

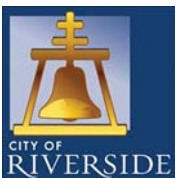
MAY 2021

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# Riverside PACT

## TRAILS MASTER PLAN

Adopted by City Council on August 17, 2021



# Acknowledgments

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# Table of Contents

|  |      |
|--|------|
| Section 5.1: Executive Summary .....       | 5-4  |
| Section 5.2: Introduction .....            | 5-12 |
| Section 5.3: Design Guidelines .....       | 5-18 |
| Section 5.4: Network Recommendations ..... | 5-52 |
| Section 5.5: Implementation Plan .....     | 5-68 |

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# Section 5.1: Executive Summary



*Mt. Rubidoux, Glenwood Dr. Trailhead*



*Bountiful Street Roadside Trail*

The City of Riverside boasts over 31 miles of multipurpose trails distributed throughout the community and available for all levels of ability. This trails network, managed by the City’s Parks, Recreation and Community Services Department (PRCSD), features a variety of paved and unpaved offerings catering to the City’s walking, hiking, biking, and equestrian communities.

Though traditionally understood as a network of facilities traversing scenic hillsides, many of Riverside’s existing and planned multi-purpose trails are street-adjacent, contributing to the City’s overall active transportation network. The City’s trails system plays an important role in Riverside’s identity, celebrating its abundant natural resources, providing easily accessible outdoor recreational opportunities to residents, connecting neighborhoods to parks and other community resources, and offering non-motorized commuters a network for getting to and from work, school, and daily errands.

Riverside’s trails network is beloved by residents, and stakeholder interviews, public workshops, and surveys conducted in support of the 2019 Comprehensive Park, Recreation & Community Services Master Plan indicate that trails were the most requested amenity by stakeholders. The Plan places trails in the highest-tier of park needs and identifies them as capable of delivering the “maximum community impact”. This support underscores the importance of providing more opportunities for trail use, improving the community’s quality of life by providing health and wellness benefits as well as environmental benefits associated with reduced vehicular use.

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# Trails Master Plan

## OVERVIEW

This Trails Master Plan (TMP) serves as an update to the Multi-Purpose Recreational Trails Master Plan and Trails Standards document adopted by Council in January 1996, with slight modifications and updates included in the 2003 Parks and Recreation Master Plan Update. In the intervening years since the publication of these documents, the City has grown by nearly 100,000 additional residents, accompanied by new residential buildings, warehouses, commercial developments and retail centers. This update contextualizes the spatial impacts and usage demands of growth throughout the City, creating a plan that meets current needs and goals so that residents and visitors alike can enjoy safe, enjoyable, and convenient access to trails.

Note that this plan only covers unpaved trails. Paved trails, such as Class I shared use paths, are covered under the Active Transportation Plan.

Additionally, internal park trails are not included in the Trails Master Plan. The City will continue to implement internal park trails on a case-by-case basis to add to the recreational opportunities in our parks,

but they do not serve to connect to other points of interest or contribute to larger connectivity between open space and recreation opportunities in the city.

Developed in coordination with City staff, a Technical Advisory Committee (TAC) comprised of residents and stakeholders, and a focused public outreach and input process, this TMP update provides the City, residents, trails advocates, and developers with a single, comprehensive reference point representing the most current vision for Riverside's trail network, design, maintenance, and funding. In addition to updating trail design guidelines and standards, the TMP proposes and prioritizes new trails and gap closures, addresses integration of trail facilities with the City's on-street active transportation network, and identifies potential funding sources.

## PLANNING PROCESS

This TMP was developed as part of the Riverside PACT (Pedestrian Target Safeguarding Plan, Active Transportation Plan, Complete Streets Ordinance, and Trail Master Plan) planning process, an integrated citywide planning effort addressing on-street and off-street active transportation

in a holistic manner, and informed by a robust public engagement process. Public outreach efforts undertaken as part of the PACT process in all 7 Wards included 25 in-person presentations with community groups, surveying the public on preferences and priorities at existing events, a virtual community workshop, and an interactive online public input map that enabled residents to draw-in proposed trails, identify gaps, and prioritize trail projects. The project team also reviewed previous planning documents such as the 2019 Comprehensive Park, Recreation & Community Services Master Plan, 2007 General Plan, Riverside County's 2018 Comprehensive Trails Plan, conducted interviews with City staff, analyzed and identified proposed trail alignments utilizing Geographic Information Systems (GIS), and field work.

## **NETWORK RECOMMENDATIONS SUMMARY**

The network of proposed trails identified in this Plan were developed by evaluating opportunities and constraints at the network level. This included locating and closing gaps in the City's existing trails network, identifying key locations for trails such as underserved areas in the City, park space and residential neighborhoods, and connections to existing trails in neighboring jurisdictions. Trail planning was also informed by community ranking, TAC input,

and the feasibility of implementation. In addition to proposing new trails, alignments of previously proposed trails were verified, and some have been re-aligned to better accommodate existing conditions and development patterns, while others have been removed from consideration.

As identified in the 1996 Trails Master Plan and reinforced in the 2003 Park and Recreation Master Plan Update, the City's previous trail planning approach focused on a network of primary trails encompassing Riverside, complemented by a secondary network of trails offering shorter-trip recreational opportunities and/or locations within the City, as opposed to its perimeter. Subsequent land development following the 1996 TMP's publication has resulted in the need to realign some previously proposed trail segments, obviated the need for others, and created new population centers in the City in need of trails. Previous trail planning documents also did not include a prioritized list of trails, further complicating construction of new facilities.

This TMP update addresses both of these concerns, providing an updated network of proposed trails comprised of a primary and secondary network, with the primary network prioritized by factors such as connectivity, equity, feasibility, and public support.

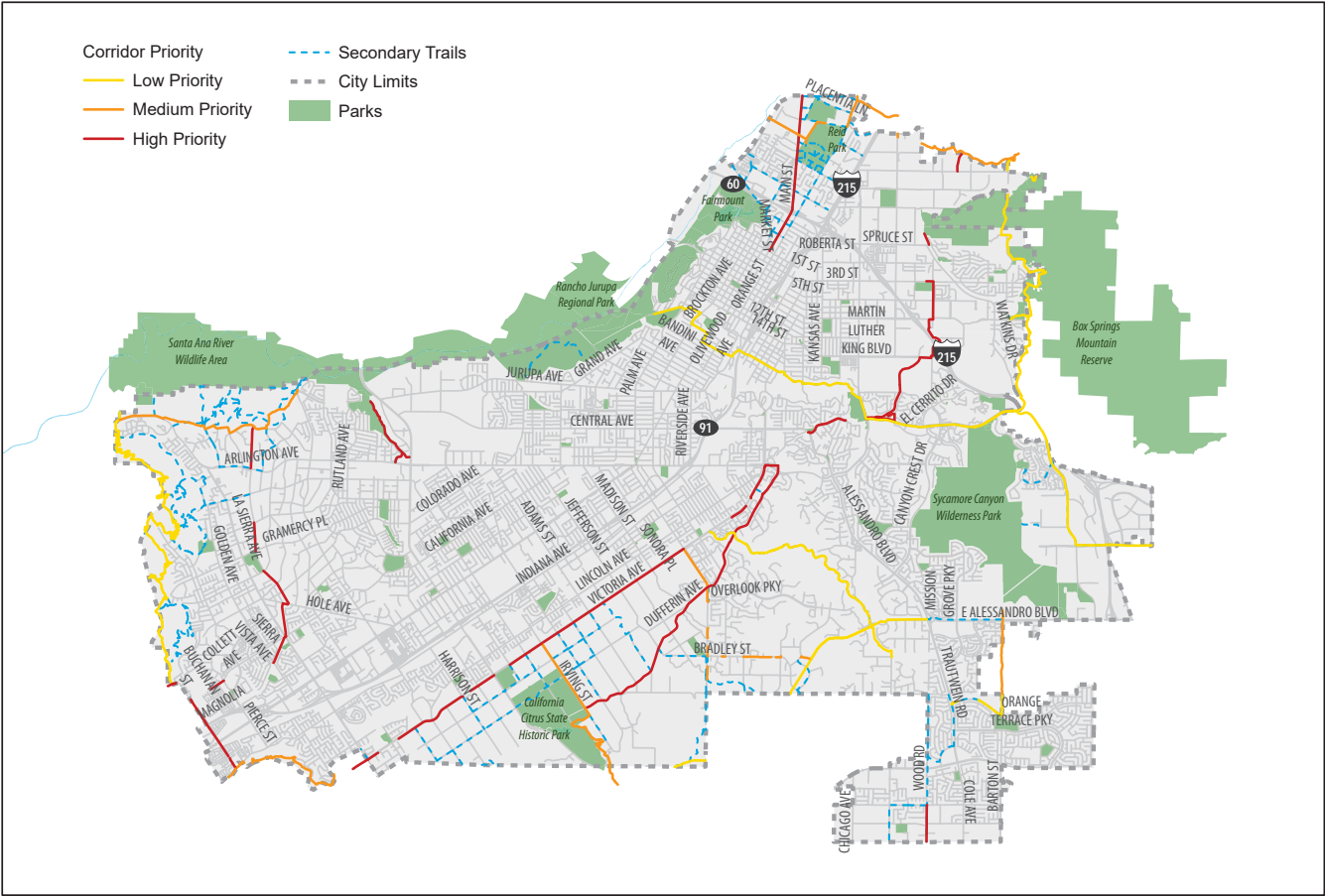
Table 5-1 and Figure 5-1 summarize the top-ranked proposed trails.



**TABLE 5-1 : TOP-RANKED PROPOSED TRAILS**

| TRAIL CORRIDOR       | RANK |
|----------------------|------|
| Main Street          | 18   |
| Hole Lake            | 9.50 |
| Mitchell             | 9.00 |
| Wood                 | 8.00 |
| Mitchell to Buchanan | 8.00 |
| Gage Canal           | 7.35 |
| Victoria Ave         | 7.33 |
| Buchanan             | 6.40 |

**FIGURE 5-1 : TOP-RANKED PROPOSED TRAILS**



## **DESIGN GUIDELINES SUMMARY**

This TMP update includes cross section illustrations and updated trail design standards based upon national best practices for a variety of conditions, uses, and available easements encountered in Riverside. These design guidelines include considerations for trails that cross vehicular roadways, the needs of different types of trail users, and material selection. The TMP design guidelines cover mainly unpaved trails, whereas paved Class I bike paths are covered under the PACT in the Active Transportation Plan (ATP). This section also provides guidance on content, graphic design, and construction of a signage and wayfinding program for the trails network.

## **IMPLEMENTATION PLAN SUMMARY**

This section presents a framework for implementation, including short- and long-term trail network goals, a prioritized project list, and an associated phasing strategy.

The prioritized project list was arrived at utilizing an evaluation matrix including a variety of considerations such as public support, feasibility, connectivity, and equitable distribution. Complementing this prioritization exercise, a project phrasing strategy was developed to address immediate needs or critical network gaps and develop a comprehensive strategy in light of limited trail-building funds.

This section also identifies standard operations and management considerations such as operating hours, public safety, and protocols for detours or closures. Both routine and remedial trail maintenance standards are provided for the breadth of trail types included in this Plan, and are accompanied by their approximate costs. Potential funding opportunities from state, federal, and private sources are also listed in this section, along with potentially fruitful partnerships such as adopt-a-trail programs. Finally, the implementation section describes land acquisition strategies such as easements and rights-of-first-refusal that the City may exercise in order to acquire underutilized land for trail development.



Wood Road Multipurpose Trail

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# Section 5.2: Introduction



*Riverwalk Trail along Riverwalk Parkway*

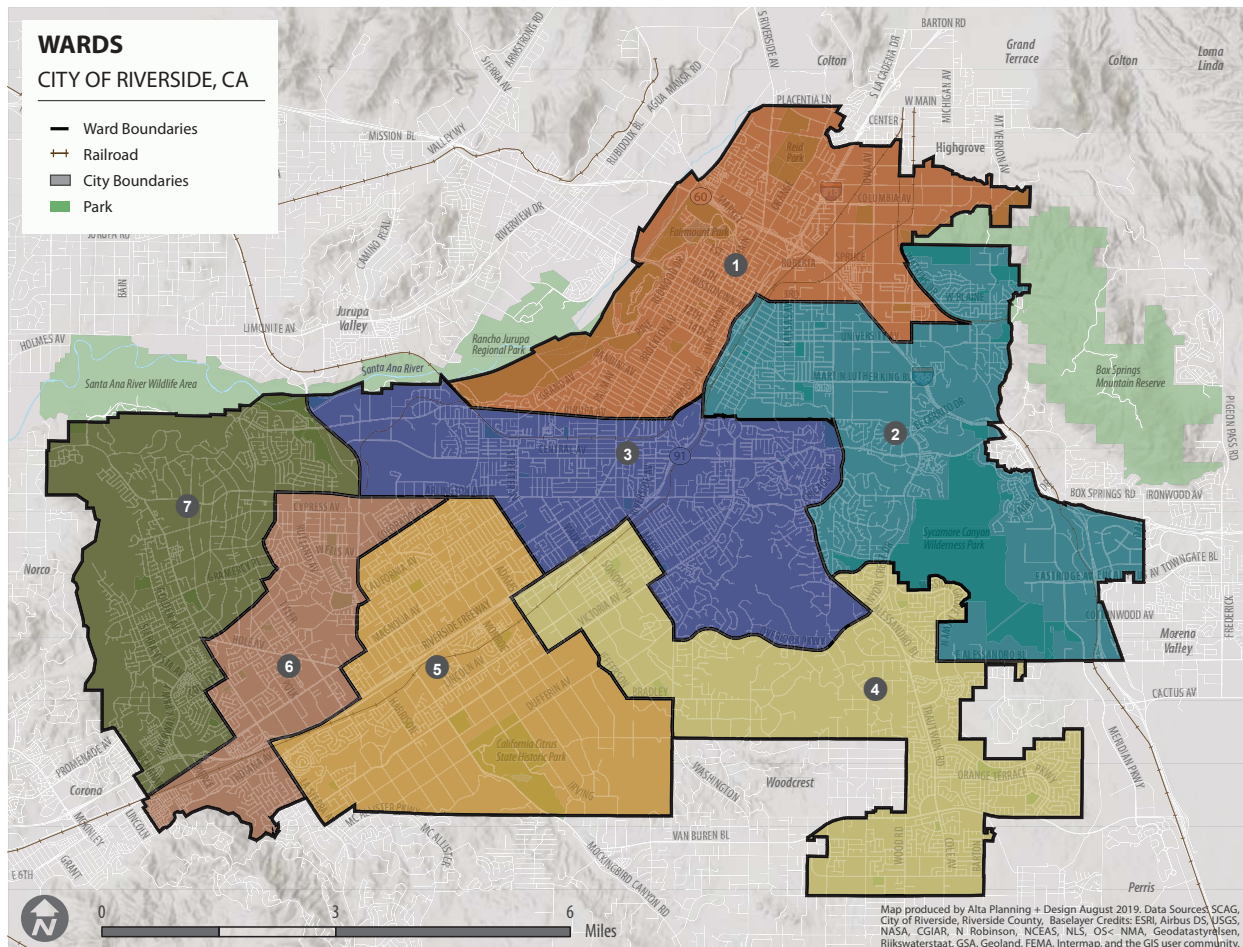
# Project Area Overview

The City of Riverside is located within Riverside County in Southern California, which lies east of Orange County, north of San Diego and Imperial Counties, and south of San Bernardino and Los Angeles Counties.

The City of Riverside encompasses 82 square miles and is made up of seven wards, each of which are made up of approximately 1/7th of the City’s 317,000-person population Figure 5-2.

There are currently 31 miles of multi-purpose trails within Riverside. This trails network, managed by the City’s Parks, Recreation and Community Services Department (PRCSD), features a variety of paved and unpaved facilities that serve Riverside’s walking, hiking, biking, and equestrian communities.

**FIGURE 5-2 :CITY OF RIVERSIDE WARDS**



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## Vision, Goals, and Objectives

The TMP updates and refines the 1996 Trails Master Plan, with a focus on facilitating implementation by providing clear guidance to City agencies and private developers.

### PLAN GOALS

The TMP's three primary goals are:

- Establish a comprehensive suite of updated trail design and maintenance guidelines that are accessible by a variety of user types, and connect to major destinations throughout the city.
- Develop a prioritized list of proposed trail facilities, accompanied by recommendations for funding and implementation.
- Provide clear standards and guidance for property owners and developers.

### PLAN OBJECTIVES

- Provide an analysis of current trail segments, catalogue the City's inventory of existing trails and trail classifications, and verify trail status;
- Analyze system gaps, determine property ownership and approaches for property acquisition, where necessary;
- Develop sustainable trail design guidelines which refine current standards and are compatible with adjacent trail networks;
- Examine key policy issues related to trails such as land use, easements, liability, unsanctioned use, and illegal motorized trail use;
- Develop a plan for trail implementation and phasing;
- Define the City's role in trail management and implementation and identify opportunities for other agencies to assume responsibility of the trail network;
- Identify potential trail partnerships and recommend immediate and long-term funding models;
- Provide a framework of recommendations that will serve as a blueprint for future trails planning, maintenance, and development;
- Base recommendations on input from stakeholders, other trail agencies and local trail users.

## Existing Plans and Context

In addition to the 1996 Trails Master Plan, a number of City and County plans establish visions and propose trails in Riverside. These plans have been reviewed, and relevant

elements have been incorporated into this Plan update to further the City’s goal of delivering a comprehensive trails network throughout Riverside that connects to regional trail networks. A list of the reviewed plans is provided below. For brief summaries of the plans, see “Appendix I: Existing Plans and Context”.

**TABLE 5-2 : REVIEWED PLANS**

| PLAN TITLE   | YEAR |
|--|------|
| Sycamore Canyon Specific Plan  | 1991 |
| Mission Grove Specific Plan  | 1996 |
| Rancho La Sierra Specific Plan   | 1996 |
| Trails Master Plan   | 1996 |
| La Sierra University Specific Plan   | 1997 |
| Sycamore Canyon Wilderness Park Stephens’ Kangaroo Rat Management Plan and Updated Conceptual Development Plan | 1999 |
| Downtown Specific Plan   | 2002 |
| City of Riverside Park and Recreation Master Plan Update   | 2003 |
| Bicycle Master Plan  | 2007 |
| General Plan   | 2007 |
| Bicycle Master Plan  | 2012 |
| Riverside County Box Springs Mountain Reserve Comprehensive Trails Master Plan                                 | 2015 |
| Downtown Specific Plan   | 2017 |
| Riverside County Comprehensive Trails Plan   | 2018 |
| Comprehensive Parks, Recreation, and Community Services Master Plan  | 2020 |
| Northside Specific Plan  | 2020 |



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# Section 5.3: Design Guidelines



*Choi Drive Roadside Trail*

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## Best Practices

### **TRAIL PLANNING AND DESIGN POLICIES AND STANDARDS**

The Riverside County Regional Park and Open Space District’s Comprehensive Trails Plan (2018) outlines a number of trail planning and design policies and standards for the region. In addition, the City of Riverside has several existing design standards and guidelines related to urban trail planning, as identified in its 2013 Bicycle Master Plan. Many of the standards are pulled from the Caltrans Highway Design Manual and the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

The planning and design best practices detailed in this plan are adapted from a variety of existing trails plans and serve as a guide for trail implementation by developers, private property owners, and agencies in the City of Riverside.

### **TRAIL PLANNING BEST PRACTICES**

Successful trails serve a variety of users, connect to other trails and the greater active transportation network, and incorporate wayfinding best practices to provide a comfortable user experience. Depending on available right-of-way and budget, trail areas can provide amenities to make

the trail experience more enjoyable for all users. Successful trails also have clear management structures and funding mechanisms in place to ensure the trails are adequately managed and maintained once constructed. For additional information, see “Appendix H: Planning and Design Best Practices”

### **TRAIL DESIGN BEST PRACTICES**

Trails can be constructed with either hard (asphalt or concrete) or soft surface (compacted native soil or decomposed granite) materials depending on the land context of the trail and anticipated use. The trails in the City’s Trails Master Plan are primarily soft surface. Of the potential soft surface materials, stabilized decomposed granite is specified for trails with high activity and equestrian use. For additional information, see “Appendix H: Planning and Design Best Practices”

### **TRAIL TYPE AND SHARING THE TRAIL**

Trail managers sometimes must balance the often-political decision of selecting the appropriate trail use or uses on a given piece of property. In an optimal setting, managers could selectively place trail uses in strategic locations to reduce user conflict and protect the environment, while creating a high-quality experience for all user types. This is rarely the case, and decisions made

by trail administrators and managers can sometimes result in users feeling not represented in trail systems. Selecting where trails should be located is no easy task, but it must be done to reduce user conflict. The location of a trail or trail system will also help determine the appropriate uses. Trails located in environmentally sensitive lands should consider the environmental impacts of trail users for both environmental degradation and wildlife behavior.

## **USER CONFLICT AND ETIQUETTE**

The design of multipurpose trails must consider user types and potential conflicts. For example, bicyclists traveling at high speeds may conflict with pedestrian or equestrian users. Equestrians traveling along a constrained path may come into conflict with other trail users as well.

User conflict reduction policies aim to ensure that conflict is mitigated before it raises to the point of being an issue between user groups or management. A number of policies and programs can be adopted to ensure that the risk of conflict can be reduced. These policies can be geared towards reducing conflicts between groups, provide education on appropriate use, and assist with self-regulation of trails. While policies geared towards reducing conflict can be put in place and signs implemented to the same effort, trails can often generate more demand than supply and this can frequently impact user

experience (City of Des Moines, 2011, p. 192).

It is recommended that the City of Riverside adopt user policies for recreational areas such as Sycamore Canyon and Mt. Rubidoux. User policies should align with City municipal code 9.08.030 regarding equines in parks, which states that animals are prohibited in parks with the exception of equine animals being led or ridden under control upon a bridle path or trail authorized and provided for such purpose, and equine or other animals which are hitched or fastened at a place expressly authorized and designated for such purpose.

User policies should also align with City municipal code 9.08.060 regarding the use of bicycles within parks, which states that no person shall operate any bicycle in or upon any park, playground, trail, open space area or other area of the City under the control of the Park and Recreation Department in willful or wanton disregard for the safety of persons or property.

Policies regarding electric bikes (eBikes) on trails should closely follow the framework set by the State of California act to amend sections of the vehicle code in 2015 (CA State AB1096). The state defined electric bicycles as a bicycle equipped with fully operable pedals and an electric motor of less than 750 watts. Along with this, three classes of eBikes were defined including:

- Class 1 - A Class 1 eBike, or low-speed pedal-assisted electric bicycles, 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. These e-bikes are legal on any trail that a regular bike is allowed to operate unless restrictions are posted otherwise at a specific trail.
- Class 2 - Class 2 eBikes, or low-speed throttle-assisted electric bicycle, are equipped with motors that can exclusively propel the bicycle, but that cannot provide assistance when the bike reaches 20 mph. These e-bikes are legal on any trail that a regular bike is allowed to operate unless restrictions are posted otherwise at a specific trail.
- Class 3 - A Class 3 eBike, 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. Class 3 e-bikes are only allowed on trails with an adjacent Class I bike path, which are described as “urban trails” in the following sections of this document.

electric scooters may be adopted and will be used to govern this type of use on trails along with shared scooter parking at trail staging areas.

Along with eBikes, electric scooters are a fast growing mode of transportation. Electric scooters are compatible with trail use as their top speeds are in line with Class 1 & 2 eBikes. In the future, city-wide regulations for

# First/Last Mile Considerations

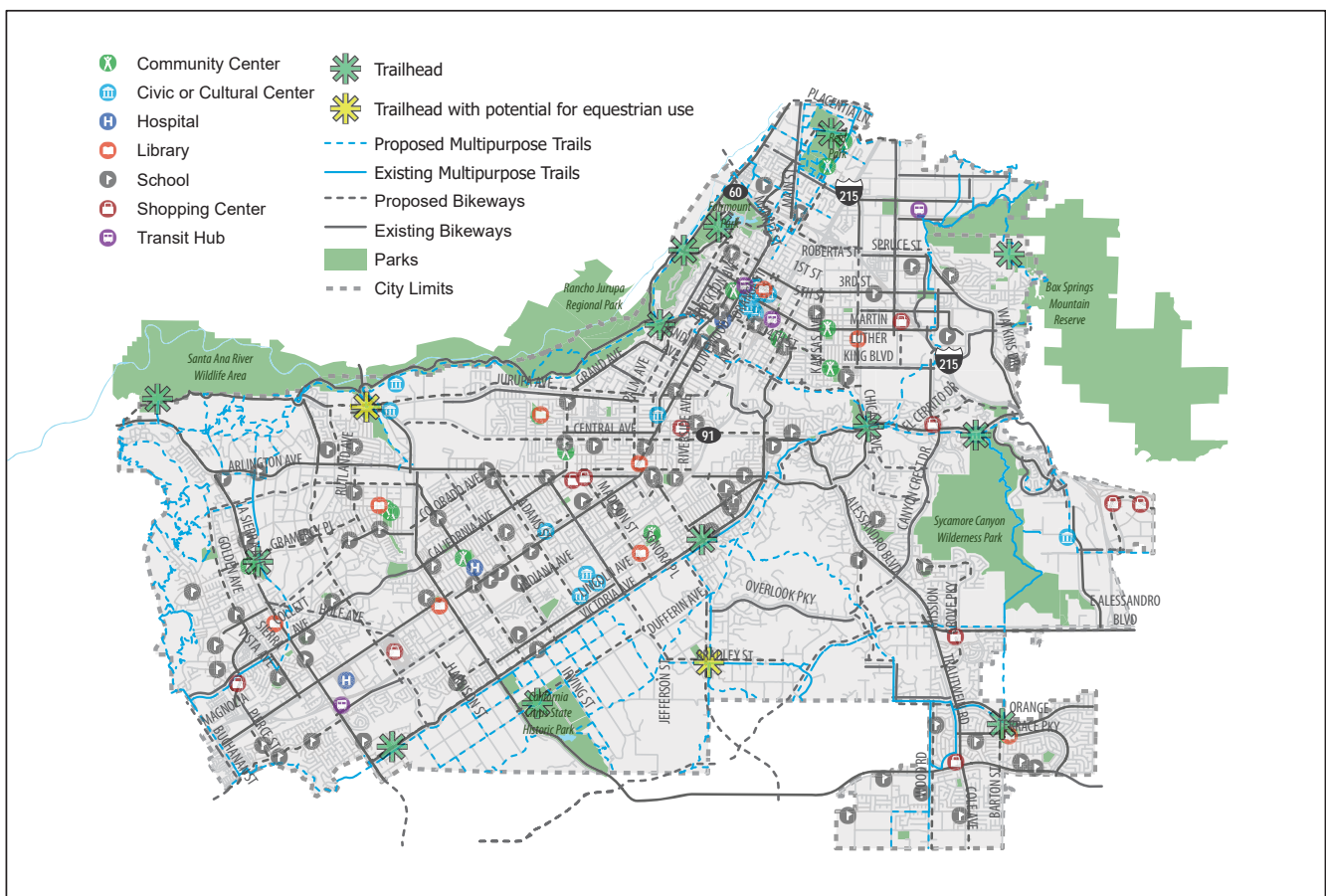
Whenever possible, it is important that the City of Riverside’s trail network connects to its greater on-street active transportation network.

Figure 5-3 shows the overlaps and connections between existing and proposed on-street bicycle facilities, intersections

between the trail and bikeway networks, and the greater Riverside trail network.

Strong connectivity between the two networks allows residents to use them as first/last mile routes to and from community destinations, including schools, shopping centers, and transit hubs.

