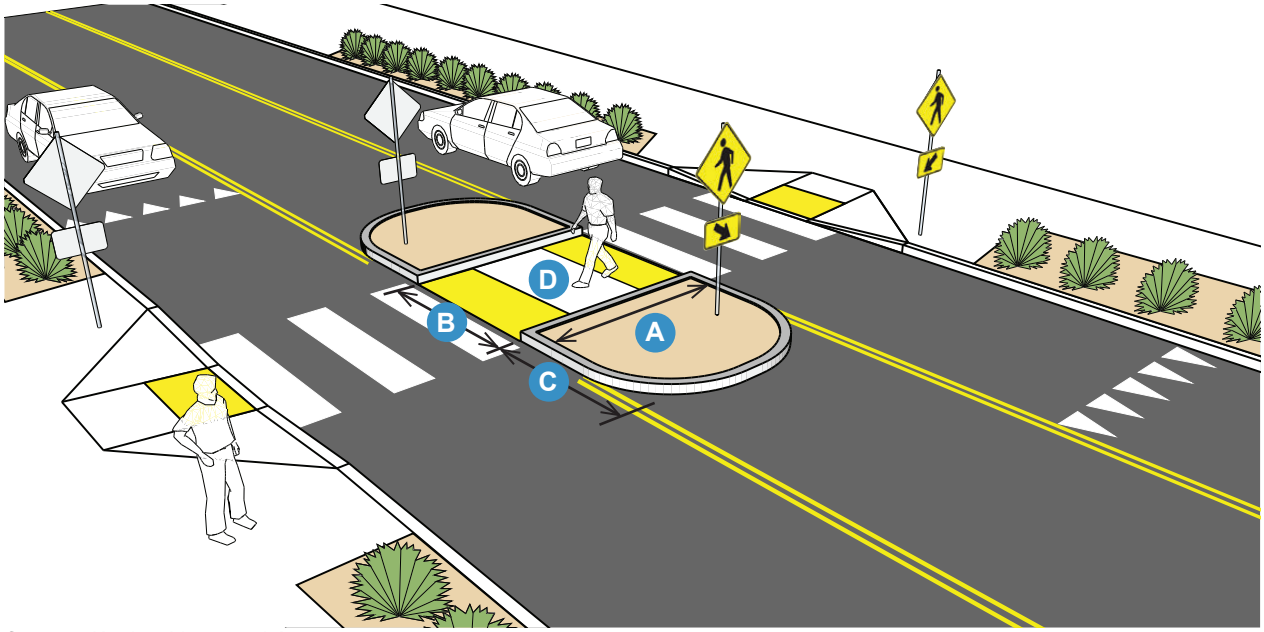
- Streets with on-street parking lanes or wide outside travel lanes are particularly appropriate for Bulb-outs.
- Design should consider the turning needs of emergency and larger vehicles
- Design should consider grading and drainage
- Bulb-outs can be installed at intersections or mid-block crossing locations.



Source: Deeproot

MEDIAN REFUGE ISLANDS

Median Refuge Islands provide vertical protection for pedestrians crossing two directions of travel, allowing pedestrians to cross a two-way street one direction at a time. The Refuge Island reduces the crossing distance for pedestrians, reduces exposure to vehicle traffic, and can also serve as a traffic calming treatment. They can be located at intersections or mid-block locations.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Minimum width is 6', but 8'-10' is preferred
- **B** Minimum clear width through the island is 6', but 10'-12' is preferred
- **C** Minimum length along roadway for vertical protection is 20'
- **D** Design must meet ADA requirements
  - Pavement markings shall follow CA MUTCD

Source: PedBikeSafe

REFERENCES

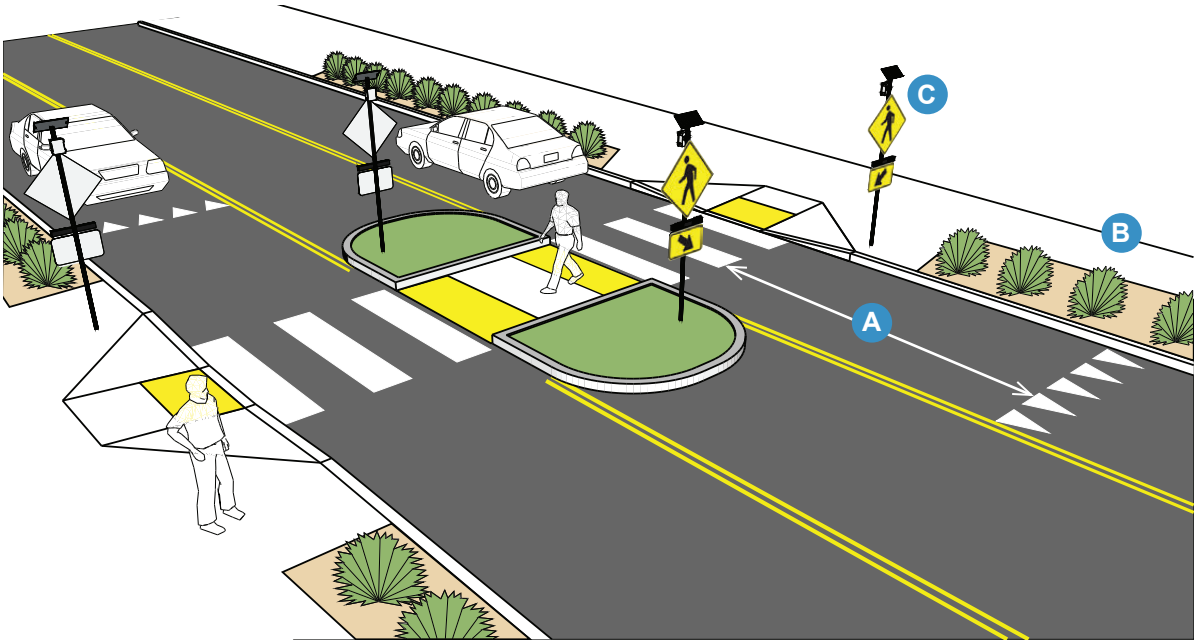
- NACTO, *Urban Bikeway Design Guide*

OTHER CONSIDERATIONS

- Median Refuge Islands may be used to connect routes at an off-set intersection.
- Additional strategies such as curb extensions, RRFBs, and advance signing should be paired with refuge islands depending on speeds and traffic volumes.
- This treatment can be beneficial for bicycles by providing a desirable width of a median refuge of 10' or greater with an area large enough to accomodate two-way bicycle travel.
- This treatment is recommended where pedestrians and bicyclists cross streets with higher volumes and higher speeds, particularly at unsignalized intersections.

