



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

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 23. The Trails Master Plan

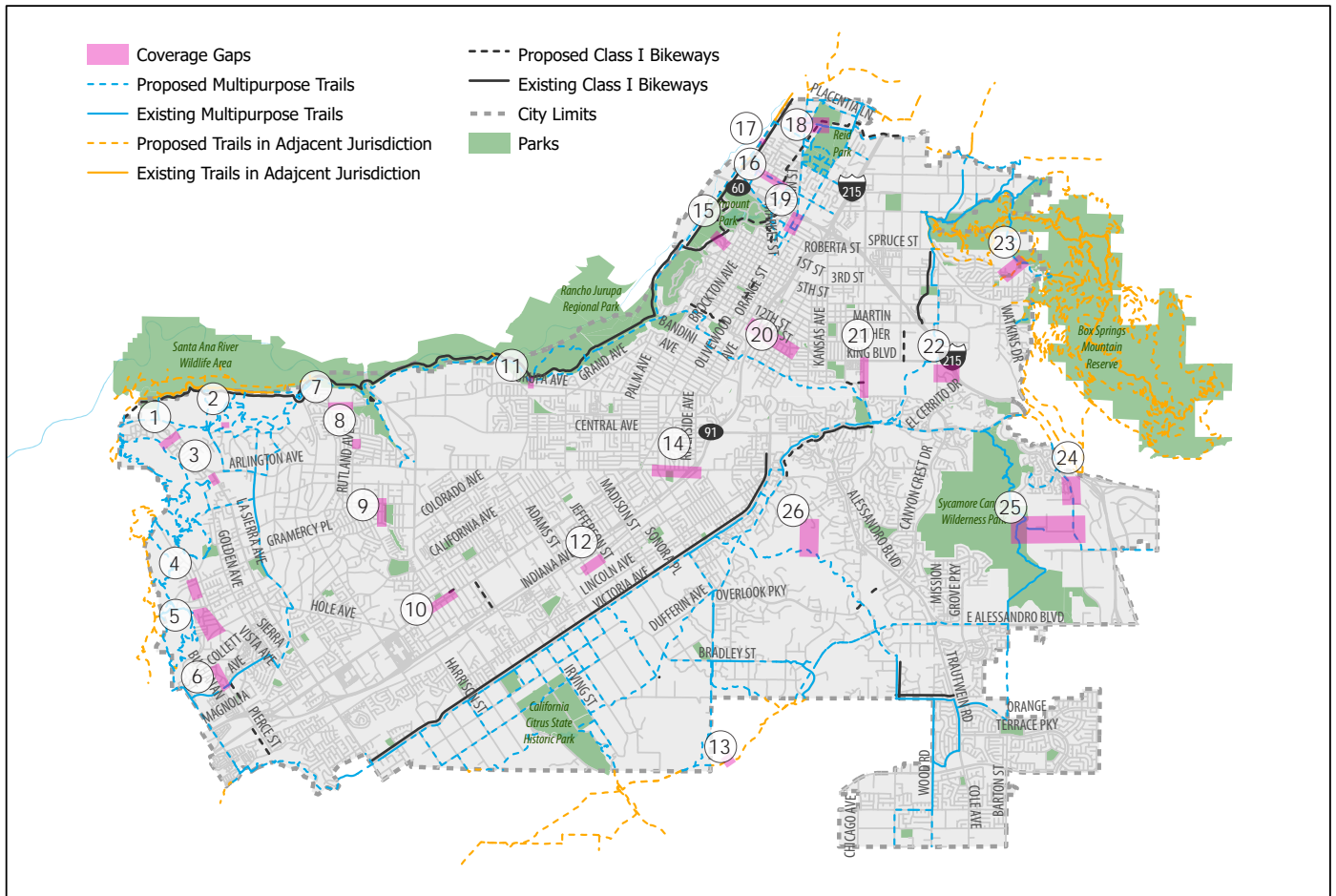
provides an opportunity to address these gaps, improving access and connectivity for the City of Riverside’s many residents.

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 23 : 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

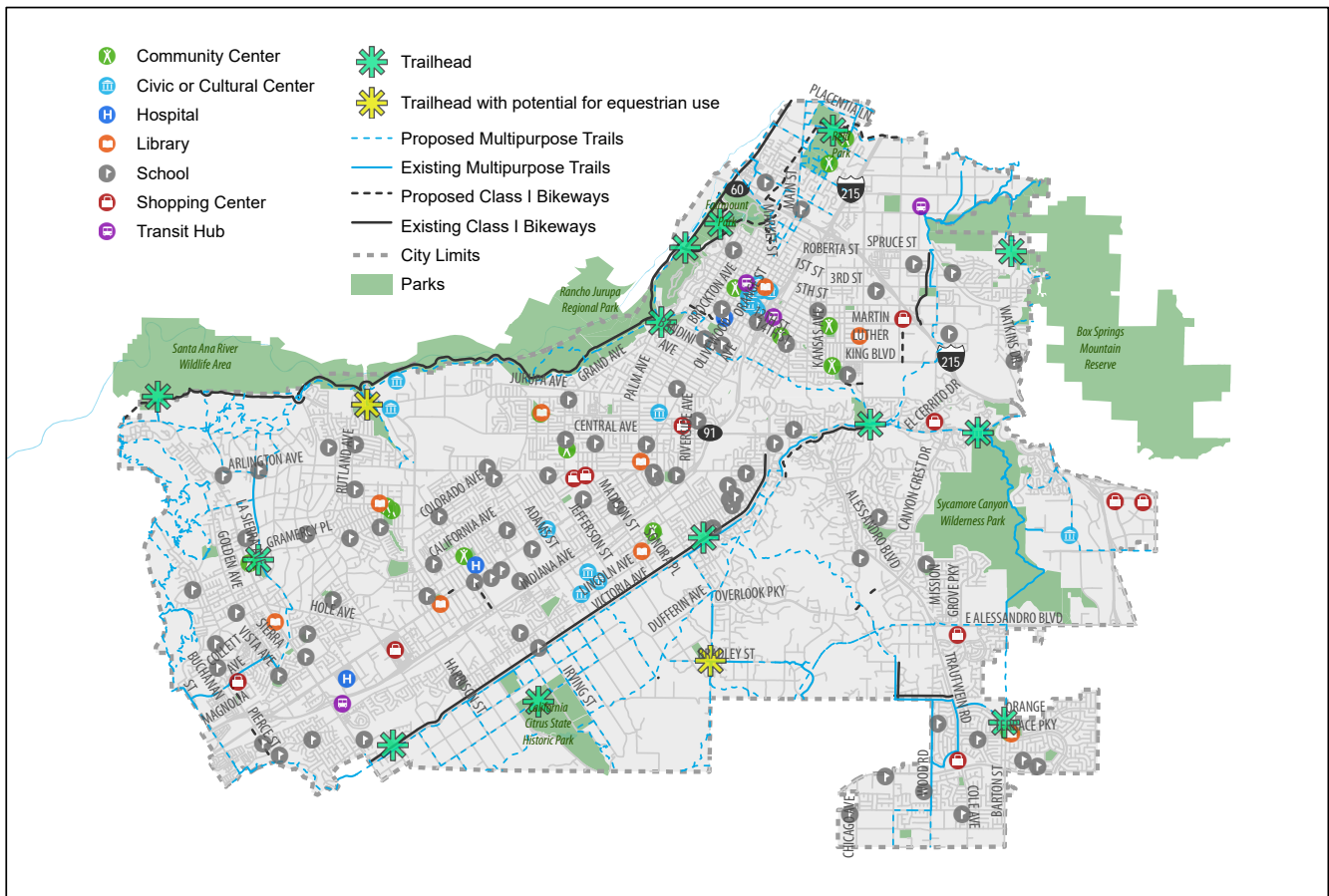
Connections to Trails

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 24 shows proposed trails and the destinations they connect to.

FIGURE 24 : COMMUNITY DESTINATIONS



CONSTRAINTS

Geographic Constraints

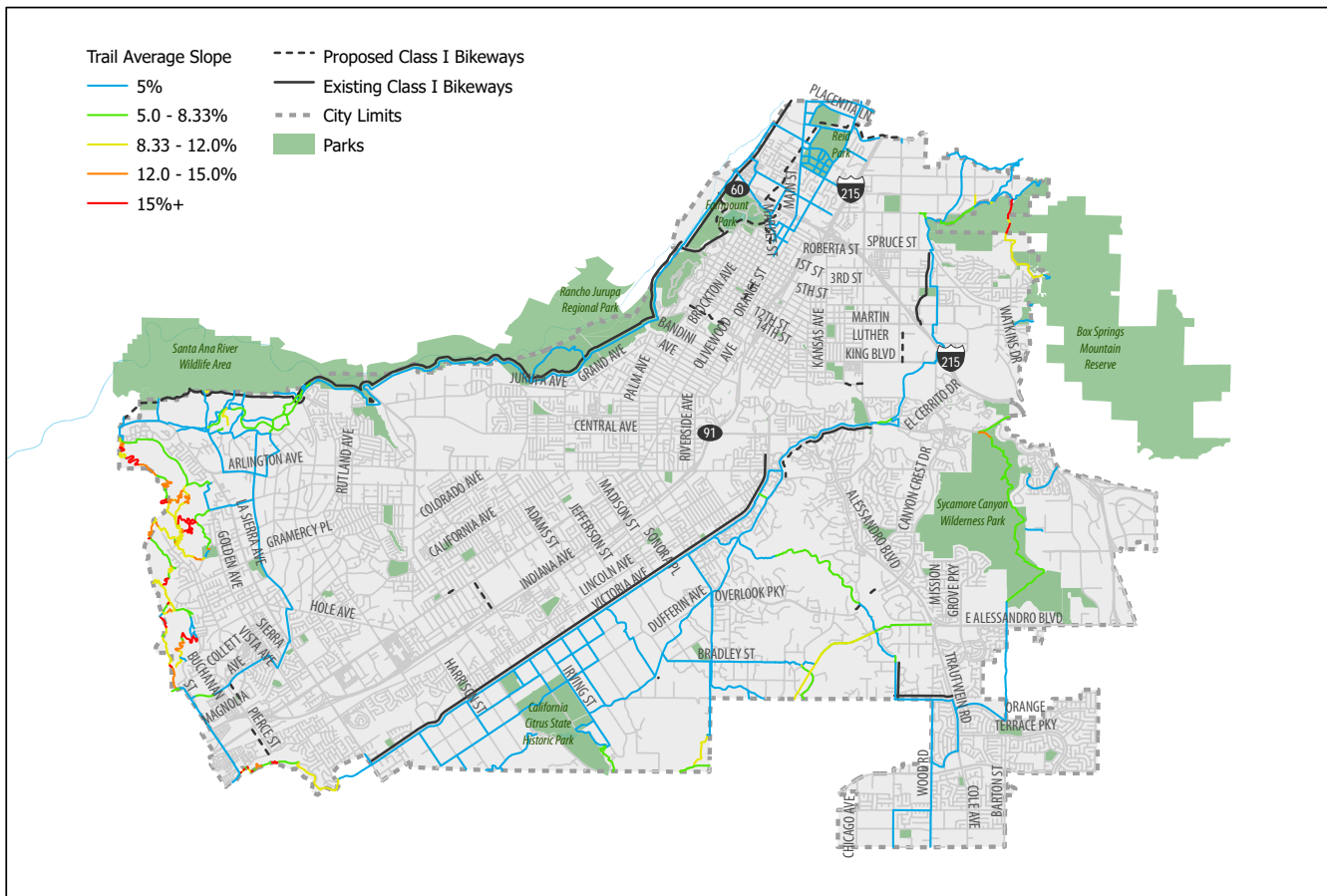
There are some topographic constraints that impact trail alignments within the City of Riverside. The project team conducted a slope analysis to identify the number of trail segments that have an average slope greater than 15% and stretches with slopes that are higher. The identified trails were realigned 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 25 : TRAIL AVERAGE SLOPE