**FIGURE 5-3 : TRAILS, ON-STREET FACILITIES, AND DESTINATIONS**



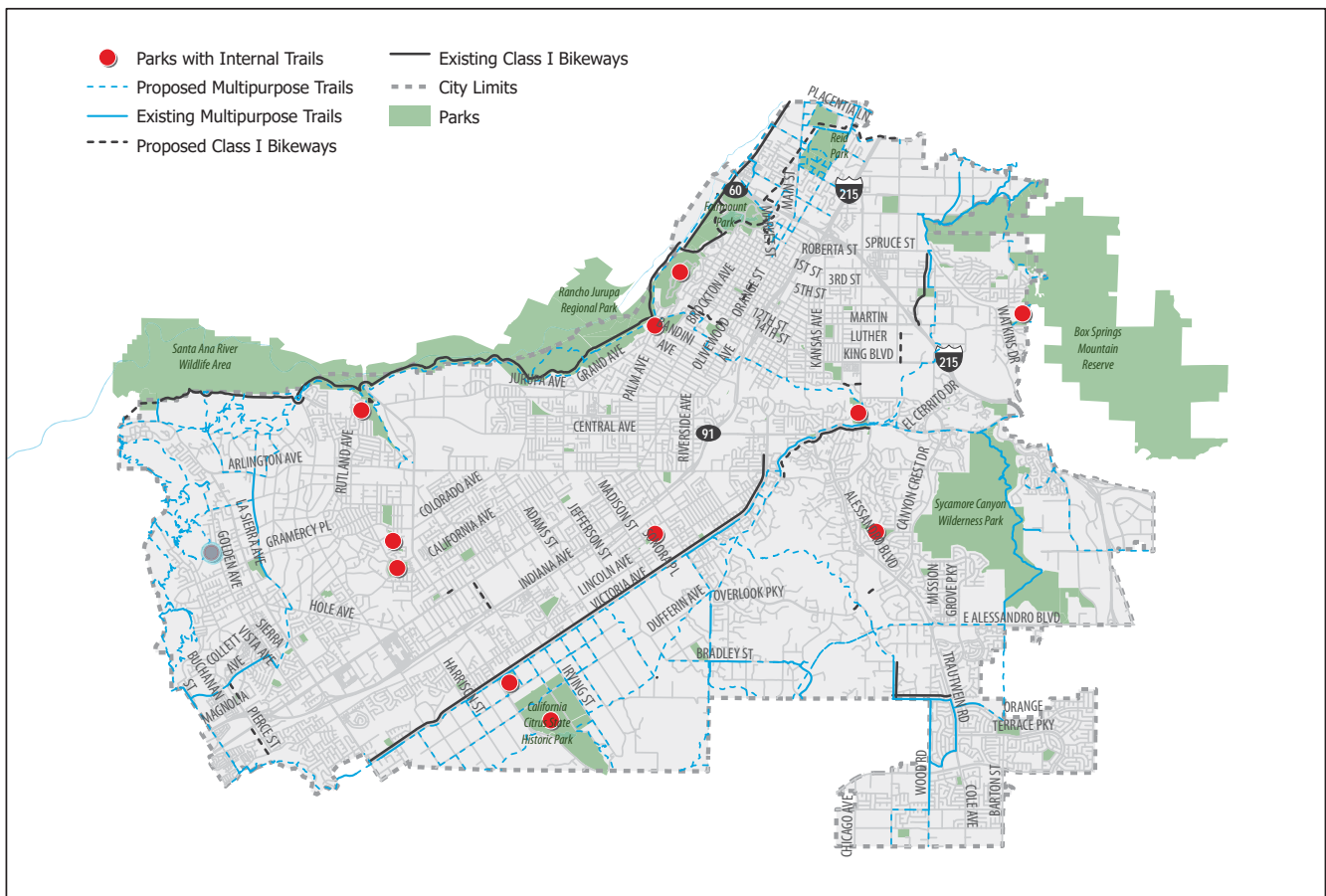
# City Park Trail Connections

A number of parks in throughout Riverside have internal circulatory trails. Typically constructed of decomposed granite, these internal trails act as recreational and fitness resources for park users.

Many of the parks marked in Figure 5-4 are positioned along the TMP's existing or

proposed multipurpose trail alignments. Internal park trails in these locations allow for trail users to connect to the city-wide trail system.

**FIGURE 5-4 : PARKS WITH INTERNAL TRAILS**





# Equestrian Presence

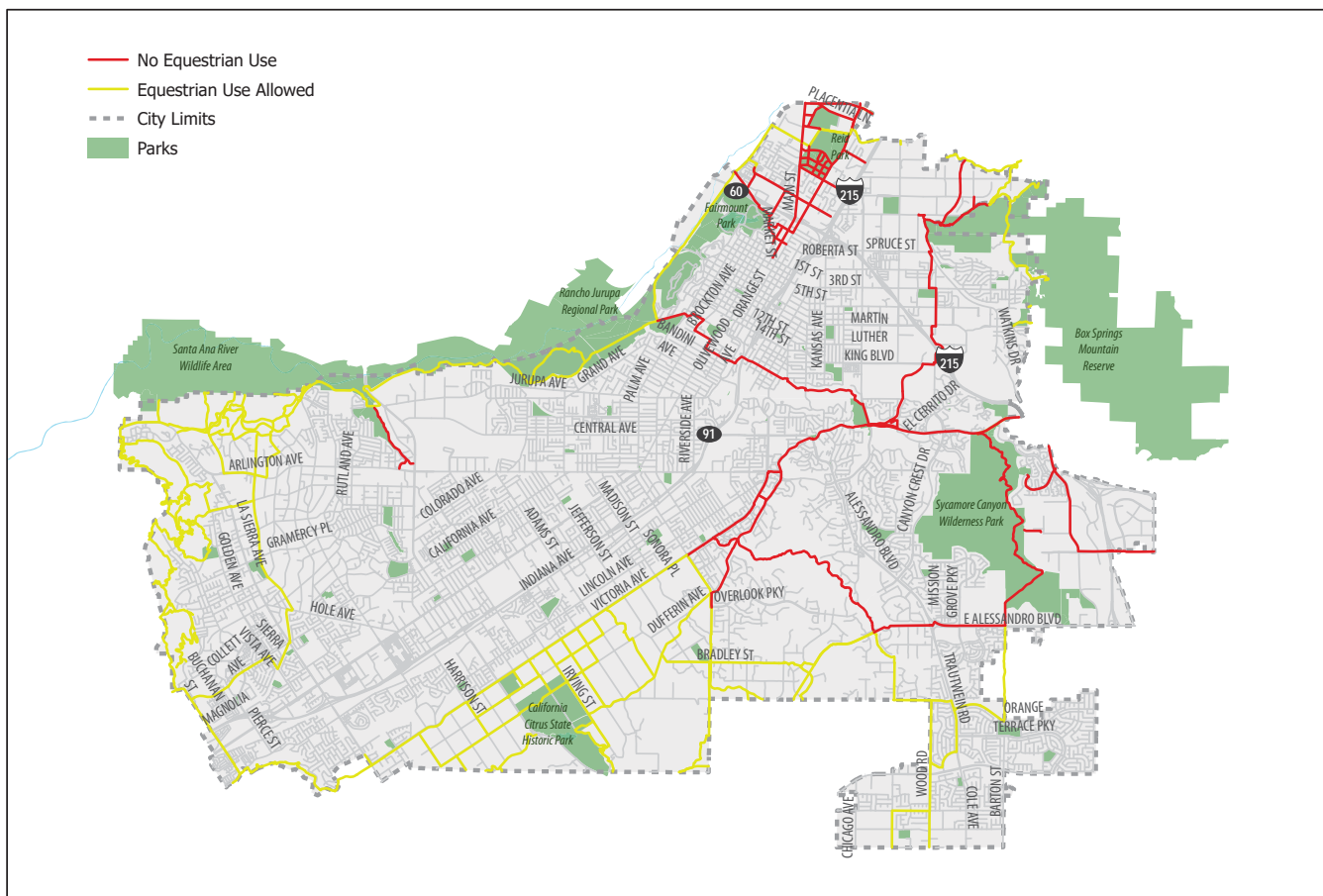
Due to the equestrian presence in Riverside, the Trails Master Plan identifies existing and proposed trail segments that do and do not allow for equestrian access.

Equestrian access to trails is possible if those trails fall within an equestrian-zoned area that allows for horse-keeping (i.e. RA-5, RC, and Residential Livestock Overlay Zone).

In addition, the Riverside, California Code of Ordinances details equestrian access within city parks. Equines are not allowed within city parks unless:

- they are being led or ridden under control upon a bridle path or trail authorized and provided for such purpose;
- they are hitched or fastened at a place expressly authorized and designated for such purpose.

**FIGURE 5-5 : EQUESTRIAN TRAILS**



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## Trailheads

The development of informative and easily identifiable trailheads will enhance the experience of the trail user and act as a linkage between the community and the surrounding open spaces via the trails system.

### **AMENITIES AT TRAILHEADS**

The trailheads as proposed in this Plan support the trails system framework by their location in, or near the major open spaces that surround the City; specifically, Norco Hills, the Santa Ana River, Box Springs Mountain, Sycamore Canyon, Arlington Heights, and its surrounding citrus groves. Trailheads can also be located within smaller parks that are adjacent to the existing and proposed trails system. Trailheads are intended to serve the regional population as well as the local residents.

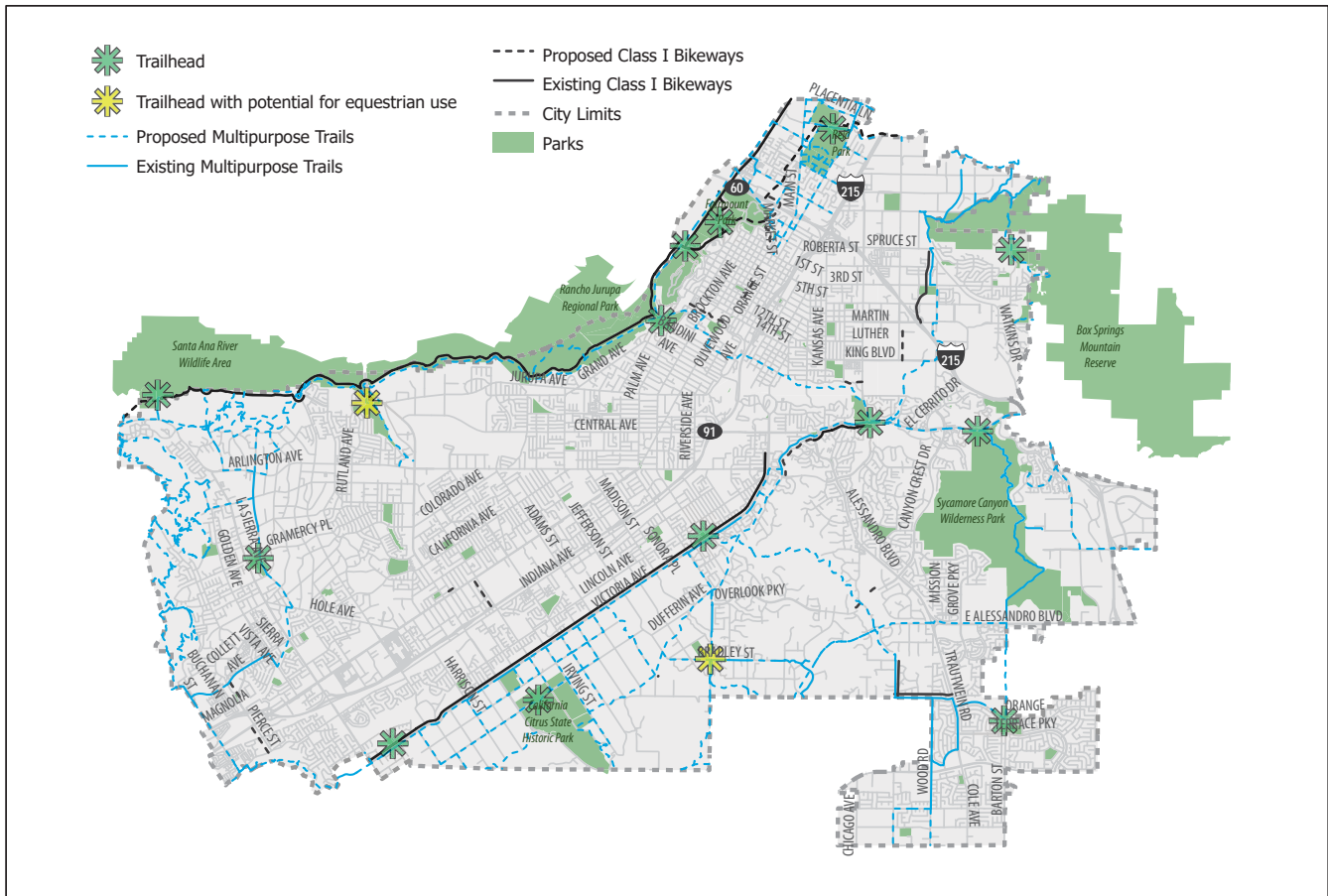
Amenities at trailheads would include the following:

- Identification and directional signs
- Marked parking stalls
- Drinking water
- Shade
- Seating
- Trash receptacles
- Restrooms (where feasible)

Many of the trailhead locations designated in Figure 5-6 are built out and do not have available space to fit equestrian amenities. However, a couple future park site locations have been identified where equestrian parking and amenities should be considered during future Park Master Plan development at each location. Additional amenities to be found at trailheads with potential for equestrian use include the following:

- Hitching posts
- Water facilities for horses
- Up to six pull-through stalls to accommodate vehicles with trailers

**FIGURE 5-6 : PROPOSED TRAILHEADS**



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## Street Network Interface

Trail intersections with roadways require special design considerations. As trails approach the street network, several design tools can be used to improve user comfort and safety when crossing. These include preventing vehicles from entering the trail, using design interventions to alert trail users of upcoming road crossings, and implementing intersection safety improvements.

### **MOTOR VEHICLE SEPARATION**

At trail and roadway intersections, vertical curb cuts can be used to discourage motor vehicle access. “No Motor Vehicles” signage (MUTCD R5-4) can be used to reinforce access rules. Trails can be split into two sections separated by low landscaping to preserve visibility and emergency access.

### **TRANSITION AREAS**

#### **Optical Speed Bars / Pavement Markings**

On paved trails, optical speed bars and other pavement markings can be used to increase user awareness of an upcoming change in the trail environment and alert users to decrease their speed. Speed bars are 2-foot wide pavement markings that are progressively spaced more closely together

to visually narrow the trail and increase awareness of the upcoming change.

Additional pavement markings can include high-visibility crosswalks and colored concrete crosswalks.

#### **Path Materials**

On both paved and unpaved trails, path materials can be used to alert users of an upcoming change in the physical environment. This may include a change in path materials, such as transitioning from asphalt or natural surface pathway to a contrasting material.

#### **Signage**

Signage can also be used to alert users of upcoming roadway crossings. Signage should be included at both grade-separated and at-grade intersections.

### **GRADE-SEPARATED INTERSECTIONS**

Riparian trails, rail trails, or other trails with infrequent connections to the street network make it difficult for trail users to orient themselves. Simple street signage on overcrossing or undercrossing structures can help trail users determine their location within the street network.

### **AT-GRADE INTERSECTIONS**

Several tools can be used to improve safety of at-grade trail intersections. These include MUTCD-standard signage, enhanced lighting

and high-visibility crosswalks, pedestrian signals such as Rectangular Rapid Flashing Beacons (RRFBs) and Pedestrian Hybrid Beacons (PHBs), and curb extensions.

### TRAIL ENTRIES

Trail entries at crossings should employ design elements that discourage motor vehicle access on trails. A split path entry design may be used to prevent the crossing point from appearing like a driveway. Very tight curb returns can make it very difficult for motorists to turn onto the trail. If bollards are needed they must be spaced at a minimum of five feet apart to allow for easy passage by cyclists, bicycle trailers, adult tricycles, and wheelchair users.



CA MUTCD-standard signage for at-grade trail crossings

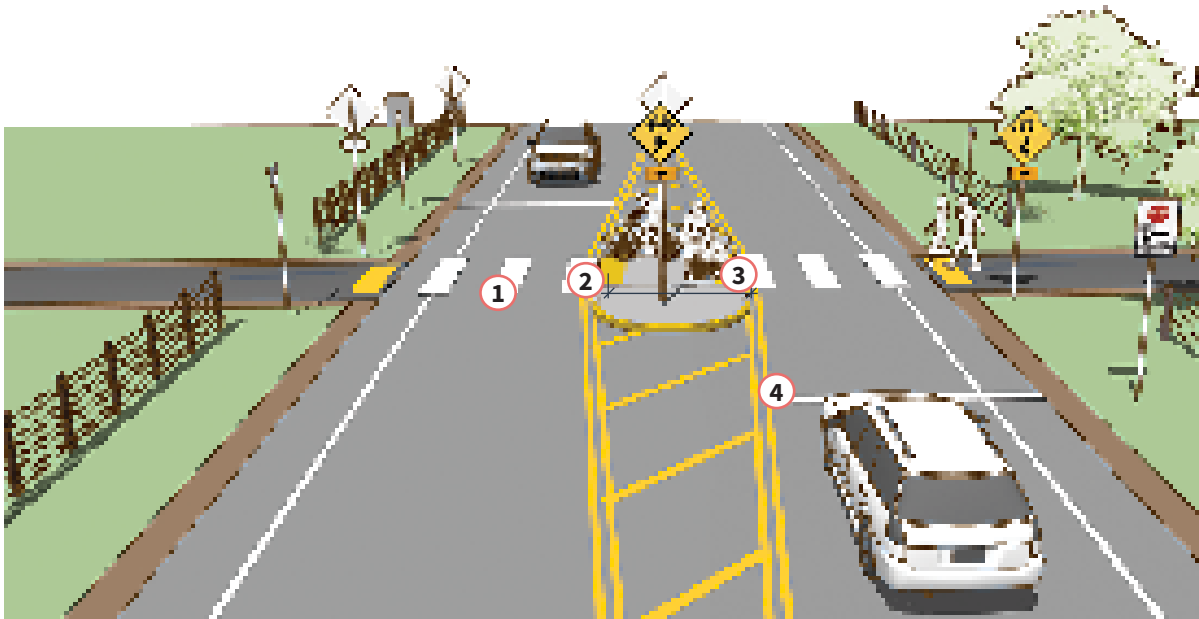


FIGURE 5-7 : MID-BLOCK TRAIL CROSSING

### Design Features

**1 Crosswalk.** Appropriate high visibility crosswalk markings should be installed.

**2 Warning Signs.** A Bicycle/Pedestrian warning sign (W11-15) with Downward Arrow plaque (W16-7P) at the crossing, on both sides. Signs are used to warn users of the crossing location.



**FIGURE 5-8 : MID-BLOCK TRAIL CROSSING WITH REFUGE ISLAND**

**Design features**

- ① **Crosswalk.** Median islands should be paired with a Marked Crosswalk and Advanced Yield Line crossing treatment package.
- ② **Refuge Area.** The bicycle waiting area should be at least 8 ft deep to allow for a variety of bicycle types.

- ③ **Safety Island.** A median safety island should allow path users to cross one lane of traffic at a time. It should be the same width as the crosswalk.
- ④ **Horizontal Deflection.** To promote yielding to bicyclists the median safety island should be designed to require horizontal deflection of the motor vehicle travel lanes.



**FIGURE 5-9 : FLASHING BEACONS AND HYBRID BEACONS**

### Design features

- ① **Crosswalk.** A marked Crosswalk and Advanced Stop Bar crossing treatment package should be paired with the full traffic signal.
- ② **Stop Sign.** A stop line and STOP HERE ON RED sign should be used.
- ③ **Rectangular Rapid Flashing Beacon (RRFB).** Where yield compliance is low, rectangular rapid flashing beacons can be used to draw attention to crossing path users and signal their intent to cross.
- ④ **Pedestrian Hybrid Beacon (PHB).** On multi-lane streets with high volumes and few gaps for crossing, a pedestrian hybrid beacon may be used to increase yielding rates.

**DRIVEWAYS AND MINOR ROADS**

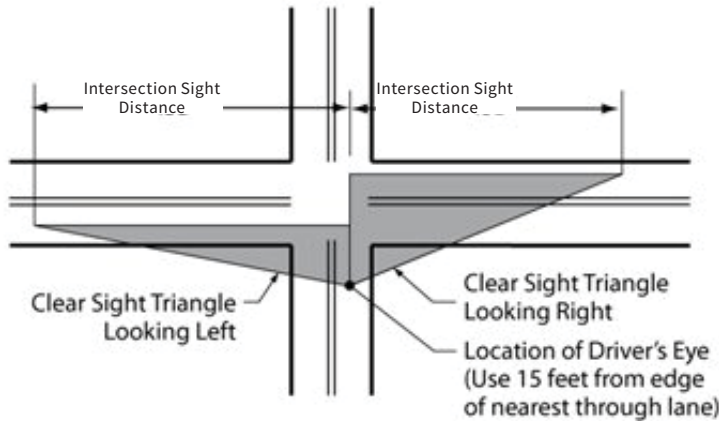
Similar to larger intersections, driveways and small roads present additional areas of conflict when crossing a trail. When designing these trail crossings consideration must be given to the size of the driveway or road, as well as the speed of the adjacent roadway, and available space.

For large and frequently used driveways and minor roads, a bend-out design may be implemented where space allows. This design treatment widens the physical separation between the trail and adjacent roadway as it moves towards the driveway.

The trail separation should vary according to the adjacent road speed limit and available space, with larger separation given to higher speed roads, detailed in Figure 5-11. This design treatment provides space for right-turning vehicles to yield to trail users.

For small driveways and where space does not allow for a bend-out design, special consideration should be given to sight lines and visibility of trail users. To avoid the encroachment of vehicles exiting driveways into the trail crossing, landscaping and other furnishings or trail elements should not be placed within 15 ft of a driveway edge, detailed in Figure 5-10.

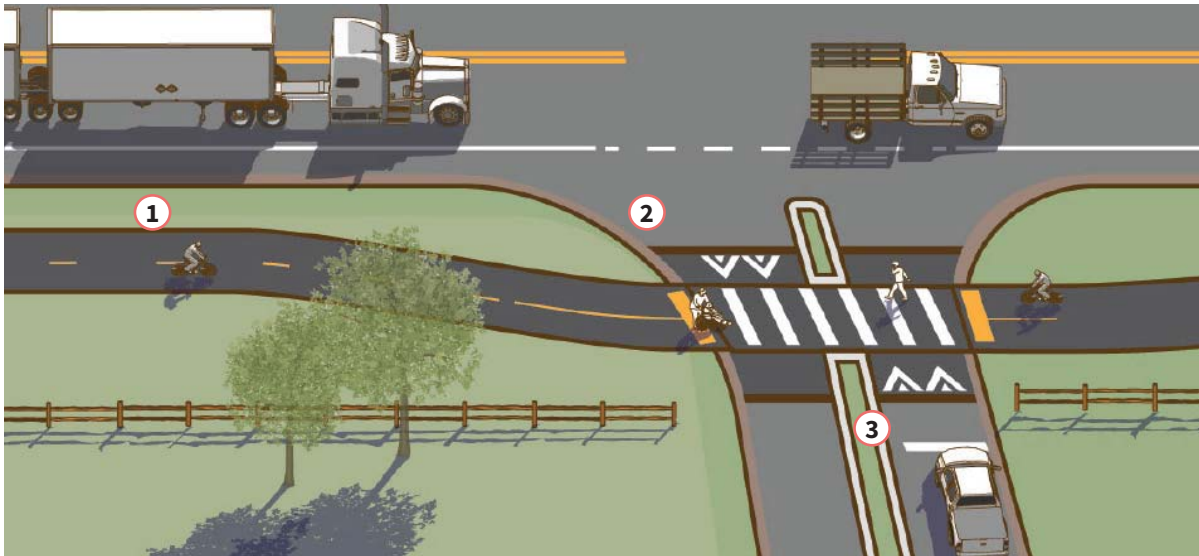
**FIGURE 5-10 : SIGHT DISTANCE TRIANGLES**



**FIGURE 5-11 : TRAIL SEPARATION AT CROSSINGS**

| ADJACENT ROAD SPEED (MPH) | RECOMMENDED PHYSICAL SEPARATION (FT) |
|---------------------------|--------------------------------------|
| <25 MPH                   | 6.5'                                 |
| 35-45 MPH                 | 6.5' - 16.5'                         |
| ≥55 MPH                   | 16.5' - 24'                          |





**FIGURE 5-12 : BEND-OUT TRAIL CROSSING**

### Design features

- 1 Sight Distance.** The trail approach to the driveway intersection should provide enough stopping sight distance to allow drivers to stop before entering the crossing area.
- 2 Physical Separation.** A physical separation should be used between the adjacent roadway and trail ranging between 5 ft and 24 ft.
- 3 Raised Median Island.** At major driveways and minor road intersections, provide a raised median island for additional safety and trail user comfort.

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## Trail Design Guidelines

The following pages illustrate typical cross-sections of trail types found within the City of Riverside, as well as their relevant design guidelines related to surface material, width, slope, and other elements.

### **SIDEPATH TRAILS**

Sidepath trails are roadway-adjacent multipurpose trails. These generally run either parallel to or replace sidewalks on one side of the street, and are constructed from a firm, stabilized decomposed granite surface that is accessible and comfortable for equestrian use, walking, jogging, and bicycling.

### **URBAN TRAILS**

Urban trails are defined by the presence of an off-street walking path that is adjacent to a Class I bike path.

### **OPEN SPACE TRAILS**

Open Space trails are located away from roadways and generally are in less developed areas of the city. Open Space trails are frequently constructed with compacted soil or natural surface, but can be constructed with decomposed granite on fire road trails.

Open space trail design is dependent on many factors, such as environmental and

built context, running and adjacent slopes, remoteness, and anticipated levels and types of use. While these factors must be evaluated on a case-by-case basis, the guiding principles, detailed in Table 5-3, can help determine the most appropriate trail for a given location.

Design guidelines for these trails are on the following pages. The overall locations of these various trail types are illustrated in Figure 5-13.

These trail types include those that serve people of all ages and abilities, including pedestrians and hikers, bicyclists, and equestrians. It is noted that design guidelines for paved Class I bike paths can be found in the City's Active Transportation Plan. Paved Class I trails should reference the 2020 City of Riverside Standard Drawings for Construction, Standard Drawing #111.

Design guidelines are primarily used to provide guidance to developers and to jurisdictions for new trail construction and future maintenance purposes. Where conditions do not exactly match those detailed in the Trails Master Plan, trails should be designed according to the most similar detail provided.