RECTANGULAR RAPID FLASHING BEACONS (RRFB)

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



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Advance yield lines should be installed 20'-50' in advance of the crosswalk
- **B** Advance warning signs should be installed in conjunction with the advance yield line
- **C** Sign and beacon should be Installed on both sides of the roadway at the edge of the crosswalk. If there is a pedestrian refuge or other type of median, an additional beacon should be installed in the median
- Design in accordance with FHWA's Interim Approval 11 (IA-21)

REFERENCES

- NACTO, *Urban Bikeway Design Guide*
- FHWA, *Safety Effects of Marked Vs Unmarked Crosswalks at Uncontrolled Locations*
- CA Manual on Uniform Traffic Control Devices *(CA MUTCD), 2014, Revision 5*
- FHWA, *UrInterim Approval for the Optional Use of Pedestrian-Actuated Rectangular Rapid-Flashing Beacons at Uncontrolled Marked*

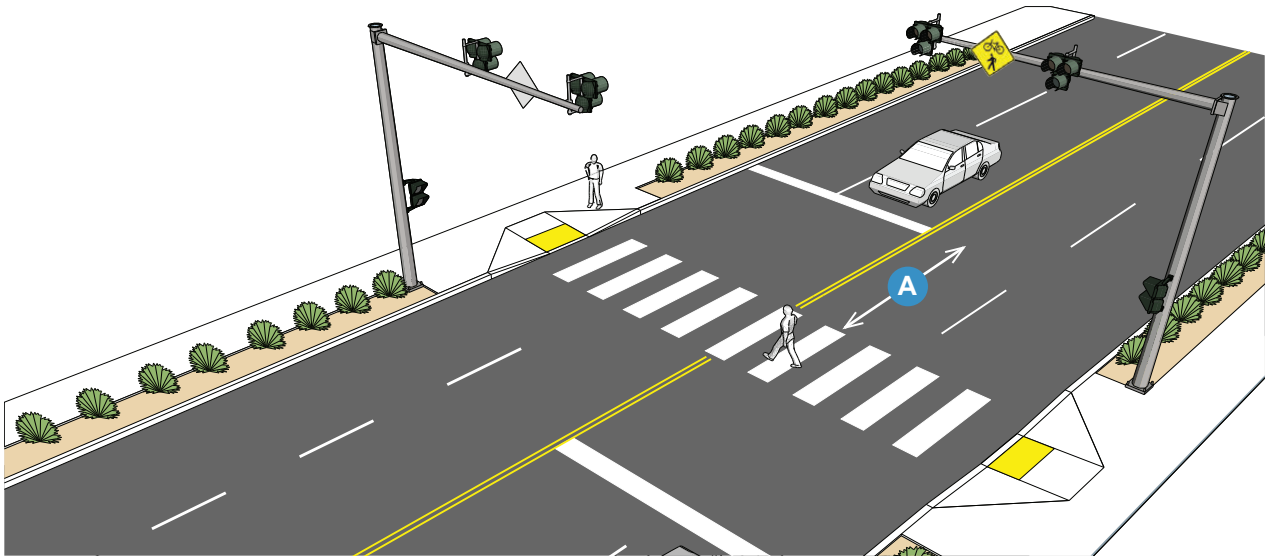
OTHER CONSIDERATIONS

- RRFB's are usually implemented on collectors and arterials with high volumes of pedestrians and bicycles.
- RRFBs shall not be installed at stop-controlled or signalized intersections.
- Increases yielding behavior of drivers at crosswalks when supplementing standard pedestrian crossing signs.
- Walk time for RRFBs can be calculated based on 3.5 feet per second.
- RRFB systems are typically solar-powered.

Source: Texas A&MTransportation Institute

PEDESTRIAN HYBRID BEACONS (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.



Source: Kimley-Horn and Associates

DESIGN FEATURES

- **A** Stop bars or yield lines should be installed in both directions 20' – 50' in advance of the crosswalk.
- Advance warning signs should be installed in conjunction with the advance stop bar.
- Use signal activation, such as video or infrared detection. Detection can be active or passive.

REFERENCES

- NACTO, *Urban Street Design Guide*
- FHWA, *Pedestrian Hybrid Beacon Guide Recommendations and Case Study*
- FHWA, *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations publication*
- CA Manual on Uniform Traffic Control Devices *(CA MUTCD), 2014, Revision 5*

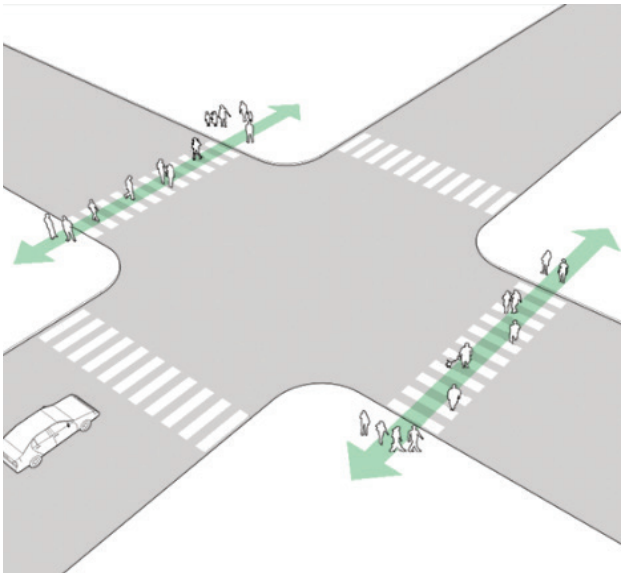
OTHER CONSIDERATIONS

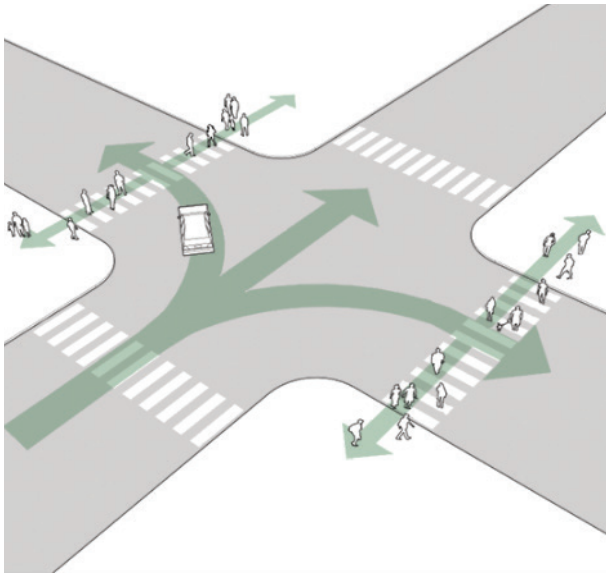
- MUTCD recommends minimum volumes of 20 pedestrians or bicyclists an hour for major arterial crossings (volumes exceeding 2,000 vehicles/hour).
- A PHB is typically installed on roadways with higher vehicle speeds or volumes than an RRFB. See FHWA's Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations publication and the MUTCD to determine warrants for traffic control at midblock crossings.
- PHBs should be installed at least 100' from an existing signalized intersection. If installed within a coordinated signal corridor, the PHB should be installed in coordination.

Source: City of Worthington, OH

LEADING PEDESTRIAN INTERVAL (LPI)

A Leading Pedestrian Interval (LPI) is a technique used to allow pedestrians to enter the intersection prior to vehicular traffic. Additional walk time is added to the start of the pedestrian phase, while the red phase for vehicular traffic remains in place. The additional time increases pedestrian visibility by allowing pedestrians to establish their position in the crosswalk ahead of the turning traffic.