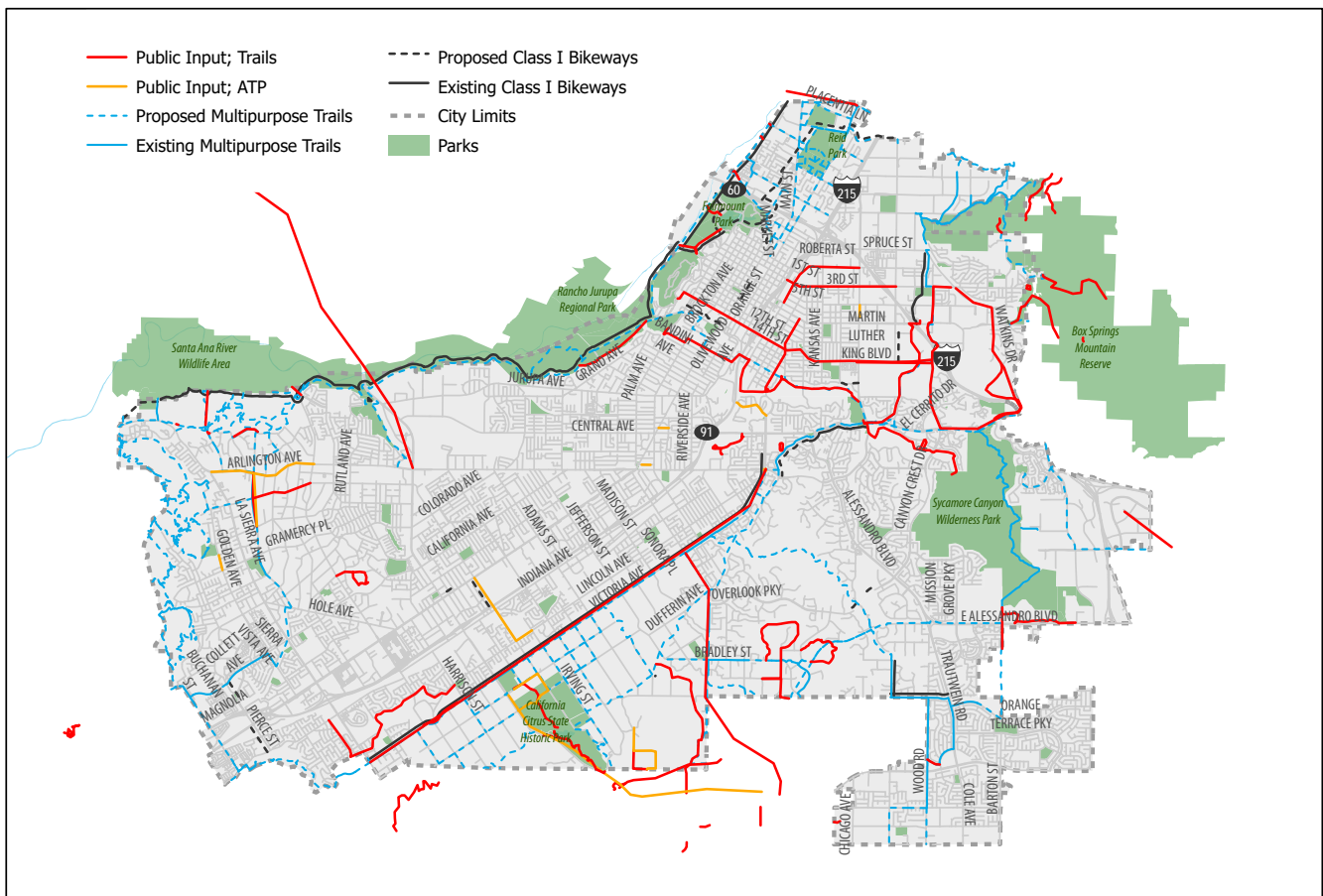
Public Input

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 26.

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 27.

FIGURE 26 : PUBLIC INPUT MAP



Technical Advisory Committee (TAC)

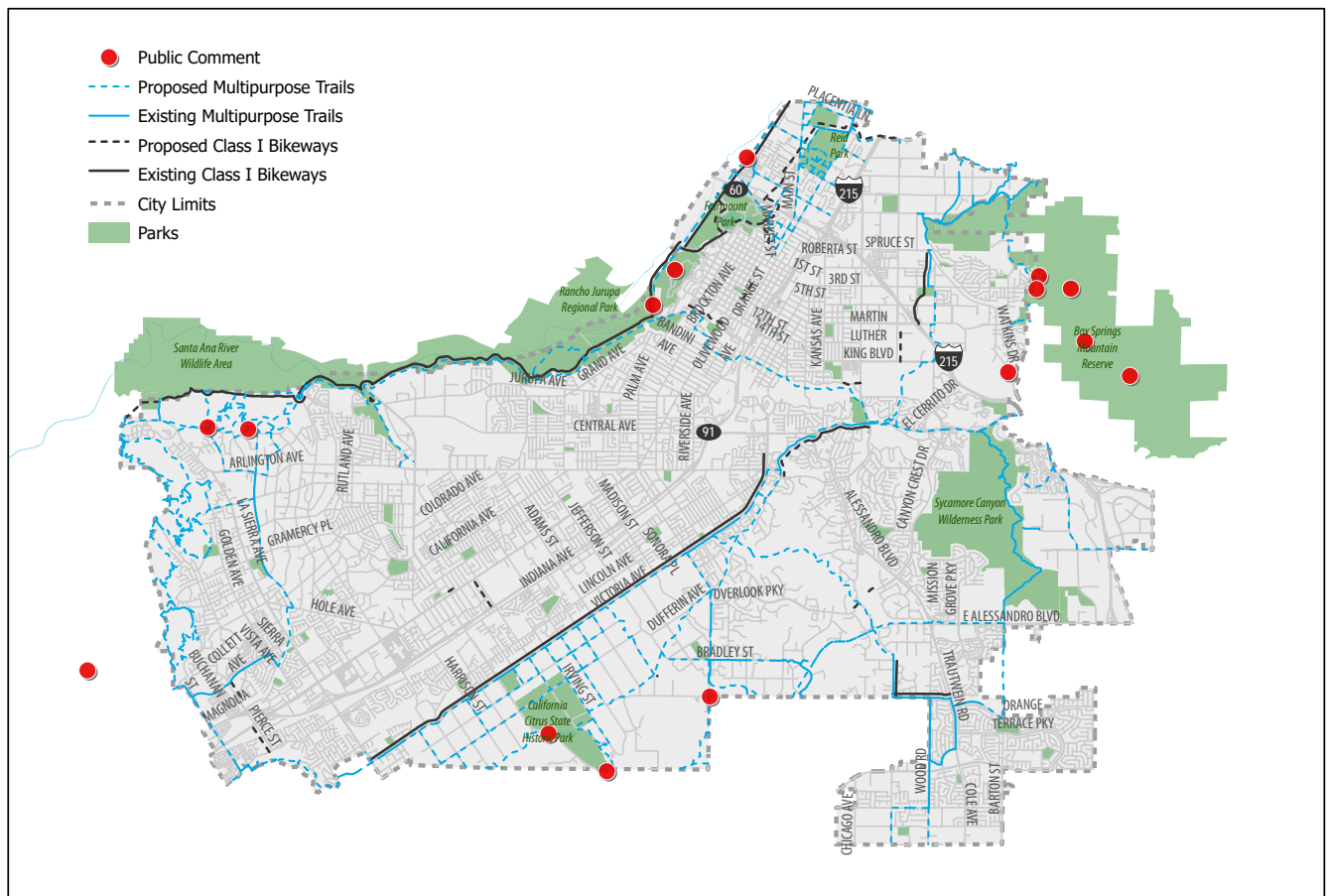
On July 23rd, 2020, the TMP project team held the first of two TAC meetings. The purpose of the meeting was to hear from a group of passionate community members in a focused discussion on topics related to the development of the TMP.

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 27 : 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.

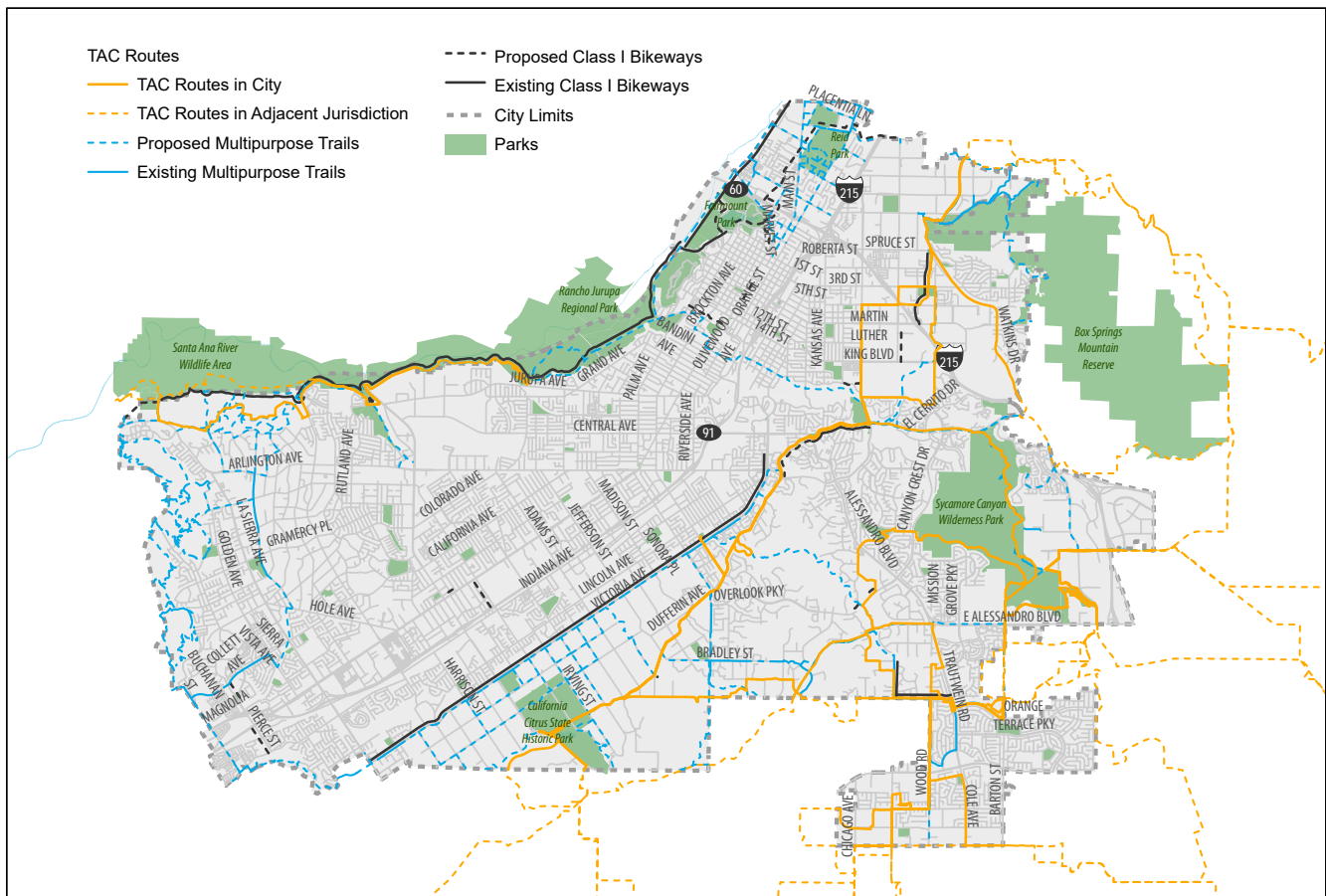
The TAC also provided feedback on a trail network prioritization process that considers equity, connectivity, feasibility, and public support. Committee members voiced that connectivity should be a high priority because it is crucial for reducing vehicle miles traveled (VMT) and transportation impacts. 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 28.

FIGURE 28 : TAC-IDENTIFIED ALIGNMENTS



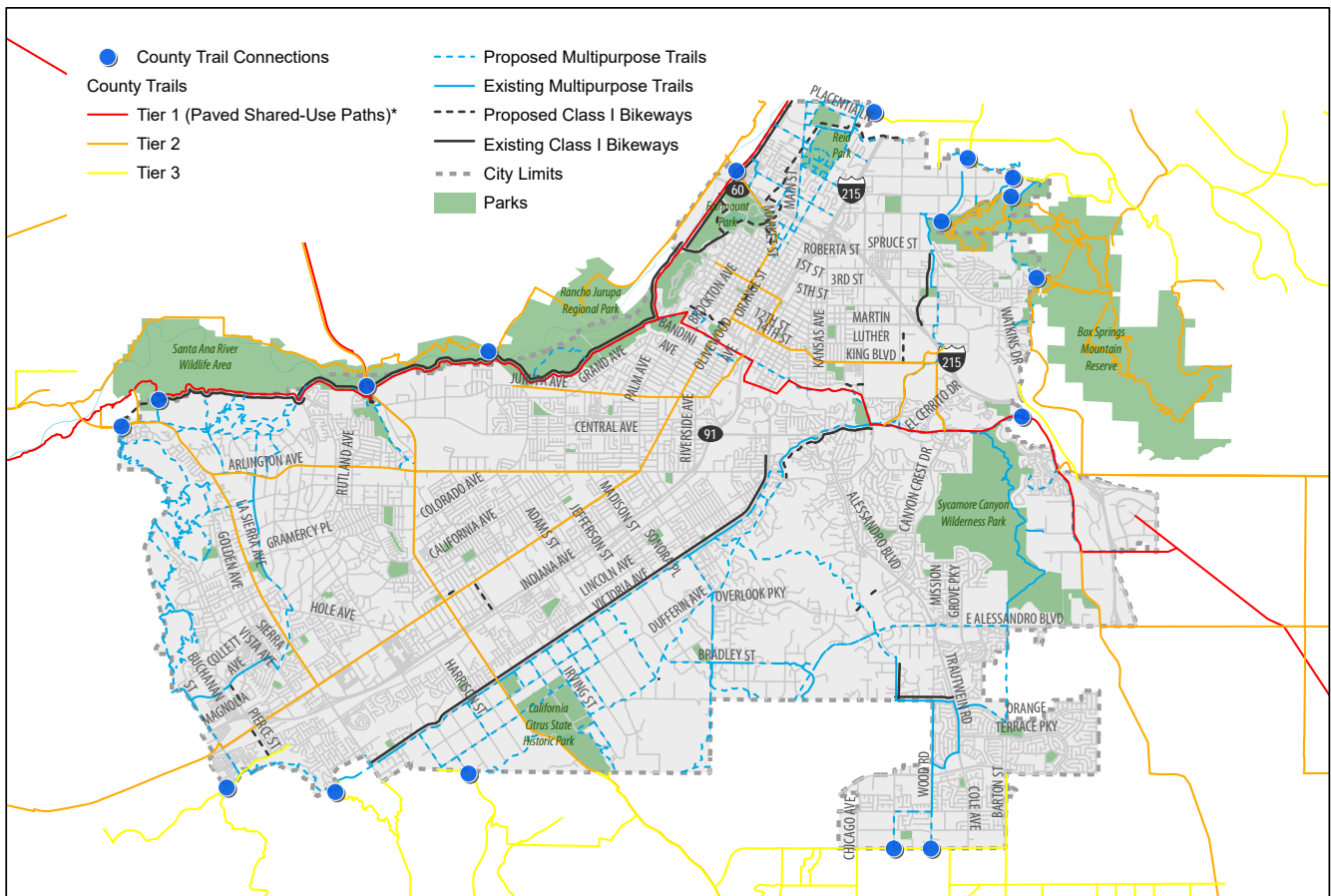
CONNECTIONS TO ADJACENT TRAILS

The proposed network includes several connections to trails in adjacent jurisdictions. Figure 29 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 29 : CONNECTIONS TO ADJACENT JURISDICTIONS



