



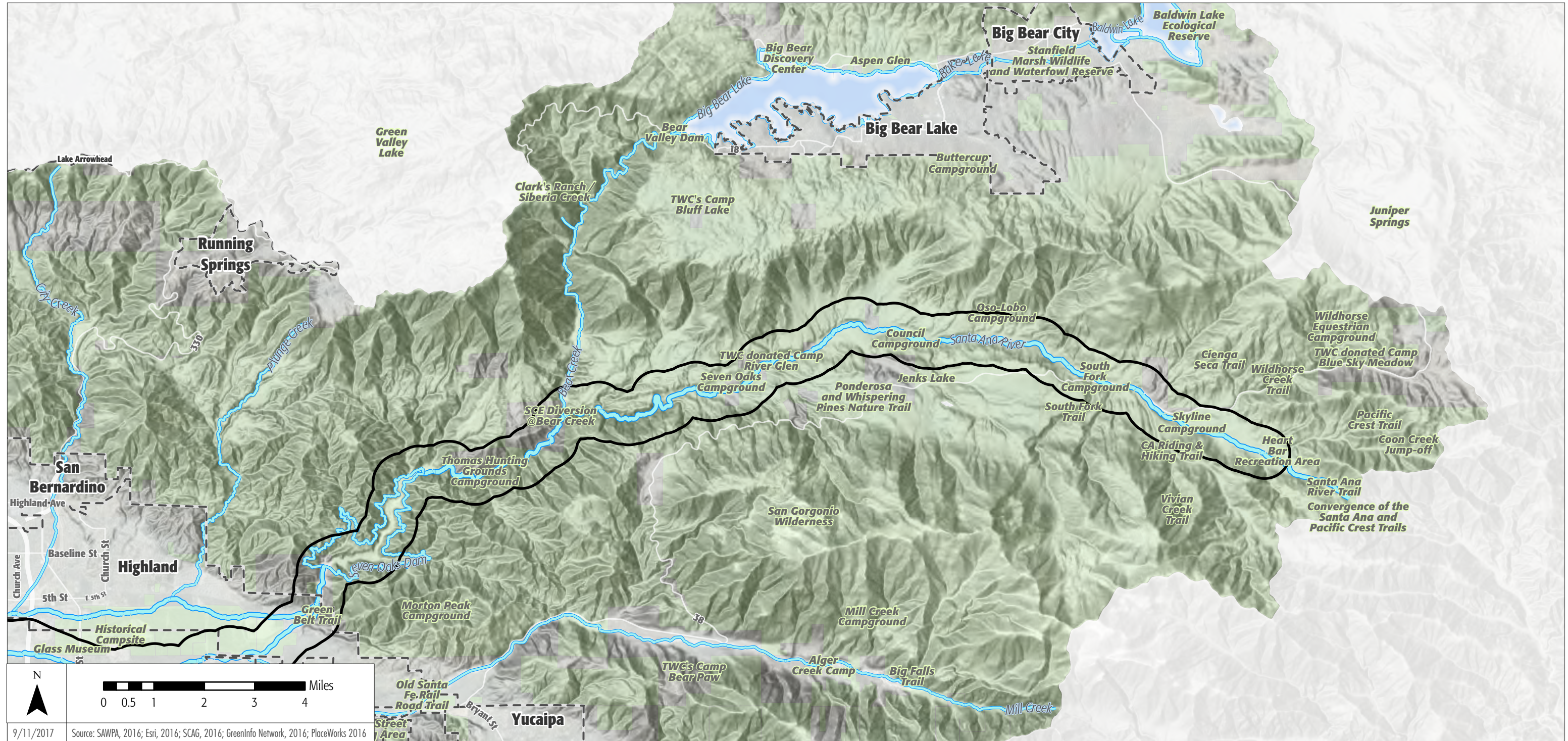
Appendix A: Map Book

Appendix A. Map Book

Figure 1-1 Parkway Boundaries – Orange County
Figure 1-1 Parkway Boundaries – Riverside County
Figure 1-1 Parkway Boundaries – San Bernardino County
Figure 1-1 Parkway Boundaries – Forest Service
Figure 3-2 Existing Land Use – Orange County
Figure 3-2 Existing Land Use – Riverside County
Figure 3-3 Existing Land Use – San Bernardino County
Figure 3-4 Existing Habitat and Surface Water – Orange County
Figure 3-4 Existing Habitat and Surface Water – Riverside County
Figure 3-4 Existing Habitat and Surface Water – San Bernardino County
Figure 3-5 Existing Public Access Features – Orange County
Figure 3-5 Existing Public Access Features – Riverside County
Figure 3-5 Existing Public Access Features – San Bernardino County
Figure 5-2- Cumulative Analysis Water– Orange County
Figure 5-2- Cumulative Analysis Water– Riverside County
Figure 5-2- Cumulative Analysis Water– San Bernardino
Figure 5-3 Cumulative Analysis Habitat – Orange County
Figure 5-3 Cumulative Analysis Habitat – Riverside County
Figure 5-3 Cumulative Analysis Habitat – San Bernardino County
Figure 5-4 Cumulative Analysis Education Recreation – Orange County
Figure 5-4 Cumulative Analysis Education Recreation – Riverside County
Figure 5-4 Cumulative Analysis Education Recreation – San Bernardino County
Figure 6-2 Parkway Project Opportunities Map – Orange County
Figure 6-2 Parkway Project Opportunities Map – Riverside County
Figure 6-2 Parkway Project Opportunities Map – San Bernardino
Figure 6-2 Parkway Project Opportunities Map – Forest Service



Figure 1-1, Santa Ana River Parkway Boundaries
Reach 4: Forest Service



- Santa Ana River
- Other
- City Boundary
- Parkway Boundary

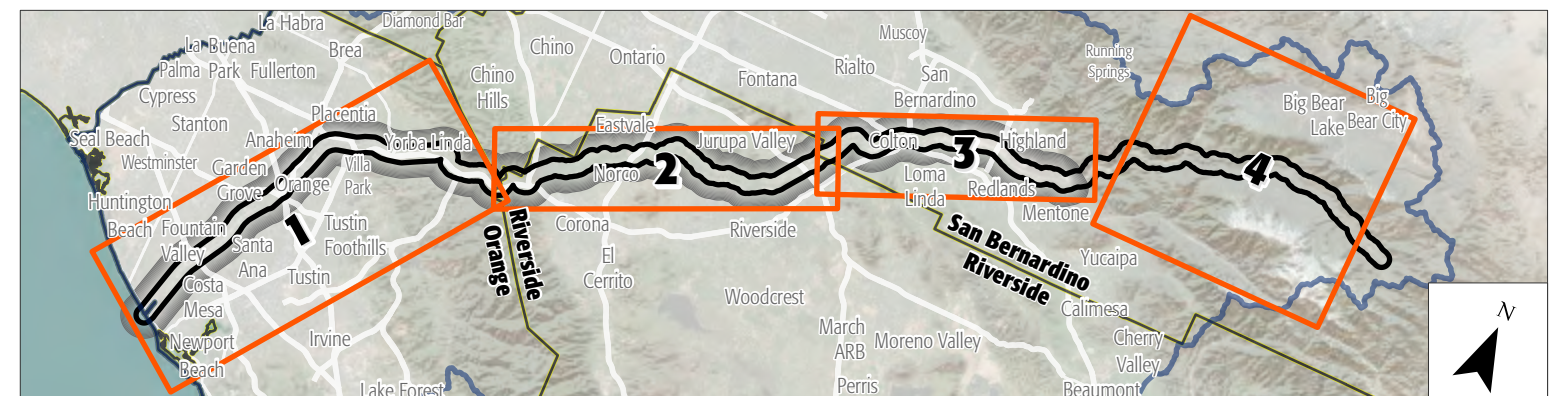
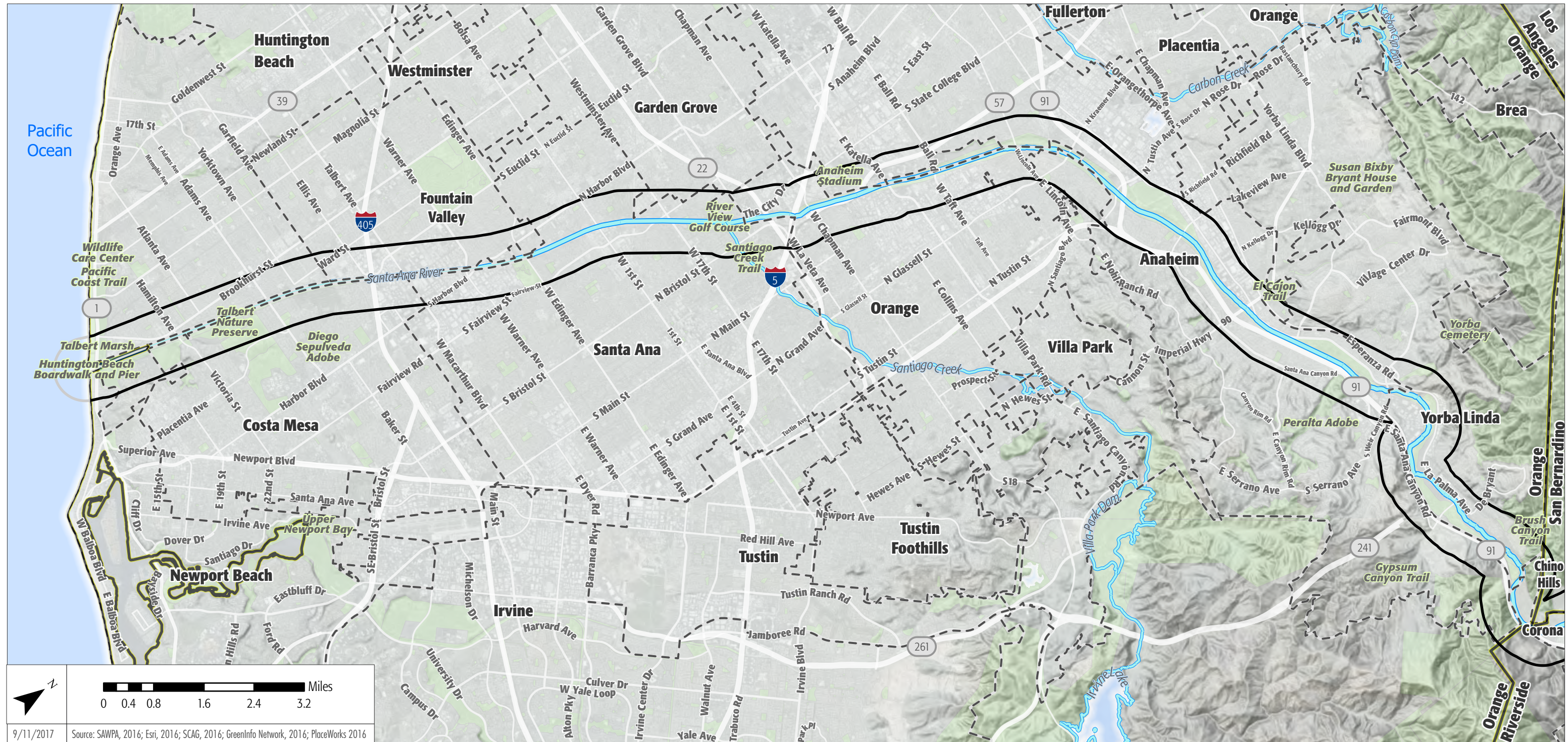




Figure 1-1, Santa Ana River Parkway Boundaries
Reach 1: Orange County



- Santa Ana River
- Other
- City Boundary
- Parkway Boundary

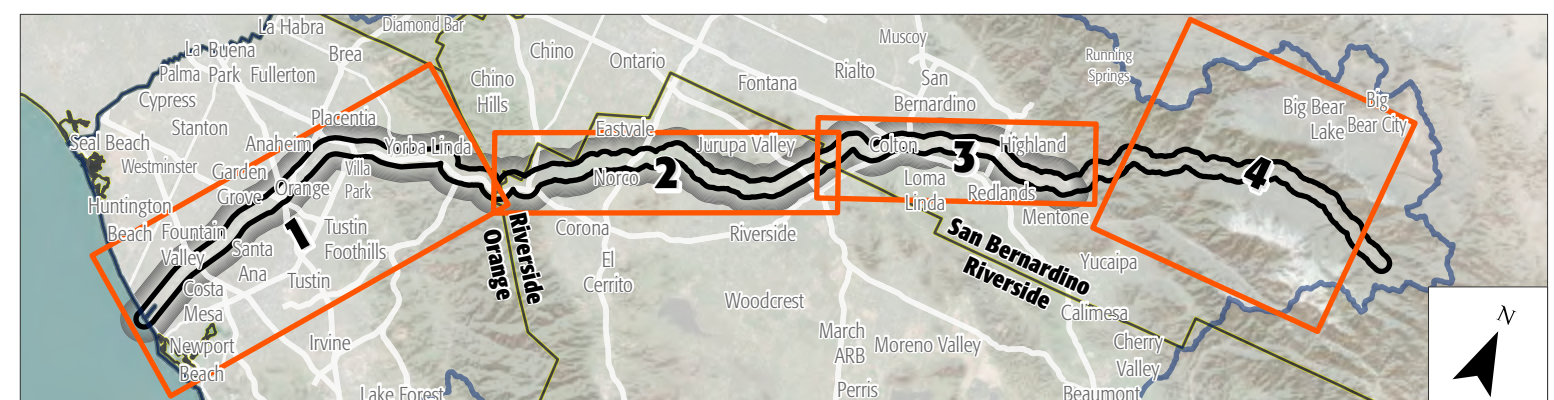




Figure 1-1, Santa Ana River Parkway Boundaries
Reach 2: Riverside County



- Santa Ana River
- Other
- City Boundary
- Parkway Boundary

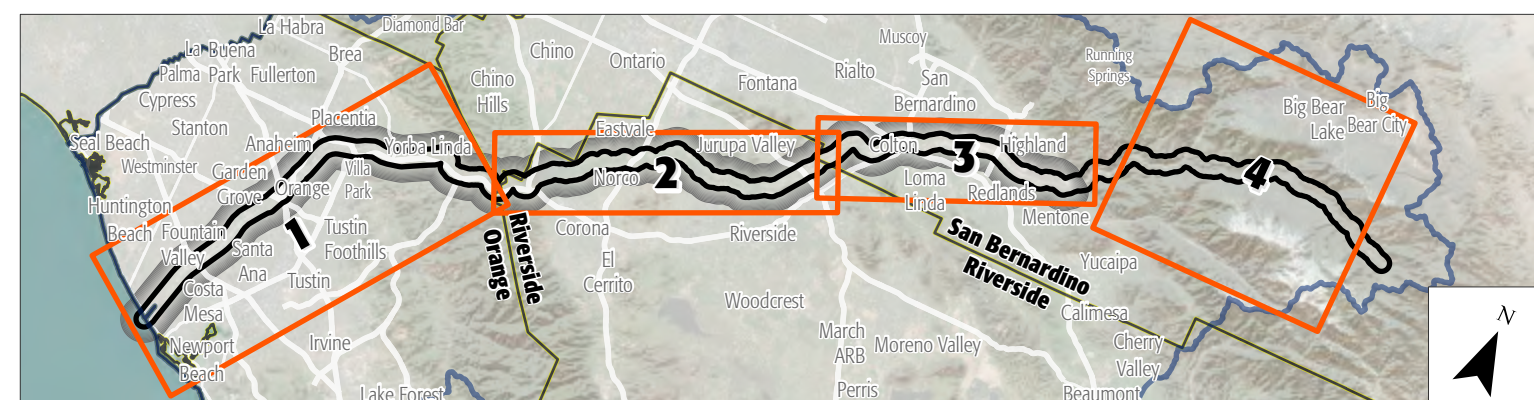




Figure 1-1, Santa Ana River Parkway Boundaries
Reach 3: San Bernardino County



- Santa Ana River
- Other
- City Boundary
- Parkway Boundary

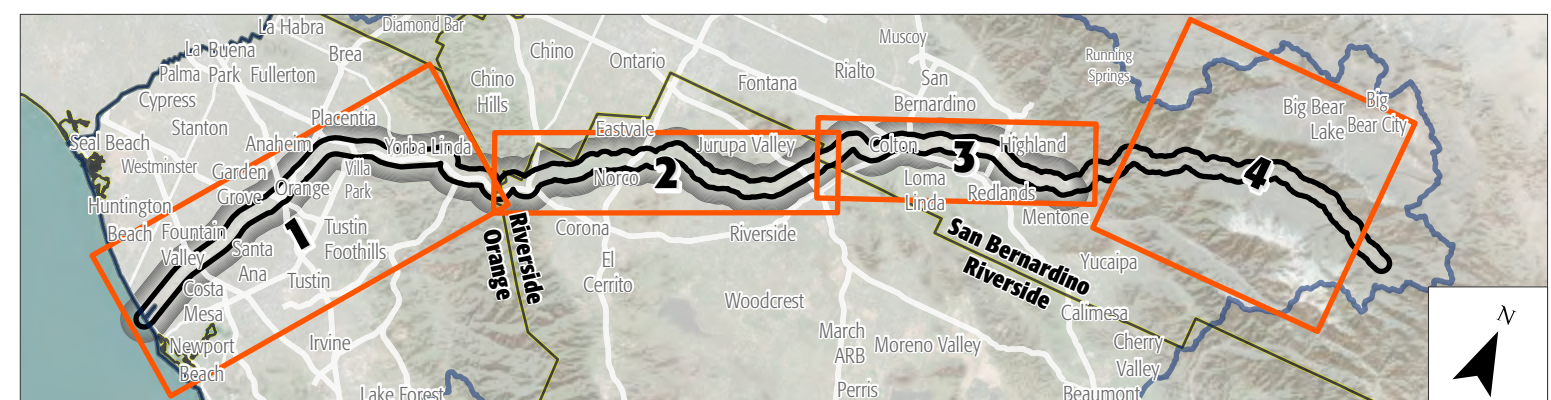
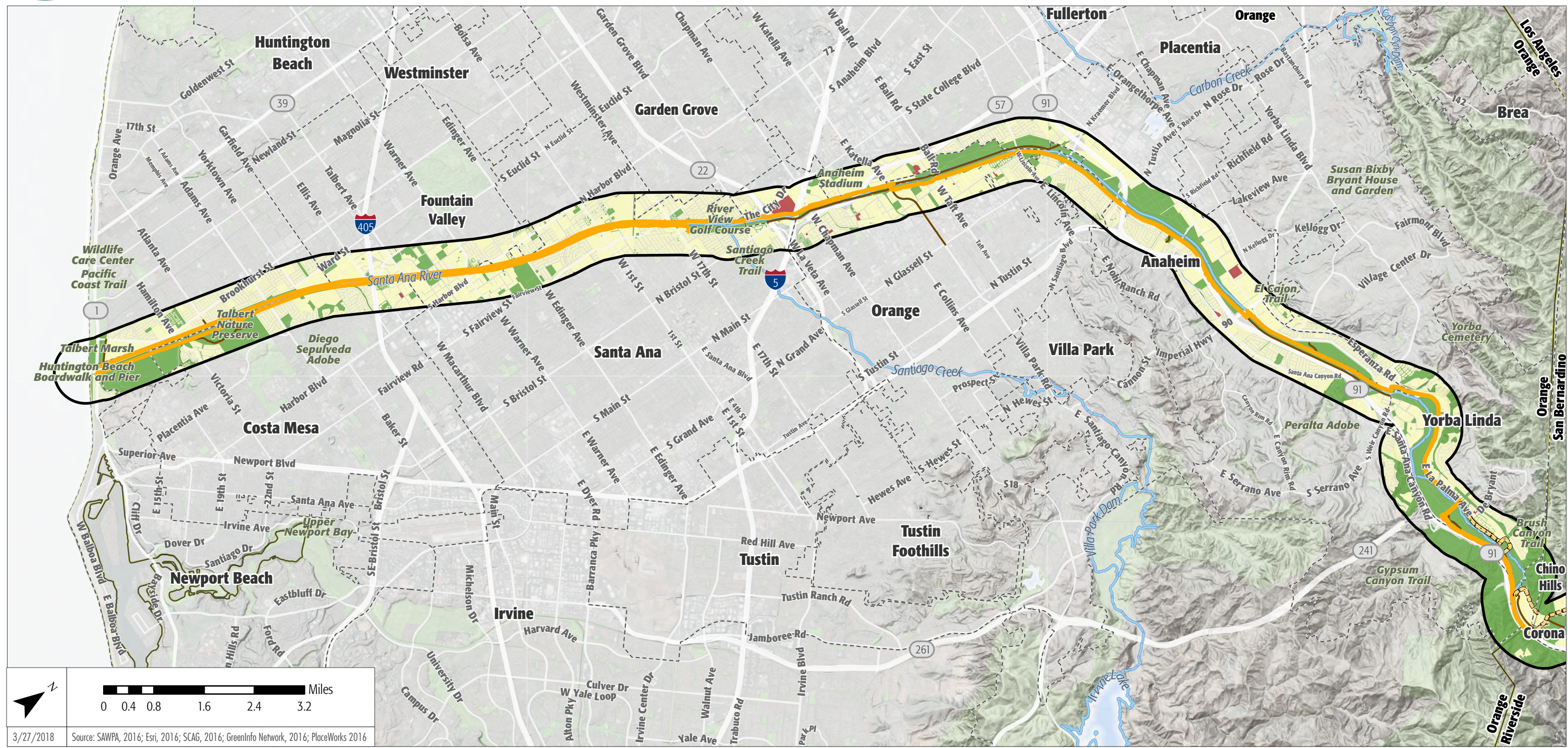


Figure 3-2, Existing Land Use in the Santa Ana River Parkway
Reach 1: Orange County



3/27/2018 Source: SAWPA, 2016; Esri, 2016; SCAG, 2016; GreenInfo Network, 2016; PlaceWorks 2016

- | | | |
|---|--|---|
| <p>Existing Land Use</p> <ul style="list-style-type: none"> Developed Public (unknown) Park/Undeveloped Land Unknown | <p>Santa Ana River Trail</p> <ul style="list-style-type: none"> Completed Proposed | <p>Miscellaneous</p> <ul style="list-style-type: none"> Rivers City Boundary Parkway Boundary |
|---|--|---|