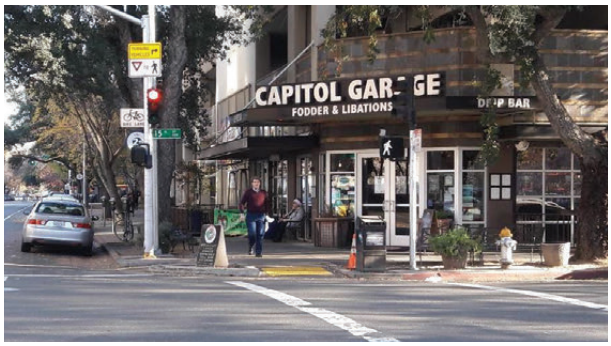




Source: NACTO Urban Street Design Guide

DESIGN FEATURES

- Provide enough time for pedestrians to cross at least one lane of traffic before the turning traffic is released. This typically results in a 3-7 seconds of lead time, depending on the total crossing distance.
- Pairing Leading Pedestrian Interval's with other pedestrian treatments, such as bulb-outs, increase their effectiveness and reduces vehicle delay at intersections.



Source: CalTrans Complete Streets Element

OTHER CONSIDERATIONS

- Typical use at intersections with high volumes of pedestrians and conflicting turning vehicles and locations with a large number of pedestrians who walk slower.
- LPIs also improve safety at intersections where left-turning vehicles yield to on-coming traffic prior to making a left turn.
- Leading Pedestrian Intervals are relatively low in cost and only require minor adjustments to signal timing.
- LPIs can be paired with Leading Bicycle Intervals (LBI).
- LPIs are not needed where there are protected right or left turns.

REFERENCES

- NACTO, *Urban Street Design Guide*

PEDESTRIAN SCRAMBLE

The Pedestrian Scramble intersection temporarily stops all approaches of vehicle traffic, allowing pedestrians to simultaneously cross all legs of the intersection, including diagonally. The Pedestrian Scramble may be used when an intersection experiences high pedestrian volumes, when there is a high volume of turning vehicular traffic through any crosswalk, and/or when there is a history of collisions involving turning vehicles and pedestrians.

Source: NACTO Designing Cities 2017 (City of Los Angeles)

DESIGN FEATURES

- **A** Pair with signage declaring that vehicles must not block intersection
- The exclusive pedestrian phase should correspond with the diagonal crossing distance.
- Pedestrian phases should not be allowed during any vehicle phases.
- Provide crosswalks and pedestrian striping to clearly designate the diagonal crossings.
- Pair with large refuge spaces and bulb-outs to provide safe staging area for high volumes of pedestrians.

REFERENCES

- NACTO, *Designing Cities 2017*
- StreetsBlog LA, *Crosswalks Debut At Hollywood And Highland*

OTHER CONSIDERATIONS

- A Pedestrian Scramble can reduce the pedestrian crossing time and exposure.
- A Pedestrian Scramble traffic signal movement can cause larger vehicle and pedestrian queues and delays.
- A Pedestrian Scramble should be installed where intersecting roadways have similar roadway widths.

Source: StreetsBlog LA

PEDESTRIAN REALM

The Pedestrian Realm is the area within a streetscape that is designed for pedestrian use but includes more than just the sidewalk. Pedestrian Realm design is an approach to supporting multiple functions of the space between the street and property line. Sidewalks are the canvas for pedestrian realm design, which plays a critical role in the character, function, enjoyment, and accessibility of neighborhoods, main streets, and other community destinations. In addition to providing space for pedestrians separated from motor vehicles, street trees and other plantings, stormwater infrastructure, street lights, and bicycle racks offer places for people to gather, stroll, shop and eat, etc.

Source: NACTO Urban Street Design Guide

DESIGN FEATURES

There are four primary zones that typically make up an active pedestrian realm: Frontage Zone, Pedestrian Through Zone, Street Furniture/ Curb Zone and Enhancement Buffer.

Frontage Zone

- The Frontage Zone is space adjacent to building.
- May be occupied by front porches, stoops, architectural features, displays, café seating, etc.
- Frontage Zones vary in width from a few feet to several yards. Typically, in downtown and commercial areas, the Frontage Zone should be anywhere between 2.5'- 10'.

Pedestrian Through Zone

- The Pedestrian Through Zone is the obstacle-free area for pedestrian travel.
- Must be kept clear of any obstacles and be wide enough to comfortably accommodate expected pedestrian volumes including those using mobility assistance devices.
- Ideally 5'-7' for a residential setting and 8'-12' wide for downtown or commercial areas, or areas with high pedestrian volumes.

Street Furniture/ Curb Zone

- The Street Furniture/ Curb Zone area is between curb and through zone.
- The area between the curb and the Pedestrian Zone and may include street lights, trees, bicycle racks, parking meters, signposts, signal boxes, benches, trash and recycling receptacles, and other elements.
- Typically 2'-6' depending on street classification

Enhancement Buffer Zone

- The Enhancement Buffer Zone is space adjacent to curb.
- Dedicated space for curb extensions, parklets, stormwater management features, parking, bike racks, bike share stations, and curbside bike lanes or cycle tracks.
- Refer to Curb Extensions, Parklets, Bike Parking, and Stormwater Management strategies for more details.

OTHER CONSIDERATIONS

- Providing the 4 zones of the Pedestrian Realm:
  - Creates a vibrant streetscape with active uses adjacent to the street
  - Promotes a lively street environment and adds economic value by enabling private commercial activity to spill into the public environment of the street
  - Provides attractive elements such as landscaping and/or rain gardens that collect storm water runoff from adjacent roads and sidewalks
- Pedestrian Realms with all four zones are typically found in commercial corridors with high pedestrian volumes, mixed use developments, and high-density residential areas