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

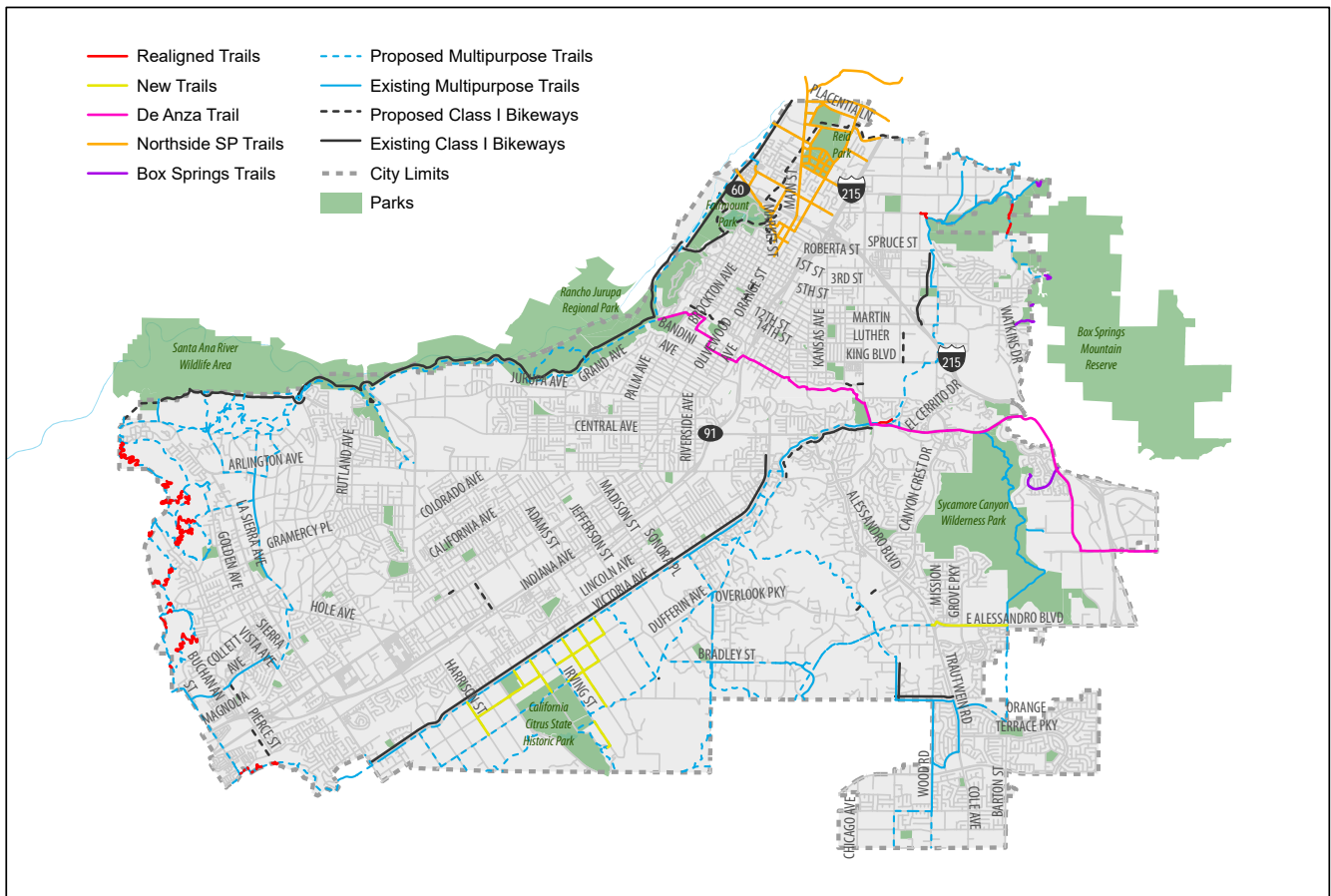
NEW AND MODIFIED TRAILS

In order to avoid significant new property conflicts, new trails 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 30.

FIGURE 30 : 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 31 : TRAIL CORRIDORS

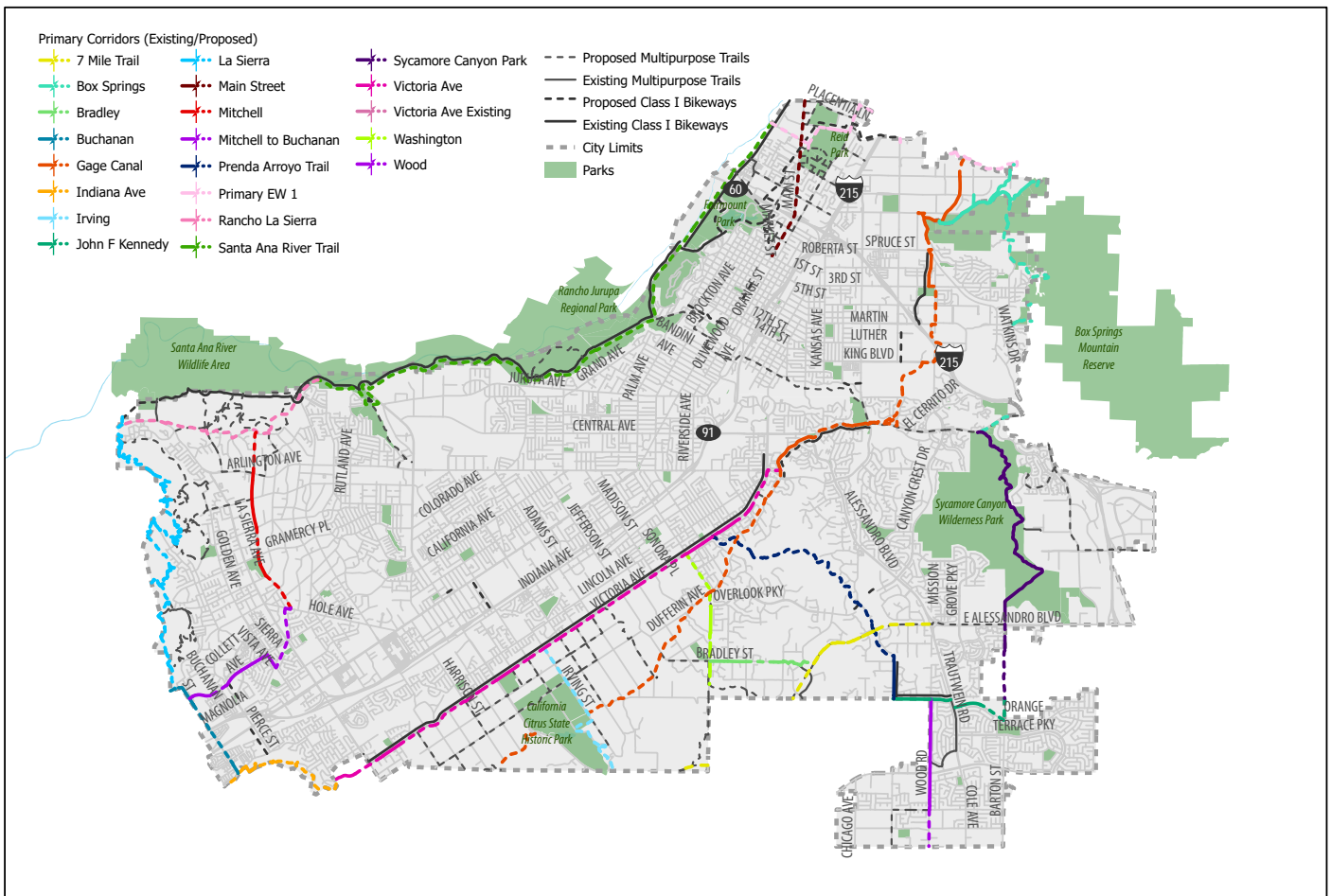


TABLE 3 : TRAIL CORRIDORS

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.

Section 5: Implementation Plan



Bountiful Street Roadside Trail

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 4 summarizing the data that is used in the evaluation.

TABLE 4 : 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 32 : DISADVANTAGED COMMUNITIES PER CAL ENVIRO SCREEN

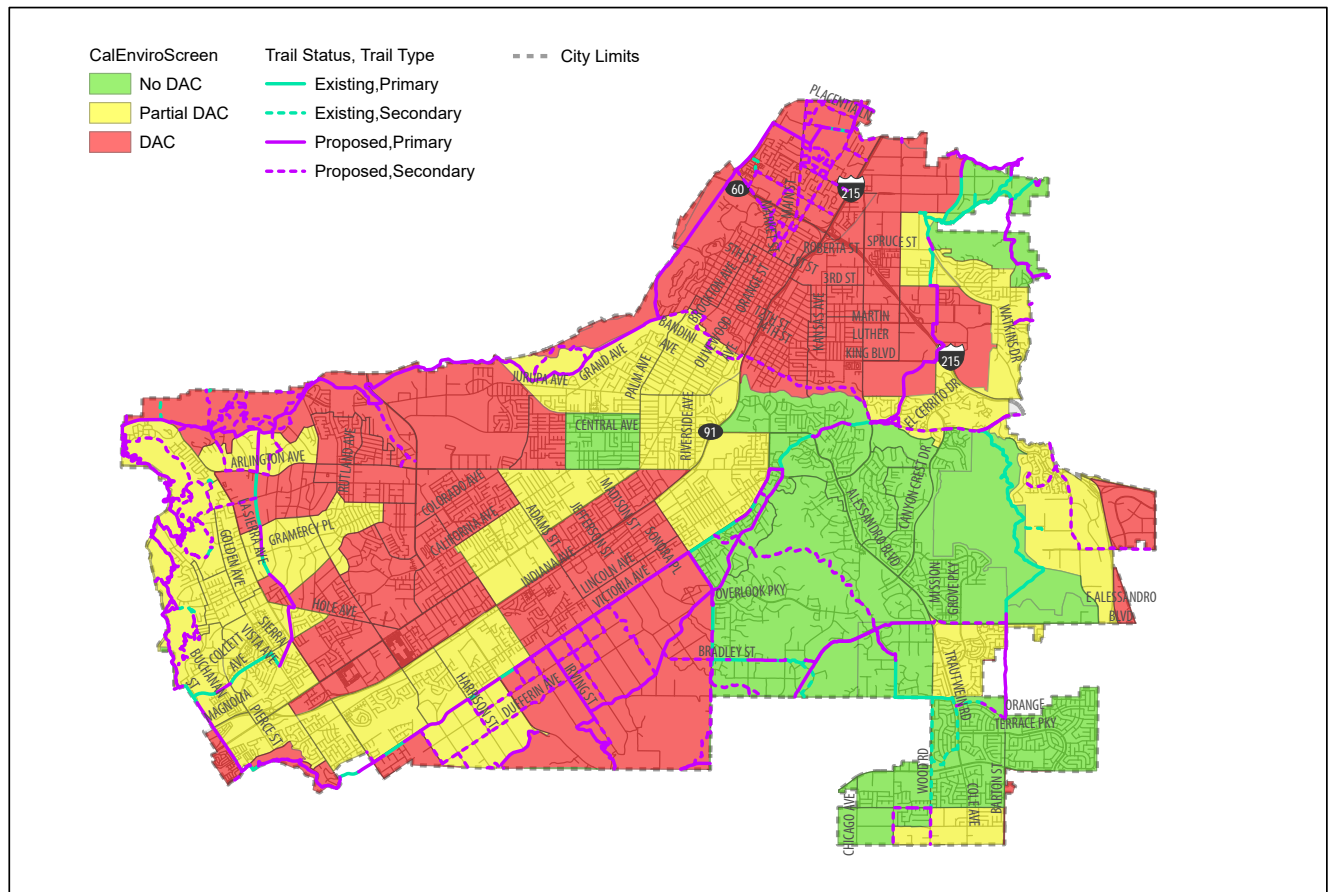
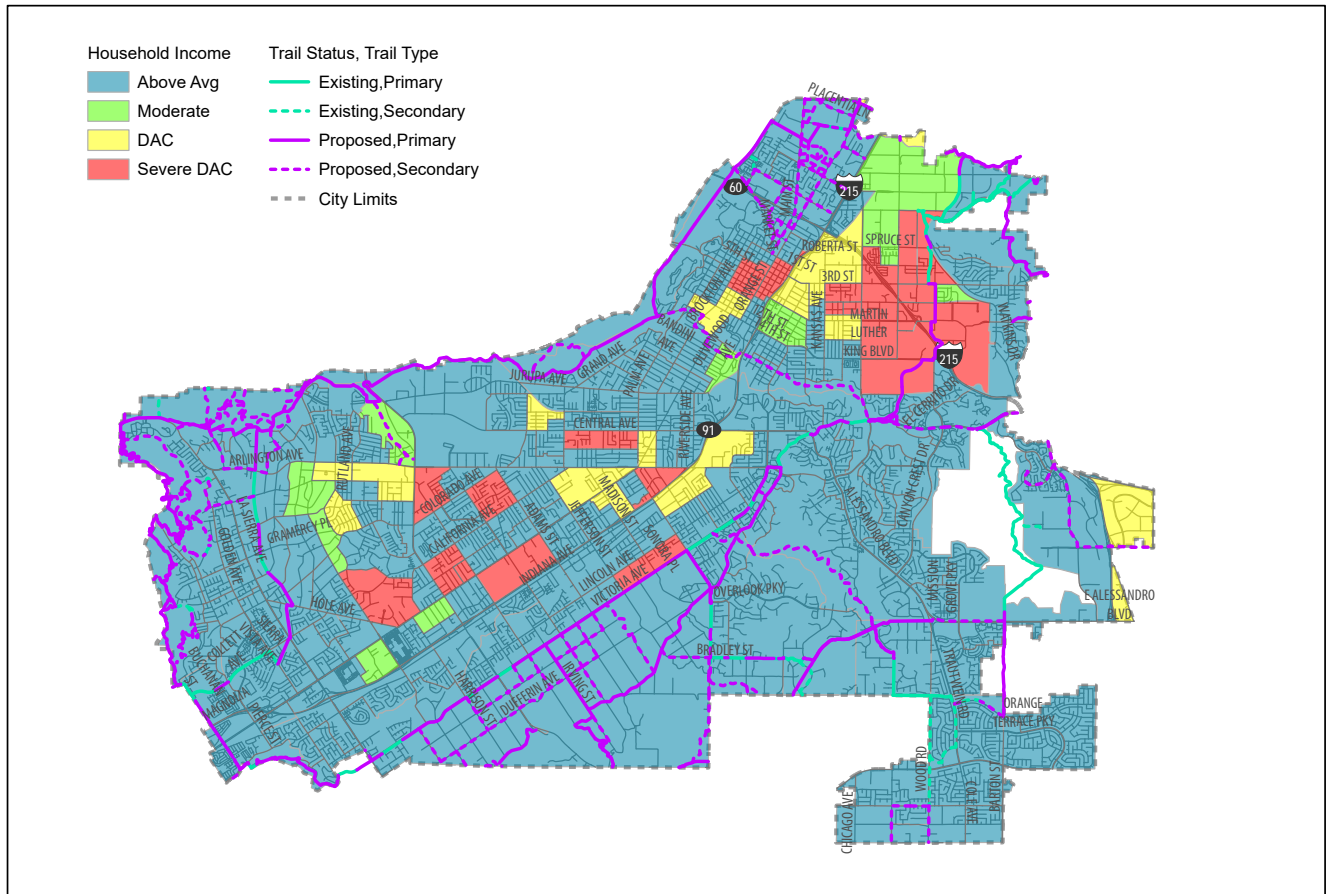