However, it is recognized that in certain situations due to physical constraints, it may not be feasible for the trails to be implemented according to the standards described in the Trails Master Plan. In such

**TABLE 5-3 : OPEN SPACE TRAIL GUIDING PRINCIPLES**

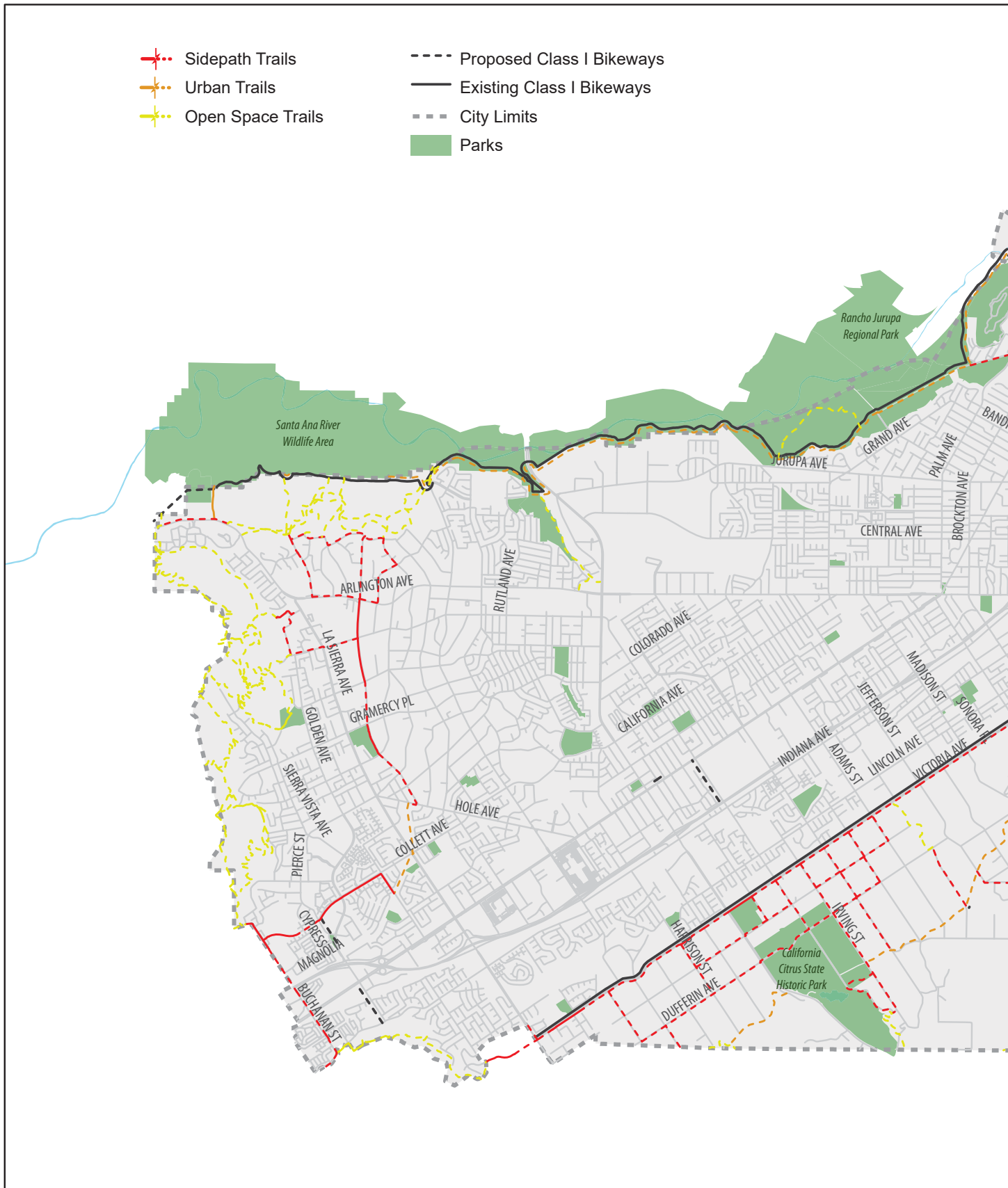
|   | FRONT COUNTRY  | MID COUNTRY  | BACK COUNTRY   |
|---|--|--|--|
| Level of Use  | Continuous use   | Heavy on weekends/holidays, with periodic gaps in heavy use                              | Overall low use                                      |
| Types of Users  | ADA, young children, elderly, all users  | General public, but challenging, with limited accessible areas                           | Experienced and highly mobile                        |
| Distance from Vehicular Access, Parking, Developed Trailheads, and Roadways | 0 - 500 feet   | 500 feet - 0.5 miles   | > 0.5 miles  |
| Environmental Context   | Generally disturbed, or sufficient right of way to buffer sensitive areas from the trail | Generally disturbed, or sufficient right of way to buffer sensitive areas from the trail | Sensitive areas where trail impact must be minimized |
| Slope   | Average $\leq$ 5%  | Average up to 10%  | Average up to 10%, with steeper sections             |

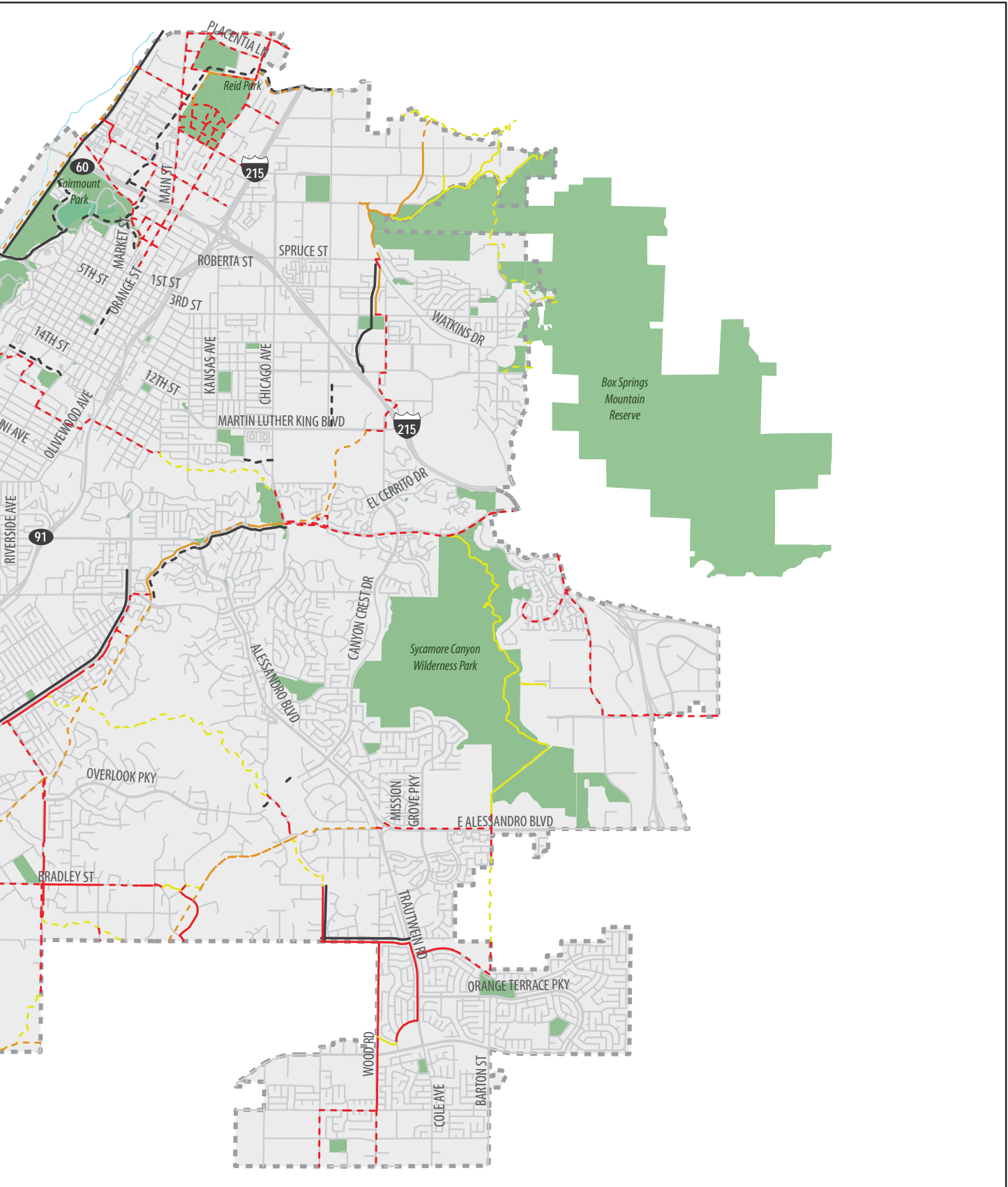
cases, variation from these standards may be allowed on a case-by-case basis subject to approval by the City's Parks and Recreation Commission, based upon staff review and recommendations. The Parks and Recreation Commission may choose to delegate this responsibility to a Trails Technical Advisory Committee.

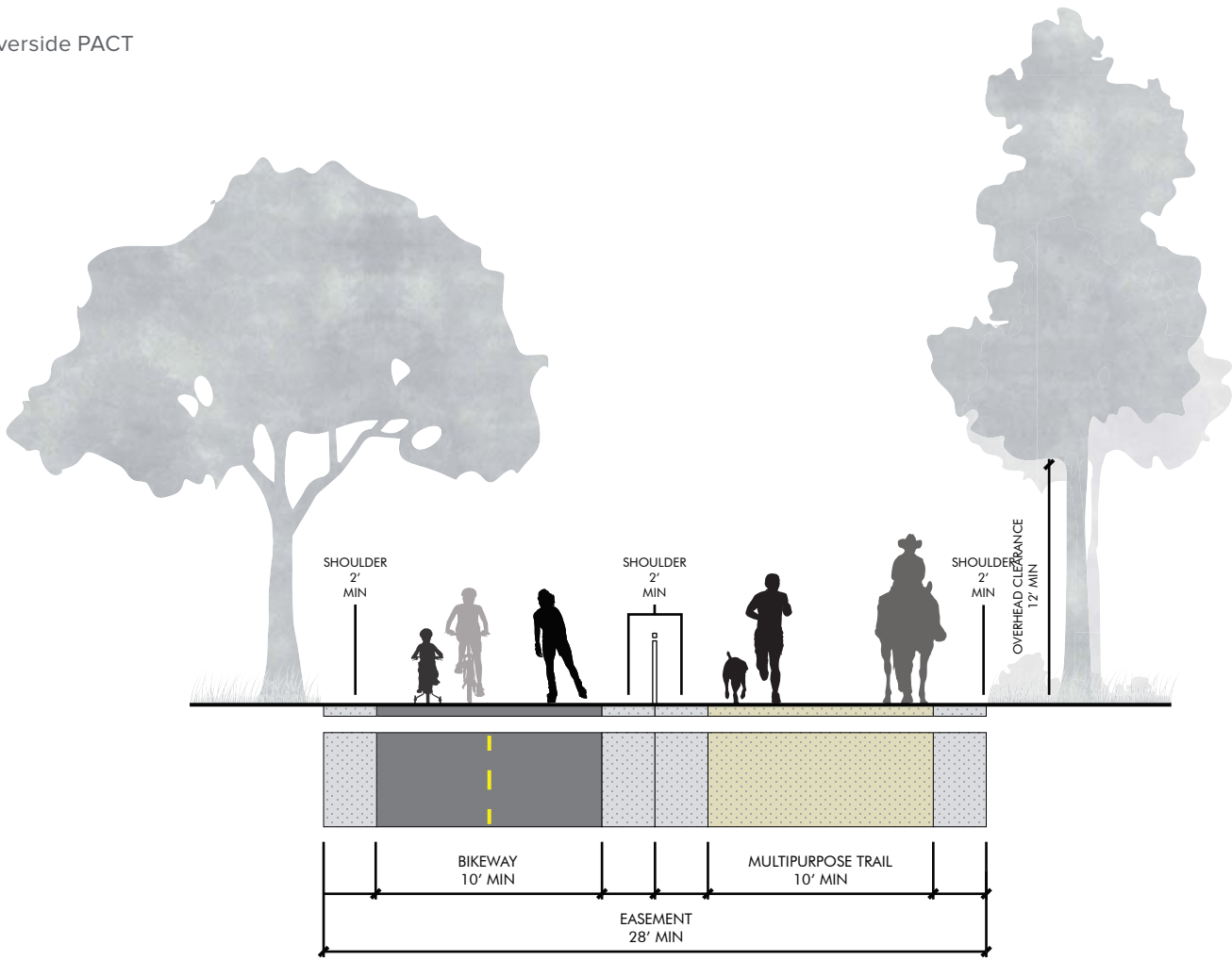
For specific design details, see "Appendix F: Trail Design and Construction Details and Specifications", which provides information needed to implement typical trails in Riverside. The City's adopted trail grading construction specifications and standard details are available on the City's website at [https://riversideca.gov/park\\_rec/planning-projects/trails](https://riversideca.gov/park_rec/planning-projects/trails).

The City supplements these construction standards with the California State Parks Trails Handbook and the United States Department of Agriculture (USDA) United States Forest Service (USFS) Trail Construction and Maintenance Notebook and Standard Plans and Specifications, which provide standards for less frequently used trail improvements such as steps, puncheons, armored trail tread, among many other elements. Both the State and USFS standards are incorporated by reference into the City's Trails Master Plan. For the design standards described above, see "Appendix F: Trail Design and Construction Details and Specifications".

FIGURE 5-13 : TRAIL TYPES

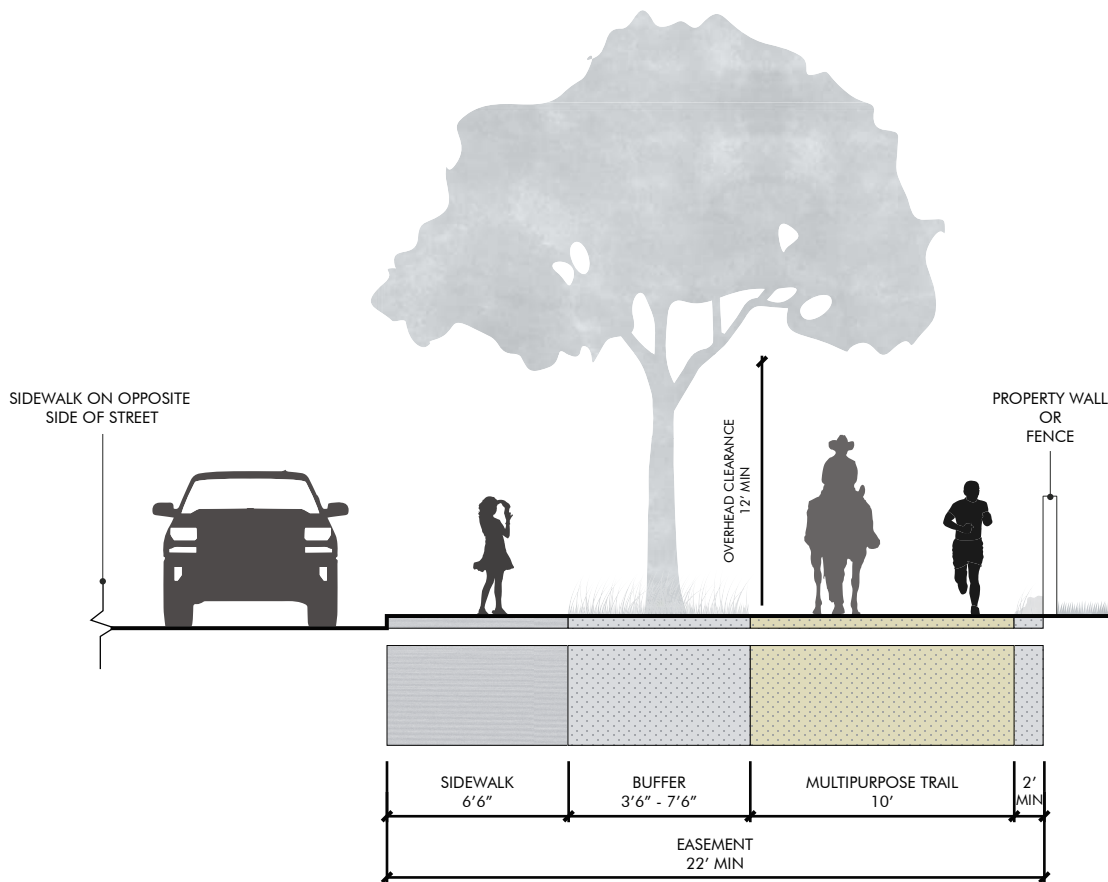






**FIGURE 5-14 TYPICAL SECTION: URBAN (TRAIL WITH CLASS I)**

- Minimum Overall Width:** 28'; an additional 3' buffer is required between trail and roadway when roadway is present.
- Bikeway Surface:** Asphalt Concrete or Portland Cement/Aggregate Mixture
- Bikeway Width:** 10' Min.
- Bikeway/Trail Separation:** 2' Min. Paved or All-Weather Surface
- Multipurpose Trail Surface:** Stabilized Decomposed Granite
- Multipurpose Trail Width:** 10' Min.
- Fencing:** As required. See fencing standards and guidelines, page 48.
- Maximum Running Slope:** 12%; Slope to match roadway where present.
- Cross Slope:** 2% Min., 5% Max.
- Use Type:** Open to all non-motorized modes.
- ADA Compliance:** Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow.



**FIGURE 5-15 TYPICAL SECTION: SIDEPATH (MAJOR STREET TREATMENT)**

**Minimum Overall Width:** 22'

**Multipurpose Trail Surface:** Stabilized Decomposed Granite

**Multipurpose Trail Width:** 10'

**Property/Trail Separation:** 2' flat shoulder at residential front yard fence, 3' bench when trail is at toe of manufactured slope, 4' when next to walls/fences at the top of a manufactured slope, and 3' when next to any fence/wall over 4' in height.

**Sidewalk/Trail Separation:** 3'6" - 7'6"

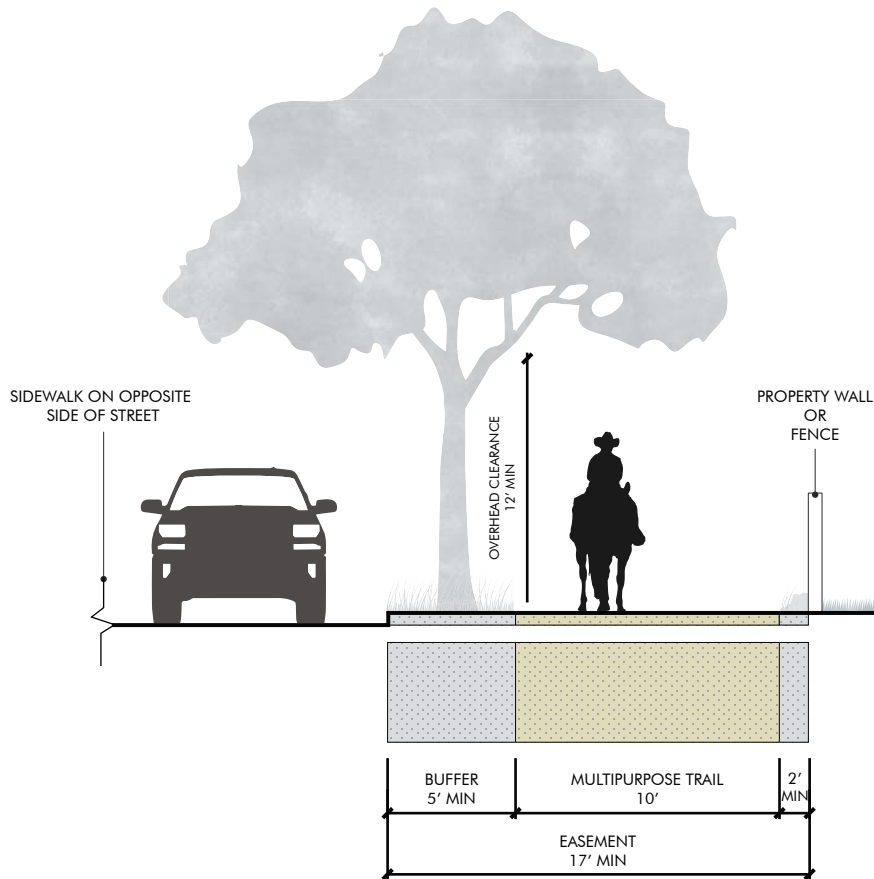
**Sidewalk Width:** 6'6"

**Maximum Running Slope:** Slope to match roadway

**Cross Slope:** 2% if roadway grade is < 5%, 5% Max.

**Use Type:** Open to all non-motorized modes. Some Segments are designated non-equestrian.

**ADA Compliance:** Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades.



**FIGURE 5-16 TYPICAL SECTION: SIDEPATH (SECONDARY/COLLECTOR STREET TREATMENT)**

**Minimum Overall Width:** 17'

**Multipurpose Trail Surface:** Stabilized Decomposed Granite

**Multipurpose Trail Width:** 10' unless otherwise approved by City.

**Property/Trail Separation:** 2' flat shoulder at residential front yard fence, 3' bench when trail is at toe of manufactured slope, 4' when next to walls/fences at the top of a manufactured slope, and 3' when next to any fence/wall over 4' in height.

**Road/Trail Separation:** 5' Min.; 8' Min. in Greenbelt

**Fencing:** As required. See fencing standards and guidelines, page 48.

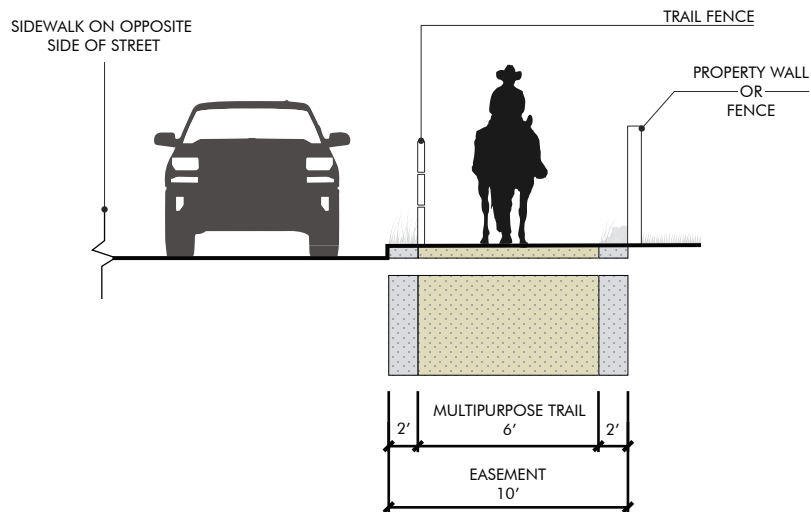
**Maximum Running Slope:** Slope to match roadway

**Cross Slope:** 2% if roadway grade is < 5%, 5% Max.

**Use Type:** Open to all non-motorized modes. Some Segments are designated non-equestrian.

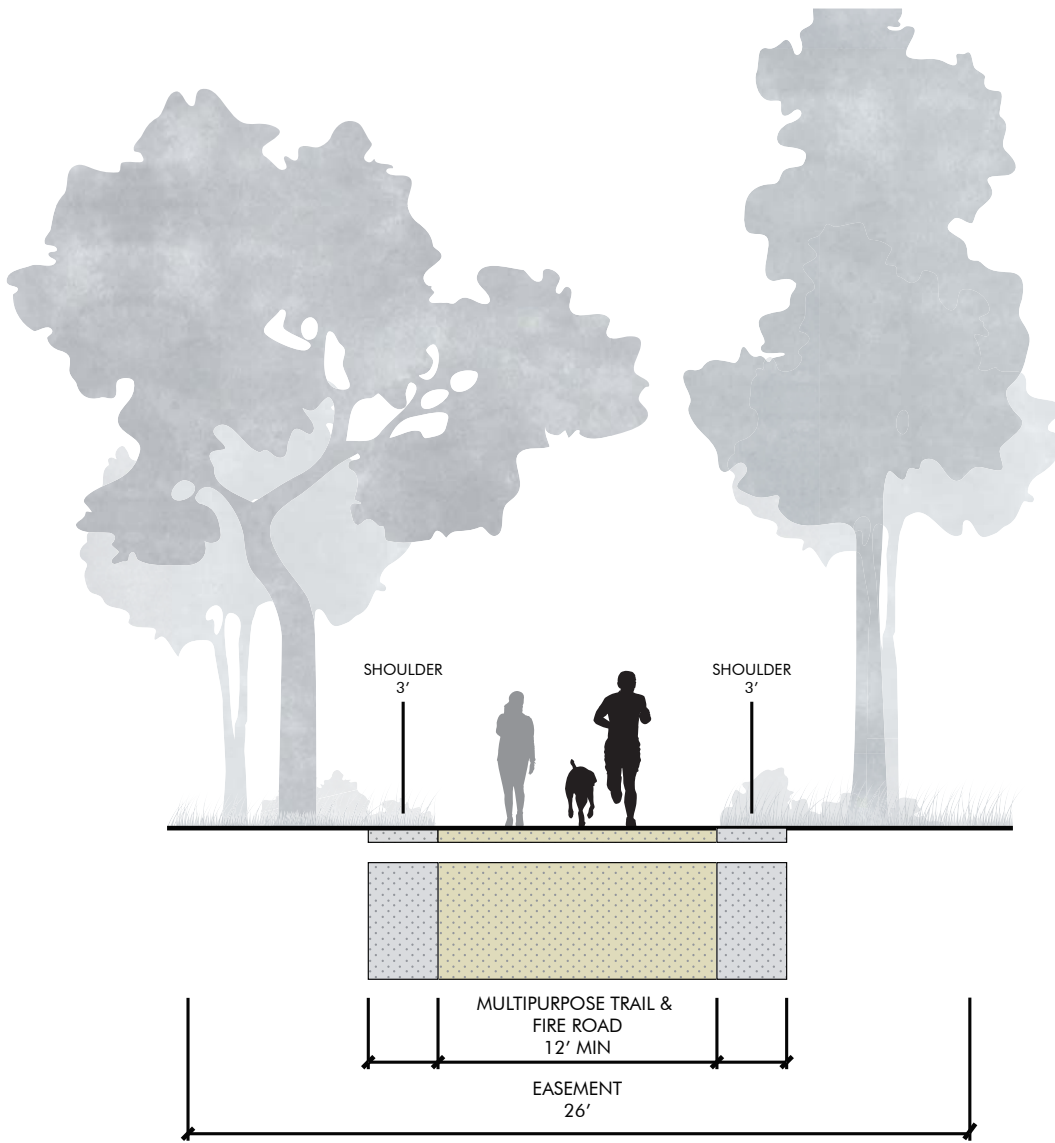
**ADA Compliance:** Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades.





**FIGURE 5-17 TYPICAL SECTION: SIDEPATH (MINOR STREET TREATMENT)**

|                                   |  |
|-----------------------------------|--|
| <b>Minimum Overall Width:</b>     | 10'  |
| <b>Trail Surface:</b>             | Stabilized Decomposed Granite  |
| <b>Trail Width:</b>               | 6'   |
| <b>Road/Trail Separation:</b>     | 2'   |
| <b>Property/Trail Separation:</b> | 2'   |
| <b>Maximum Running Slope:</b>     | Slope to match roadway   |
| <b>Cross Slope:</b>               | 2% if roadway grade is < 5%, 5% Max.   |
| <b>Use Type:</b>                  | Open to all non-motorized modes. Some Segments are designated non equestrian.                                  |
| <b>ADA Compliance:</b>            | Trails shall comply with ADA-for-trails guidelines wherever possible, contingent upon existing roadway grades. |



**FIGURE 5-18 TYPICAL SECTION: OPEN SPACE (FIRE ROAD)**

- Trail Surface:** Stabilized Decomposed Granite - Prepared subgrade per geotechnical engineer’s recommendation.
- Trail Width:** 12’ minimum, but may be wider if specified by Fire Department.
- Typical Applications:** Open spaces adjacent to development.
- Maximum Running Slope:** 8%
- Cross Slope:** 2% Min., 5% Max.
- Use Type:** Use types may be limited on a case by case basis per environmental or safety constraints.
- ADA Compliance:** Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow.