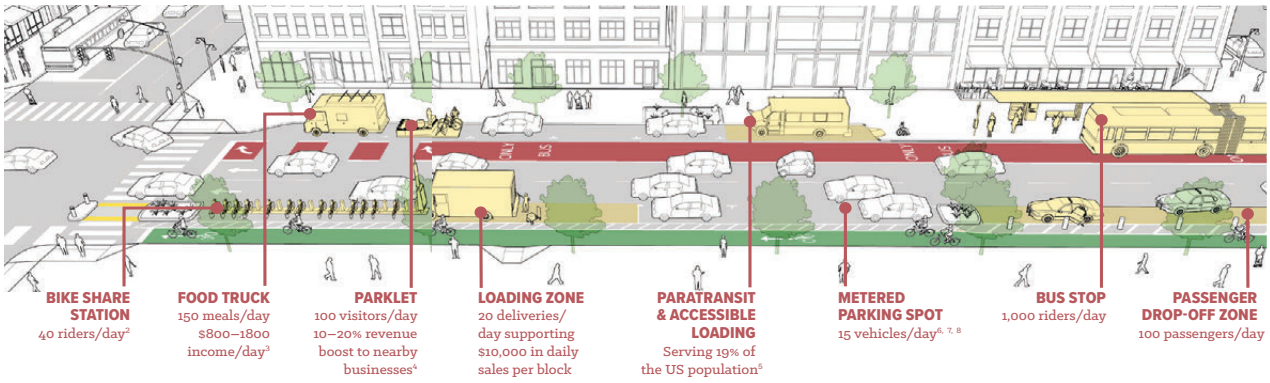
Source: Kimley Horn and Associates

REFRENCES

- NACTO, *Urban Street Design Guide*

CURBSIDE MANAGEMENT

Curbside Management seeks to inventory, optimize, allocate, and manage curb space to maximize mobility and access for the wide variety of curb demands and users. It is fundamentally about creating an organization scheme that improves mobility and safety for all while allowing the curb space to remain flexible. Potential users of the curbside include: drivers (both Transportation Network Companies (TNC) and non-TNC), parked vehicles, electric vehicle (EV) charging, bicycles and bicycle infrastructure, pedestrians and crossing infrastructure, couriers and delivery vehicles, local businesses, mobile vendors, transit and transit infrastructure, ADA access, emergency services, taxis, shuttles, parklets, and streetscape.



Source: NACTO Parking and Curbside Management

CURBSIDE TREATMENT STRATEGIES

Pricing Strategies:

- Metered Parking
- Multispace Parking Meters or Pay-by-Phone Parking
- Time-of-Day Parking Pricing

Corridor Types:

- Transit Priority Corridors
  - Dedicated Transit Lanes
  - Bus Queue Jumps
  - Enhanced Transit Stops
- Bicycle Priority Corridors
  - Protected Bikeways
  - Bicycle and Shared Mobility Device Storage
- Pedestrian Priority Corridors
  - Curb Extensions
  - Wider Sidewalks/Enhanced Sidewalks
  - Parklets
  - Seating

Curbside Designated Zones:

- Loading Zones
- Freight Loading Zones
- Taxi Stands
- Vending Zones
- Car Share Zones
- Flex Zones – Areas that can be used to serve different purposes including:
  - Multiple functions served in simultaneously in the same space
  - Different functions served at different times in the space through time-of-day restrictions
  - Multiple functions served simultaneously in different spaces along the road

District-Wide Policies:

- No-Parking Districts
- Permit Parking

Source: ITE Curbside Management Practitioners Guide

IMPLEMENTATION STRATEGY

- **Inventory existing conditions.** Complete a detailed assessment of how curb space is currently utilized and managed – 1) Review of existing policies or codes which may impact curb space utilization; 2) Perform field observations to identify key existing curbside users, use, and restrictions; 3) Determine any obvious needs or opportunities.
- **Identify land use and activity considerations to develop modal prioritization of space.** Identify critical uses for the right-of-way on a corridor-by-corridor or even block-by-block basis such as mobility, access for people, activation, greening, and storage for vehicles or equipment. Modal prioritization may vary by time of day for certain corridors and contexts.
- **Identify appropriate treatment alternatives.** Select treatment alternatives based on which right-of-way functions and transportation modes would like to prioritize at curb space location(s).
- **Assess and present alternatives for public feedback.** Evaluate selected treatment alternatives to determine both their anticipated efficiency and impact on each right-of-way function and user relative to existing conditions. Consider looking at qualitatively or quantitative metrics such as VMT, levels of traffic street, walk/bike score. Consider creating a stakeholder advisory group comprised of both public and private representatives to provide feedback and guidance on potential treatments.
- **Refine and implement treatments.** Refine selected treatments to establish a final preferred alternative. Develop a plan for the preferred alternative that uses either an accelerated "quick build" method or standard design development process.
- **Monitor and evaluate performance of implemented treatments.** Monitor implemented treatment/strategy for effectiveness in meeting project or agency goals. Consider measures of effectiveness listed in ITE Curbside Management Practitioners Guide.

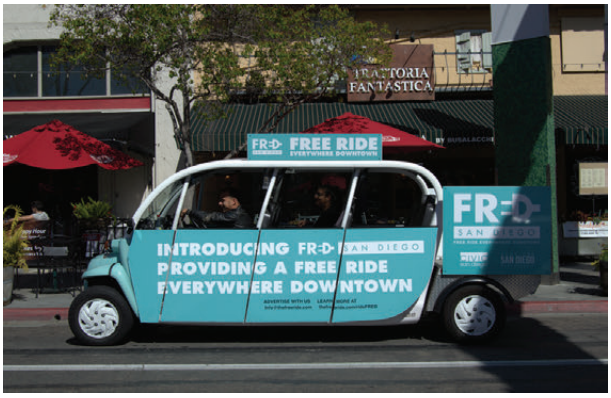
REFERENCES

- ITE *Curbside Management Practitioners Guide*
- NACTO *Parking and Curbside Management*
- *International Parking & Mobility Institute The Parking Professional's Curbside Manage (May 2019)*
- *International Transport Forum The Shared-Use City: Managing the Curb*

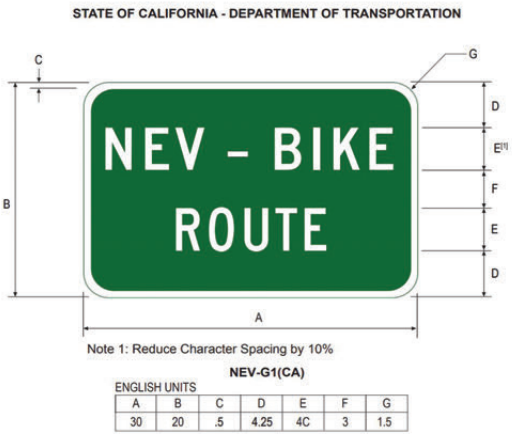
NEIGHBORHOOD ELECTRIC VEHICLES

Neighborhood electric vehicles (NEVs) offer a low speed, zero-emission motorized travel option. A vehicle is classified as a NEV or "low-speed vehicle" if it is a four-wheeled motor vehicle with top speeds of 20 to 25 mph. NEVs can carry up to six passengers.

Note: The California's Department of Motor Vehicles (DMV) provides additional requirements for a vehicle to be classified as a NEV. These requirements include registration, conforming VIN, and gross vehicle weight rating.