FIGURE 33 : DISADVANTAGED COMMUNITIES PER MEDIAN HOUSEHOLD INCOME



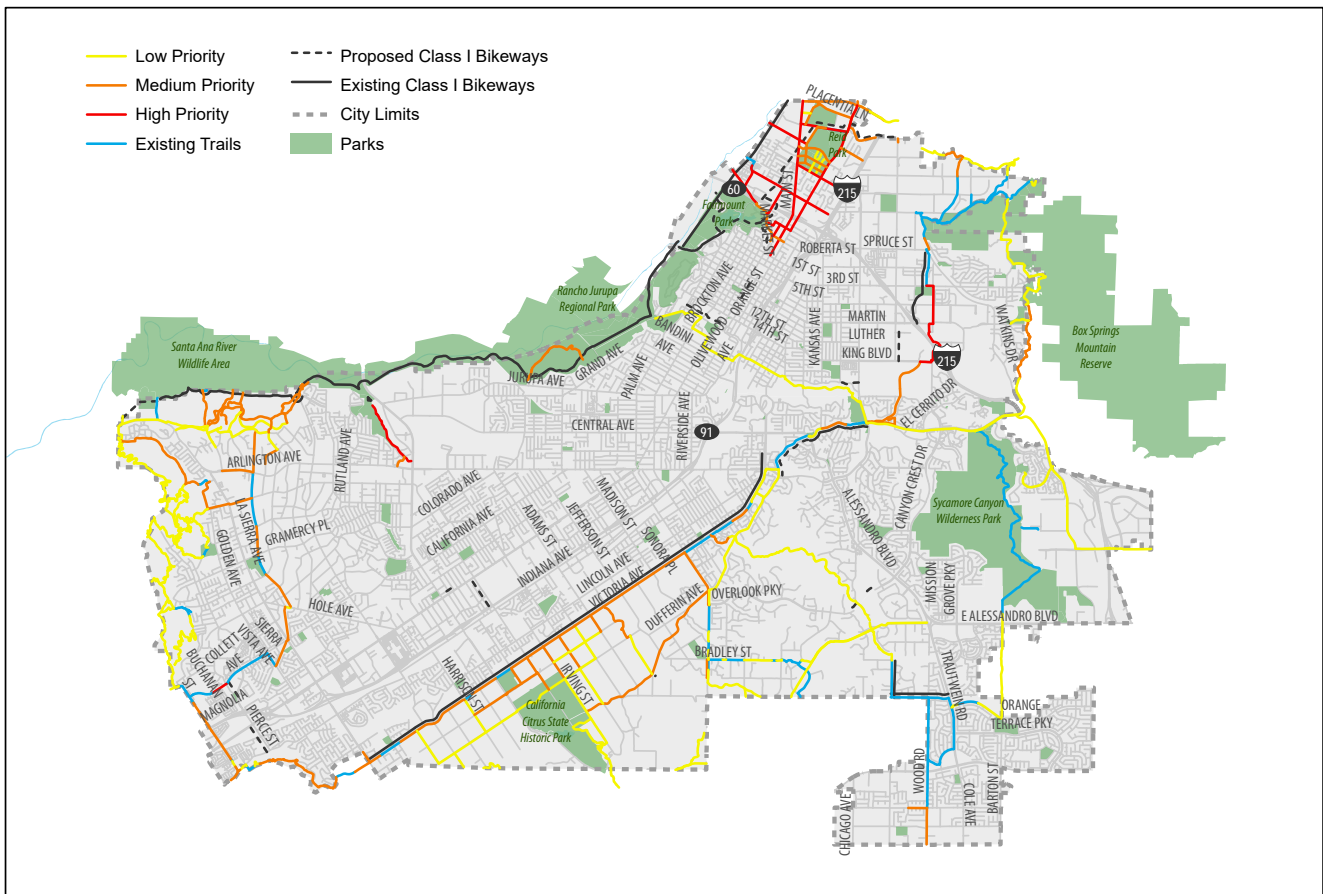
Connectivity

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 Cal Enviro Screen. 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 34 : 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

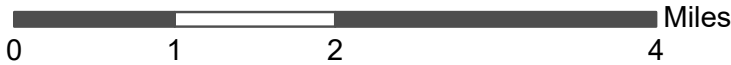
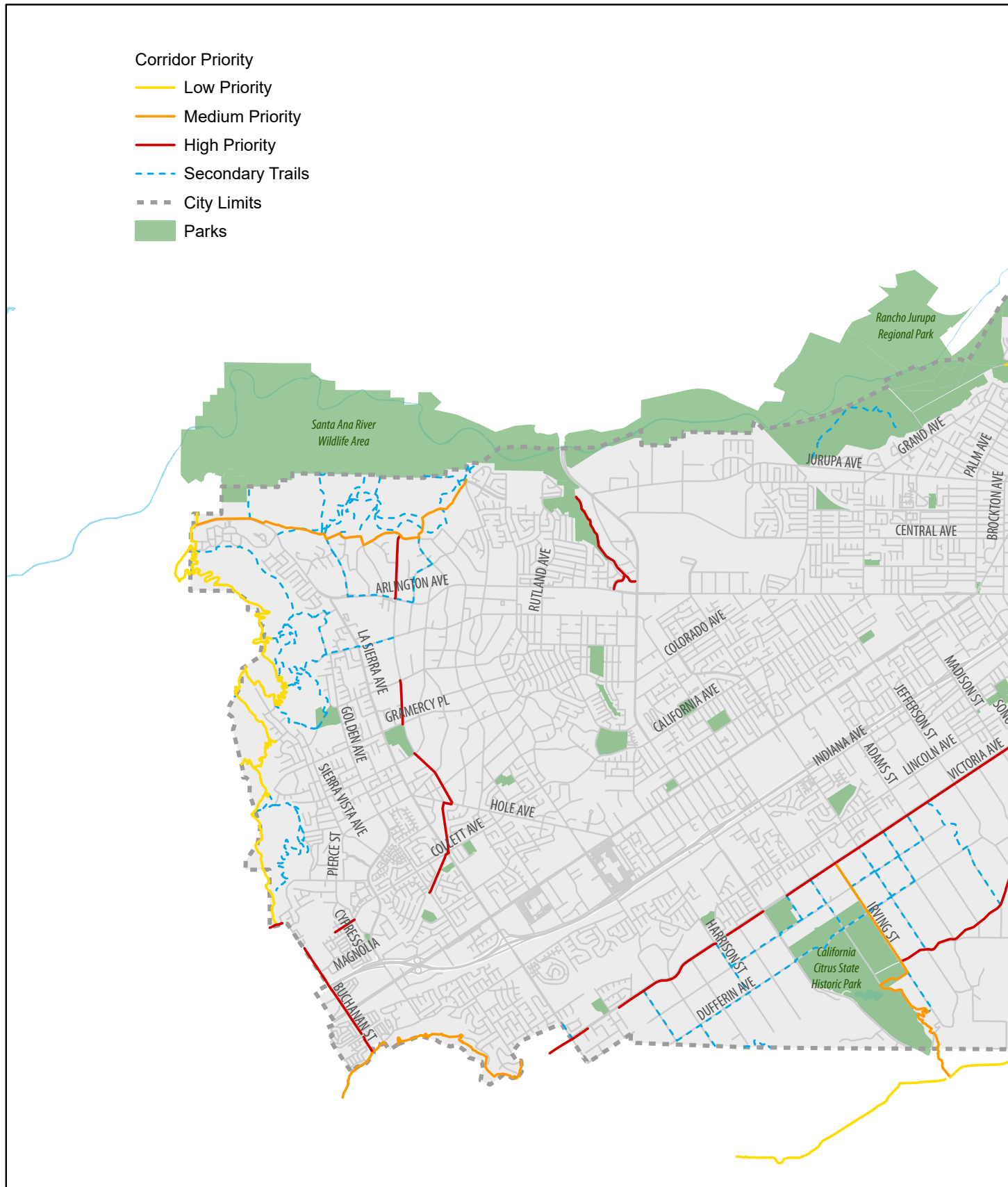
Trails having received specific public support, through outreach, the technical advisory committee, or through other recent planning efforts with dedicated outreach.

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 5: Network Prioritization”