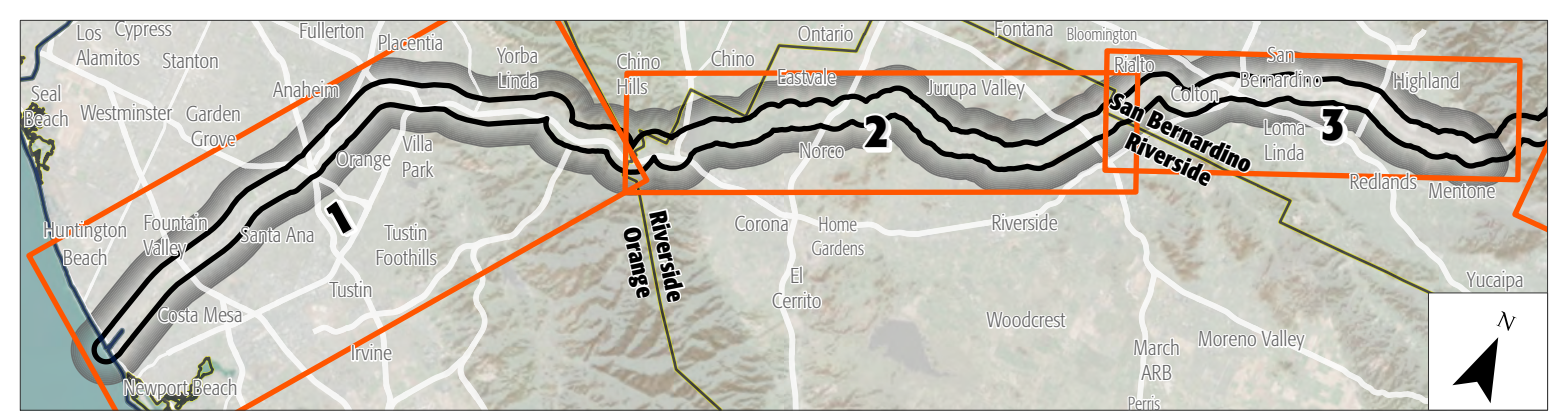


Figure 3-2, Existing Land Use in the Santa Ana River Parkway
Reach 2: Riverside County



Existing Land Use	Santa Ana River Trail	Miscellaneous
Developed	Completed	Rivers
Public (unknown)	Proposed	City Boundary
Park/Undeveloped Land		Parkway Boundary
Unknown		

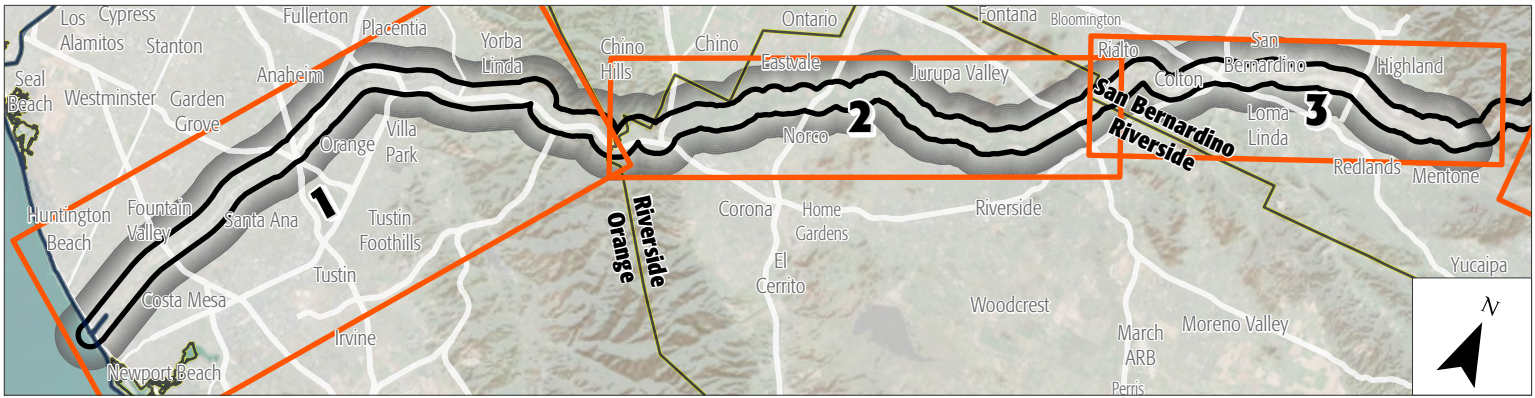
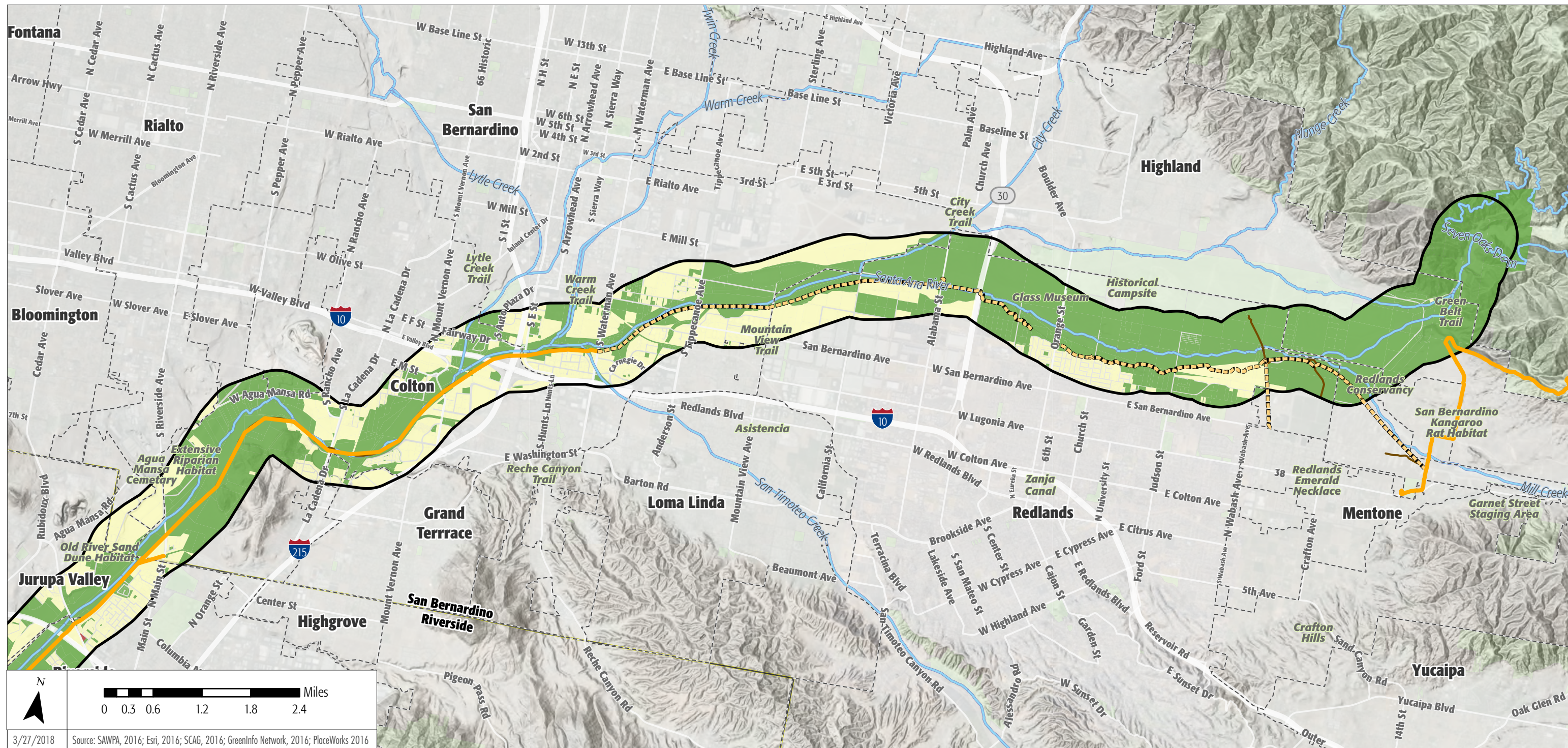




Figure 3-2, Existing Land Use in the Santa Ana River Parkway Reach 3: San Bernardino County



- | | | |
|--------------------------|------------------------------|----------------------|
| Existing Land Use | Santa Ana River Trail | Miscellaneous |
| Developed | Completed | Rivers |
| Public (unknown) | Proposed | City Boundary |
| Park/Undeveloped Land | | Parkway Boundary |
| Unknown | | |

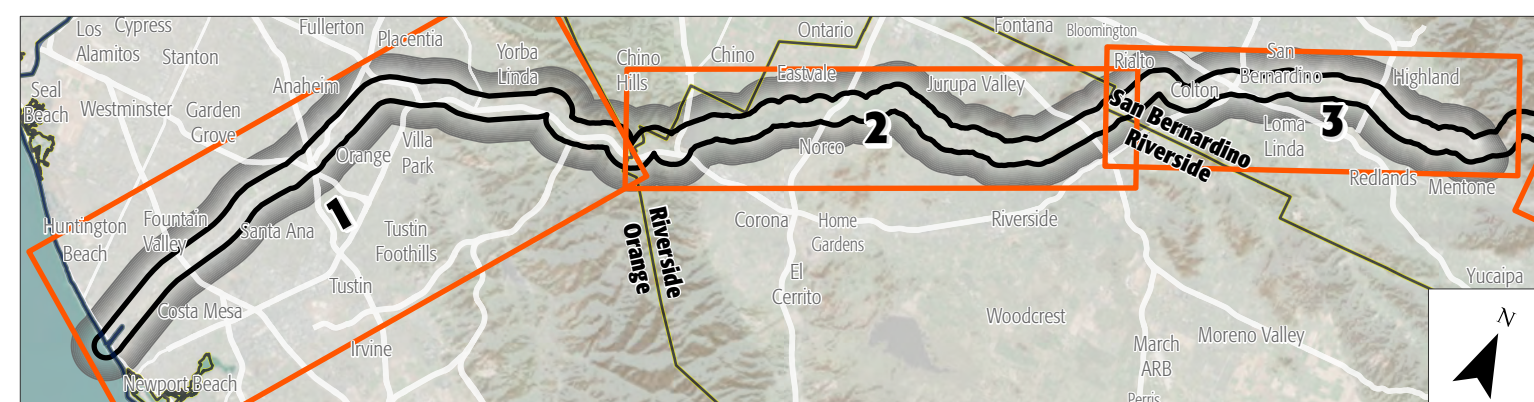
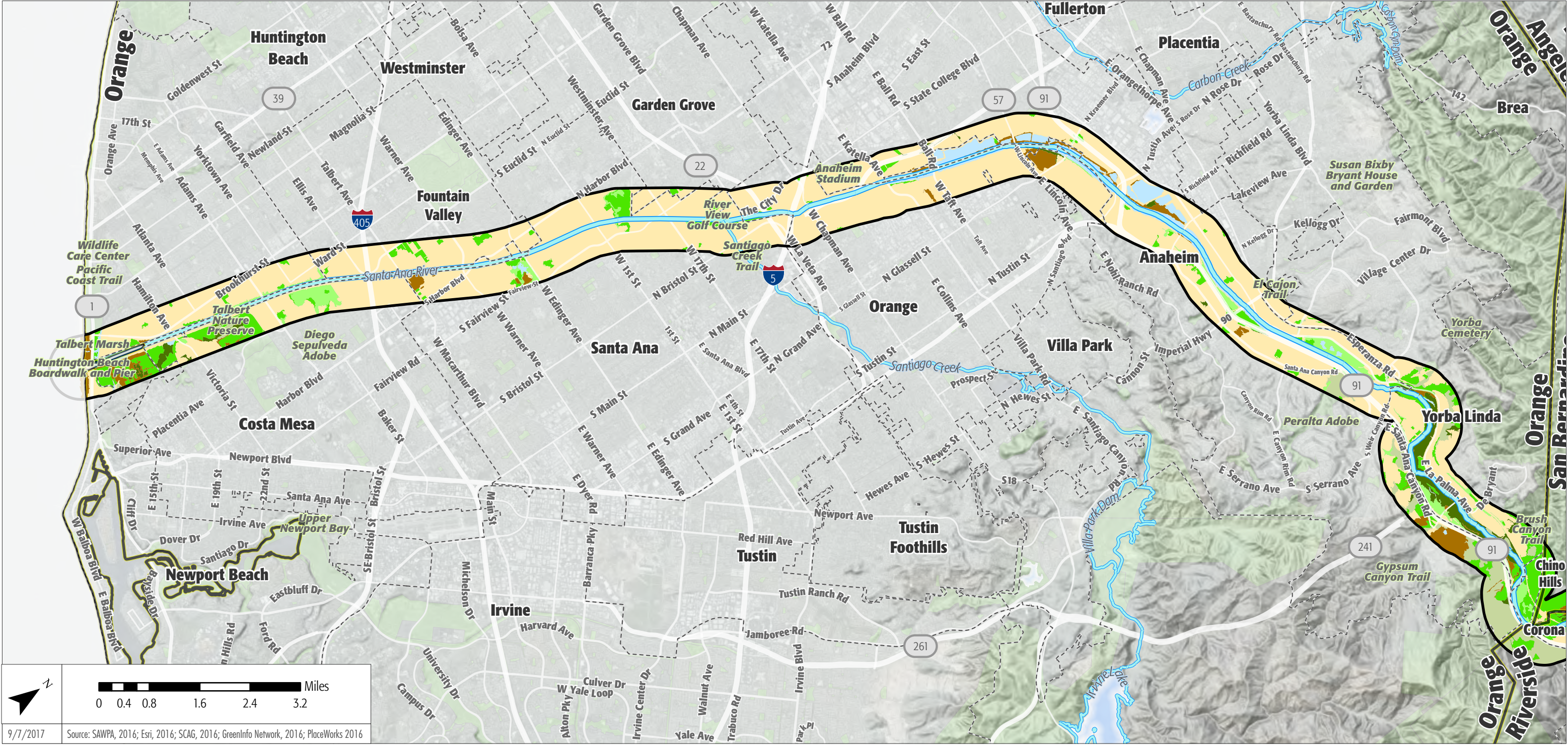


Figure 3-4, Existing Habitat and Surface Water
Reach 1: Orange County



CALVEG Existing Habitat

- Hardwood forest/woodland
- Herbaceous
- Mixed conifer and hardwood forest/woodland
- Shrub
- Barren [Rock/Soil/Sand/Snow]
- Urban
- Water

Miscellaneous

- Santa Ana River
- Other Rivers
- City Boundary
- Parkway Boundary

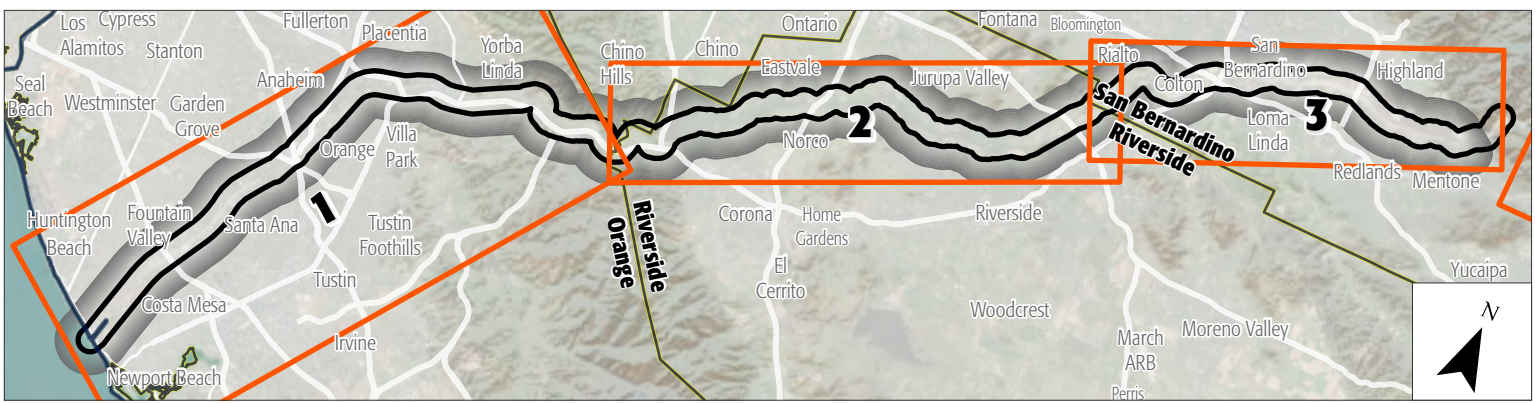
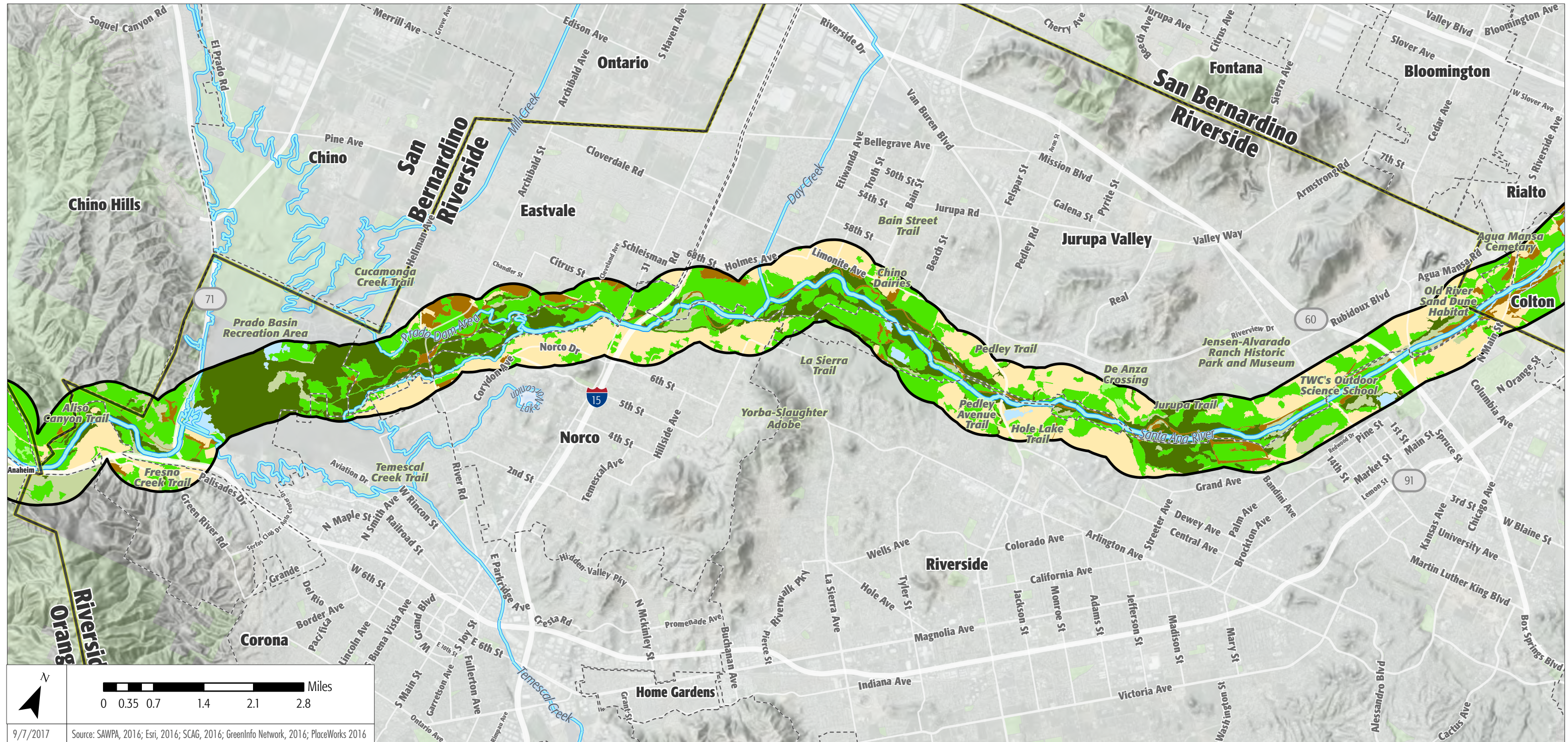




Figure 3-4, Existing Habitat and Surface Water
Reach 2: Riverside County



CALVEG Existing Habitat

- Hardwood forest/woodland
- Herbaceous
- Mixed conifer and hardwood forest/woodland
- Shrub
- Barren [Rock/Soil/Sand/Snow]
- Urban
- Water

