City of Eastvale

Bicycle Master Plan

February 2016

Acknowledgments

The City of Eastvale Bicycle Master Plan was prepared under the guidance of:

Michele Nissen, City Manager
George Alvarez, City Engineer
Ruben Castaneda, Assistant Engineer

Additional project support was provided by the following stakeholders:

Eric Norris, Planning Director, City of Eastvale
Cathy Perring, Assistant Planning Director, City of Eastvale
Steven Ellis, Coordinator, Corona-Norco Unified School District
Ted Rozzi, Assistant Superintendent, Corona-Norco Unified School District
Scott Forbes, Lieutenant and Assistant Police Chief, City of Eastvale
Richard Welch, Director of Parks and Community Affairs, Jurupa Community Services District

This plan was prepared by KTU+A Planning + Landscape Architecture:

John Holloway, Candidate Principal, PLA, ASLA, LEED Green Associate, LCI
Joe Punsalan, Candidate Senior Associate, GISP, PTP, LCI
Alison Moss, Mobility Planner
Beth Chamberlin, Senior Planner
Jacob Leon, Senior Planner
Juan Alberto Bonilla, Planner
Kristin Bleile, GIS Analyst
Diana Smith, GIS Analyst

Public input was provided by community workshop participants.

This is a project for the City of Eastvale with funding provided by the Southern California Association of Governments (SCAG) Sustainability Program. The Sustainability Program is a key SCAG initiative for implementing the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), combining Compass Blueprint assistance for integrated land use and transportation planning with new Green Region Initiative assistance aimed at local sustainability and Active Transportation assistance for bicycle and pedestrian planning efforts. Sustainability Projects are intended to provide SCAG-member jurisdictions the resources to implement regional policies at the local level, focusing on voluntary efforts that will meet local needs and contribute to implementing the RTP/SCS, reducing greenhouse gas (GHG) emissions, and providing the range of local and regional benefits outlined in the RTP/SCS.

The preparation of this report has been financed in part through grant(s) from the Federal Transit Administration (PTA) through the U.S. Department of Transportation (DOT) in accordance with the provisions under the Metropolitan Planning Program as set forth in Section 104(f) of Title 23 of the U.S. Code.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of SCAG, DOT or the State of California. This report does not constitute a standard, specification or regulation. SCAG shall not be responsible for the City's future use or adaptation of the report.

Table of Contents

1 Introduction 1

Project Scope 2
Study Area 2
Project Goals and Approach 4
Benefits of Cycling 4
Bicycle Facility State of Practice 7
Bikeway Facility Types 8
Methodology 12
Public and Stakeholder Input 13

2 Existing Conditions 17

Existing Plans 18
City Codes (The Zoning Code) 27
Existing Facilities and Programs 30

3 Analysis 33

Analysis Overview 34
Activity Centers 34
Population and Employment Density 36
Posted Speed Limits 37
Transit Routes 38
Safety Analysis 39
Bicycle Boulevard Routing Analysis 42

4 Recommended Facilities 47

Recommendations 48
Bicycle Project Development and Feasibility Assessment 48
Recommended Bikeway Projects 51
Future Opportunities 62
Bicycle Parking 65
Calculating Demand for Bicycle Parking 67

5 Recommended Programs and Policies 69

Education/Encouragement/Marketing Programs 70
Education/Enforcement Programs 79
Monitoring and Evaluation 81
Recommended Policies 84

6 Implementation and Funding 89

Implementation 90
Potential Funding Sources 91

List of Figures

Figure 1-1: Study Area 3
Figure 1-2: Off-Street Bicycle Facilities 8
Figure 1-3: On-Street Bicycle Facilities 9
Figure 1-4: Shared Street Facilities 10
Figure 2-1: Land Use Map 21
Figure 2-2: Regional Bicycle Facilities 25
Figure 2-3: Bicycle Un-Friendly Land Use 28
Figure 2-4: Bicycle Friendly Land Use 29
Figure 2-5: Existing Bicycle Facilities Map 31
Figure 3-1: Activity Centers 35
Figure 3-2: Population & Employment Density 36
Figure 3-3: Posted Speed Limits 37
Figure 3-4: Transit Routes 38
Figure 3-5: Bike Collisions 41
Figure 3-6: Potential Bicycle Boulevards 43
Figure 3-7: Recommended Bicycle Boulevards 45
Figure 4-1: Tier 1 Bicycle Projects 52
Figure 4-2: Tier 2 Bicycle Projects 55
Figure 4-3: Tier 3 Bicycle Projects 59
Figure 4-4: Future Opportunities 63

List of Tables

Table 2-1: Roadway Classification and Level of Service 19
Table 4-1: Tier 1 Bicycle Projects 53
Table 4-2: Tier 2 Bicycle Projects 56
Table 4-3: Tier 3 Bicycle Projects 60
Table 4-4: Future Opportunity Projects 62
Table 6-1: Safe Routes to School Programs Comparison 93
Table 6-2: Federal Funding Sources 97
Table 6-3: State Funding Sources 102
Table 6-4: Local Funding Sources 105
Table 6-5: Private Funding Sources 106
Table 9-2: Inputs - Benefit-Cost Analysis A-70

Appendices

A: Toolbox - Design Guidelines A-1
B: Project Prioritization A-66
C: Benefit-Cost Analysis A-69
D: Applicable Legislation A-71
E: BTA Reviewer Checklist A-74

Chapter 1:

Introduction

Project Scope

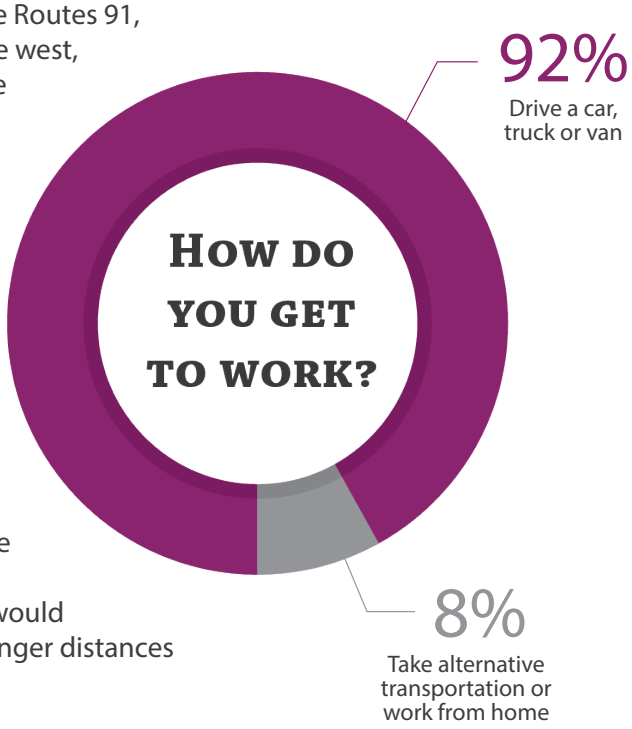
This Bicycle Master Plan was prepared for the City of Eastvale, consistent with California Streets and Highways Code Section 891.2. This plan was made possible through the Southern California Association of Governments' (SCAG) Sustainability Grant Program. This Bicycle Master Plan incorporates other applicable plans' goals, objectives and policies, including SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Western Riverside Council of Governments' (WRCOG) Non-motorized Transportation Plan, and adjacent cities' bicycle master plans.

The project's scope included developing a citywide bicycle network and a menu of supportive programs. To this end, the scope called for strong emphases on the following: Agency and Public Participation; a Bicyclist Needs and Demand Analysis; Education, Enforcement and Encouragement Recommendations; and an Implementation Plan. Because this is Eastvale's first dedicated Bicycle Master Plan, and the "state of practice" in bicycle planning is rapidly evolving, this report relies heavily on 3D models, maps, photographs and other graphics to illustrate proposed facilities and concepts.

Study Area

Eastvale is located in northwestern Riverside County, within southern California's Inland Empire region, between Los Angeles and Orange Counties and accessible by Interstate 15 and California State Routes 91, 60 and 71. Locally, its boundaries are Hellman Avenue to the west, Bellegrave Avenue to the north, the Santa Ana River and the City of Norco to the south, and Interstate 15 to the east, as shown in Figure 1-1.

The Eastvale area had been predominately agricultural, particularly dairy farming. By the late 1990s, the area began to suburbanize to accommodate people from neighboring Orange and Los Angeles Counties seeking affordable housing. Despite significant development since its 2010 incorporation, Eastvale remains a "commuter town." The overwhelming majority of commute trips are by single-occupancy vehicle with 92 percent of the employed population driving a vehicle to work. The online application Walk Score categorizes Eastvale as a "Car-Dependent City," earning a 23/100 walkability score. Although a bike score for Eastvale is not available, it would probably be slightly higher than the walk score based on longer distances reasonably covered by bike.



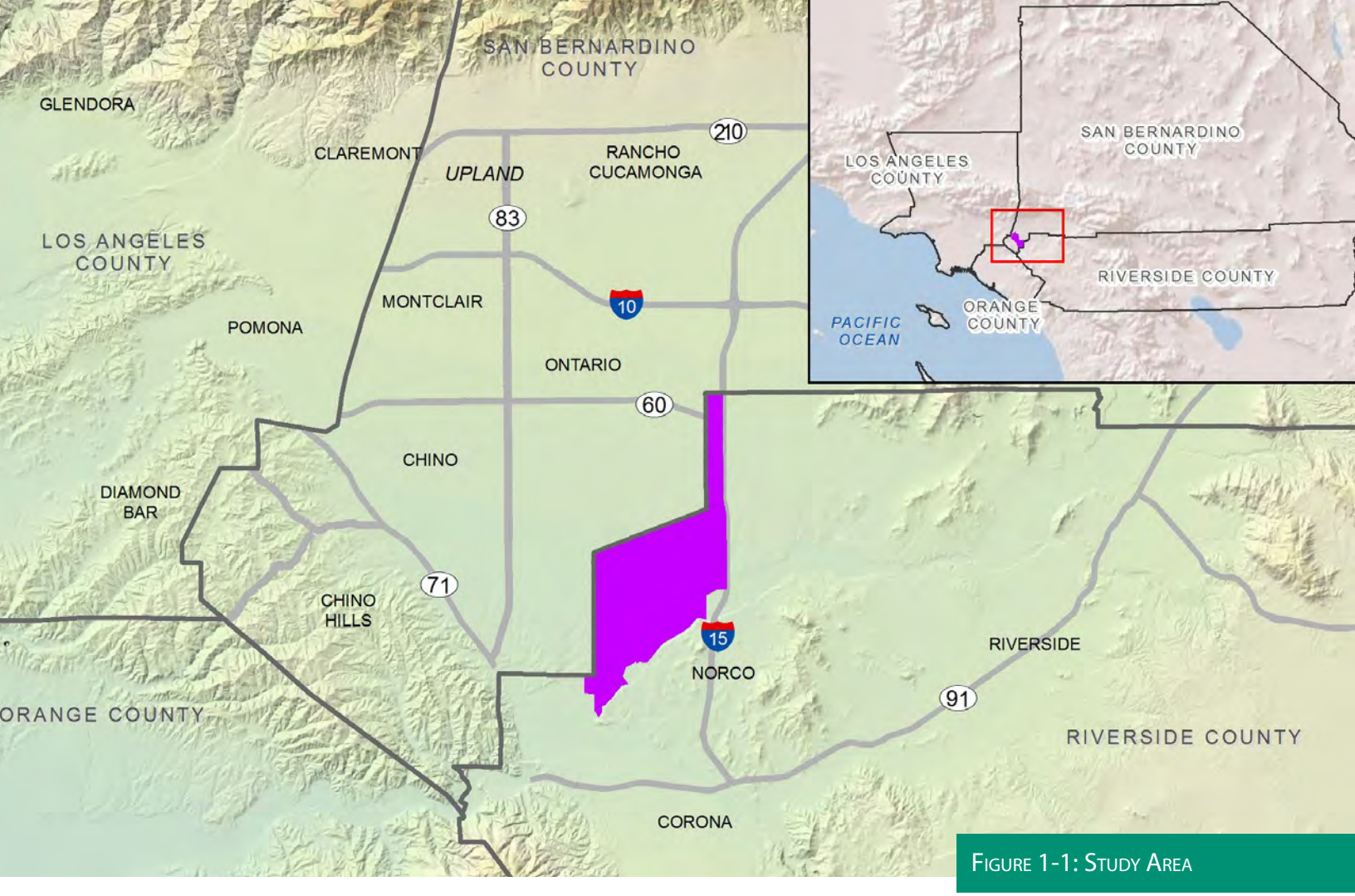
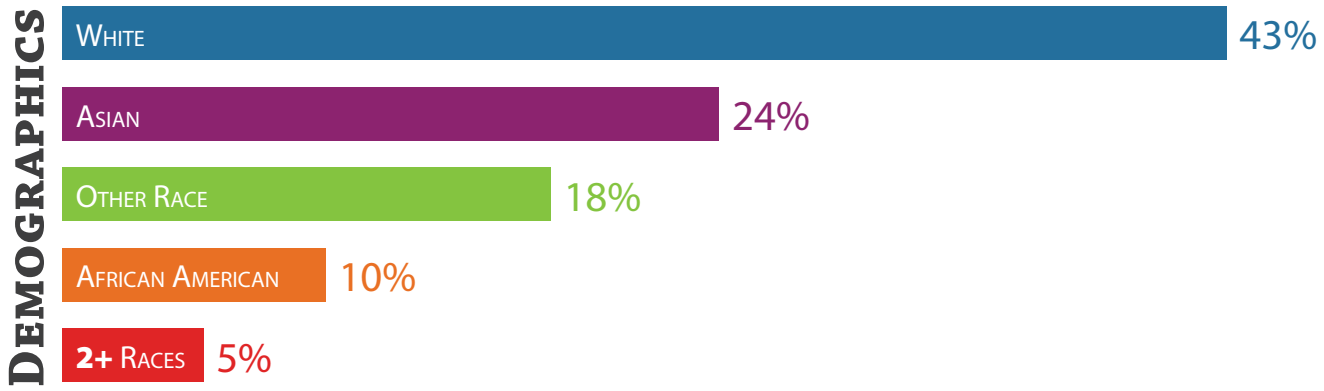


Figure 1-1: Study Area

With a 2010 census population of 53,668 within 11.45 square miles, Eastvale's population density is 4,689 people per square mile. Eastvale's racial make-up is approximately half white, a quarter Asian and ten percent African American. In addition, 40 percent of the population identifies as Hispanic or Latino. Eastvale's population is young, with a 30.9 year median age and over 95.3 percent of residents under the age of 65. Eastvale also has a high household percentage with children under the age of 18 (62.7 percent). Eastvale is a middle class community with a median household income of $109,841, and housing units are 82.7 percent owner-occupied. As demonstrated by strong participation in the projects' online survey, Eastvale is a highly connected or "tech savvy" community.



Project Goals and Approach

This project's overall goal was to create a bicycle master plan for the City of Eastvale. Bicycle master plan adoption and implementation can help achieve important community health, environmental and economic benefits, and plays an increasingly important role in meeting state mandates regarding the environment, health, safety and social equity. The most successful bicycle master plans – those that achieve community benefits and meet legal mandates – reflect important changes in bicycle facilities' "state of practice."

The following paragraphs highlight the most relevant benefits attributable to bicycling, as well as applicable legislation. They also offer further insight into bicycle facility planning's "state of practice" and brief facility type descriptions consistent with that state of practice and recommended by this plan. The section concludes with a brief discussion of the methodology used to determine both facility and program recommendations.

Benefits of Cycling

Numerous environmental, health and economic benefits are attributable to cycling, especially as a substitute for driving a vehicle.

Environmental Benefits

Increased bicycling reduces fossil fuel emissions. In California, 40 percent of carbon dioxide (CO_2) emissions are produced by the transportation sector. While CO_2 is not the most harmful greenhouse gas, it is the most abundant. Even after accounting for the other greenhouse gases' global warming potentials (comparing them in terms of CO_2), 95 to 99 percent of vehicle emissions are CO_2. The Environmental Protection Agency (EPA) found that the average vehicle emits 0.95 pounds of CO_2 per mile, meaning that almost 10 pounds of carbon dioxide emissions could be avoided each day if an individual with a five mile (each way) commute switched from driving to an active transportation mode like bicycling.

How can cycling help the Environment?

0.95 lb

Vehicles produce approximately 0.9lbs of CO_2/passenger/mile traveled.

0.05 lb

Bicycling produces only 0.05lb of CO_2/passenger/mile traveled.

Health Benefits

Despite dramatic strides in recent decades through regulations and technological improvements, vehicle emissions still pose a significant threat to air quality and 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. Converting vehicular trips to bicycling trips is an opportunity to help reduce emissions and improve public health.

In addition to the universal public health benefits, such as improved air quality described above, bicycling has the potential to positively impact personal health. A significant percentage of Americans are overweight or obese and recent projections indicate that 42 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 Centers for Disease Control and Prevention (CDC) suggest 30 minutes of moderate intensity physical activity five days per week minimum. Not only does bicycling qualify as "moderate intensity activity," it can also be seamlessly integrated into daily routine, especially for utilitarian purposes like commuting or running errands.

Other health benefits associated with moderate activity, such as bicycling, include improved strength and stamina through better heart and lung function. Regular exercise reduces the risk of high blood pressure, heart attacks and strokes. In addition to heart disease, regular exercise can also help to prevent other health problems such as non-insulin dependent diabetes, osteoarthritis and osteoporosis. Lastly, exercise has been shown to improve mental health by relieving depression, anxiety and stress symptoms.

3 HOURS OF BIKING PER WEEK CAN **REDUCE** YOUR RISK OF **HEART DISEASE** BY 50%

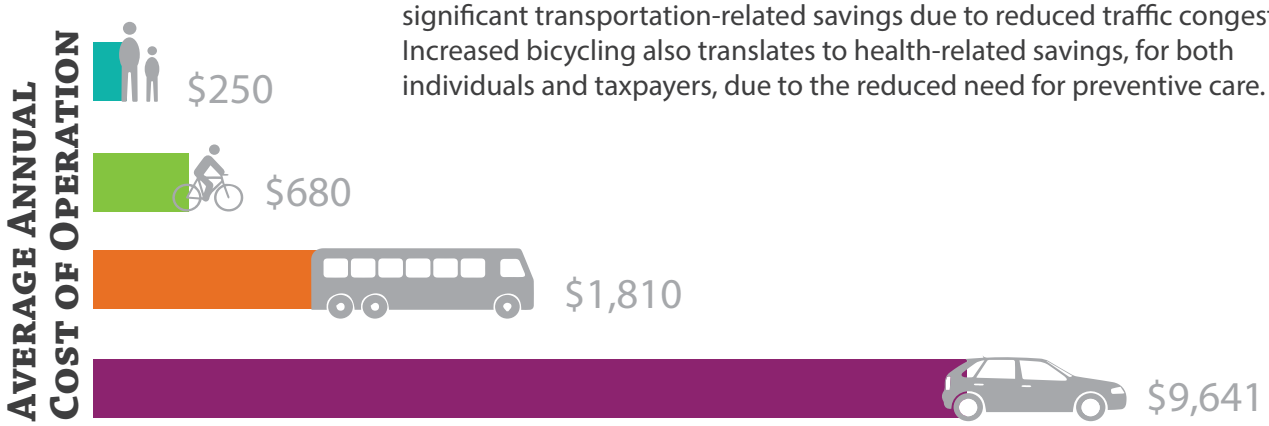
A 30-MINUTE BIKE RIDE CAN **BURN** 215-500 **CALORIES**

13 LBS AVERAGE **WEIGHT LOSS** IN FIRST YEAR BIKING TO WORK

Economic Benefits

Cycling infrastructure and programs has increasingly been shown to deliver economic benefits to both individuals and society at large. Bicycling benefits may, in fact, outweigh its costs. Bicycling, and utilitarian bicycling in particular, offers somewhat obvious savings to individuals. Beyond the up-front vehicle operating costs are additional maintenance, insurance, and often parking costs. According to the American Automobile Association, the annual cost of owning a car and driving it 15,000 miles a year is now over $9,000 (See graphic below).

Converting even a fraction of automobile trips to bicycle trips can create significant transportation-related savings due to reduced traffic congestion. Increased bicycling also translates to health-related savings, for both individuals and taxpayers, due to the reduced need for preventive care.



More bicycling 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 spend more money overall. Shoppers who arrive by bicycle, by virtue of their more limited range, are also more likely to support local businesses, and do not require a vehicle parking spot.
Perhaps more compelling than reducing greenhouse gas (GHG) emissions or combating the obesity epidemic are bicycling's quality of life benefits. Bicycling, and especially utilitarian riding, is increasingly seen as a fun, low-cost, healthy and sustainable way to get around. How then, can we make it easier for any person to choose a bicycle for his or her daily trips?

Applicable Legislation

Several pieces of legislation support increased bicycling in the State of California. Much of the legislation concerns greenhouse gas (GHG) reduction and employs bicycling as a means to achieve GHG reduction targets. Other legislation highlights bicycling's intrinsic worth and treats safe and convenient bicyclist accommodation as a matter of equity. The most relevant legislative acts for bicycle policy, planning, infrastructure and programs include:

Federal Legislation

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

State Legislation and Policies

- AB-32 Global Warming Solutions Act
- SB-375 Redesigning Communities to Reduce Greenhouse Gases
- AB-1358 Complete Streets Act
- AB-1581 Bicycle and Motorcycle Traffic Signal Actuation
- AB-1371 Passing Distance/Three Feet for Safety Act
- SB-743 CEQA Reform
- AB-1193 Bikeways
- Caltrans' Deputy Directive 64-R1

Bicycle Facility State of Practice

In an effort to re-position bicycling as a safe and common transportation mode and increasing the number of people bicycling, attention needs to be shifted away from creating "cyclists" and toward making it easier for any person to choose bicycling for their everyday trips. Research shows a strong latent interest in bicycling among those who identify as "interested, but concerned."

These individuals do not identify themselves as "cyclists," but they do not necessarily need to do so to benefit from programs to encourage bicycling. While all population segments may be encouraged to ride, it is through the encouragement of this largest "interested, but concerned" segment that the greatest gains in mode share will be made. The field of bicycle planning is being redefined to serve this target audience.

What Kind Of Cyclist Are You?

1% Strong and Fearless

Riding is a strong part of my identity and I am undeterred by traffic speed and volume, or other roadway conditions.

7% Enthused and Confident

I am comfortable sharing the road with motor vehicles, but given a choice, I prefer to use bike lanes and boulevards.

60% Interested but Concerned

I like riding a bike, but I don't ride much. I would like to feel safer when I do ride, with less traffic and slower speeds.

33% No Way, No How!

I don't ride at all due to inability, fear for my safety, or simply a complete and utter lack of interest.

Bikeway Facility Types

This plan includes three low-stress bikeway facility categories: off-street, on-street and shared street. These broad categories include more specific bikeway types. The category and facility type recommended depends on the context, including street type and its vehicle traffic speed and volume.

Off-Street Facilities

Off-street bicycle facilities include open space, shared used paths (i.e. Caltrans Class I facilities) and roadside shared use paved paths or "urban trails." These facilities are recommended where a recreational experience is desired, where a route is desired and no street exists, and where exceedingly high speed and volume vehicular traffic warrants substantial separation.

Figure 1-2: Off-Street Bicycle Facilities

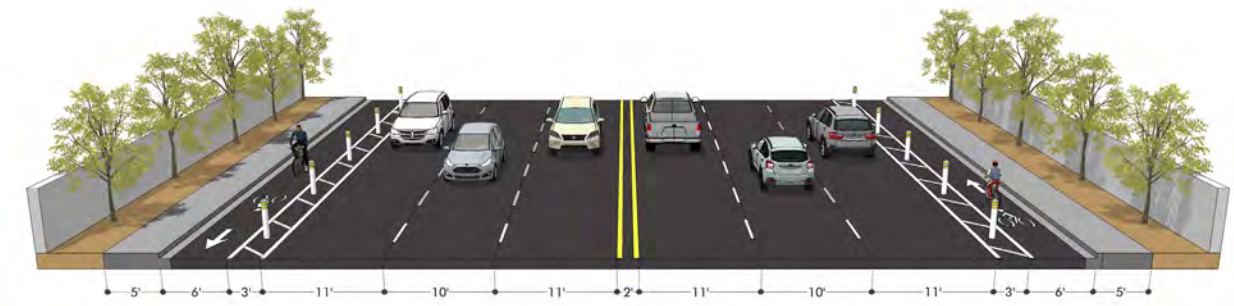
Paths in Active Railroad Corridors

Paths in Abandoned Railroad Corridors

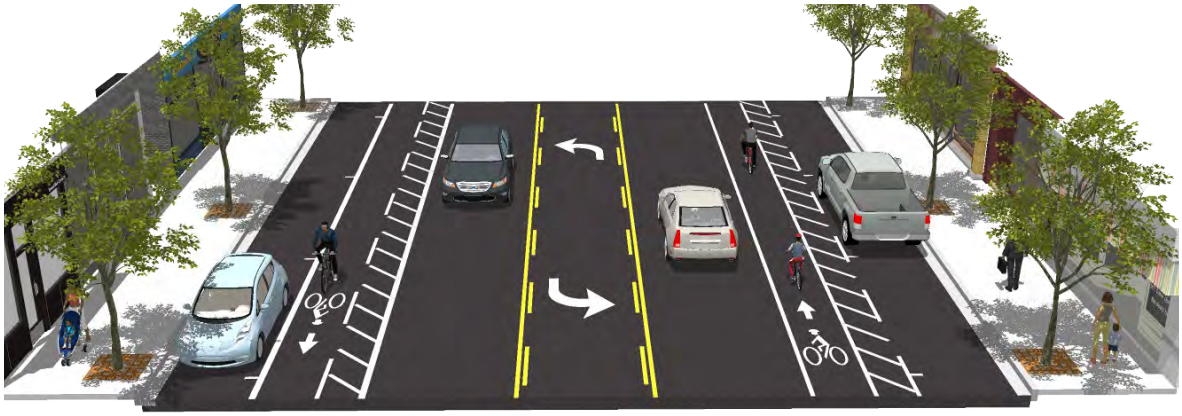
Local Neighborhood Access to Paths

On-Street Facilities

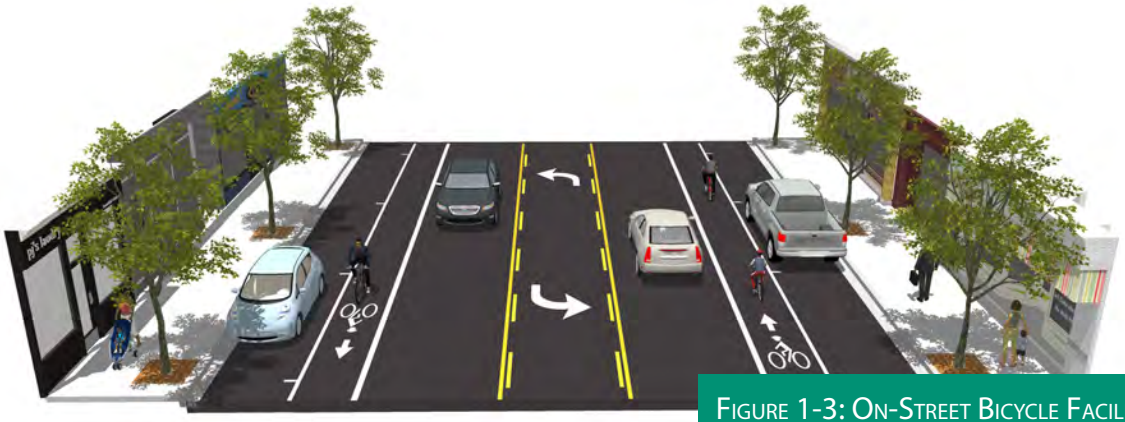
On-street facilities include striped bike lanes (i.e. Caltrans Class II facilities), buffered bike lanes and protected bike lanes (i.e. Class IV facilities). These facilities are recommended where the desired bicycling route follows an existing street and where traffic speeds and volumes are low enough to permit an adjacent facility, but high enough to preclude a "shared" facility. As a simple rule for low-stress bike lanes, the greater the separation from vehicle traffic, the better. Buffered bike lanes are recommended anywhere roadway space allows. Protected bike lanes, separated from vehicle lanes by vertical physical barriers, are recommended where vehicle speeds and volumes are high.