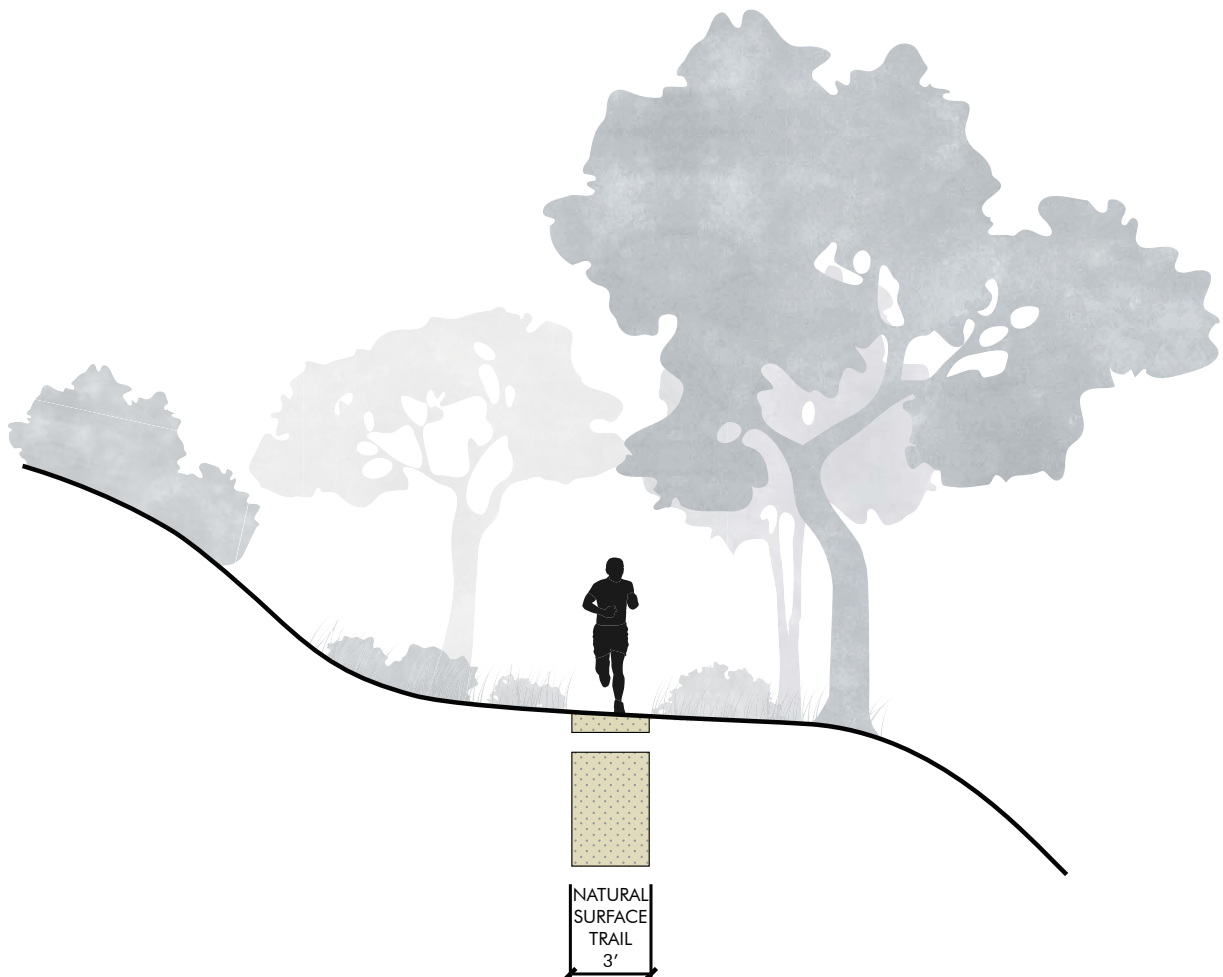
**FIGURE 5-19 TYPICAL SECTION: OPEN SPACE (FRONT COUNTRY)**

|                               |   |
|-------------------------------|---|
| <b>Trail Surface:</b>         | Natural Surface/Compacted Soil  |
| <b>Trail Width:</b>           | 10'   |
| <b>Typical Applications:</b>  | Parks and open space areas with high levels of use and close adjacency to development. Primary trail loops.   |
| <b>Maximum Running Slope:</b> | 12%   |
| <b>Cross Slope:</b>           | 2% Min., 10% Max.   |
| <b>Use Type:</b>              | Use types may be limited on a case by case basis per environmental or safety constraints.   |
| <b>ADA Compliance:</b>        | Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow. |
| <b>Note:</b>                  | Use full bench construction when trails are cut into hillsides.   |



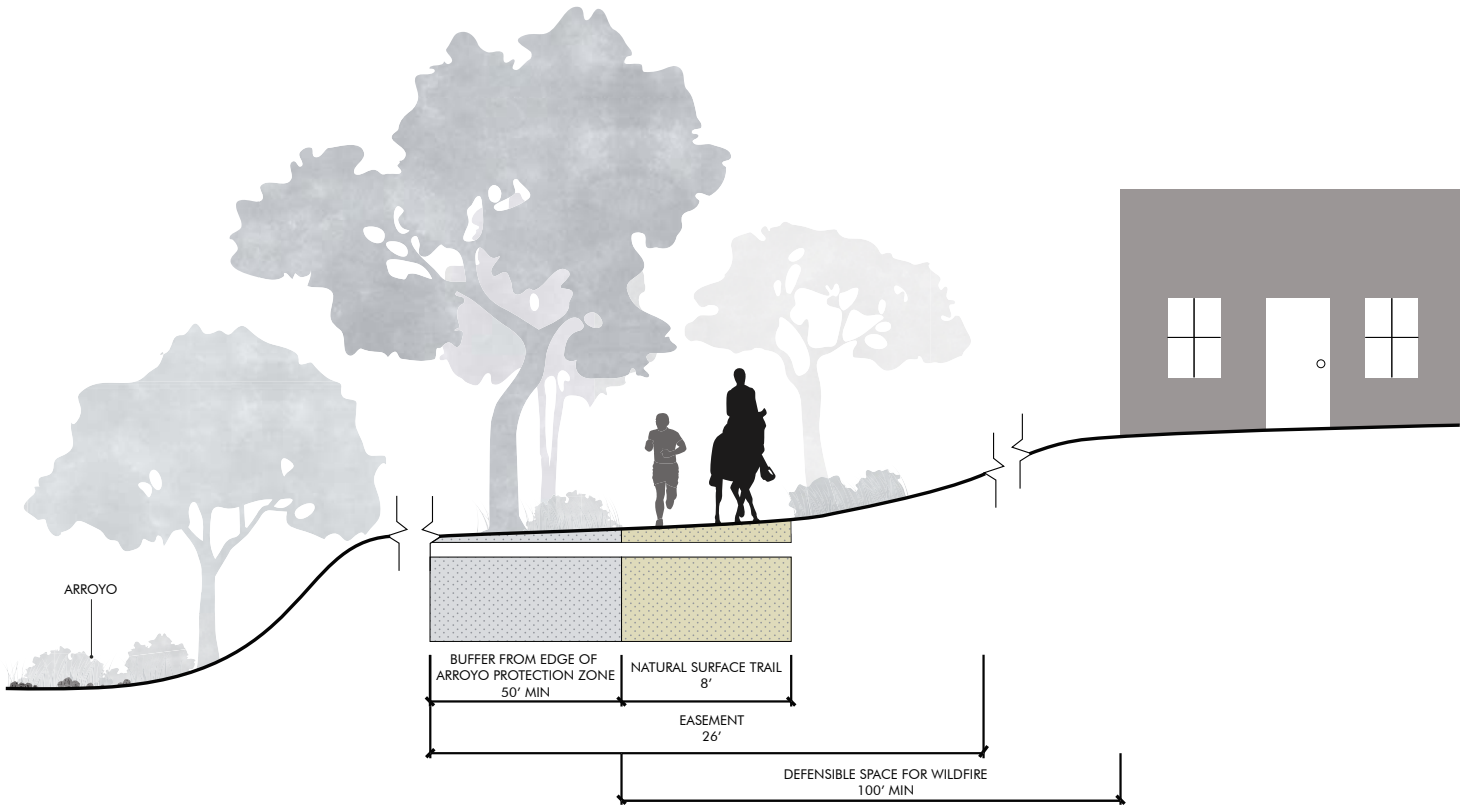
**FIGURE 5-20 TYPICAL SECTION: OPEN SPACE (MID-COUNTRY)**

|                               |   |
|-------------------------------|---|
| <b>Trail Surface:</b>         | Natural Surface/Compacted Soil  |
| <b>Trail Width:</b>           | 8'  |
| <b>Typical Applications:</b>  | Secondary trail loops. Open space areas with high levels of use.  |
| <b>Maximum Running Slope:</b> | 15%   |
| <b>Cross Slope:</b>           | 5% Min., 10% Max.   |
| <b>Use Type:</b>              | Use types may be limited on a case by case basis per environmental or safety constraints.   |
| <b>ADA Compliance:</b>        | Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow. |
| <b>Note:</b>                  | Use full bench construction when trails are cut into hillsides.   |



**FIGURE 5-21 TYPICAL SECTION: OPEN SPACE (BACK-COUNTRY)**

|                               |   |
|-------------------------------|---|
| <b>Trail Surface:</b>         | Natural Surface/Compacted Soil  |
| <b>Trail Width:</b>           | 3'  |
| <b>Typical Applications:</b>  | Open space areas with lower levels of use and/or environmental constraints.   |
| <b>Maximum Running Slope:</b> | 20% (for stretches of 100' or less)   |
| <b>Cross Slope:</b>           | 5% Min., 10% Max.   |
| <b>Use Type:</b>              | Use types may be limited on a case by case basis per environmental or safety constraints.   |
| <b>ADA Compliance:</b>        | Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow. |
| <b>Note:</b>                  | Use full bench construction when trails are cut into hillsides.   |



**FIGURE 5-22 TYPICAL SECTION: OPEN SPACE (ARROYO)**

- Trail Surface:** Natural Surface/Compacted Soil
- Trail Width:** 8'
- Maximum Running Slope:** Route should be selected in order to not exceed 15%.
- Cross Slope:** 5% Min., 10% Max.
- Use Type:** Use types may be limited on a case by case basis per environmental or safety constraints.
- ADA Compliance:** Access to trailheads and facilities at trailheads shall be ADA compliant. Trails themselves shall be constructed for ADA compliance as site conditions allow.
- Note:** Use full bench construction when trails are cut into hillsides.

\* The City of Riverside’s minimum Grading Standards (Municipal Code 17.28) precludes grading or development within 50 feet of the mapped edge of certain waterways and their tributaries.

\*\* See following pages for additional arroyo trail development concerns.

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## Trail Fencing

### **TRAIL FENCING PLACEMENT**

Urban trails require fences to help establish rights of way, protect privacy, call attention to roadside trails, and protect trail users from potential hazards.

Fencing is required in locations where there is less than a 5-foot horizontal separation from adjacent roadways, and when adjacent to sensitive environmental areas such as habitat restoration or conservation areas. In areas where elevation changes adjacent to a trail would require a guardrail, the same fencing style used along the rest of the trail should be used and modified as necessary to meet the requirements of guardrails as specified in the California Building Code. Fencing is to be installed when a trail runs along the top of a 3:1 or greater slope.

Fencing is also required as a trail approaches intersections and crossing, to help discourage cross cutting of the intersection by trail users, prevent vehicular intrusion, and improve trail visibility. Unless other barriers are present (furnishings, landscape, boulders, etc), this fencing must extend a minimum of 30 feet in each direction from the crossing.

Where equestrian and paved bicycle paths run in parallel, a fence should be provided

between the paved and non-paved portions of the trail when the separation between the two trails is less than eight feet.

### **EQUESTRIAN FENCING**

Where trails allow equestrian use, a fence must be used between the roadway and the trail when the horizontal separation from the roadway is less than 10 feet. Equestrian fencing must be 54 inches in height. All other fence design guidelines should apply.

### **TRAIL FENCE DESIGN GUIDELINES**

A consistent style of fencing shall be used along roadside trails to ensure design continuity. Trail fence construction shall be Trex composite lumber (composed of recycled plastic and recycled wood fiber or similar materials) or city-approved equivalent. A simple post and rail design, where rail boards can be easily bolted or screwed to posts, is to be used for ease of installation and maintenance. Fence posts are to be oriented toward the outside of the trail, with fence rails oriented toward the inside of the trail (see sample construction detail in “Appendix F: Trail Design and Construction Details and Specifications” Fences are to be designed to withstand a live load of at least 20 pounds per linear foot applied either horizontally or vertically downward at the top rail. Fence materials shall have a fire rating equal or better than ‘Trex Seclusions’ (Class B in the ASTM E84



Standard Test Method for Surface Burning Characteristics of Building Materials). Dark colors such as brown or dark gray are to be used to help the fence elements blend better with the landscape and obscure graffiti and overall wear-and-tear.

In addition to utilizing dark colors for fencing materials to conceal potential graffiti, anti-graffiti coatings should be applied. Anti-graffiti coatings create a non-stick surface that repels graffiti from paint and permanent markers. Removal of graffiti from surfaces with anti-graffiti coatings can be accomplished through pressure washing or hand-wiping without the need for abrasive cleaning and repainting.



*A 2-rail fence showing posts oriented toward the outside of the trail and rails facing towards the trail.  
Five Coves Wetlands, Anaheim, CA*

Fencing fasteners shall be non-protruding on the side of the fence facing trail users. Fences shall terminate at posts, without protruding rails. Fences shall be two rail unless serving as a guardrail, in which case, must be modified to meet the California Building Code.

#### **POST AND CABLE (OPEN SPACE TRAILS)**

In areas where a trail passes through open space or other areas where a visually ‘lighter’ fence option is preferred, a post and cable design shall be used. Fence posts shall be 4”x4” galvanized steel. Cable shall be 9/16” type 316 stain steel (see sample post and cable fence construction detail in “Appendix F: Trail Design and Construction Details and Specifications”.)



*A post and cable fence along multi-use trail*

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## Arroyo Trails

The proposed trail network includes 4 miles of trails along arroyos in the City of Riverside. While part of the proposed trail network, there are certain challenges related to developing trails along these waterways.

Arroyos are important natural resources for many plant and animal species. They are also provide a number of environmental services, including flood and erosion control.

Where possible, trails should be built outside the arroyo protection zone established by the City. Where this is not possible due to existing adjacent development, trails should be routed to create the least environmental impact and along the most sustainable and low impact alignment.

Alternative routes were explored that formed indirect connections outside of the arroyo protection zone. The alternative trails were routed to on-street conditions, and proved more intrusive to adjacent neighborhoods. Additionally, the alternatives presented a missed opportunity for environmental education related to the arroyos that are so important to the identity of the City.

### **ENVIRONMENTAL CHALLENGES**

It is critical that any trails built adjacent to arroyos are compatible with the existing riparian habitat. Because of the sensitive nature of the surrounding habitat, the City

or property owner/developer if conditioned to do so as part of their project approval, will likely need to consult with multiple different federal, state, and county agencies to obtain relevant approvals and permits to build. These include the US Army Corps of Engineers (USACE), California Department of Fish and Wildlife, and the California Natural Resources Agency.

### **FLOOD AND EROSION CONTROL**

Arroyos naturally help to prevent flooding and soil erosion along their banks. However, activities such as vegetation clearing, grading, and other development may alter the flow of water, resulting in increased erosion. When crossing a waterway, building a free-standing bridge would have less of an environmental impact than installing a culvert for a road crossing.

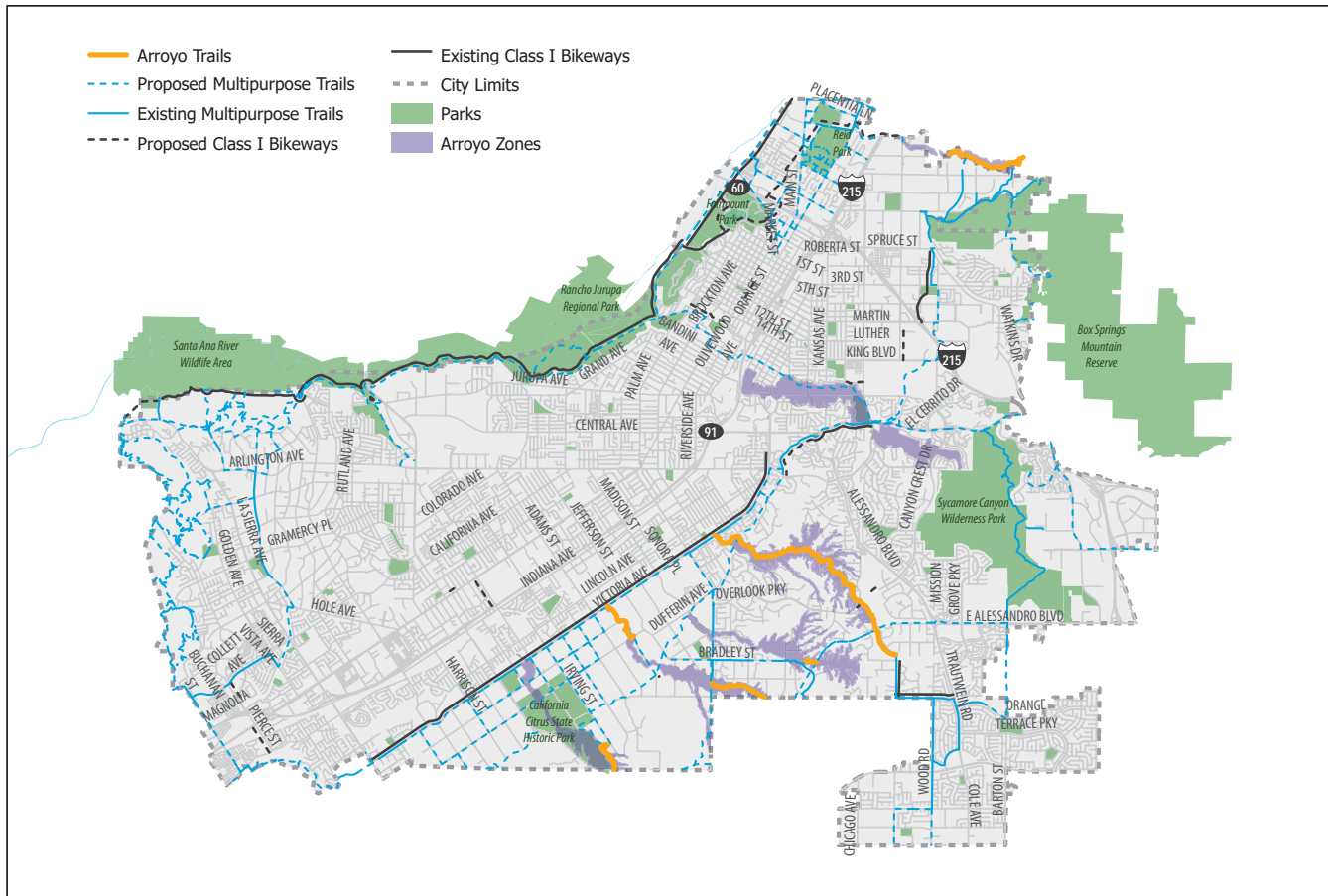
### **LEAST BELLS VIREO HABITAT**

The City of Riverside is home to the Least Bell's Vireo, an endangered bird species native to California.

When building trails along arroyos, it is important to include a minimum 50' vegetation buffer between the waterway and the trail to minimize impacts to the riparian habitat (Municipal Code 17.28). This buffer is the wildlife environment that allows the Least Bell's Vireo to survive.

### **PROPERTY CHALLENGES**

The aforementioned buffer is also important for protecting adjacent properties. In

**FIGURE 5-23 : ARROYO TRAILS**

addition, the State of California suggests that properties have a 100-foot buffer of “defensible space” between their buildings and the vegetation buffer for protection from wildfires.

## IMPLEMENTATION AND FUNDING

Arroyo trails, more so than other trails in this document, will likely require full Environmental Impact Reports (EIRs) to comply with the California Environmental Quality Act (CEQA). This will create additional

funding challenges, and will likely impose mitigation measures on the final trail design. The CEQA process will also require alternative alignments to be studied.

Funding for arroyo trails may be more widely available than other trail types, as arroyo trails can function more as park space, can help protect wildlife corridors, connect residents with nature, and may provide opportunities to clean water from adjacent properties prior to entering the arroyo.

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# Section 5.4: Network Recommendations



*Santa Ana River Trail at Martha  
McLean Anza Narrows Park*

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# Opportunities and Constraints

## OVERVIEW

In total, the project team identified 26 areas throughout the city where there are gaps in the existing and proposed trails network. These coverage gaps are illustrated and described in Figure 5-24. The Trails

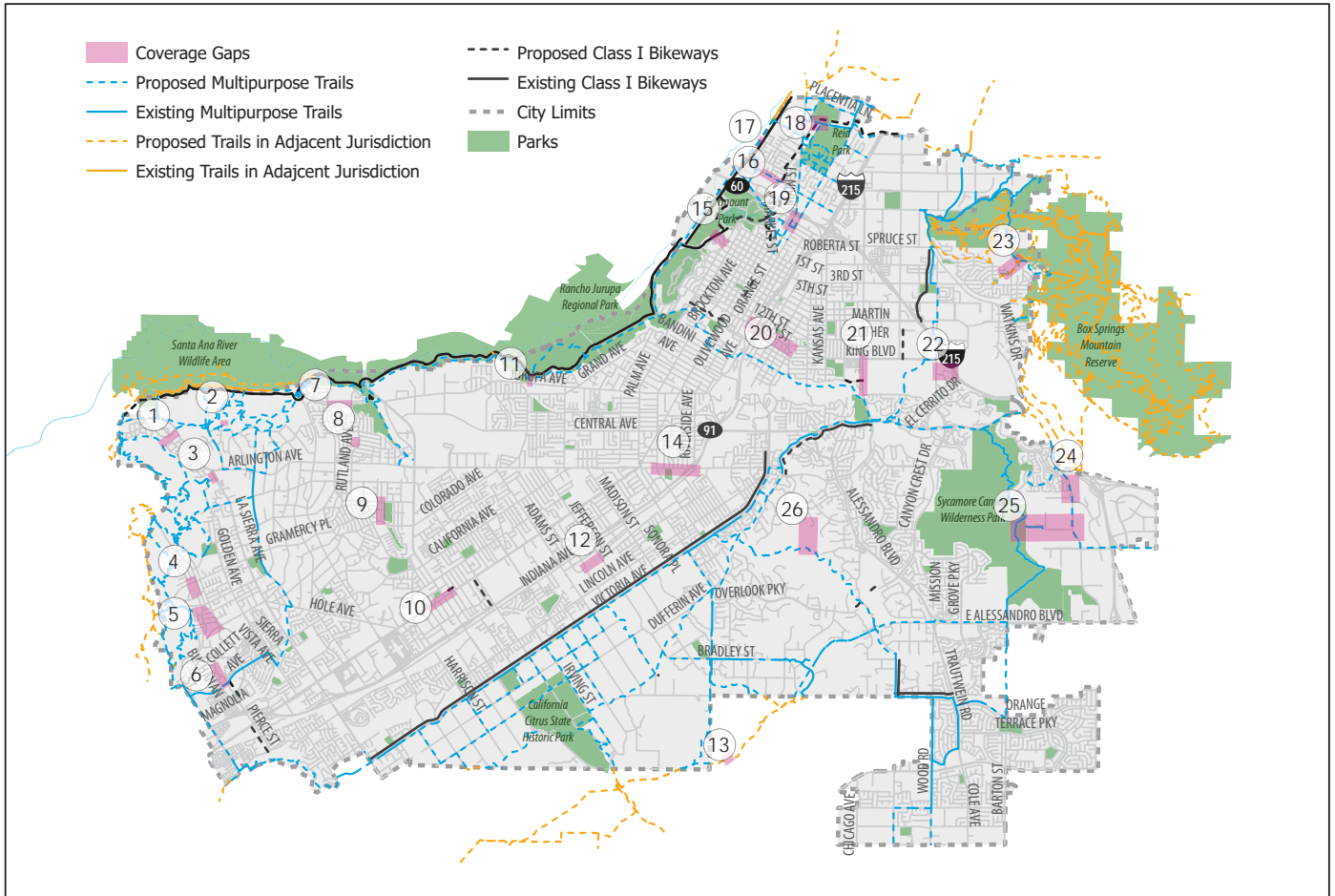
Master Plan provides an opportunity to address these gaps, improving access and connectivity for the City of Riverside’s many residents.

In addition, the project team identified several opportunities and constraints that guide the development of the City’s trail network. These opportunities and constraints are described in the following pages.

## CITYWIDE TRAIL SYSTEM GAPS, OPPORTUNITIES, CONSTRAINTS

1. Trail alignment does not enter into adjacent neighborhood. Trail is located near on-street bicycle facility but does not connect due to lack of existing trail.
2. Trail alignments do not connect to each other.
3. Trail alignment approaches on-street bicycle facility but does not connect due to lack of existing trail facilities.
4. School is not connected to any trail or bike facilities.
5. Trail enters neighborhood but no proposed alignments connect through to on-street bicycle facilities.
6. School is not connected to any trail or bike facilities.
7. On-street bicycle facilities do not connect due to stretch of land that is undeveloped/ under construction.
8. School is not connected to any trail or bike facilities.
9. Public library is not connected to any trail or bike facilities.
10. Elevated bike lane facility ends on the East side here and does not connect through this area. It picks back up as a Class II on the West side.
11. Trail approaches on-street bicycle facility but does not connect due to lack of facility.
12. Proposed and existing bicycle facilities do not connect due to the presence train tracks.
13. Trail alignments do not connect to each other due to missing segment along neighborhood roadway.
14. Existing Class II bicycle facility on the East side ends near the highway and no facilities connect West to the proposed bicycle facility.
15. Existing and proposed bicycle facilities do not connect due to lack of trail facilities.
16. Trail alignment does not connect to nearby school or existing bicycle facility.
17. Proposed bike facility does not connect to trail alignment due to lack of access points caused by residential property boundaries.

**FIGURE 5-24 : CITYWIDE TRAIL GAPS, OPPORTUNITIES, AND CONSTRAINTS**



- 18. Trail facility does not connect to existing bicycle facility due to stretch of undeveloped roadway.
- 19. Existing Class II bicycle facility does not connect to proposed facility due to lack of facility.
- 20. On-street bike facilities do not connect due to lack of existing facilities.
- 21. On-street bike facilities do not connect due to lack of existing facilities.
- 22. On-street bike facilities do not connect due to lack of existing facilities.
- 23. Trail alignment does not connect in to neighborhood due to lack of existing facilities.
- 24. On-street bicycle facilities do not connect due to lack of existing facilities.
- 25. Trail segment from proposed parking lot does not connect all the way to trail network. Also, trail alignments do not connect to nearby bicycle facilities due to lack of facilities.
- 26. Trail alignment does not connect in to neighborhood due to lack of existing facilities.