Miscellaneous

- Santa Ana River
- Other Rivers
- City Boundary
- Parkway Boundary

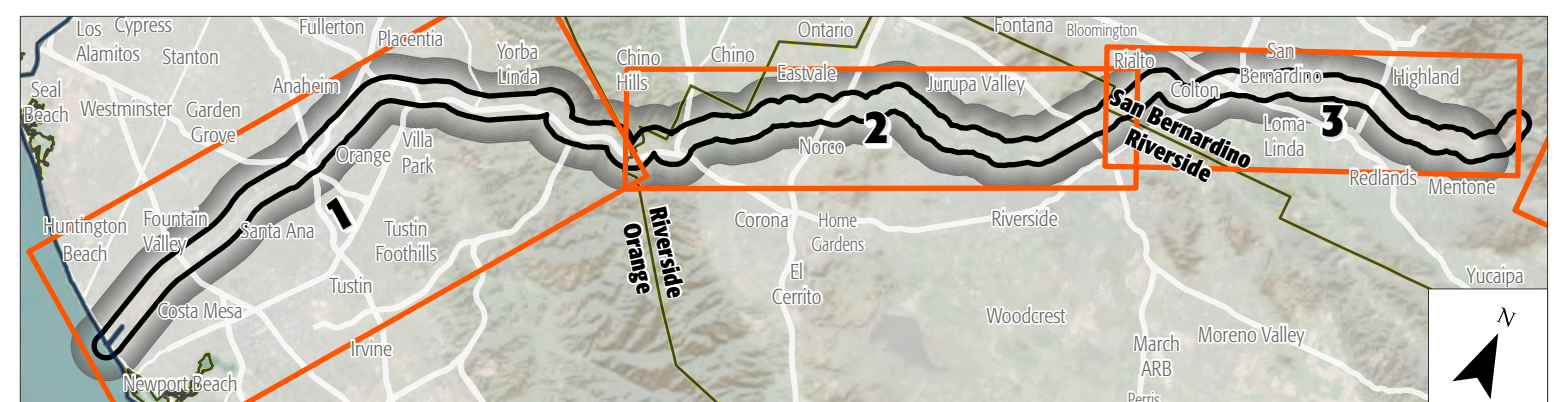
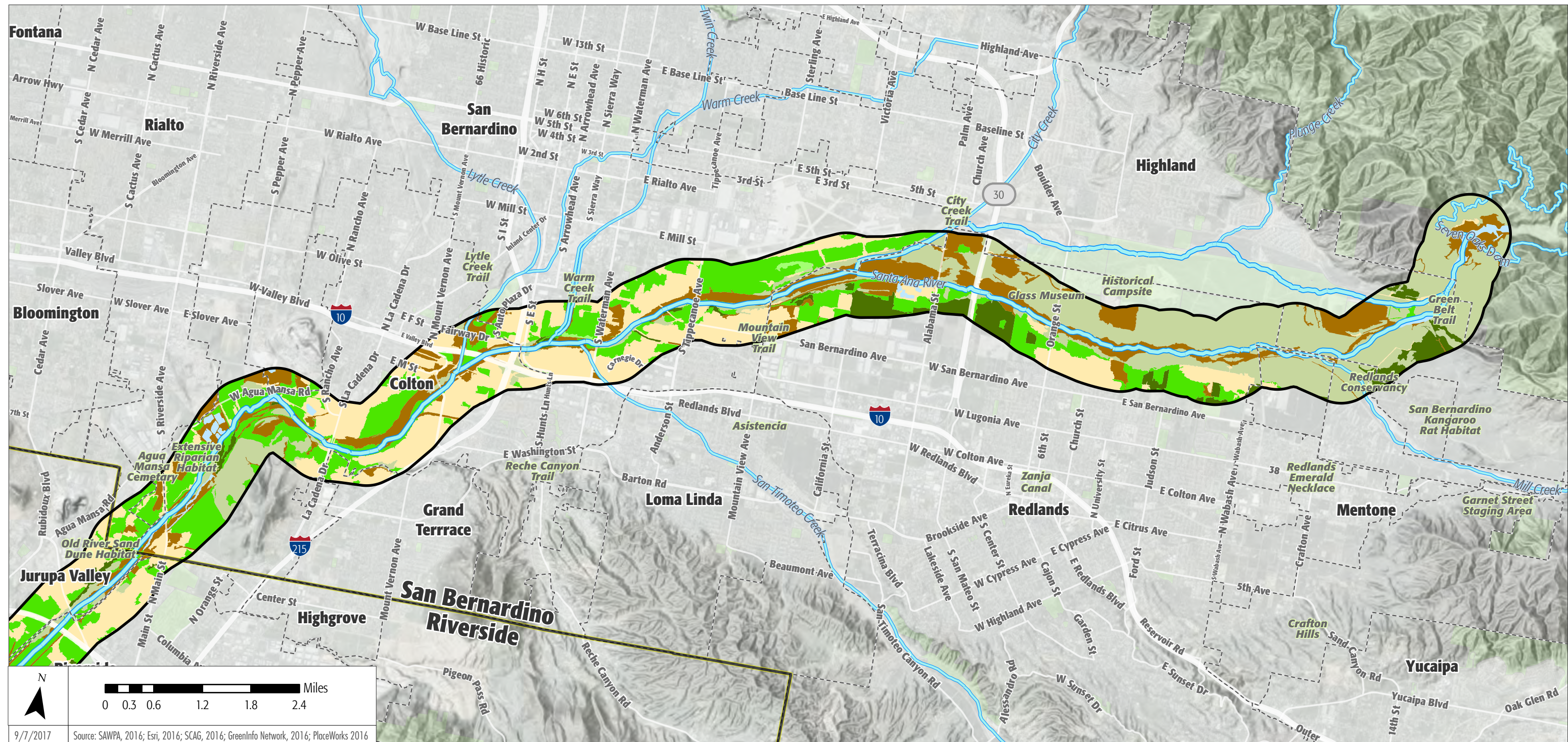












Figure 3-4, Existing Habitat and Surface Water
Reach 3: San Bernardino County



CALVEG Existing Habitat

- | | |
|---|--|
|  | Hardwood forest/woodland |
|  | Herbaceous |
|  | Mixed conifer and hardwood forest/woodland |
|  | Shrub |
|  | Barren [Rock/Soil/Sand/Snow] |
|  | Urban |
|  | Water |

Miscellaneous

-  Santa Ana River
 Other Rivers
 City Boundary
 Parkway Boundary

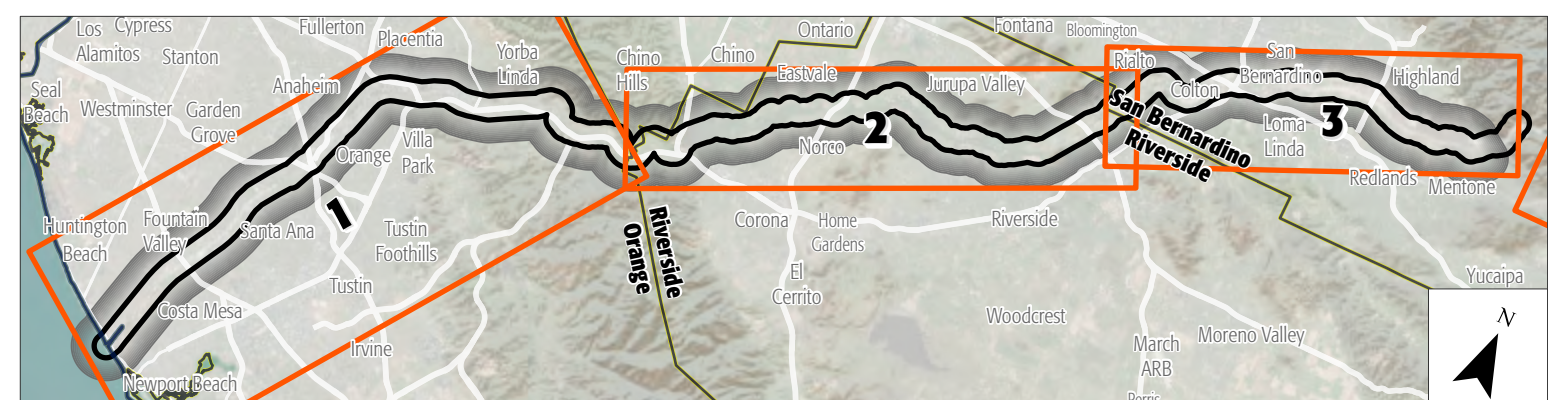
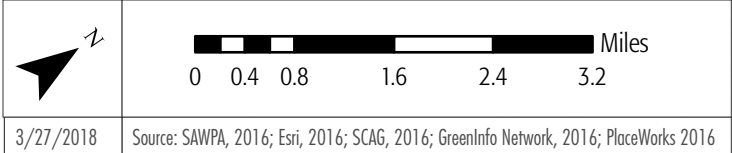
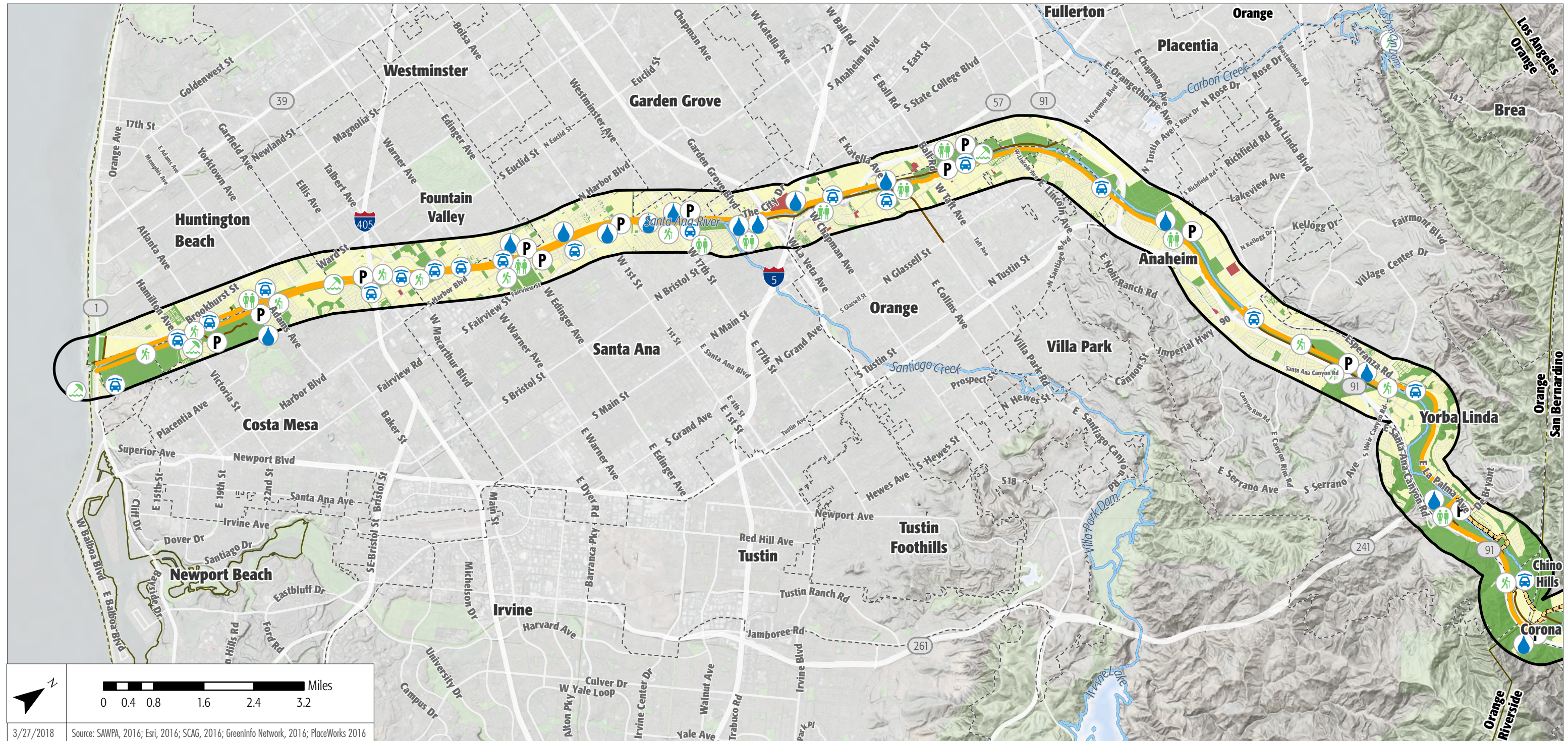




Figure 3-5, Existing Public Access Features
Reach 1: Orange County



- | | | | |
|-------------------|--------------------------|------------------------------|----------------------|
| Amenities | Existing Land Use | Santa Ana River Trail | Miscellaneous |
| Parking Lot | Developed | Completed | Rivers |
| Potable Water | Public (unknown) | Proposed | City Boundary |
| Restroom | Park/Undeveloped Land | | Parkway Boundary |
| On-Street Parking | Unknown | | |
| Access To Trails | | | |
| Access to River | | | |

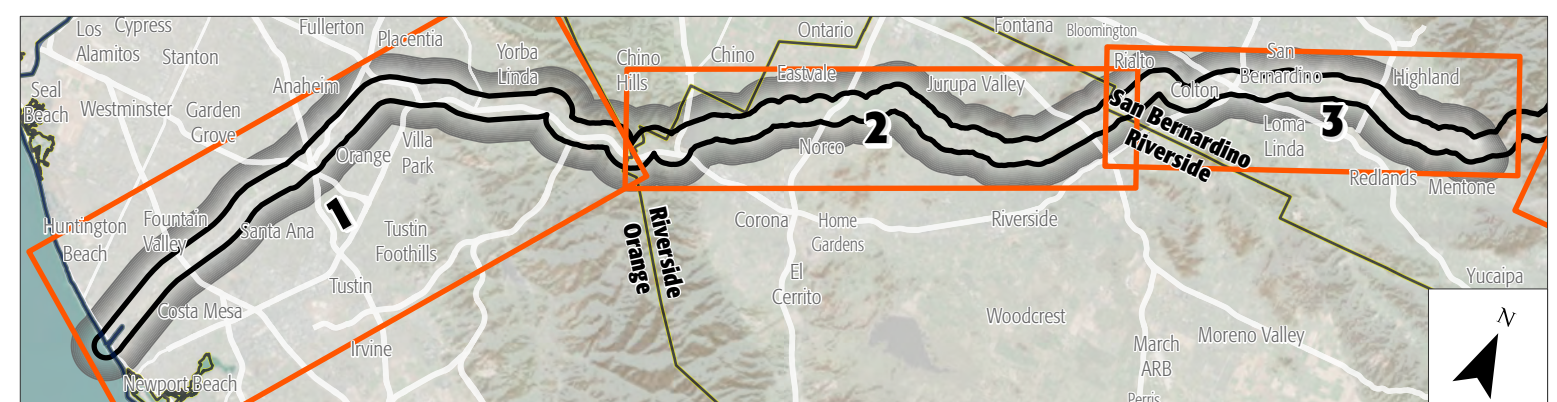
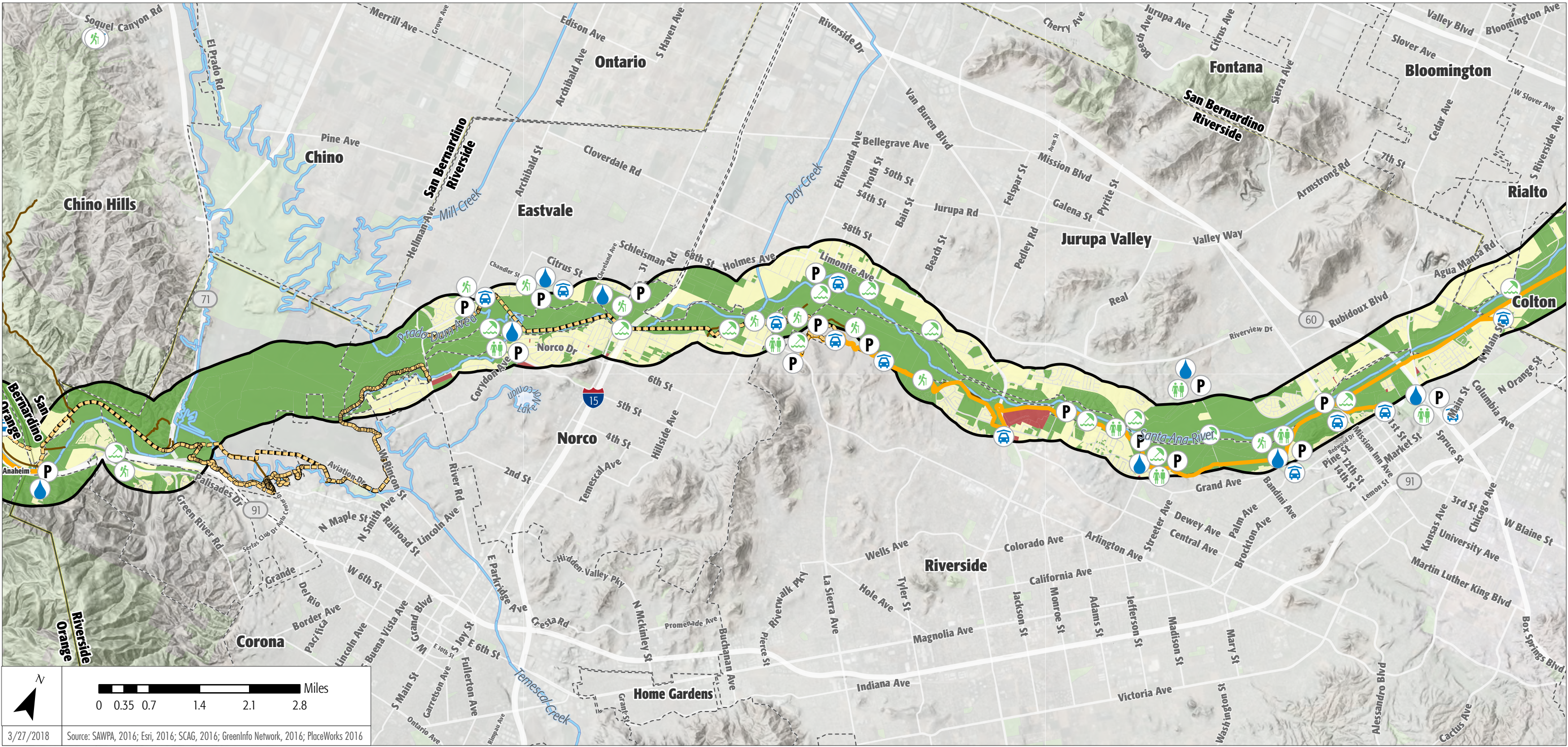


Figure 3-5, Existing Public Access Features
Reach 2: Riverside County



<p>Amenities</p> <ul style="list-style-type: none"> Parking Lot Potable Water Restroom On-Street Parking Access To Trails Access to River 	<p>Existing Land Use</p> <ul style="list-style-type: none"> Developed Public (unknown) Park/Undeveloped Land Unknown 	<p>Santa Ana River Trail</p> <ul style="list-style-type: none"> Completed Proposed 	<p>Miscellaneous</p> <ul style="list-style-type: none"> Rivers City Boundary Parkway Boundary
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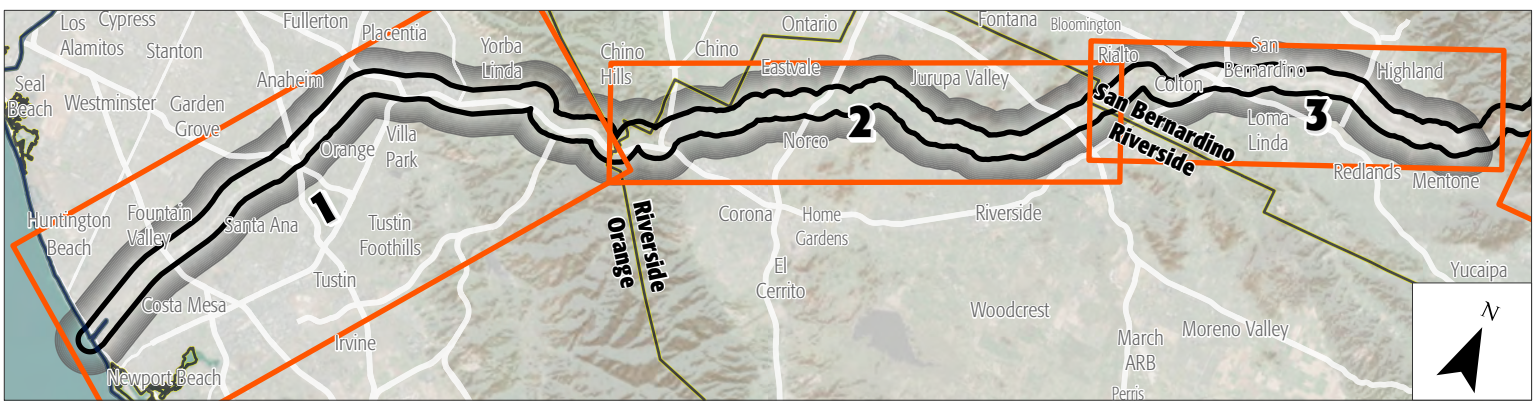
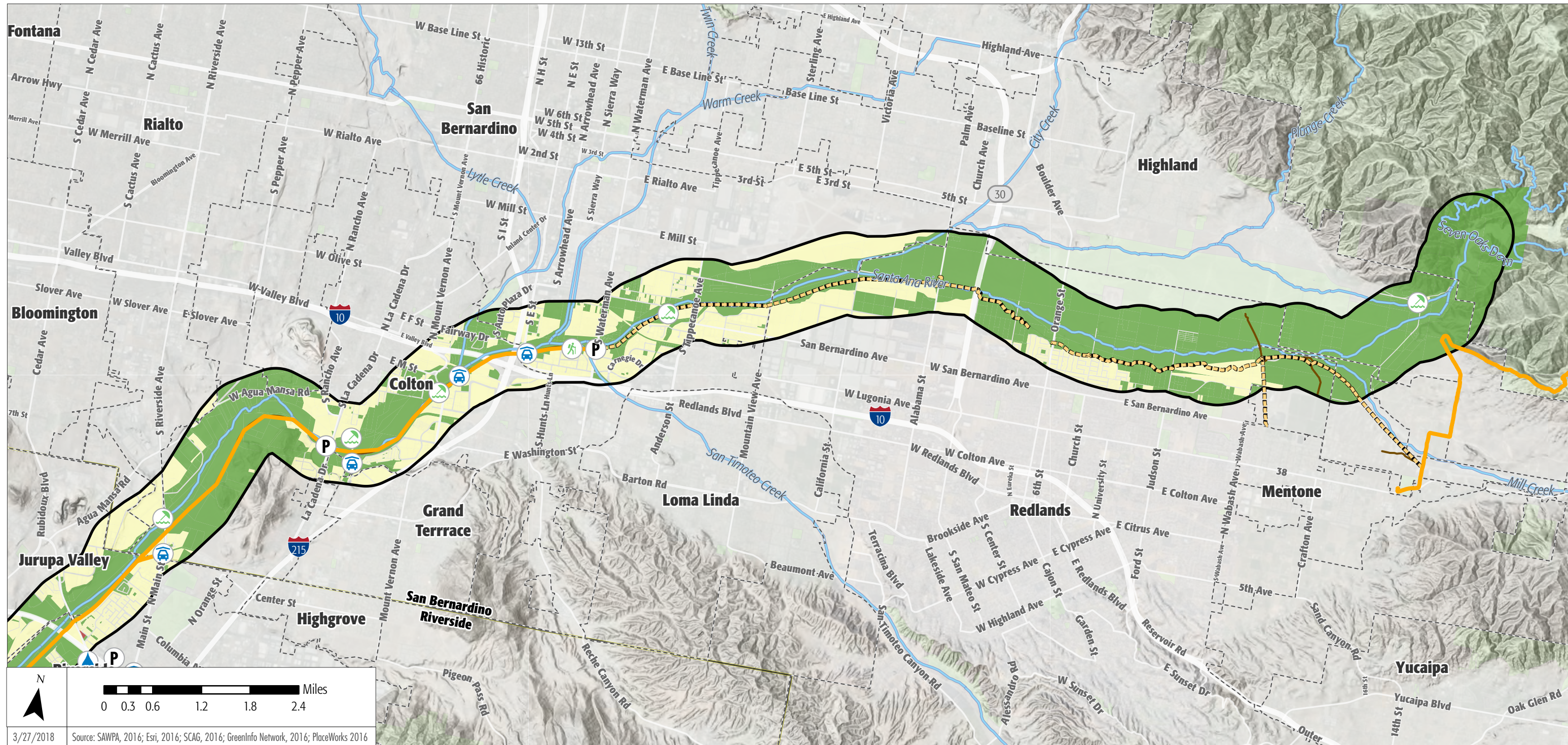




Figure 3-5, Existing Public Access Features
Reach 3: San Bernardino County



Amenities

- Parking Lot
- Potable Water
- Restroom
- On-Street Parking
- Access To Trails
- Access to River