Protected Bike Lanes



Buffered Bike Lanes



Striped Bike Lanes

Figure 1-3: On-Street Bicycle Facilities

Shared-Street Facilities

Shared-street facilities include bicycle routes (i.e. Caltrans Class III facilities) and bicycle boulevards or "neighborhood greenways." These facilities are recommended only where vehicle speeds and volumes are low enough for bicyclists and motorists to truly "share the road." In the case of bicycle boulevards, traffic calming and bicyclist priority measures may be included.

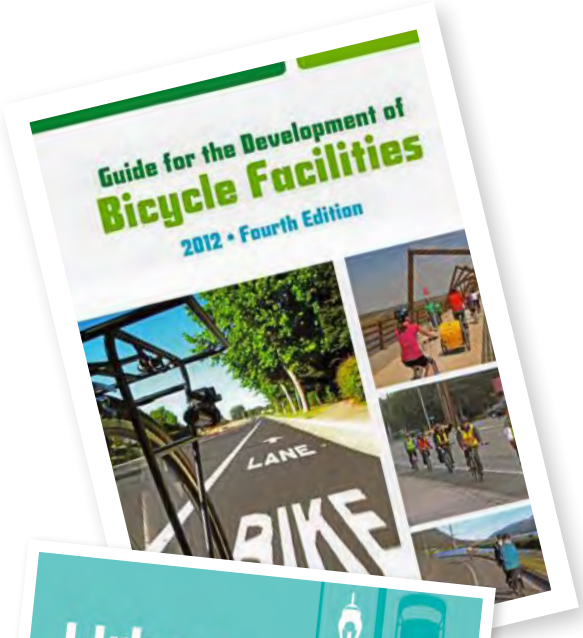
Bike Route

Neighborhood Greenway

Figure 1-4: Shared Street Facilities

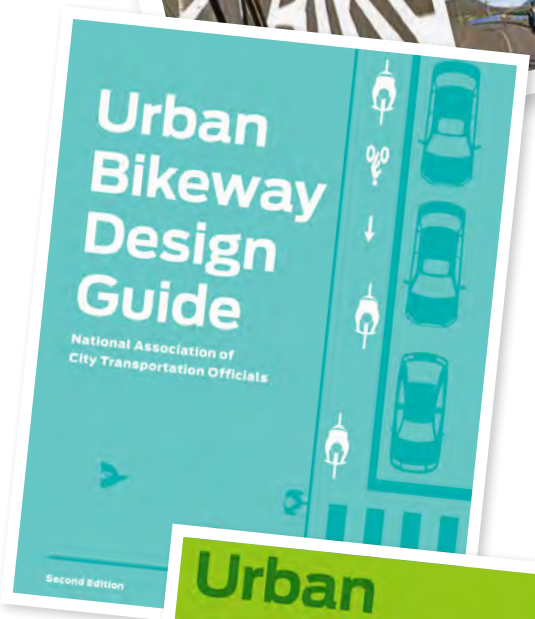
Design Guidelines for Bikeway Facilities

These high-level facility descriptions and graphic representations are supplemented with more detailed design guidance in "Appendix A: Toolbox - Design Guidelines" on page A-1. They borrow heavily from the American Association of State Highway and Transportation Officials (AASHTO) Guide to Bicycle Facilities and the National Association of City Transportation Officials (NACTO) Urban Bikeway and Urban Street Design Guides, particularly for guidance on "innovative" facilities. The Federal Highway Administration (FHWA) supports using these resources to further develop non-motorized transportation networks, particularly in urban areas. Bicycle master plan compliance with applicable guidelines and standards is also required by California Street and Highways Code Section 891.2 and most grant applications.



AASHTO Guide for the Development of Bicycle Facilities

This memorandum expresses the FHWA's support for taking a flexible approach to bicycle and pedestrian facility design. The AASHTO bicycle and pedestrian design guides are the primary national resources for planning, designing, and operating bicycle and pedestrian facilities. 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 bicyclists.



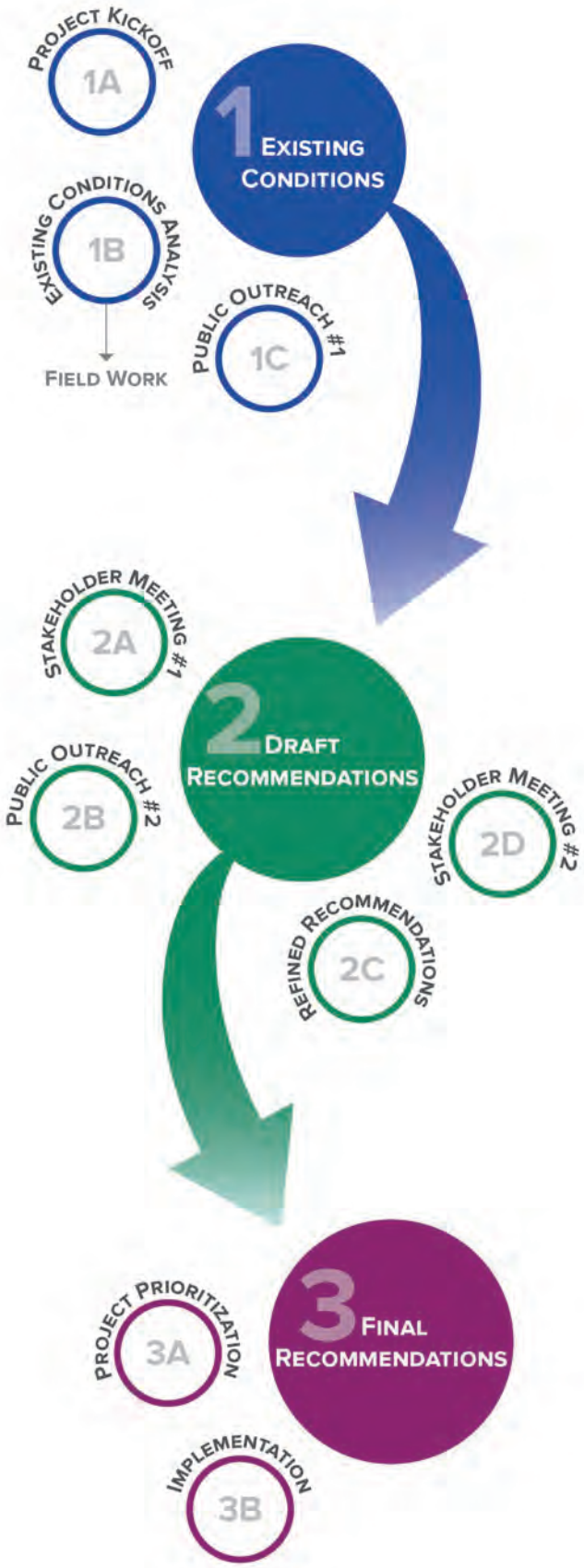
NACTO Urban Bikeway and Urban Street Design Guides

The NACTO guides represent the industry standard for innovative bicycle and streetscape facilities and treatments in the United States. In 2014, the California Department of Transportation (Caltrans) followed AASHTO and officially endorsed the NACTO Urban Bikeway Design Guide. It is important to note that all but two of its design treatments are permitted under the federal Manual of Uniform Traffic Control Devices (MUTCD), the national standard for signs, signals and pavement markings.

Caltrans also officially endorsed the NACTO Urban Street Design Guide as a valuable toolkit for designing and constructing safe, attractive local streets. (At the time, Caltrans was only the third State transportation agency to officially endorse the Guides.)

Methodology

This project's process included conventional planning methods, such as evaluating existing conditions, collecting stakeholder feedback on draft recommendations, and refining the recommendations based on the feedback received, but the process also included several unique methods related to public outreach, analysis, project alternatives and stakeholder involvement, as described in the following sections.



Public Outreach

This project's outreach strategy relied heavily on non-traditional approaches, particularly "piggybacking" on other popular community events and by creating a strong online presence. This approach was informed by City staff input, who felt there would likely be low turnout at more traditional, stand-alone planning events. The online survey received almost 500 responses.

GIS Modeling

A new GIS methodology was developed to reveal "low stress" neighborhood routes within Eastvale's traditionally suburban street "loops and lollipops" network of arterials and cul-de-sacs to connect residential neighborhoods with parks, schools and retail centers. This method and its results are further described in the Recommendations Chapter.

Multiple Facility Scenarios

Many of Eastvale's streets are wider than they need to be, a relatively uncommon problem. This excess asphalt allowed for a novel bicycle planning approach, one in which multiple, alternative solutions could be considered.

Close Stakeholder Collaboration

Due to Eastvale's relatively recent incorporation and its subsequent rapid development, data regarding existing conditions and future projects were sometimes lacking. Stakeholder input, particularly from City staff, was indispensable throughout the project process to ensure that recommendations were appropriate for current and future contexts.

Public & Stakeholder Input

Local residents and public officials are a good source for obtaining knowledge, concerns and ideas related to specific areas within the city. Their input is critical to confirming preliminary information gathered from fieldwork, research and GIS modeling. The public and stakeholder input process for the City of Eastvale was designed to gather information and perceptions from a broad range of local residents and experts through a series of general public and stakeholder meetings. The process also employed a successful online and social media outreach program. Community involvement was instrumental in analyzing existing conditions, collecting ideas and formulating master plan recommendations.

Website and Online Survey

Take advantage of Eastvale's reputation as a "connected community," a project website was created to provide project information and collect public input. The website included information for each of the public meetings as well as an online survey. This survey was advertised via the City website and social media outlets. Online surveys are a valuable tool in collecting public input as they allow respondents more time to compose their responses. The survey method often results in a greater number of comments and provides more site-specific insights than what is provided at public meetings alone. Almost 500 people completed the online survey, demonstrating a high level of engagement by Eastvale residents.

Public Input Meetings

Three public input meetings were held throughout the planning process. Each meeting included a presentation followed by an open house. The open house included a mix of displays with project informational and small-group discussions. Maps of existing and proposed conditions, along with depictions of potential bicycle facility types, were provided to help residents identify issues and potential solutions within the planning area. In addition, large aerial maps were provided at tables to engage residents in small-group discussions regarding the local cycling environment. These table maps were the focal point of the meeting and encouraged participants to discuss their views on bicycle facilities in Eastvale.

The first meeting was held on June 29, 2014 as part of a regular Town Hall Meeting. Following a brief PowerPoint presentation about the project, participants were encouraged to provide feedback either through written comments or the small-group discussions. Participants were asked to comment on where they currently did or did not ride and why, where there were gaps or other deficiencies, and where they would like to see additional facilities. Discussion groups formed around the graphics and table maps, resulting in substantial brainstorming and feedback.

The second public meeting on November 10, 2014 included a brief presentation followed by small-group discussions. Participants provided feedback on the draft plan, prioritization of the proposed bike facilities, and suggested programs and policies. Graphics were provided to demonstrate how the various bikeway types would be implemented in Eastvale. This strategy helped participants understand what could be proposed as part master plan recommendations.

The third public meeting was held on July 14, 2015 to collect feedback on the final recommendations for the bicycle master plan. The meeting began with a presentation summarizing the planning process and how the recommendations were developed. Table maps were provided for participants to review the final recommendations and give feedback. Along with citizens, several cycling advocacy group members attended the meeting and provided feedback.

Stakeholder Participation

The stakeholder group included representatives from the school district, county sheriff's office as well as city administrators, planners, and engineers. This group participated in a series of three meetings in June 2014, January 2015 and April 2015. The meetings took advantage of the group's familiarity and experience with Eastvale to review goals and objectives, suggest policies and actions, and review draft documents. The stakeholders were instrumental in directing the master plan, providing guidance on appropriate analyses, Eastvale's future planning and development, and prioritizing project and program recommendations.

A major outcome of the stakeholder input process was the format for the initial public meeting. The group felt that a conventional public meeting may not attract a satisfactory audience for collecting useful feedback. As a result, the first public meeting was scheduled in concurrence with Eastvale's regularly scheduled quarterly Town Hall Meetings, which have been well attended.

"We can show a dream about what bicycling could be...simple and liberating, sociable and relaxing. The target market for this dream is the people who aren't on bikes.

They do not think brightly colored lycra covered with ads is cool. They don't want to change their clothes and take a shower when they get to work. They do not want to belong to a bicycling subculture. We just want them to get on their bikes and ride, with the least possible impact to their cultural identification and daily routine."

- Zane Selvans, http://flatironbike.com

Chapter 2:

Existing Conditions

Understanding existing conditions of Eastvale and the surrounding region is imperative to planning for its future. This chapter includes sections on Existing Plans, City Codes and Existing Facilities and Programs. Rather than merely summarizing what exists, this chapter aims to provide meaningful discussions on each of the aforementioned topics, including how they support or impede bicycle facility development within the city of Eastvale.

Existing Plans

Several existing plans – from Eastvale and beyond – are relevant to this Bicycle Master Plan. Most relevant from Eastvale is the General Plan and its elements. Others include transportation plans from neighboring jurisdictions (e.g. the cities of Chino, Corona, Jurupa Valley and Ontario), Riverside County and the Southern California Association of Governments (SCAG). This section summarizes the most salient points from the aforementioned plans. In Recommended Standards, Codes and Policy Changes (Section 5.8, Ch. 5), the General Plan is revisited and analyzed as required by project scope of work "to determine if it adequately supports bicycle facility development within Eastvale."

City of Eastvale General Plan

Eastvale's General Plan contains several elements relevant to this Bicycle Master Plan including Circulation and Infrastructure; Land Use; Parks, Recreation and Open Space; Healthy Community; and Air Quality and Conservation. Relevant information from each General Plan element is summarized in the following sections.

Circulation and Infrastructure Element

The Circulation and Infrastructure Element retains the primacy of the automobile while providing strong support for developing alternative modes of transportation (i.e. walking, biking and public transit). This dual focus is evident in the opening quotation (seen below), the overall circulation framework and in the supporting goals and policies.

In addition, this Element provides roadway classifications, seen in Table 2-1, which are defined by the amount of vehicle traffic anticipated on each roadway segment (but do not account for pedestrian, bicycle or transit use). For each type of roadway, there are basic design parameters (e.g. an arterial roadway would be expected to have 4–6 travel lanes, a raised center median, dedicated turn lanes, and parking lanes on both sides). Most important to these roadways, however, is the vehicle traffic they carry in relation to their capacity, also known as Level of Service (LOS).

> "Access to property is essential. And while the primary mode of transportation for most people remains the automobile, design of streets to include options to the automobile would improve travel and circulation, along with reducing noise and air pollution. This Circulation and Infrastructure Chapter provides an outline of existing and planned roadways, as well as alternatives to the use of private vehicles. This "multi-modal" approach ensures that all types of transportation are considered and that the City can meet the circulation needs of development accordingly."

- City of Eastvale General Plan, Opening Paragraph

Table 2-1: Roadway Classification and Level of Service

Roadway Classification	# of Lanes	Minimum Right-of-Way Width Required	Service Level C	Service Level D	Service Level E
Local Road	2	56 Feet	Varies	Varies	Varies
Secondary Collector	2	74-100 Feet	10,400	11,700	13,000
Major Collector	2	100-118 Feet	14,400	16,200	18,000
Arterial	4	128-152 Feet	28,700	32,300	35,900
Urban Arterial	4	128-152 Feet	28,700	32,300	35,900
Urban Arterial	6	128-152 Feet	43,100	48,500	53,900

Guidance provided regarding LOS is complex. The element acknowledges the fact that the LOS standard favors the automobile and sets fairly conservative default thresholds for acceptable level of service on Eastvale's streets, as seen in Table 2-1. But it also allows for flexibility in meeting the stated threshold, in cases of overriding considerations, such as where a bike facility is desired, but there is no available ROW, or where the community wants a commercial development, but the roadway cannot be widened to accommodate projected traffic.

The Circulation and Infrastructure Element discusses the role of non-motorized transportation, with special sub-topics for Pedestrian and Bikeways. The Pedestrian section includes discussion of pedestrian infrastructure elements, the role of pedestrian facilities and issues affecting pedestrian accommodation. The Bikeways section is more limited, noting only that "Eastvale does not have an independent system of bike paths, but is included as part of the County's bikeway circulation system." It also notes that Class II bike lanes are the only existing facility type.

"THE LEVEL OF SERVICE STANDARDS CURRENTLY ONLY ADDRESS THE CIRCULATION NEEDS OF THE AUTOMOBILE. A MORE COMPLETE STANDARD WOULD TAKE INTO ACCOUNT LAND USE PATTERNS, PEDESTRIAN ACCESS, TRANSIT, AND BICYCLE PATHS."

The discussion of future planning efforts provides strong support for multi-modal improvements for Eastvale. The lack of bicycle and pedestrian connectivity, as well as an overemphasis on (costly) truck routes are mentioned as primary challenges for the City's transportation (and fiscal) future. Improving non-motorized connections, including regional truck routes, and overhauling the City's auto-centric Level of Service Standards are suggested future planning efforts.

The goals presented in this element address all aspects of circulation and infrastructure. They call for a flexible, multi-modal transportation system that maximizes the use of existing infrastructure and interagency collaboration to produce the most effective system possible. These goals are further defined by policies, but these policies relate only to the automobile. Policies related to non-motorized circulation are provided separately. Circulation policies include strict metrics to assess the performance of vehicular transportation systems (mainly compliance with LOS thresholds), while non-motorized transportation policies prescribe no such metrics. Separate policies are also provided for future planning efforts. Policies related to this plan include:

Circulation Policies

POLICY C-30: The City will seek to develop a comprehensive bike and trail plan that would connect existing neighborhoods, schools, and commercial and employment centers.

POLICY C-31: The City will evaluate its level of service and roadway width standards to determine if there is an ability to use narrower roadways and existing right-of-way to provide for pedestrian facilities, trails, bike lanes, and additional landscaping in medians and parkways. This may include establishing a comprehensive level of service threshold that includes non-motorized, transit, mixed use, and vehicle access.

Land Use Element

Eastvale's current land use designations have led to a suburban pattern, characterized by low-medium density residential development and a strong separation of uses.

A bedroom community, Eastvale's largest land use is residential. Residential use accounts for 62 percent of all land use. In contrast, potential employment centers and other activity centers constitute only 18 percent (Light Industrial: 8 percent; Business Park: 5 percent; Commercial Retail: 3 percent and Agriculture: 1 percent; and Public Facilities: 1 percent). Undeveloped land – including Conservation, Open Space Recreation and Water – accounts for 18 percent of all land use. As a further indication of Eastvale's status as a "commuter town," Freeways account for 2 percent of all land uses.

Since Residential is Eastvale's primary land use, residential densities provide a good indication of overall density. The highest density residential development is 8-14 dwelling units per acre and comprises only 5 percent of all land use. In contrast, medium-density residential is 2-5 dwelling units per acre and accounts for 50 percent of all land use.

Eastvale maintains a relatively strong segregation of uses. As can be seen in Figure 2-1, the non-residential land uses that do exist (e.g. Commercial Retail) are evenly distributed throughout the City. These uses, however, are not finely mixed (i.e. retail is organized into shopping centers, rather than live/work units and Eastvale does not have a "mixed-use" land use designation.) Furthermore, much of the non-residential land use is confined to major roadway intersections (arterials and urban arterials). While an even dispersal of non-residential uses creates shorter trips and generally supports non-motorized travel, both coarse land use mix and the orientation of non-residential uses to major arterials can be barriers to biking and walking. In contrast, several schools and parks located within residential neighborhoods are accessible by local streets, making them more likely to be accessed by bike and on foot.

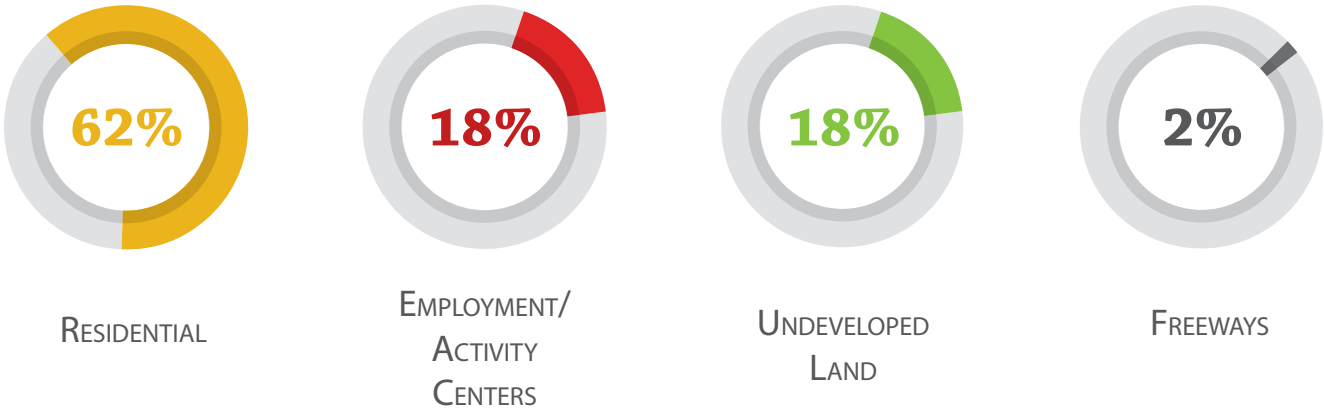
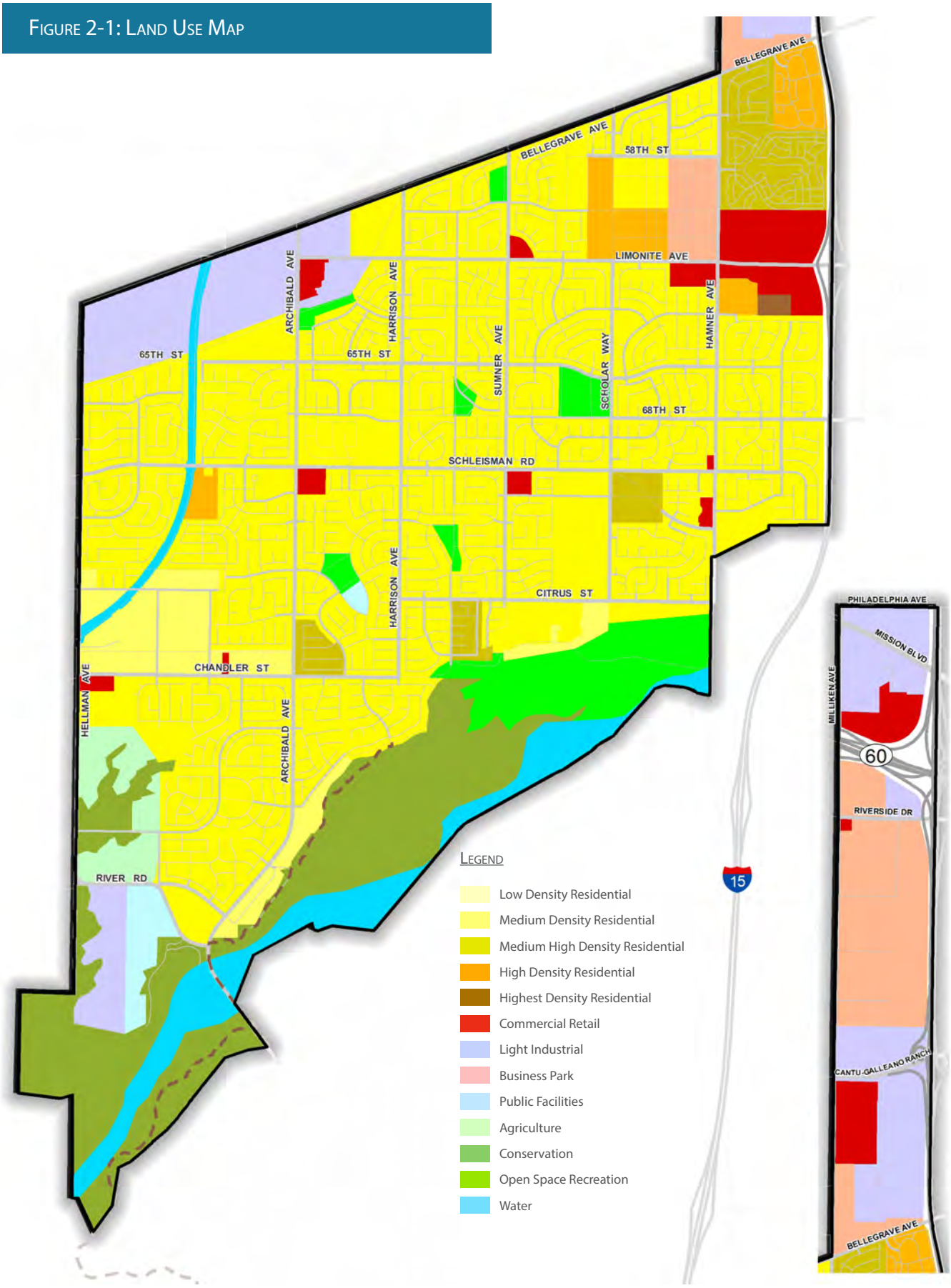


Figure 2-1: Land Use Map



The following list provides land use goals and policies relevant to this plan:

Land Use Goals & Policies

GOAL LU-5: A "downtown" or "city center" for Eastvale containing a mix of civic, office, retail, and residential uses.

GOAL LU-7: Land use patterns and transportation systems that encourage physical activity, promote healthy living, and reduce chronic illnesses.

POLICY LU-11: Development should be located to capitalize on multi-modal transportation opportunities and promote compatible land use arrangements that reduce reliance on the automobile.

POLICY LU-12: The Land Use Map should provide for land use patterns which reduce the number and length of motor vehicle trips.

POLICY LU-23: Provide sufficient commercial and industrial development opportunities in order to increase local employment levels and reduce vehicle trips.

POLICY LU-28: The Land Use Map should provide for land use arrangements that reduce reliance on the automobile and improve opportunities for pedestrian, bicycle, neighborhood electric vehicle, and transit use in order to minimize congestion and air pollution.

POLICY LU-29: Employment and service uses should be located in areas that are easily accessible to existing or planned transportation facilities.

POLICY LU-30: Commercial uses should be located near transportation facilities and include facilities to promote the use of public transit (such as bus turnouts, bus shelters, etc.).

POLICY LU-39: The City encourages shared parking and reduced parking standards in Town Center developments.

In contrast, the following policies may contradict these goals and hinder active transportation. Potential contradictions are highlighted in bold and further described in the following paragraph.

POLICY LU-6: Calculations of the potential intensity of development on any site shall be based on gross acreage. As noted in Policy LU-5, a variety of constraints may affect a site's development potential, including land required for right-of-way for collector and arterial streets shown on the Circulation Map; public parks (as defined in the Parks, Recreation, and Open Space Chapter); public facilities such as schools, fire stations, and police facilities; floodways or floodplains; protected biological habitats; location within an Airport Compatibility Zone; and other unique constraints applicable to the property as determined by the City.

POLICY LU-16: The City will allow mixed-use projects to develop in commercially designated areas in accordance with the guidelines of the Town Center land use designation and with special consideration of impacts to adjacent uses.

POLICY LU-26: Require setbacks and other design elements to buffer residential units to the extent possible from the impacts of abutting agricultural, roadway, commercial, and industrial uses.