Source: Kimley-Horn and Associates



Source: CA MUTCD

NETWORK DESIGN CONSIDERATION

- NEVs can only operate on any roadway with posted speed limits of 35 mph or less unless a NEV plan is adopted. Per state legislation, a NEV plan is needed to operate NEVs and other low-speed vehicles on streets that have posted speed limits above 35 mph. California AB-61 allows County of Riverside or any of its jurisdictions to develop a NEV Transportation Plan
- An adopted NEV Transportation Plan may prohibit NEV operation on any roadway and allow operation of NEVs in separate lanes on roads with posted limits of 40 mph or greater. NEV lanes for the NEV Transportation Plan are classified as the following:
  - Class I NEV routes provide for a completely separate right-of-way for the use of NEVs
  - Class II NEV routes provide for a separate striped lane adjacent to roadways with speed limits of 55 miles per hour or less
  - Class III NEV routes provide for shared use by NEVs with conventional vehicle traffic on streets with speed limits of 35 mph or less
- NEVs can cross intersections that have a speed limit above 35 mph, if the crossing begins and ends on a road of 35 mph or less and occurs at an intersection of approximately 90 degrees. Vehicles cannot travel at un uncontrolled intersection with any state highway unless that intersection has been approved by the agency with primary responsibilities for that crossing (e.g., Caltrans)
- A road network for NEVs should be designed for continuous, direct, and relatively flat routes throughout a City. An efficient NEV network should be designed to provide as direct a route as possible to employment centers, retail centers, and other points of concentrated activity
- Dedicated paths that accommodate NEVs can be considered in newer, lower-density suburban communities where road widths or adjacent greenspace permit them. They must be at least 9 ft wide to allow for unidirectional travel, and 18 ft wide for bi-directional travel
- NEVs can operate in dedicated on-street lanes (including bike lanes) if these lanes are at least 7' wide and signing and/or pavement marking indicates NEVs are allowed

Source: Bennett Engineering

OTHER CONSIDERATIONS

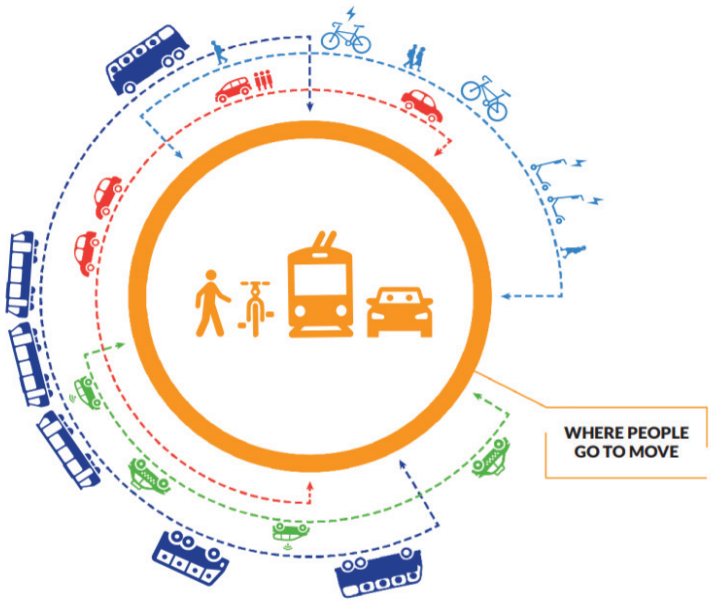
- Recommended for local trips in self-contained areas such as planned communities, resorts, college campuses, and industrial parks
- Parking, charging stations, striping, signs, and educational tools should be provided
- On-street parking may be repurposed for NEV lanes or charging spaces
- Transit station parking lots that have space for NEVs also should provide charging facilities. At busy transit parking lots, planners will have to consider how many NEV spaces with charging stations to install, whether to limit parking hours for charging, and how to regulate pricing

REFERENCES

- *Neighborhood Electric Vehicle(NEV)/Low-Speed Vehicle (LSV) And Golf Cart Registration (FFVR 37) by California Department of Motor Vehicles (DMV)*
- *California Streets and Highways Code, Division 11 (Rules of the Road), Chapter 1.*
- *Assembly Bill No. 61, California Legislation.*
- *National Highway Transportation Safety Administration (NHTSA)*
- AARP, *Public Policy Institute Policy and Design Considerations for Accommodating Low-Speed Vehicles and Golf Carts in Community Transportation Networks*
- SANDAG and ICTIC, *Mobility Hub Catalog (December 2017)*
- Coachella Valley Association of Governments, *Neighborhood Electric Transportation Plan (January 2016)*

MOBILITY HUBS

Mobility Hubs are places of connectivity where people can make seamless connections between various travel options such as walking, biking, micromobility, transit, and shared mobility services. Each Mobility Hub is custom designed for the surrounding community it services to make it easier for people to use transit to travel between destinations of interest. Mobility Hubs typically consider services and destinations within a 5-min walk, bike or drive to/from high-frequency transit.



Source: Shared-Use Mobility Center

DESIGN STRATEGIES

- Lighting should be provided both within the site and approaching the site to ensure user safety for pedestrians, bicyclist, and Micromobility users.
- Mobility Hubs should be walkable and accessible for all ages and abilities by providing basic comfort features such as seating, protection from elements (shading), established traffic-calming elements (vertical or horizontal separation from motorized vehicles), and enhanced pedestrian environment (public art).
- A variety of travel options should be provided that fit community needs and allow users to effectively travel to and from the mobility hub to access their end destination. It is recommended to provide a minimum of three options other than existing transit.
- Mobility Hubs should support seamless transfer and integration into surrounding neighborhood through well designed wayfinding and navigation tools such as physical maps, interactive kiosks, and/or signs.
- Consider amenities for the following categories:
    - Transit amenities within the immediate transit station area to help riders plan their trips, make connections and wait for their trip comfortably include: enhanced transit waiting areas, pas senger loading zones, and real-time arrival information.
    - Pedestrian amenities within a 5-minute walk to and from transit station that promote pedestri an travel include walkways and high-visibility crosswalks.

DESIGN STRATEGIES (CONTINUED)

- Consider amenities for the following categories (continued):
  - Bike amenities within a 5-minute bike ride to and from transit station that promote bicycle travel include: dedicated bikeways, bike parking, bike share stations
  - Motorized services & amenities within 5-minute drive to and from transit station that support efficient operation of motorized travel that may include: dedicated transit lanes, Micromobility, e-bike and scootershare, carshare, on-demand rideshare (TNCs), microtransit, neighborhood electric vehicle (NEV), electric vehicle charging, smart parking, and flexible curb space
  - Support services & amenities within the station area and 5-minute zones for walking, biking, and driving that support travel options include: wayfinding, package delivery, mobile retail services, and universal transportation account

OTHER CONSIDERATIONS

- Build around transit stops and stations with high-capacity, high-frequency, and high-ridership transit services near large activity generators such as commercial centers, employment centers, and districts.
- Consider existing and potential availability of electricity to implement charging facilities for electric cars, e-bikes, and scooters.
- Leverage momentum of currently planned and future transit-oriented development to maximize use of Mobility Hub. Typically, places where people live and work are where Mobility Hubs would be successful.