## OPPORTUNITIES

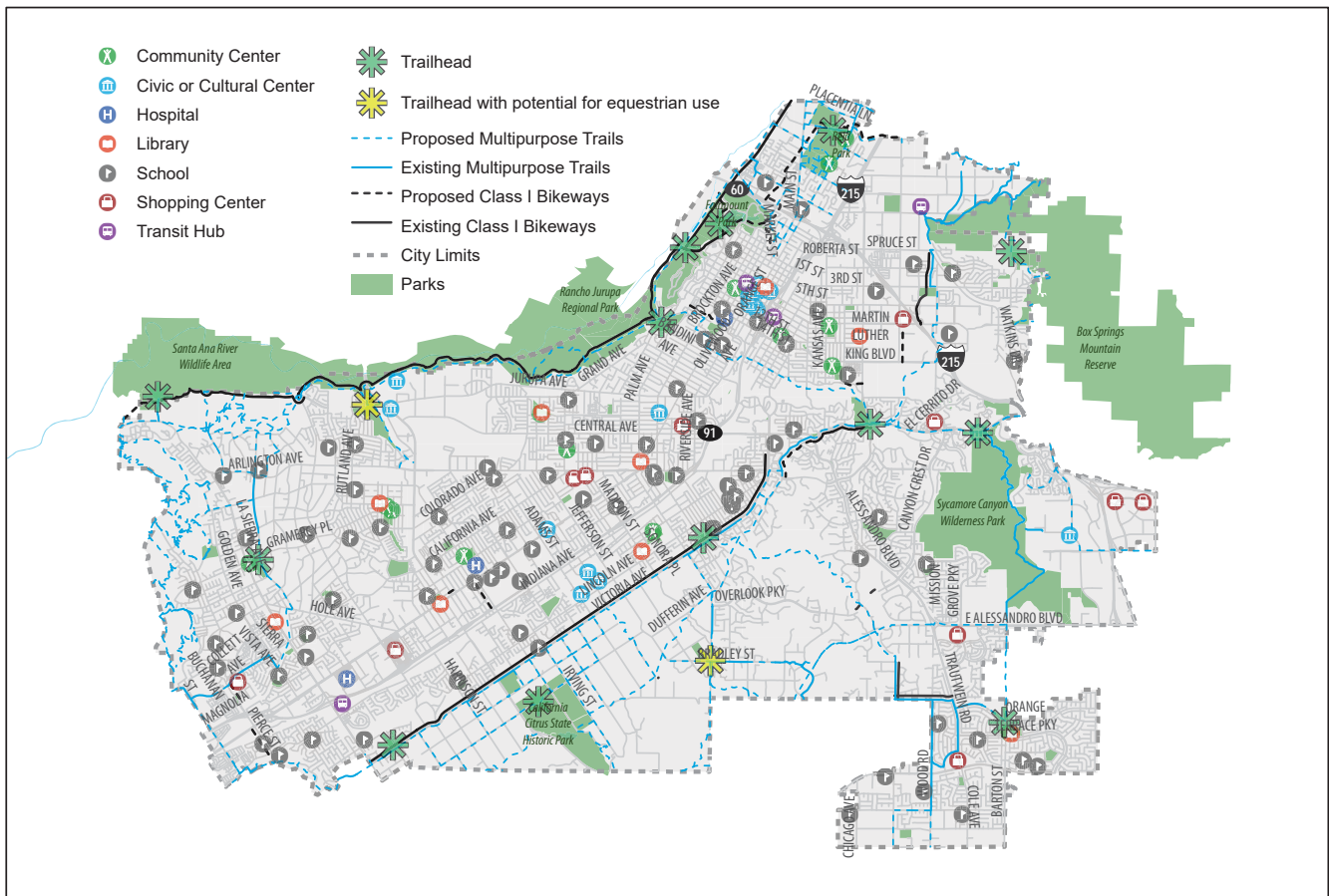
### Connections to Trails

The City of Riverside boasts 23 miles of multi-modal trails within its existing network. The proposed trails in this Plan provide an opportunity to create new connections to the City’s existing trails network, including regionally significant trails like the Santa Ana River Trail.

### Connections to Destinations

The proposed trails included in this Plan also provide connections to the City’s many destinations, including schools, parks, commercial shopping centers, and transit hubs. Figure 5-25 shows proposed trails and the destinations they connect to.

**FIGURE 5-25 : COMMUNITY DESTINATIONS**





## CONSTRAINTS

### Geographic Constraints

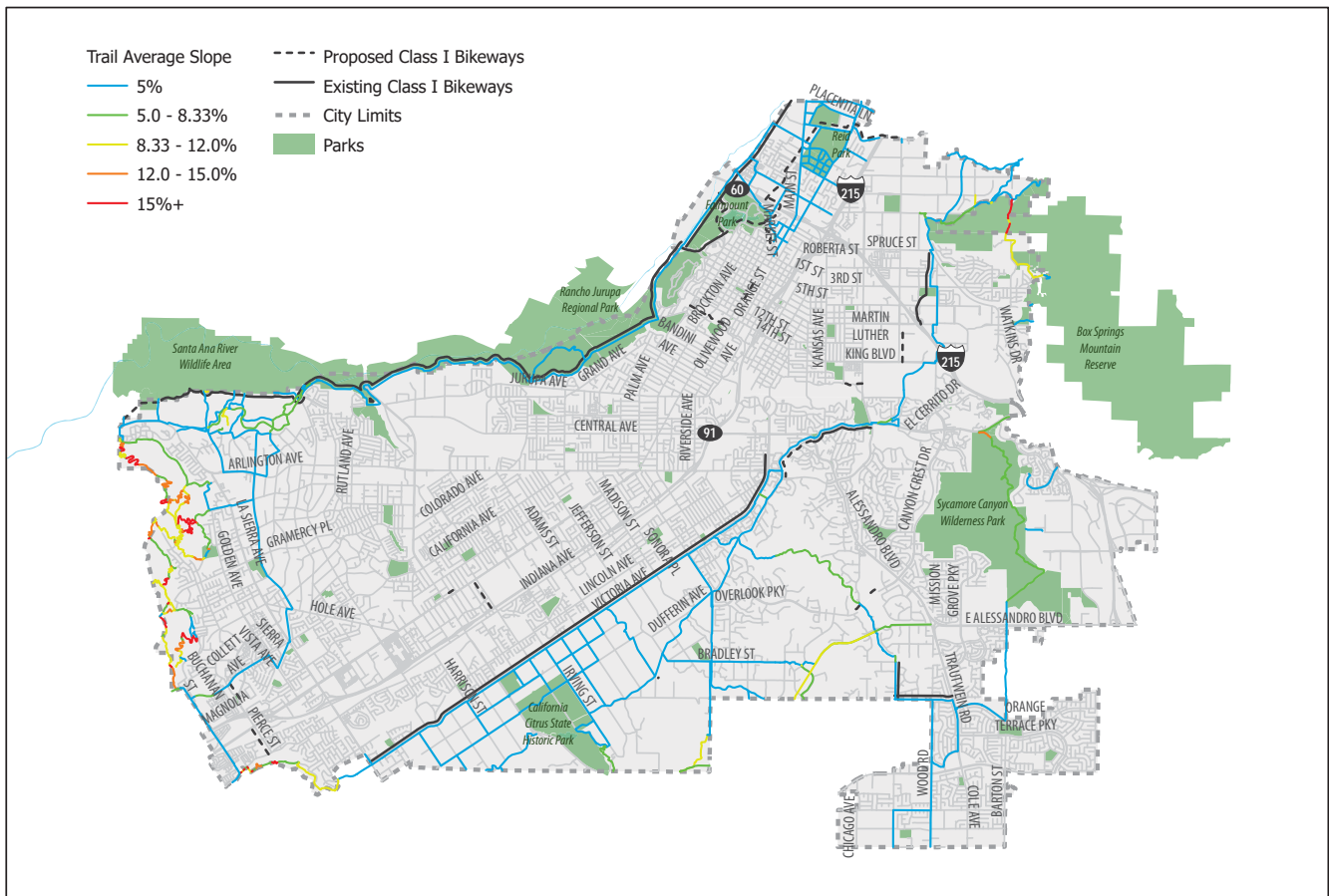
There are some topographic constraints that impact trail alignments within the City of Riverside. The project team conducted a slope analysis to identify the number of trail segments that have an average slope greater than 15% and stretches with slopes that are higher. The identified trails were realigned to minimize fall-line orientation and reduce overall steepness. Longer switchbacks were

integrated into the alignments to bring the average slopes under 15%. Due to site conditions, 25 out of 116 segments retain average slopes above 15% and will require more detailed alignment, cross-slope, and drainage design before implementation.

### Programmatic Constraints

Beyond topography, constraints are primarily limited to property ownership and access to easements. Trail alignments proposed in this plan do not create new private property conflicts.

**FIGURE 5-26 : TRAIL AVERAGE SLOPE**



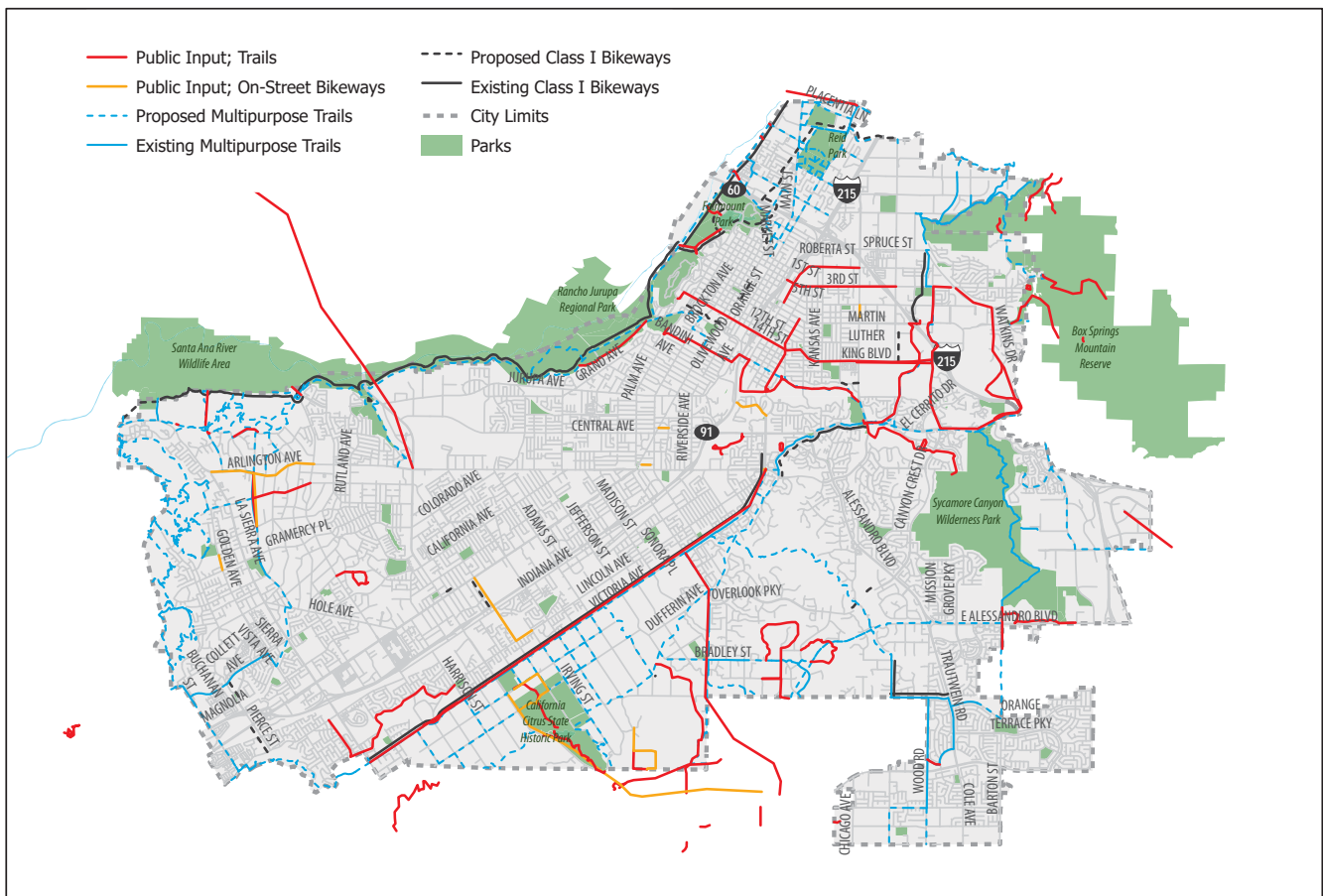
# Public Input

The Riverside TMP included a public outreach strategy that went beyond that described as part of the overall PACT community engagement process.

This included utilizing the PACT online interactive public input map to capture community preferences on priority trails and corridors. The results of the online public input map are shown in Figure 5-27.

The red lines detail trail alignments that were drawn in by community members. Some community members drew lines that highlighted alignments as areas of interest, while others proposed new trail alignments in areas of the city that currently lack existing trails. Of the 74 alignments shown on the public input map, 62 relate specifically to trails. General public comments were also received related to desired trail connections, improvements, and overall priority. These comments were mapped according to topic, and are shown in Figure 5-28.

**FIGURE 5-27 : PUBLIC INPUT MAP**



### Technical Advisory Committee (TAC)

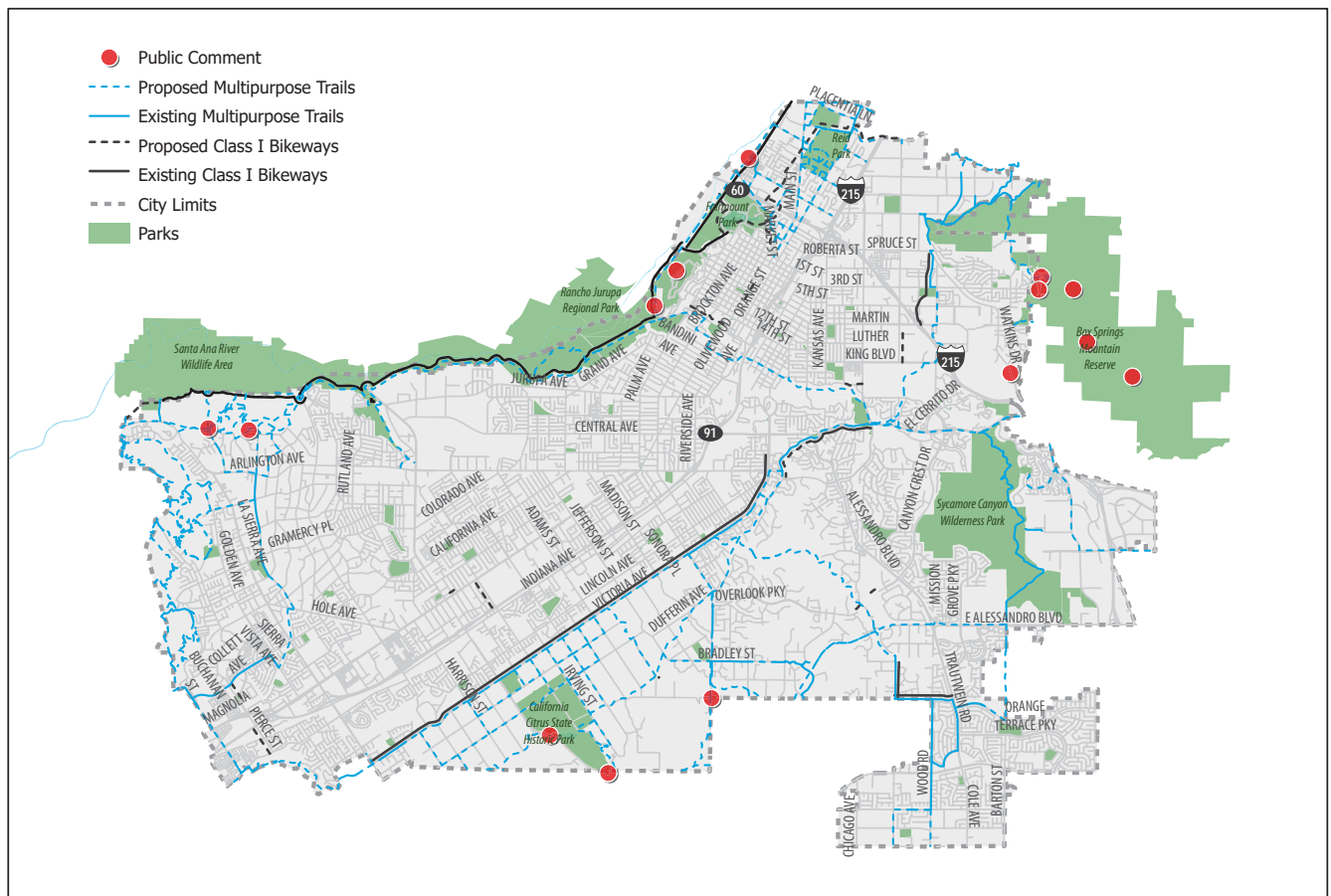
On July 23rd, 2020, the TMP project team held the first of two TAC meetings. The purpose of the meeting was to hear from a group of passionate community members in a focused discussion on topics related to the development of the TMP.

The project team led the TAC participants through a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis to gain new perspectives on some of the strength, weaknesses, opportunities, and

threats related to trails in the city. The committee expressed a need for bike trails along roads that are separated from vehicular traffic, as well as the need for more bike facilities at trailheads. Committee members also provided their insight on opportunities within the city to focus trail development.

The committee expressed desire to have trails along arroyos, but recognized that some areas may not be buildable due to environmental regulations. Members

**FIGURE 5-28 : GEOGRAPHIC DISTRIBUTION OF COMMUNITY COMMENTS**



suggested that in the future, the City could prevent development directly along the arroyos to allow adequate setbacks, which could be used to develop trails.

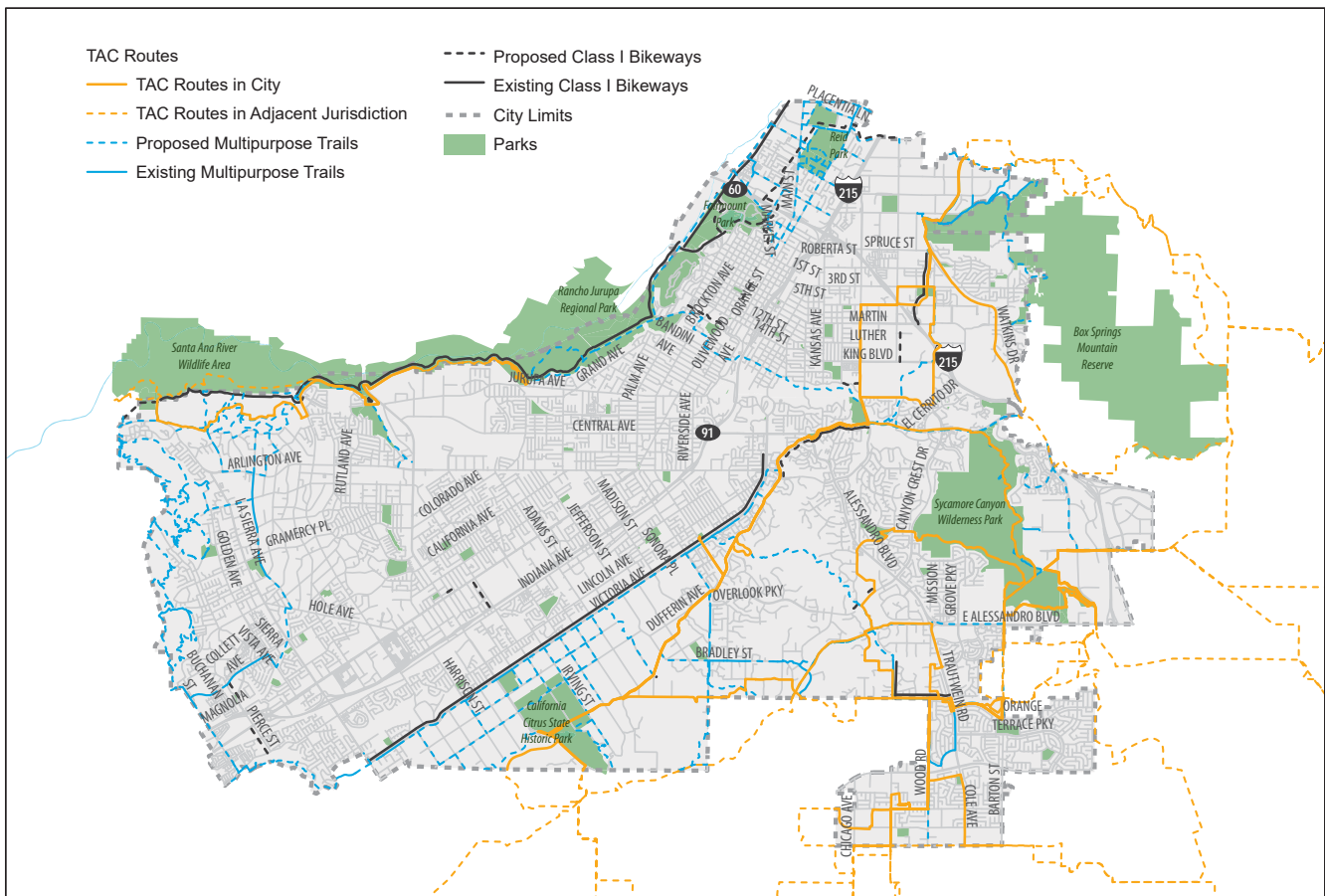
The TAC also provided feedback on a trail network prioritization process that considers equity, connectivity, feasibility, and public support. Committee members voiced that connectivity should be a high priority because it is crucial for reducing vehicle miles traveled (VMT) and transportation impacts. The committee also expressed the

importance of equity in the prioritization process to distribute community assets to economically depressed areas of the city.

The TAC voiced support for the establishment of a trails advocacy group within the City of Riverside that could identify funding opportunities and new trail opportunities, and raise support for trails within the community (see Section 5: Implementation Framework).

The TAC also provided recommendations for potential new trail connections, shown in Figure 5-29.

**FIGURE 5-29 : TAC-IDENTIFIED ALIGNMENTS**



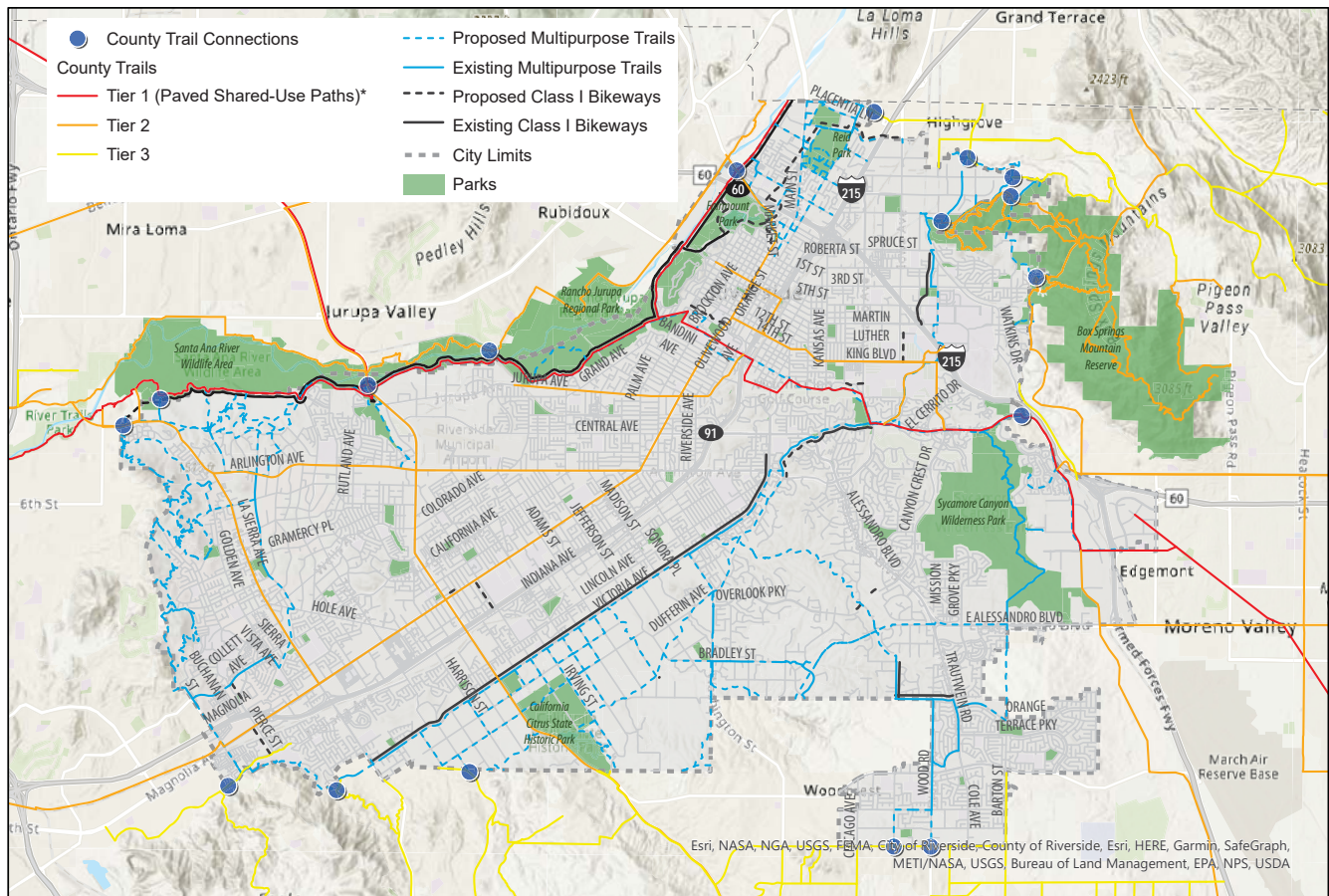
## CONNECTIONS TO ADJACENT TRAILS

The proposed network includes several connections to trails in adjacent jurisdictions. Figure 5-30 shows the locations of these connections. Efforts should be made to coordinate any City trail which approaches one of these connection points with the neighboring jurisdiction, in order to provide a seamless trail experience for users, and to find opportunities to pursue joint funding for CEQA, design, and construction.

### 7-MILE TRAIL

The 7-Mile Trail extends outside of the City of Riverside into County jurisdiction, however, the trail’s alignment was not included in the Riverside County Comprehensive Trails Plan. The development of 7-Mile trail is not a priority for the County, but it is possible that easements will be required from developers along the alignment.

**FIGURE 5-30 : CONNECTIONS TO ADJACENT JURISDICTIONS**



\*County Tier 1 trails are typically paved bikeways, not multi-purpose unpaved trails.

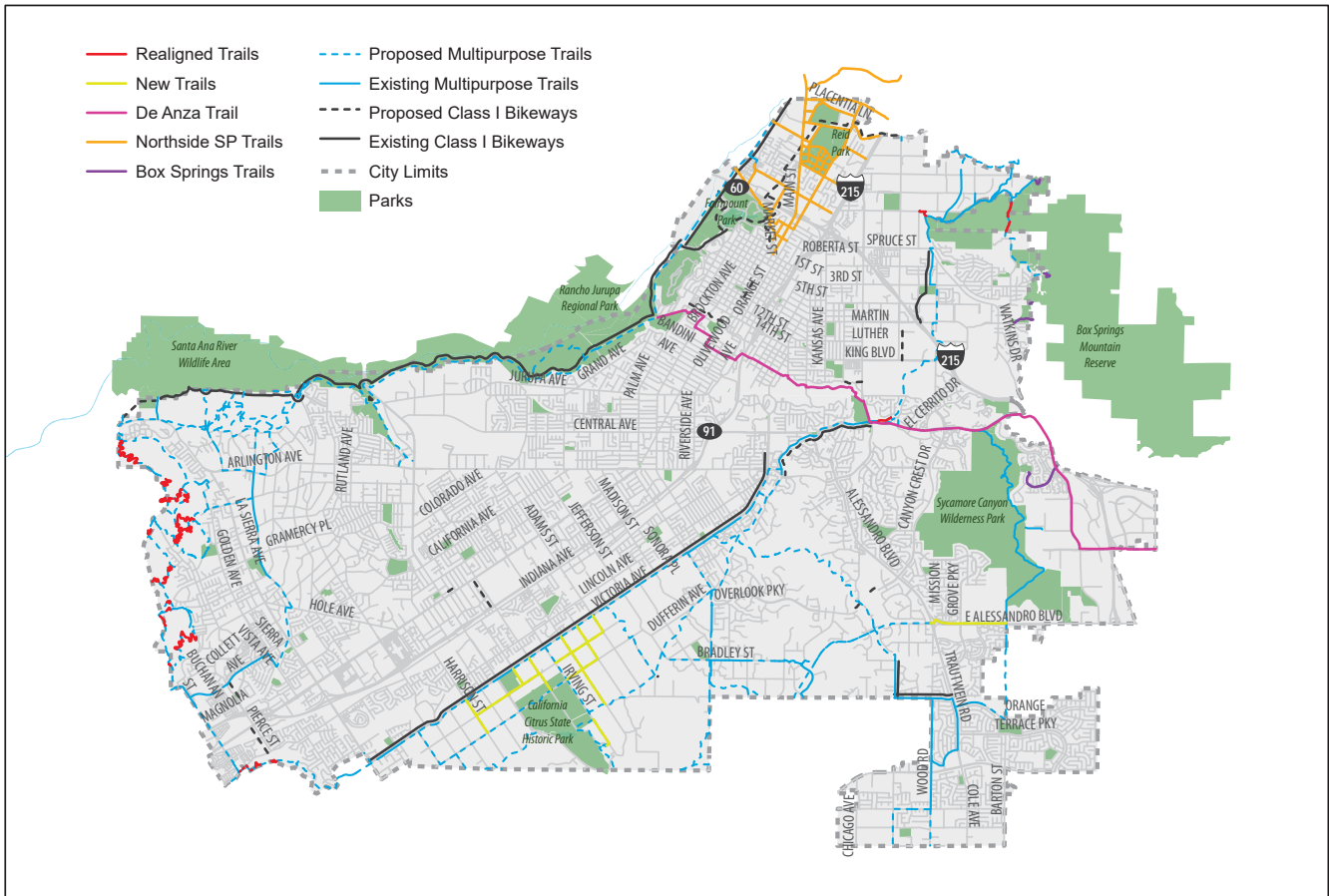
## NEW AND MODIFIED TRAILS

In order to avoid significant new property conflicts, new trails (beyond those adopted in the 1996 Trails Master Plan) have only been recommended within the public right-of-way or on publicly-owned property. Trails have also been included from the Box Springs Trails Master Plan (2015) and the Northside Specific Plan (2020). New roadside trails have been proposed in the agricultural areas surrounding the Citrus State Historic Park, which will help maintain that area’s rural

character while also providing access to that park space.