POLICY LU-36: The City shall require that new public facilities protect sensitive uses, such as schools and residences, from the impacts of noise, light spillover, fumes, odors, vehicular traffic, parking, and operational hazards.

POLICY LU-40: Development in the Town Center designation shall be designed to mitigate potential conflicts between uses, considering such issues as noise, lighting, security, trash, and truck and automobile access.

Policies LU-6 and LU-16 have the potential to negatively impact active transportation because they rely on the City's existing definition of transportation "impacts" (i.e. automobile-oriented Level of Service), which relate increased commercial and residential densities with increased vehicle trips. This narrow definition can inhibit the increased densities needed to reduce automobile dependency and to make walking and biking viable modes of transportation. Policies LU-26, LU-36 and LU-40 have the potential to negatively impact active transportation because they indiscriminately mandate a separation between uses, regardless of actual impact. While this policy has roots in the very reasonable goal of separating potentially incompatible uses, it may preclude the compact, human-scaled environments required to support active transportation.

Air Quality and Conservation Element

Eastvale's General Plan ties vehicle miles traveled to both air quality and conservation issues. Threats to air quality include both stationary and mobile pollution sources. Vehicle miles traveled (VMT) are identified as the greatest factor for stationary sources. VMT are also seen to impact conservation indirectly, through damage caused to air and water quality, and directly, through damage caused to habitat (e.g. for roadway construction, roadway widening and the sprawling land use pattern that accompanies auto-centric planning). The Air Quality and Conservation Element states that "transportation management is one of the primary ways in which Eastvale intends to meet its air quality targets" and includes several policies aimed at reducing VMT and increasing the use of non-motorized modes. Relevant goals and policies include:

Air Quality Goals & Policies

GOAL AQ-1: Air quality that meets or exceeds all state and federal standards.

GOAL AQ-2: Meet or exceed all current and future state-mandated targets for reducing emissions of greenhouse gases.

POLICY AQ-3: Reduce vehicle miles traveled and motor vehicle emissions through local job creation.

POLICY AQ-4: Attain performance goals and/or VMT reductions which are consistent with SCAG's Growth Management Plan.

POLICY AQ-30: Promote coordination of new public facilities with mass transit service and other alternative transportation services, including bicycles, and design structures to promote mass transit, bicycle, and pedestrian use.

POLICY AQ-31: The City encourages urban design measures that support alternatives to private automobile use.

Healthy Community Element

As discussed in Chapter 1, the link between the built environment (and its support of active transportation) and community health is well documented. Eastvale's Healthy Community Element includes policies supportive of a built environment that promotes physical activity and calls for land use and transportation planning that makes walking and biking to everyday destinations easy choices. It does so by "requiring, where appropriate, compact development patterns that are pedestrian and bicycle friendly." Relevant policies include:

Healthy Community Policies

POLICY HC-2: Promote an understanding of the connections between the built environment and health.

POLICY HC-3: The City encourages a built environment that promotes physical activity and access to healthy foods, while reducing driving and pollution.

POLICY HC-4: Promote increased physical activity, reduced driving and increased walking, cycling and public transit by:

- Requiring, where appropriate, the development of compact development patterns that are pedestrian and bicycle friendly.
- Increasing opportunities for active transportation (walking and biking) and transit use.

POLICY HC-8: Neighborhood retail, service, and public facilities should be located within walking distance of residential areas.

Parks, Recreation and Open Space Element

This Element includes several goals relevant to, and supported by, the recommendations of this plan. Those most pertinent are excerpted below:

Parks, Recreation, & Open Space Policies

GOAL OS-1: Expand outdoor recreation opportunities for all residents.

GOAL OS-2: Provide active and passive park facilities and recreation programs that satisfy the leisure time and recreation needs of all residents.

GOAL OS-3: Develop a citywide trails system that provides safe, convenient, and attractive off-street opportunities for residents to travel, recreate, and exercise.

GOAL OS-4: Maintain the Santa Ana River corridor as an important resource for open space, recreation, wildlife, and scenic beauty.

POLICY OS-7: The trails system in Eastvale should provide for connectivity, so that all trails are linked to the extent possible for greater use as recreational and travel routes. The following features should be included in the trails system:

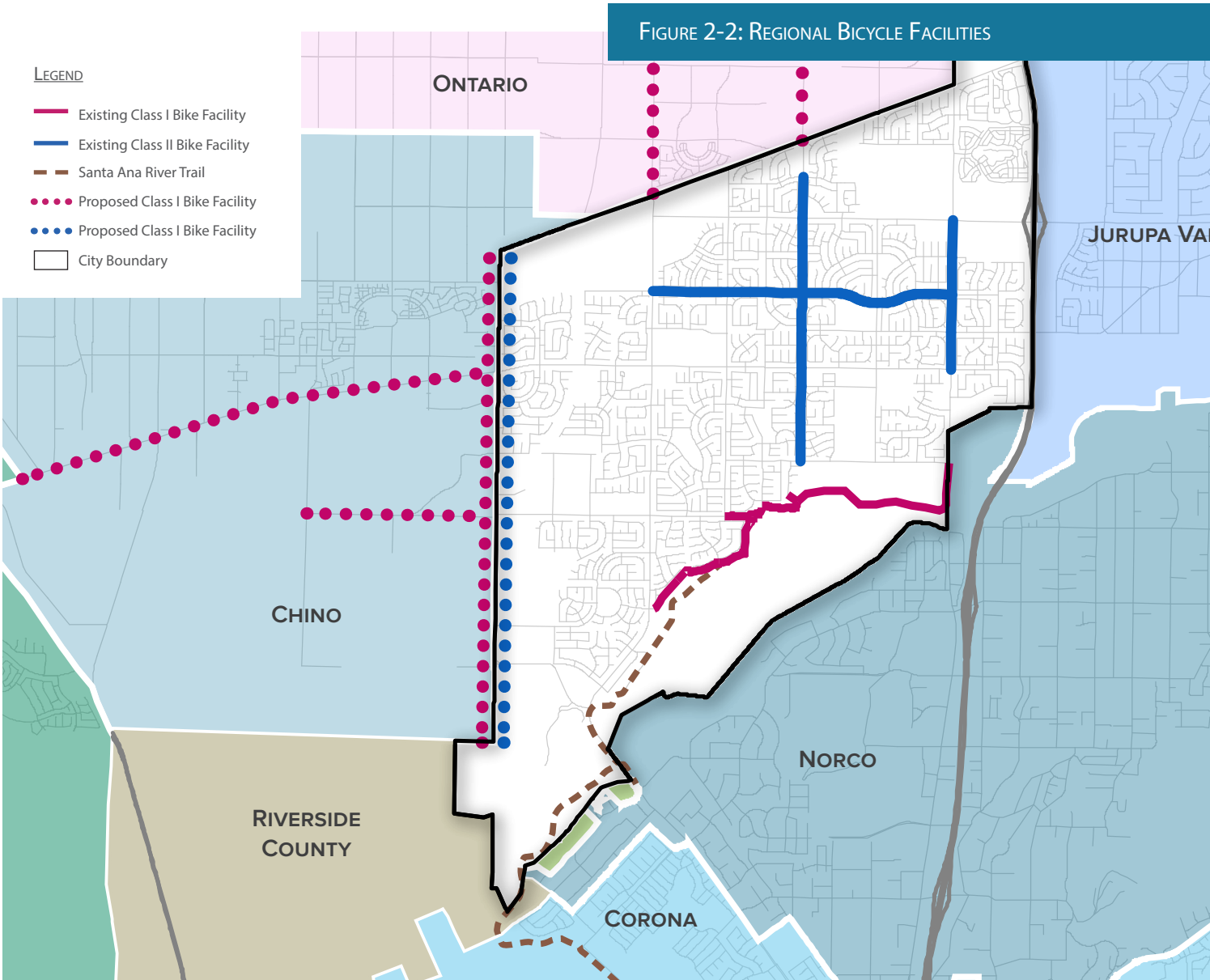
- Trails should link residential areas with parks, commercial and office areas, and other destinations.
- Trails along major roadways should avoid meanders or other design features which make bicycle use less convenient or safe.
- Trails should be located off-street to the extent possible.
- Easements such as access roads should be placed in joint use as trails.

POLICY OS-8: Trails should be designed with the safety of users and adjacent property owners in mind. To the extent possible, the bicycle trails system should provide safe, off-street options suitable for use by children and less-experienced riders.

Local Bicycle Planning Efforts (Surrounding Cities)

The neighboring communities of Chino, Corona, Jurupa Valley, Norco and Ontario have all engaged in bicycle planning efforts that include routes relevant to this plan. Chino is currently concluding a Bicycle and Pedestrian Master Plan that includes a Class I path on Pine Avenue (Schleisman Road in Eastvale), a Class I path on Chino Corona Avenue (Chandler Street in Eastvale) and a combination of Class I path and Class II bike lane on Hellman Avenue. The City of Corona's Bicycle Master Plan, adopted in 2001, includes a Class II bike lane on River Road, but this facility is not yet built. The City of Jurupa Valley has not yet completed a Bicycle Master Plan, but has recently secured funds to do so. In its current General Plan Circulation Element, Jurupa Valley identifies trail and bikeway standards, as well as important connections to make to the Riverside County trail network, but does not identify specific trails or bikeways within the City. The City of Norco does not have a bicycle plan, but does have some bicycle facilities including a segment of the Santa Ana River Trail (SART) running alongside River Road. The City of Ontario has a Multipurpose Trails and Bikeway Corridor Plan incorporated in its General Plan Circulation Element. Routes most relevant to this plan include multi-purpose trails on Haven Avenue (Sumner Avenue in Eastvale) and Archibald Avenue.

Figure 2-2: Regional Bicycle Facilities



Regional Bicycle Planning Efforts

Santa Ana River Trail

This multi-use pathway currently stretches 30 miles along the Santa Ana River from the Pacific Ocean at Huntington Beach to the Riverside County line in Corona. Design is nearing completion for a seven mile segment from there through the cities of Corona, Eastvale and Norco with construction expected to begin in early 2016. The project is part of the planned 75 mile route from the Pacific Ocean to the San Bernardino National Forest. This segment was designed to minimize impacts to the river, river-related habitat, wildlife corridors, flood control and other facilities while maximizing trail user experience. It will include parallel natural surface trails and paved paths.

Within Eastvale, this new segment will closely follow the river from the River Road bridge to connect at Dearborn Street to an existing trail segment running between Grapewin Street and Riverwalk Park at the south end of Soaring Bird Court. Completion of this segment will establish a continuous off-street route connecting Eastvale with the Pacific Ocean. In a subsequent phase, the trail will continue eastward along the river around Eastvale Community Park and under Interstate 15 into Norco.

Southern California Association of Governments (SCAG) Regional Transportation Plan

The following vision statements and goals, excerpted from the SCAG's RTP, are most relevant to Eastvale's Bicycle Master Plan:

1) Align the plan investments and policies with improving regional economic development and competitiveness
2) Maximize mobility and accessibility for all people and goods in the region
3) Ensure travel safety and reliability for all people and goods in the region
4) Preserve and ensure a sustainable regional transportation system
5) Maximize the productivity of our transportation system
6) Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)
7) Actively encourage and create incentives for energy efficiency, where possible
8) Encourage land use and growth patterns that facilitate transit and non-motorized transportation

Southern California Association of Governments (SCAG) Active Transportation Plan

The SCAG's Active Transportation Plan is written to "demonstrates the agency's strong commitment to Active Transportation and, importantly, legitimizes walking and cycling as travel modes that may actually be chosen over driving, thereby reducing congestion and air pollution. Further, it states that, in conjunction with supportive land use, these modes will increase in popularity." Its focus is intended to help the "region work towards reducing congestion and air pollution, walking and bicycling," as SCAG sees this "will become more essential to meet the future needs of (it's) residents." It states that "as the population in the SCAG region grows and matures, and as parts of the region move towards denser, mixed-use, and transit oriented development, the demand and use of active transportation will increase." The strategies established by the Active Transportation Plan has the following goals:

Goal 1: Increase dedicated funding for bicycle and pedestrian infrastructure.
Goal 2: Increase accommodation and planning for bicyclists and pedestrians.
Goal 3: Increase transportation options, particularly for trips less than three miles.
Goal 4: Significantly decrease bicycle and pedestrian fatalities and injuries.

City Codes (The Zoning Code)

Eastvale's Zoning Code provides increased specificity to the guidance offered by the Land Use Element of the General Plan. The zoning code is meant to ensure predictability and quality development. Like the General Plan Elements, the Zoning Code is also revisited and analyzed per project scope of work "to determine if it adequately supports bicycle facility development within Eastvale" in Recommended Standards, Codes and Policy Changes (Chapter 5).

Summary

The zoning code further refines the General Plan Land Use Element by providing development standards (regulations) for each land use designation including the following:

1) Permitted, conditionally permitted, and prohibited land uses
2) Setbacks
3) Building heights
4) Site coverage
5) Parking
6) Provision of open space
7) Grading
8) Design guidelines, including site planning, architectural, and landscaping guidelines specific to the project
9) Signs
10) Nonconforming uses, structures, and signs

Of these topics, setbacks, building heights, site coverage and parking have the greatest impact on active transportation. While there are too many land use designations to summarize zoning regulations for each, a more general summary is provided. Eastvale's Zoning Code combines land use designations into the following broad categories: Residential and Agricultural; Commercial and Industrial. For both categories, it provides the following development standards:

- Setbacks are defined in terms of minimums.
- Building heights are provided in terms of maximums.
- Site coverage is not defined for either category by the Zoning Code, but density is. For Residential and Agricultural uses, density is defined in terms of maximum dwelling units per acre (DUAs), as prescribed in the Land Use Element of the General Plan. For Commercial and Industrial uses, density is defined in terms of maximum floor area ratios (FARs).
- Parking standards vary based on particular land use, but are defined in terms of minimums for all land uses.

In general, the Zoning Code setback, building height, site coverage and parking standards demonstrate a bias against the type of compact, human-scaled development known to support active transportation. Figure 2-3 and Figure 2-4 demonstrate the impact of zoning code on bike- and walkability. The impacts of Zoning Code specifications on active transportation, as well as potential means of mitigating these impacts will be discussed further in Chapter 5, Recommendations.

Figure 2-3: Bicycle Un-Friendly Land Use

Low-rise Building heights Limit compact development and impede bicycling

Low site coverage (i.e. density) limits compact development and impedes bicycling

Large amounts of vehicle parking Limits compact development and presents a physical barrier, both of which impede bicycling

Deep setbacks Limit compact development and impede bicycling

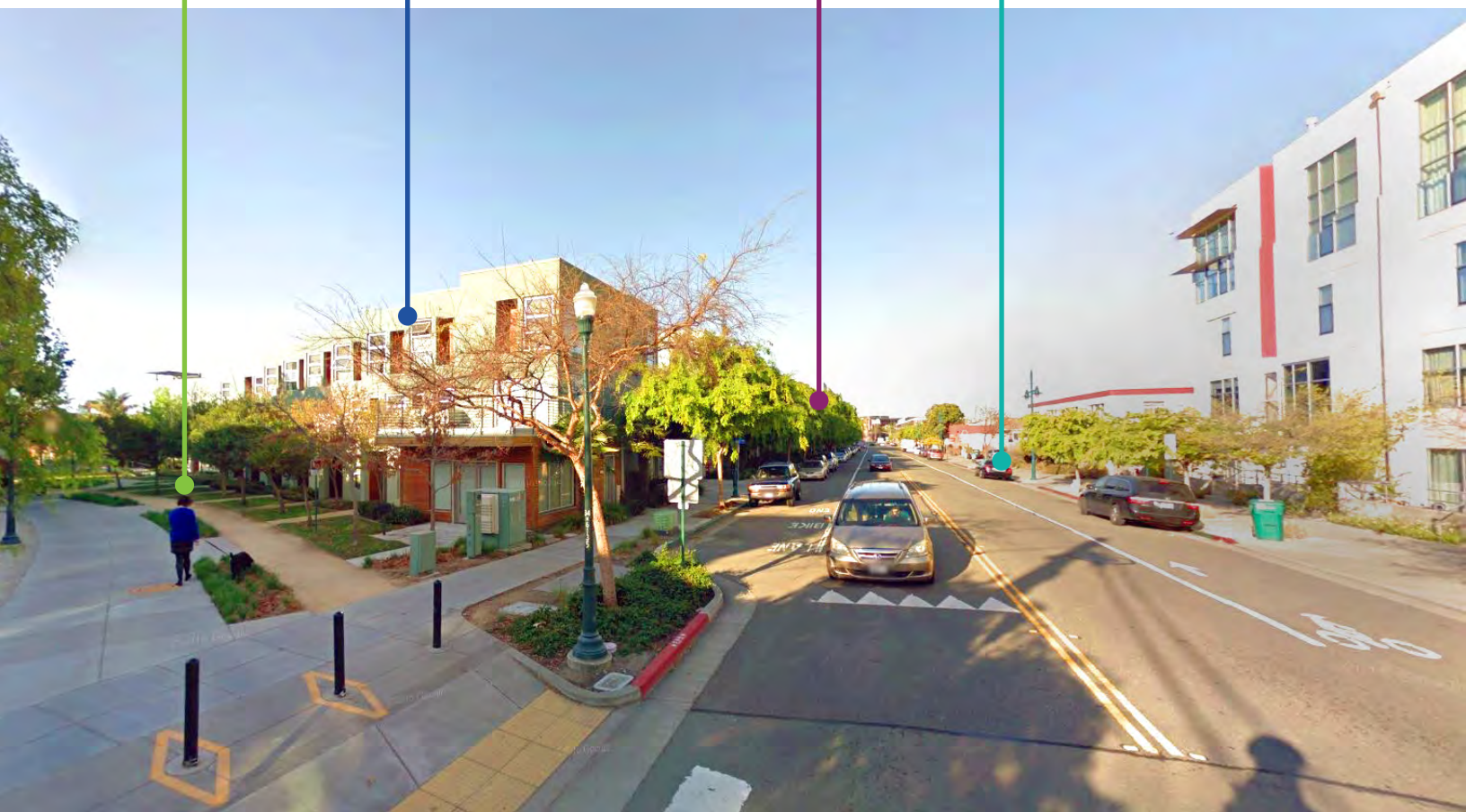
Figure 2-4: Bicycle Friendly Land Use

Small to Medium Setbacks Allow for more compact development and support bicycling

Moderate to high site coverage allows for more compact development and supports bicycling

Mid- to low-rise building heights limit compact development and impede bicycling

Modest amount of vehicle parking Allows for more compact development and provides good access, both of which support bicycling



Existing Facilities and Programs

Though this is Eastvale's first Bicycle Master Planning effort, the City already has some bicycle facilities and programs. Understanding these existing conditions is an essential first step in recommending facility and program improvements.

Existing Bicycle Facilities

Eastvale's currently has only a few bicycle facilities evenly dispersed throughout the City, including three Class II bike lanes and one Class I multi-use path. The bike lanes are located on Sumner Avenue (from Blossom Way to Citrus Street), Hamner Avenue (from Limonite Avenue to Schleisman Road) and 65th Street (from Archibald Avenue to Hamner Avenue). The multi-use path runs along the southern end of the City, near the Santa Ana River Trail (SART) and extends approximately from Archibald Avenue to Hamner Avenue. The four routes described above provided a foundation – albeit small – for this plan to build upon (See Figure 2.6).

Existing Bicycle Programs

Bicycle programs are typically recommended, in conjunction with bicycle projects, to maximize ridership, safety and the impact of broader bicycle programs. Traditionally, bike programming has been organized into specific topics under the umbrellas of the "5 Es": Engineering, Education, Encouragement, Enforcement and Evaluation & Planning.

As seen in the list of programs, the City currently has few programs that fall under the categories Education and Enforcement and none under the categories Engineering and Evaluation & Planning. Even so, what programs do exist can be expanded and made more robust. A suite of recommended programs for Eastvale, for all Es, is included in Chapter 5, Recommended Programs and Policies.

Current Bicycle Programs in Eastvale

Education

- Street Smarts Classes

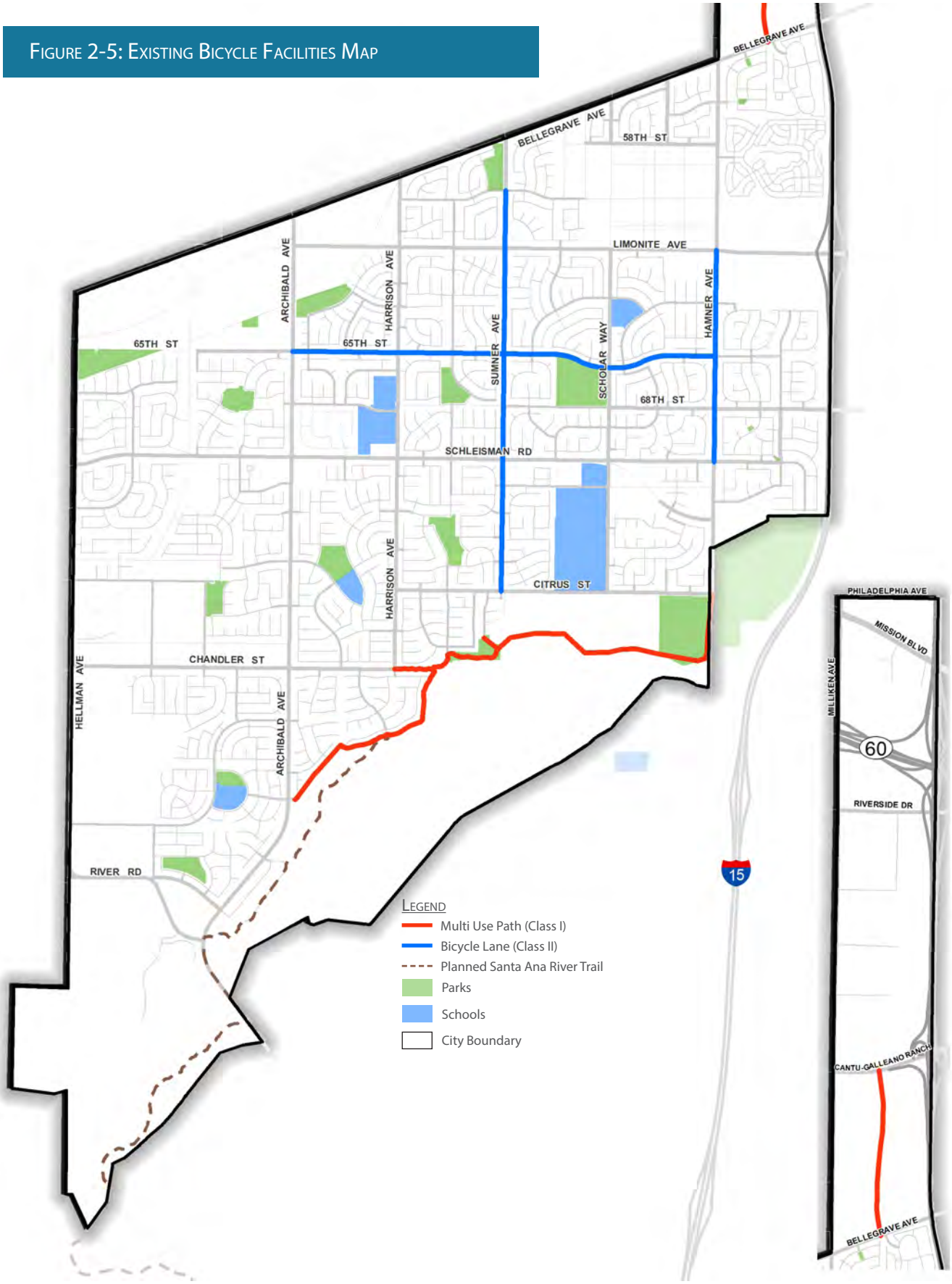
Enforcement

- Targeted Enforcement

Encouragement

- Bike Month (Promoted by Inland Empire Bike Alliance)
- Safe Routes to School Program
- Traditional TDM – Employer Incentives (Through RCTC)
- Bike Month (Promoted by Inland Empire Bike Alliance)
- Walking School Bus & Bicycle Train
- Walk and Bike to School Day

Figure 2-5: Existing Bicycle Facilities Map



Chapter 3:

Analysis

Analysis Overview

Analysis – of existing and future conditions, as well as latent demand – is an essential step in any transportation project planning process. For this project, analysis included spatial (GIS) analysis, fieldwork and community and stakeholder input. This multi-pronged approach allowed for maximal data capture and cross-referencing of findings. For example, bicycle safety concerns were analyzed through collision data, including locations, frequencies and causes. Cross-referencing these collision data with public input helped to confirm safety issues and identify areas for new or improved facilities.

This chapter is primarily concerned with explanations and discussions of the various spatial analyses employed in this project. Brief discussions of the role of fieldwork and community/stakeholder input are provided below, while the remainder of the chapter is devoted to spatial analysis.

Fieldwork

The project team conducted fieldwork, using measuring tools and geo-referenced photos, on several occasions. Fieldwork was conducted at project kick-off (to better understand existing conditions) and during project development (to verify data obtained from GIS and community/stakeholder input).

Community/Stakeholder Input

Community and stakeholder input played a very important role in developing facility and program recommendations. A summary of community and stakeholder input obtained and its impact on project recommendations is included at the end of Chapter 1.

Spatial (GIS) Analysis

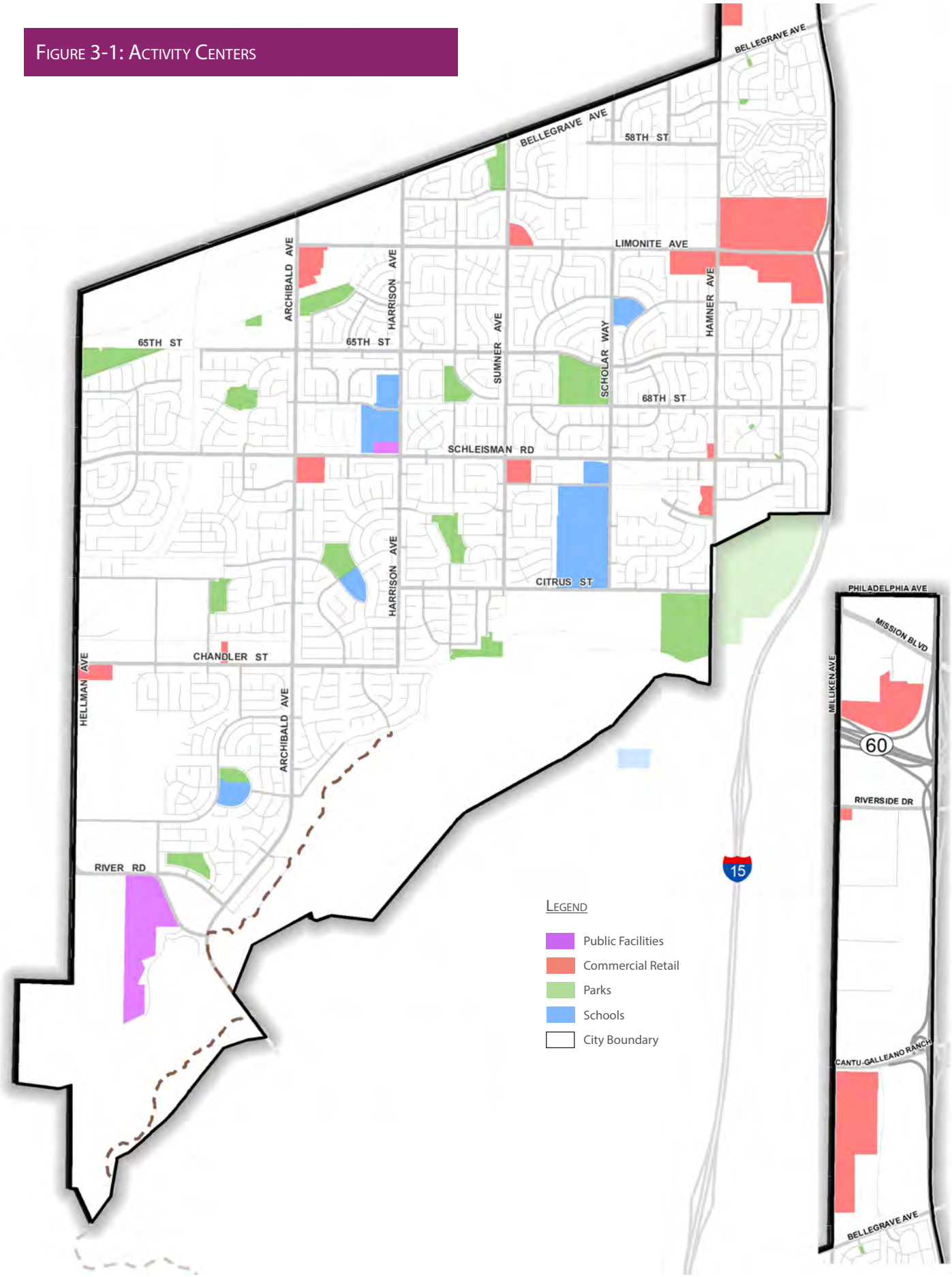
Spatial analysis included simple, data-driven analyses and more complex analyses, requiring evaluations of layered information and multiple inputs. Data-driven topics include activity centers, population/employment density, posted speed limits, and transit routes. Topics requiring more complex analysis included safety/collisions and bicycle boulevard routing. Each of these topics are discussed in more detail throughout this chapter.