Existing Land Use

- Developed
- Public (unknown)
- Park/Undeveloped Land
- Unknown

Santa Ana River Trail

- Completed
- Proposed

Miscellaneous

- Rivers
- City Boundary
- Parkway Boundary

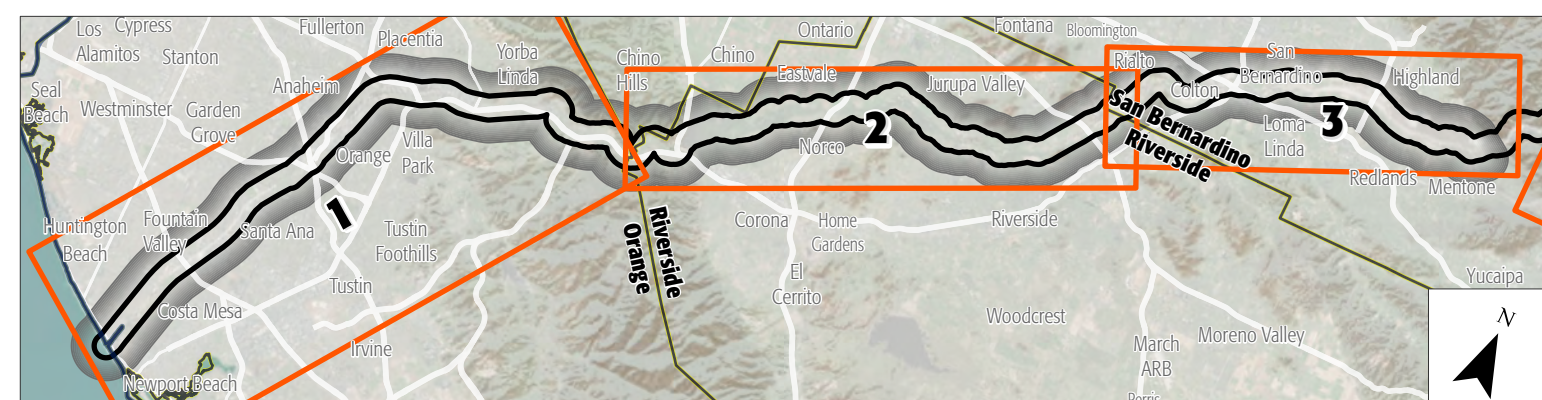
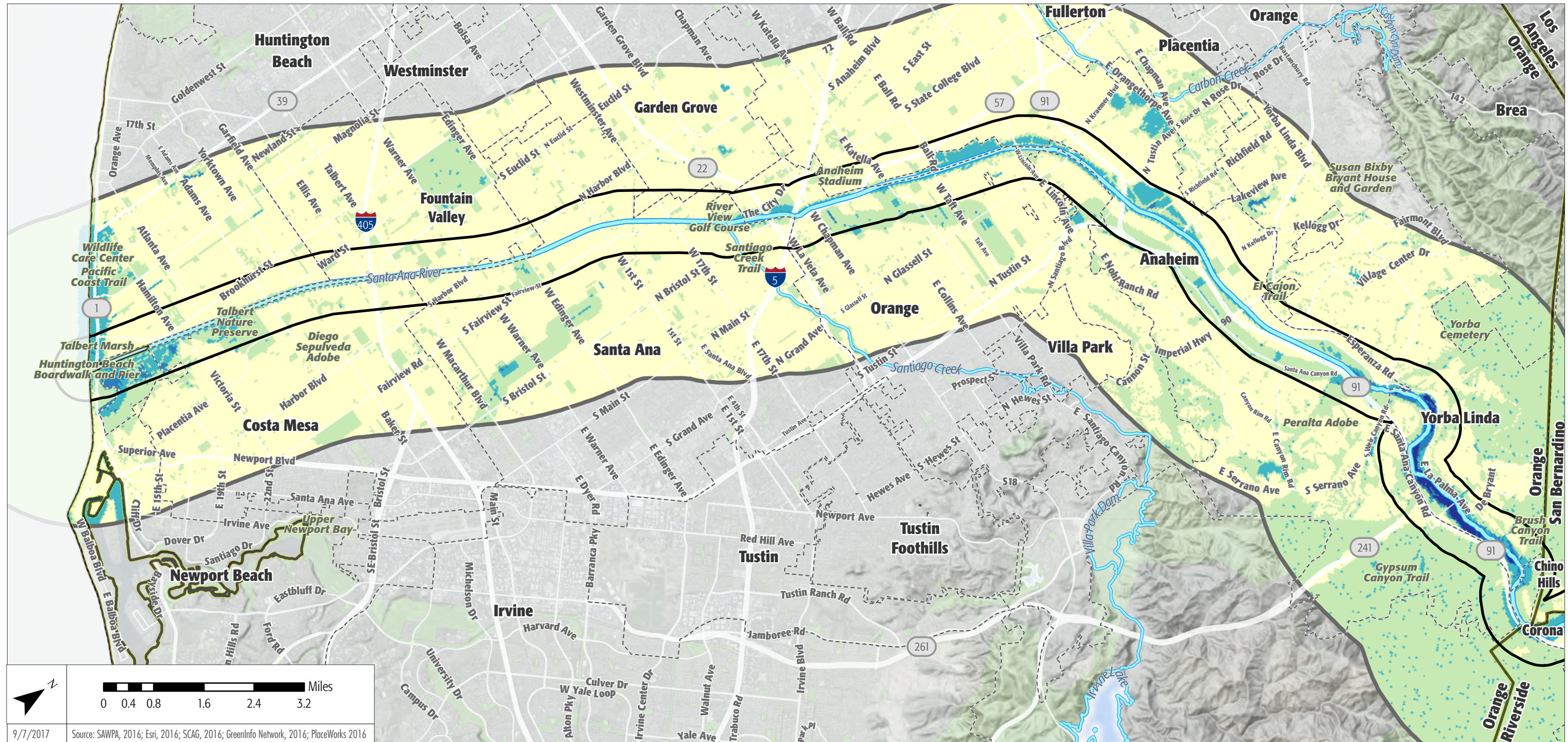




Figure 5-2, Cumulative Analysis: Water
Reach 1: Orange County



Water Quality Improvement Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

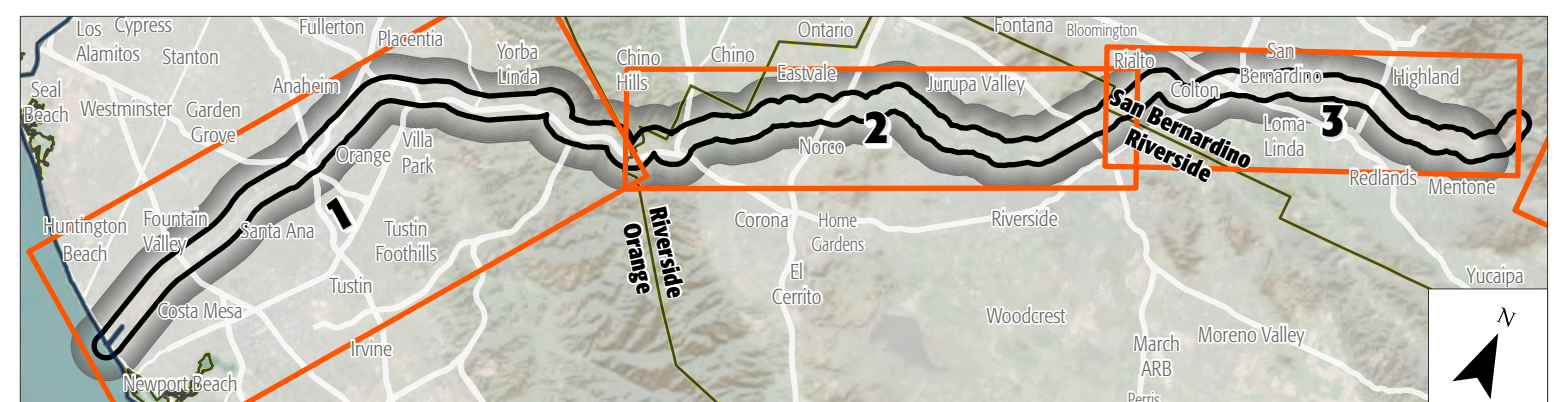
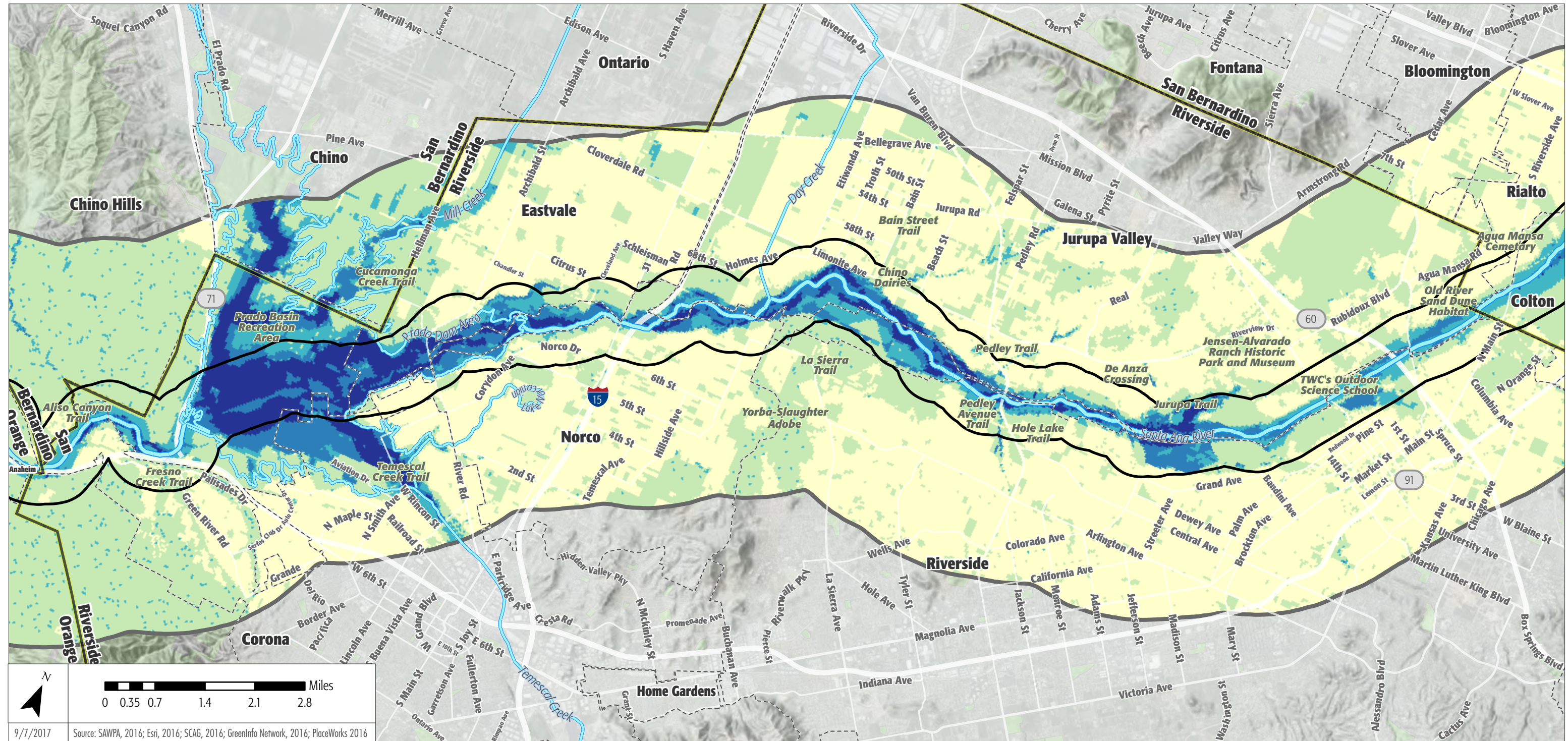




Figure 5-2, Cumulative Analysis: Water
Reach 2: Riverside County



Water Quality Improvement Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

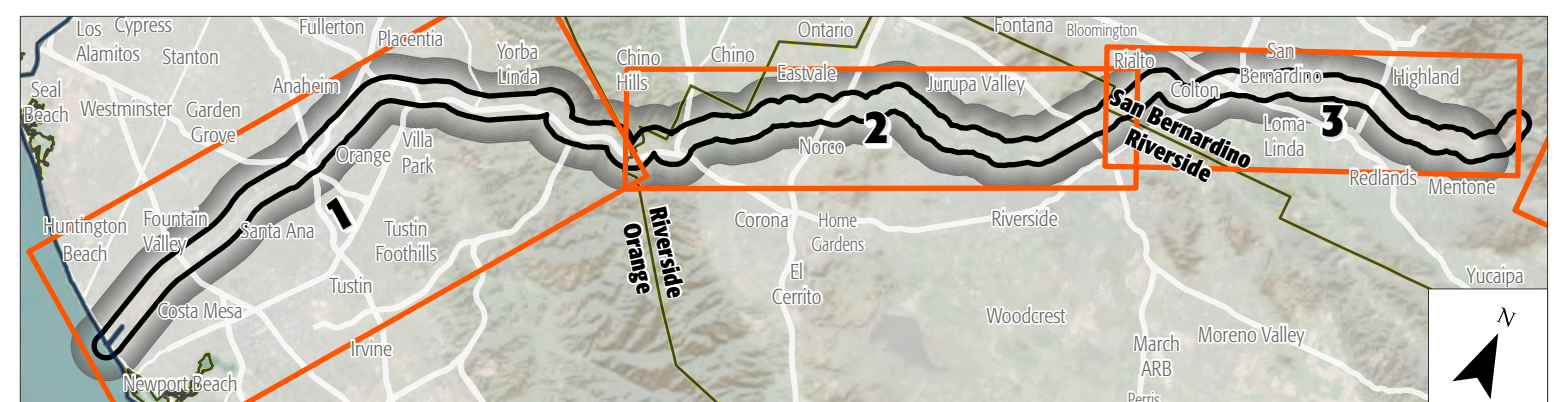
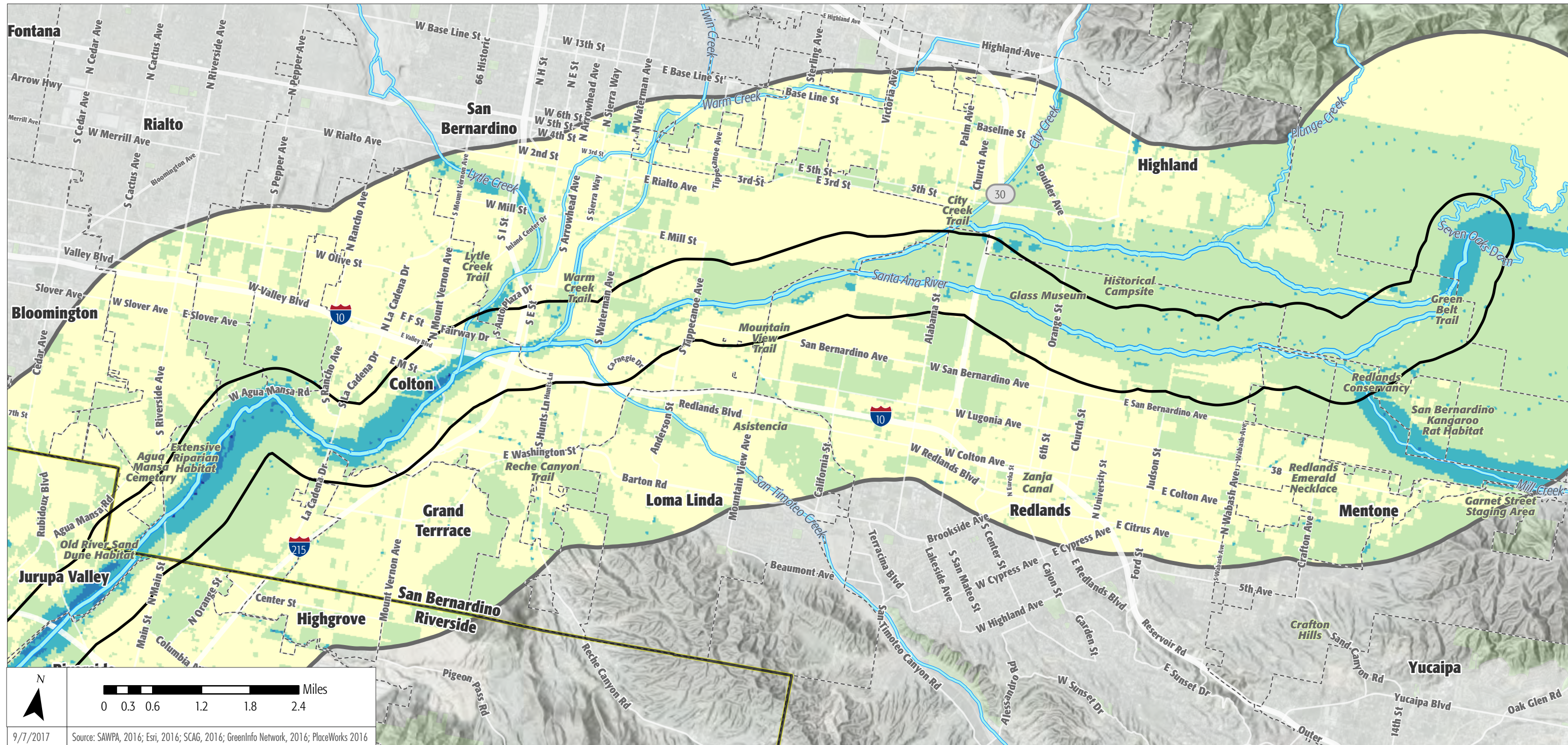




Figure 5-2, Cumulative Analysis: Water
Reach 3: San Bernardino County



Water Quality Improvement Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

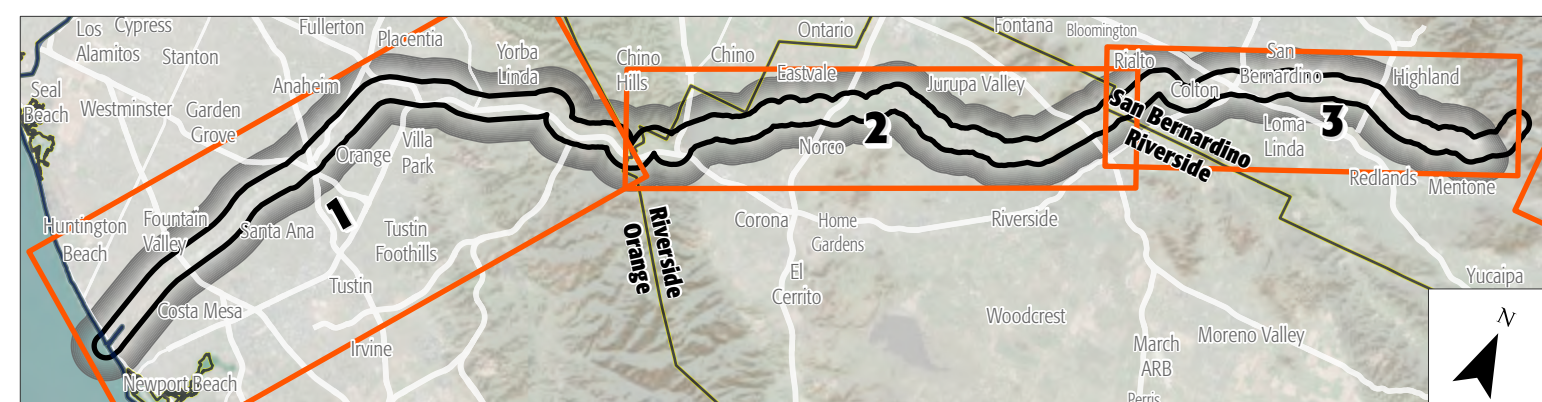
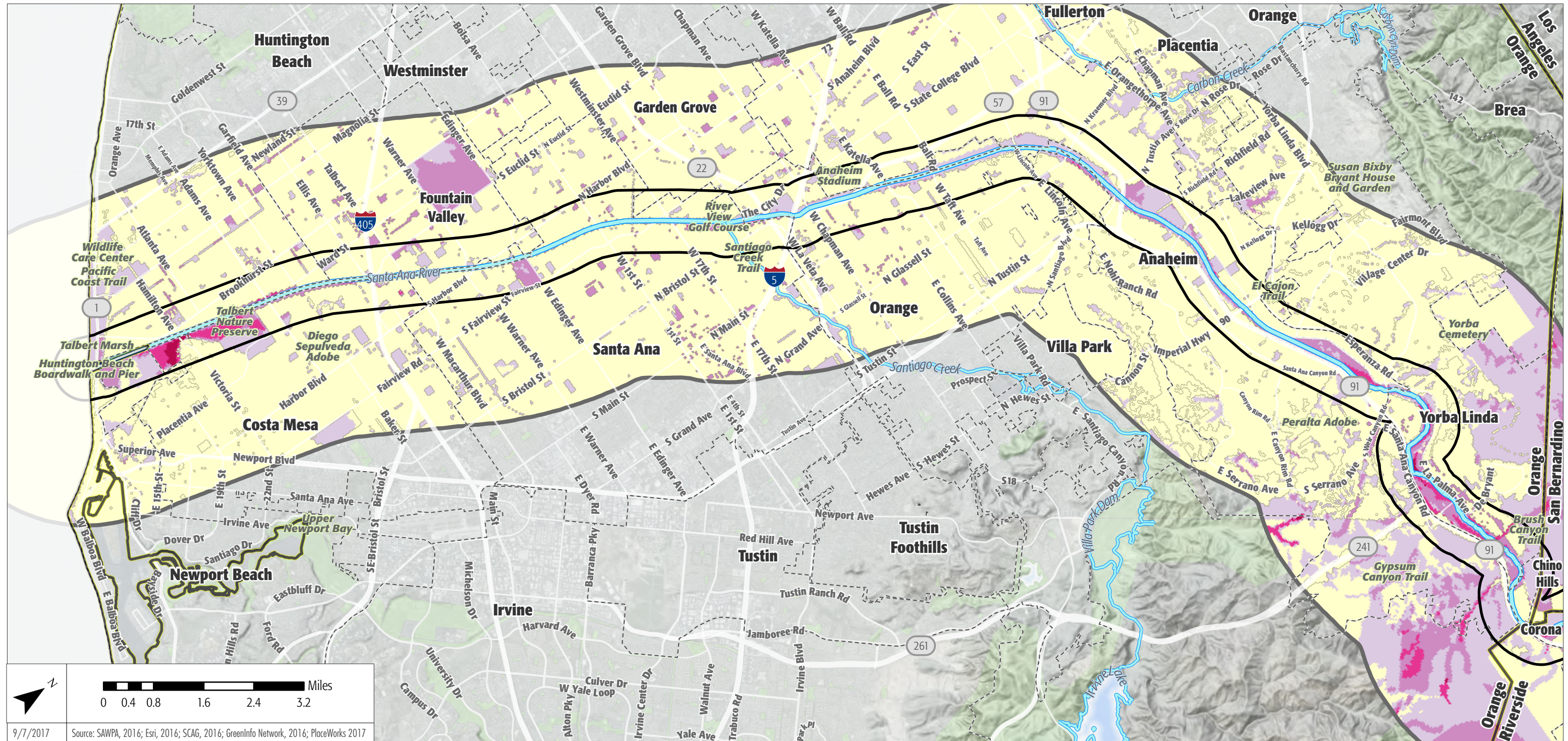