FIGURE 35 : TRAIL CORRIDOR COMPOSITE PRIORITIZATION SCORE



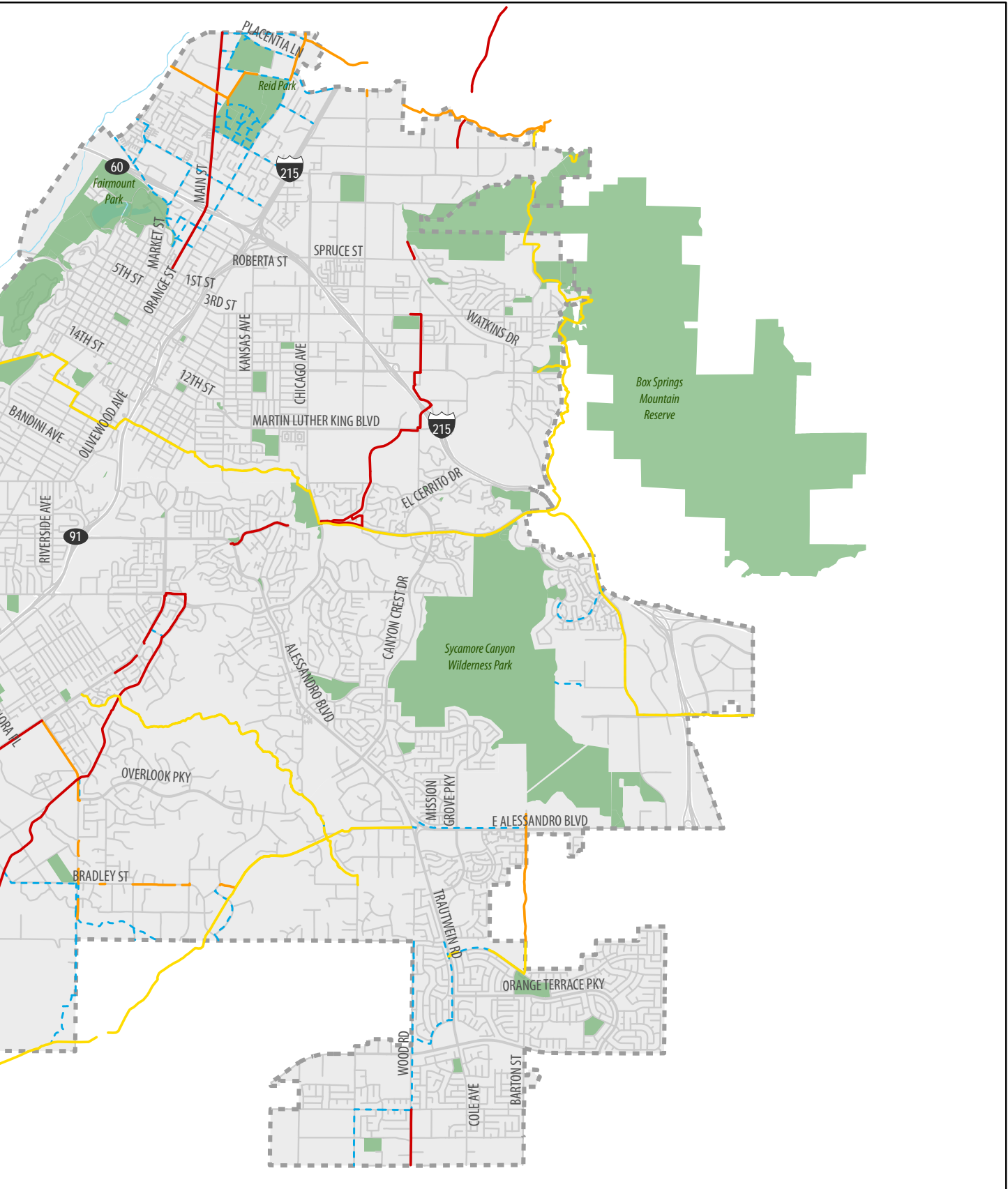
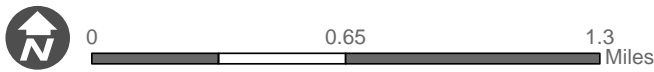
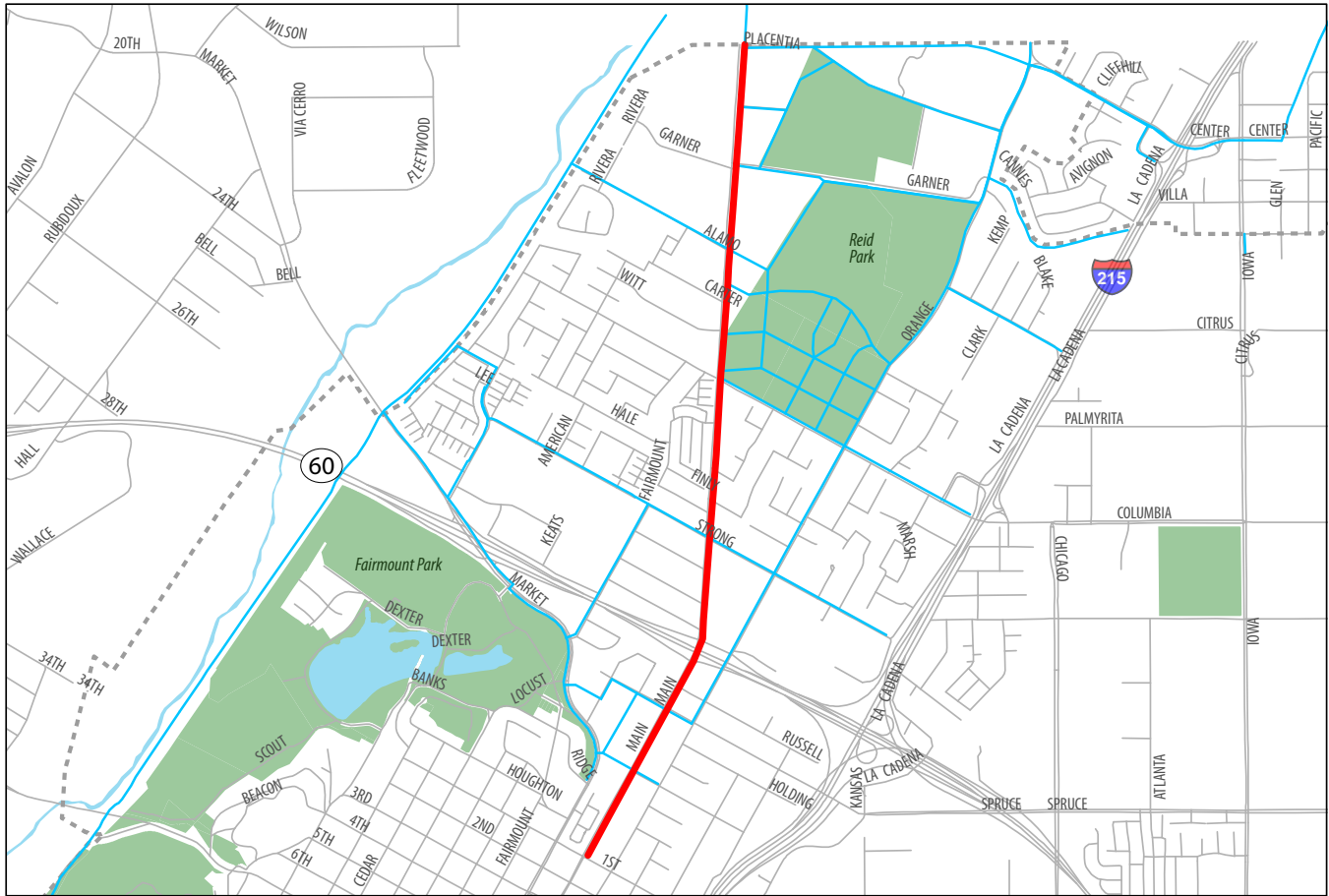


TABLE 5 : TOP-RANKED CORRIDORS

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 36 : MAIN STREET TRAIL CORRIDOR



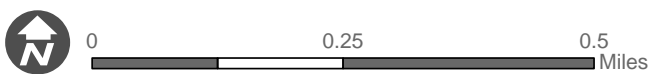
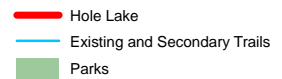
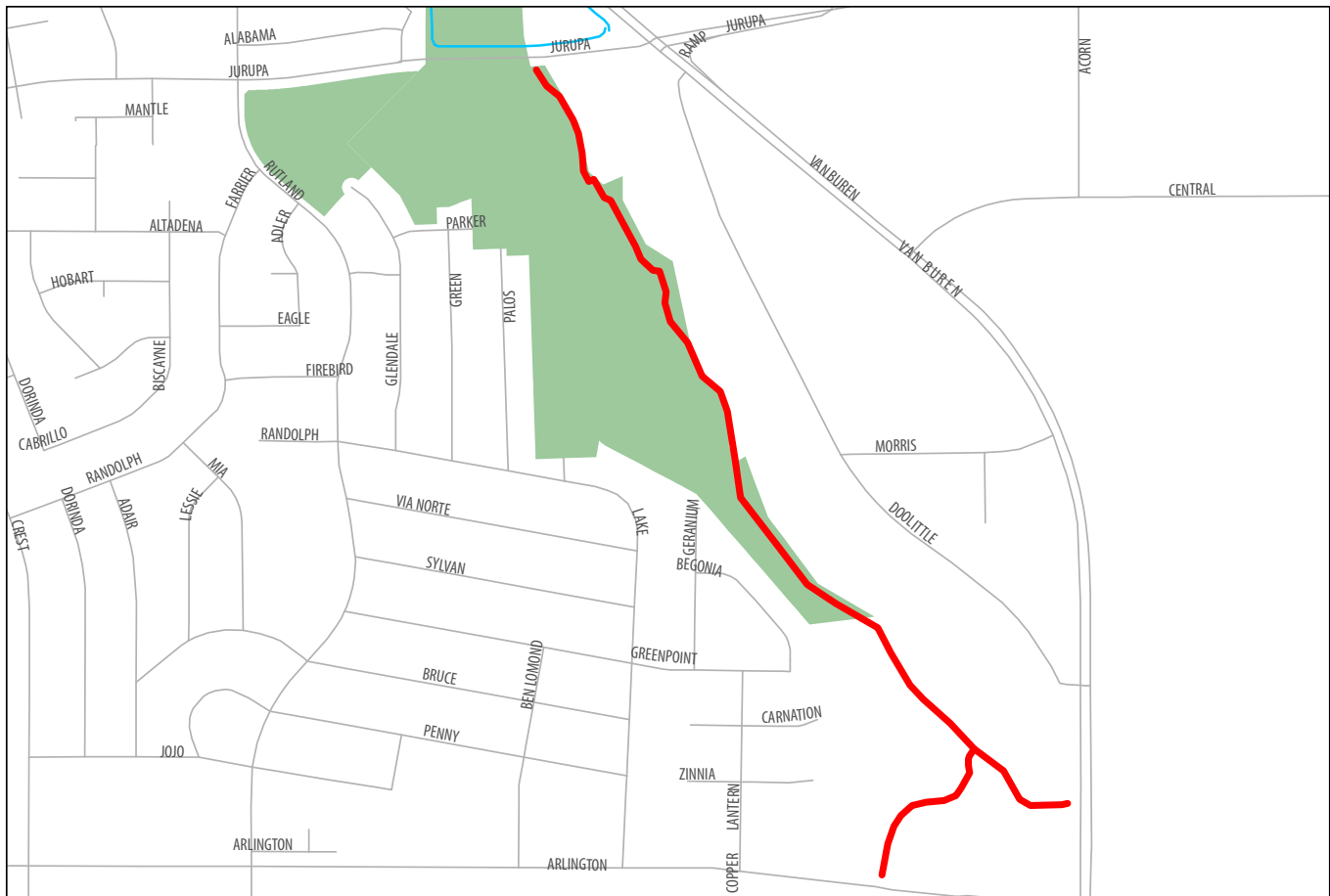
- Main Street
- Existing and Secondary Trails
- - - City Limits
- Parks

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 37 : HOLE LAKE TRAIL CORRIDOR

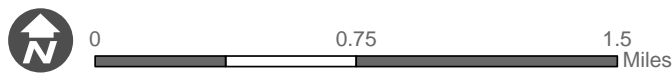
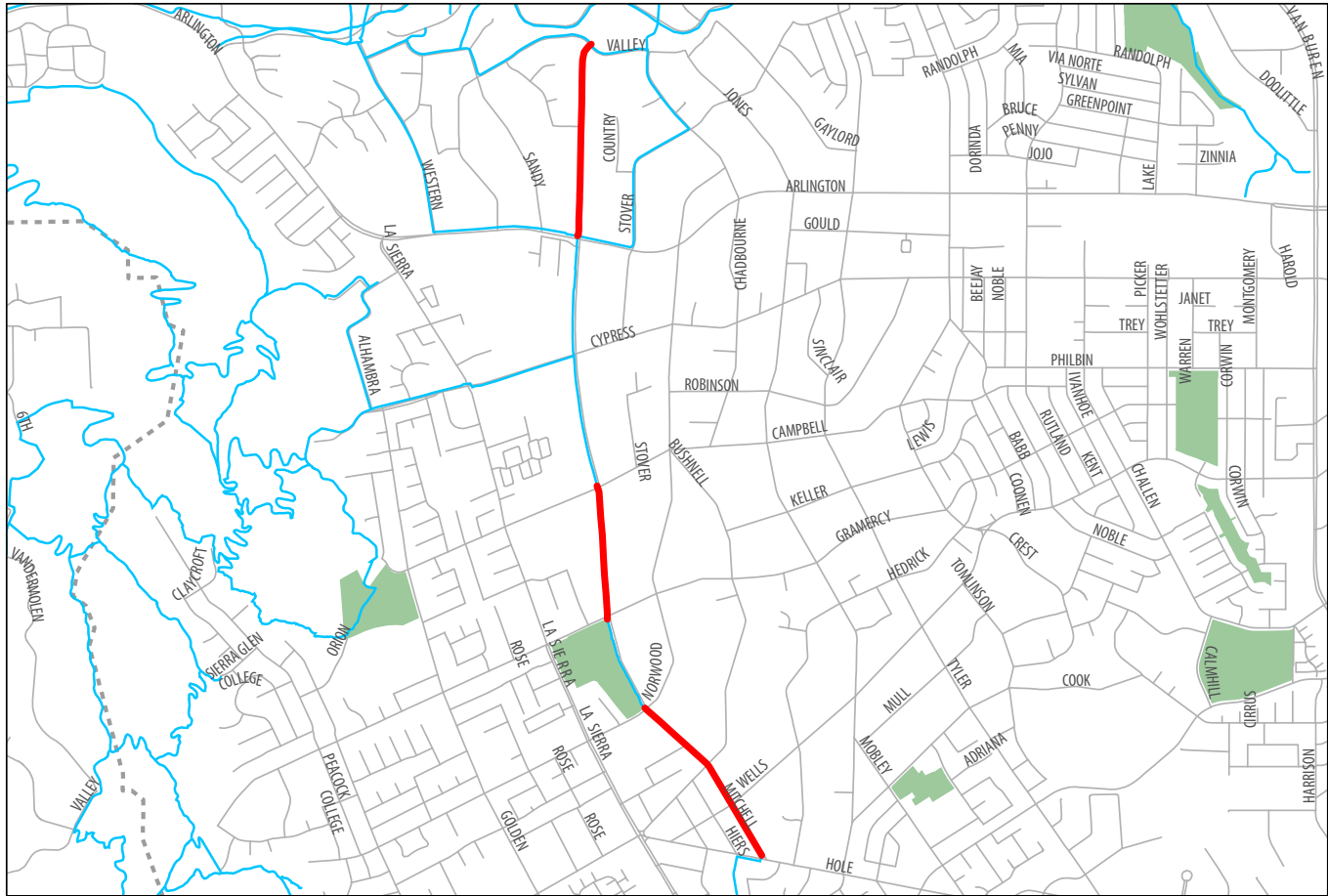


CATEGORY	DATA
Existing Length	0 miles
Proposed Additional Length	1.16 miles
Number of Parcels Intersected	2
Length of Trail on Private Parcels	0.25 miles
Approximate Easement	10,280 ft ²
Length of Trail on Undisturbed Land	0 miles
Estimated Cost	\$1,363,386

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 38 : MITCHELL AVE TRAIL CORRIDOR