Activity Centers

Activity centers include employment hubs, industrial sites, government sites, retail centers, hospitals, schools, colleges, parks, open spaces and other attractions. (Most of these activity centers are required to be considered under California's bicycle planning enabling legislation.) Identifying these centers, and their draw for the community, is essential to creating a useful bicycle transportation network. It is important to create facilities that connect the places people actually want to frequent, rather than where convenient, as is often the case.

Eastvale's primary activity centers include public facilities, commercial/retail facilities, parks and schools. Since Eastvale is a commuter community and lacks a strong employment base of its own, parks and schools are relatively strong attractors. For the most part, parks and schools are evenly dispersed and generate comparable levels of activity. Eastvale also has the following specific attractors: the Community Center, Riverwalk Park, the Santa Ana River Trail and the Eastvale Gateway Mall.

Figure 3-1: Activity Centers



Population and Employment Density

Suburban Eastvale's population density is relatively low (less than five people per acre) and fairly uniform throughout the City. This reflects Eastvale's overall land use pattern, predominated by single family housing. Eastvale's employment density, which is also uniform across the city, is also less than five people per acre. Given Eastvale's "commuter community" character, the low employment density is not surprising. What employment does exist in Eastvale likely falls in the service sector or public sector (This is inferred from available land use data. American Community Survey (ACS) data provide information on employment, by sector, for Eastvale residents, but do not indicate whether jobs are located within Eastvale or beyond). The low, but uniform population and employment densities indicate a need for bicycle facilities throughout Eastvale, rather than concentrating them in particular areas.

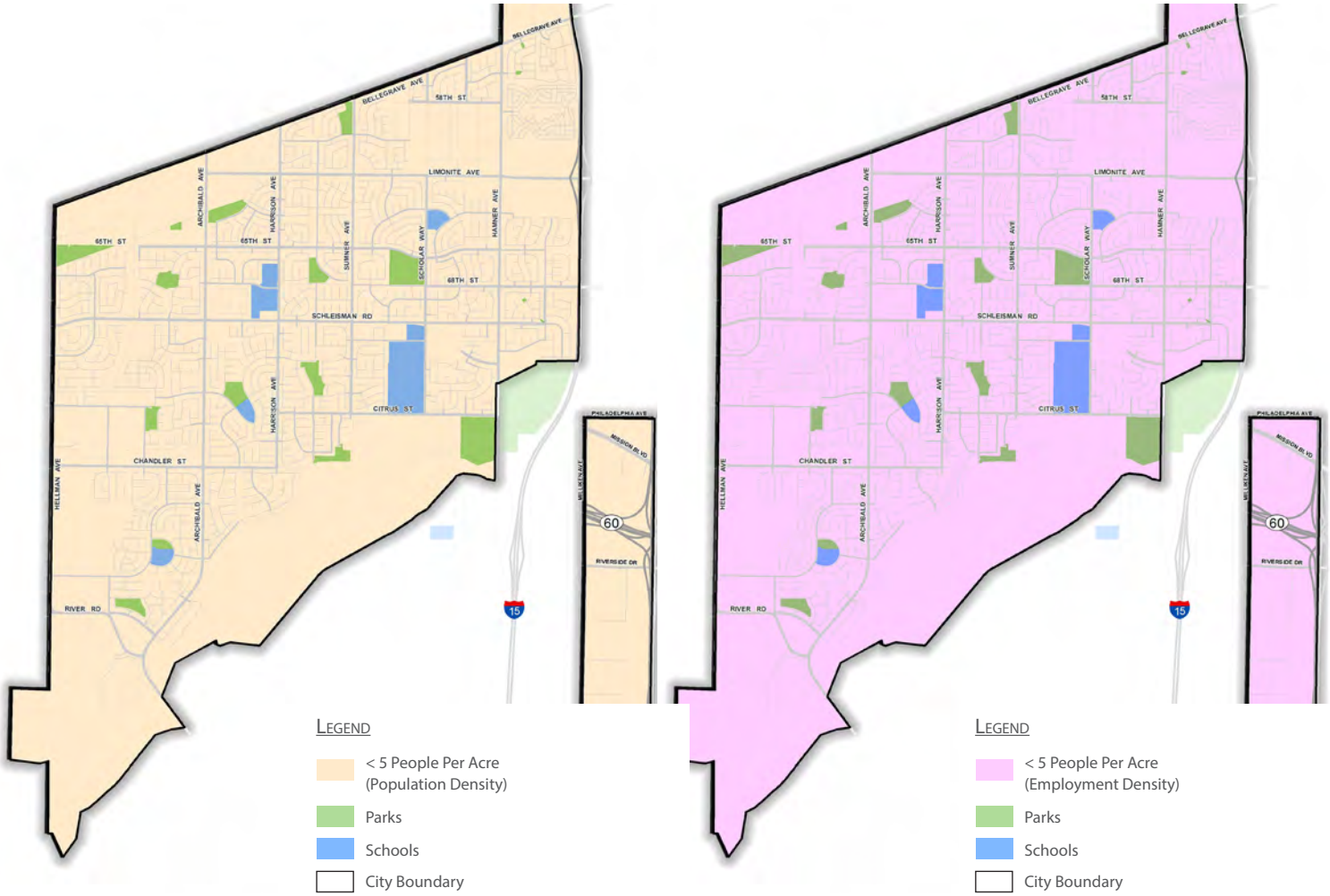


Figure 3-2: Population & Employment Density

Posted Speed Limits

A majority of Eastvale's streets (69 percent) have posted speed limits of 25 miles per hour (mph). These streets are followed – in quantity – by those of unknown posted speed (22 percent), those with posted speeds of 45 mph (five percent), those with posted speeds of 40 mph (two percent) and those with posted speeds of 30 and 35 mph (one percent each). Though the vast majority of Eastvale's streets are low-speed, they are almost entirely confined within "superblocks" defined by high-speed arterial streets. For cross-city travel by bike, this renders the network of 25 mph streets practically useless and makes higher speed arterials the only option.

Figure 3-3: Posted Speed Limits

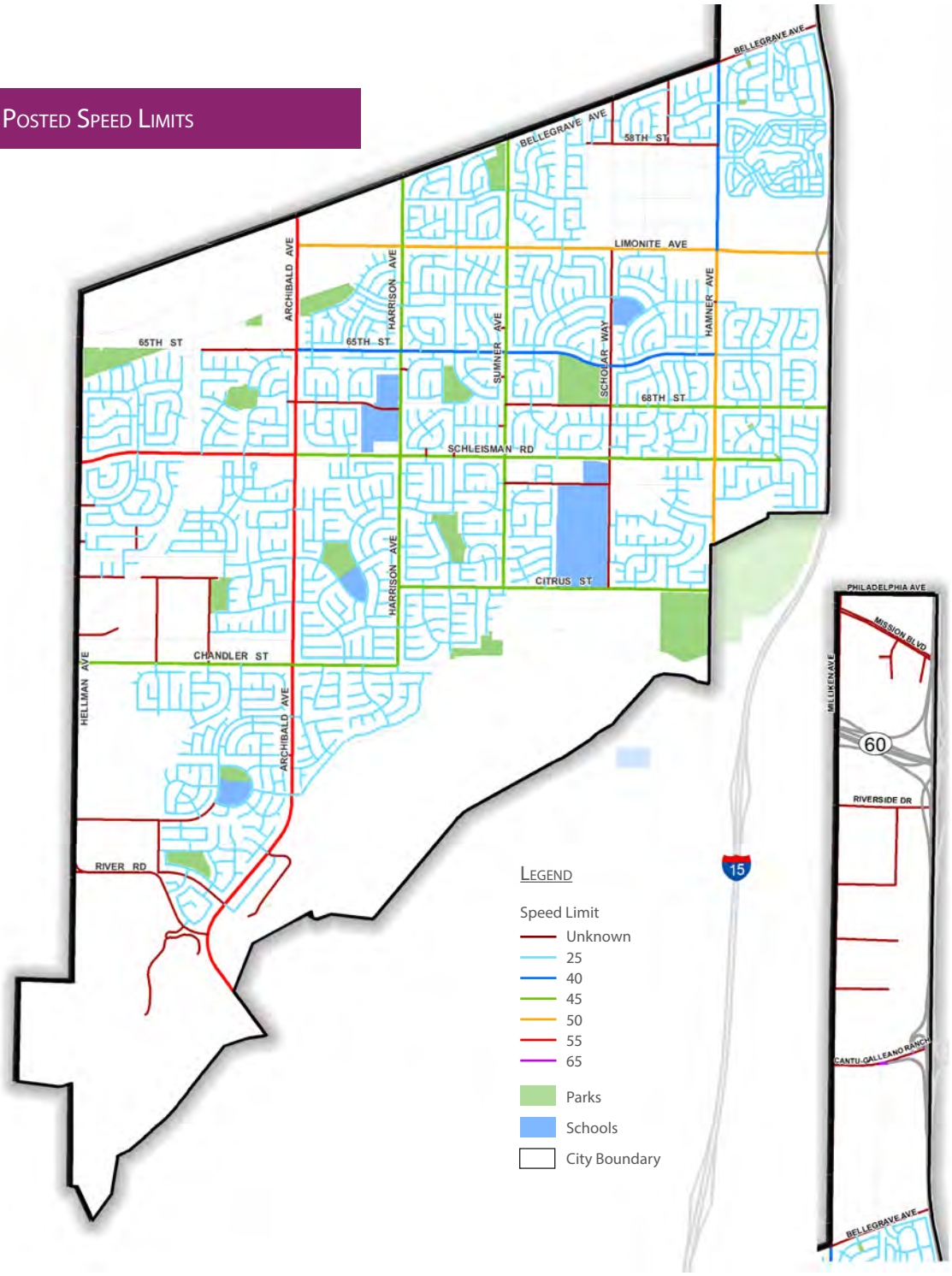
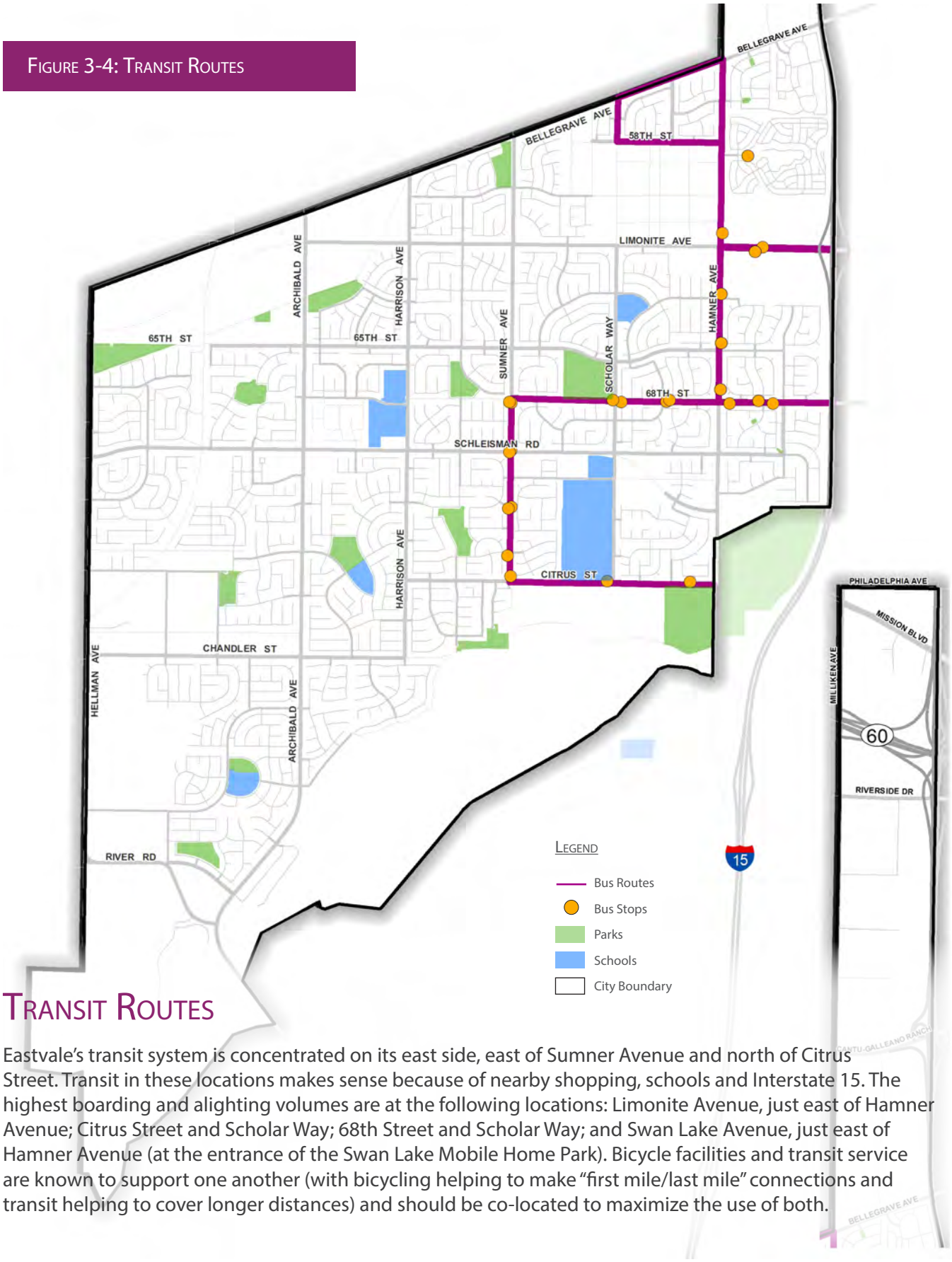


Figure 3-4: Transit Routes



Transit Routes

Eastvale's transit system is concentrated on its east side, east of Sumner Avenue and north of Citrus Street. Transit in these locations makes sense because of nearby shopping, schools and Interstate 15. The highest boarding and alighting volumes are at the following locations: Limonite Avenue, just east of Hamner Avenue; Citrus Street and Scholar Way; 68th Street and Scholar Way; and Swan Lake Avenue, just east of Hamner Avenue (at the entrance of the Swan Lake Mobile Home Park). Bicycle facilities and transit service are known to support one another (with bicycling helping to make "first mile/last mile" connections and transit helping to cover longer distances) and should be co-located to maximize the use of both.

Safety Analysis

Safety analysis entails the use of bicycle collision data to better understand collisions, including where they occur, why they occur and how they might be prevented. Typically, collision data is gleaned from the Statewide Integrated Traffic Records System (SWITRS) data sets. However, since Eastvale's Sheriff's office had more current and detailed data, this project used that source instead. (Eastvale contracts with the Riverside County Sheriff's Department for law enforcement.) Sheriff's Department data covers the years 2012-2014 and includes descriptions of incidents and assignments of fault. Summaries of collision data – by year, month, severity, intersection type, street, incident details and assignment of fault – are provided in the following section. These data were used to identify trends, develop project recommendations, and help prioritize recommended projects. The data do include several limitations:

- Collisions on off-street paths are not included in the data.
- Collisions involving cyclists, whether they involve vehicles, other cyclists, or pedestrians, are generally under-reported, so bicycle collisions are likely to have occurred that were not included as part of this data - some estimates are as high as two unreported incidents for each reported incident.

23

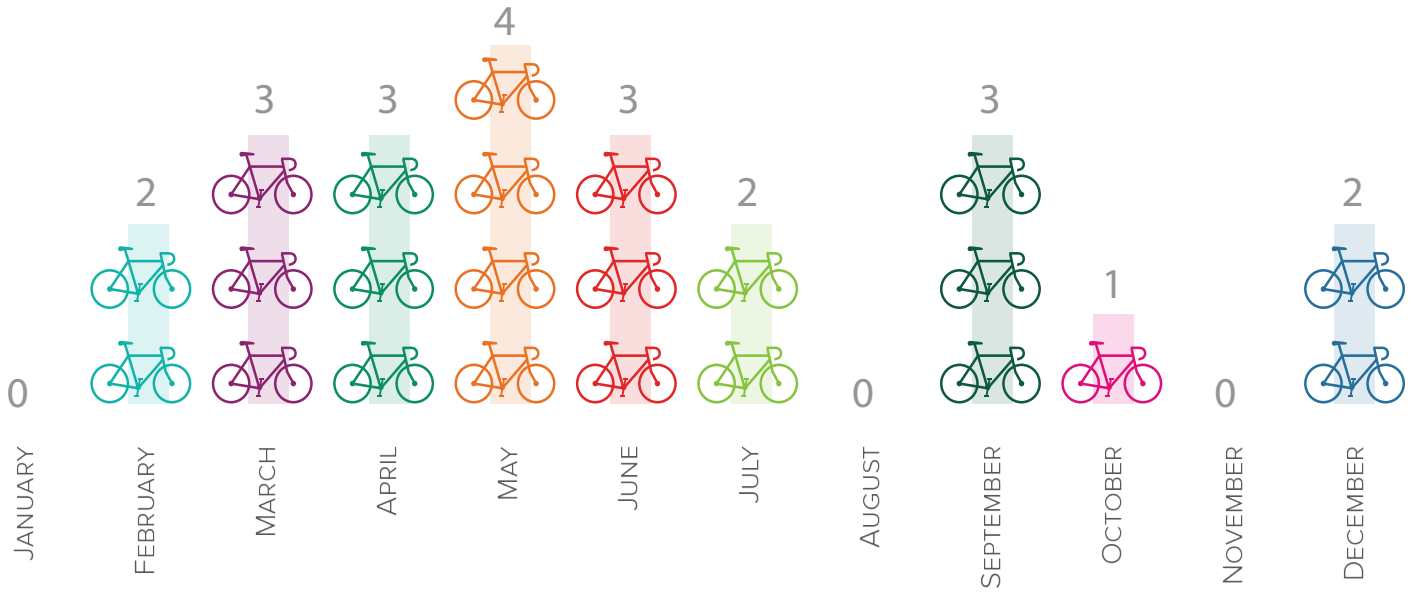
Bicycle Collisions from 2012-2014

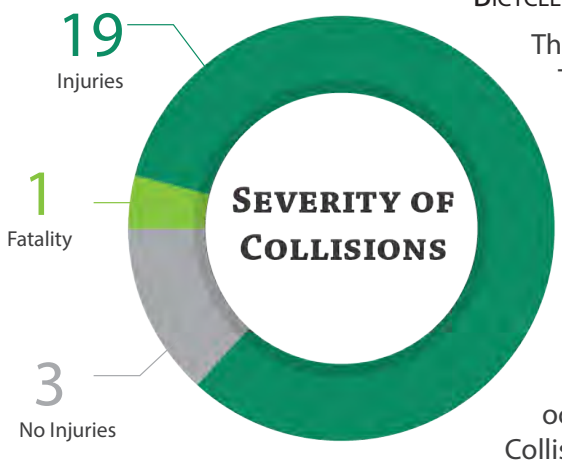
Bicycle Collisions by Year

23 collisions were recorded between 2012 and 2014. Of these, 11 occurred in 2012, five in 2013 and seven in 2014. Because of the small sample size, no trend by year can be inferred.

Bicycle Collisions by Month

Bicycle collisions by month were also analyzed for trends. While the data do not portray a strong trend, the highest concentration occurred in May and collisions appear somewhat more frequent in the spring and summer than winter months. This slight trend may simply be correlated with higher levels of ridership in the spring and summer.





Bicycle Collisions by Severity

The overwhelming majority of bicycle collisions led to injuries. These were followed by three incidents resulting in no injury and one incident resulting in fatality (hit-and-run driver later arrested through the efforts of the Sheriff's Department). The majority of injuries occurred because of right-of-way violation, many of which occurred at intersections.

Bicycle Collisions by Intersection Type

Nearest intersections were used as location references for collisions involving bicycles. Bicycle collisions most commonly occurred at intersections of two "Arterial/Collector" streets. Collisions occurred to a lesser extent at the intersections of "Arterial/Collector and Local" streets and "Local" streets. These findings make sense in light of the following points: (a) Eastvale's suburban grid requires the use of "Arterial/Collector" streets for cross-city travel and (b) and "Arterial/Collector" streets are characterized by high traffic speeds and volumes and complex turning motions.

Bicycle Collisions by Street

As discussed in the previous section on Intersection Types, collisions were far more common on "Arterial/Collector" streets than on "Local" streets, representing nine out of ten of the top collision locations. The top four collision streets – Hamner Avenue, Schleisman Avenue, Limonite Avenue and Scholar Way – are well traveled by all transportation modes and have relatively high posted speed limits: 50 mph, 50 mph, 45 mph and 35 mph, respectively. Even among the bicycle collisions on "Local" streets, the majority of them occurred at their intersection with "Arterial/Collector" streets. These findings indicate the need for enhanced facilities (e.g. separated bicycle facilities along "Arterial/Collector" streets and traffic calming along "Local" streets) and targeted education and enforcement efforts.

Bicycle Collisions by Cause

The overwhelming majority of bicycle collisions was caused by right-of-way violation (18 of 23). Many of these incidents occurred at large intersections and were likely exacerbated by complex intersection operations. Two incidents were caused by more than one violation (e.g. a cyclist riding the wrong way and driver using his/her mobile phone). The one collision resulting in fatality was caused by a hit-and run driver. The cause of the single remaining collision was unknown due to lack of cooperation of both parties.

Bicycle Collisions by Fault Assigned

There was complete parity between cyclists and drivers in terms of fault assigned. Cyclists and drivers were also equally guilty in violating each another's right-of-way. Primary differences in fault occurred with wrong way riding and drunk driving. Wrong way riding is often addressed through facility improvements, which direct cyclists to safe crossings with reduced crossing distances. All causes of collisions should also be addressed through education and enforcement efforts.

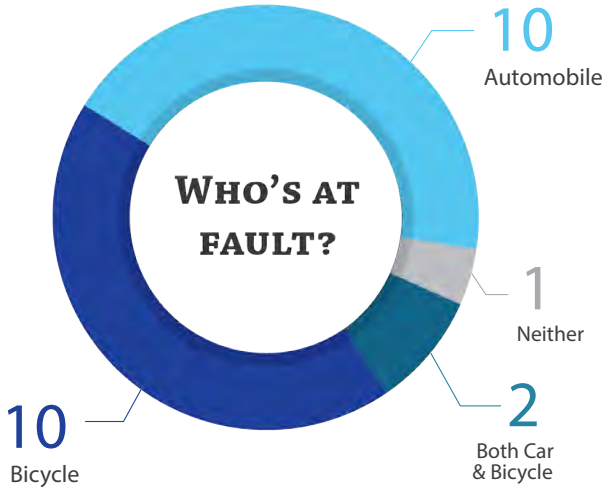
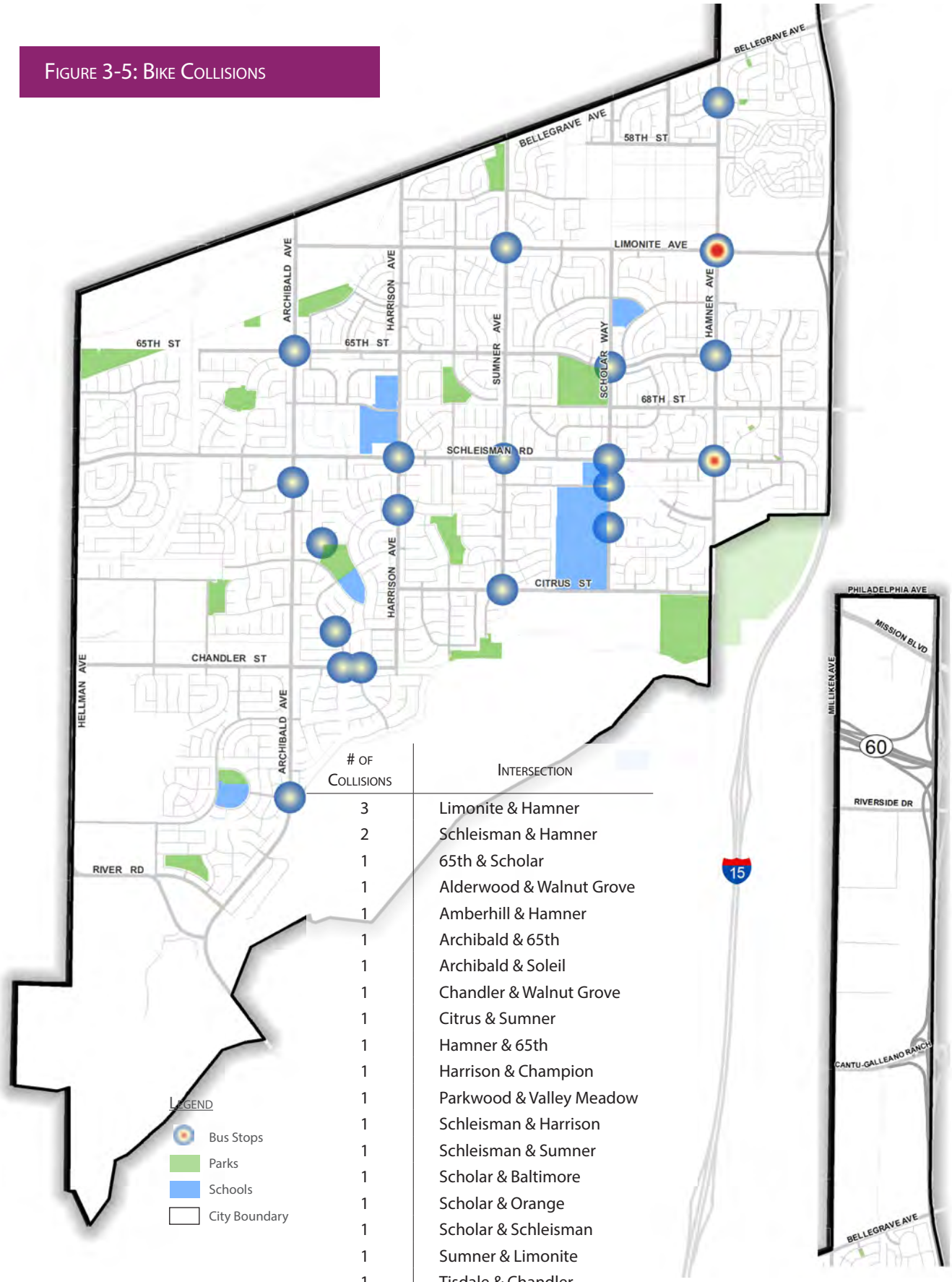


Figure 3-5: Bike Collisions



# of Collisions	Intersection
3	Limonite & Hamner
2	Schleisman & Hamner
1	65th & Scholar
1	Alderwood & Walnut Grove
1	Amberhill & Hamner
1	Archibald & 65th
1	Archibald & Soleil
1	Chandler & Walnut Grove
1	Citrus & Sumner
1	Hamner & 65th
1	Harrison & Champion
1	Parkwood & Valley Meadow
1	Schleisman & Harrison
1	Schleisman & Sumner
1	Scholar & Baltimore
1	Scholar & Orange
1	Scholar & Schleisman
1	Sumner & Limonite
1	Tisdale & Chandler
1	Wind River & Archibald

Bicycle Boulevard Routing Analysis

Background

A bicycle boulevard is a bicycle priority route, generally located on calm residential streets, parallel to busier arterials and collectors. They are used by bicyclists seeking "low-stress" experiences to access destinations. Candidate bicycle boulevard streets may vary in the amount of traffic calming (i.e. speed and volume reduction) and other interventions required, but are alike in requiring comprehensive wayfinding treatments. (Many cities are now referring to bicycle boulevards as "neighborhood greenways" to better emphasize their traffic calming features that improve pedestrian safety, as well as encourage bicycling.)