Trail alignments that were realigned due to topography are also included. A slope analysis was conducted that showed a number of trail segments with an average slope greater than 15% and with stretches where maximum slope reached much higher. These identified trails were subsequently realigned to bring the average slope below 15%. Specific trail changes are detailed below and shown in Figure 5-31.

**FIGURE 5-31 : NEW AND MODIFIED TRAILS**



### **Greenbelt roadside trails**

- Harrison St. from Victoria Ave. to Dufferin Ave.
- Cleveland Ave. from Harrison St. to Gibson St.
- Gibson St. from Victoria Ave. to Cleveland Ave.
- Jackson St. from Victoria Ave. to Dufferin Ave.
- Cleveland Ave. from Irving St. to Adams St.
- Monroe St. from Victoria Ave. to Hermosa Dr.
- Gratton St. from Victoria Ave. to Dufferin Ave.
- Adams St. from Victoria Ave. to Cleveland Ave.
- Irving St. from Jackson St. to Unnamed Rd.  
(approximately .5 miles North from Jackson)

### **Gage Canal**

The entire Gage Canal Trail corridor has been moved into the primary trail network.

A portion of the Gage Canal Trail is going to be under design during this trails plan update. These segments have been indicated as existing, with the assumption that they will be complete in the near future.

A connection has been made to Riverside-Hunter Park/UCR Metrolink Station per the CNRA Urban Greening Grant that is funding the above design segments.

### **Mitchell Ave**

A new corridor connecting Mitchell to Bradbury has been categorized as part of the primary network. Mitchell has also been upgraded to the primary network

### **De Anza Trail**

As part of the National Trails System Act of 1968, the Juan Bautista de Anza trail was recognized by the National Park Service as a national historic trail. The historic trade route is not intended to be built exactly as it was, but rather the general path through the city has been identified, and is routed mainly along streets.

The development of this trail will involve the implementation of educational signage and markers along trails, bike lanes, and sidewalks to illustrate the historic route.

### **Northside Specific Plan**

Trails have been added per the Northside Specific Plan which was approved by the City Council on November 17, 2020.

A route from the specific plan has been categorized as part of the primary network, which connects the Santa Ana River Trail to the Primary East-West Corridor along the city's northern edge

### **Box Springs**

The Box Springs TMP trails have been added to the city data, and where applicable, override previous city routes

“C” trail connection included as primary corridor, and extended to existing trailhead

Sugarloaf trail has changed from proposed to existing per Box Springs TMP

North-south corridor through Box Springs has been promoted to the primary network, and generally maintains the city's original alignment, as it was more accurate to existing trails than the TMP alignment.

The following trails were downgraded from primary to secondary, as they do not form part of the core primary loop or connect to significant park space: West & Grove Community Drive in the southeast corner of the city, and various minor connections citywide.



# Proposed Network

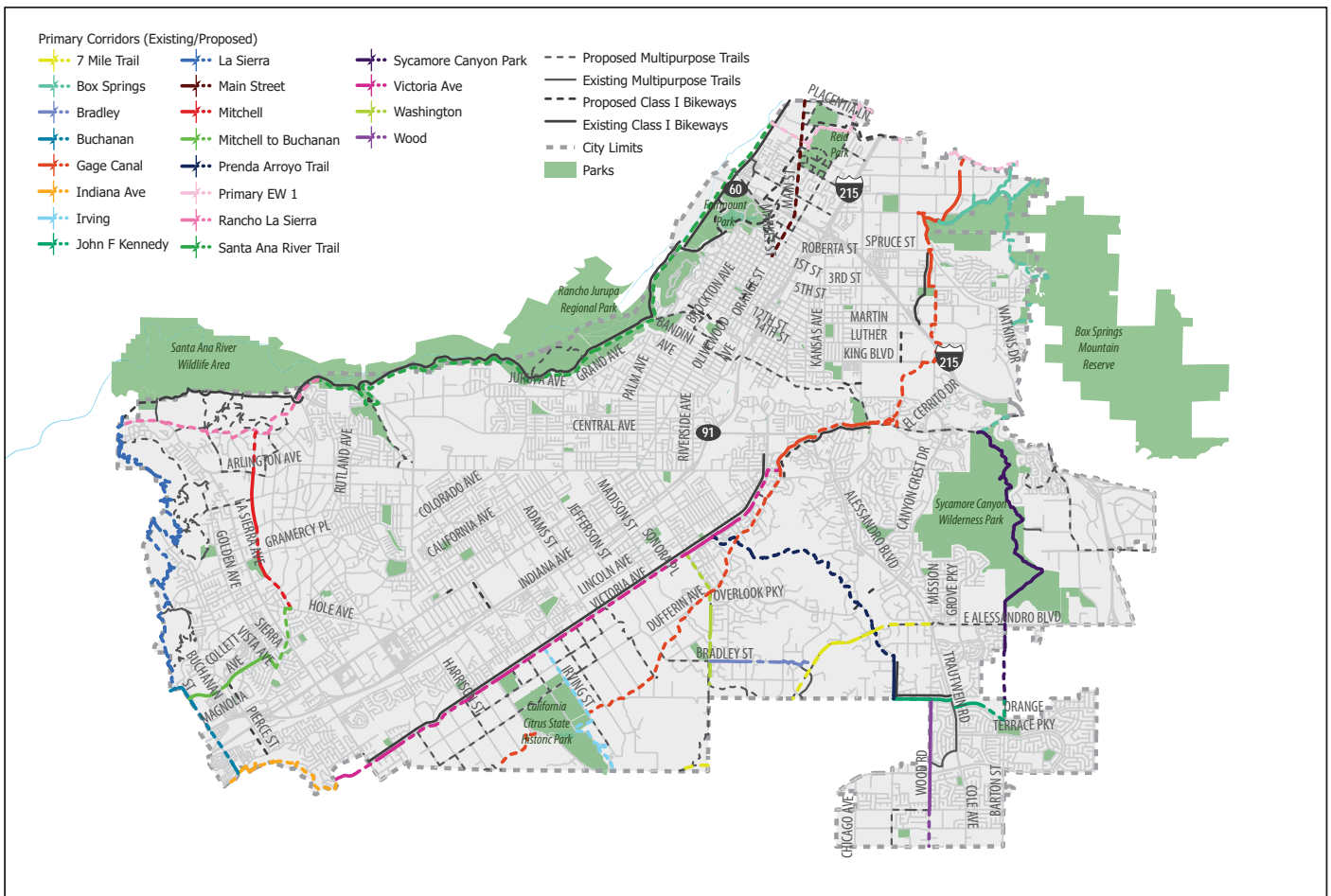
This map highlights the primary existing and primary proposed trail corridors that provide long-range connectivity throughout the city and beyond and form a continuous citywide trail network. Secondary trails provide connections to the primary network, or serve as a self-contained trail experience.

While primary and secondary corridor designations had previously been assigned

to most trail alignments, this analysis aimed to organize Riverside’s hundreds of trail segments into a group of buildable projects.

Trail segments designated as “primary” were distributed, then “secondary” segments and segments in adjacent jurisdictions were added to create clear and complete connections. Segments that were previously deemed as primary trails but lacked potential to connect to nearby primary corridors were omitted from this selection. The result of this analysis yielded the following corridors.

**FIGURE 5-32 : TRAIL CORRIDORS**



**TABLE 5-4 : TRAIL CORRIDORS**

| Name           | Existing Length | Proposed Length | Location  | Description  |
|----------------|-----------------|-----------------|---|--|
| 7-Mile Trail   | 0 ft.           | 43,228 ft.      | Southeast   | Trail runs SW-NE and is within both Riverside City and County. Will require a joint management approach.             |
| Box Springs    | 3,953 ft.       | 5,005 ft.       | North East adjacent to Box Springs Mountain Reserve   | Trail runs North-South along the base of the base of hills   |
| Bradley        | 5,134 ft.       | 11,941 ft.      | South between Washington St. and Allesandro Blvd.   | Trail follows street before transitioning through an arroyo and an off-street  |
| Buchanan       | 1,856 ft.       | 6,400 ft.       | South West  | Trail follows street.  |
| Gage Canal     | 7,996 ft.       | 58,083 ft.      | South from California Citrus State Historic Park - North past Box Springs Mountain Reserve. | Trail follows canal when it is day lit and supplements with a series of smaller on/off street alignments in between. |
| Indiana Ave    | 820 ft.         | 12,495 ft.      | South West  | Trail follows street before transitioning into an undeveloped hilly area between two neighborhoods.                  |
| Irving         | 0 ft.           | 15,440 ft.      | South - along California Citrus State Historic Park   | Trail follows street.  |
| John F Kennedy | 5,698 ft.       | 8,281 ft.       | South East  | Trail follows street.  |
| La Sierra      | 0 ft.           | 43,202 ft.      | West  | Trail located in hilly area.   |
| Main Street    | 0 ft.           | 11,555 ft.      | North   | Trail follows street.  |

**TRAIL CORRIDORS, CONT'D**

| Name                  | Existing Length | Proposed Length | Location  | Description   |
|-----------------------|-----------------|-----------------|---|---|
| Mitchell to Buchanan  | 6,656 ft.       | 6,117 ft.       | East  | Trail follows street East before transitioning into channelized stream North to Mitchell Ave.   |
| Mitchell              | 5,434 ft.       | 8,049 ft.       | East  | Trail follows street.   |
| Prenda Arroyo Trail   | 2,647 ft.       | 21,000 ft.      | South   | Trail follows the Prenda arroyo until Dauchy Ave where it cuts South towards John F Kennedy Dr.   |
| EW 1                  | 1,569 ft.       | 18,223 ft.      | North East  | Trail follows street before transitioning to a natural surface off street path.   |
| Rancho La Sierra      | 1,715 ft.       | 15,610 ft.      | North West  | Trail follows off street path for the majority of the alignment up to the Santa Ana River Trail. Some segments follow roadway where it passes across the North end of a neighborhood. |
| Santa Ana River Trail | 0 ft.           | 51,448 ft.      | North   | Proposed trail adjacent to Santa Ana River Class I paved bicycle path.  |
| Sycamore Canyon Park  | 8,528 ft.       | 12,495 ft.      | East - Travels South to meet up with John F Kennedy Dr. | Hilly nature trail, many user-generated mountain bike trails in the area.   |
| Victoria Ave          | 10,027 ft.      | 29,695 ft.      | South West - North East to Gage Canal                   | Trail follows street.   |
| Washington            | 3,320 ft.       | 6,739 ft.       | South - Victoria Ave South to Bradley                   | Trail follows street.   |
| Wood                  | 7,925 ft.       | 2,621 ft.       | South - John F Kennedy South to city limits.            | Trail follows street.   |

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# Section 5.5: Implementation Plan



*Bountiful Street Roadside Trail*

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## Prioritization Process

### OVERVIEW

The 207 miles of proposed trails developed for this TMP Update present a complete and ambitious vision for a comprehensive, citywide trails system. As funding to develop new trails is limited and competitive, and must be balanced with maintenance and other parks and recreation funds, a prioritization approach is provided to help guide the city in the gradual implementation of a citywide trail network as funds are available over many years.

### PRIORITIZATION CRITERIA

For this prioritization process, trails have been grouped into larger trail corridors, some of which span much of the city, and are in varying stages of completion. This helps the city identify which overall trail corridors should take precedence, avoids a segmented development process that leaves the city with many disconnected trails, and allows the city to develop segments within a larger trail corridor as individual projects, conditions for adjacent development, or as elements of other parks and public works projects.

Trail corridors have been evaluated according to a prioritization process that measures equity, connectivity, feasibility, and

public support. Connectivity and Equity in particular were highlighted by TAC members as among the most important prioritization criteria.

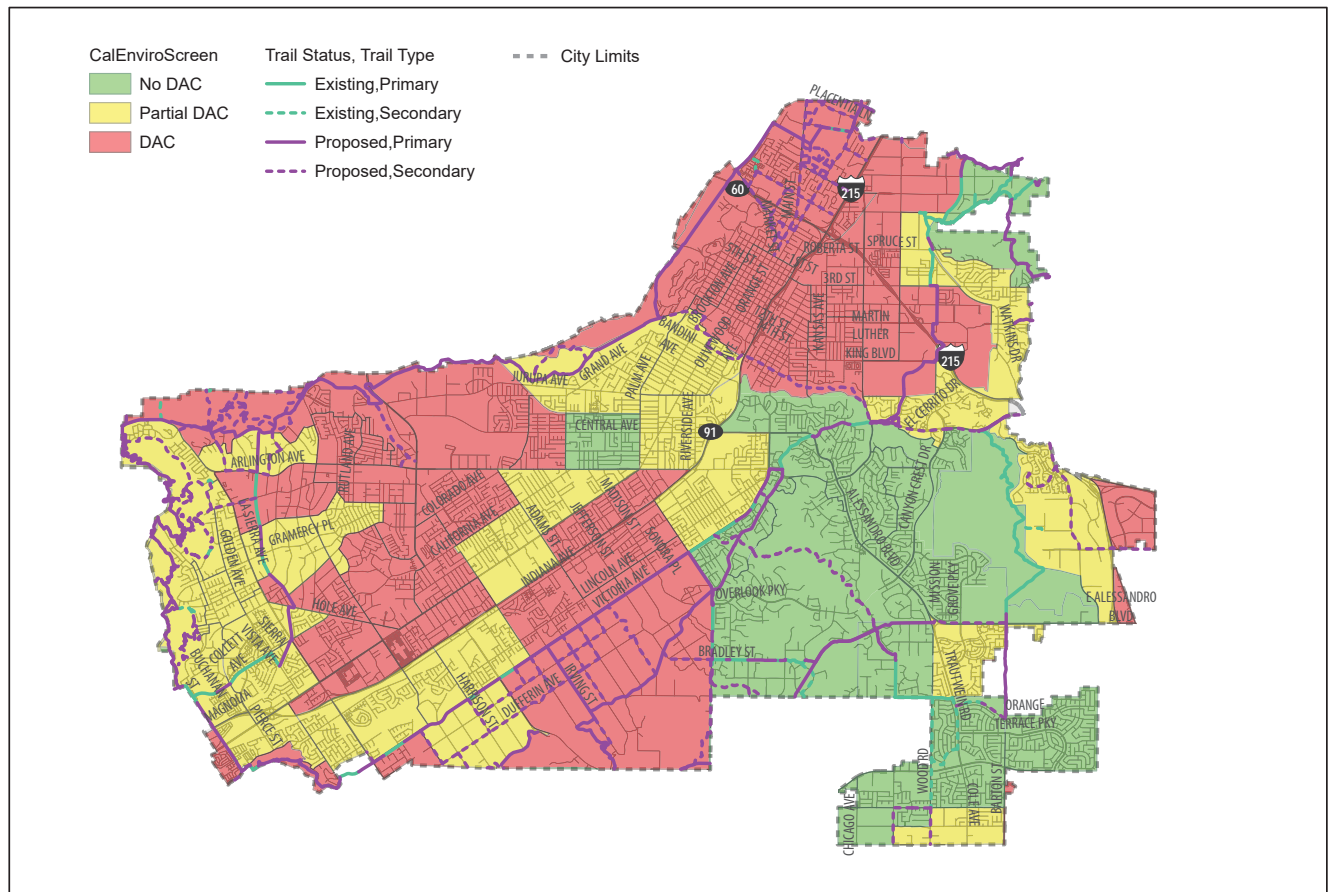
For each criterion, trail corridors received a composite score based on the sum of all factors evaluated. Trail corridors are then ranked from highest to lowest priority. However, the prioritization list acts as a guide to implementation for the City, not as an absolute directive for the order of trail development. When funding sources become available, the City will take all available opportunities to propose the most competitive projects. Should opportunities arise to complete projects on lower-ranked corridors, they will be taken. For example, if a new development is required to provide a new trail or trail easement, or a roadway is reconstructed and allows for a roadside trail, the City will explore ways to install facilities as part of these other projects.

Each of the criteria are detailed on the following pages, along with Table 5-5 summarizing the data that is used in the evaluation.

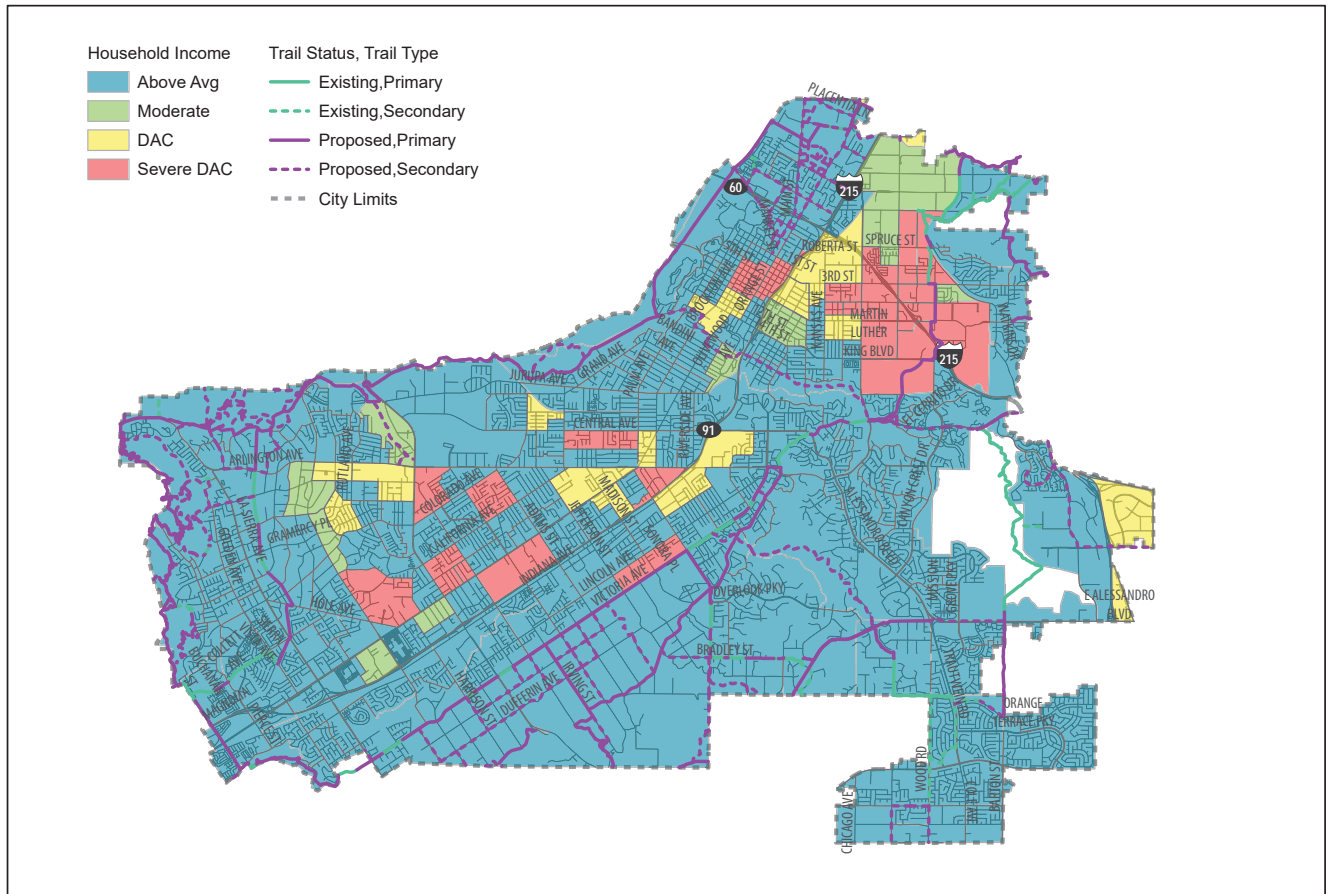
**TABLE 5-5 : PRIORITIZATION CRITERIA**

| CRITERIA                  | MEASURE   | POINTS |
|---------------------------|---|--------|
| Connectivity              | Project connects to major destinations, close gaps in the existing bicycle network/sidewalk network, and serves demand for active transportation trips based on proximity to where people live, work, play, shop, learn, and access transit.                        | 0 – 10 |
| Health + Equity           | Project is located within a disadvantaged community, as defined by CalEnviroScreen 3.0, Riverside Unified School District Free and Reduced Meal Program, and/or household income thresholds (Department of Housing and Community Development ACS 5-year estimates). | 0 – 6  |
| Safety                    | Project is located along a high collision corridor or street with high levels of traffic stress, and thereby, addresses safety barriers.  | 0 – 6  |
| Community-Identified Need | Project was identified as needing improvement by community members through one or more community engagement efforts.  | 0 – 6  |
| Regional Goals            | Project improves and builds upon the regional network identified in the Riverside County Bike Master Plan and/or WRCOG Active Transportation Plan.  | 0 – 2  |
| Maximum Possible Points   |   | 30     |

**FIGURE 5-33 : DISADVANTAGED COMMUNITIES PER CAL ENVIRO SCREEN**



**FIGURE 5-34 : DISADVANTAGED COMMUNITIES PER MEDIAN HOUSEHOLD INCOME**



**Connectivity**

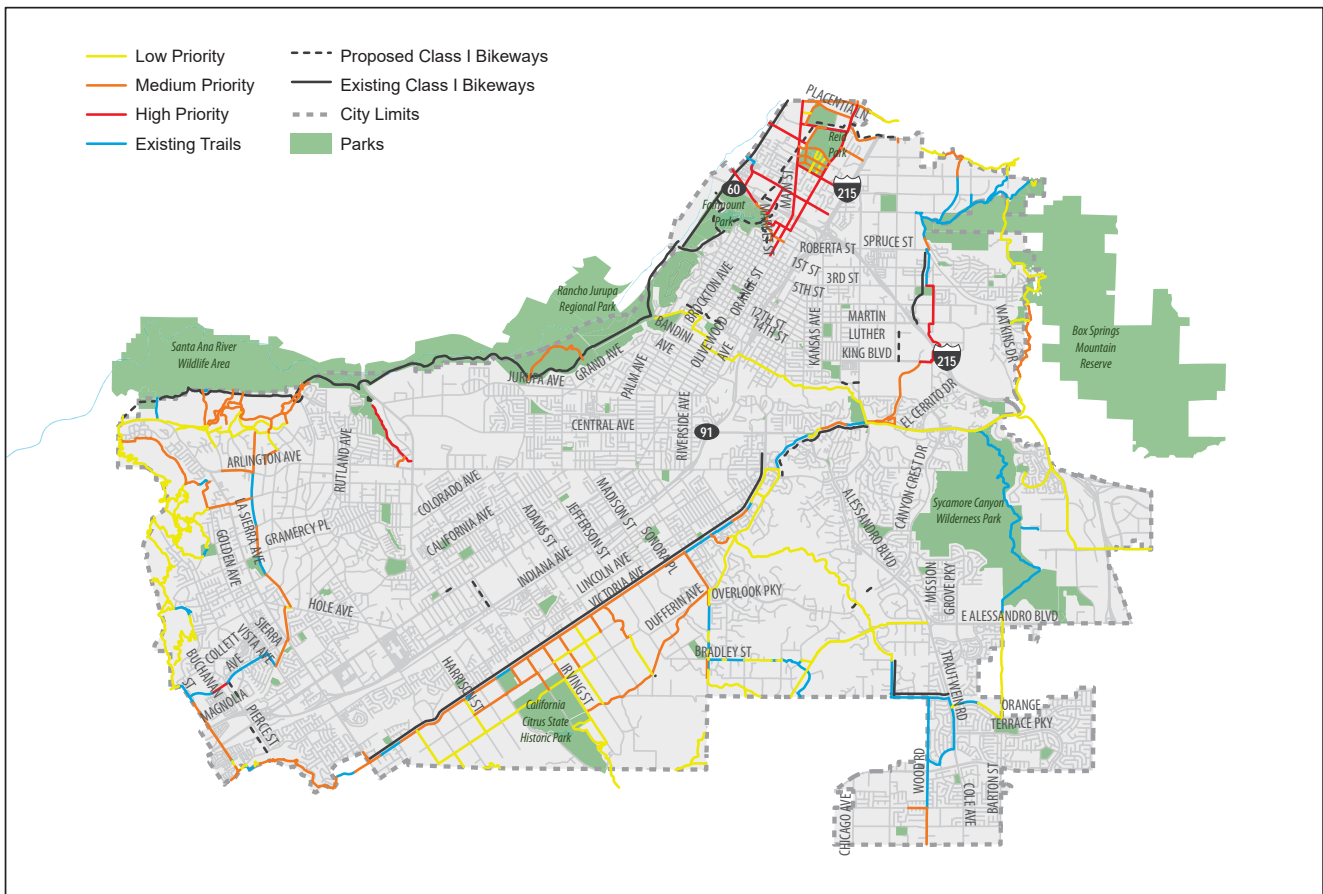
Trails that provide access to destinations and other active transportation facilities are measured here. Particular emphasis is given to connectivity, as it can help trails become part of a functional transportation network, reduce Vehicle Miles Traveled (VMT) and ultimately influence local transportation patterns. It can also expand the ability for trails to be funded by both transportation and recreational sources.

**Equity**

This is a measure of both a geographical distribution of trails, as well as trails in areas classified as Disadvantaged Communities by CalEnviroScreen. The aim of this equitable distribution of trails is to spread trails throughout the city, helping people access trails without traveling long distances, while also emphasizing trail development in communities that face undue economic and environmental burdens.



**FIGURE 5-35 : COMPOSITE PRIORITY RANKING PER TRAIL SEGMENT**



**Safety**

Safety factors in the history of collisions between people riding bicycles and walking with motor vehicles. Trails, allowing an off-street option for riding bicycles and walking, can help reduce these collisions, and allow trails to serve as transportation options.