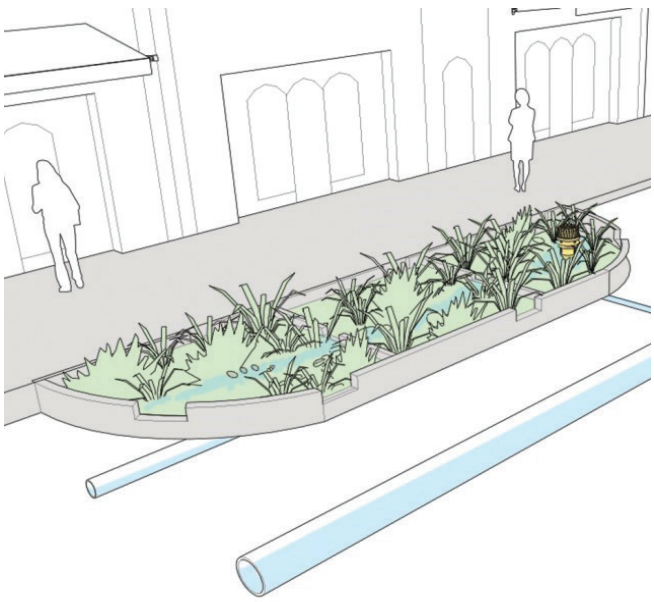
Source: Kimley-Horn and Associates

REFERENCES

- Shared-Use Mobility Center Mobility Hubs (2019)
- Metrolinx, *Mobility Hub Guidelines (2011)*
- SANDAG, *Mobility Hub Catalog (2018)*

GREEN INFRASTRUCTURE

Green Infrastructure is a planning and design approach to managing runoff, reducing the urban heat island effect, improving health and air quality, and promoting sustainability goals through stormwater infrastructure such as bioswales, infiltration basins, and pervious pavement. Many traffic calming techniques and pedestrian and bicycle facilities provide opportunities to incorporate Green Infrastructure techniques that can create a more pleasant environment for walking and biking.



Source: NACTO Urban Street Stormwater Guide

DESIGN FEATURES

Bioswales:

Bioswales are landscaped infrastructure with dense vegetation or grass that manages stormwater runoff from paved surfaces, allowing the water to infiltrate into the ground.

- Flow-based design should follow the most recently published Riverside County BMP Handbook where the design rainfall intensity is identified as 0.2 in/hour
- Verification that underlying native soils are not contaminated should be determined prior to installation.
- The swale should be a minimum of 2’ in width at the bottom of the swale.
- Ideal side slope of 4:1 H:V (maximum 3:1) to allow maximum contact time with vegetation.
- Minimum slope in flow direction 0.2%, provide underdrains for slopes < 0.5% and maximum slope in flow direction 2.0%, provide grade-control checks for slopes > 2.0%
- Water level retains no more than 6” of runoff
- For runoff that enter in a sheetflow fashion, edge should be flush with grade and where necessary, intermittently space curb cuts to allow runoff to enter and be treated. Curb cuts should be at least 18” wide and spaced from 3’-15’ apart
- Be mindful if blocking sightlines, signs, and other traffic control devices

DESIGN FEATURES (CONTINUED)

Infiltration Basin / Rain Garden:

Infiltration Basins, or Rain Gardens, are earthen basin designed to capture runoff and infiltrate stormwater back into pervious natural surrounding soil.

- Volume-based design should follow the most recently published Riverside County BMP Handbook where the minimum drawdown time is 48 hours
- Avoid sediment clogging by including a settling basin near inlet and required energy dissipater
- Water level retains between 6" and 12" of runoff
- Aim to have a minimum infiltration rate of 0.5 in/hr
- Vegetation should be included on sides and bottom to protect the basin from erosion
- If standing water conditions occur, a relief underdrain should be installed

Pervious Pavement

Pervious pavement is durable surface that allows rainfall to filter gradually into an underlying layered structure that stores the water prior to infiltration or drainage to an overflow system such as porous asphalt, pervious concrete, permeable interlocking concrete pavers, or grid pavers.

- Pervious Pavement has soil infiltration rates that exceed or meet standard of 0.5"/hr
- For pervious asphalt and concrete, critical that the subgrade is properly prepared and that the surface is poured correctly
- Pervious Pavement should not be used in the following conditions:
    - Areas with known soil contamination
    - Downstream of erodible areas and areas with a high likelihood of pollutant spills
    - Industrial or high vehicular traffic areas
- Requires well-drained native soil
- Limited infiltration effectiveness on street slopes over 5%
- Pervious Pavers can be installed along sidewalks, street furniture zones, parking lanes, gutter strips or entire roadways. Not recommended on bicycle boulevards as they are not likely to provide a traffic calming benefit.

REFERENCES

- NACTO Urban Bikeway Design Guide – Green Infrastructure
- NACTO Urban Street Design Guide - Bioswales
- NACTO Urban Street Stormwater Guide
- Caltrans Erosion Control Toolbox: Biofiltration
- Caltrans Biofiltration Swale Design Guidance (2012)
- Riverside County Stormwater Quality Design Handbook (2006)
- Riverside County Design Handbook for Low Impact Development Best Management Practices (2011)

Source: United States Environmental Protection Agency

TRANSPORTATION NETWORK COMPANIES (TNCS)

Transportation Network Companies (TNCs) provide on-demand rideshare or ridehailing service to allow users to request a shared or personal ride in real-time using a mobile app. The app can link passengers with available drivers based on the trip's origin and destination, while also identifying the quickest route.

Source: Kimley-Horn and Associates

DESIGN FEATURES

- Allow shared or flexible curb space on busy, urban streets so that different functions can use curbs at different peak times or so they can share the same space during specified hours
- Designate TNC pick-up/drop-off areas along the curb or within parking lots for passenger loading and unloading to make rideshare services more efficient, while also reducing instances of double-parking or idling
    - Accompany wayfinding signs with TNC pick-up/drop-off areas to clearly communicate the location to both passengers and drivers
    - Work with TNCs to create in-app prompts to direct people to dedicated pick-up areas
    - Consider converting parking spaces to TNC pick-up/drop-off areas within a parking lot or passenger loading zones along a curb

OTHER CONSIDERATIONS

- Consider partnerships with TNCs to promote carpooling to areas that experience high demand for parking (e.g., downtown district, transit station)