In communities with conventional street grids, strong bicycle boulevard candidates are often easy to identify. In fact, public input often reveals that residential streets parallel to busier streets are already used as defacto bicycle boulevards.

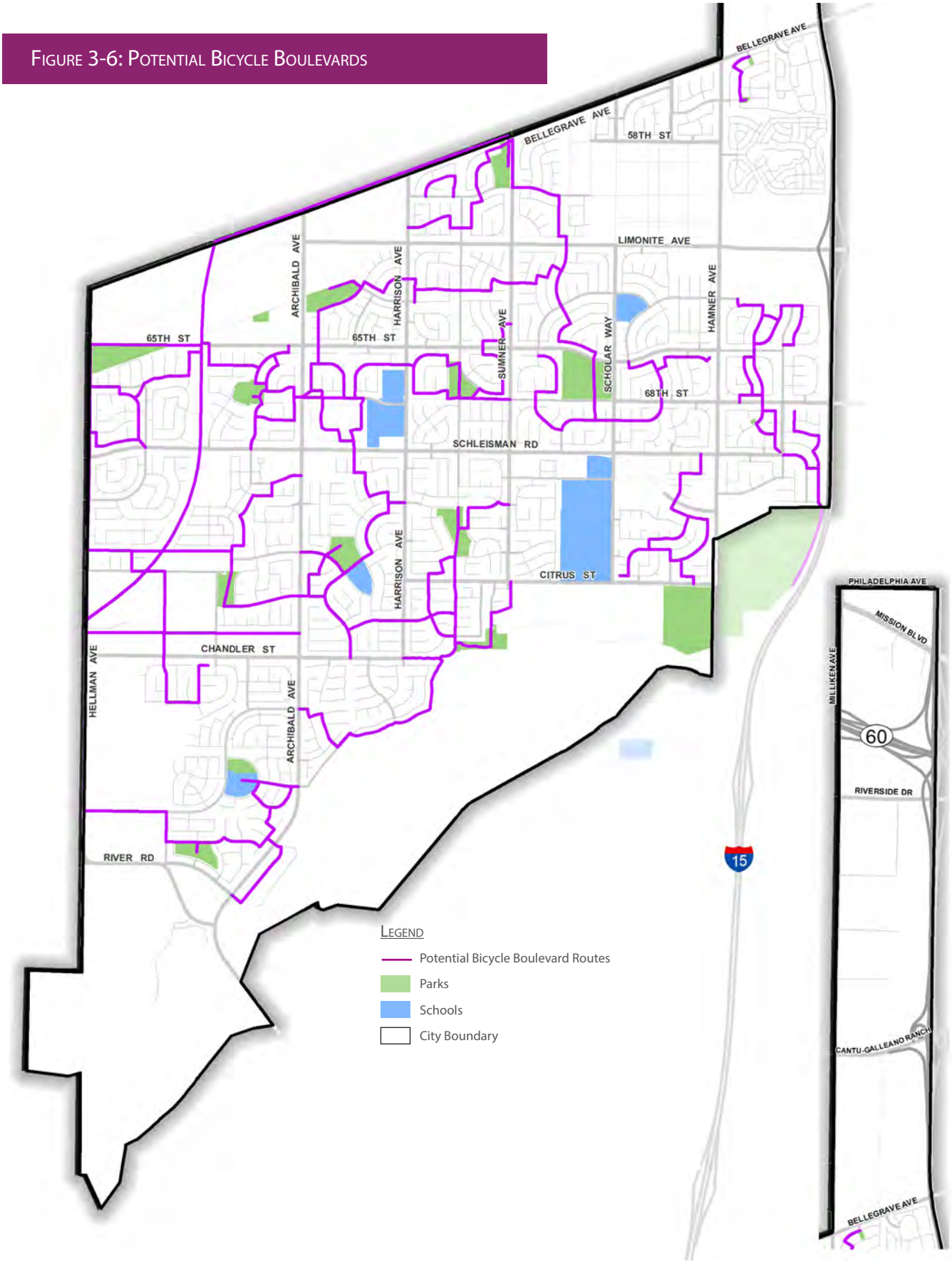
In communities with typically suburban street grids (i.e. those characterized superblocks and cul-de-sacs), bicycle boulevard candidates are much more difficult to identify. Cul-de-sac streets seldom offer bicycle and pedestrian connections and, even when they do, often meander to the point of inconvenience. Still, nearly all communities, including Eastvale, have some bicycle boulevard potential.

Approach

For Eastvale's Bicycle Master Plan, knowledge of bicycle boulevard design was paired with GIS analysis to improve efficiency and maximize positive identification of bicycle boulevard candidates. Using GIS, a network analysis was performed to identify a system of suitable bicycle boulevards based on project-specific inputs and parameters.

The primary input was the existing street network, which was augmented with both existing and potential Class I facilities, as well as small sidewalk connections. Such additions served to close gaps and better represent existing conditions, therefore effectively increasing the amount of bicycle boulevard candidates. Parameters included streets designated as "Local" and those with speeds appropriate for bicycle boulevards (≤ 25 mph). Segment length was also included as a parameter to guide selection of the shortest possible routes. Parks, schools and major intersection crossings were integrated into the network as origins and destinations between which the network analysis was run.

Figure 3-6: Potential Bicycle Boulevards



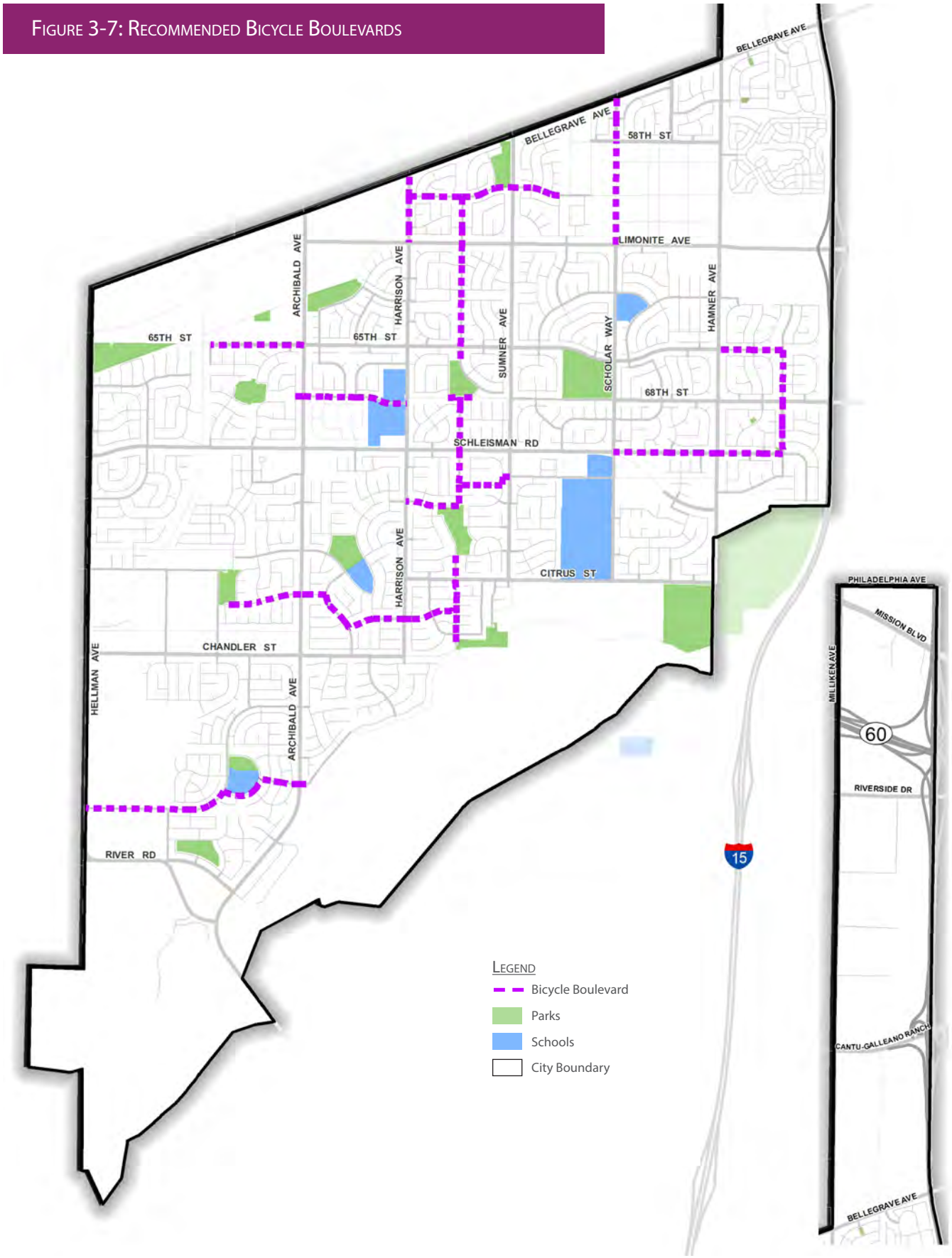
Results

Preliminary results, depicted in Figure 3-6, were derived from the method described above. The GIS results are, however, not the final product. Knowledge of best practices was used to eliminate disjointed segments. These were segments that fit the required parameters, but did not serve the intended purpose. Conversely, professional judgment was used to more closely evaluate and incorporate segments that appeared to be strong candidates, but which were excluded by the analysis due to the strict parameters (e.g. vehicular speeds ≤ 25 mph). As mentioned above, some candidate routes require more intervention than others to become true bicycle boulevards.

Lastly, an analysis of connectivity was performed, as recommended by the Mineta Transportation Institute's 2012 document Low-Stress Bicycling and Network Connectivity. The connectivity analysis measures out-of-direction travel and is used to validate bicycle boulevard routes. Out-of-direction travel is determined by comparing each bicycle boulevard route to the corresponding direct route for the same origin and destination. Bicycle boulevards with additional length in excess of 25 percent were considered "intolerable" and removed from the results.

Interestingly, despite the apparently circuitous nature of several of the candidate bicycle boulevards, none exceeded the 25 percent length threshold identified by the Mineta Institute's report. The greatest increase in length was 16 percent and the vast majority of candidates entailed an increase in length of less than 10 percent. Still, drawing from professional and personal experience, several routes were deemed unacceptable bicycle boulevard candidates due to the number of turns they entailed, especially left turns. Routes that jog excessively, but still provide low-stress connectivity, were reclassified as Class III Bicycle Routes. The remaining candidate routes were retained as bicycle boulevards and are shown along with other bicycle facility types in Figure 3-7.

Figure 3-7: Recommended Bicycle Boulevards



Chapter 4:

Recommended Facilities

Recommendations

This chapter presents and discusses the projects, programs and standards/codes/policies recommended to improve bicycling in the City of Eastvale.

The City recognizes that improving bicycling will require a multi-faceted approach consisting of a complementary menu of recommended bicycle projects and programs, as well as suggested changes to existing standards, codes and policies.

Recommended projects, or Engineering, is one of the most powerful methods to improve bicycling. According to the League of American Bicyclists (LAB), "The most visible and perhaps most tangible evidence of a great place for bicycling is the presence of infrastructure that welcomes and supports it. Survey after survey shows that the physical environment is a key determinant in whether people will get on a bike and ride." This chapter begins with a discussion of how bike projects were developed and assessed for feasibility. It then presents specific recommendations for bike projects and "future opportunities" and more general recommendations for Safe Routes to Transit and bike parking.

The success of recommended projects is closely tied to programs and adopted standards, codes and policies. Education, Encouragement, Enforcement and Evaluation and Planning programs to help maximize investments in bike projects. Similarly, the effectiveness of bike programs is maximized by actual project implementation. Likewise, changes to City standards, codes and policies may be needed to implement bike facilities, and project implementation may, in turn, facilitate changes to City standards, codes and policies.

Bicycle Project Development and Feasibility Assessment

Bicycle projects were developed according to the goal of creating a comprehensive and low-stress bicycle network. Project development considered the following factors:

- Existing and Future Conditions
- Public and Stakeholder Input
- Analysis of Activity Centers, Population and Employment Density, Posted Speed Limits, Transit Routes, Safety/Collisions, Bicycle Boulevard Routing, Benefit/Cost
- Level of Traffic Stress (i.e. anticipated stress, based on vehicle speeds and volumes, as well as type of bicycle facility provided)
- Feasibility (e.g. available right-of-way, project cost, etc.)
- Network Density (i.e. a sufficiently dense network, but not redundant)

Facility types were recommended for specific streets and street segments. Recommended bike facility types include Multi-Use Paths (Class I), Buffered Bike Lanes (enhanced Class II), Bike Routes (Class III), Cycle Tracks (soon to be designated Class IV) and Bike Boulevards (referred to in this report as Class V). Further information on project development, by facility type, is provided in the following sections.

Class 1 Multi-use Paths

Multi-use paths were typically recommended along utility easements, flood control channels or through undeveloped areas, such as parks, "paper" streets, etc., to provide connections between otherwise disjointed on-street bike facilities. In only one case, along Harrison Road, was a multi-use path (essentially a widened sidewalk) recommended alongside an existing roadway. This roadside path was recommended due to: (a) the importance of Harrison Road as a bike route, (b) the existing "high-stress" cycling conditions, and (c) the lack of available curb-to-curb right-of-way to provide a low-stress, on-street facility.

The minimum width for a multi-use path was considered to be 10 feet for this plan, with at least two feet of clearance from obstructions on each side. Considering the existing conditions, most were relatively unconstrained. For projects on roadway segments where there appeared to be constraining factors, horizontal clearance was measured using high-resolution aerial photos. This data collection was then supplemented with on-site field work and consultation with City staff. (Typical costs per mile can vary a great deal due to potential right-of-way acquisition, bridges and other possible major expenses such as grading due to hilly topography and facility width.)

Class 2 Buffered Bicycle Lanes and Cycle Tracks

Buffered bike lanes and cycle tracks were recommended along collector and arterial streets, where anticipated use (by all transportation modes), as well as stress levels, would be higher and where available right-of-way existed. Buffered bike lanes and cycle tracks require the following minimum widths: 5+ feet (ideally, 6-7 feet) and 8 feet, respectively.

The decision to recommend a cycle track versus buffered bike lane was driven primarily by need, such as the need for increased separation to provide a low-stress cycling experience, but was also driven by feasibility, often available right-of-way. (For more information, see the explanation of Delta values in Section 5.2 Recommended Bikeway Projects). Because many collector and arterial streets in Eastvale are excessively wide and unconstrained, decisions about which type to recommend were generally based on need, rather than feasibility. This allowed for more cycle track than buffered bike lane recommendations.

Class 1 Multi-Use Path

Cycle Track

Class 3 Bicycle Routes

Bicycle routes recommended for Eastvale were developed with assistance from the Bicycle Boulevard Routing methodology (for more information, see Chapter 3, Analysis). These routes were identified using the Bicycle Boulevard methodology because they met its criteria. They are local streets, have low posted speeds (≤ 25 mph), connect parks, schools and major intersections, and they minimize "out-of-direction travel. However, despite meeting these criteria, because these routes changed direction excessively, they do not provide the convenience of a bike boulevard. Still, these low-stress neighborhood routes were seen as valuable components of the overall bike network and retained as bike routes since they would be useful for short distance travel, such as families going to parks and schools.

Shared Lane Markings or "Sharrows" can be installed along these routes, provided actual speeds are less than 35 mph. Additional considerations, such as adjacent land use, on-street parking, connecting bicycle facilities and traffic volumes should also be considered when applying this treatment. The installation of Sharrows has proven most effective when accompanied by education and encouragement campaigns. For instance, many cyclists and drivers do not know that Sharrow placement (at approximately the center of the lane) is intended to promote safer sharing by:

- Making cyclists more visible
- Guiding cyclists away from the "door zone"
- Directing drivers to make safer/wider passes

Bicycle Boulevards

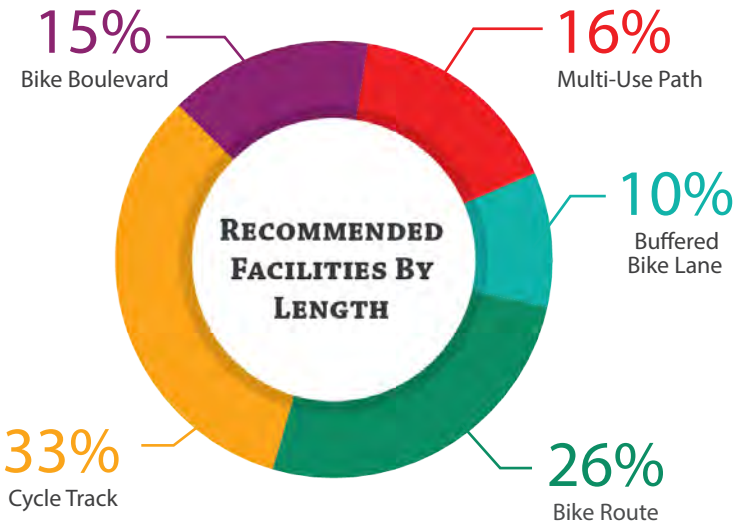
Similar to the Class III bike routes described above, bicycle boulevards recommended for Eastvale were developed with assistance from the Bicycle Boulevard Routing methodology (for more information, see Chapter 3, Analysis). They met methodology criteria of being local streets, with low speeds, connecting parks/schools/intersections and involving minimal out-of-direction travel. Unlike the bike routes, recommended bike boulevards provided – mostly – straight and intuitive routes that paralleled busier arterial streets. Some routes are so intuitive that they are likely already used as low-stress neighborhood routes by Eastvale residents, such as the Cedar Creek Road corridor.

Bicycle boulevards, sometimes called "Neighborhood Greenways," require additional planning and engineering prior to implementation. Example issues to be addressed by further study include, but are not limited to, bicycle and pedestrian safety improvements at intersections and crossings, signage and wayfinding, traffic calming measures, impacts to vehicular traffic flow, and right-of-way acquisition. Education and enforcement related to these facilities is also recommended to maximize their (safe) use.

Recommended Bikeway Projects

Taken together, the previously described projects form a comprehensive, low-stress network, including bicycle facilities on every major (arterial) street and several smaller (local) streets as well. This master plan recommends a total of 59.23 miles of new bikeways (30 projects). Of these, 33 percent are cycle tracks, 26 percent are bike routes, 16 percent are multi-use paths, 15 percent are bike boulevards and 10 percent are buffered bike lanes.

While the breakdown of recommended facilities may seem atypical for a city of its size and composition, it is not entirely surprising considering existing conditions in Eastvale. In other words, in light of Eastvale's suburban street grid characterized by a majority of (low-speed) local streets within "superblock" of (high-speed) arterial streets, it is not surprising that cycle tracks and bike routes are the top two recommended facility types. Similarly, Eastvale's irregular surburban street pattern within the superblocks make bike boulevards and bike lanes unlikely recommendations.



All projects were ranked according to cumulative scores derived from the following criteria:

- Gap Closure
- Reported Collisions
- Economic Efficiency
- Required ROW
- Proximity to Schools
- Community Input

More information on these inputs can be found in "Appendix B: Project Prioritization" on page A-66 and "Appendix C: Benefit-Cost Analysis" on page A-69. Once ranked, projects were sorted by rank and divided into three tiers to assist in implementation.

Recommended projects are presented in the following pages and are organized by tier (and ranked within each tier). For each tier, there is a map highlighting the projects contained and a table providing helpful, supplemental information. Items contained in the table include project rank, project length, project extent and "Delta" value (for bike lanes and cycle tracks). Delta values provide an indication of available right-of-way (ROW) to install a given facility type while preserving vehicle travel lanes, turn lanes, medians and parking. A positive Delta value, color-coded green, indicates a ROW surplus. A negative Delta value, color-coded red, indicates a ROW deficit. A neutral Delta value, color-coded blue, indicates sufficient ROW.

6	Green = Feasible
-3	Red = Infeasible
2	Blue = Value within four feet of minimum
N/A	N/A = Not applicable for this recommendation

Figure 4-1: Tier 1 Bicycle Projects

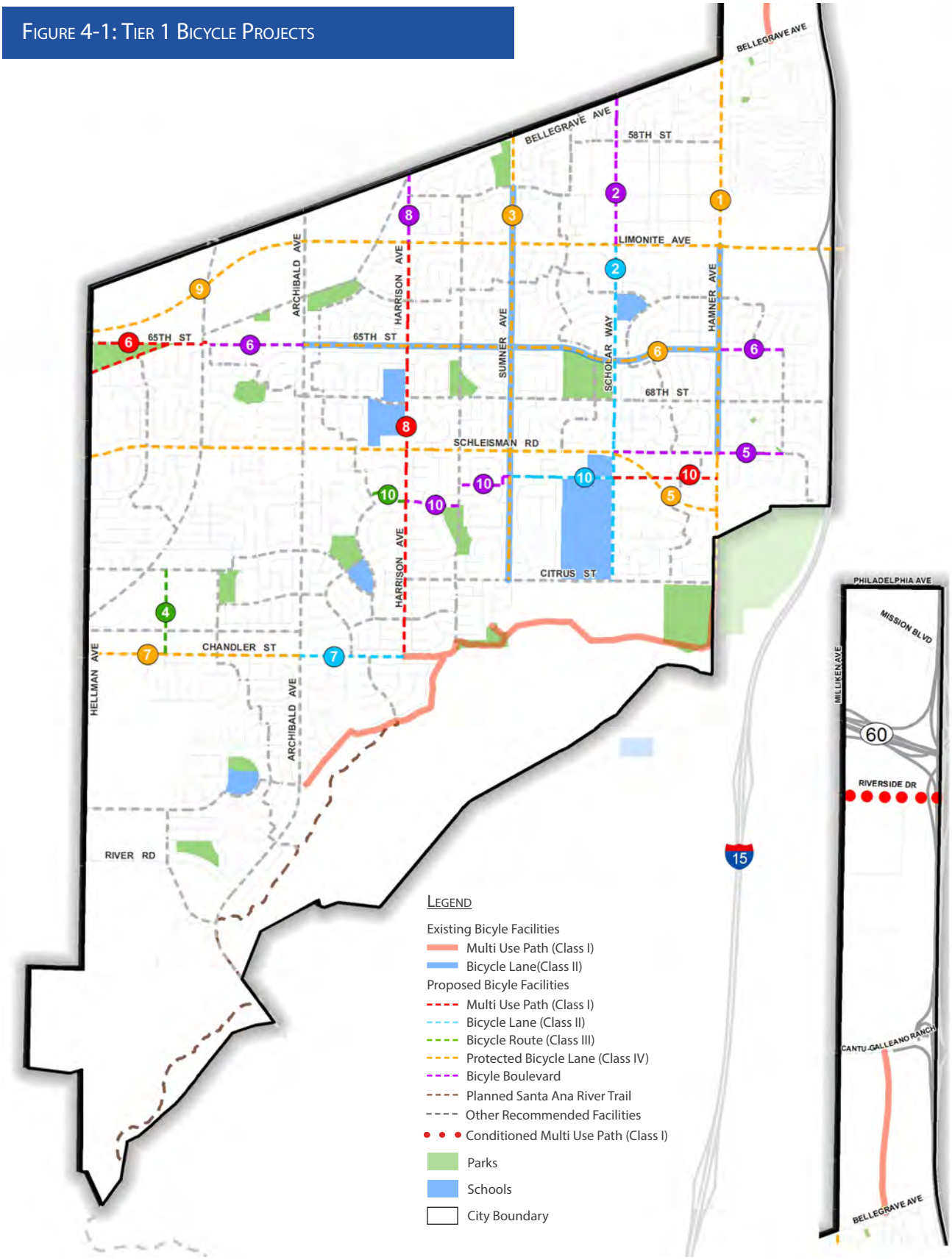


Table 4-1: Tier 1 Bicycle Projects

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
1	2.52	Protected Bike Lane (Class IV)	Hamner Ave	Bellegrave Ave	Amberhill Ave	12
				Amberhill Ave	58th St	22
				58th St	Mayfair Cir	42
				Mayfair Cir	Limonite Ave	-12
				Limonite Ave	Ohio River Dr	16
				Ohio River Dr	Citrus St	6
2	2.33	Bike Blvd	Cleveland Ave	Bellegrave Ave	Limonite Ave	N/A
		Bike Lane (Class II)	Scholar Way	Limonite Ave	Citrus St	15
3	2.14	Protected Bike Lane (Class IV)	Sumner Ave	Bellegrave Ave	Schleisman Rd	5
				Schleisman Rd	Orange St	-5
				Orange St	Citrus St	6
4	0.41	Bike Route (Class III)	Hall Ave	Walters St	Chandler St	N/A
5	3.93	Protected Bike Lane (Class IV)	Schleisman Rd	Hellman	Archibald	26
				Archibald	Harrison	11
				Harrison	Sumner	1
				Sumner	Scholar	0
				Scholar Way	Hamner	20
		Bike Blvd		Scholar Way	Wellsprings	N/A
6	3.78	Multi-Use Path (Class I)	Class I	Hellman Ave	Coyote Trail Ln	N/A
		Bike Blvd	65th St	Coyote Trail Ln	Archibald Ave	N/A
		Protected Bike Lane (Class IV)		Archibald	Hamner	-5
		Bike Blvd		Hamner Ave	Wellsprings	N/A
7	1.53	Protected Bike Lane (Class IV)	Chandler St	Hellman Ave	Just W of dev't	-1
				Just W of dev't	Archibald Ave	10
		Bike Lane (Class II)		Archibald Ave	Harrison Ave	-5
8	2.33	Bike Blvd	Harrison Ave	Remington Ave	Limonite Ave	N/A
		Multi-Use Path (Class I)		Limonite Ave	Chandler St	N/A

* Delta Value is explained on pg. 51

Table 4-1: Tier 1 Bicycle Projects (cont.)