**Community-Identified Need**

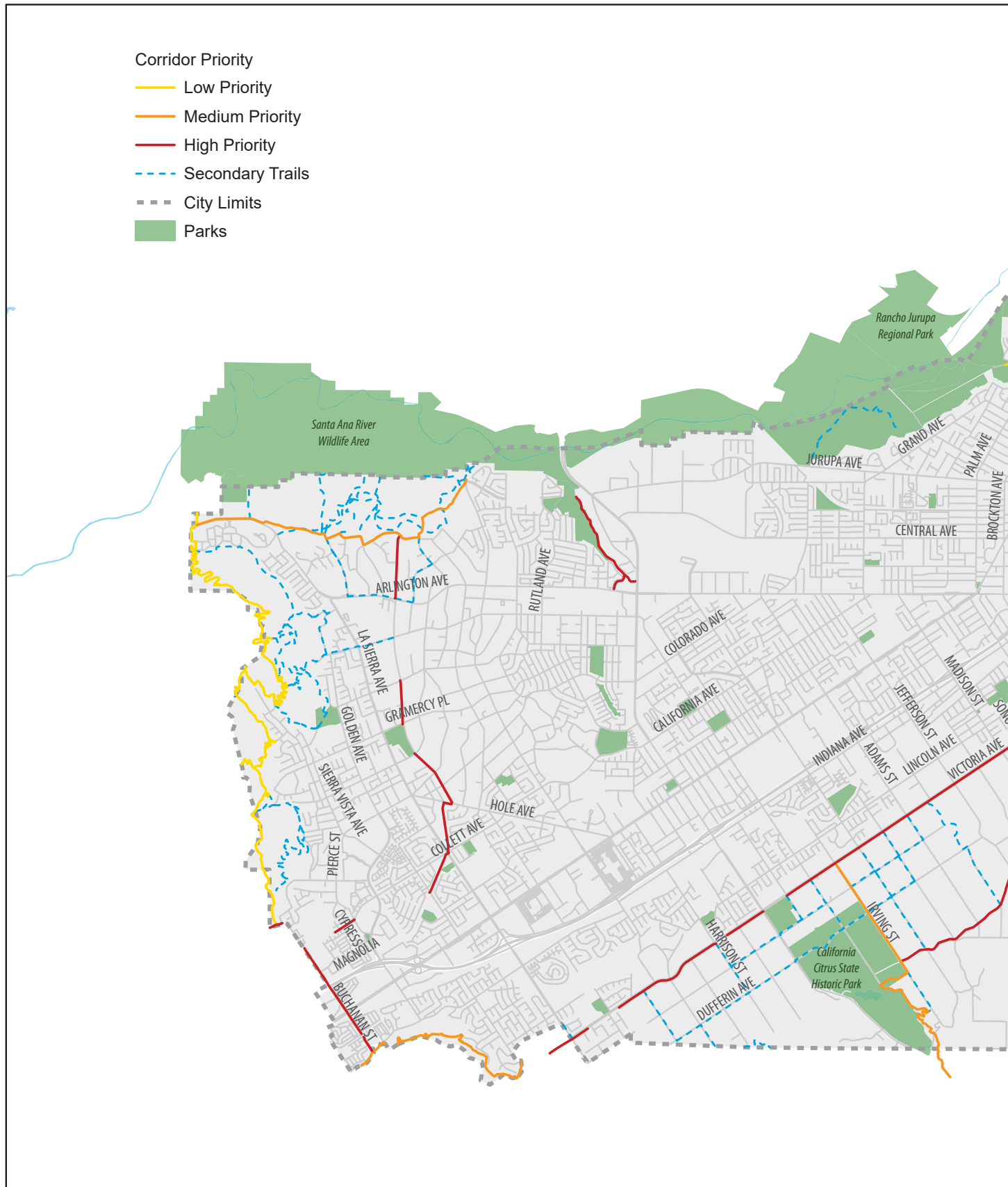
Trails having received specific public support, through outreach, the technical advisory committee, or through other recent planning efforts with dedicated outreach.

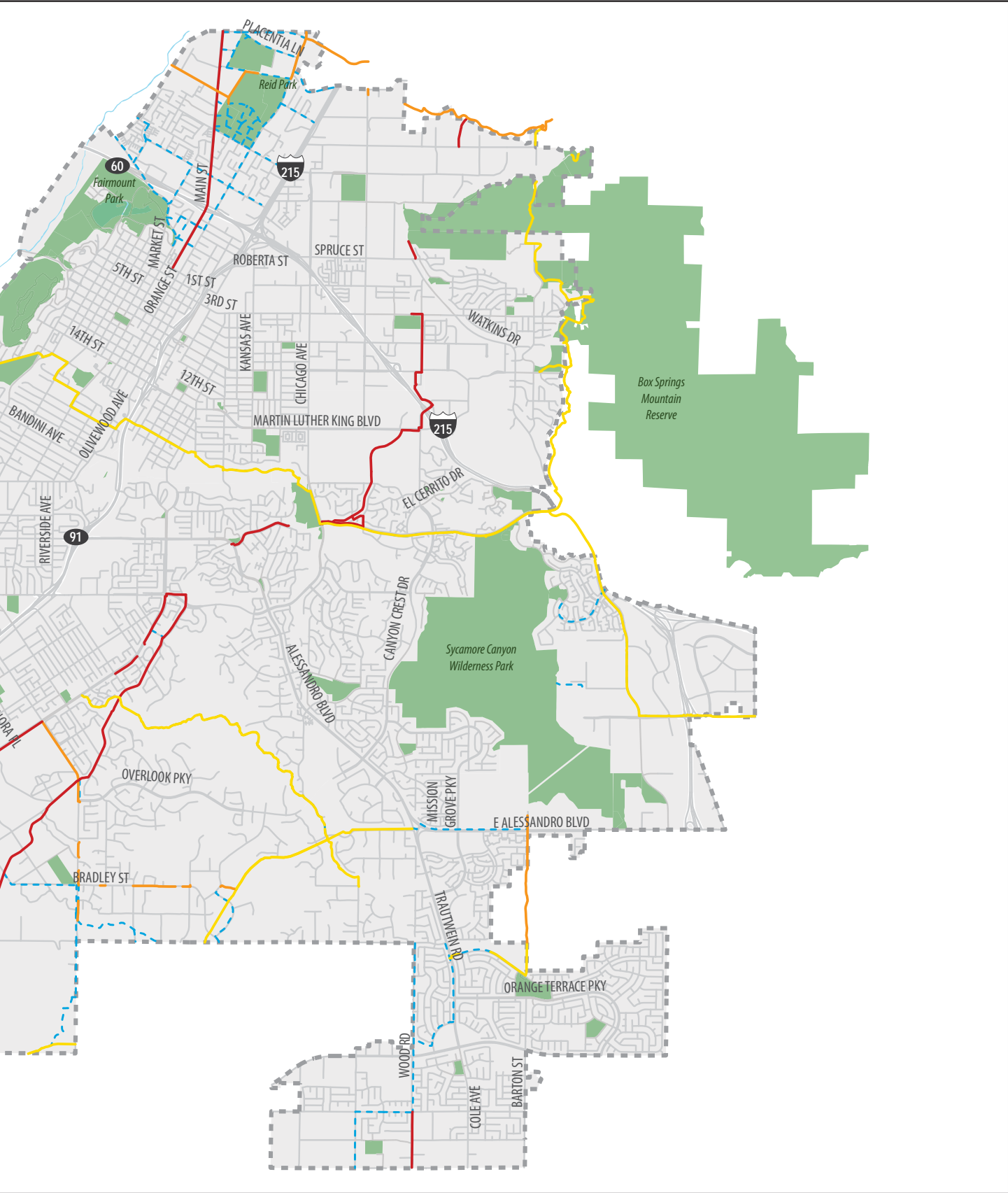
**Regional Goals**

Scoring ranks trails according to connectivity to regional trails and bikeways, within and adjacent to the city.

Maps showing these criteria individually are available in “Appendix J: Network Prioritization”

FIGURE 5-36 : TRAIL CORRIDOR COMPOSITE PRIORITIZATION SCORE



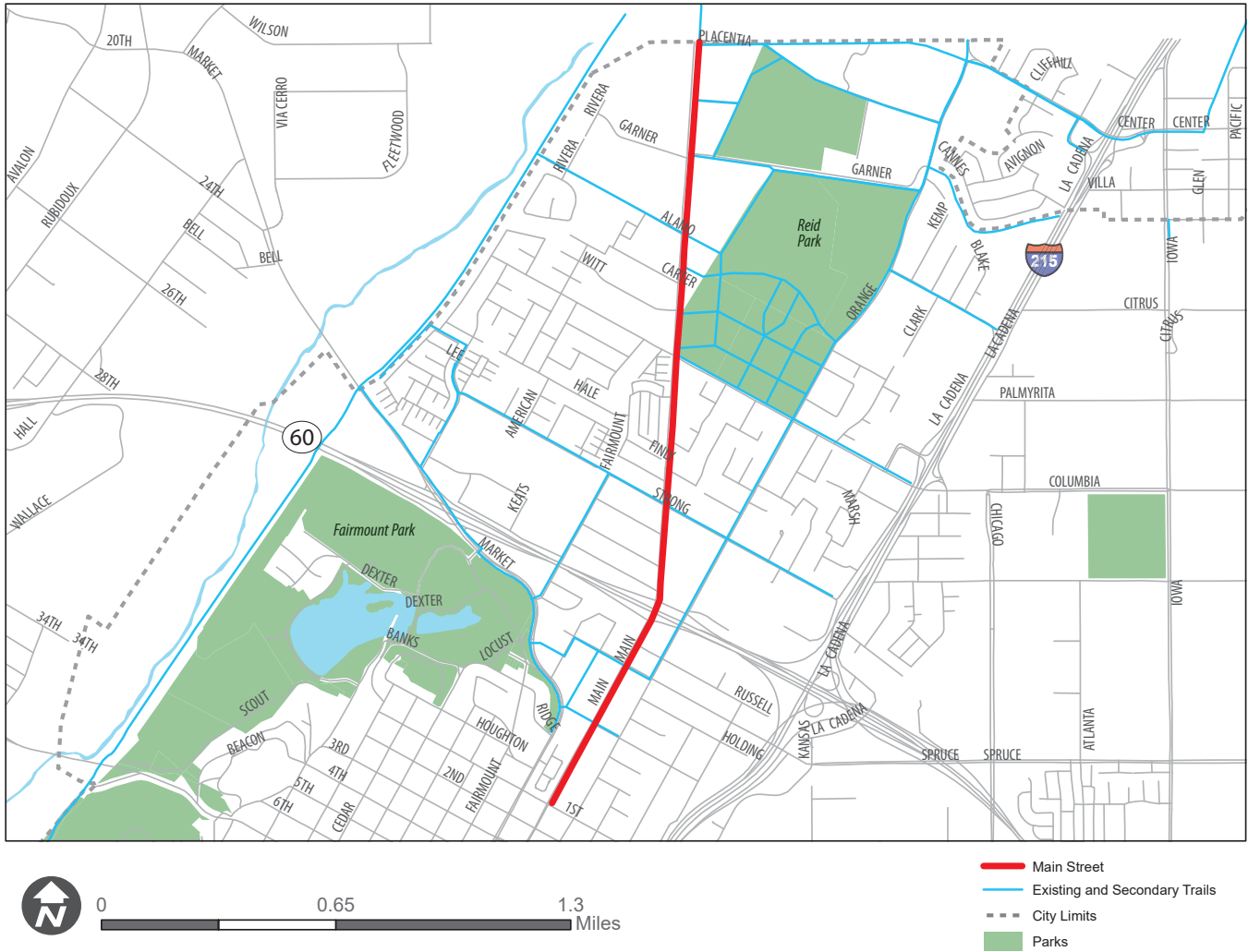


**TABLE 5-6 : TOP-RANKED CORRIDORS**

| TRAIL CORRIDOR       | RANK |
|----------------------|------|
| Main Street          | 18   |
| Hole Lake            | 9.50 |
| Mitchell             | 9.00 |
| Wood                 | 8.00 |
| Mitchell to Buchanan | 8.00 |
| Gage Canal           | 7.35 |
| Victoria Ave         | 7.33 |
| Buchanan             | 6.40 |
| Primary EW 1         | 6.38 |
| Indiana Ave          | 5.92 |
| Washington           | 5.50 |
| Rancho La Sierra     | 5.00 |
| Irving               | 4.20 |
| Sycamore Canyon Park | 4.00 |
| Bradley              | 4.00 |
| 7 Mile Trail         | 3.83 |
| John F Kennedy       | 3.75 |
| La Sierra            | 3.22 |
| Box Springs          | 3.10 |
| Primary NS 1         | 3.00 |
| Prenda Arroyo Trail  | 2.76 |
| De Anza              | 1.00 |

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**FIGURE 5-37 : MAIN STREET TRAIL CORRIDOR**



| CATEGORY                            | DATA        |
|-------------------------------------|-------------|
| Existing Length                     | 0 miles     |
| Proposed Additional Length          | 2.19 miles  |
| Number of Parcels Intersected       | 0           |
| Length of Trail on Private Parcels  | 0 miles     |
| Length of Trail on Undisturbed Land | 0 miles     |
| Estimated Cost                      | \$2,278,699 |

**Main Street**

Included as part of the Northside Specific Plan, this segment is a roadside trail in the Northside area of Riverside. As the trail follows a two plus mile stretch of Main Street it intersects a number of major cross streets. The trail also navigates over a highway overpass, which adds an additional spatial constraint.

**FIGURE 5-38 : HOLE LAKE TRAIL CORRIDOR**



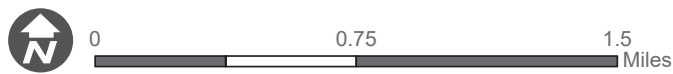
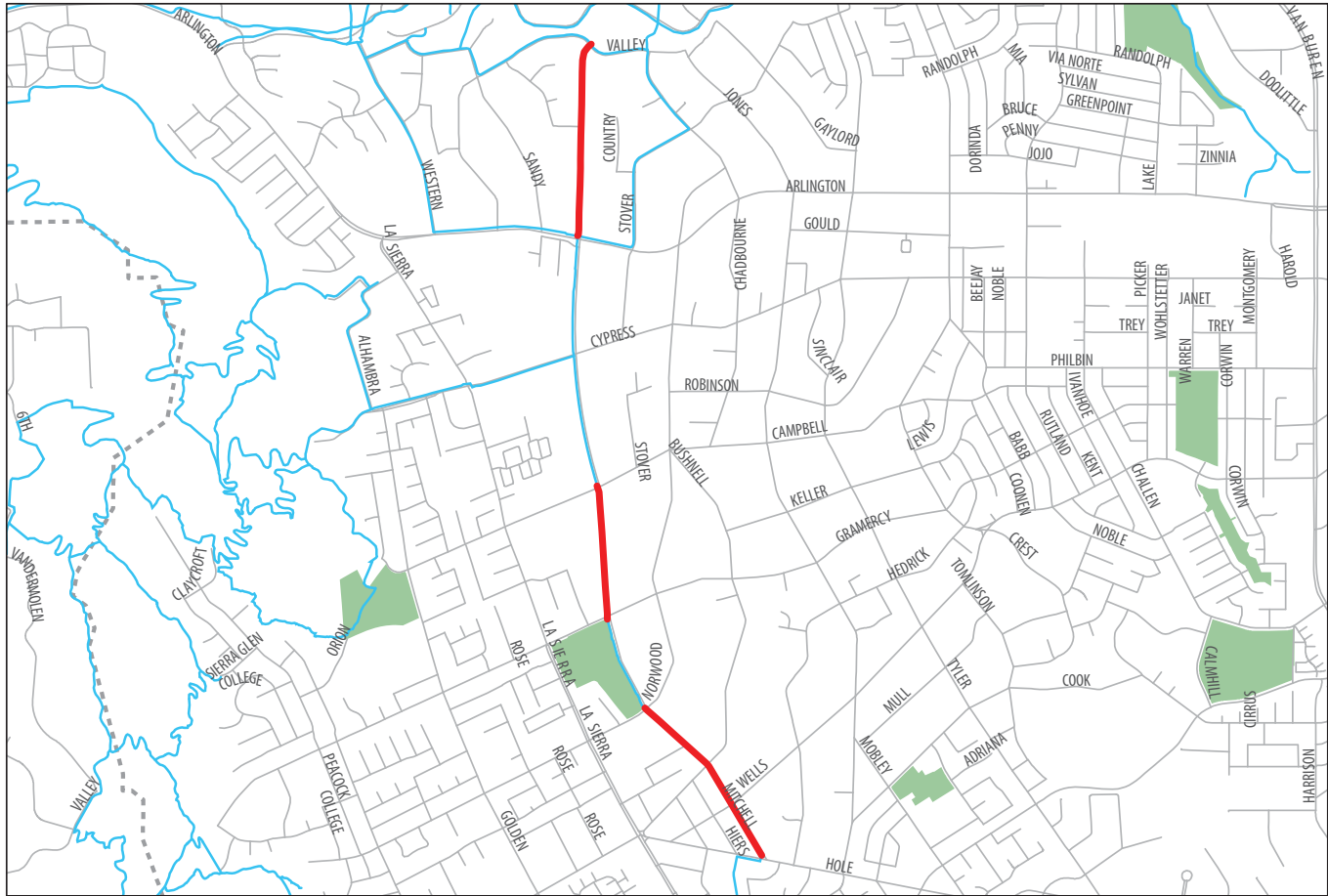
- Hole Lake
- Existing and Secondary Trails
- Parks

| CATEGORY                            | DATA                   |
|-------------------------------------|------------------------|
| Existing Length                     | 0 miles                |
| Proposed Additional Length          | 1.16 miles             |
| Number of Parcels Intersected       | 2                      |
| Length of Trail on Private Parcels  | 0.25 miles             |
| Approximate Easement                | 10,280 ft <sup>2</sup> |
| Length of Trail on Undisturbed Land | 0 miles                |
| Estimated Cost                      | \$1,363,386            |

### Hole Lake

This segment is aligned next to a drainage channel, the majority of which has a natural bottom. Located at the southern portion of the segment, the trail splits and crosses over the channel. This will require additional design consideration to bridge the channel. Additionally, the segment would require the acquisition of two private property parcels.

**FIGURE 5-39 : MITCHELL AVE TRAIL CORRIDOR**



- Mitchell
- Existing and Secondary Trails
- - - City Limits
- Parks

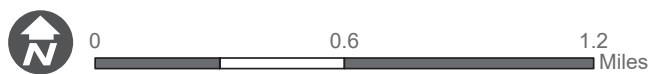
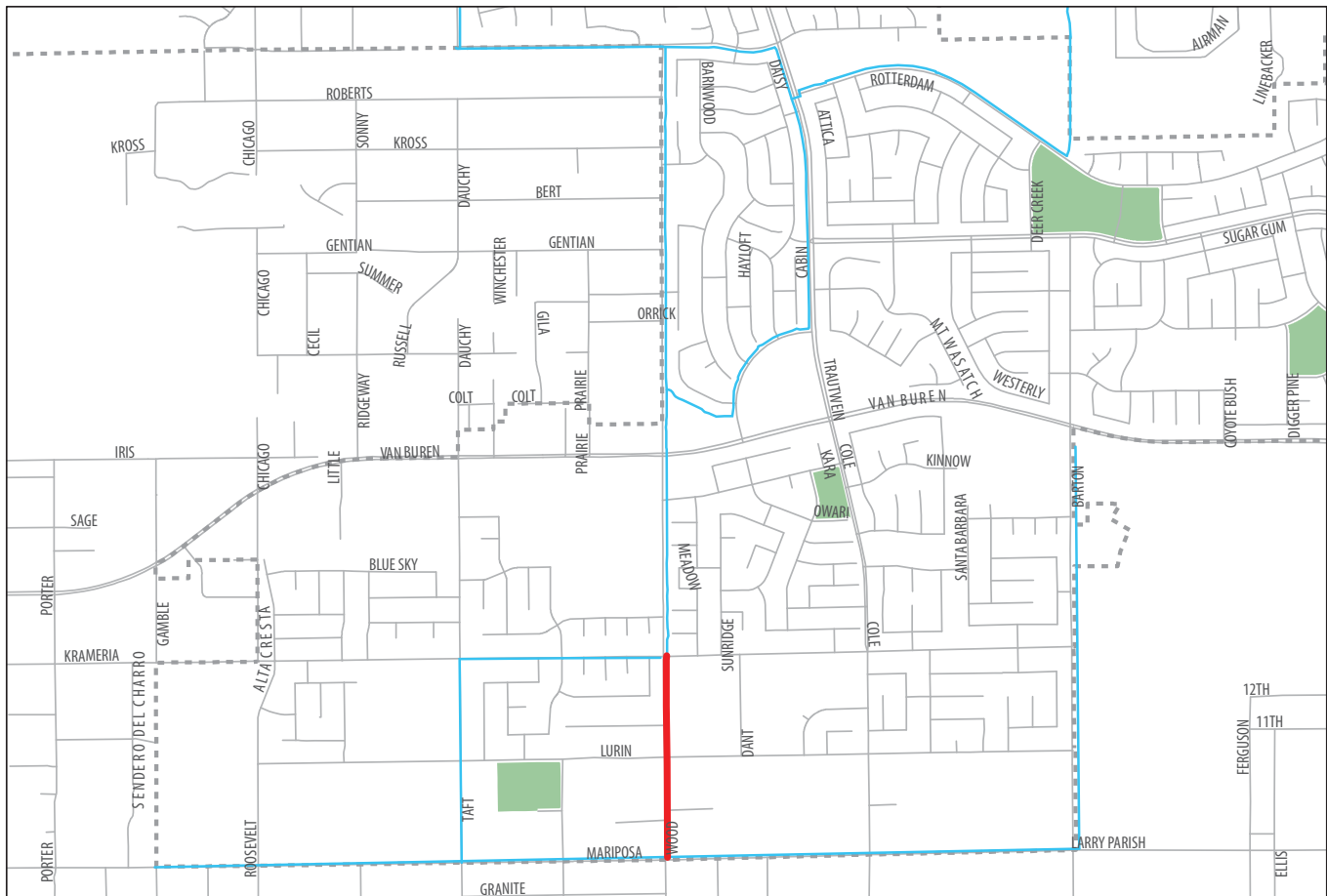
| CATEGORY                            | DATA        |
|-------------------------------------|-------------|
| Existing Length                     | 1.03 miles  |
| Proposed Additional Length          | 1.52 miles  |
| Number of Parcels Intersected       | 0           |
| Length of Trail on Private Parcels  | 0 miles     |
| Length of Trail on Undisturbed Land | 0 miles     |
| Estimated Cost                      | \$1,585,653 |

### Mitchell

Located in western Riverside, the Mitchell Ave trail corridor provides a North-South connection for residents accessing the SART. As the roadside trail alignment along Mitchell Ave intersects multiple large roadways, safety of trail users must be strongly considered.



**FIGURE 5-40 : WOOD RD TRAIL CORRIDOR**



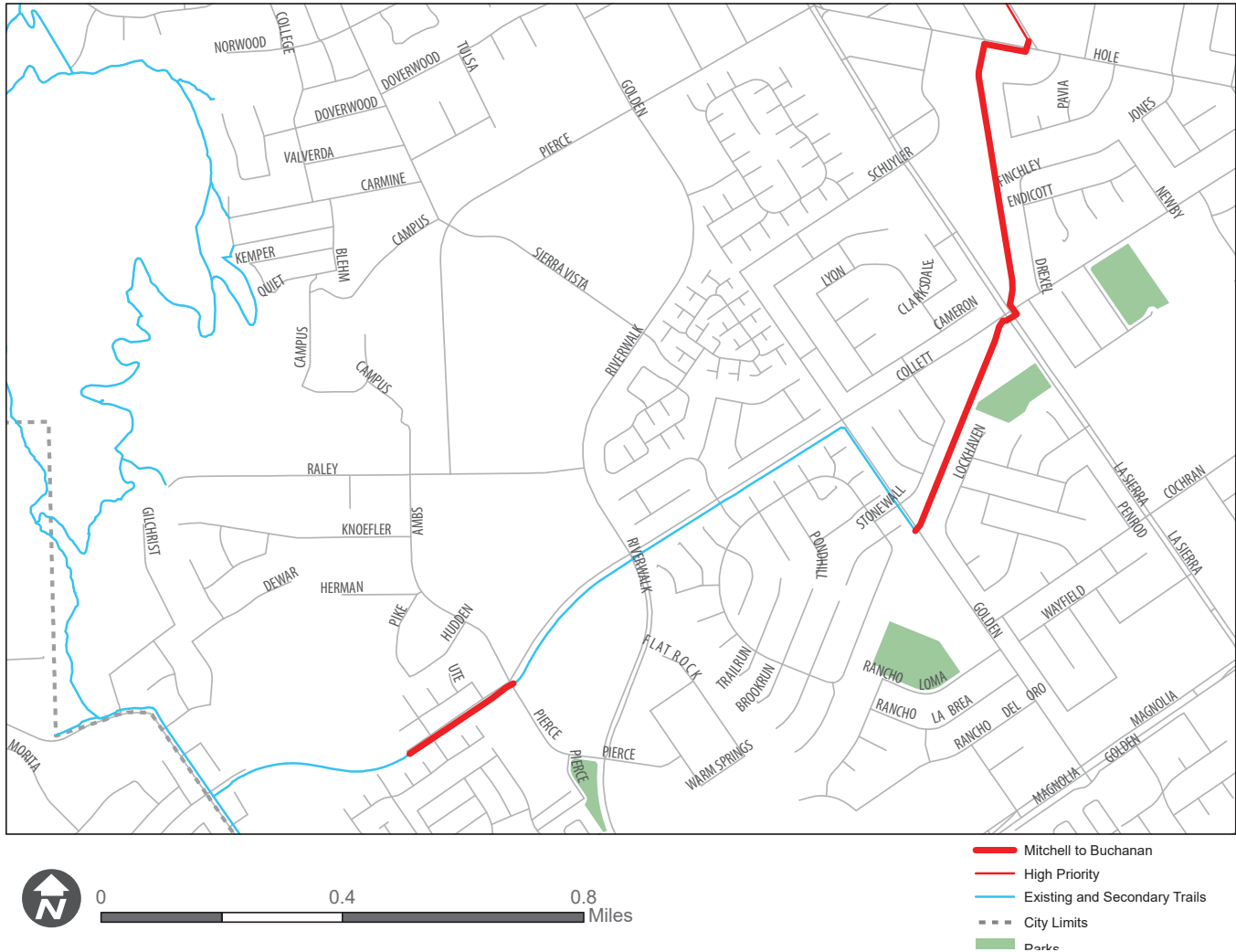
- Wood
- Existing and Secondary Trails
- - - City Limits
- Parks

| CATEGORY                            | DATA       |
|-------------------------------------|------------|
| Existing Length                     | 1.50 miles |
| Proposed Additional Length          | 0.50 miles |
| Number of Parcels Intersected       | 0          |
| Length of Trail on Private Parcels  | 0 miles    |
| Length of Trail on Undisturbed Land | 0 miles    |
| Estimated Cost                      | \$516,337  |

### Wood

Located in the South-East corner of the City, the remaining proposed trail connect in the Wood Rd. corridor creates a strong direct connection to trails in the adjacent jurisdiction. There are no significant barriers to the feasibility of this segment.