Figure 5-3, Cumulative Analysis: Habitat
Reach 1: Orange County



Habitat Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Analysis Area

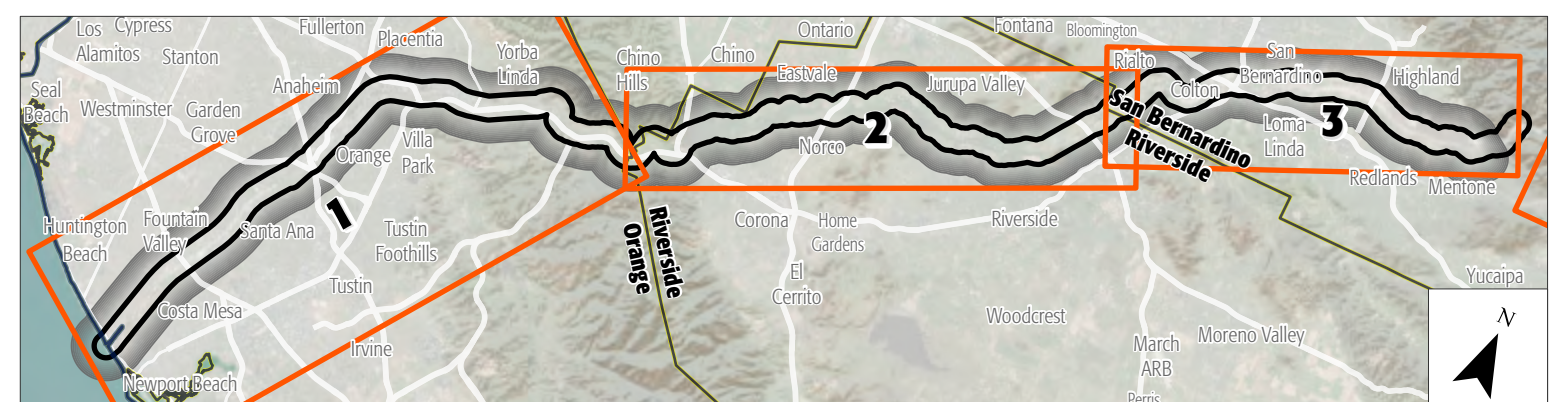
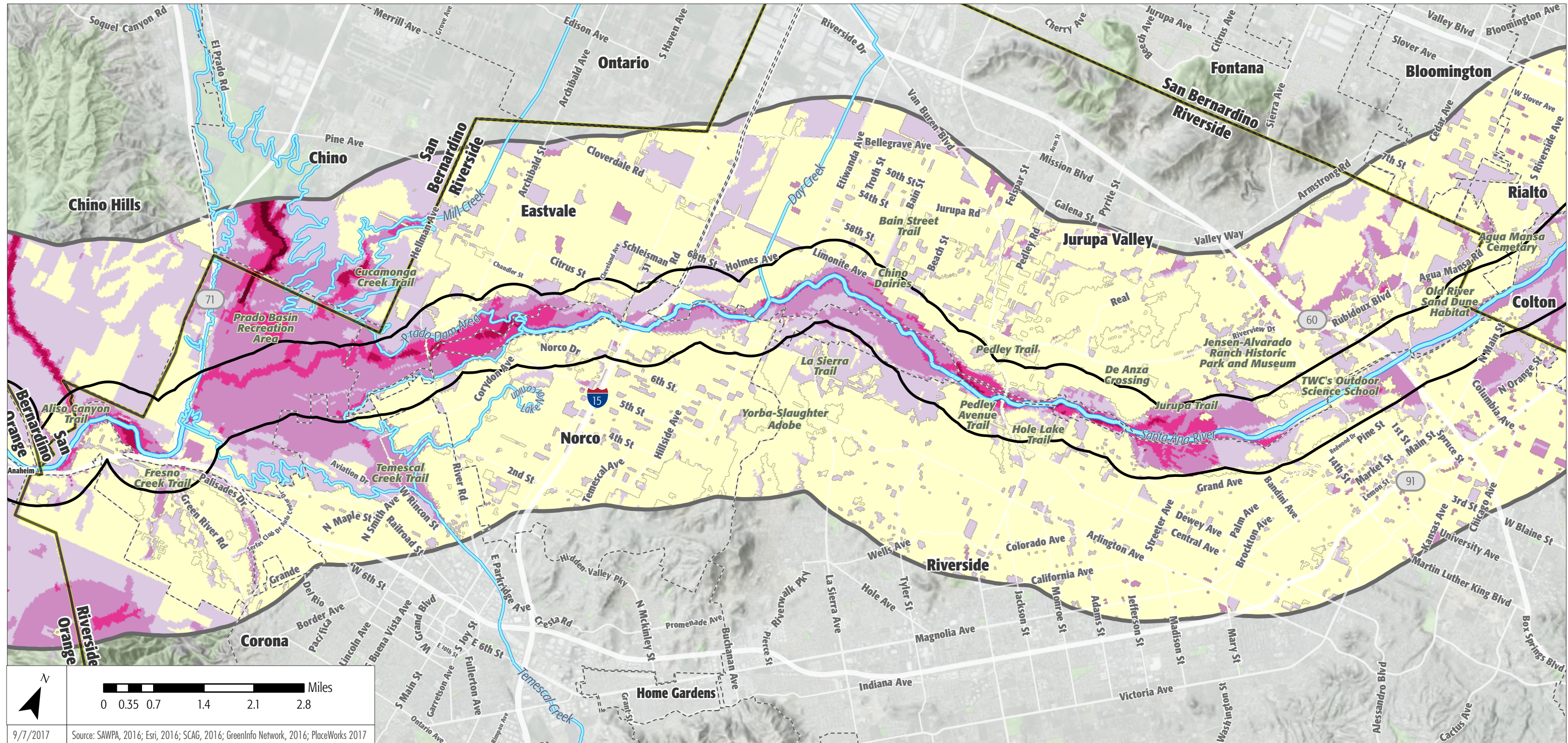




Figure 5-3, Cumulative Analysis: Habitat
Reach 2: Riverside County



Habitat Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Analysis Area

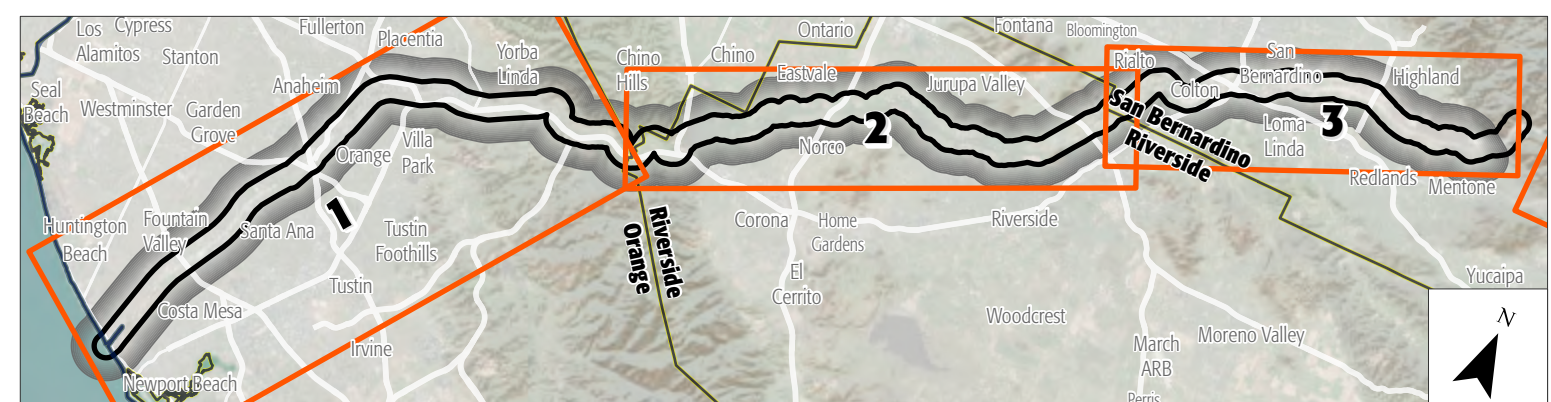
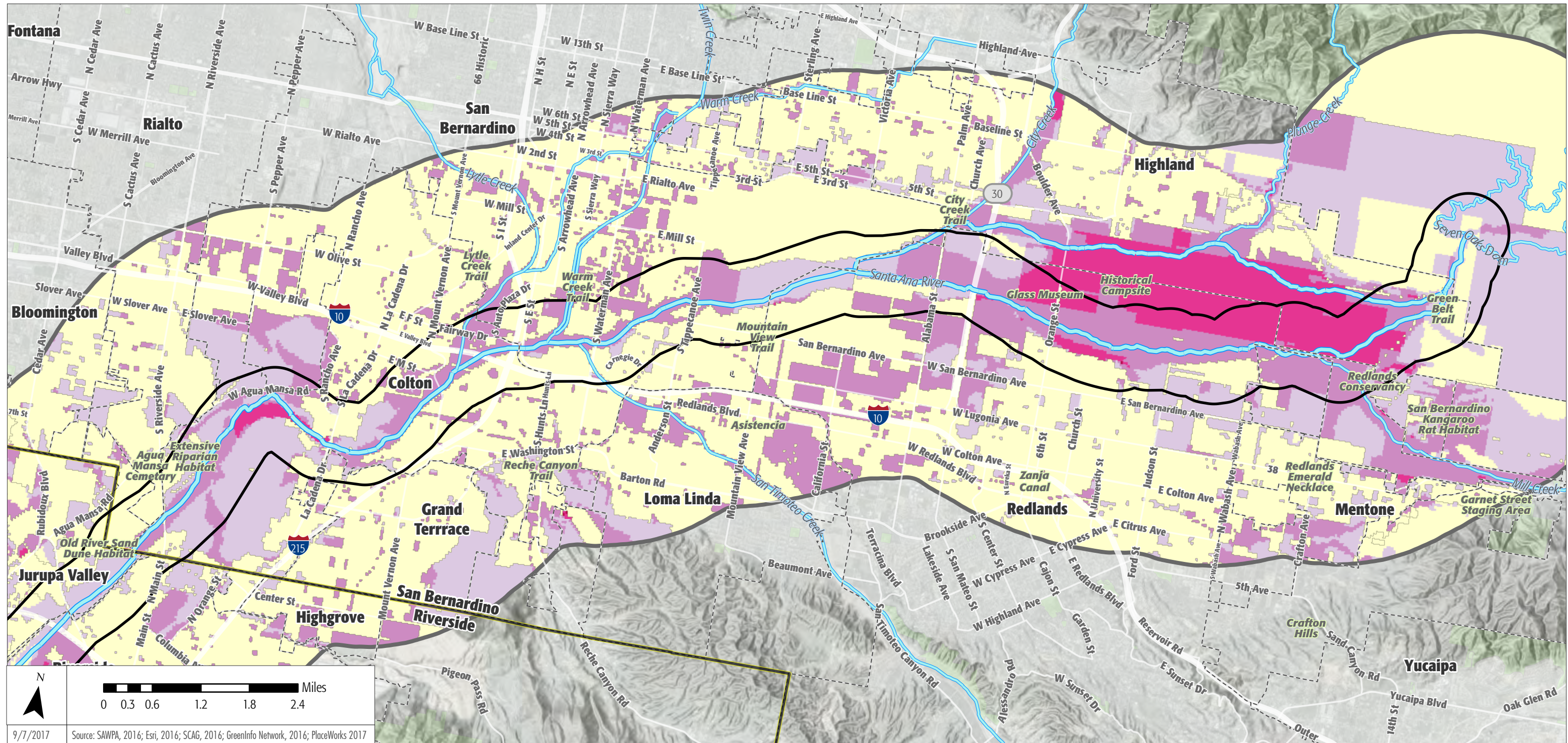




Figure 5-3, Cumulative Analysis: Habitat
Reach 3: San Bernardino County



Habitat Suitability

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Analysis Area

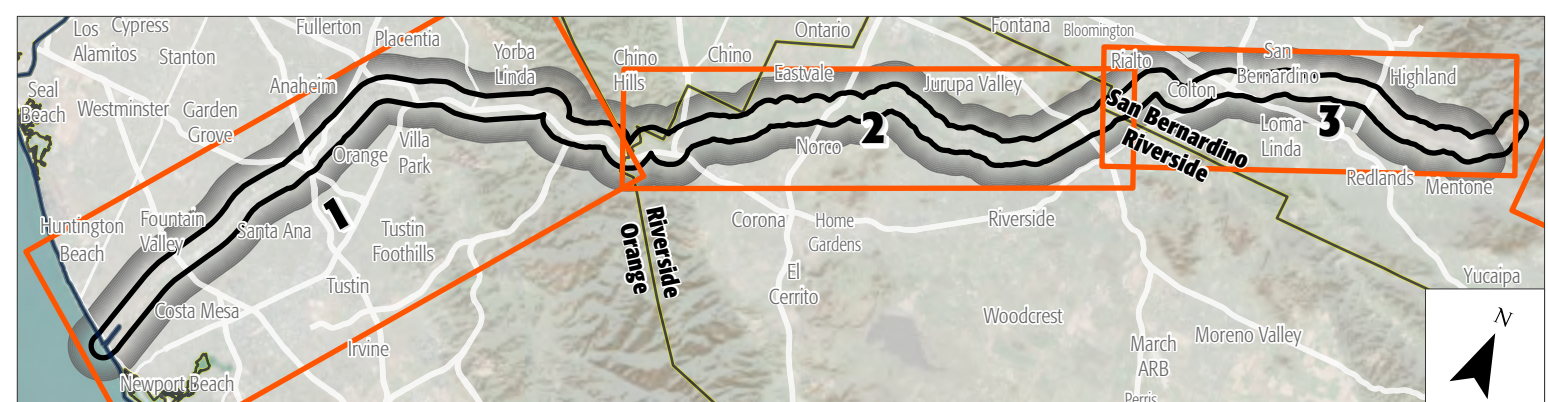




Figure 5-4, Cumulative Analysis: Equitable Education and Recreation Access
Reach 1: Orange County



Cumulative Analysis: Education, Recreation, & Access

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

Note: Areas identified as suitable for education and recreation access may include areas where access needs to be restricted to protect resources.

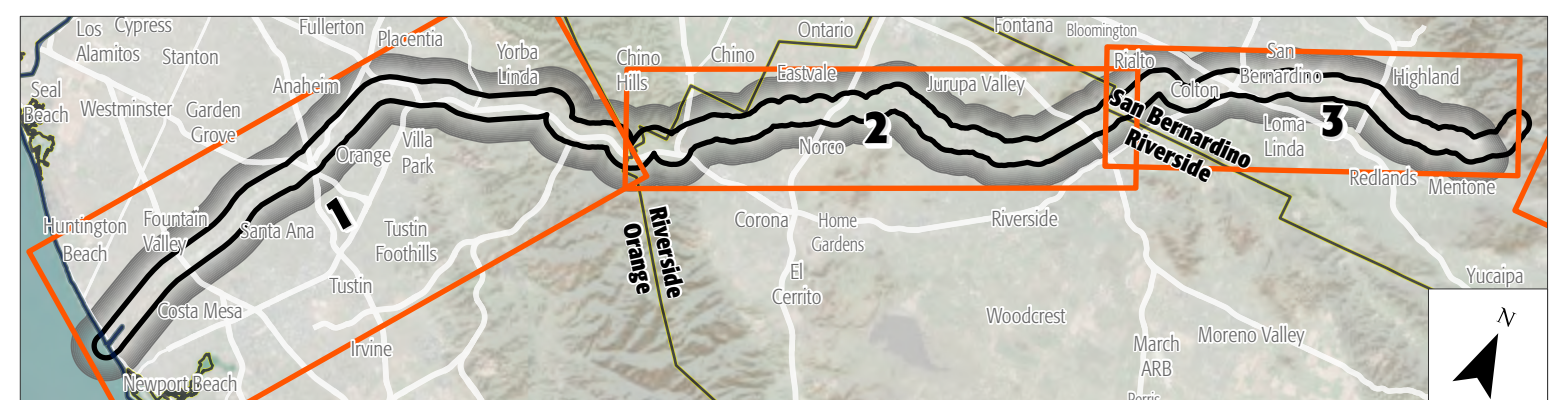


Figure 5-4, Cumulative Analysis: Equitable Education and Recreation Access
Reach 2: Riverside County



Cumulative Analysis: Education, Recreation, & Access

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

Note: Areas identified as suitable for education and recreation access may include areas where access needs to be restricted to protect resources.

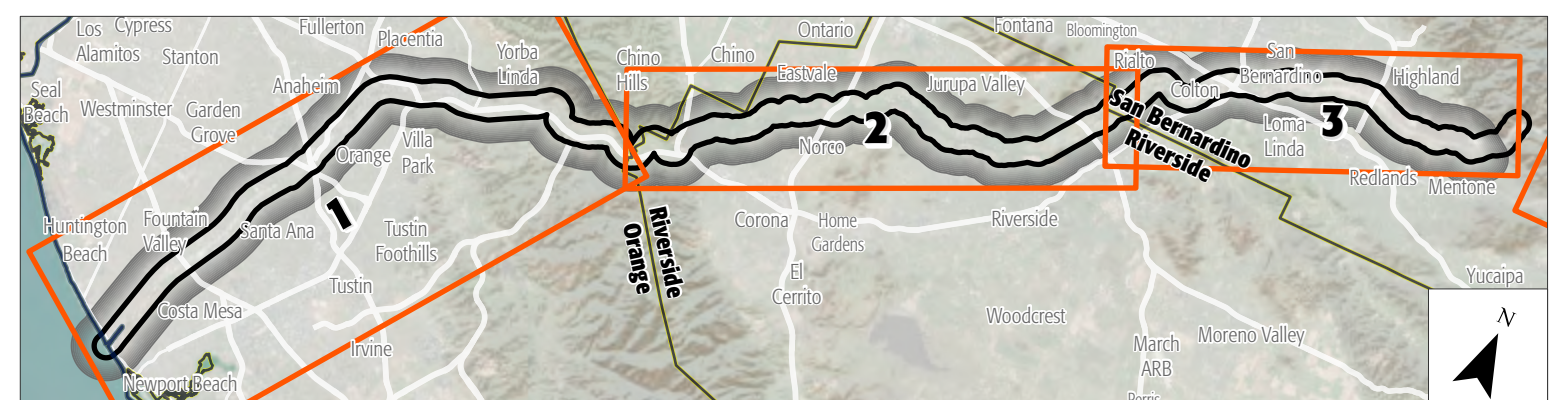
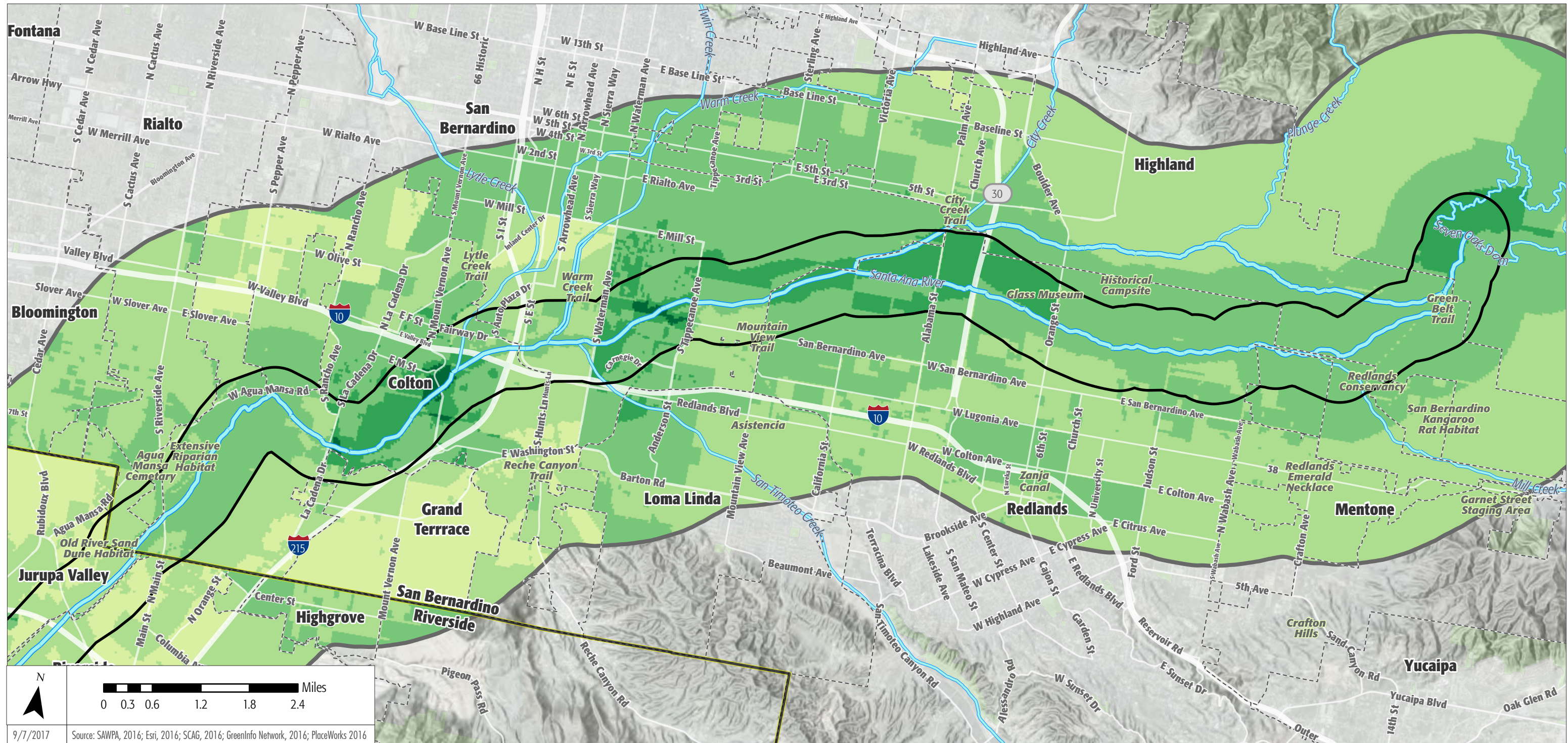


Figure 5-4, Cumulative Analysis: Equitable Education and Recreation Access
Reach 3: San Bernardino County



Cumulative Analysis: Education, Recreation, & Access

- Not Suitable
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Miscellaneous

- Santa Ana River
- Other River
- City Boundary
- Parkway Boundary
- Parkway Study Area

Note: Areas identified as suitable for education and recreation access may include areas where access needs to be restricted to protect resources.