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
9	3.76	Protected Bike Lane (Class IV)	Limonite	Hellman Ave	Archibald Ave	N/A: Paper Street
				Archibald Ave	Harrison Ave	-1
				Harrison Ave	Hamner Ave	12
				Hamner Ave	I-15	0
10	1.77	Bike Route (Class III)	Hawthorne Ave	Maple Glen Dr	Elderberry Ave	N/A
			Elderberry Ave	Hawthorne Ave	Champion Way	N/A
			Champion Way	Elderberry Ave	Harrison Ave	N/A
		Bike Blvd	Hollowbrook Way	Harrison Ave	Cedar Creek Rd	N/A
			Falcon Ridge Rd	Cedar Creek Rd	Dove Valley Way	N/A
			Dove Valley Way	Orange St	Falcon Ridge Rd	N/A
			Orange St	Dove Valley Way	Sumner Ave	N/A
		Bike Lane (Class II)	Orange St	Sumner Ave	Scholar Way	6
		Class I	Class I	Scholar Way	Hamner Ave	N/A

* Delta Value is explained on pg. 51

Figure 4-2: Tier 2 Bicycle Projects

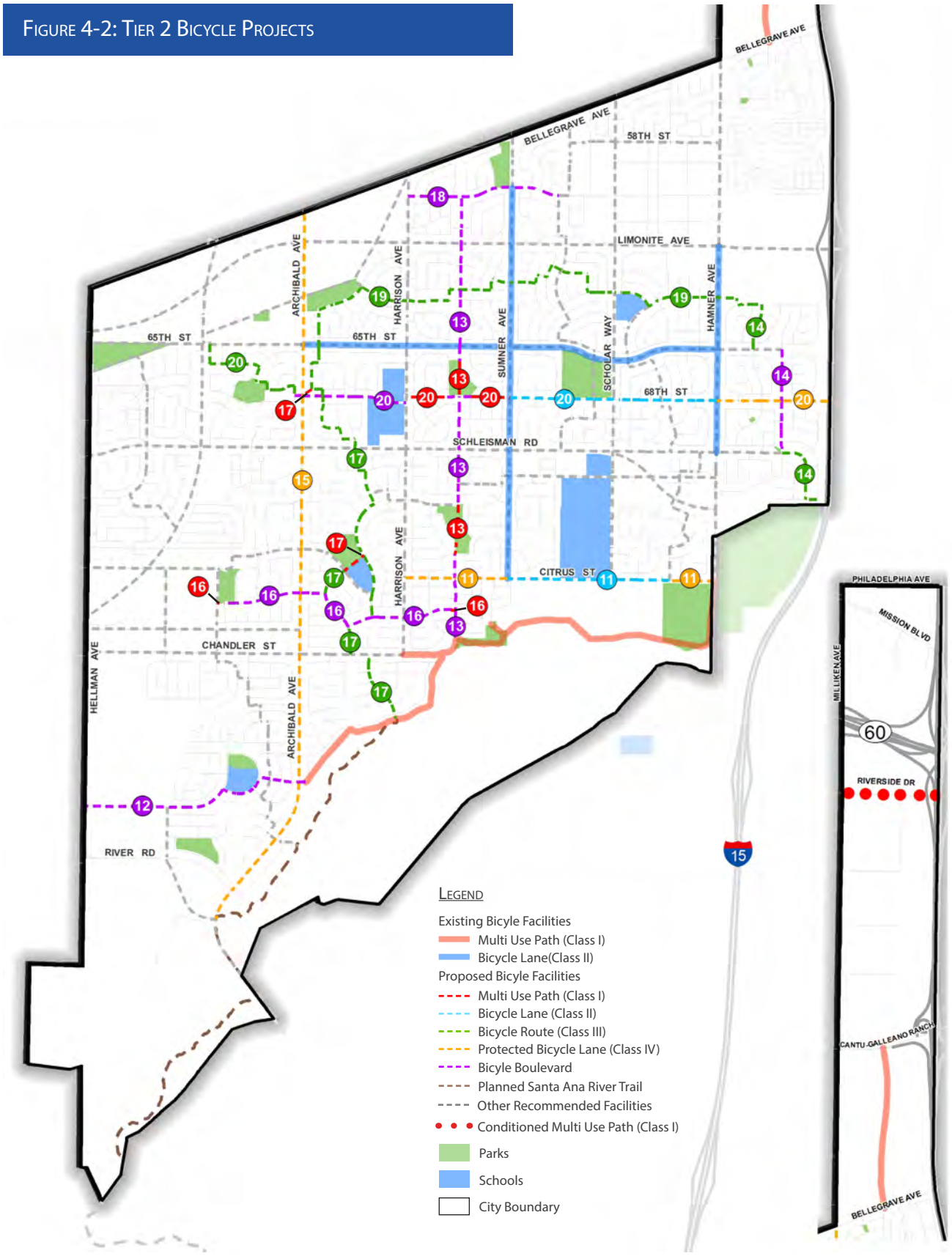


Table 4-2: Tier 2 Bicycle Projects

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
11	1.50	Protected Bike Lane (Class IV)	Citrus St	Harrison Ave	Sumner Ave	15
		Bike Lane (Class II)		Sumner Ave	Scholar Way	-5
				Scholar Way	Carrollton Pl	-6
		Protected Bike Lane (Class IV)		Carrollton Pl	Hamner Ave	5
12	1.14	Bike Blvd	Brayton Ave/ Oosten Farms Rd	Hellman Ave	Fieldmaster St	N/A
			Cherry Creek Cir	Fieldmaster St	Wind River Rd	N/A
			Wind River Rd	Cherry Creek Circle	Multi-Use Path	N/A
13	2.16	Bike Blvd	Cedar Creek Rd	Blossom Way	N Cedar Creek Park	N/A
		Multi-Use Path (Class I)	Class I	N Cedar Creek Park	S Cedar Creek Park	N/A
		Bike Blvd	Cedar Creek Rd	S Cedar Creek Park	N Providence Ranch Park	N/A
		Multi-Use Path (Class I)	Class I	N Providence Ranch Park	S Providence Ranch Park	N/A
		Bike Blvd	Cedar Creek Rd	S Providence Ranch Park	Class I	N/A
14	1.10	Bike Route (Class III)	Moonriver St	Caxton St	65th St	N/A
		Bike Blvd	Wellspring St	65th St	Riverboat Dr	N/A
		Bike Route (Class III)	Riverboat Dr	Wellspring St	Kern River Dr	N/A
			Kern River Dr	Riverboat Dr	Multi-Use Path	N/A
15	3.55	Protected Bike Lane (Class IV)	Archibald Ave/ River Rd	Remington Ave	Rolling Meadow St	-2
				Rolling Meadow St	65th St	14
				65th St	Whispering Hills Dr	19
				Whispering Hills Dr	Baron Dr/River Rd	19
16	1.27	Multi-Use Path (Class I)	Multi-Use Path	Selby Ave	Swan Creek Dr	N/A
		Bike Blvd	Fairchild Dr	Swank Creek Dr	Walnut Grove Ave	N/A
			Walnut Grove Ave	Fairchild Dr	Star Ruby Ave	N/A
			Star Ruby Ave	Walnut Grove Ave	Multi-Use Path	N/A
		Multi-Use Path (Class I)	Multi-Use Path	Star Ruby Ave	Cobble Creek Dr	N/A

* Delta Value is explained on pg. 51

Table 4-2: Tier 2 Bicycle Projects (cont.)

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
17	2.65	Bike Route (Class III)	Longbranch St/ Retama St	Rolling Meadows St	Heathgrove Dr	N/A
			Heathgrove Dr	Havenhurst St	Longbranch St/ Retama St	N/A
			Havenhurst St	Heathgrove Dr	Emmerglen Way	N/A
		Multi-Use Path (Class I)	Multi-Use Path	Archibald Ave and Whispering Hills Dr	Havenhurst St and Emmerglen Way	N/A
		Bike Route (Class III)	Emmerglen Way	Havenhurst St	Stillbrook Way	N/A
			Stillbrook Way	Emmerglen Way	Tourmaline Dr	N/A
			Tourmaline Dr	Stillbrook Way	Riverglen Dr	N/A
			Riverglen Dr	Tourmaline Dr	Moonflower Dr	N/A
			Moonflower Dr	Riverglen Dr	Orangevale Ave	N/A
			Orangevale Ave	Moonflower Dr	Maple Glen Dr	N/A
			Maple Glen Dr	Orangevale Ave	Corona Valley Ave	N/A
			Corona Valley Ave	Maple Glen Dr	Star Ruby Ave	N/A
		Multi-Use Path (Class I)	Multi-Use Path	Eastvale Pkwy	Corona Valley Ave	N/A
		Bike Route (Class III)	Walnut Grove Ave	Star Ruby Ave	Chandler St	N/A
			Tisdale St	Chandler	Existing Class I	N/A
18	0.74	Bike Blvd	Blossom Way	Harrison Ave	Fuji St	NA

* Delta Value is explained on pg. 51

Table 4-2: Tier 2 Bicycle Projects (cont.)

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
19	2.60	Bike Route (Class III)	Rolling Meadows St	Longbranch St	Northfork Dr	N/A
		Bike Route (Class III)	Northfork Dr	Rolling Meadows St	Bodega Ct	N/A
			Bodega Ct	Kiwi Ave	Norfolk Dr	N/A
			Kiwi Ave	Bodega Ct	Pear Ave	N/A
			Pear Ave	Orchard Dr	Kiwi Ave	N/A
			Orchard Dr/ Linnea St	Pear Ave	Bluebell St	N/A
			Bluebell St	Cloris St	Linnea St	N/A
			Cloris St	Bluebell St	Hazel St	N/A
		Bike Route (Class III)	Hazel St	Briar St	Cloris ST	N/A
			Briar St	Hazel St	Daphne St	N/A
			Daphne St	Briar St	Merry Meadows Dr	N/A
			Merry Meadows Dr	Daphne St	Oakdale St	N/A
			Oakdale St	Merry Meadows Dr	Badminton St	N/A
			Badminton St	Oakdale St	Caxton St	N/A
			Caxton St	Badminton St	Moonriver St	N/A
20	3.27	Bike Route (Class III)	Coyote Trail Ln	65th St	Campfire Pl	N/A
			Campfire Pl	Coyote Trail Ln	Settlers Ridge Ct	N/A
			Settlers Ridge Ct	Campfire Pl	Deer Creek Dr	N/A
			Deer Creek Dr	Settlers Ridge Ct	Iron Horse Ln	N/A
			Iron Horse Ln	Deer Creek Dr	Lost Horse Rd	N/A
			Lost Horse Rd	Iron Horse Ln	Old Peak Ln	N/A
			Old Peak Ln	Lost Horse Rd	Unnamed Rd	N/A
		Bike Blvd	Unnamed Rd/ Whispering Hills Dr	Old Peak Ln	Harrison Ave	N/A
		Multi-Use Path (Class I)	Class I	Harrison Ave	Everglades St	N/A
		Bike Blvd	Forest Wind St	Everglades St	Forest Wind St	N/A
		Multi-Use Path (Class I)	Class I	Forest Wind St	Sumner Ave	N/A
		Bike Lane (Class II)	68th Street	Sumner Ave	Hamner Ave	6
		Protected Bike Lane (Class IV)		Hamner Ave	I-15	7

* Delta Value is explained on pg. 51

Figure 4-3: Tier 3 Bicycle Projects

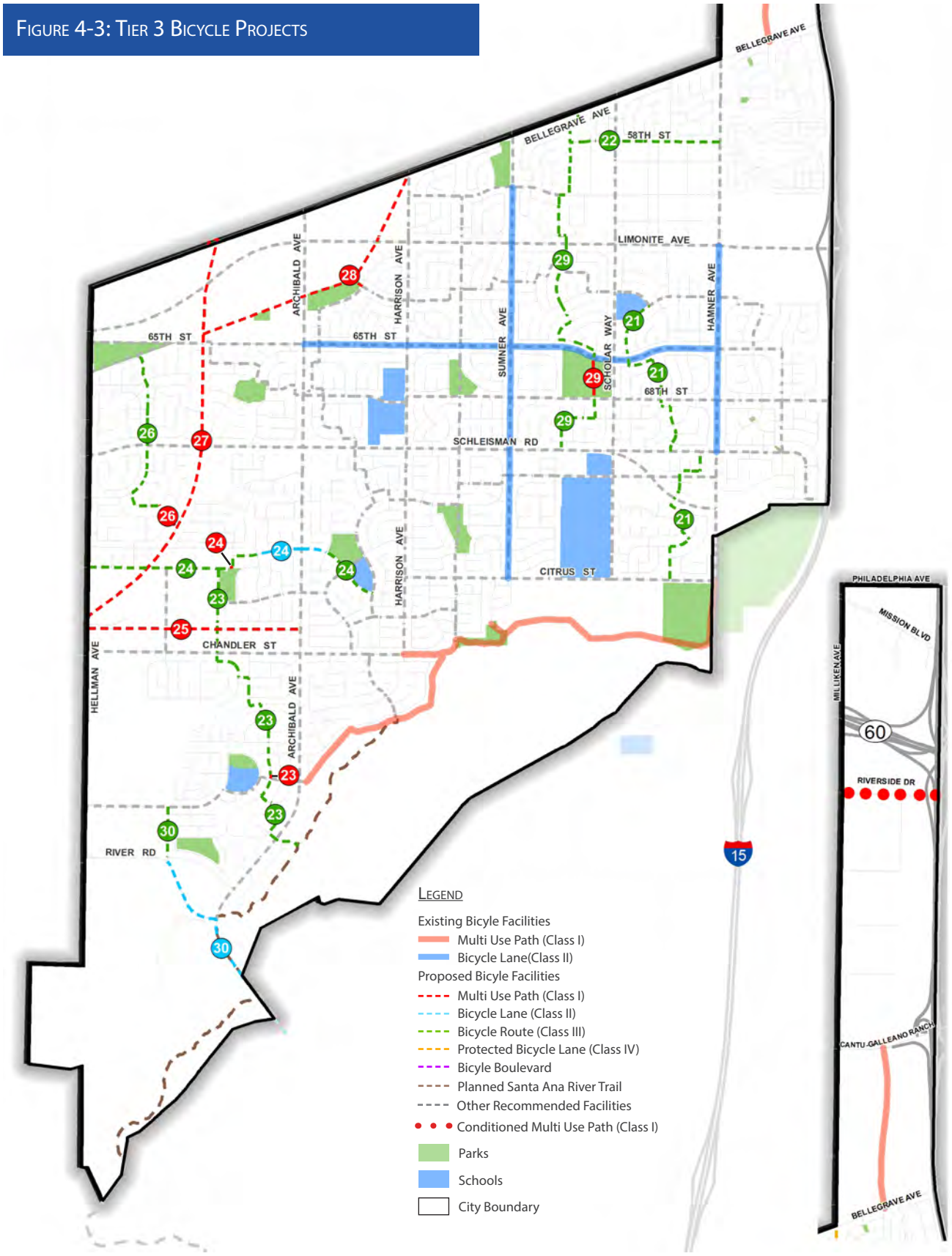


Table 4-3: Tier 3 Bicycle Projects

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
21	1.84	Bike Route (Class III)	Oakdale St	Merry Meadows Dr	Jersey St	NA
			Jersey St	Oakdale St	August St	NA
			August St	Jersey St	Odyssey Way	NA
			Odyssey Way	August St	Lancelot Dr	NA
			Lancelot Dr	Odyssey Way	Schleisman Rd	NA
			College Park Dr	Schleisman Rd	Terrapin Way	NA
			Terrapin Way	Raymond Dr	College Park Dr	NA
			Raymond Dr	Terrapin Way	Dairy St	NA
			Dairy St	Raymond Dr	Morning Hills Dr	NA
			Morning Hills Dr	Dairy St	Bodine Way	NA
			Bodine Way	Morning Hills Dr	Burbank Rd	NA
			Burbank Rd	Carrollton Pl	Bodine Way	NA
			Carrollton Pl	Burbank Rd	Citrus St	NA
22	0.72	Bike Route (Class III)	58th St	Berryhill Dr	Hamner Ave	NA
23	1.76	Bike Route (Class III)	Selby Ave	Walters St	Orchid Dr	NA
			Orchid Dr	Selby Ave	Asterleaf Ln	NA
			Asterleaf Ln	Orchid Dr	Retriever St	NA
			Retriever St	Asterleaf Ln	Fieldmaster St	NA
			Bushmaster St	Fieldmaster St	Wolfhound St	NA
			Wolfhound St	Bushmaster St	Gamebird St	NA
			Gamebird St	Wolfhound St	Multi-Use Path	NA
		Multi-Use Path (Class I)	Class 1	Gamebird St	Wind River Rd	NA
		Bike Route (Class III)	Dewdrop Ct	Wind River Rd	Rollingstream Pl	NA
			Rollingstream Pl	Dewdrop Ct	Fiske Dr	NA
			Fiske Dr	Rollingstream Pl	Wiseman Dr	NA
			Wiseman Dr	Fiske Dr	Lourenco Ln	NA
			Lourenco Ln	Wiseman Dr	Corbin Dr	NA
			Corbin Dr	Lourenco Ln	Prado Basin Park Rd	NA

* Delta Value is explained on pg. 51

Table 4-3: Tier 3 Bicycle Projects (cont.)

Rank	Length (Miles)	Facility Type	Street/Path Segment	From (N/W)	To (S/E)	Delta*
24	1.51	Bike Route (Class III)	Walters St	Hellman Ave	Multi-Use Path	NA
		Class I	Multi-Use Path	Walters Ave	Serenade Dr	NA
		Bike Route (Class III)	Serenade Dr	Smith River Rd	Multi-Use Path	NA
			Smith River Rd	Serenade Dr	Lower Creek St	NA
		Bike Lane (Class II)	Smith River	Lower Creek St	Berry Meadow Creek Cir	6
			Smith River	Berry Meadow Creek Cir	Valley Meadow Ave	-5
		Bike Route (Class III)	Eastvale Pkwy	Valley Meadow Ave	Corona Valley Ave	NA
25	1.03	Multi-Use Path (Class I)		Hellman Ave	Archibald Ave	NA
26	1.03	Bike Route (Class III)	Whitewell Rd/ Aldergate Dr	White Clover Way	Prairie Smoke Rd	NA
				Prairie Smoke Rd	Meadows Way	NA
			Meadows Way	Aldergate Dr	Multi-Use Path	NA
		Multi-Use Path (Class I)	Multi-Use Path	Meadows Way	Class I (Project 27)	NA
27	2.11	Multi-Use Path (Class I)	Multi-Use Path	Bellegrave Ave	Hellman Ave	NA
28	1.35	Multi-Use Path (Class I)	Multi-Use Path	Project 27	Remington Ave & Rolling Meadows St	NA
29	2.09	Bike Route (Class III)	Fallsgrove Dr	Bellegrave Ave	Berryhill Dr	N/A
			Berryhill Dr	Berryhill Dr	Fallsgrove Dr	N/A
			Dancy St	Fuji St	Berryhill Dr	N/A
			Fuji St	Dancy St	Early Crimson St	N/A
			Early Crimson St	Fuji St	Mulan St	N/A
			Mulan St	Early Crimson St	Lotus St	N/A
			Lotus St	Mulan St	Snowdrop St	N/A
			Snowdrop St	Lotus St	Hollis St	N/A
			Hollis St	Snowdrop St	65th St	N/A
		Multi-Use Path (Class I)	Multi-Use Path	65th St	68th St	N/A
		Bike Route (Class III)	Andaravida Rd	68th	Quarter Horse Dr	N/A
			Quarter Horse Dr	Andaravida Rd	Schleisman Rd	N/A
30	1.32	Bike Route (Class III)	Hall Ave	Oosten Farms Rd	River Rd	NA
		Bike Lane (Class II)		Hall Ave	Archibald Ave	-5
				Archibald Ave	Southern City Limit	-1

* Delta Value is explained on pg. 51

Future Opportunities

Future opportunities are long-term potential project recommendations developed with input from the City and stakeholders. In general, future opportunity projects are seen as valuable additions to a City's bicycle network, but infeasible at the time of the bicycle master planning effort for various reasons, such as constrained right-of-way, limited funds or significant inter-jurisdictional cooperation. Future opportunity projects are neither (formally) recommended, nor ranked. Even so, identifying projects as future opportunities is important because it establishes precedent for considering certain projects and alignments, and allows for a discussion of their associated opportunities and constraints.

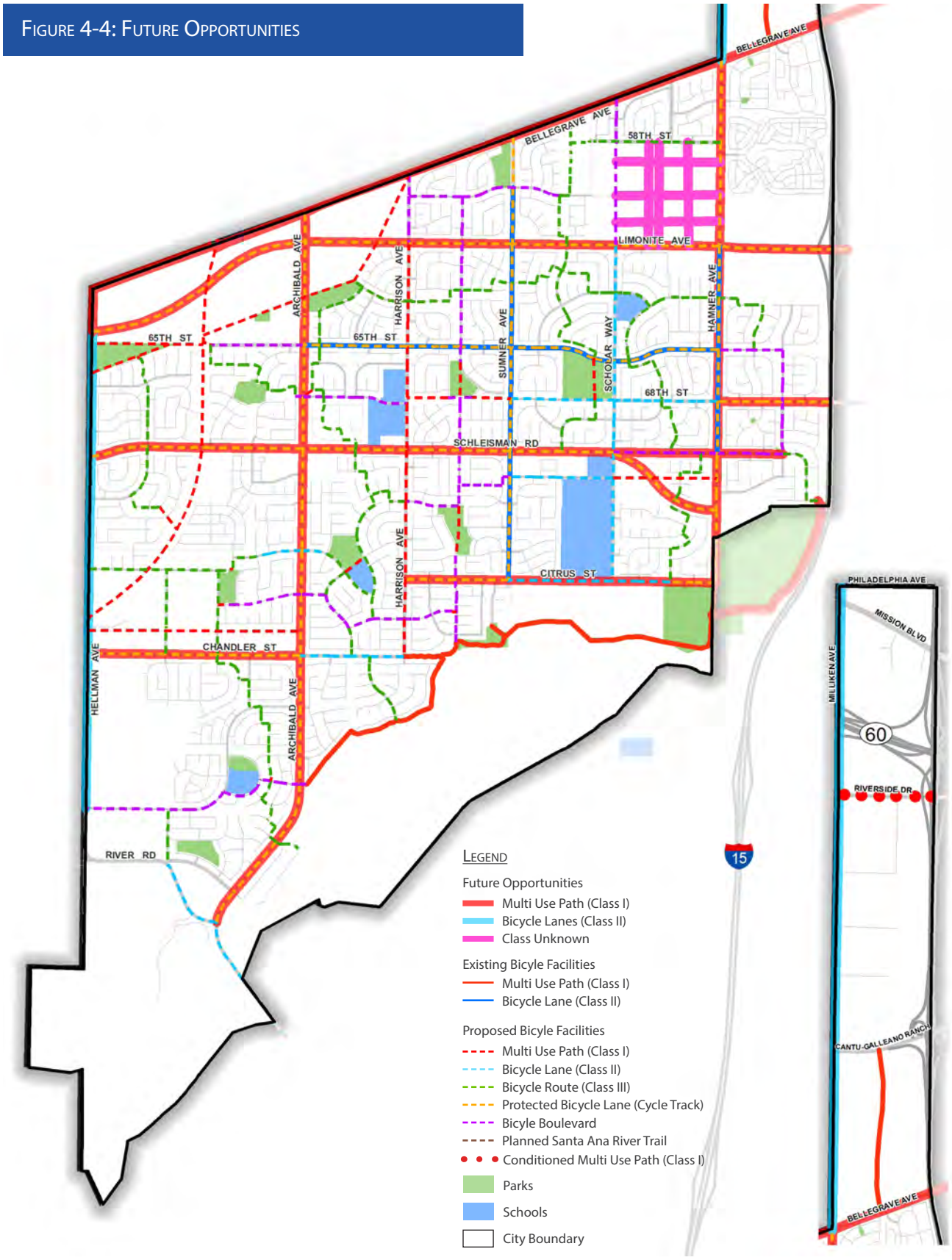
In many cities, future opportunity projects represent downgrades, such as projects that were formerly recommended and ranked, but relegated to "future opportunities." In Eastvale, very few future opportunity projects were downgraded. Instead, the majority were upgrades of projects already recommended.

Altogether, ten projects were recommended as future opportunities, of which seven were recommendations to upgrade cycle tracks along major arterial streets to roadside multi-use paths or "urban trails." These suggested upgrades were based on City and stakeholder preference for lower-stress, grade-separated facilities on major arterials and for designs that helped reduce landscaping (and irrigation) in the public right-of-way. The remaining projects were bike lanes (two) and a multi-use path along the City boundary, both requiring inter-jurisdictional cooperation to implement. For more information about future opportunities, see the following table and Figure 4-4.

Table 4-4: Future Opportunity Projects

Facility	Segment	From (N/W)	To (E/S)	Notes
Multi-Use Path	68th St	Hamner Ave	Eastern City limit	Opportunities: lower stress facility; landscape removal (water/cost savings) Constraints: cost; existing policy and standards
Multi-Use Path	Archibald Ave	Bellegrave Ave	River Rd	
Multi-Use Path	Bellegrave Ave	Hellman Ave	Wineville Rd (Jurupa Valley, CA)	
Multi-Use Path	Chandler St	Hellman Ave	Archibald Ave	
Multi-Use Path	Citrus St	Harrison Ave	Hamner Ave	
Multi-Use Path	Hamner Ave	Bellegrave Ave	River Walk Park Path	
Multi-Use Path	Limonite Ave	Hellman Ave	Eastern City limit	
Multi-Use Path	Schleisman Rd	Hellman Ave	Wells Springs St	
Multi-Use Path	Bellegrave Ave	Hellman Ave	Wineville Rd (Jurupa Valley, CA)	Opportunities: network enhancement; routes of regional significance Constraints: inter-jurisdictional cooperation required
Buffered Bike Lane	Hamner Ave	Northern City limit	Bellegrave Ave	
Buffered Bike Lane	Hellman Ave	Bellegrave Ave	River Rd	

Figure 4-4: Future Opportunities



Safe Routes to Transit

Providing safe non-motorized routes to and from transit is a fundamental requirement of a multi-modal transportation network. Many trips entail distances too long to be covered by bike or on foot, but easily covered by transit. Many trips also entail short distances ("first-mile"/"last mile") to and from a transit center, distances that could covered by bike or on foot. Improving bicycle access to and from transit helps to expand the sphere of influence of both cycling and transit.

As discussed in Chapter 3 (Analysis), Eastvale's transit system is concentrated on its east side with bus stops on Limonite Avenue, 68th Street, Citrus Street, Sumner Avenue and Hamner Avenue. This master plan recommends low-stress, bicycle facilities on all transit-serving streets (see Figure 3-4). In turn, these direct bicycle connections are also linked to an entire, citywide network of low-stress bicycle facilities. Safe Routes to Transit, however, is about more than just connecting bicycle and transit facilities. It is also about how they are connected.

Safe Routes to Transit improvements should consider best practices in transit, bicycle and pedestrian facility design and should also acknowledge the trade-offs between modes. In general, walking – as the dominant and most vulnerable mode – should be given priority in Safe Routes to Transit. Cycling should follow walking in priority and driving should be subordinate to all other modes. In practice, this hierarchy should translate into the following design features:

- Curb cuts and ramps between bicycle facilities and transit stops (Curb cuts or ramps should be designed to create a – comfortable and safe – transition between cycling and pedestrian space)
- Secure bike parking (Secure bike parking should be provided at transit stops, particularly where commuters might be expected to leave bikes during the workday)
- Bike accommodation on transit vehicles (Transit vehicles should be equipped with front-mounted bike racks or other storage mechanisms)

Note: The City of Eastvale's transit system is currently minimal, consisting of two bus lines and no rail service. Further development of Eastvale's transit system, particularly the inclusion of rail service, would merit additional design features and measures such as priority bike travel and parking at stations, full service bike stations, station wayfinding, elevators/escalators/stairs that accommodate bikes, and a bike share program.

Bicyle Lane Approaching Transit Stop
Seattle, WA

"Share the Road" Sign
San Clemente, CA

Bicycle Parking

Vehicle drivers expect convenient and secure parking to be provided at all destinations. Similar, if not greater, accommodation should be made for bicycle parking. Bicycle parking should be provided routinely, at all destinations where cyclists are expected, such as at shopping centers, work places, parks, apartment buildings, etc. Bike parking should be conveniently located, near the main entrances of buildings or other destinations and no further from the entrance than the closest vehicle parking space. Bicycle parking should also be well-lit and secure, which increases confidence in longer-term bike storage, and may encourage more bicycle commuting (to work and school). The provision of convenient bike parking may make bicycle trips, particularly short ones, more attractive than driving.