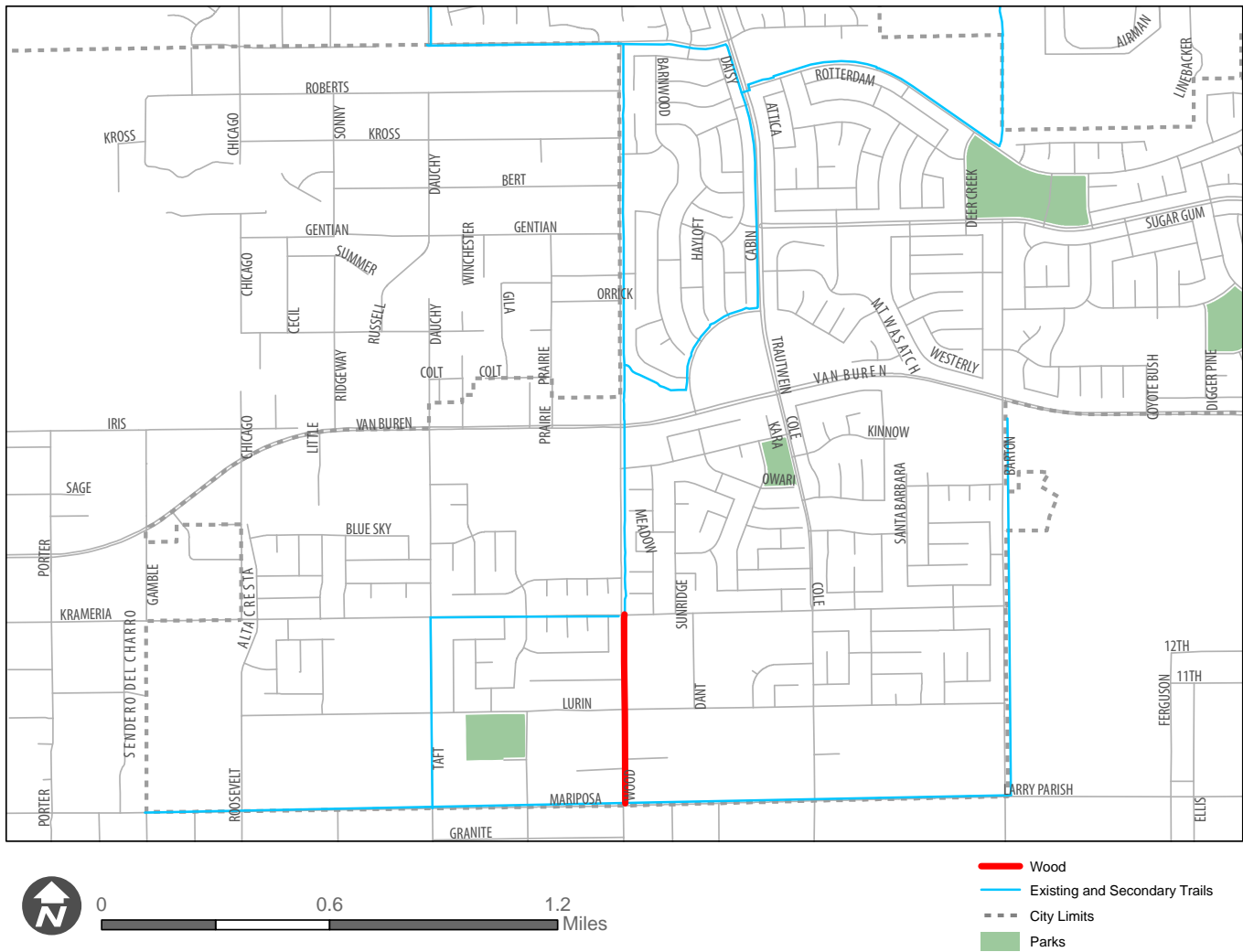
- Mitchell
- Existing and Secondary Trails
- - - City Limits
- Parks

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.

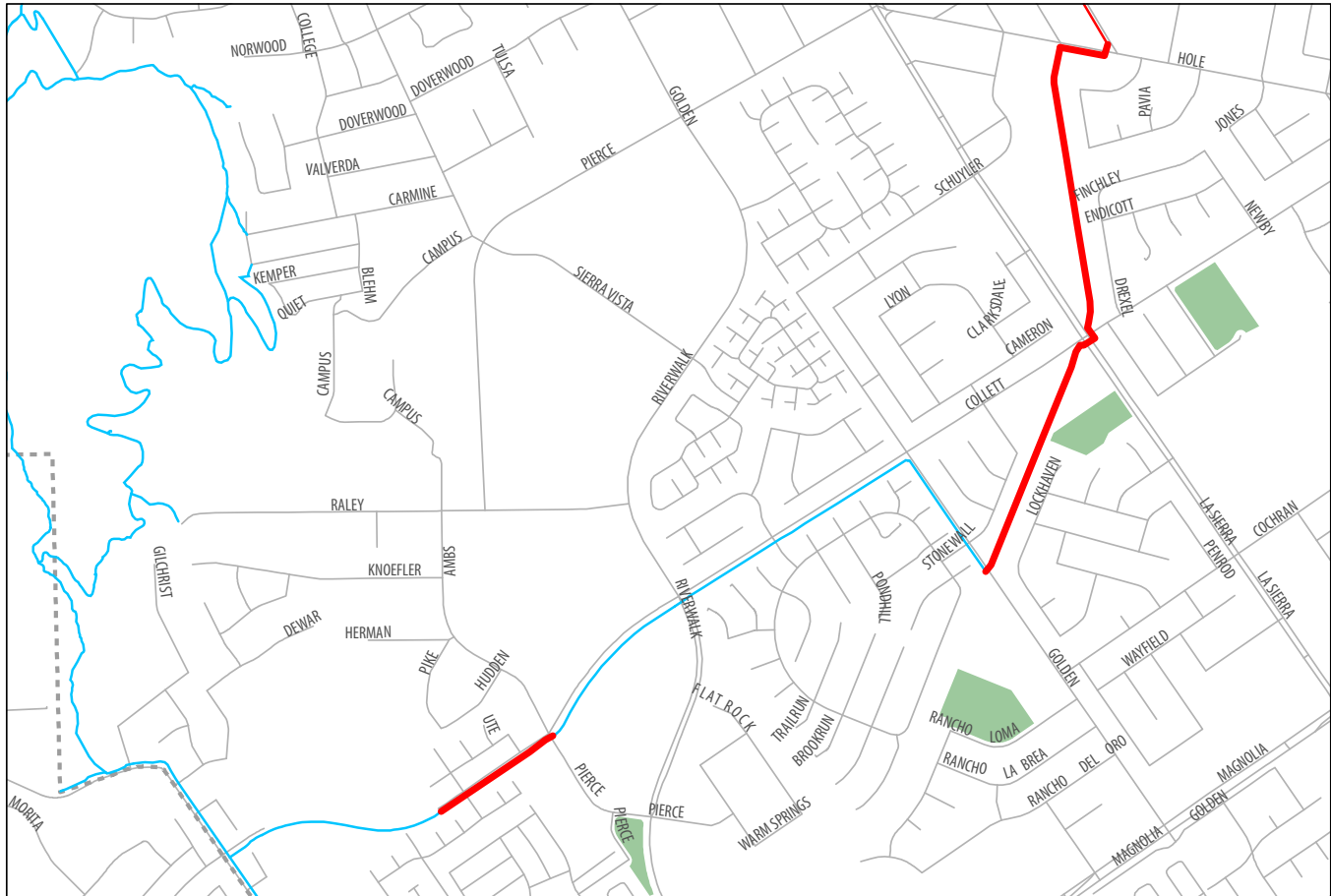
FIGURE 39 : WOOD RD TRAIL CORRIDOR



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 40 : MITCHELL AVE TO BUCHANAN ST TRAIL CORRIDOR



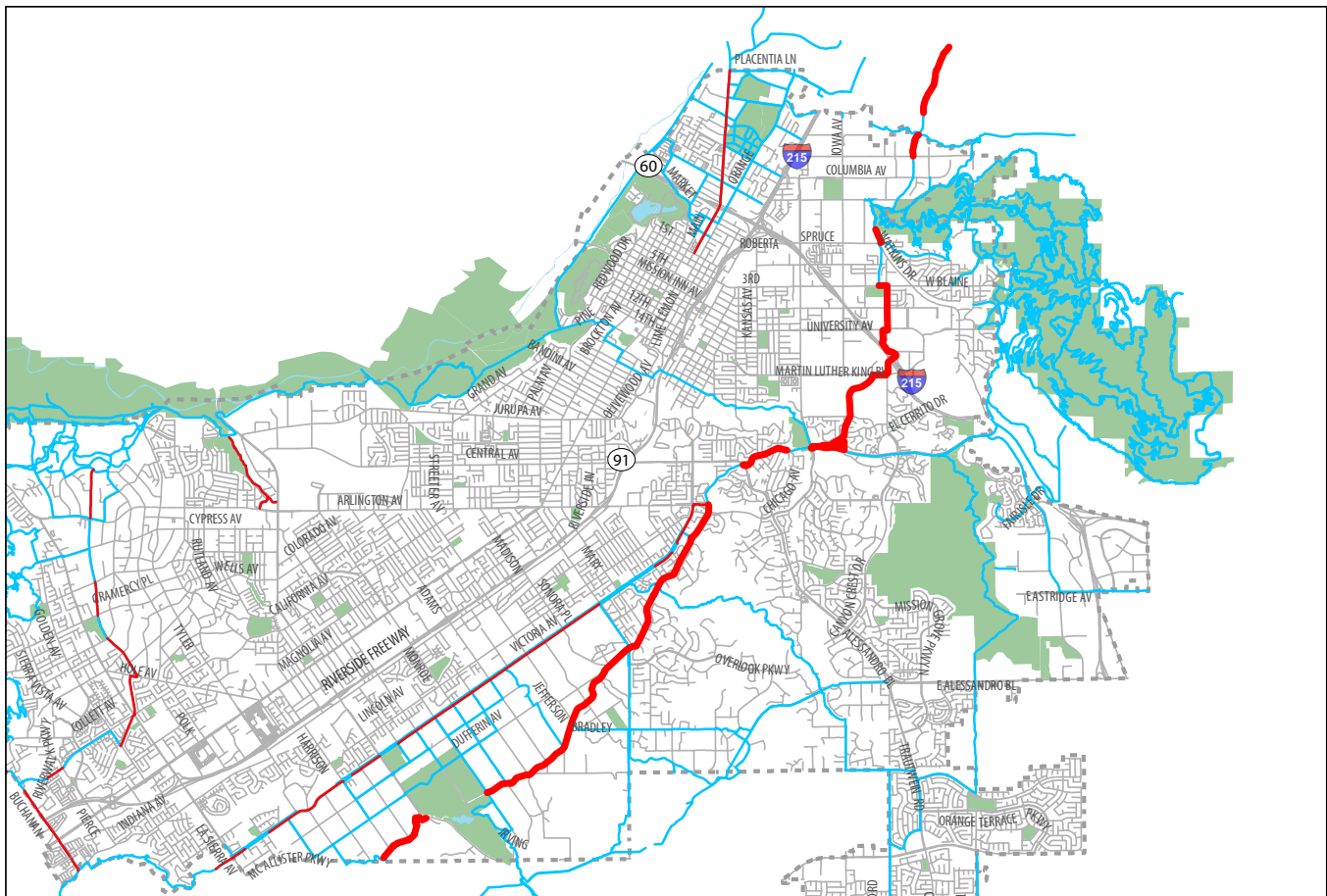
- Mitchell to Buchanan
- High Priority
- Existing and Secondary Trails
- - - City Limits
- Parks

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 41 : GAGE CANAL TRAIL CORRIDOR



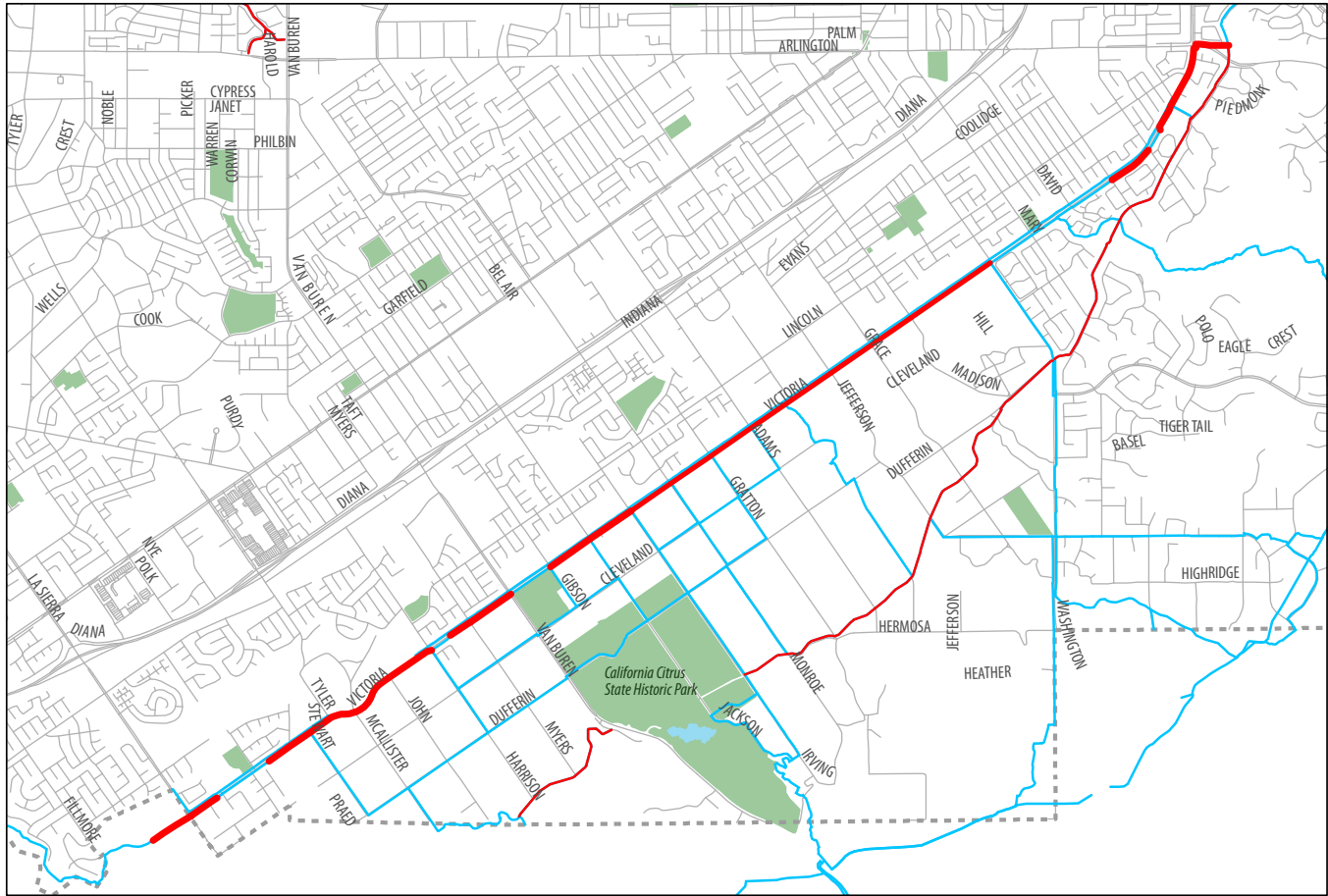
- Gage Canal
- High Priority
- Existing and Secondary Trails
- - - City Limits
- Parks