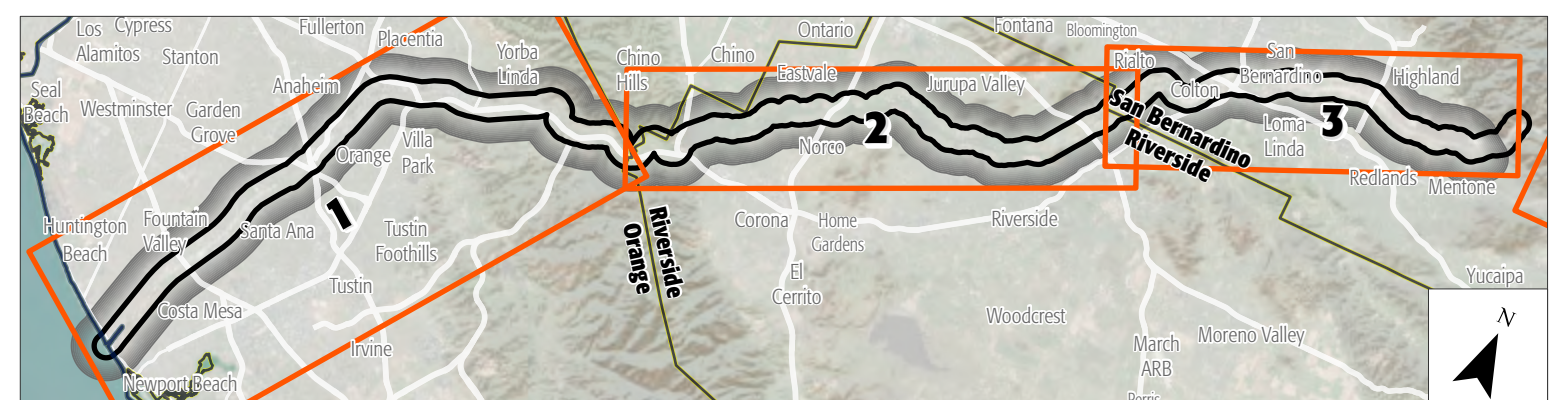


Figure 6-2, Parkway Project Opportunities Map
Reach 1: Orange County



3/27/2018 Source: SAWPA, 2016; Esri, 2016; SCAG, 2016; GreenInfo Network, 2016; PlaceWorks 2016

- | | | | |
|--|--|---|---|
| <p>Projects</p> <ul style="list-style-type: none"> ● Orange County Projects ● Riverside County Projects ● San Bernardino County Projects ● Forest Service Projects | <p>Existing Land Use</p> <ul style="list-style-type: none"> Developed Public (unknown) Public Park Protected Habitat and Open Space Other Undeveloped Land | <p>Santa Ana River Trail</p> <ul style="list-style-type: none"> — Completed — Proposed | <p>Miscellaneous</p> <ul style="list-style-type: none"> — Rivers City Boundary Parkway Boundary |
|--|--|---|---|

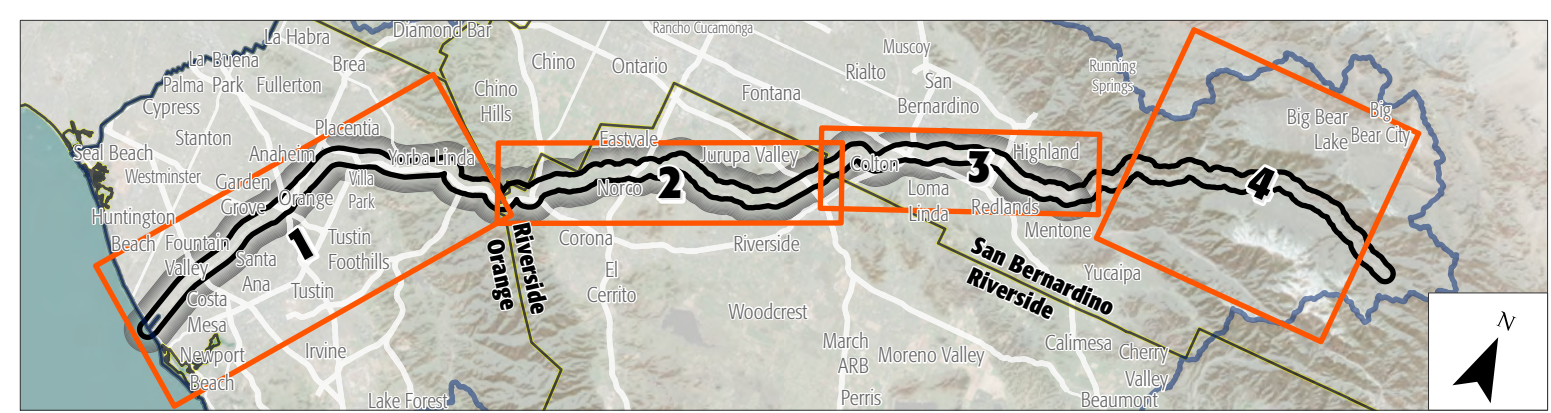
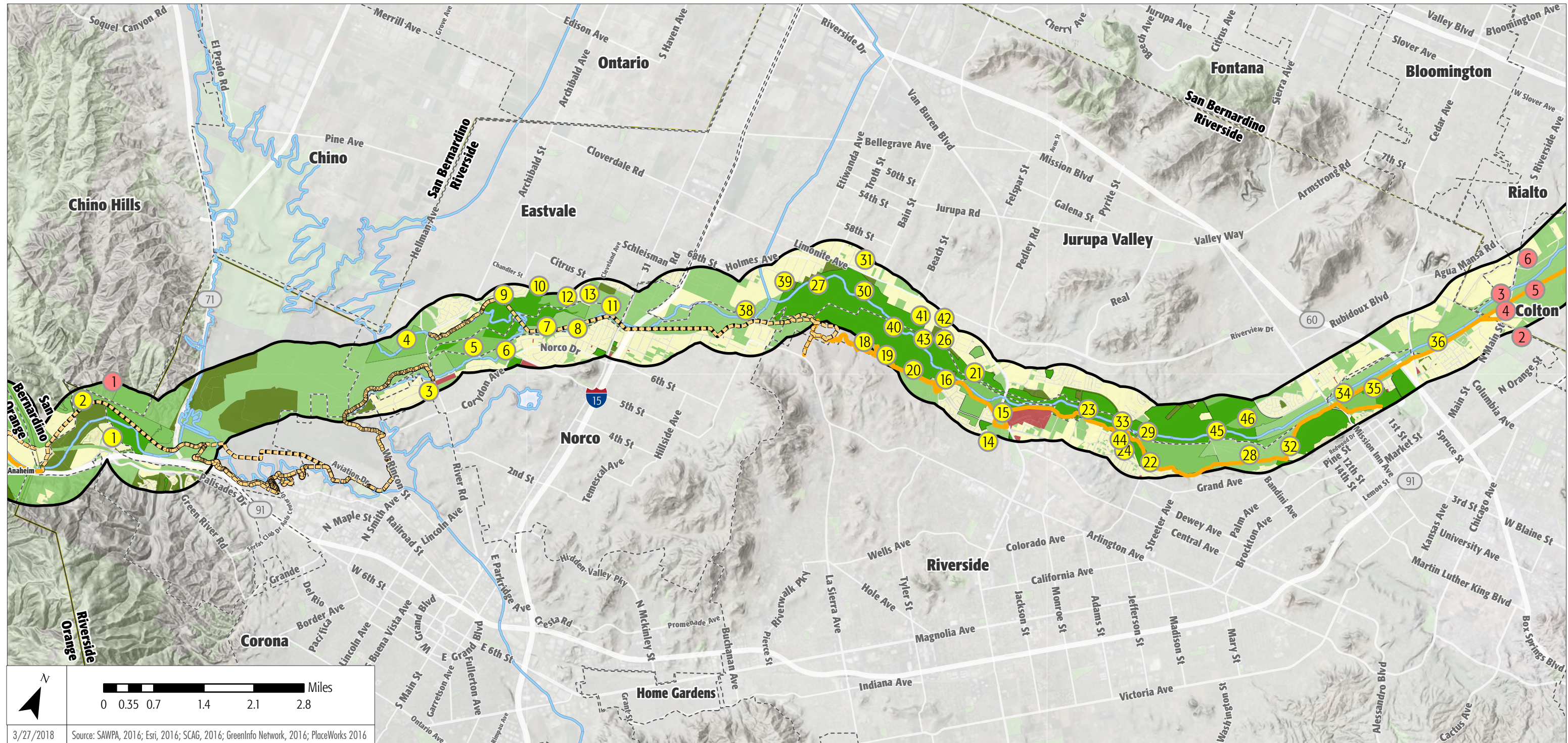


Figure 6-2, Parkway Project Opportunities Map
Reach 2: Riverside County



- | | | | |
|--|--|--|--|
| Projects
<ul style="list-style-type: none"> ● Orange County Projects ● Riverside County Projects ● San Bernardino County Projects ● Forest Service Projects | Existing Land Use
<ul style="list-style-type: none"> Developed Public (unknown) Public Park Protected Habitat and Open Space Other Undeveloped Land | Santa Ana River Trail
<ul style="list-style-type: none"> — Completed — Proposed | Miscellaneous
<ul style="list-style-type: none"> — Rivers City Boundary Parkway Boundary |
|--|--|--|--|

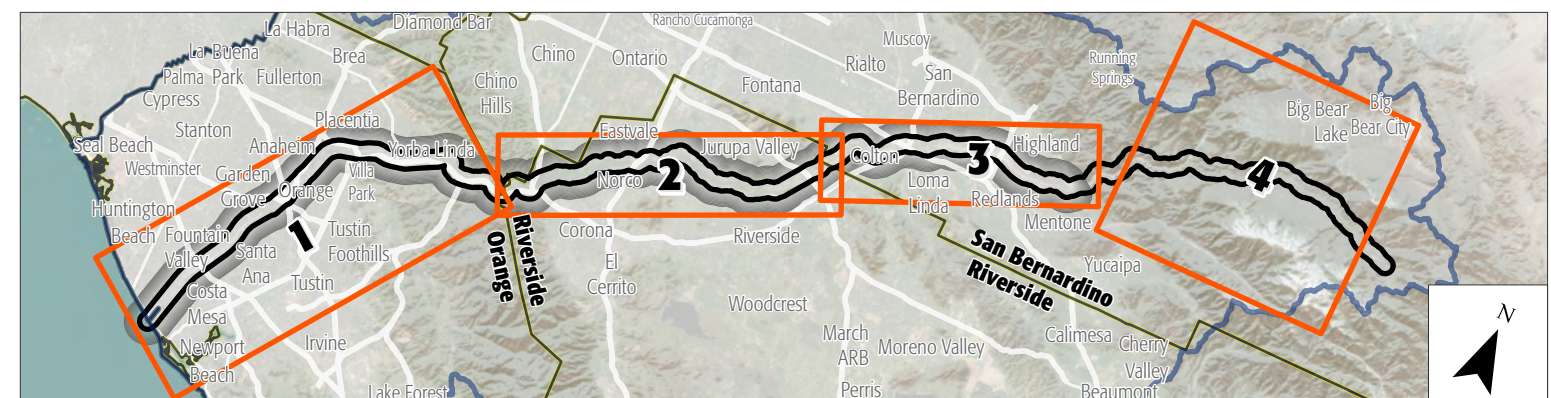
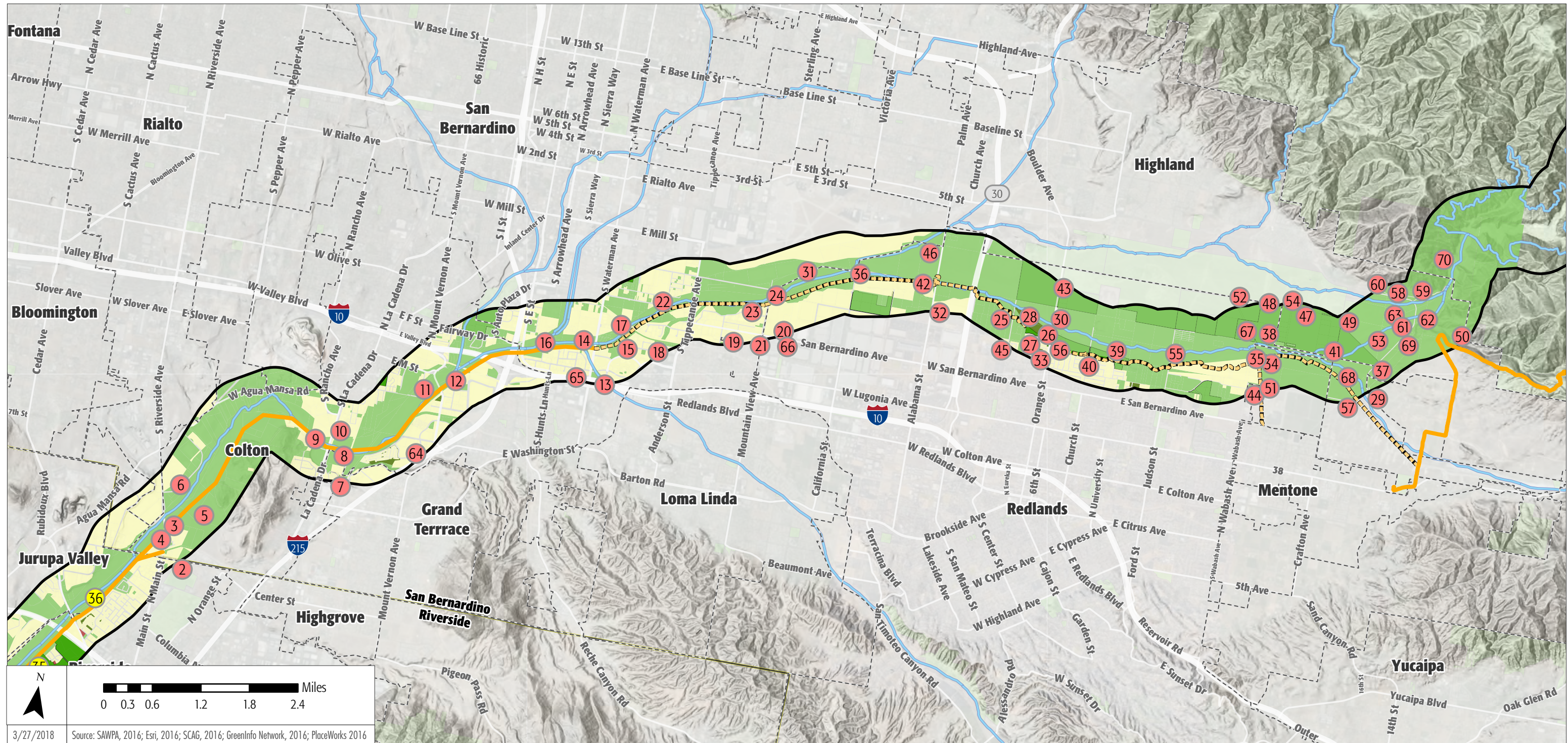




Figure 6-2, Parkway Project Opportunities Map
Reach 3: San Bernardino County



Projects

- Orange County Projects
- Riverside County Projects
- San Bernardino County Projects
- Forest Service Projects

Existing Land Use

- Developed
- Public (unknown)
- Public Park
- Protected Habitat and Open Space
- Other Undeveloped Land

Santa Ana River Trail

- Completed
- Proposed

Miscellaneous

- Rivers
- City Boundary
- Parkway Boundary

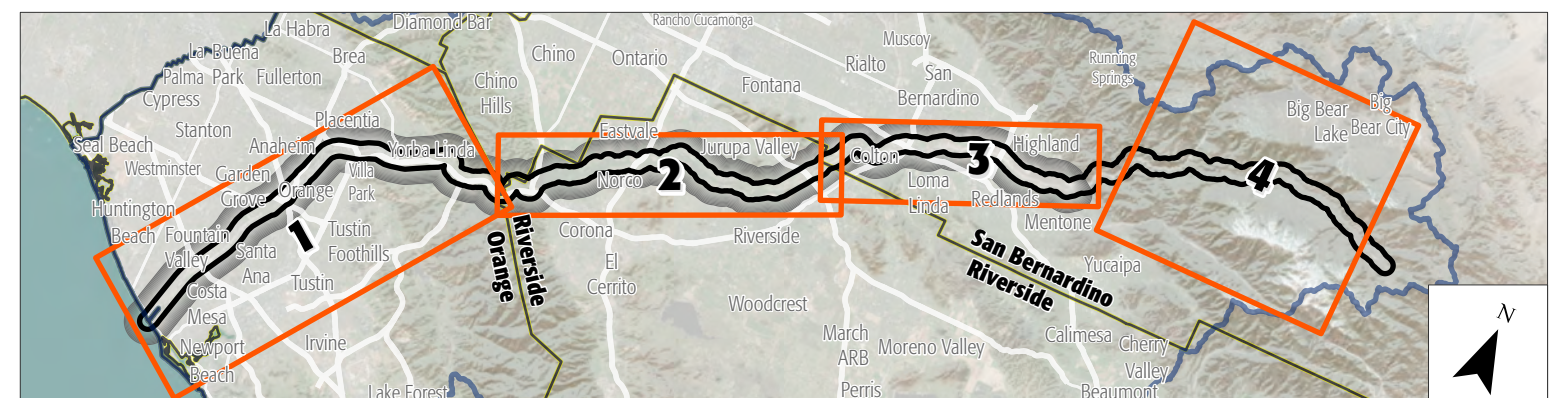
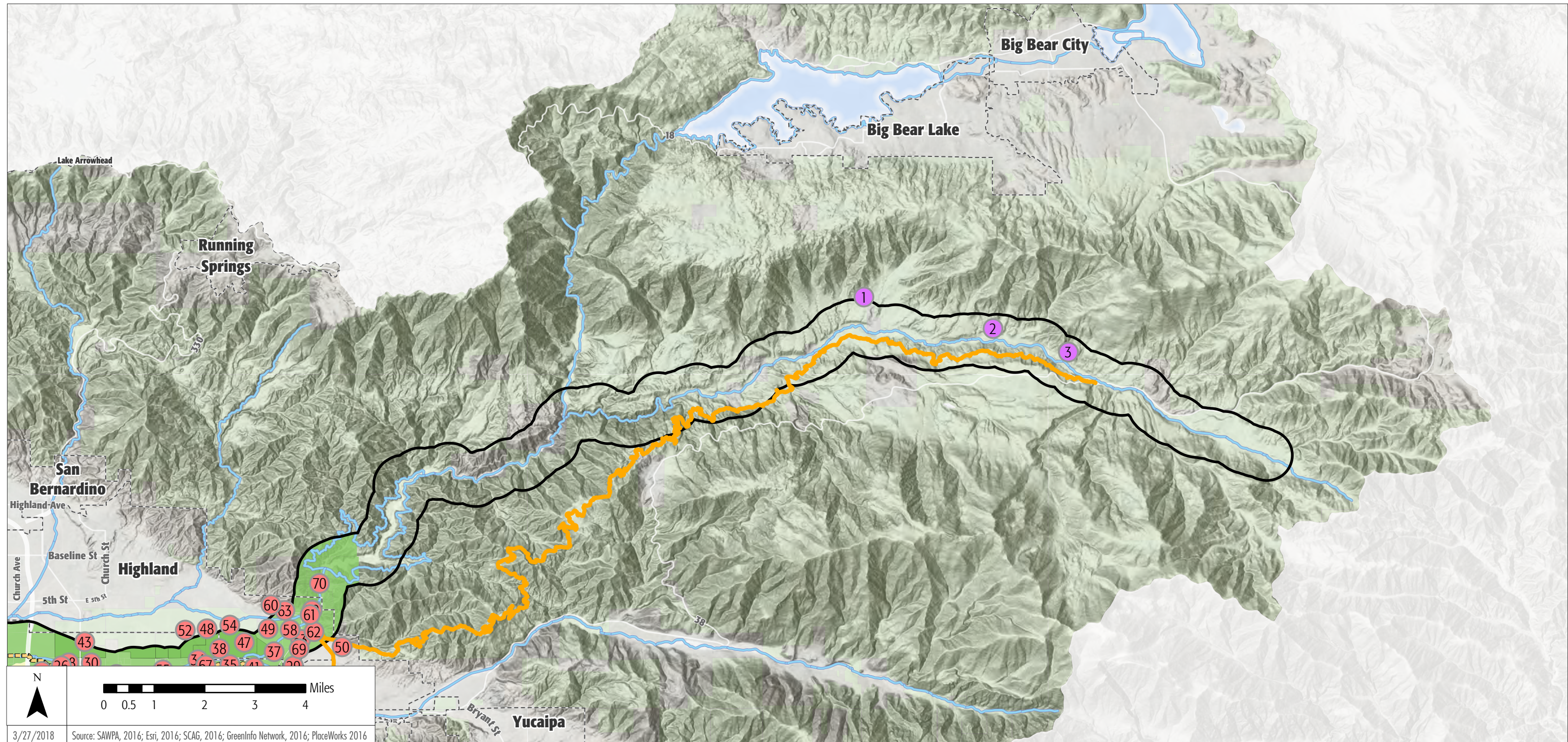




Figure 6-2, Parkway Project Opportunities Map
Reach 4: Forest Service



Projects

- Orange County Projects
- Riverside County Projects
- San Bernardino County Projects
- Forest Service Projects

Existing Land Use

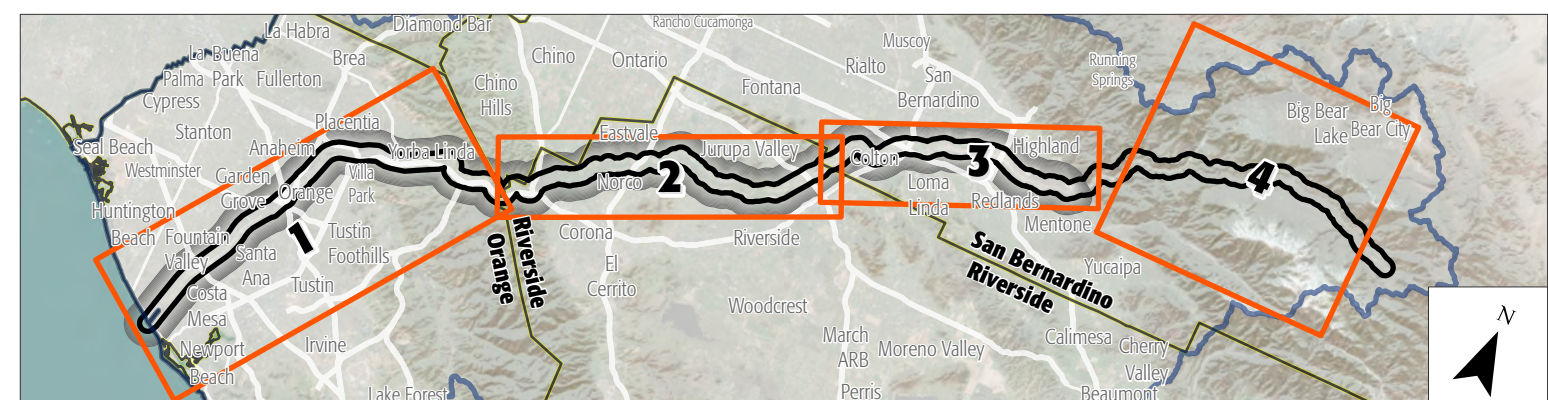
- Developed
- Public (unknown)
- Public Park
- Protected Habitat and Open Space
- Other Undeveloped Land

Santa Ana River Trail

- Completed
- Proposed

Miscellaneous

- Rivers
- City Boundary
- Parkway Boundary





Appendix B: Inventory & Assessment Summary Report



INVENTORY & ASSESSMENT SUMMARY REPORT

INTRODUCTION

This Inventory and Assessment Summary Report documents existing and planned features of the Santa Ana River Parkway (Parkway), and assesses the Parkway's physical characteristics.