Bike Rack Design

Good bike rack design is an essential component of bike parking. The most important element of good design is the ability to properly lock a bike, specifically the ability to secure the frame, the front wheel and the bike rack within a typically sized U-lock. Racks that support the bicycle, but either provide no way to lock the frame or require awkward lifting to enable locking, are not acceptable unless security is provided by other means, such as a locked enclosure or monitoring by attendants. See the Association of Pedestrian and Bicycle Professionals (APBP) Bike Parking Guidelines for more detailed information on bicycle parking design and placement. Bicycle racks must be designed so that they:

- Do not bend wheels or damage other bicycle parts
- Accommodate high security U-shaped bicycle locks
- Accommodate securing the frame and wheels
- Do not trip pedestrians
- Are easily accessed yet protected from vehicles
- Are covered if users will leave their bicycles for long periods

Custom racks that lend added aesthetic or placemaking value may also be encouraged, so long as they provide adequate security. Bicycle racks can be customized to incorporate an area's aesthetics, or designed to complement a specific building or business. For example, the City of Long Beach maintains a program funded by the American Recovery and Investment Act to help business owners install bicycle racks. Their program allows for businesses to choose from a range of existing designs or to design their own.

Offset Bike Racks Require Small Footprint
Park-A-Bike

Custom Bike Racks
Huntington Beach, CA

Bicycle Corrals

Bike corrals are groupings of bike racks, typically located in former vehicle parking stalls. Most bike corrals are located on streets, in former parallel parking spots, but some also exist within shopping center parking lots. Corrals can accommodate up to 20 bicycles per former vehicle parking space. On-street bicycle corrals provide the following benefits to businesses, pedestrians, cyclists and drivers:

- Businesses - Corrals provide a high customer to parking space ratio and advertise "bicycle friendliness." They also permit increased outdoor seating for restaurants by moving the bicycle parking off the sidewalk. Some cities have instituted programs that allow local businesses to sponsor or adopt a bicycle corral to improve bicycle parking in front of their business.
- Pedestrians - Corrals clear the sidewalks and those installed at corners also serve as curb extensions.
- Cyclists - Corrals increase cycling's visibility and greatly expand bicycle parking options.
- Vehicle drivers - Corrals improve visibility at intersections by preventing large vehicles from parking at street corners and blocking sight lines.

Bike Corral
Long Beach, CA

Bicycle Lockers

Bike lockers provide increased security for bicycles, their easily removable parts and attached accessories, such as lights, pump, tools and bags. Bike lockers are long-term parking facilities, intended for situations where bicycles are left unattended for long periods of time: apartments and condominium complexes, schools, places of employment and transit stops.

Calculating Demand for Bicycle Parking

While the provision of parking should be standard, the amount of parking should be tailored to context. Typically, one of three ratios are used to determine appropriate bicycle parking amounts (by land use): a) a percentage based on car parking requirements, b) the square footage of each land use, or c) using specific units, such as the number of bedrooms or employees. Each method has benefits and drawbacks. Because of this, a variety of methods is often used. Descriptions of each method, including summaries of benefits and drawbacks include:

- Method "a" sets the percentage of bike parking spots according to the desired bike mode share. For example, if a 10 percent mode share is desired, bike parking should constitute 10 percent of overall parking). This method has the benefit of being easy to calculate, but has several drawbacks. First, it is based on vehicle parking minimums, which are often inflated. Secondly, it directly links vehicle and bike parking, so that a decrease in vehicle parking would necessarily lead to a decrease in bike parking. Lastly, it may overgeneralize and underestimate bike parking demand based on land use.

- Method "b" links the amount of bicycle parking to building square footage. This method has the advantage of being detached from vehicle parking and linked instead to floor area and land use. In this way, uses expected to generate more bike trips would include greater amounts of bike parking. The primary drawback of this method is that even projections based on use involve significant guesswork.

- Method "c" calculates bike parking demand according to the specific units within a building. The primary advantage of this method is that it links actual people (and potential cyclists) to parking demand, rather than space, which may or may not contain people. Like method "b," this method has the disadvantage of projecting bike parking demand based on scant evidence.

Chapter 5:

Recommended Programs & Policies

There has been a shift away from the traditional, compartmentalized "Five Es" approach developed by the League of American Bicyclists (Engineering, Education, Encouragement, Enforcement and Evaluation and Planning) and toward a more fully integrated and complementary menu of initiatives. By offering a menu rather than a prescriptive list, bicycle programming can more accurately address existing conditions and the desired outcomes of a given context. This approach allows for increased targeting of the "interested, but concerned" population of would-be cyclists and provides the greatest return on investment.

The programs recommended for the City of Eastvale are organized into three categories:

1. Education/Encouragement/Marketing
2. Education/Enforcement
3. Monitoring and Evaluation

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

Education/Encouragement/Marketing Programs

Smart Trips Program Bundle

Smart Trips is a generic name for community-based transportation demand management (TDM) programs that provide tools and incentives to make cycling (and other modes) the preferred mode for particular trips. Smart Trips are intended to complement efforts aimed at commute behavior by targeting other household trips. This is important because while many people find the prospect of commuting by bicycle daunting, they may be enticed to try riding for shorter trips around their neighborhood. Smart Trip programs have been shown to result in two to 14 percent reduction in drive-alone car trips and a significant increase in cycling.

Implementation of a variety of initiatives, leveraged as part of a Smart Trips program and delivered as a "bundle," has been important to the success of Smart Trips programs in other cities. The bundled delivery of Smart Trips initiatives allows for the saturation of a target audience and has been instrumental in maximizing limited outreach dollars.

Street Smarts Classes and Bicycle Ambassadors

This initiative promotes safe bicycling through community-based outreach, which helps bridge the gap between people who want to start riding and the availability of opportunities to help people learn to bicycle safely. Ideally, safety would be taught through bicycle safety courses delivered at the Cycling Education Center (described below) and on city streets, as appropriate. A Bicycle Ambassador program has recently been initiated by the Inland Empire Biking Alliance. The City should support this program through funding or, at least, in-kind contributions.

Bicycle Friendly Businesses and Districts

The City can promote the League of American Bicyclists' (LAB) Bicycle Friendly Business program among local businesses to encourage cycling by their employees and customers. Businesses then use their bicycle friendliness as part of marketing. Benefits to employees often include attractive and secure bicycle parking, locker rooms, showers and reimbursement for trips made by bicycle, via the Bicycle Commuter Benefit Act. Under this Act, companies can reimburse employees on a tax-free basis for "reasonable expenses" incurred as a bicycle commuter. This can include the purchase of a bicycle and almost any type of accompanying equipment and accessories such as lights, racks and clothing, up to the annual limit of $240, or however much a company chooses to offer. Benefits to customers can include secure parking and discounts. Bicycle Friendly Business Districts combine the efforts of individual businesses to offer a more supportive and coherent cycling environment.

Community Bicycle Programs

Community bicycle programs, also known as Bike Kitchens, are commonly formed as grass roots initiatives by community members within low income and underserved communities to provide bicycles, helmets, maintenance help and safety instruction to people as a means of expanding their transportation options and providing people better access to work and services. The City of Eastvale should support the creation of a Bike Kitchen within its boundaries and leverage its resources in coordination with the bicycle facilities prioritized in the bicycle master plan. This combination will help to encourage an increase in cycling mode share, serve as a missing link in the public transit system, reduce GHG emissions and provide additional "green" jobs related to system management and maintenance.

Expand Traditional TDM – Employer Incentives

Existing TDM measures within the City of Eastvale include the Inland Empire Commuter Incentives offered by the Riverside County Transportation Commission (RCTC). Incentives offered are available to those switching from single occupancy vehicle trips to alternative modes and include both short-term and long-term perks ($2 per day for the first three months and premium coupon booklets for continuing participants, respectively). The City should work with the RCTC and local major employers to expand the reach and marketing of its existing program.

In addition to marketing to major employers, the City could deliver targeted marketing of available TDM benefits along corridors where new bicycle facilities are implemented. The existing incentives program could also be used to leverage participation in special challenges and competitions hosted by the City and regional planning agencies, such as Bike to Work/School Challenges. Lastly, the City should work with the RCTC to ensure the provision of appropriate TDM end-of-trip amenities for cycling like safe and secure bicycle parking and Safe Routes to Transit.

Events - Bike Month

Have the Mayor continue to proclaim May as Bike Month and participate in Bike to Work Week events. Host pit stops during Bike to Work Weeks and Days. To increase encouragement, host Bike to Work days more often, such as monthly. Promote Bike Month or monthly Bike to Work days heavily within Smart Trips target areas and among target populations.

Safe Routes to School

Develop a Safe Routes to School Program

Inactivity, and even obesity, among school-aged children is among the greatest public health crises in America. Encouraging children to walk or bicycle to school is one important means of combating this epidemic and has the potential to instill lifelong healthy habits. Successful Safe Routes to Schools (SRTS) programs not only provide encouragement and support for walking and cycling, but address legitimate safety concerns of many parents. SRTS programs tackle safety issues through education and infrastructure improvements. Wherever possible, SRTS efforts should be integrated into the larger processes of planning and project implementation.

Best practices in SRTS education programs combine more traditional print media and classroom tactics with experiential courses and clinics. For example, the Alameda County SRTS program provides an array of education and safety programs including Educator Guides, Skills Drills Bicycle Safety Course, Bicycle Clinics, Bicycle Safety Certification Program and Bikemobile, a mobile repair clinic (http://alamedacountysr2s.org/).

Ideally, the SRTS program could partner with a reginoal Traffic Garden to offer more comprehensive traffic safety education, teaching children the fundamental rules and responsibilities of all modes. Participating schools could make attendance for field trips to the regional Traffic Garden compulsory and recurring, a component of Physical Education, with activities tailored to age groups. Barring the availability of a local Traffic Garden, a makeshift streetscape could be created with chalk, for example. Supplemental exercises in the mechanics of actually riding a bike, from basic to advanced bicycle handling skills, could be provided as needed at the Cycling Education Center.

SRTS efforts at infrastructure improvement are unique in their incorporation of youth perspectives. Youth are encouraged to participate at all phases and even to serve as a Safe Routes to School liaison. Further funding may be available through Safe Routes to Schools grants, available at both the federal and State level. This funding can be used for a variety of activities including site-specific evaluation and planning, infrastructure costs and education programs. Assistance with funding applications and program facilitation is available from local non-profits. More information can be found at: http://www.saferoutesinfo.org.

Promote the Walking School Bus and Bicycle Train

These are volunteer-based programs in which children are chaperoned by adults as in they walk or bicycle to school. Parents often cite safety concerns for their reluctance to allow their children to walk or ride to school. Providing adult supervision may alleviate these concerns. The Temecula Bike Train, led by Inland Empire Biking Alliance Board Member Zak Schwank, is one highly successful Riverside County example. This Bike Train occurs every Friday with 25 to 100 schoolchildren (https://www.facebook.com/BikeTrain).

Continue to Participate in Walk and Bike to School Day

This one-day October event in more than 40 countries celebrates the many benefits of safely walking and cycling to school. Walking and rolling to school embodies the two main goals of First Lady Michelle Obama's Let's Move! Campaign: to increase children's physical activity and to empower parents to make these kinds of healthy choices. The National Center for Safe Routes to School, which serves as the clearinghouse for the federal Safe Routes to School (SRTS) program, coordinates online registration efforts and provides technical support and resources for Walk to School Day. For more information, go to www.walktoschool.org.

Cycling Education Center

Create a Cycling Education Center that would serve as a clearinghouse for cycling educational materials, electronic and printed, and host a variety of courses. Course material would be bicycle-specific and, in the case of the Traffic Garden (described below), cover general mobility. Bicycle-specific areas would include:

- Handling skills (balance, starting, maneuvering, stopping)
- Riding in traffic skills (riding predictably, signaling, merging, obeying applicable laws)
- Safety gear (helmets, lights, visible clothing)
- Other (basic maintenance, locking your bicycle)

Teaching skills courses will require the training of licensed cycling instructors (e.g. the League of American Bicyclists' Cycling Instructor program). In the case of a Traffic Garden, detailed knowledge of laws related to all modes would be required. For this reason, the City's designated law enforcement liaison may be the most suitable referee.

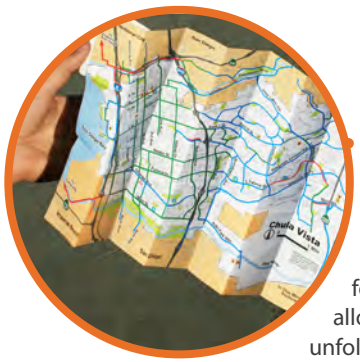
An ideal Cycling Education Center location would be central and served by existing or planned bicycle facilities, may even be an existing public property (a park, school or civic center) that can simply be enhanced. The success of a Cycling Education Center would be the result of significant coordination between the Engineering and Planning Departments, Riverside County Sherriff Department, local volunteers, advocates and cyclists.

Maps and Signage

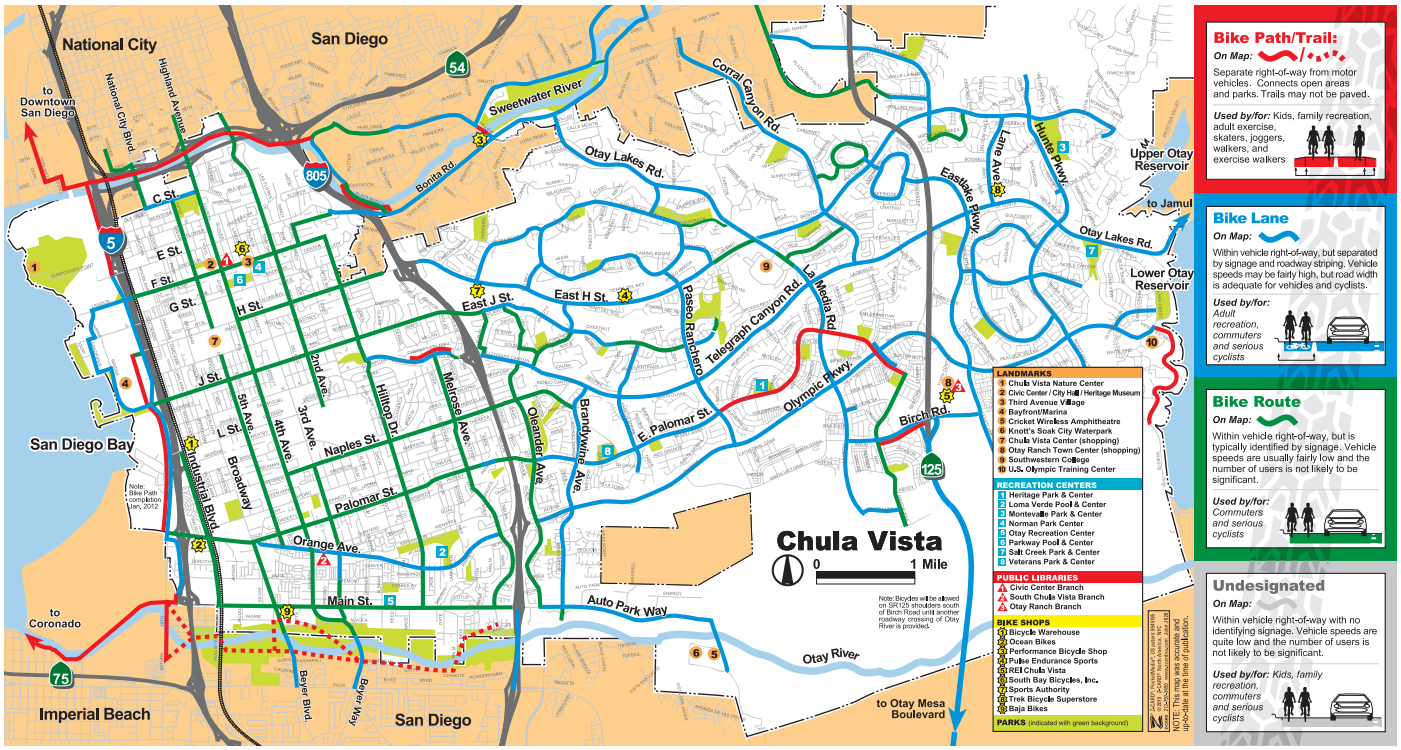
Produce an Updated Bicycle Facility Map

The bicycle system, built and planned, could be promoted through a publicity campaign and a user-friendly map that illustrates available utilitarian and recreational routes and their connection to regional routes. In addition to route location and distances, this map should include other essential information such as key destinations and rules of the road. While bicycle maps have traditionally included designations of facility type (Class 1, 2 and 3), the utility of this for the general public is increasingly questioned. Instead, information more directly related to preferred user experience, such as topography, traffic stress, the scenic or direct quality of a route, which varies from user to user, is seen as valuable.

The flip side of the map is an excellent place to locate education materials and sponsorship information. If printing costs are prohibitive, seeking funding though grants and sponsorship is recommended. The cartography and graphic design work of the map may be taken on by students of a local GIS or design class. The map should be made available in both hardcopy and digital format, with the latter available for download via the City website. Lastly, it is critical to update the map as new bicycle facilities are implemented or facilities are changed.



Zmap Folding Maps
This proprietary folding map technology allows users to quickly unfold and refold a map into an easy-to-carry pocket size package between cardstock covers.



Example Bicycle System Map (http://www.chulavistaca.gov/clean/conservation/climate/alternative.asp)

Partner with Google to Provide Better Bicycle Directions

Consistent with the effort to make cycling an easy choice for a broad range of people, bicycle maps should "break out of the cyclist silo" and become an integrated component of general mobility wayfinding. Google Maps is chief among general wayfinding applications, and currently includes the option of selecting bicycling for travel directions, but is limited in its utility. While driving directions and transit directions include a menu of options for preferred user experience ("avoid highways, avoid tolls, shortest travel time, fewest connections, etc."), there are none for cycling. As suggested previously, tailored cycling directions, based on preferred user experience, offer the greatest value to the range of people who cycle. Eastvale may choose to share data generated for this bicycle master plan, such as stress level, network connectivity, etc., with Google to improve the interface and to promote cycling. This pilot project could serve to catalyze a nationwide upgrade of Google Maps.

Develop and Implement a Wayfinding System

Directional signage allows new cyclists and tourists alike to find their way to their destination or nearby landmark via a recommended route. Wayfinding signage directs people and provides information about destinations, directions and/or distances. A highly legible and well-executed wayfinding system has the potential to increase comfort and safety, through even diverse and chaotic environments. Wayfinding systems can also achieve community objectives, such as the promotion of a local attractions and the resultant benefit of economic development. When applied on a regional level, wayfinding can link adjacent communities.

People are the single most important component in developing a wayfinding strategy. Public input on preferred routes, important destinations and the signage itself has proven invaluable. In designing a wayfinding strategy or system, the following questions need to be considered:

- What user types are likely to use the wayfinding system?
- Where are these users going?
- What do the users or visitors want to see and hear?
- What is the primary goal: navigation, directional information, orientation, location information, or interpretation?
- Is a clear message being sent by the signage?
- Based on the expected user types, what are the safest or most logical paths or routes?

There is considerable variation in wayfinding signage legibility and utility. Wayfinding system development for Eastvale should begin with a thorough examination of best practices and should conclude with a clear set of guidelines related to actual signage design and design of the signage system.

Street/Bicycle Boulevard Signage
Vancouver, B.C.

Bicycle Wayfinding Signage
San Antonio, TX

Install Advisory Signage along Popular Routes

Alert drivers to the presence of cyclists, particularly on a shared facility, or where there is no dedicated bicycle facility. The message should serve to both advise motorists and legitimize the presence of cyclists. Cycling is an important component of the transportation system and should be respected by other modes. While the "Bikes May Use Full Lane" Sign (R4-11) is commonly accepted and generally conveys the intended message, current discourse suggests the use of stronger language ("Shared Road") – and accompanying education – where appropriate. This phrasing is powerful because it is a statement of fact and implies legal consequence for violators, whereas "Bikes May Use Full Lane" and "Share the Road" sound more like pleading cautions. Regardless of the exact language used, this type of sign should accompany any Shared Lane Markings used. Ample education and marketing should be provided to explain all new signage.

Bicycle Wayfinding Sign
Portland, OR

Professional Development

Develop or facilitate the development of an Active Transportation Professional Development program for the Riverside County region. The program would be oriented toward professionals, advocates, and the members of the public who wish to further their education in bicycle and pedestrian planning and design. Professional affiliations to target for the program include engineers, planners, bicycle advisory committees, health professionals, teachers and school administrators and law enforcement. Program coursework could provide continuing education units (CEUs) to some professionals. The curriculum could include the following courses:

- Transportation Planning
- Bicycle Data Capture and Analysis
- Bicycle Planning
- Bicycle Facility Design
- Pedestrian Data Capture and Analysis
- Pedestrian Planning
- Pedestrian Facility Design
- Best Practices in Active Transportation Policies
- Instituting "Complete Streets" and "Routine Accommodation" Policies

The program could be developed in a largely self-sufficient manner, with student fees covering a majority of the costs.

Marketing Campaigns

Build awareness and general appeal of cycling as a safe and common mode of transportation. Marketing is about more than advertising. Communication and promotion play important roles. To get people to see cycling as a desirable mode choice, and to pay attention to safety, they must be engaged through effective marketing. Lessons from the field of marketing point to the proven effectiveness of positive messages that inspire people and get out more to ride. The objective is not to get everybody to ride bicycles all of the time, but rather to target those most ready to change.

Bicycle Campaign Poster - University of Nebraska
Lincoln, NE

Bicycle Safety Campaign Poster
Pittsburgh, PA

Messages should inspire people to move from "might" to "sometimes" and from "sometimes" to "often." For example, a targeted message might be one directed at people who currently solely ride for recreation and have never considered a short errand trip within their neighborhood, but would be open to the suggestion. Other messages might target the market of people ready to improve their riding techniques or even those who may never ride, but who might be encouraged to treat cyclists with more care and civility.

Ciclovia events (CicLAvia)
Los Angeles, CA

Ciclovia Events (CicloSDias)
San Diego, CA

Host a Ciclovia and Other Signature Events

A Ciclovía (also ciclovia or cyclovia in English) is a Spanish word that translates into "bicycle path" and is used to describe either a permanently designated bicycle route or a temporary event where the street is closed to vehicles for use by people and non-motorized transportation. Ciclovia events are celebrations of livable streets and communities, encouraging citizens and businesses to get out in the street and enjoy their city through active participation. While Bogotá, Colombia is often credited with starting ciclovias, they have gained considerable popularity in the United States in the past five years.

While all Ciclovia events are alike in their creation of a people-oriented, car-free space, they are otherwise unique. In some cities, the event occurs once or twice a year, while in others it occurs every Saturday or Sunday throughout the entire summer. Some cities re-use routes, while others, like Portland and Chicago, host the events in different locations around the city each weekend. Some routes form a circuitous route, while others are linear. Most include parks or other open public spaces. Most include music, performance, games and other activities, some of which is scripted and some spontaneous. Ciclovias often have a theme of health, exercise and active transportation and include groups promoting free, healthy activities stationed along the route. Ciclovia routes can incorporate and highlight new bikeways and preferred routes, encouraging their use and maximizing investment.

In addition to Ciclovias, the City can promote cycling through more sport-oriented events such as road and cyclocross rides and races. By joining forces with a local bicycle coalition (Inland Empire Biking Alliance or IEBA) or club, the City can maximize resources and participation. Events focused on the sport of cycling are important because they promote health and wellness, but also introduce people to cycling. Those who cycle recreationally may consider cycling for everyday, utilitarian trips and, in doing so, make positive societal contributions (e.g. to air quality, transportation expenses, health care expenses, local economy, etc.).

Education/Enforcement Programs

Educate All Law Enforcement Staff Regarding Cycling Issues and Concerns

If the ultimate aim is to promote cycling as a legitimate form of transportation, all officers should receive some form of bicycle training and should be offered LCI training, if possible.

Designate a Law Enforcement Liaison Responsible for Cycling Issues and Concerns

This liaison would be the main contact for Eastvale residents concerning bicycle-related incidents. This liaison would perform the important function of communication between law enforcement and cyclists. The liaison would be in charge of the supplemental education of fellow officers regarding bicycling rules, etiquette and behavior. The liaison could be the same person as the referee for the Traffic Garden and should be LCI certified, as well as ride a bicycle while on duty, as appropriate. Allocate funding for the training and support of this duty, as well as for necessary bicycle equipment.

Targeted Enforcement

The Riverside County Sherriff Department uses targeted enforcement to educate motorists and cyclists about applicable traffic laws and the need to share the road. These efforts are an effective way to expand motorist and cyclist education. Targeted enforcement should be expanded to warn and educate motorists and cyclists about laws, rules of the road and safety procedures. This could be in the form of a brochure or tip card explaining each user's rights and responsibilities. Targeted enforcement may help mitigate the following traffic safety problems:

- Speeding in school zones
- Illegal passing of school buses
- Parking violations – bus zone, crosswalks, residential driveways, time zones
- Risks to cyclists during drop-off and pick-up times
- Lack of safety patrol/crossing guard operations
- Unsafe cycling practices
- Other school zone traffic law violations

Police Bicycle Patrol
Easley, SC

Riverside County Sheriff Traffic Enforcement
Moreno Valley, CA

This approach has been successful in Los Angeles where four officers, one for each of its police department traffic divisions, have been dedicated solely to bicycle safety and outreach. In nearby Moreno Valley, the Riverside County Sheriff Department garnered national attention with its "Gingerbread Man" crossing enforcement sting program. Its purpose is to educate drivers about the crosswalk laws and to make them more aware of the dangers of speeding and inattention, especially near schools. (http://blog.pe.com/breaking-news/2013/09/26/moreno-valley-gingerbread-man-helps-nab-crosswalk-violators/)

Implement a Bicycle Diversion Program

A Bicycle Diversion Program allows for adult cyclists who commit traffic violations to receive reduced fines in exchange for taking a bicycle education class. On September 21, 2015, California's Governor Jerry Brown signed Assembly Bill 902 to create such a program. This legislation has been touted as a boost for both equity and encouragement in cycling. It is expected to promote equity because, in reducing fines, it effectively makes cycling more affordable. It is expected to encourage cycling by treating violations as opportunities to educate people and impart confidence and skills. AB 902 will go into effect on January 1, 2016, but it will be up to each city and its law enforcement department to adopt diversion programs.

Distribute Lights and Helmets to Cyclists

If law enforcement officers observe a cyclist riding at night without the proper reflectors or lights, they may give the cyclist a light along with a note or friendly reminder about the light requirement and its importance. This provides a positive and educational interaction rather than a punitive one. This program could be funded through a safety-oriented grant. Many cities have targeted the end of daylight savings as an ideal time to perform this function.

Helmet Giveaway
San Diego, CA

Helmet giveaway programs are another opportunity for positive education and interaction. Law enforcement departments have conducted public events to hand out helmets, as well as distributing them in the community during the course of patrol when an officer sees a child riding helmetless.

Monitoring and Evaluation

Create City Staff Bicycle Coordinator Position

The creation of a Bicycle Coordinator position would demonstrate the City's commitment to cycling and "Complete Streets." A bicycle coordinator or program manager can help coordinate between City departments to ensure projects planning consistency and cooperation. A bicycle coordinator would manage programs and implement projects listed in the bicycle master plan, and would be responsible for updating the plan in a timely manner. This includes maintaining a prioritized list of improvements, updating cost estimates and identifying appropriate funding sources. This investment in staff is often returned since this position usually is responsible for securing State and federal funding for bicycle projects.