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 42 : VICTORIA AVE TRAIL CORRIDOR

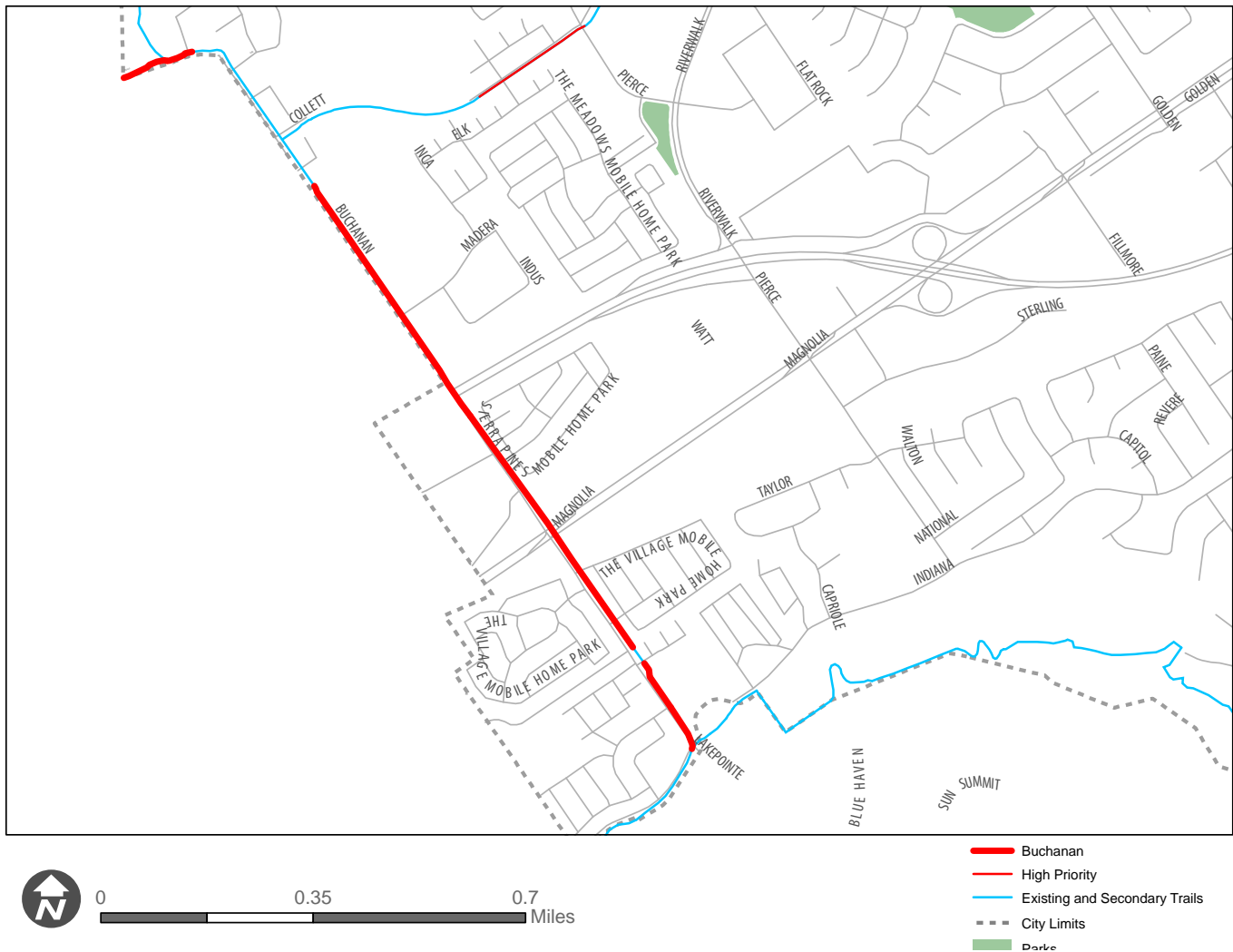


CATEGORY	DATA
Existing Length	1.64 miles
Proposed Additional Length	5.62 miles
Number of Parcels Intersected	0
Length of Trail on Private Parcels	0 miles
Length of Trail on Undisturbed Land	0 miles
Estimated Cost	\$5,849,915

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 43 : 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 6.

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.

Developers or owners of property, where the Trails Master Plan indicates that a trail is planned, are required to construct the trail and dedicate a trail easement if the trail will not be located within Public Right-of-Way.

TABLE 6 : 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.

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 7 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 8.

TABLE 7 : 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 8 : 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

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.

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

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 construct the trail and dedicate a trail easement if the trail will not be located within Public Right-of-Way.

Appendix 1:

Trail Design and Construction Details and Specifications

Design and Construction Details and Specifications

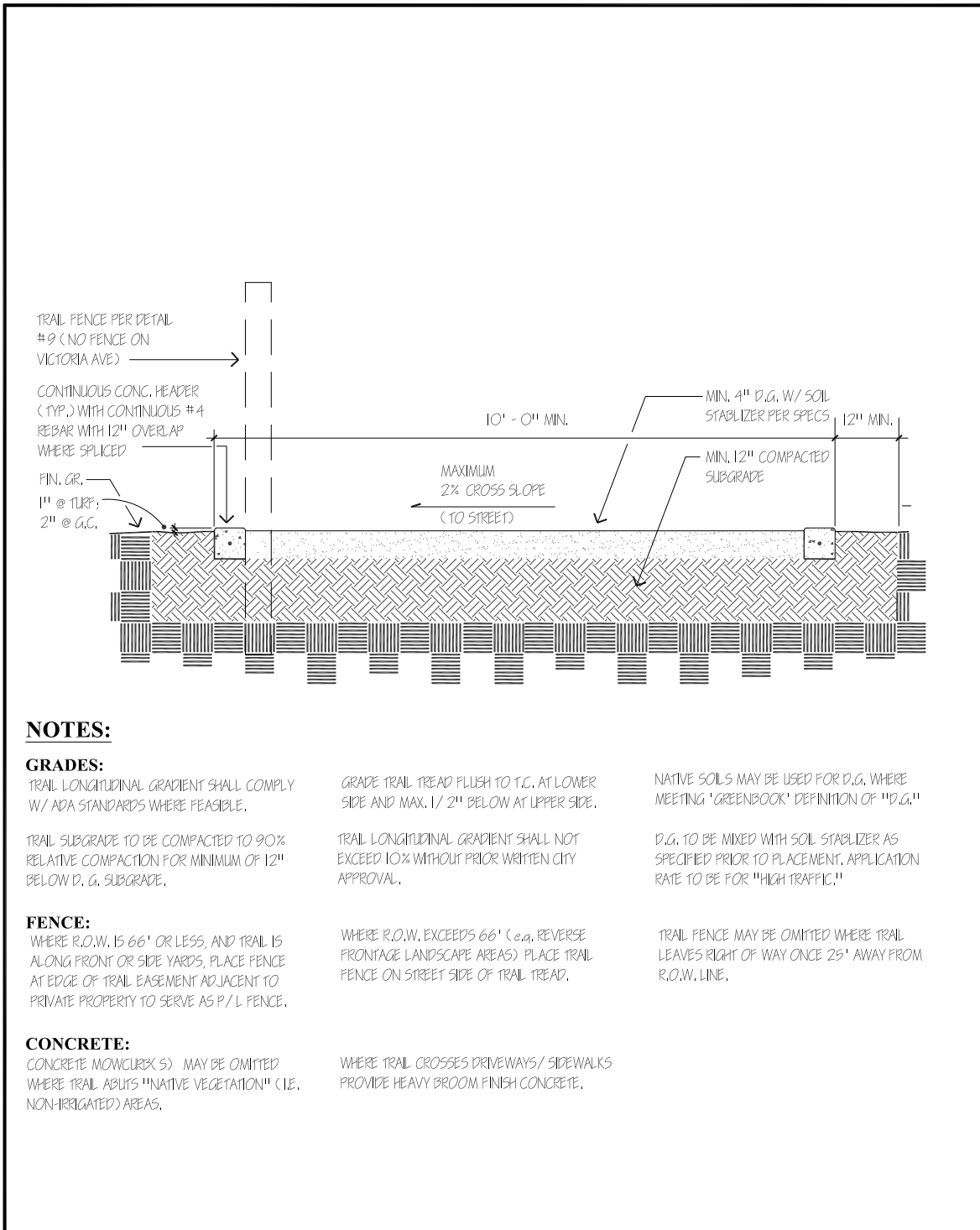
The following pages include the more commonly used design details from the California State Parks Trails Handbook (2019) and the USDA United States Forest Service Standard Trail Plans and Specifications.

These include:

- Travelway Excavation
- General Brushing
- Clearing and Brushing Travelway
- Railings
- Typical Switchbacks
- Puncheons
- Wooden Steps
- Rock Steps
- Equestrian Steps
- Split Rail Gate
- Timber Planking
- Equestrian Puncheon

Following the above information are details showing types of fence construction. These include:

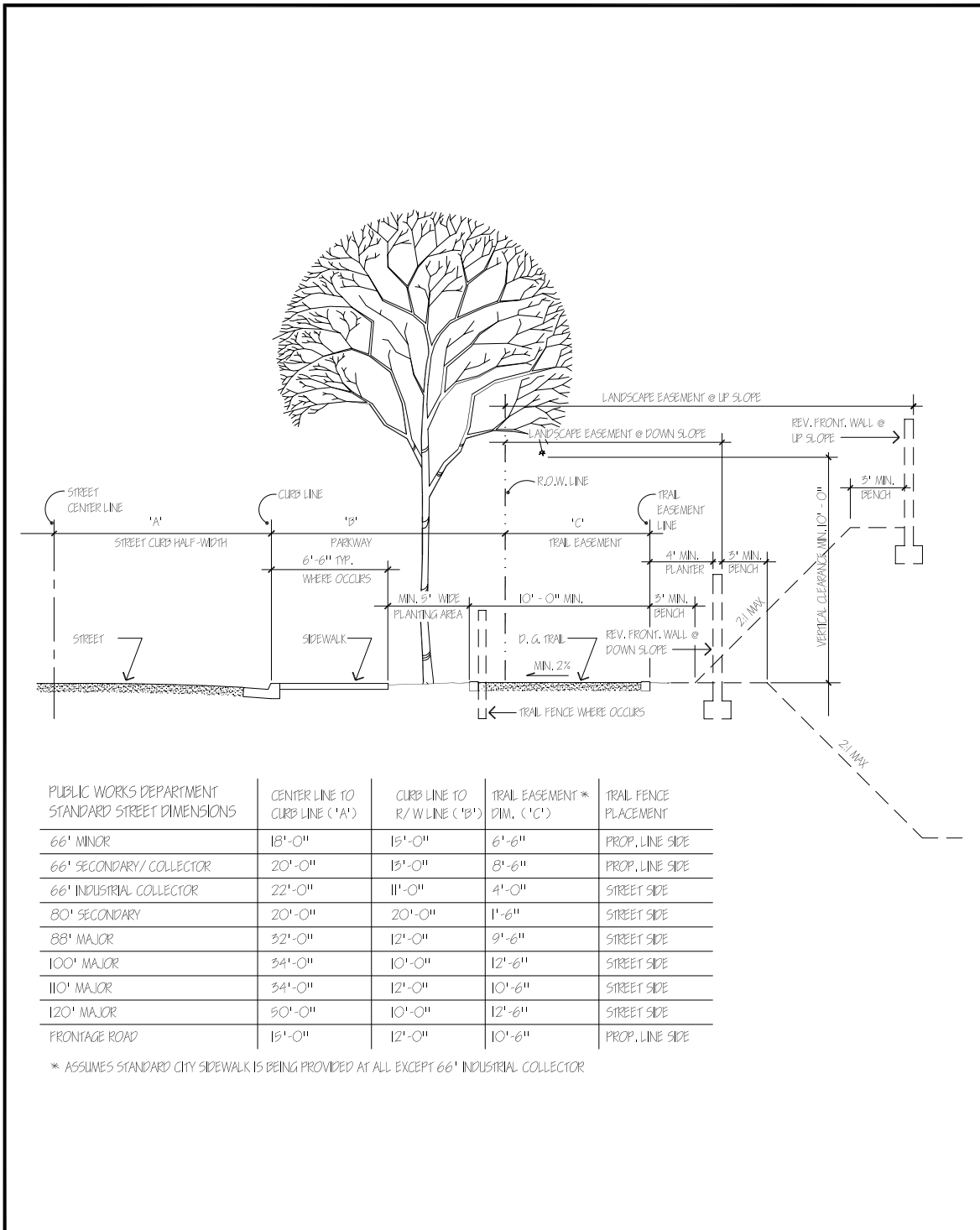
- Post and Rail
- Post and Cable
- City of Riverside Standard PVC