**FIGURE 5-41 : MITCHELL AVE TO BUCHANAN ST TRAIL CORRIDOR**

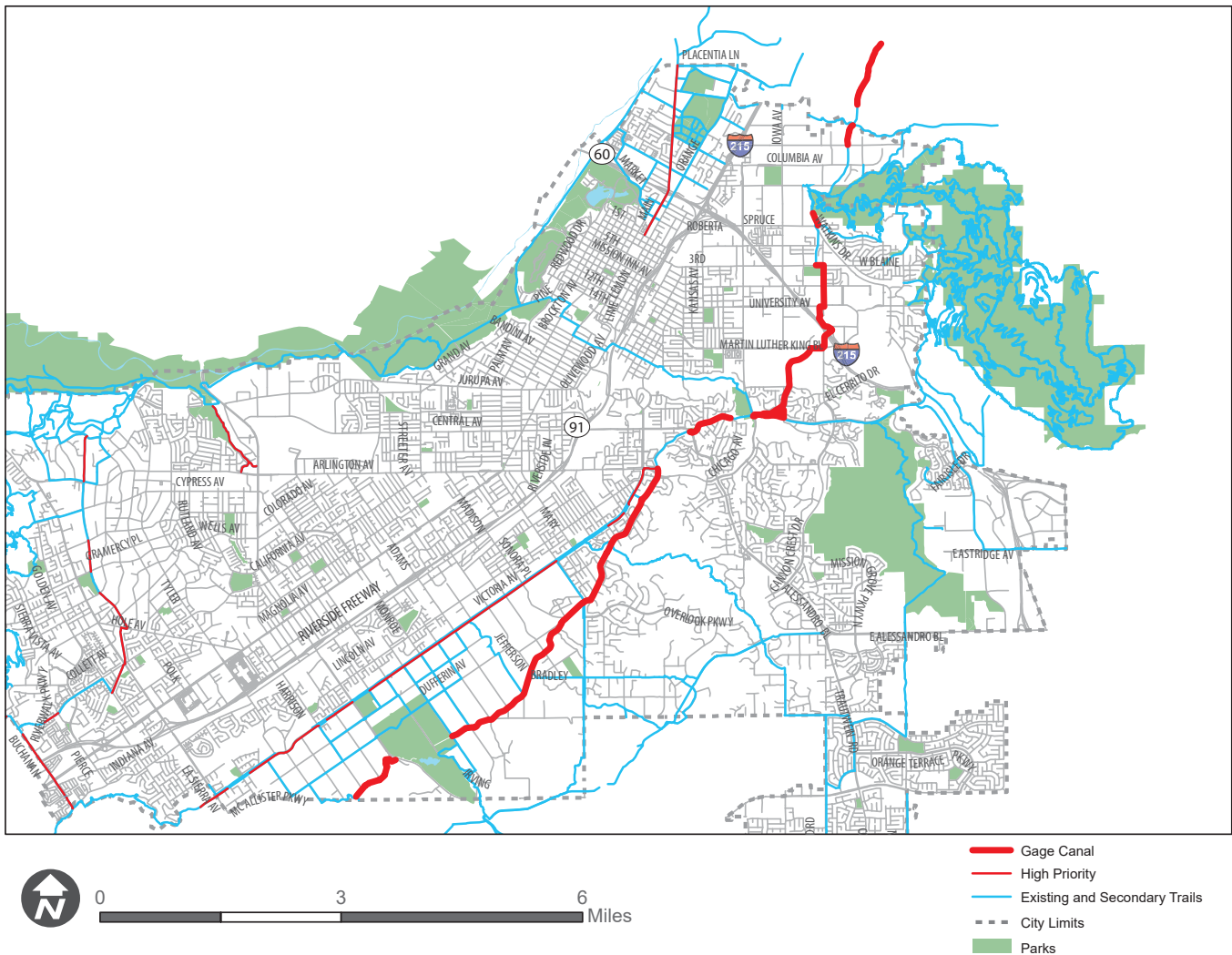


| CATEGORY                            | DATA        |
|-------------------------------------|-------------|
| Existing Length                     | 1.26 miles  |
| Proposed Additional Length          | 1.16 miles  |
| Number of Parcels Intersected       | 0           |
| Length of Trail on Private Parcels  | 0 miles     |
| Length of Trail on Undisturbed Land | 0 miles     |
| Estimated Cost                      | \$1,205,049 |

**Mitchell to Buchanan**

This segment forms a connection through the residential area in western Riverside, connecting the Mitchell Ave. and Buchanan St. trail corridors. A large portion of the proposed segment is located along a channelized waterway. The alignment here also crosses a major road intersection which will require additional detail to ensure safe crossing for trail users.

**FIGURE 5-42 : GAGE CANAL TRAIL CORRIDOR**

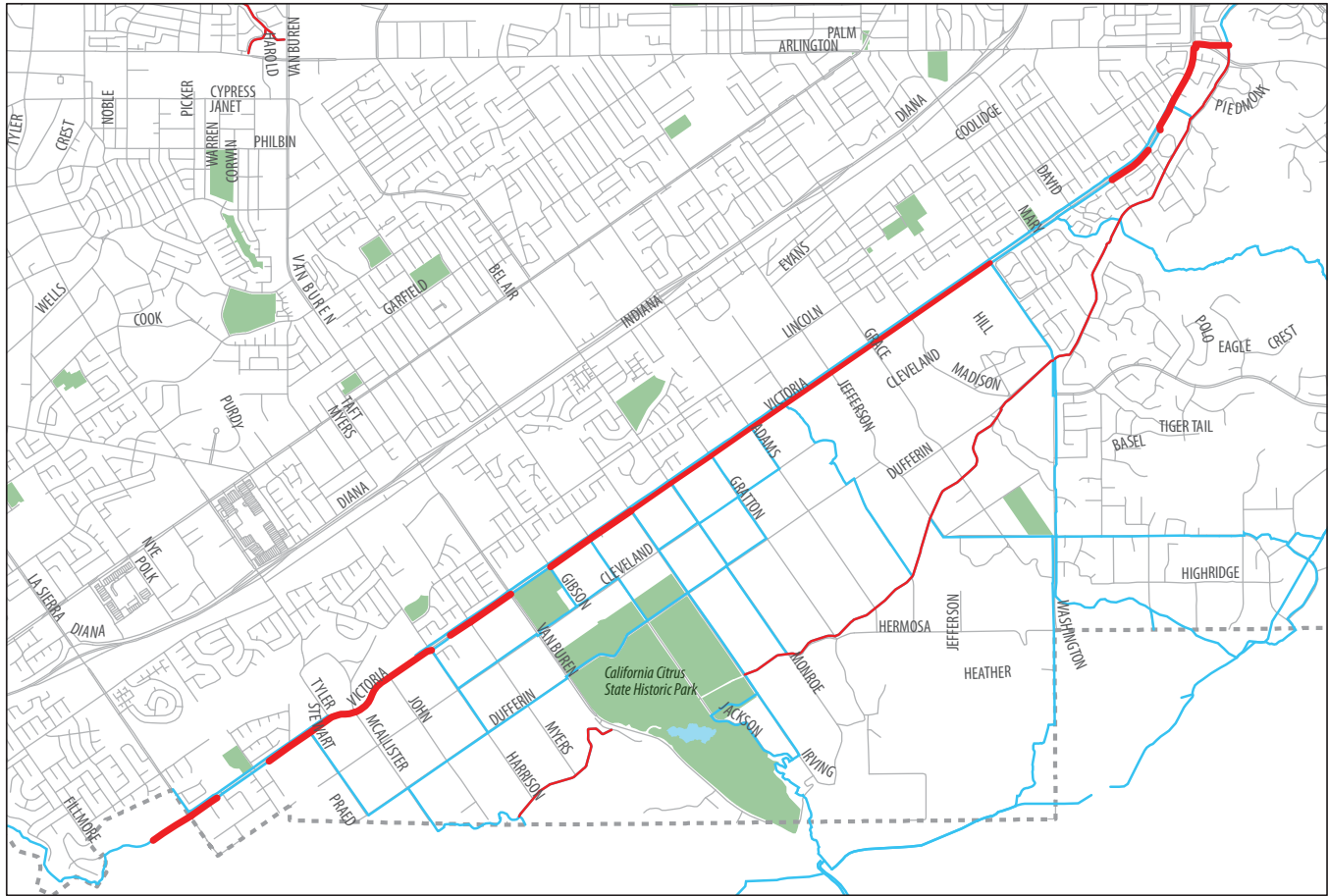


| CATEGORY                            | DATA         |
|-------------------------------------|--------------|
| Existing Length                     | 3.21 miles   |
| Proposed Additional Length          | 10.49 miles  |
| Number of Parcels Intersected       | 0            |
| Length of Trail on UCR Property     | 0.89 miles   |
| Length of Trail on Undisturbed Land | 0 miles      |
| Estimated Cost                      | \$10,909,072 |

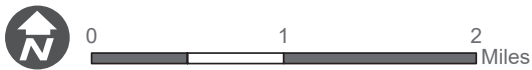
### Gage Canal

The Gage Canal corridor creates a continuous 13 mile long trail connection across Riverside. Sections of the proposed Gage Canal trail cross roadways and will require the design of midblock crossings. Additionally, a section of the proposed alignment creates a connection that cuts through the University of California, Riverside campus. This will require additional coordination with the University to receive approval for that portion of the trail.

**FIGURE 5-43 : VICTORIA AVE TRAIL CORRIDOR**



- Victoria Ave
- High Priority
- Existing and Secondary Trails
- City Limits
- Parks

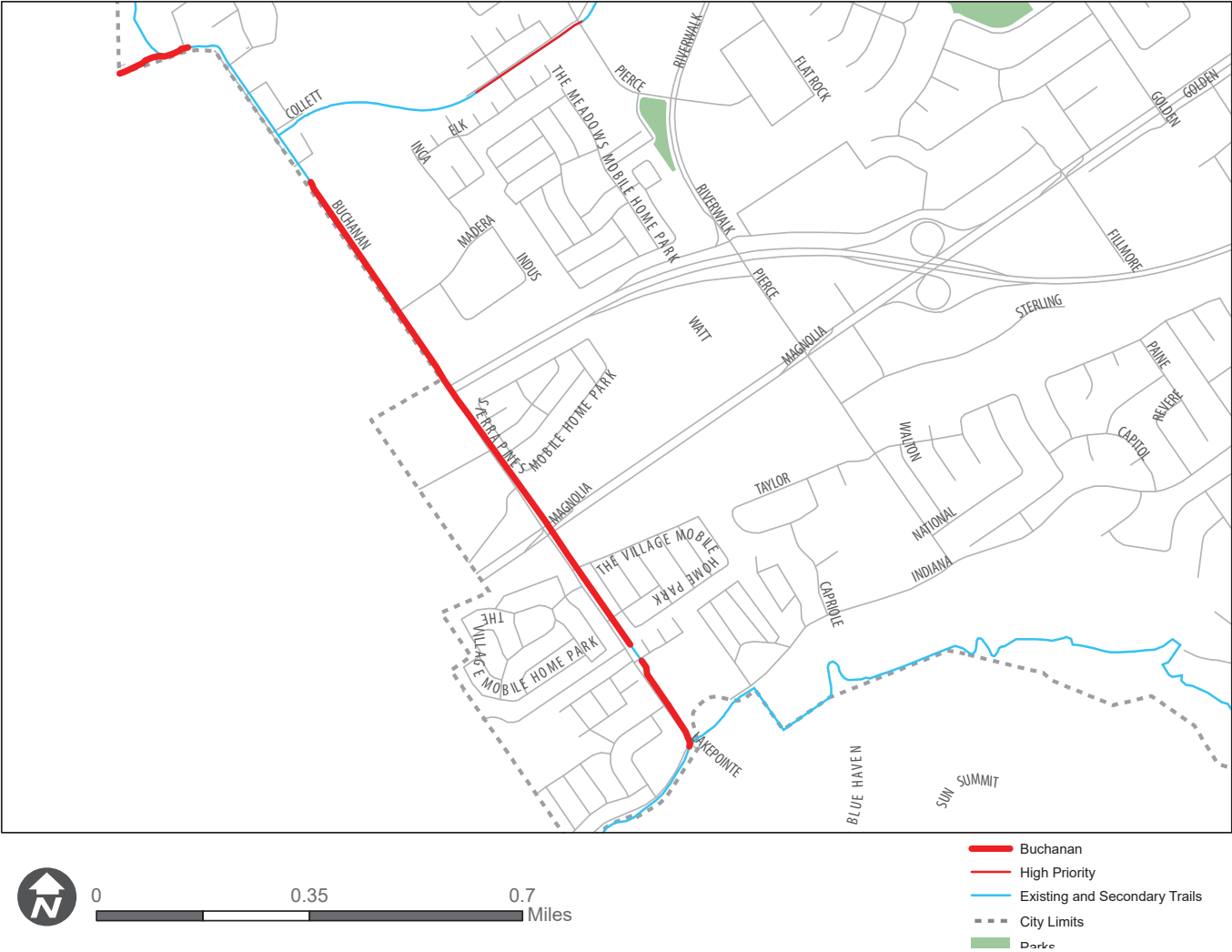


| CATEGORY                            | DATA        |
|-------------------------------------|-------------|
| Existing Length                     | 1.64 miles  |
| Proposed Additional Length          | 5.62 miles  |
| Number of Parcels Intersected       | 0           |
| Length of Trail on Private Parcels  | 0 miles     |
| Length of Trail on Undisturbed Land | 0 miles     |
| Estimated Cost                      | \$5,849,915 |

### Victoria Ave

The trail corridor improvements proposed on the South side of Victoria Ave. will provide connections for residents to Citrus State Historic Park and the Gage Canal trail corridor. Some privately owned parcels are close to the roadway causing constrained conditions for a trail. The alignment along Victoria Ave crosses a number of larger streets, and additional consideration is needed to create a safe environment for trail users as it intersects driveways from the neighboring residential properties.

**FIGURE 5-44 : BUCHANAN ST TRAIL CORRIDOR**



| CATEGORY                            | DATA        |
|-------------------------------------|-------------|
| Existing Length                     | 0.35 miles  |
| Proposed Additional Length          | 1.21 miles  |
| Number of Parcels Intersected       | 0           |
| Length of Trail on Private Parcels  | 0 miles     |
| Length of Trail on Undisturbed Land | 0 miles     |
| Estimated Cost                      | \$1,260,997 |

**Buchanan**

The Buchanan trail corridor creates a connection to the proposed recreational hillside trails located on the west end of Riverside. The trail corridor also forms a connection over towards the Victoria Ave. trail corridor. The roadside alignment of the proposed Buchanan trail corridor crosses multiple larger roads. The alignment crosses a highway overpass and railroad which creates a constrained condition.

## Implementation Framework

There are a number of steps required for implementing a citywide trail system. The following framework outlines the necessary components for trail development, operations, and maintenance. The framework is provided based on the practices of numerous external agencies, including cities, counties, regional and other plans of greater scale. The primary steps involved with trail development are shown in Table 5-7.

All of these steps have associated costs, which vary depending on the scope of the study, the length of the proposed trail, and the presence of right-of-way or acquisition issues, as well as environmental and other constraints.

Construction costs for decomposed granite trails are approximately \$200 per linear foot. This cost is typically significantly lower for natural surface trails, which can be as low as \$40 or \$10 per linear foot, respectively, dependent on required grading and structures.

For properties where one new single family residence is being constructed, the owner is required to dedicate a trail easement if the Trails Master Plan indicates a trail is planned at that location. The city will provide the needed documents to dedicate the easement.

All other development projects require the property owner to prepare all the necessary documents to dedicate the trail easement and construct trail improvements if the Trails Master Plan indicates a trail is planned at that location.

**TABLE 5-7 : IMPLEMENTATION FRAMEWORK**

| TASK                                | COMPONENTS   |
|-------------------------------------|--|
| Planning                            | Concepts, coordination, technical leadership, regional/county corridor integration, feasibility study                                      |
| Environmental Review                | Initial study, Negative Declaration/Negative Declaration with Mitigation Measures/Environmental Impact Report (EIR), Mitigation Monitoring |
| Permitting, Design and Construction | Engineering and landscaping plan, acquisition, permitting, construction, inspection  |
| Management and Maintenance          | Trail operations and maintenance   |
| Promotion                           | Marketing and event planning   |
| Enforcement                         | Public safety; Ranger programs   |

## **CITY OF RIVERSIDE TRAIL COMMITTEE**

The City of Riverside should consider forming a long-term standing trail committee to manage future trail implementation in the city. The committee could establish a formal schedule to hear and review trail-related matters. The City may also choose to have the committee provide input on requests for variances from the Trails Master Plan that may be requested by property owners and developers. In addition, the committee could be tasked with identifying opportunities to develop new trails and partnering with other organizations to identify and pursue funding opportunities, organize and manage volunteers, and promote the trails and trail-related programs to the public.

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## Operations and Maintenance

Creating a comprehensive trails system within the City of Riverside requires a robust operations and maintenance plan. This includes designating staff to manage trail planning, coordination, and maintenance, and creating trail maintenance standards that outline required maintenance tasks and schedules.

### **OPERATIONS**

Trail operations refers to different trail elements and standards such as user rules and regulations, hours of operation, public safety and security, and trail closure and detour protocols. The City of Riverside's PRCSD maintains the City's park and recreation facilities. According to the City's Comprehensive Park, Recreation & Community Services Master Plan (2020), trails are considered to have a high community impact facility need, meaning it is important that they are well-maintained.

### **MAINTENANCE**

Maintenance can be routine or remedial, and may vary depending on trail configuration, land context, and amenities. Trails that experience higher use will likely require higher levels of maintenance than those

in lower demand areas. Similarly, trails that include trailheads and amenities, like seating, landscaping, and other elements, will also require additional maintenance work.

Routine maintenance refers to day-to-day tasks such as litter removal, debris removal, weed and dust removal, and vegetation trimming. Natural surface trails may require some additional tasks, such as minor re-grading. Some routine maintenance tasks can be completed on a seasonal basis.

Remedial maintenance refers to repairing, replacing, or restoring major components that have been destroyed, damaged, or significantly deteriorated.

Property owners of lots adjacent to or fronting on any portion of a trail between a street line and their property are responsible for keeping that area in safe condition for public use (City of Riverside Municipal Code Chapter 13.10-Maintenance and Repair of Sidewalks and Trails).

Table 5-8 outlines typical maintenance tasks and their suggested frequency.



## Maintenance Costs

Typical trail maintenance costs vary greatly, depending on the length of the trail, the type of materials used, the level of amenities involved, and the intensity of use. Average per-mile maintenance costs for trails and Class I facilities across the United States

range from approximately \$8,500 per mile per year (Santa Ana River Trail) to well over \$100,000 (American River Parkway, Sacramento, CA; Katy Trail, Dallas, TX). National average costs per task are outlined in Table 5-9.

**TABLE 5-8 : TRAIL MAINTENANCE TASKS**

| TASK  | SUGGESTED FREQUENCY        |
|---|----------------------------|
| Trash disposal                              | Daily                      |
| Restroom maintenance                        | Daily                      |
| Litter pick-up                              | Weekly                     |
| Landscaping                                 | Weekly                     |
| Sweeping and debris removal                 | Weekly; after rain events  |
| Trail surface, sign, and fencing inspection | Monthly; after rain events |
| Culvert inspection                          | After rain events          |
| Sign repair/replacement                     | 1-3 years; as needed       |
| Trail surface repair                        | 1-3 years; as needed       |
| Vegetation trimming                         | Bi-annually; as needed     |
| Re-grading                                  | As needed                  |
| Gates and fencing repair                    | As needed                  |
| Culvert clean-out                           | As needed                  |
| Site furnishing repair/replacement          | As needed                  |

**TABLE 5-9 : ESTIMATED MAINTENANCE COSTS PER MILE (NATIONAL AVERAGES)**

| TASK                               | AVERAGE COST       |
|------------------------------------|--------------------|
| Restroom maintenance               | \$500 - \$1,000    |
| Litter pick-up                     | \$8,000            |
| Landscaping                        | \$5,000 - \$8,000  |
| Sweeping and debris removal        | \$1,200 - \$2,500  |
| Sign repair/replacement            | \$200 - \$800      |
| Trail surface repair               | \$5,000 - \$10,000 |
| Vegetation trimming                | \$15,000           |
| Re-grading                         | \$50,000           |
| Gates and fencing repair           | \$500 - \$1,500    |
| Culvert clean-out                  | \$400 - \$800      |
| Site furnishing repair/replacement | \$500-\$2000       |

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## Funding Sources

There are a variety of funding sources available for trail planning. These include federal, state, and regional and local sources, as well as private sources such as nonprofit and foundation grants.

### **EXISTING & POTENTIAL CITY FUNDING MECHANISMS**

#### **Impact Fees and Conditions**

Securing access to private lands and accumulating funds for capital improvements, operations, and maintenance of trails is a persistent challenge in trail building, and municipalities often utilize development impact fees and conditions for approval as tools for securing such access and funding.

Developers are typically required to pay impact fees prior to issuance of a building permit. The range of development fees varies widely throughout the United States, though they are typically assessed on a per-unit basis for residential, and a per-square-foot basis for non-residential projects.

Impact fees specifically allocated to trails building and maintenance are relatively rare. More often than not, they are rolled into a parks/recreation fee, with some communities specifying a percentage of

these fees that should be applied to trails. In addition to impact fees, some municipalities utilize conditions for approval - often requiring consultation with planning staff - to ensure public trails and design guidelines found in a Trails Master Plan are included in approved development plans.

Riverside currently assesses a \$78 per acre Trail Development Fee for all private development, except that any single family lot in excess of one gross acre shall be charged \$78 per lot, which must be paid prior to the issuance of a building permit. The City may want to update this assessment fee and approach to align it with trail building, operations, and maintenance plans identified in this Plan.

#### **Municipal Bonds**

Municipal bonds are largely used for capital projects, including recreational trails and trail elements. The bonds are loans that governments borrow to pay for capital projects over a given period of time.

#### **Capital Improvement Plan (CIP)**

CIPs are a short term budgetary process where local jurisdictions identify and prioritize projects. Generally, these plans are geared towards infrastructure improvements rather than maintenance. These plans aim to identify and collate the projects over the next few years.

## **User Fees**

Many parks and trails require users to pay for the use of the facility. In larger parks, there is generally an entry gate which enables the park to collect entry fees. Some parks and trails do not collect user fees, but allow for the local volunteer group to place a donation box at trailheads to raise funds for trail capital projects. User fees would be regulated by City, and can be directed specifically to maintenance funds.

## **Adopt-A-Trail (AAT)**

The City of Riverside could implement an AAT program to garner volunteer support and funding for ongoing trail maintenance and operations. The program could be modeled after the Riverside County Regional Park & Open-Space District's existing AAT program, the City Public Works Department's Adopt-A-Street Program, and/or the City's Adopt-A-Park program.

## **STATE**

### **Active Transportation Program (ATP), California Transportation Commission and Caltrans**

ATP combines federal and state funding to encourage increased use of active modes of transportation throughout the state. The funding is distributed through both a statewide competition and regional pools and can be used both for infrastructure and non-infrastructure projects.

### **Recreational Trails Program (RTP), administered by California Department of Parks and Recreation (CDPR)**

RTP provides federal funds annually to all levels of government for recreational trails and trails-related projects, and in California is administered by CDPR. Applicants must match at least 12% of the total project cost.

### **Parks and Water Bond Act of 2018 (Proposition 68)**

Proposition 68, also known as the "Parks, Environment, and Water Bond Act of 2018" from the California Natural Resources Agency, funds a variety of trail-related projects through its Trail, Statewide Park, Regional Park, and Per Capita Programs.

## **FEDERAL**

### **Transportation Investment Generating Economic Recovery (TIGER)**

U.S. Department of Transportation TIGER is a yearly discretionary grant program that funds innovative, multimodal, and multi-jurisdictional transportation projects that promise significant economic and environmental benefits to an entire metropolitan area, region, or nation. However, this grant does not fund planning, preparation, or design of capital projects.

**Community Development Block Grant Program (CDBG) U.S. Department of Housing and Urban Development (HUD)**

CDBG is a grant program that can be used for a variety of different projects, including trail construction. The CDBG Entitlement Program provides annual grants to municipalities of at least 50,000 people and counties, and the Section 108 Loan Guarantee Program provides loan guarantees for local government or third-party developers.

**Smart Growth Program, Environmental Protection Agency**

The Smart Growth Program provides communities with grants and technical assistance to expand economic opportunity while protecting human health and the environment.

**Rivers, Trails and Conservation Assistance (RTCA) Program, National Park Service (NPS)**

RTCA, a community assistance arm of the NPS, provides technical assistance to a variety of agencies and organizations in order to preserve open space and develop trails. RTCA's funds can be used for developing plans, engaging the public, and identifying other sources of funding for conservation and outdoor recreation projects. Applications are due annually by June 30th.

**Land and Water Conservation Fund (LWCF) Grants, National Park Service (NPS)**

LWCF is a matching grant program for states and local governments for the acquisition, planning, and development of public outdoor recreation areas and facilities. Since 1949, 75% of funds have gone to locally sponsored projects to provide close-to-home recreation opportunities.

On August 4, 2020, the Great American Outdoors Act was signed into law, permanently funding the LWCF. The legislation provides up to \$1.9 billion per year for five years to fund maintenance for infrastructure and facilities in national parks, forests, and outdoor recreation areas. In addition, the legislation designates \$900 million per year for the LWCF.

**PRIVATE**

**Community Grant Program, PeopleForBikes**

A coalition of bicycle suppliers and retailers, PeopleForBikes provides funding for the design and construction of important and influential bicycle infrastructure projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike trails, end-of-trip facilities, bridges, etc. An applicant may request up to \$10,000 and

funding should be less than 50% of project budget. Leverage and funding partnerships are important to this program. There are one to two grant cycles per year.

### **Plan4Health Coalitions, American Planning Association (APA) and American Public Health Association (APHA)**

Plan4Health Coalitions funds projects that build local capacity in addressing population health goals and promoting the inclusion of health in non-traditional sectors such as transportation. Each proposal must address inactivity, unhealthy diets and/or health equity. The average funding amount is \$150,000, and no more than two awards granted in a single state.

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## **Partnerships**

Several agencies and organizations throughout Riverside County play a role in managing and maintaining the countywide trail network. These agencies and organizations provide funding and support for trail planning, construction, and maintenance, well as trail promotion and natural resource education.

In addition, several of these agencies and organizations own land throughout the County of Riverside, and therefore have a key role and interest in developing a comprehensive, high-quality trail network in the City of Riverside and beyond.

The City of Riverside should consider partnering with these entities for assistance and support with trail planning, implementation, maintenance, and promotion/marketing.

### **PUBLIC**

#### **Federal + State**

Potential federal and state partner agencies include:

- National Park Service (NPS)
- Bureau of Land Management (BLM)
- US Fish and Wildlife Service

- US Forest Services (USFS)
- California Department of Parks and Recreation
- California Department of Fish and Wildlife

These agencies are the primary sources of governmental grant funding for trail development and maintenance.

### **Regional + Local**

Several regional and local entities are involved in trail planning, development, and advocacy. Potential regional and local partners include:

- March Joint Powers Authority (JPA)
- Riverside-Corona Resource Conservation District
- Riverside County Habitat Conservation Agency (RCHCA)
- Riverside County Health Coalition (RCHC)
- Riverside County Regional Park & Open Space District (RCRPOSD)
- Riverside County Transportation Commission
- Riverside County Transportation Department
- Riverside Economic Development Agency
- Southern California Association of Governments (SCAG)
- Western Riverside Council of Governments (WRCOG)
- Western Riverside County Regional Conservation Authority (RCA)
- University of California, Riverside

### **PRIVATE**

Private organizations range from trail-specific organizations and environmental groups to business chambers and organizations. All could be potential partners in trail development, maintenance, and programming. These organizations include:

- Greater Riverside Chamber of Commerce
- Center for Natural Lands Management (CNLM)
- Inland Empire Waterkeeper
- Riverside County Parks Foundation
- Sierra Group
- Friends of Hidden Valley Preserve
- Friends of Riverside Hills
- Inland Valley Mountain Bike Association
- Riverside County Trails
- Riverside Community Health Foundation

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## Land Acquisition

Some of the proposed trails identified in this Plan will require the City of Riverside to acquire new land. Many agencies acquire land and all rights contained therein through fee simple land purchases, which involves the outright purchase of the land and all rights to it.

Sometimes, agencies will acquire the land rights to a piece of land for a particular purpose, such as protecting it from land development or using it for a given purpose. This is referred to as less-than-fee simple acquisition, or easement purchases. Agencies often acquire land rights from private sector or private entities for trails to close gaps within trail networks.

Another land acquisition strategy is the option to ask a landowner for “right of first refusal,” where an entity is given the right to make an offer on the land without a guarantee of the right to sell.

Finally, land undergoing development is sometimes required to be used for a trail because of zoning and development regulations. Developers or owners of property, where the Trails Master Plan indicates that a trail is planned, are required to dedicate a trail easement, and for projects larger than one single family residence, are required to construct trail improvements.