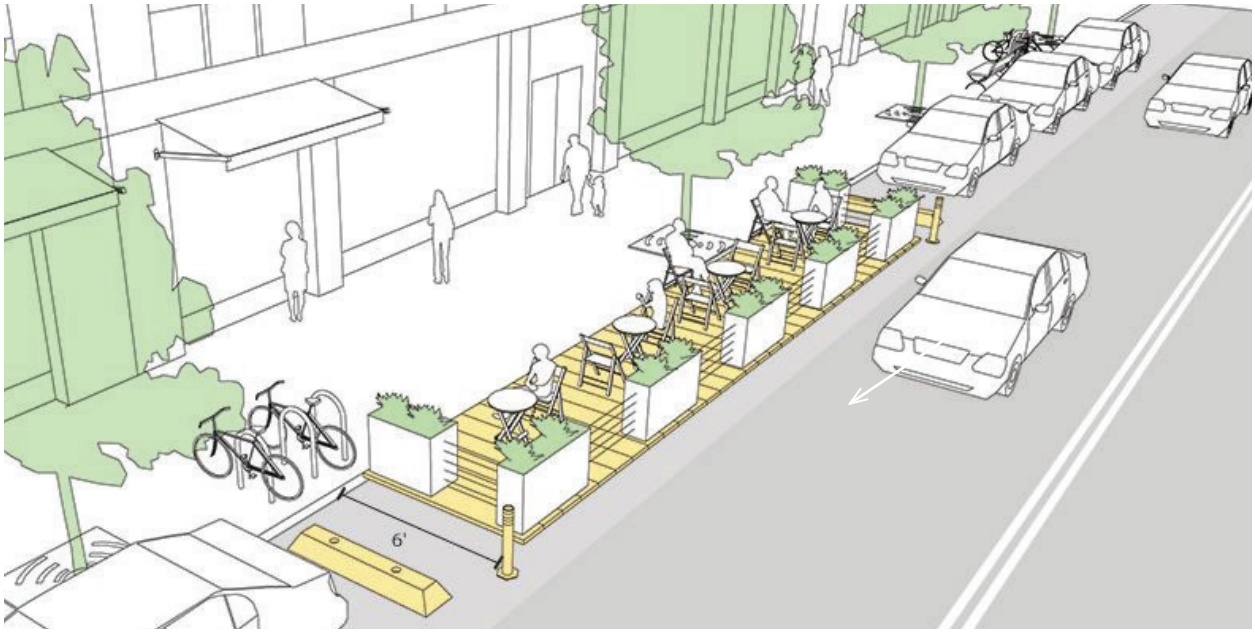
Source: Significon

REFERENCES

- ITDP, *Ride Fair: A Policy Framework for Managing Transportation Network Companies*
- SANDAG and ICTIC, *Mobility Hub Catalog (December 2017)*
- Significon, *Ride App Pickup: Creation of a new Standard*

PARKLETS/POCKET PARKS

Parklets are typically created by repurposing a portion of on-street parking for use as a community space. Popular usage for Parklets include curbside seating for dining, bicycle parking, and art exhibits. These multi-purpose spaces can provide an aesthetic enhancement to the neighborhood, spark public interest, and encourage non-motorized transportation.



Source: NACTO Urban Street Design Guide

DESIGN FEATURES

- Dedicated Parklet space varies based on the location but a 6-foot width is a desired minimum.
- Curb stops should be installed approximately 4' on each side of the Parklet to ensure visibility for parking cars.
- Parklets should have vertical elements that separate them from traffic but should not prevent visual connection between the pedestrians and the street. Vertical elements between 36" and 48" are desirable.
- Parklets can be designed as raised platforms to prevent conflict with road and gutter slope for drainage. Raised platforms should have a flush transition at the curb.

REFERENCES

- NACTO, *Urban Street Design Guide*
- *San Francisco Parklet Manual*

OTHER CONSIDERATIONS

- Flexibility in space allocation and design allows Parklets to be relatively cost efficient when compared to more permanent civil improvements.
- The decision to implement Parklets should be a mutual arrangement between local business owners, community residents, and any governing associations.
- Plants and other style features help distinguish the Parklet space and define it as a designated public space separate from vehicle traffic.
- High-visibility elements such as reflective bollards, a painted buffer, or signage may be incorporated into the Parklet design to clearly define the space at night.

Source: NACTO Urban Street Design Guide

SHARED MICROMOBILITY

Shared Micromobility is a shared fleet of small, fully or partially human-powered vehicles such as bikes, e-bikes, and scooters. While there are different business models and companies that provide Shared Micromobility services, these vehicles are typically rented through a mobile app or kiosk, picked up and dropped off in the public right-of-way or designated parking areas, and intended to serve short trip lengths. Users are typically charged by the hour, day, or month if they use the service on a subscription basis.

Bikes

Source: Tony Webster

E-Bike

Source: City of Orlando

E-Scooters

Source: NACTO

IMPLEMENTATION STRATEGIES

- Services should only be allowed to operate in the public right-of-way with legal permission from the City (e.g., license, permit, contract).
- Encourage the use of designated Shared Micromobility parking zones (e.g., in street corral, docking points, painted sidewalk, marked location on sidewalk, painted parking zones in parking lane/red curb spaces) in high volume or crowded areas, and allow users to drop off vehicles in the furniture zone of sidewalks. Communicate appropriate parking locations to users.
    - Prevent vehicles from parking a minimum 5’ from a crosswalk or curb ramp
    - Enforce vehicles to be parked in street furniture zone of pedestrian public realm
    - Keep a minimum 6’ clear path on sidewalk
    - Consider using flexible delineators to mark extent of parking zone. Typically, place retro-reflective delineators no more than 20’ apart and leave room between back of bikes and delineators to mount and dismount.
    - Consider using thermoplastic striping and paint to mark extent of parking zone, leave room behind the back of bike tires for riders to mount and dismount.
- Situate parking facilities that may include charging station near transit stations and other major destinations.

IMPLEMENTATION STRATEGIES (CONTINUED)

- Identify restricted/limited access areas. Consider requiring operators to limit speeds to appropriate levels in the following identified areas:
    - Unrestricted: 15 mph
    - Slow zone: 5-12 mph
    - Non-electric vehicle: 0-3 mph
    - Prohibited spaces: User must walk vehicle (e.g., sidewalks)
- Encourage use of Shared Micromobility services in dedicated bicycle lanes and multi-use paths. Manage vehicle speeds in these locations.

OTHER CONSIDERATIONS

- Draft metrics (e.g., safety, access, equity, economic) to review and assess impact of Shared Micromobility service on community.
- Update street design guidelines to include Shared Micromobility services to create protected and safe spaces for users. Consider creating Micromobility lanes. These lanes would follow similar guidelines to bicycle facilities.

Source: Santa Monica Next

REFERENCES

- NACTO, *Guidelines for Regulating Shared Micromobility (2019)*
- Transformation for America Shared Micromobility Playbook
- NACTO, *Bike Share Station Siting Guide*
- California Vehicle Code Division 11, *Article 4*
- California Vehicle Code Division 11, *Article 5*
- California Vehicle Code Division 11, *Article 7*

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CHAPTER 6

FUNDING & SOURCES

Federal Funding Sources

State Funding Sources

Local Funding Sources

POTENTIAL INFRASTRUCTURE 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 pedestrians. 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, 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 street 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 Federal Highway Administration (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 an 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 and pedestrians within their jurisdictions. Some of the following information on federal and state funding sources were derived from the previously mentioned FHWA publication.

The City of Menifee should continue to pursue state level grants through programs such as Caltrans' Active Transportation Planning (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). Projects that are not awarded funding through the Caltrans ATP cycles are sent to the Southern California Association of Governments (SCAG), the local MPO, for consideration for funding through their programs. It will be important to coordinate efforts with adjacent jurisdictions on projects that affect and benefit both cities. Coordination and joint efforts also strengthen an application due to combined benefits for multiple jurisdictions.

Table 6-1 through 6-3 identify potential federal, state, and local funding opportunities that may be used from design to maintenance phases of projects. Due to trends in Low Impact Development (LID) and stormwater retention street designs, funding sources for these improvements not only increase the chances for first and last mile improvements, but can also be incorporated into streetscape and development projects.

Refer to funding sources for specific details on funding cycles.