Approved BJ	Date 09/12/03
Revised	Date

Park and Recreation Department
 CITY OF RIVERSIDE
STANDARD TRAIL SECTION

Detail No.
1



PUBLIC WORKS DEPARTMENT STANDARD STREET DIMENSIONS	CENTER LINE TO CURB LINE ('A')	CURB LINE TO R/W LINE ('B')	TRAIL EASEMENT * DIM. ('C')	TRAIL FENCE PLACEMENT
66' MINOR	18'-0"	15'-0"	6'-6"	PROP. LINE SIDE
66' SECONDARY/ COLLECTOR	20'-0"	15'-0"	8'-6"	PROP. LINE SIDE
66' INDUSTRIAL COLLECTOR	22'-0"	11'-0"	4'-0"	STREET SIDE
80' SECONDARY	20'-0"	20'-0"	1'-6"	STREET SIDE
88' MAJOR	32'-0"	12'-0"	9'-6"	STREET SIDE
100' MAJOR	34'-0"	10'-0"	12'-6"	STREET SIDE
110' MAJOR	34'-0"	12'-0"	10'-6"	STREET SIDE
120' MAJOR	50'-0"	10'-0"	12'-6"	STREET SIDE
FRONTAGE ROAD	15'-0"	12'-0"	10'-6"	PROP. LINE SIDE

* ASSUMES STANDARD CITY SIDEWALK IS BEING PROVIDED AT ALL EXCEPT 66' INDUSTRIAL COLLECTOR

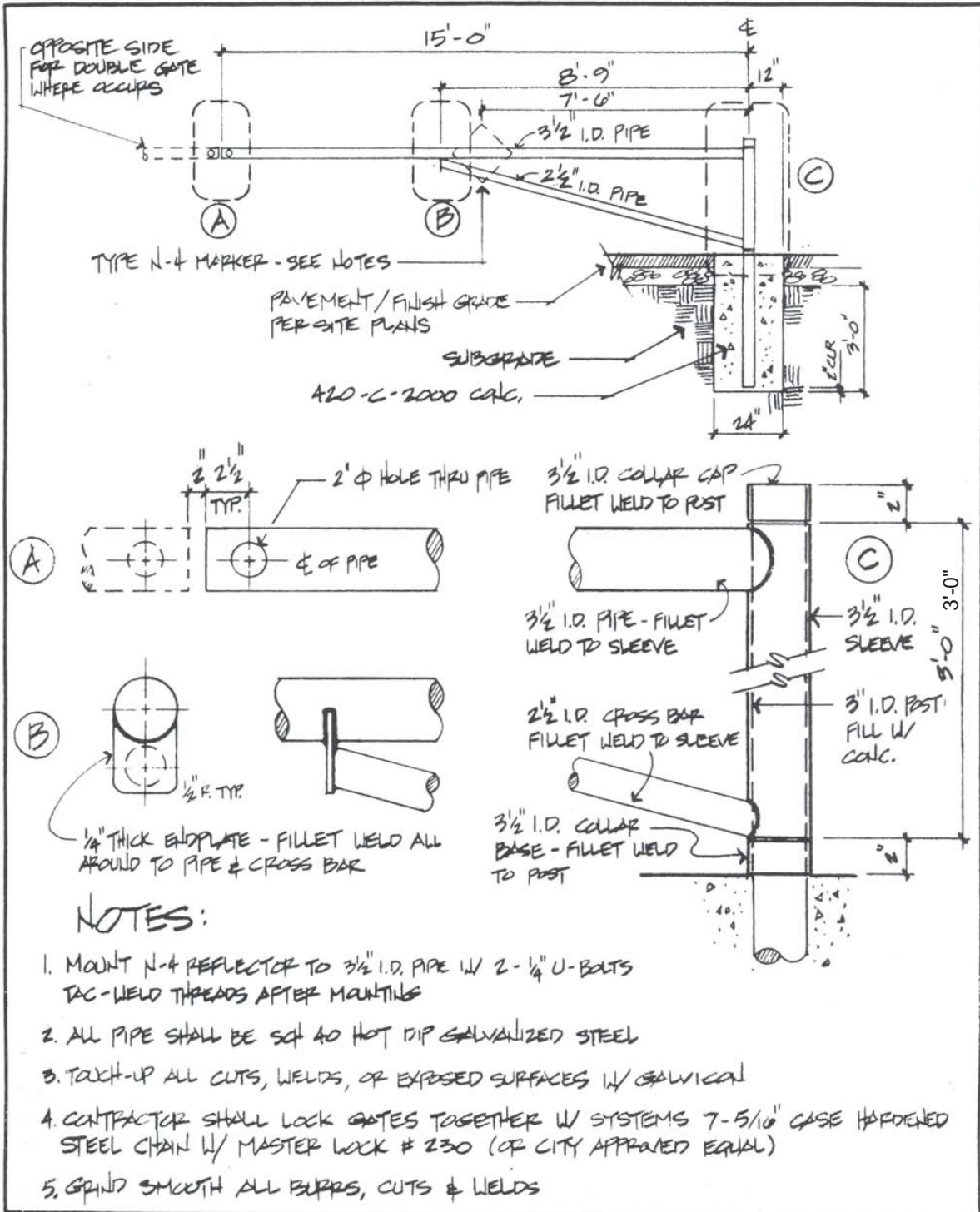
Approved
BJ
Date
09/12/03

Revised
Date

Park and Recreation Department
CITY OF RIVERSIDE

TYP. TRAIL & PARKWAY SECTION

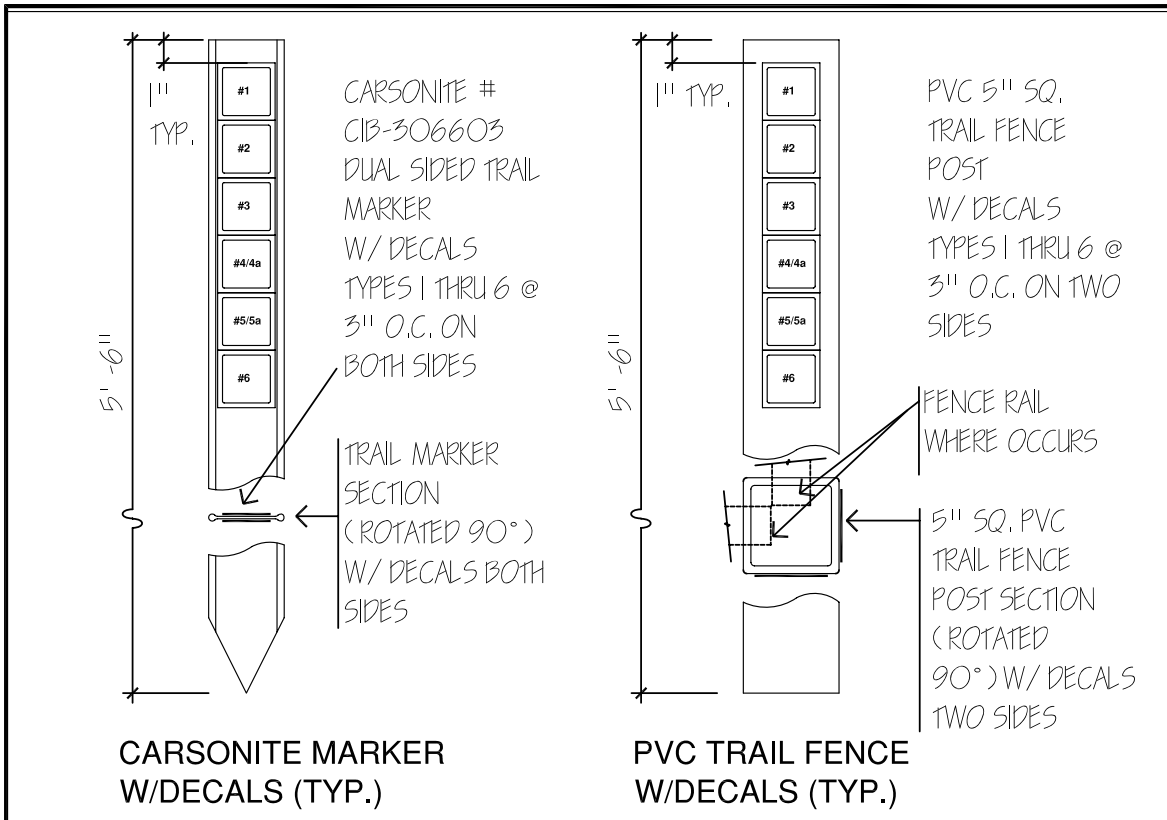
Detail No.
2











Approved	Date
Revised	Date

Park & Recreation Department CITY OF RIVERSIDE
STEEL SWING ARM GATE

Detail No.
5110



CARSONITE DECALS
TOLL FREE CONTACT NUMBER 1-800-648-7915

TYPE	DESCRIPTION	TYPE	DESCRIPTION
#1	 CLOSED TO ALL MOTORIZED VEHICLES CARSONITE DECAL 4149TMD	#4a	 NON-EQUESTRIAN TRAIL CARSONITE DECAL RS-064 W/ SLASH
#2	 HIKING/ JOGGING TRAIL CARSONITE DECAL RS-068	#5	 ACCESSIBLE TRAIL CARSONITE DECAL RS-028
#3	 BICYCLE TRAIL CARSONITE DECAL RS-066	#5a	 NON-ACCESSIBLE TRAIL CARSONITE DECAL RS-028 W/ SLASH
#4	 EQUESTRIAN TRAIL CARSONITE DECAL RS-064	#6	 NO MOTORIZED VEHICLES PERMITTED CARSONITE DECAL RS-069 W/ SLASH

Approved BJ Date 09/12/03
Revised Date

Park and Recreation Department
CITY OF RIVERSIDE
TRAIL MARKERS/DECALS

Detail No.
12

SECTION 02211 - TRAIL GRADING AND CONSTRUCTION

PART 1 - GENERAL

- 1.01 STANDARD SPECIFICATIONS: The provisions of the "Standard Specifications for Public Works Construction" shall apply except as modified herein.
- 1.02 SCOPE: The Work of this Section shall consist of furnishing all labor, materials, equipment, appliances and services necessary for the execution and completion of all **Trail Grading and Construction Work** as shown on the Plans and as described in the Specifications including, but not necessarily limited to, the following:
- Rough grading as shown on the plans, including cut, fill, backfill and backfill compaction
 - Subgrade preparation for D.G. paving including any over-excavation and re-compaction as may be required
 - Excavation of soils for all trail fence posts and structures
 - Excavation, backfill and compaction of soils for all mowcurbs
 - Soil compaction as required;
 - Protective measures;
 - Dust and noise abatement;
 - Borrow from and/or export to a local borrow/disposal site as directed and as necessary for a balanced grading operation;
 - Fine grading of the work site;
 - Decomposed Granite Paving;
 - Soil testing as required;
 - Coordination with Work of other Sections;
 - Clean-up; and,
 - Erosion Repairs, Guarantees and Warranty Work.
- 1.03 RELATED WORK SPECIFIED ELSEWHERE:
Finish Grading in Landscaped Areas Section 02480
- 1.04 QUALITY ASSURANCE:
- A. Other Requirements: All Work of this Section shall comply with the requirements of the following:
1. The Grading Code of the City of Riverside.
 2. The Soils Engineering Investigation Reports for the site prepared by Soils Engineer (see Appendix).
- B. Tests and Inspections:
1. All Work in this Section shall be subject to the observation and testing as required by the Soils Engineer selected by City. The Soils Engineer will submit a compaction report to the Parks Department Representative certifying Contractor's compliance with the Plans, Specifications, Soils Reports and City Grading Ordinance in placing all fills and backfills. The Soils Engineer will conduct all specified tests to insure compliance. The Soils Engineer will also test, identify and make recommendations on borrow site fill materials as specified in this Section.
 2. The number and location of soils tests shall be at the discretion of the Soils Engineer to assure uniformity and compliance with the City Grading Ordinance, and shall be at least one test per two vertical feet of fill, but not less than one test per 500 cubic yards, all as approved by the Parks Department Representative.
 3. The costs of services of the Soils Engineer for specified field density and maximum density tests, compaction reports and certificates of compliance, will be borne by City except that additional tests and recompactions made necessary by inadequate compaction, inadequate materials provided by Contractor, or inaccurate excavations shall be paid for by Contractor.
- 1.05 GRADING A "BALANCED" OPERATION: It is the intent of the Plans and Specifications that the grading shall be a balanced operation with site material. No import nor export is contemplated. If during grading operations an excess or deficiency of earth becomes apparent, Contractor shall notify the Parks Department Representative immediately in writing and ask for direction in adjustment of plan grades such that the grading