Bicycle Pedestrian Advisory Committee

A Bicycle Advisory Committee (BAC) assists the City with implementation of plan projects, policies and programs. The BAC allows City staff, volunteers and bicycle advocates to continue efforts to improve cycling throughout the City. This group acts as a community liaison and addresses issues concerning local cycling. The BAC can review the implementation and regularly evaluate the progress of improvements in the Bicycle Master Plan. City support is imperative for creating the committee, budgeting time and resources for City staff and elected officials to attend and to support these meetings. Some cities have developed bicycle and pedestrian or active transportation advisory committees.

Count Cyclists and Review Collision Data

Conduct regular cyclist counts throughout the City to determine baseline mode share and subsequent changes. Gathering cyclist counts would allow the City to collect information on where the most cycling occurs. This assists in prioritizing and justifying projects when funding is solicited and received. Counts can also be used to study cycling 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

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 traffic volumes based on weather. In addition, bicycle counts should be collected as part of any existing traffic counts. Results of the number of cyclists should be regularly recorded for inclusion in the bicycle report card (See section 17).

The Riverside Ccounty Sherriff Department should continue to collect and track collision data. Regular reports of traffic collisions should be presented at the Bicycle Advisory Committee. Traffic collisions involving cyclists could be reviewed and analyzed regularly to develop plans to reduce their frequency and severity. Any such plans should include law enforcement involvement and should be monitored to determine their effectiveness. Results of the number of bicycle-related traffic collisions should be recorded in the bicycle report card.

Law Enforcement Referral Process

Design a 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. Include not only law enforcement, but also the Public Safety Commission, the Planning Department and SRTS stakeholders in this reporting system to help better use data generated. Enlist the help of law enforcement with a number of traffic safety duties:

- Enforcement of traffic and parking laws through citations and warnings.
- Targeted enforcement of problem areas – an intensive, focused effort during the first two weeks of school, as well as a strategy for the rest of the year.
- Participation in traffic safety programs: Traffic Garden, SRTS Task Force, etc.

Los Angeles has a successful program called the LA Bike Map that allows cyclists to submit incidents, see them displayed instantly, and study the overall pattern, dynamically, in one place.

Develop a Bicycle Report Card

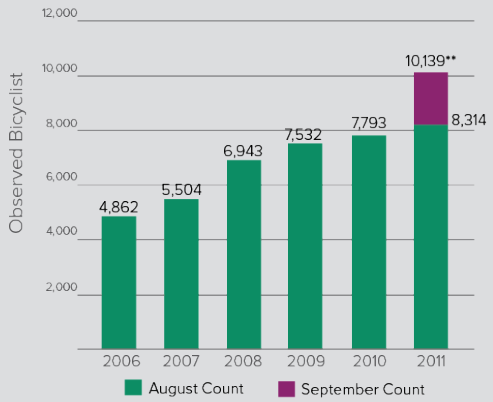
The City could develop a bicycle report card, a checklist used to measure the success of plan implementation, as well as effort made, within the City. The report card could be completed annually and used to identify the magnitude of accomplishments in the previous year and general trends. The bicycle report card could include, but not be limited to, keeping track of user counts, bicycle related collisions and system completion.

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 would be viewed as a success, regardless of the specific increase in the number of cyclists. Safety should be considered relative to the increase in cyclists. Sometimes crash numbers go up simply because cycling increases, at least initially. Instead, measure crashes as a percentage of an estimated overall mode share count. A major portion of the bicycle 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 network identified in this document.

Key Findings in San Francisco Bicycling for 2011

- Since 2006, counts have increased an impressive 71% and are up 7% since 2014.
- A sample of 10,139 riders (September) were manually counted in the peak 90 minutes; approximately 75,000 bike trips occur each day out of 2.2 million total trips across all modes
- SFMTA survey data in 2011 indicate that 3.5% of all trips in San Francisco are made by bicycle, a 75% increase mode in Share since 2000 when bicycling was 2% of daily trips
- Late September has 18% more riders than early August
- 94% of riders use bicycle facilities as designated

Total Manual Counts



Since 2006, counts have increased an impressive 71% and are up 7% since 2014.
The count trend since 2006 during the 5:00 p.m. – 6:30 p.m. peak continues to rise.
*These counts represent a sample of, not total daily ridership
**Approximately 18% of the 2011 increase (shown in red) is attributed to shifting the count from early August to late September

The report card is not intended to be an additional task for City staff, but rather a means of documenting and publicizing the City's efforts related to bicycle planning. If a Bicycle Advisory Committee is appointed, it can be a task of the committee to review the report cards and adjust future plans and goals accordingly. 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 report card. Some cities publish their bicycle report cards online.

Apply for Bicycle Friendly Community/Neighborhood Designation

Bicycle Friendly Community/Neighborhood Designation is part of an official program offered by the League of American Bicyclists intended to provide communities with guidance on becoming more bicycle friendly and to offer recognition for their achievements. Like the report card described above, applying for Bicycle Friendly Community/Neighborhood Designation provides a standard by which Eastvale can measure its progress.

> "The Bicycle Friendly Community (BFC) program provides a roadmap to improve conditions for bicycling and the guidance to make your distinct vision for a better, bikeable community a reality. A community recognized by the League as Bicycle Friendly welcomes bicyclists by providing safe accommodation for cycling and encouraging people to bike for transportation and recreation."
>
> - League of American Bicyclists

Recommended Policies

Supportive policies are essential to the development of bicycle facilities in the city of Eastvale. Without them, bicycle facility development may stagnate or – worse – be actively impeded. Recognizing this, the City of Eastvale has included an assessment of its adopted General Plan and Zoning Code ("to determine if they adequately support bicycle facility development") within this Bicycle Master Plan.

The General Plan and Zoning Code contain a wealth of policies that support bicycle facility development. The General Plan even includes a policy calling for the development of a comprehensive bike and trail plan (this plan). But while supportive policies exist, they may be overridden by other less supportive or even impeding policies. Examples of unsupportive policies include those that retain automobile priority, irrespective of context, and those that hinder the compact, mixed-use development needed to support increased walking and biking.

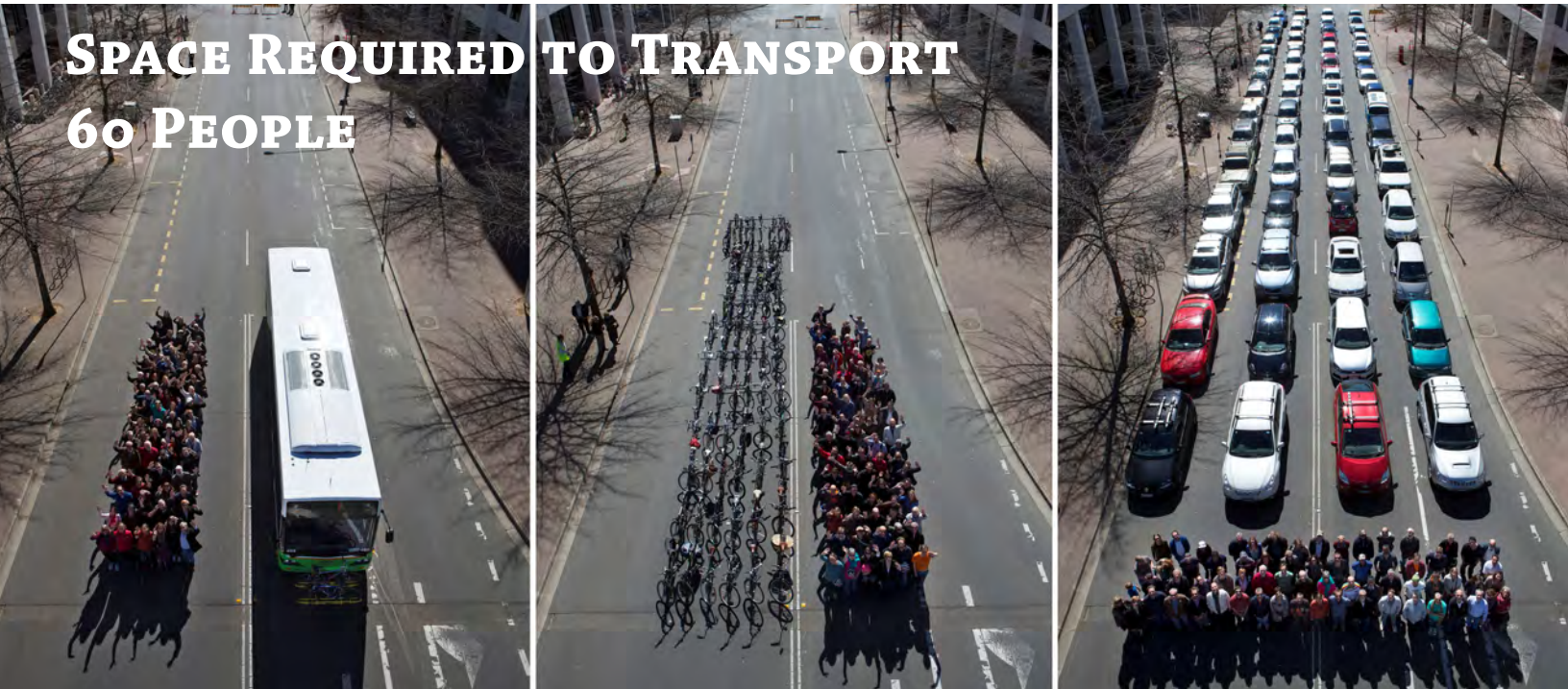
This section discusses the strengths and weaknesses of Eastvale's bicycle-related policies and suggests policy changes to better support the development of bicycle facilities within the City.

City of Eastvale General Plan

Circulation and Infrastructure Element

The Circulation Element provides the most direct policy guidance related to the development of bicycle facilities. As discussed in Chapter 2 (Existing Conditions), the Circulation Element contains many supportive policies, but also contains policies – and an overall structure – that are problematic from the perspective of bicycle facility development.

The Circulation Element places bicycles in a silo, apart from general Circulation (i.e. automobile) policies. Because bicycles, automobiles and other transportation modes are treated separately, their trade-offs cannot be adequately assessed. Similarly, there are no common metrics by which to assess the different transportation modes. In fact, the Circulation Element contains no measures of bicycle facility development and performance, but provides very clear measures of automobile performance (namely, Level of Service).



The Circulation Element acknowledges these shortcomings, stating that "the level of service standards currently only address the circulation needs of the automobile" and that "a more complete standard would take into account land use patterns, pedestrian access, transit, and bicycle paths." Policy C-31 even directs the city to evaluate its level of service and roadway width standards and – possibly – establish a "comprehensive level of service threshold that includes non-motorized, transit, mixed use, and vehicle access."

This plan recommends that the City implement Policy C-31 and evaluate its LOS and roadway width standards. It also recommends the development of a multi-modal level of service threshold. These steps would signify an important shift in Eastvale's transportation planning, where bicycling (and other 'alternative' modes) are considered legitimate modes of transportation and are provided for accordingly.

Land Use Element

Policies contained in the Land Use element have a less direct, but no less important influence on bicycle facility development in the city of Eastvale. As discussed in Chapter 2 (Existing Conditions) Eastvale's Land Use policies have led to a suburban development pattern, characterized by residential development, low-medium density, and a strong separation of uses. These traits are underpinned by policies that dictate minimum Level of Service thresholds, minimum setbacks for all buildings and minimum buffers between different uses. The aforementioned development patterns and related land use policies do not tend to support bicycling.

To better support bicycle use in Eastvale, this plan recommends the following land use policy changes:

1. Allow for greater diversity in land use designations: a greater mix will allow more people to meet their daily needs locally, by bicycle.
2. Permit "fine grain" mixed-use development: the City currently has no "mixed-use" land use designation. What commercial, civic or other non-residential uses exist within the City are grouped together, in large automobile-oriented complexes. Mixed use, at a "human scale" will promote more cycling, walking and transit use.
3. Allow for increased flexibility in density: compact development supports cycling, while sparse development does not. Determine areas or corridors prioritized for cycling/walking/transit and support density there.
4. Permit increased flexibility in building setbacks: the City's current policy of maintaining minimum setbacks reinforces a suburban style of development. In contrast, maximum setbacks support cycling, and especially walking, by reducing distances traveled and increasing visual interest. Determine areas or corridors prioritized for cycling/walking/transit and support maximum setbacks there.
5. Allow for a more context sensitive separation of uses: the City's general plan states that "Even the simple task of walking to school, shopping, or work can be made more difficult because of the lack of connectivity." This plan recommends a focus on increased connectivity along low-stress (i.e. non-arterial) routes. At best, schools, shopping and civic buildings would be oriented towards Eastvale's neighborhoods. At a minimum, the aforementioned should be accessible from Eastvale's neighborhoods.

Air Quality Element/Healthy Community Element/Parks, Recreation and Open Space Element

Not surprisingly, the above General Plan Elements lend significant supportive to the recommendations of this Bicycle Master Plan. Bicycling is a means of combating air pollution (by providing an alternative to driving), a means of achieving health goals (through exercise) and a means of creating recreation opportunities and, in the case of bicycle boulevards, even "linear parks." But while the above elements provide high-level support for bicycling, their support could be made stronger by including more metrics, with clear targets for cycling and walking.

Example metrics may include, but are not limited to, the following:

- Mode Share Goal: ___% of all trips will be made by bicycle in the city of Eastvale by the year 20__
- Obesity and Overweight Goal: Obesity will be reduced to ___% and over weight to ___% by the year 20__
- Fitness Goal: __% of Eastvale residents will get the recommended 20 minutes of daily exercise by the year 20__
- Traffic Safety Goal: All traffic-related fatalities are reduced by _% by the year 20__; All traffic-related fatalities are eliminated by the year 20__ (i.e. a "Vision Zero" policy)
- Park and Open Space Goal: ___% of residents will live within a half mile of a trail by the year 20__

City Zoning Code

As mentioned in Existing Conditions (Ch.2), the zoning code is intended to provide further definition to the policies included the Land Use Element. Also, as mentioned, the Zoning Code standards for setbacks, building heights, site coverage and parking demonstrate a bias against the type of compact, human-scaled development known to support active transportation. This section provides further discussion of the more problematic Zoning Code standards (vis-à-vis active transportation) and how they might be amended to better support bicycle facility development in the city of Eastvale.

To better support bicycle use in Eastvale, this plan recommends the following zoning code changes:

1. Provide more flexibility in setbacks, particularly for corridors designated for bicycle travel: Setbacks are defined by the zoning code in terms of minimums (i.e. buildings must be at least X feet from the street and sidewalk, where X is dependent on land use designation). Setback minimums equate to longer distances for bicyclists and pedestrians to travel to reach their final destinations. This not takes more physical effort, but also provides less reward (i.e. less visual interest in the form of vibrant store fronts, sidewalk cafes, etc.). In contrast, providing setback maximums brings everyday destinations (schools, parks and retail) and residential areas closer together, decreasing distance barriers for biking and walking.
2. Increase flexibility in building heights and site coverage, especially for corridors designated for bicycle travel: Buildings heights and site coverage, though they may address different building dimensions (vertical and horizontal), are strongly related. Building heights are defined by the zoning code in terms of maximums (i.e. buildings may be no higher than X feet, where X is dependent on land use designation). Site coverage, which uses density – as prescribed in the General Plan's Land Use Element – as a proxy, is also defined by maximums (i.e. maximum "dwelling units per acre" or "floor area ratios"). Like setback minimums, the use of maximums in building heights and site coverage increases travel distances and serves as a barrier to active transportation. Although less literal than with minimum setbacks, these standards do impede compact development and therefore active transportation.

3. Explore parking maximums, shared parking and parking tailored to actual expected use: Parking is defined by the zoning code in terms of minimums (i.e. buildings must provide X parking spaces, where X is determined by land use designation). Parking minimums are problematic, from the perspective of active transportation, for several reasons. First and foremost, parking minimums serve as a sort of self-fulfilling prophesy. Parking minimums assume that nearly all travelers will be arriving by car and nearly none by bike or on foot. In doing so, they make driving attractive and biking and walking unattractive. Beyond promoting driving (over other modes), parking minimums also create barriers for those who do choose to bike or walk. Lastly, there are additional externalities associated with parking minimums that may or may not impact bicycle facility development: they significantly increase the cost of development (even development that aims to be sustainable); they cause environmental damage; they are often a waste of space (only nearing capacity for a few days out of the year). For instance, developments that are mixed-use, transit oriented or active transportation oriented should not have the same vehicle parking standards as conventionally suburban developments.

Electric Bikes

A new law, AB-1096: Electric Bicycles, went into effect on January 1, 2016 that clarifies electric bicycle status in California. It defines electric bicycles, or e-bikes, as those with fully operable pedals and an electric motor of less than 750 watts. It establishes three classes of electric bicycles based on their motor speed and level of electric assist:

- Class 1 e-bike, or low-speed pedal-assisted electric bicycle, is equipped with a motor that provides assistance only when the rider is pedaling and that stops providing assistance when the bicycle reaches 20 mph.
- Class 2 e-bike, or low-speed throttle-assisted electric bicycle, is equipped with a motor that can exclusively propel the bicycle and that cannot provide assistance when the bike reaches 20 mph.
- Class 3 e-bike, or speed pedal-assisted electric bicycle, is equipped with a motor that provides assistance only when the rider is pedaling and stops providing assistance when the bicycle reaches 28 mph. Operators of Class 3 e-bikes must be 16 or older and wear a helmet. While Classes 1 and 2 are considered legal on streets and trails, Class 3 e-bikes are prohibited from paths, lanes and trails unless specifically authorized by a local ordinance.

The bill prohibits tampering with or modifying electric bicycles to change their speed capability, unless the classification label also is changed. E-bike operators do not need a driver's license, registration or license plate to ride them, though they do need to abide by existing traffic laws.

Chapter 6:

Implementation & Funding

Implementation

Bikeway facility implementation is generally not governed by a specific timeline since the availability of funds for implementation is variable and tied to the priorities of the City's capital projects. Plan implementation is also necessarily multi-faceted. Besides adoption of goals and policies, it often includes carrying out programs and pursuing project funding, whether through the City's capital improvements project process or grant funding. The plan addresses goals, policies, programs and projects that may not be feasible to implement immediately, but are included to inspire long-term actions.

Following plan adoption, the next tasks will be to get the programs into the City's or appropriate school district's budget, grant writing to fund projects and programs, amending City standards and design guidelines for consistency, including projects in the City's ongoing capital improvements programs, and implementing goals and policies in the everyday City and law enforcement management processes, whether in site plan review, street engineering decisions or traffic enforcement. Recommendations include education and outreach programs that can be implemented by the City, schools, volunteers and law enforcement, but implementation ultimately rests on the community and City's desire to make this plan's recommendations a reality.

Implementation Steps

Implementation of some bikeways, such as multi-use paths, bicycle boulevards and other innovative techniques described in this plan, will require a capital improvement project process, including identifying funding, a public and environmental review process and plan preparation. Other bikeway improvements can be integrated into planned construction, such as resurfacing, reconstruction, or utility work.

The majority of bikeway facilities are provided on streets in the form of shared roadways or bicycle lanes. Shared roadways usually require little change to existing roadways, except for directional signs, pavement markings and minor changes in traffic control devices. Each project will need a varying level of additional study and analysis before installation. Depending upon the project's complexity, some can be done by City staff or more complex projects can be contracted out to consultants.

Potential Implementation Steps include:

1) Preliminary design and/or technical traffic studies
2) Parking study if parking removal is recommended
3) Construction drawings and detailed cost estimates
4) Funding (CIP, grant, etc.)
5) Recommendations for further environmental studies
6) Construction

Project Phasing

Projects listed as short-term are those relatively easy to implement. These projects typically have low construction costs, would not necessitate the acquisition of right-of-way, and/or would require only a categorical exemption under the California Environmental Quality Act (CEQA) guidelines. An example of a potential short-term project could include restriping a roadway to include a buffer to remedy a door zone bicycle lane or creating accessible connections to an existing facility like the Santa Ana River Trail.

Mid-term projects are projects that will require a small amount of further study or a higher cost than projects that require only typical resurfacing and striping. The long-term projects involve pursuing grant funding opportunities or further study for the implementation of larger, and potentially costlier improvements. Examples of long-term projects include some of the Class 1 multi-use path recommendations.

Program Phasing

Program phasing can be addressed in phases in a similar manner. Each program is equally feasible for implementation, but some will require more time and funding investment from City staff, school districts and/or public volunteers. Short-term programs can be implemented without significant additional costs, staff or policy change. Mid-term programs may require budgetary considerations or significant volunteer involvement. Long-term programs will require additional staff, significant volunteer involvement, and additional funding through grants or budget additions.

Potential 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 in development projects, policy development and planning to improve conditions for cyclists. Even though appropriate funds are limited, they are available, but desirable projects sometimes go unfunded because communities may be unaware of a fund's existence, or may apply for the wrong type of grants. Also, the competition between municipalities for the available bikeway funding is often fierce.

Whenever federal funds are used for bicycle projects, a certain level of State and/or local matching funding is generally required. State funds are often available to local governments on the similar terms. Almost every implemented bicycle program and facility 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 facility programs exist, there is usually a full time bicycle coordinator with extensive understanding of funding sources. Cities such as Seattle, Washington, Portland, Oregon and Tucson are prime examples. Bicycle coordinators are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for cyclists within their jurisdictions. Some of the following information on federal and State funding sources was derived from the previously mentioned FHWA publication.

Federal Sources

The previous federal transportation funding authorization, MAP-21 (Moving Ahead for Progress in the 21st Century), has ended and been replaced with a new funding mechanism. In late 2015, Congress passed a five year, $305 billion transportation bill, called the Fixing America's Surface Transportation (FAST) Act, which President Obama signed into law. It is the first law enacted in over 10 years that provides long-term funding certainty for surface transportation, meaning States and local governments can move forward with critical transportation projects.

Notably, the bill requires all design for National Highway System roadways to take into account access for all modes of transportation. It also makes NACTO's Urban Design Guide one of the U.S. Department of Transportation's roadway design standards, as well as permits local governments to use their own adopted design guides if they are the lead project sponsor, even if it differs from their state guidelines.

Safe Routes to School Programs

Caltrans administers two separate Safe Routes to School programs. The first is the State-legislated program referred to as "SR2S" and the second is the Federal Program referred to as "SRTS." Both programs are intended to achieve the same basic goal of increasing the number of children walking and biking to school by making it safer for them to do so. SR2S is now a part of the Active Transportation Grant program (ATP) described in the "State Sources."

The SRTS Program funds non-motorized facilities that improve access to schools through the Caltrans Safe Routes to School Coordinator. Eligible applicants include State, local, and regional agencies experienced in meeting federal transportation requirements. Nonprofit organizations, school districts, public health departments, and Native American Tribes must partner with a city, county, MPO, or RTPA to serve as the responsible agency for their project. Eligible projects include stand-alone infrastructure or non-infrastructure projects. Projects must be completed within four years after project is amended into FTIP. Targeted beneficiaries are children in grades K-8. No local match is required. For more information visit the following link: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm.

Department of the Interior - Land and Water Conservation Fund (LWCF)

The U.S. Recreation and Heritage Conservation Service and the California Department of Parks and Recreation (CDPR) jointly administer this funding source. The Land and Water Conservation Fund is a 50 year old budget neutral program that reinvests a portion of the royalties from offshore oil and gas leasing into recreation and conservation priorities. The program has a tremendous track record of success and broad bipartisan support, and has been used to expand protected areas and improve recreation facilities in every state. Projects acquired or developed under the LWCF program must be primarily for recreational use and not transportation purposes, and the lead agency must guarantee to maintain the facility in perpetuity for public recreation.

Applications are evaluated using criteria including priority status within the State Comprehensive Outdoor Recreation Plan (SCORP). The CDPR selects which projects to submit to the National Park Service (NPS) for approval. Final approval is based on the amount of funds available that year, which is determined using a population-based formula. Trails are the most commonly approved project.

Though it was allowed to expire at the end of September, 2015, widespread public outcry is credited with helping to goad Congress into voting to reauthorize the LWCF with almost 200 co-sponsors in December, 2015. It is now funded for three years at $450 million, 50 percent more than previously.

Table 6-1: Safe Routes to School Programs Comparison

	SR2S (State Program)	SRTS (Federal Program)
Legislative Authority	Streets & Highways Code Section 2330-2334	FAST Act
Expiration Date	AB-57 extended program indefinitely	Upon FAST Act reauthorization
Eligible Projects	Infrastructure projects	Stand-alone infrastructure or non-infrastructure projects
Eligible Applicants	Cities and counties	State, local, and regional agencies experienced in meeting federal transportation requirements; Non-profit organizations, school districts, public health departments, and Native American Tribes must partner with a city, county, MPO, or RTPA to serve as the responsible agency for their project.
Local Match	10 percent minimum required	None
Project Completion Deadline	Within 4½ years after project funds are allocated to the agency	SRTS - Within 4 ½ years after project is amended into FTIP
Restriction on Infrastructure Projects	Must be located in the vicinity of a school	Infrastructure projects must be within two miles of a grade school or middle school
Targeted Beneficiaries	Children in grades K-12	Children in grades K-8
Funding	$24.25M annual funding	$23M annual funding

Rivers, Trails, and Conservation Assistance Program (RTCA)

This program is the National Park Service's community assistance arm. The RTCA provides technical assistance to communities to preserve open space and develop trails. RCTA funds can not be used for infrastructure. Assistance is specifically for construction plans, engaging public participation and identifying other sources of funding for conservation and outdoor recreation projects. A local example is the Murrieta Creek Regional Trail, for which the NPS is a prime partner agency.

Other Bicycle Infrastructure Funding Options

The American Recovery and Reinvestment Act of 2009 is commonly referred to as the "stimulus" or the "stimulus package" and targets infrastructure development and enhancement. In 2011, the original expenditure estimate of $787 billion was increased to $840 billion to be in line with the President's 2012 budget and with scoring changes made by the Congressional Budget Office since the enactment of the Recovery Act. There was no end date written into the Recovery Act because, while many of its projects were focused on jumpstarting the economy, others are expected to contribute to economic growth for many years.

States must use 18.2 percent of their funding for public safety and government services. An eligible activity under this section is to provide funding to K-12 schools and institutions of higher education to meet green building standards. This is particularly applicable for active transportation and Safe Routes to School projects because the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council (USGBC), addresses green standards for schools that include bicycle and pedestrian facilities providing safe access to schools.

Another $5 billion is provided for the Energy Efficiency and Block Grant Program. This provides formula funding to cities, counties and states to undertake a range of energy efficiency activities and an eligible use is bicycle and pedestrian infrastructure.

State Sources

State Highway Account

Section 157.4 of the Streets and Highways Code requires Caltrans to set aside $360,000 for the construction of non-motorized facilities that will be used in conjunction with the State highway system. The Office of Bicycle Facilities also administers the State Highway Account fund. Funding is divided into different project categories. Minor B projects (less than $42,000) are funded by a lump sum allocation by the CTC and are used at the discretion of each Caltrans District office. Minor A projects (estimated to cost between $42,000 and $300,000) must be approved by the CTC. Major projects (more than $300,000) must be included in the State Transportation Improvement Program and approved by the CTC. Funded projects have included fencing and bicycle warning signs related to rail corridors.

Caltrans Active Transportation Program (ATP)

This program was created to encourage increased use of active modes of transportation, such as biking and walking. The ATP consolidates existing federal and State transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation. The ATP is administered by the Division of Local Assistance, Office of Active Transportation and Special Programs. This is a competitive program to increase biking and walking trips, safety and mobility, to support regional agency GHG reduction, enhance public health, benefit disadvantaged communities, and include a broad spectrum of projects. As of March 2015, no local match is required.

The SR2S component of the ATP addresses eligible city and county infrastructure projects. Projects must be infrastructure projects within two miles of a grade school or middle school and be completed within four years after project funds are allocated to the agency. Targeted beneficiaries must be children in grades K-12.