The Parkway is defined as the area within ½ mile of each side of the main river channel, and stretches through San Bernardino, Riverside, and Orange counties. The inventory and analysis presented in this Report focuses on the Parkway area (approximately 1-mile wide corridor), while considering an expanded Study Area that includes an additional 2 miles on either side of the river. For the purposes of this Report, "Parkway" refers to the approximately 1 mile wide corridor below Seven-Oaks Dam and "Study Area" is the approximately 6-mile wide corridor that encompasses the Parkway below Seven-Oaks Dam. The area of the Parkway above Seven-Oaks Dam is comprised predominantly of lands managed by the United States Forest Service lands; the Parkway was expanded to encompass this area following the analysis of Parkway conditions presented in this Report. While this area is not included in this Report, existing conditions within this area are generally consistent from a planning perspective and are addressed in the SARP&OSP. The expanded Study Area provides greater context for Parkway visioning and analysis, allowing for a more comprehensive assessment.

The information compiled and/or generated through the inventory and assessment identifies areas of the Parkway that are most suitable, or have the greatest need for, various types of Parkway projects. This information will inform prioritization of future Parkway projects, ensuring that efforts within the Parkway build toward the vision of the Santa Ana River Parkway as stated below:

The Santa Ana River Parkway is a regionally celebrated resource that provides varied opportunities for residents and visitors to experience the river corridor along its entire length, while providing necessary flood protection, water supply, habitat for a unique diversity of plants and animals, as well as recreation, education, economic, and health benefits.

This report begins with an overview of the Parkway inventory and context, followed by an analysis of the physical characteristics of the Parkway, including water, habitat, education and recreation, and equitable access. Given the scale of the Parkway, maps included in this Report are best viewed on-screen or printed as full-scale. Maps are included as figures within this Report for reference only; higher resolution maps are available digitally for on-screen viewing and/or printing.

PARKWAY INVENTORY AND CONTEXT

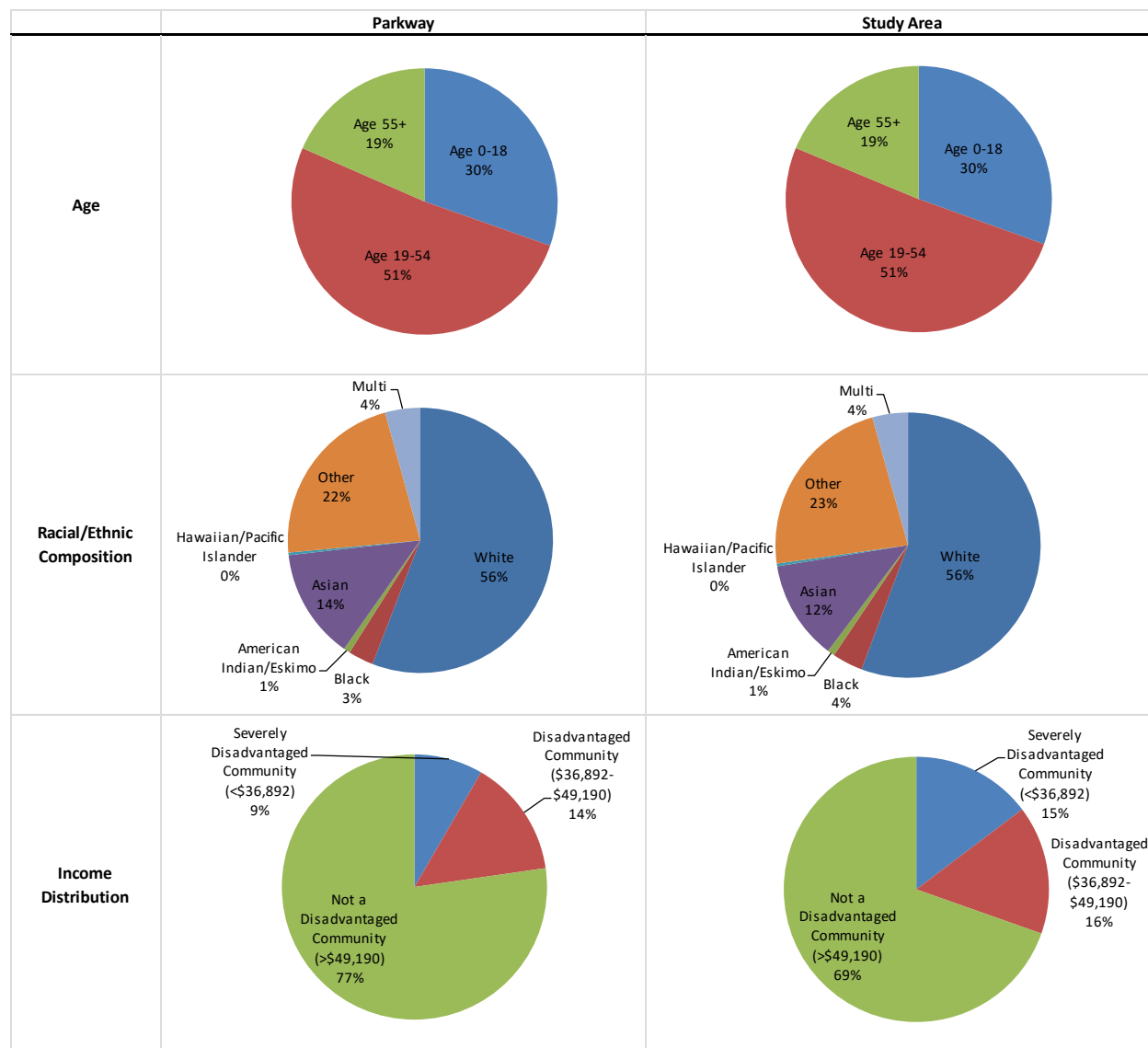
An overview of the Parkway's current population is provided below, followed by a description of the inventory methodology and outcomes as well as the Draft Vision Map that was developed based on the inventory.

Parkway Population (Who lives within the Parkway?)

The three counties in which the Parkway is located have a combined population of nearly 7.5 million people. A small portion of this population, 172,221 people, live within the Parkway, and 1,419,807 live

within the broader Study Area (U.S. Census 2014). Characteristics of the Parkway and Study Area populations are described in Figure 1:

Figure 1. Population Characteristics



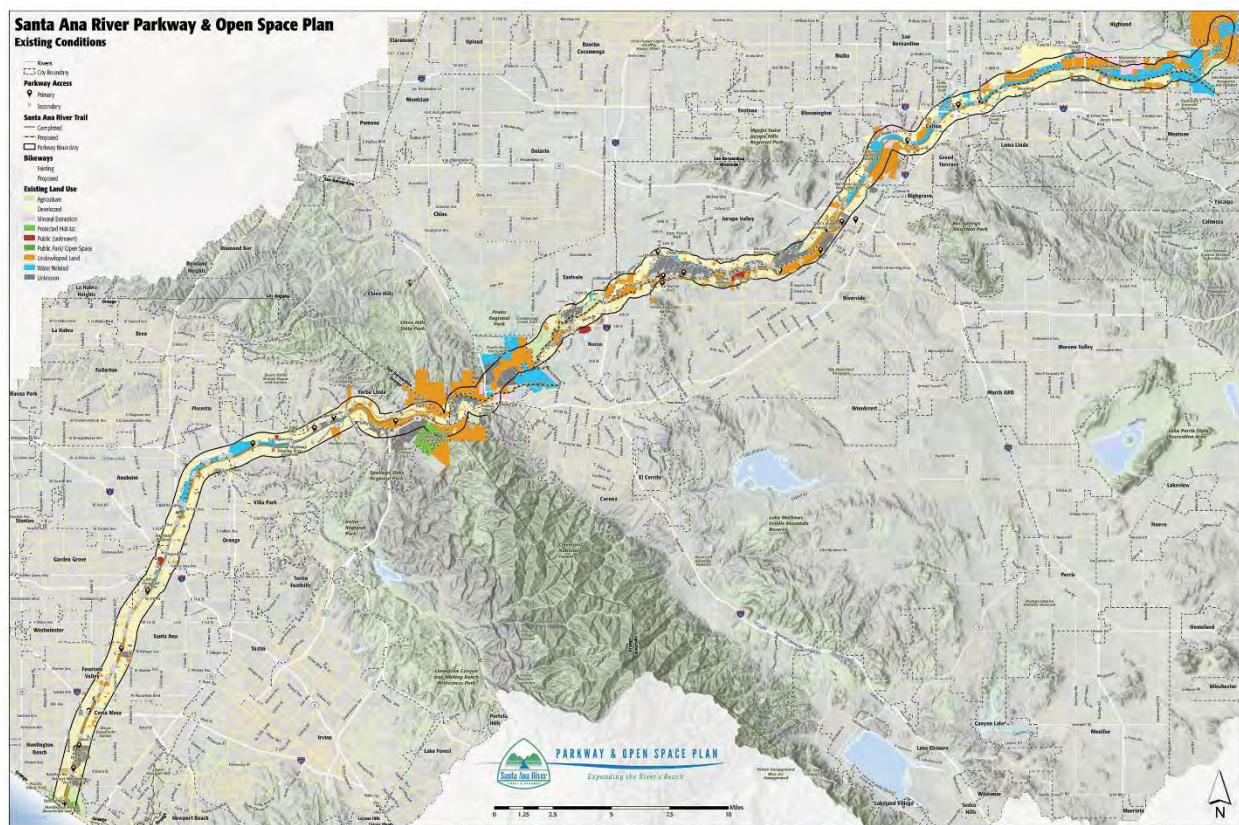
Inventory Methodology and Findings (What existing and planned projects contribute to the Parkway?)

Many agencies operate within the Parkway, including 23 cities, 3 counties, multiple water agencies, the National Forest, the U.S. Army Corps of Engineers and many non-profit organizations (refer to Table 1, for a complete list). An inventory of Parkway features, including access points, trails, and sites overseen and planned by these many agencies was compiled into a single a database, with the two-fold goal of

confirming existing Parkway features and compiling information about planned improvements within the Parkway.

Information in the GIS-based database was initially collected from existing planning documents, maps, publicly available GIS data, and the California Protected Areas Database developed by GreenInfo Network (refer to Table 2 for list of planning documents initially consulted). This information was used to create a map of existing conditions in the Parkway, including access points, parks, and land use information. The existing conditions map, as shown in Figure 2, was used as a baseline for collecting additional information from partner agencies.

Figure 2. Existing Conditions



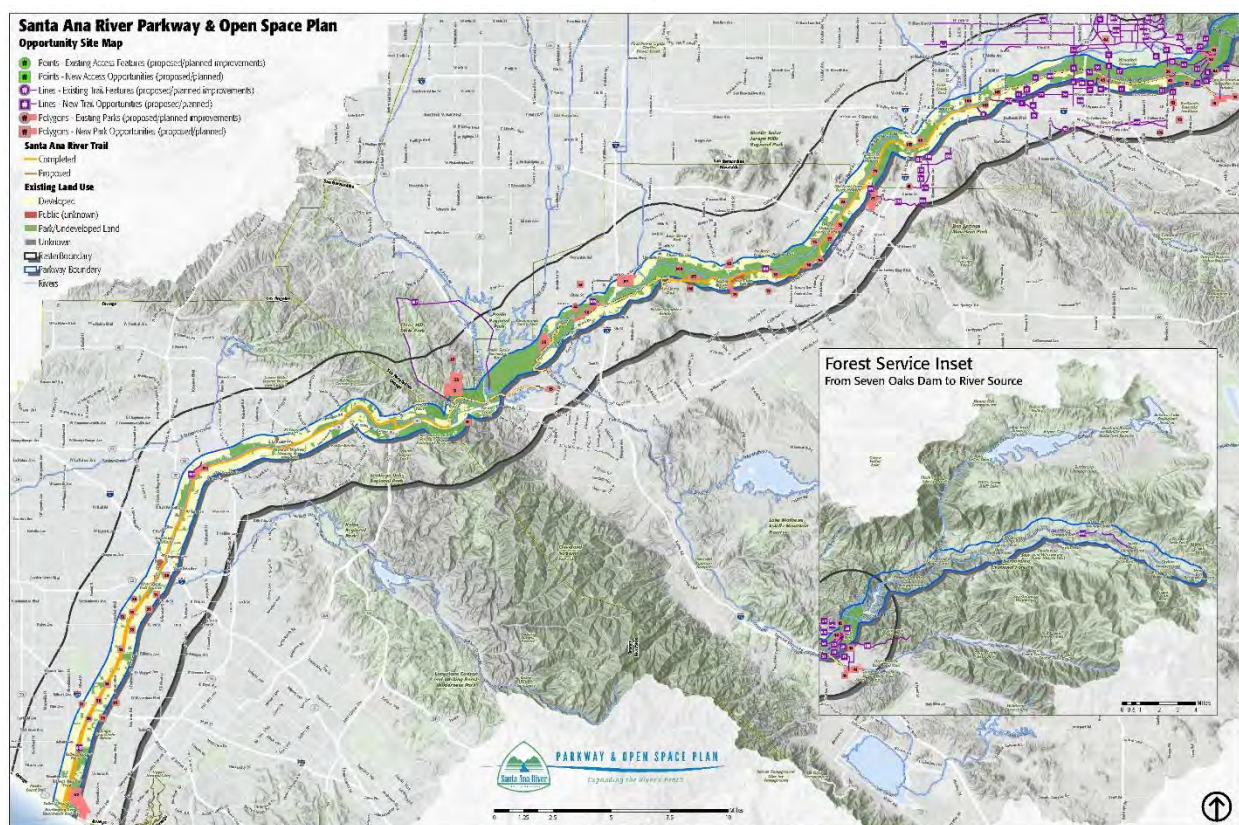
All agencies in the Parkway were then invited to review this information and contribute additional data through an interactive online web portal. The portal allowed participating agencies to:

- Confirm existing Parkway access points, trails, and project sites.
- Identify planned or potential access points, trails, and project sites.
- Supply information regarding the amenities and potential amenities at existing and planned access points, trails, and project sites.
- Provide additional comments and data corrections.

To ensure the accuracy of the data inputs, two comprehensive training sessions were held to introduce participants to the portal's functionality by guiding them through the process of inputting data. Participants also received a Quick Start Guide and additional as-needed technical support. The portal was available to agencies from November 30, 2016 through January 6, 2017. Twenty-two (22) agencies participated in the portal, and over 400 existing and planned access points, trails, and project sites were confirmed in that time (refer to Table 3 for list of agencies that used the portal). Approximately 100 of the planned access points, trails, and project sites that were included in existing planning documents were *not* confirmed by any agency, yet were retained as part of the database.

Figure 3 documents agency plans for new Parkway features, and improvements to existing Parkway features, as reported through the web portal. These are the projects that will be prioritized for their potential to contribute to the Parkway vision.

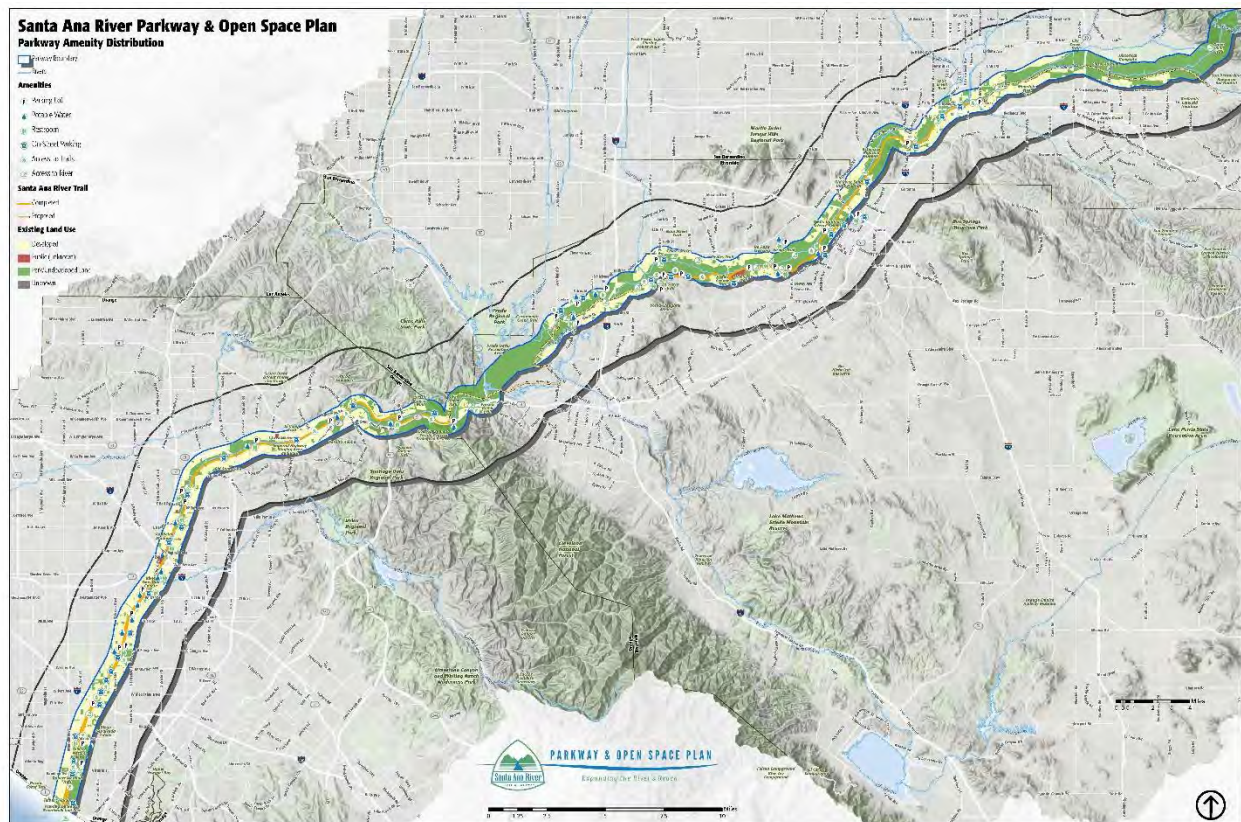
Figure 3. Opportunity Site Map (Projects submitted using Portal)



Note: Projects identified by agencies, organizations and the public via means other than the portal following preparation of this report was prepared are included in the SARP&OSP, but are not reflected in Figure 3.

Agencies also reported on the amenities available at existing Parkway features, as summarized in Figure 4, Parkway Amenity Distribution. Reported amenities include potable water, restrooms, parking, access to trails, and access to the river.

Figure 4. Parkway Amenity Distribution



PARKWAY ANALYSIS

Metrics (framed as questions) were developed to assess the Parkway locations with the greatest suitability for projects involving water, habitat, educational, and recreational features along the river corridor. To answer these questions, spatial analyses were conducted using GIS to overlay various data layers for each topic area. All analyses looked at the five-mile wide Study Area, which includes the Parkway plus an additional 2 miles beyond. The resulting maps identify the most suitable to least suitable locations for Parkway enhancements that focus on the topics of water, habitat, education and recreation, or equitable access. This information, combined with the data submitted through the web portal, will inform the prioritization of Parkway projects.

The analysis of each topic area is discussed below. For each topic, the metrics (framed as questions) are identified, and the type of data analyzed is described. An overview of the analysis and outcomes is included as well. Because multiple data sources informed all analyses, the level of influence each data source had on outcomes is discussed for each question.

Water

Flood protection, groundwater recharge, and water quality were analyzed in order to identify areas within the Study Area most suitable for projects with water management components. While all projects have the potential to incorporate features that improve water management, the purpose of this assessment was to identify the most ideal locations for siting such projects. Three questions were asked:

1. Which areas of the Parkway contribute to flood protection or have the potential to contribute to flood protection?
2. Which areas of the Parkway support groundwater recharge, or have the potential to support groundwater recharge?
3. Where is the potential for improving water quality?