Funding Origin

Federal **4**

State **23**

Local **44**

TABLE 6-1: Federal Funding Sources

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Congestion Mitigation and Air Quality Improvement (CMAQ) Program	Federal Highway Administration (FHWA)	Unavailable	●			https://www.fhwa.dot.gov/environment/air_quality/cmaq/										
Highway Safety Improvement Program (HSIP)	Federal Highway Administration (FHWA)/ Caltrans	Unavailable	●		●	https://dot.ca.gov/programs/local-assistance/fed-and-stateprograms/highway-safetyimprovement-program	●		●	●			●			
Enhanced Mobility of Seniors and Individuals with Disabilities	Federal Transit Administration (FTA)	Unavailable	●	●		https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310	●	●		●						
Safe Routes to Parks, Activating Communities Program	National Center for Safe Routes to School and Caltrans	Unavailable	●		●	https://www.saferoutespartnership.org/healthy-communities/aferoutestoparks/2019	●		●	●		●				●

TABLE 6-2: State Funding Sources

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Clean Mobility Options	Air Resources Board	July	●			https://www.cleanmobilityoptions.org/	●		●	●						
Sustainable Transportation Equity Project (STEP)		August	●	●	●	https://ww3.arb.ca.gov/msprog/ct/opportunitiesgov/step.htm	●		●	●						
Local Streets and Roads (LSR) Program	California Transportation Commission	Unavailable	●			https://catc.ca.gov/programs/sb1/local-streets-roads-program	●		●	●						
Solutions for Congested Corridors (SCCP)		Every Two Years	●			https://catc.ca.gov/programs/sb1/solutions-for-congested-corridors-program	●		●	●						
State Transportation Improvement Program (STIP)	California Transportation Commission/ California Department of Transportation (Caltrans)	Every Two Years	●			https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/state-transportation-improvement-program	●		●	●						

TABLE 6-2: State Funding Sources (Cont.)

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Urban Forestry Program	Federal Highway Administration (FHWA)/ Regional agency may also contribute	Unavailable	●		●	https://www.fire.ca.gov/grants/urban-and-community-forestry-grant-programs/	●		●		●					
Infill Infrastructure Grant Program for Small Jurisdictions	California Department of Housing and Community Development	Varies	●			https://www.hcd.ca.gov/grants-funding/active-funding/iigp.shtml	●		●							
Land and Water Conservation Fund (LCWF)	California Department of Parks and Recreation (DPR)	Annual	●	●		https://www.lwcfcoalition.com/	●			●		●	●			
Regional Park Program (Prop 68)		Unavailable	●	●		https://www.parks.ca.gov/?page_id=29940	●	●			●	●				●
Statewide Park Program (SPP)		December	●	●		https://www.parks.ca.gov/?page_id=29939	●		●	●						
Recreational Trails Program (Prop 68)		Annually	●	●		https://www.parks.ca.gov/?page_id=24324	●	●	●	●		●	●			●
Habitat Conservation Fund (Prop 117)		Unavailable	●	●		https://www.parks.ca.gov/?page_id=24324	●		●		●	●	●			
Active Transportation Planning Grants (ATP)	California Department of Transportation (Caltrans)	July-September	●	●	●	https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/active-transportation-program	●		●	●			●			●
Transportation Development Act (TDA) Article 3 (SB 821)	California Department of Transportation (Caltrans)	Annually	●		●	https://dot.ca.gov/programs/rail-and-mass-transportation/transportation-development-act	●		●	●			●			●
Sustainable Transportation Planning Grants	California Department of Transportation (Caltrans)	Annually			●	https://dot.ca.gov/programs/transportation-planning/regional-planning/sustainable-transportation-planning-grants	●		●	●						●
Urban Greening	California Natural Resources Agency	Unavailable	●			https://resources.ca.gov/grants/urban-greening	●		●		●	●	●			
Environmental Enhancement and Mitigation (EEMP)	California Natural Resources Agency and Caltrans	Unavailable	●			https://resources.ca.gov/grants/environmental-enhancement-and-mitigation-eem/	●					●	●			

TABLE 6-2: State Funding Sources (Cont.)

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Local Partnership Program - Competitive and Formulaic	California Transportation Commission	March - June	●	●	●	https://catc.ca.gov/programs/sb1/local-partnership-program		●	●				●			
Transit and Intercity Rail Capital Program (TIRCP)	CalSTA and Caltrans Division of Rail and Mass Transportation	January	●	●	●	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	●		●	●						
State Highway Operations and Protection Program (SHOPP)	Caltrans Office of SHOPP Management	Unavailable	●			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	Due in January		●		https://www.ots.ca.gov/Grants/			●							
Affordable Housing and Sustainable Communities Program (AHSC)	Strategic Growth Council and Department of Housing and Community Development	February	●	●		https://hcd.ca.gov/grants-funding/active-funding/ahsc.shtml			●	●						
Transformative Climate Communities (TCC)	Strategic Growth Council/ Department of Conservation	February	●			http://www.sgc.ca.gov/programs/tcc/	●		●	●			●			

TABLE 6-3: Local Funding Sources

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Special Habitat Conservation Programs	Regional MPOs/Local Cities	Unavailable							●		●	●	●			
Special Parks and Recreation Bond Revenues		Unavailable					●	●	●	●	●	●	●	●	●	●
Special Transportation Bonds and Sales Tax Incentives		Unavailable					●	●	●	●	●	●	●	●		
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							●	●	●	●	●	●	●	●		
Intergovern-mental Agree-ments							●	●	●	●	●	●	●	●		
Lease Revenues							●	●		●	●	●	●	●		
Mello Roos Districts							●	●	●	●	●	●	●	●		
Residential Park Improvement Fees							●		●	●	●	●	●	●	●	●

TABLE 6-3: Local Funding Sources (Cont.)

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
Park Impact Fees	Local Jurisdictions	Annual Budget					●		●	●	●	●	●	●		
Traffic Impact Fees							●	●	●	●	●	●	●	●		
In-Lieu Fees							●		●	●	●	●	●	●		
Pouring Rights Agreements							●			●	●	●	●	●		
Private Development Agreements	Local Jurisdictions	Annual Budget					●	●	●	●	●	●	●	●		
Surplus Real Estate Sale Revenues							●									
Revenue Bond Revenues							●	●								
Sales Tax Revenues							●	●	●							
Transient Occupancy Tax Revenues							●	●	●							
Wastewater Fund Reserves								●								
Utility Taxes							●	●								
Business Improvement Districts (BID)	Non-profits, Business Organizations or City	Unavailable						●	●							
Maintenance Assessment Districts (MAD)								●	●							
Property Based Improvement Districts (PBID) Landscape Maintenance District (LMD)								●	●							
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																

TABLE 6-3: Local Funding Sources (Cont.)

FUNDING SOURCE	FUNDING ORIGIN	FUNDING CYCLE	ACTIVE TRANSPORTATION			WEBSITE	CIP DEVELOPMENT	MAINTENANCE & OPERATION	IMPLEMENTATION	FIRST AND LAST MILE	URBAN FORESTRY	BACK TO NATURE	LOW IMPACT DEVELOPMENT	CULTURE AND HISTORY	ART	HEALTH
			INFRASTRUCTURE	NON-INFRASTRUCTURE	PLANNING											
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		●					●						●	●
PeopleForBikes Community Grant Program	PeopleFor-Bikes/Partners	Twice a year	●	●						●		●				●

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