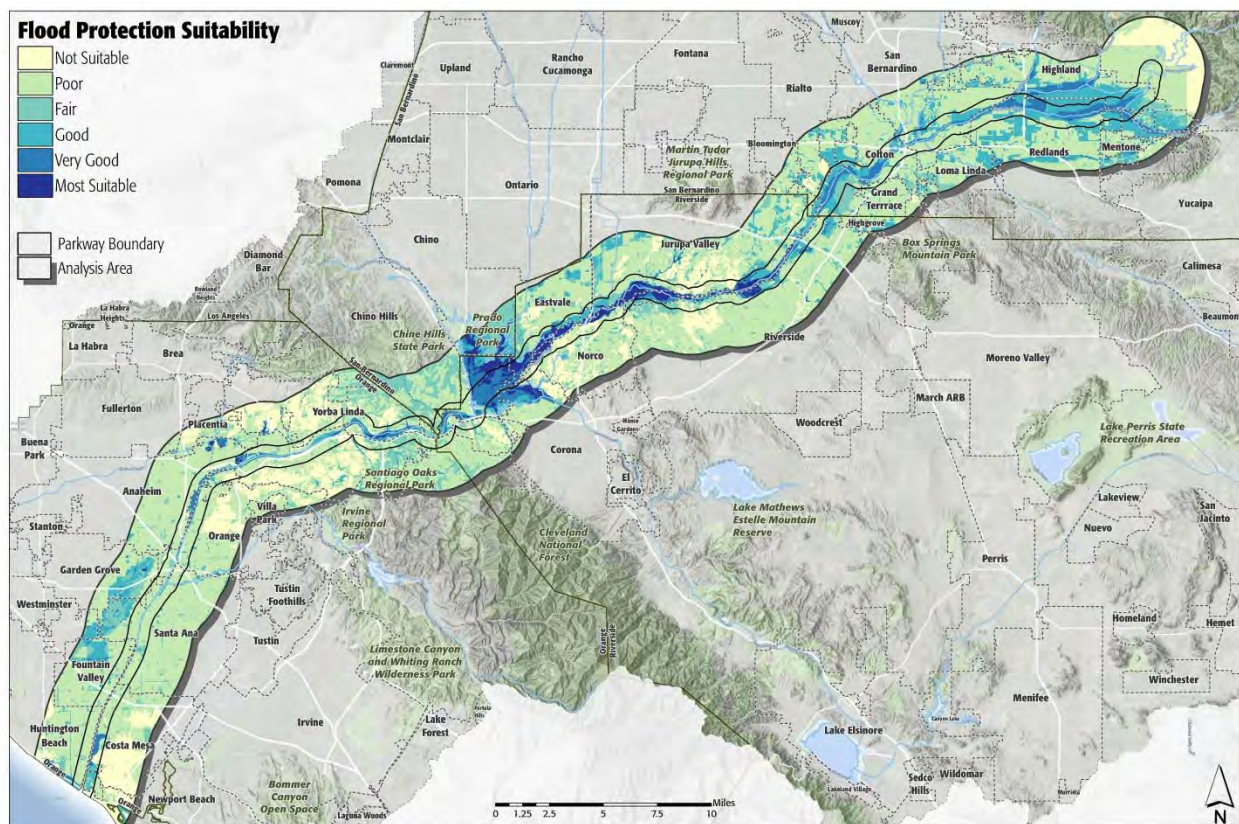
To answer these questions, six types of data were analyzed:

- *Soil Infiltration Rate*: The *Soil Infiltration Rate* was obtained from US Department of Agriculture's Natural Resources Conservation Soils SSURGO database. The original water infiltration data was classified into four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D) based on the rate of water infiltration. The data was reclassified so that soils having the highest infiltration rates and low runoff potential received the highest priority (Group A). The remaining hydrologic soil groups were classified into five other priority groups, decreasing in priority as infiltration rates decrease.
- *Wetlands*: The wetlands data was obtained from US Fish and Wildlife. The data was classified into two categories: wetland or no wetland. Instances of wetland are high priority and instances of no wetland are not a priority.
- *Floodplain*: The floodplains data was downloaded from Federal Emergency Management Agency. Much like the wetlands data, the floodplains data was provided as polygons of floodplain. The data was reclassified to have floodplains as high priority and areas with no floodplain are not a priority.
- *Land Use*: Land use data for the Parkway was from the Southern California Association of Governments and the San Bernardino Association of Governments. Lands that were developed were categorized into a "no priority" category and undeveloped lands and open spaces were categorized as "high priority".
- *Riparian Vegetation*: Riparian areas were extracted from the US Forest Service's CALVEG data. Much like data for wetlands and floodplain, riparian vegetation was also classified for riparian areas to be high priority and non-riparian areas to have no priority.
- *Water Quality (Impaired Water)*: Data for impaired streams and lakes was obtained from the Santa Ana Watershed Project Authority (SAWPA). Impaired water bodies, defined as water bodies that are too polluted or degraded to meet section 303(d) of the Clean Water Act, were classified as high priority and other areas were not a priority.

Which areas of the Parkway contribute to flood protection or have the potential to contribute to flood protection?

Areas of the Study Area most suitable for flood protection were identified by overlaying GIS data for soil infiltration rate, wetlands, floodplain, and land use. The four data sources were weighted evenly (25-percent weighting for all four inputs). Based on this analysis, only 5 percent of the Study Area was classified as having Very Good suitability for flood protection projects and only two percent was classified as Most Suitable. On the contrary, in the Parkway 30 percent was classified as Very Good for flood protection, and 19 percent classified as “Most Suitable”. As shown in Figure 6, areas classified as Most Suitable are mostly within the Parkway (1-mile wide corridor), but also are substantial in Riverside County near Corona and Chino Hills, close to the Prado Regional Park.

Figure 6. Flood Protection Suitability

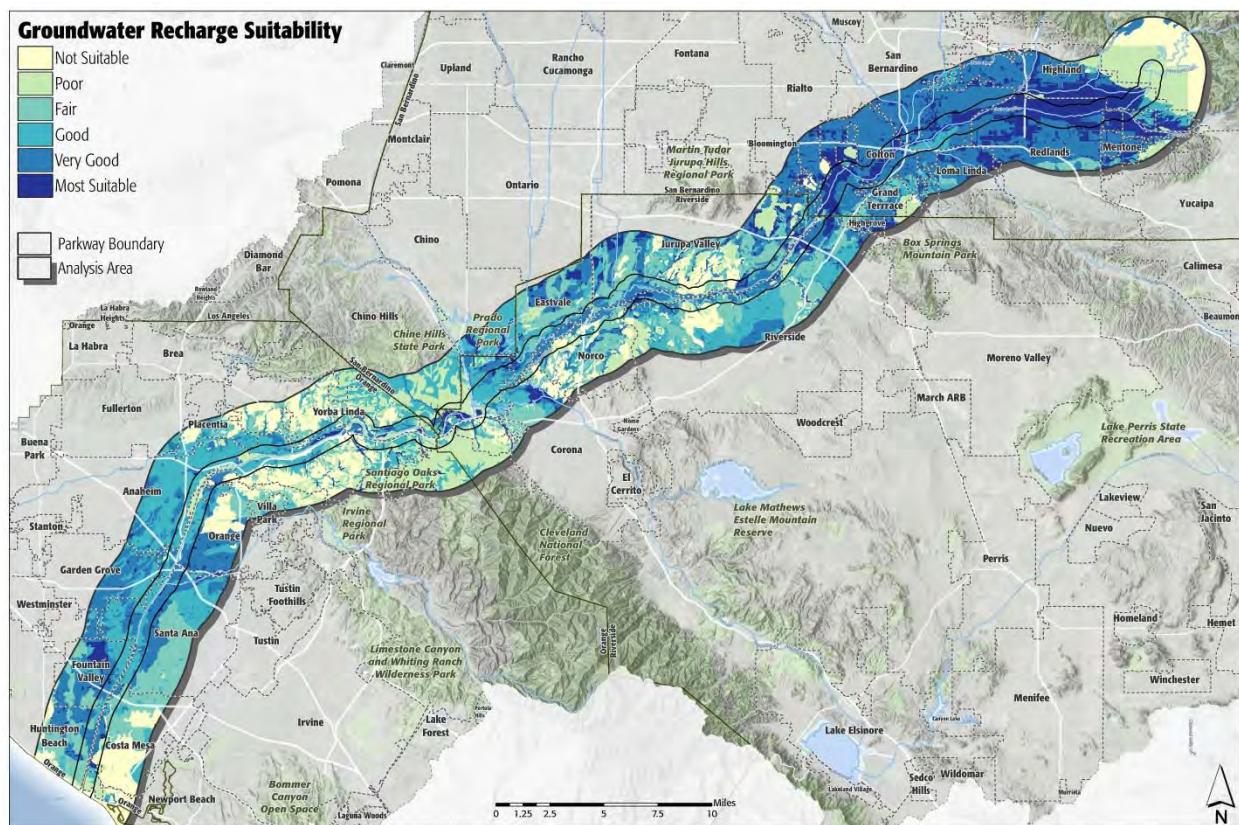


Which areas of the Parkway support groundwater recharge, or have the potential to support groundwater recharge?

Areas of the Study Area most suitable for groundwater recharge were analyzed using soil infiltration rate and land use data. Soil infiltration rate is a key determinant of groundwater recharge potential, and therefore was weighted more than land use at 75 percent and 25 percent, respectively. Based on this analysis, a majority of the Study Area was identified as suitable for groundwater recharge projects.

Twenty-percent of the Study Area was classified as Good, 27 percent was classified as Very Good, and 11 percent was classified as Most Suitable; meanwhile in the Parkway, 17 percent was classified as Good, 16 percent was classified as Very Good, and eight percent was qualified as Most Suitable . As shown in Figure 7, suitable areas extend beyond the Parkway and include inland areas, as well as a high concentration of suitable areas in the northern portion of the Study Area near Highlands, San Bernardino, Rialto, and Mentone.

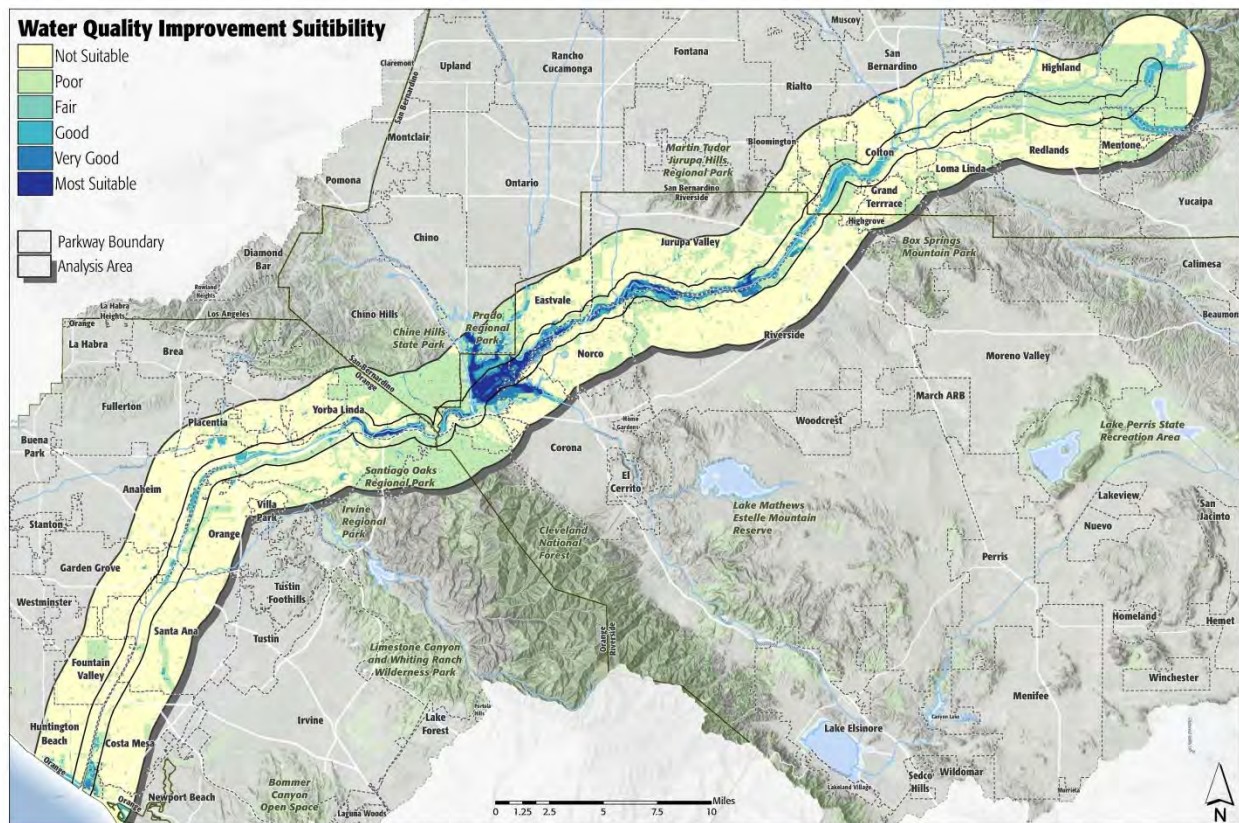
Figure 7. Groundwater Recharge Suitability



Where is there potential for improving water quality?

Areas of the Study Area with the greatest potential to support effective water quality improvement projects were identified by analyzing riparian vegetation, water quality (impaired water), wetlands, and land use data. Riparian vegetation and wetlands were assumed to be indicative of areas where polluted water is a likely occurrence. All data sources were overlaid and weighted evenly (25 percent for each inputs). Based on this analysis, 4 percent of the Study Area was classified as Good for water quality improvement projects, 2 percent as Very Good, and 1 percent as Most Suitable. In the Parkway, 13 percent was classified as Good for water quality improvement projects, seven percent as Very Good, and six percent as Most Suitable; nearly all of these suitable areas are located within the Parkway. The most suitable areas are adjacent to the river, particularly near the Prado Regional Park (shown in Figure 8).

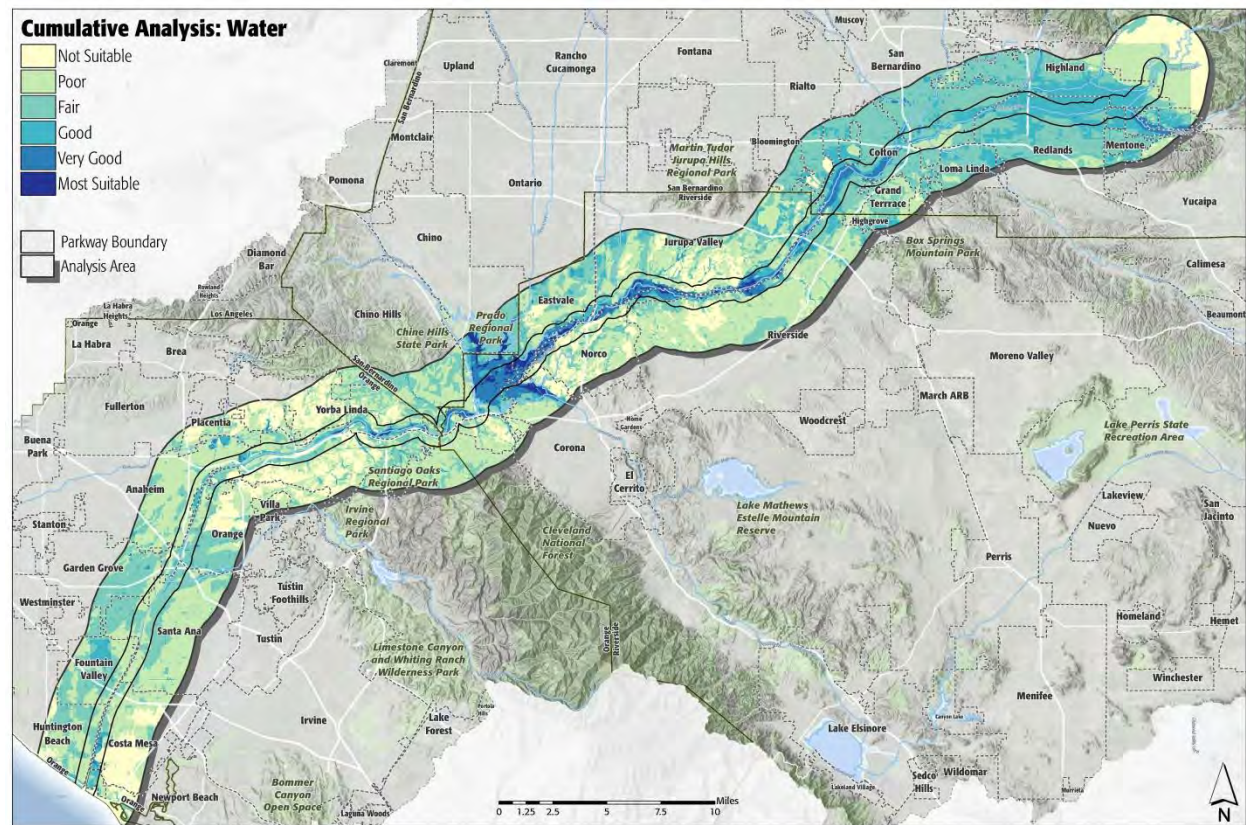
Figure 8. Water Quality Improvement Suitability



Cumulative Analysis: Water

Areas with the greatest potential to support a range of water management projects were identified by overlaying the outcomes of the analyses conducted for flood protection, groundwater recharge, and water quality; giving equal weight to each of the three topics. Based on this analysis, the most suitable locations for siting multi-benefit water management projects are in the Prado Basin and upstream through Eastvale, Norco, and Jurupa Valley, as shown in Figure 5-2. Overall, 16 percent of the Study Area was identified as Good, Very Good, or Most Suitable for water management projects, while 38 percent of the Parkway was identified as Good, Very Good, or Most Suitable. Although individual projects will be evaluated on a project level, in general, it is likely that projects located in the bluer areas of the map will more likely meet water management goals than projects that are not located in these areas.

Figure 9. Cumulative Analysis: Water



HABITAT AND WILDLIFE

While most projects have the potential to include habitat elements, this analysis identifies habitat priority areas by analyzing the following questions:

1. Where are conditions most appropriate for habitat protection? This question focuses on identifying existing habitat that should be protected as part of the Parkway.
2. Where are conditions most appropriate for habitat enhancement? This question focuses on identifying additional areas that could support habitat enhancement projects.

To answer these questions, the following data were analyzed:

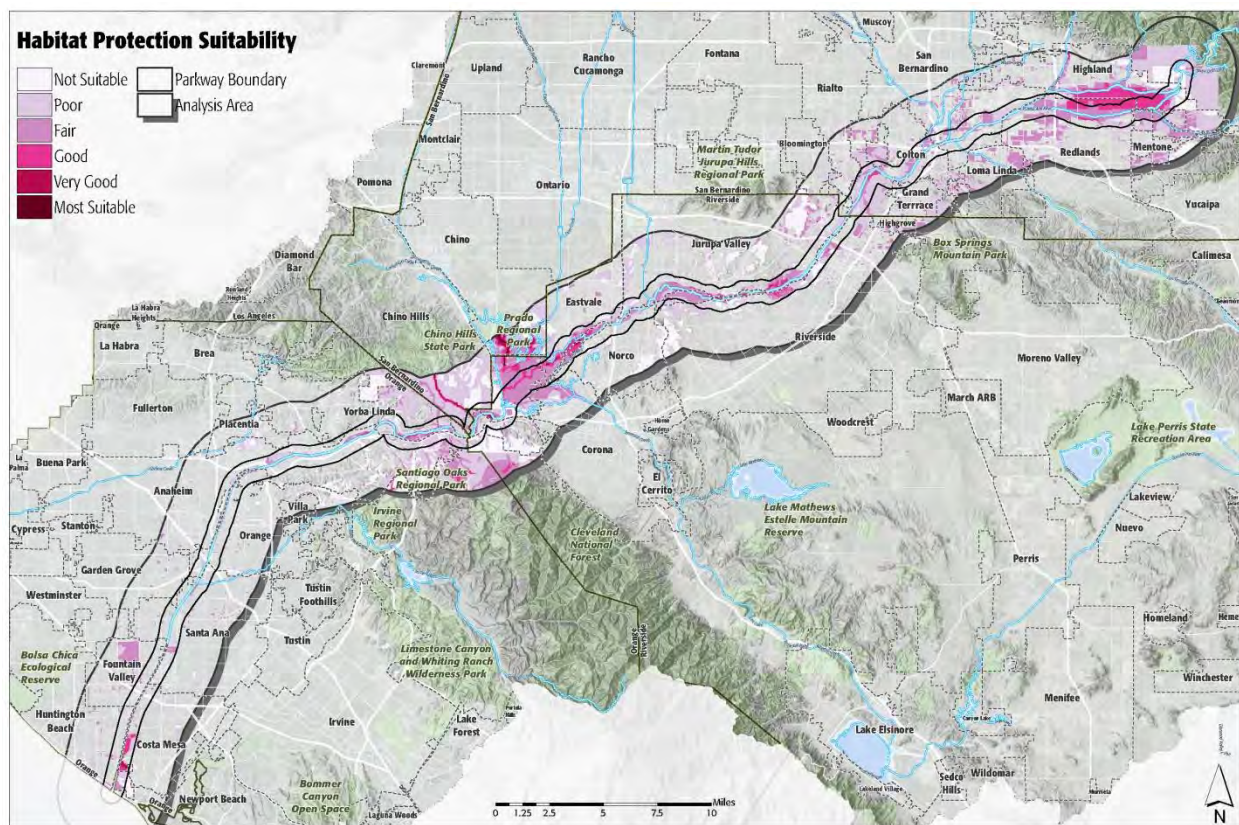
- **Habitat Types:** This data was obtained from the U.S. Department of Agriculture's Natural Resources Conservation Soils SSURGO database. The data rated the suitability of each soil type for supporting specific habitat types. For the purposes of this analysis, a suitability value was assigned to the rating system, giving a higher value to soils ranked as "very good" for any habitat type and lower values to soils rated "very poor" for any habitat type. The suitability values of each soil type were then summed and the totals classified into six categories. Those soils with the highest suitability values were considered to be most suitable for habitat, as they are able to support the most types of habitat.

- *Soil Infiltration Rate*: This data was obtained from the U.S. Department of Agriculture’s Natural Resources Conservation Soils SSURGO database. Soils having the highest infiltration rates and low runoff potential were considered to be most suitable for habitat and wildlife.
- *Species Observations*: Species observations data was obtained from the California Department of Fish and Wildlife California Natural Diversity Database (CNDBB). The data was classified by the number of species observed in a specific area. Areas with the highest number of species were classified as most suitable, and area with the lowest number of species as not suitable.
- *CNDDDB – Aquatic Habitat*: Much like the *Species Observations* data, the *CNDBB – Aquatic Habitat* data was extracted from the CNDDDB. The original CNDDDB data was reclassified to only include aquatic habitats. Aquatic habitats were assigned a high priority and other areas of the Parkway not a priority.
- *CNDBB – Terrestrial Habitat*: In addition to *Species Observations* and *CNDBB – Aquatic Habitat*, *CNDBB – Terrestrial Habitat* was also obtained from CNDDDB. The original CNDDDB data was reclassified to only include terrestrial habitats. Terrestrial habitats were assigned a high priority and other areas of the Parkway were not a priority.
- *Existing Protected Open Space*: The *Existing Protected Open Space* data was extracted from the California Protected Areas Database (CPAD) managed and maintained by GreenInfo Network and the U.S. Fish and Wildlife Service’s Environmental Conservation Online System (ECOS) Critical Habitat data. Undeveloped, passive open space was selected from CPAD and merged with critical habitat data from the US Fish and Wildlife. These open spaces were classified as “very suitable” while other areas of the Parkway were classified as “not suitable.”
- *Land use*: Land use data for the Parkway and Study Area came from the Southern California Association of Governments and the San Bernardino Association of Governments. Developed lands were classified as having no suitability for habitat and wildlife and undeveloped lands and open space were considered to have high suitability.

Where are conditions most appropriate for habitat protection?

Areas of the Study Area most suitable for habitat protection were identified by analyzing six types of data: existing protected open space, habitat types, soil infiltration rate, species observations, aquatic CNDDDB, and terrestrial CNDDDB. All six data layers were weighted evenly in the overlay analysis (16.6 percent for each data layer). Developed land, comprising 60 percent of the Study Area, was omitted completely from the analysis as there is little/no existing habitat on those sites. Based on this analysis, only eight percent of the remaining undeveloped land in the Study Area and one percent in the Parkway was classified as having Good or Very Good suitability for habitat protection projects; less than one percent of the Study Area was classified as Most Suitable. As shown in Figure 10, the Very Good and Most Suitable sites are located by the Prado Regional Park and Chino Hills State Park or within the Parkway near Costa Mesa. Other areas classified as having Good potential are located further inland and to the north near Highland, Mentone, and Redlands.

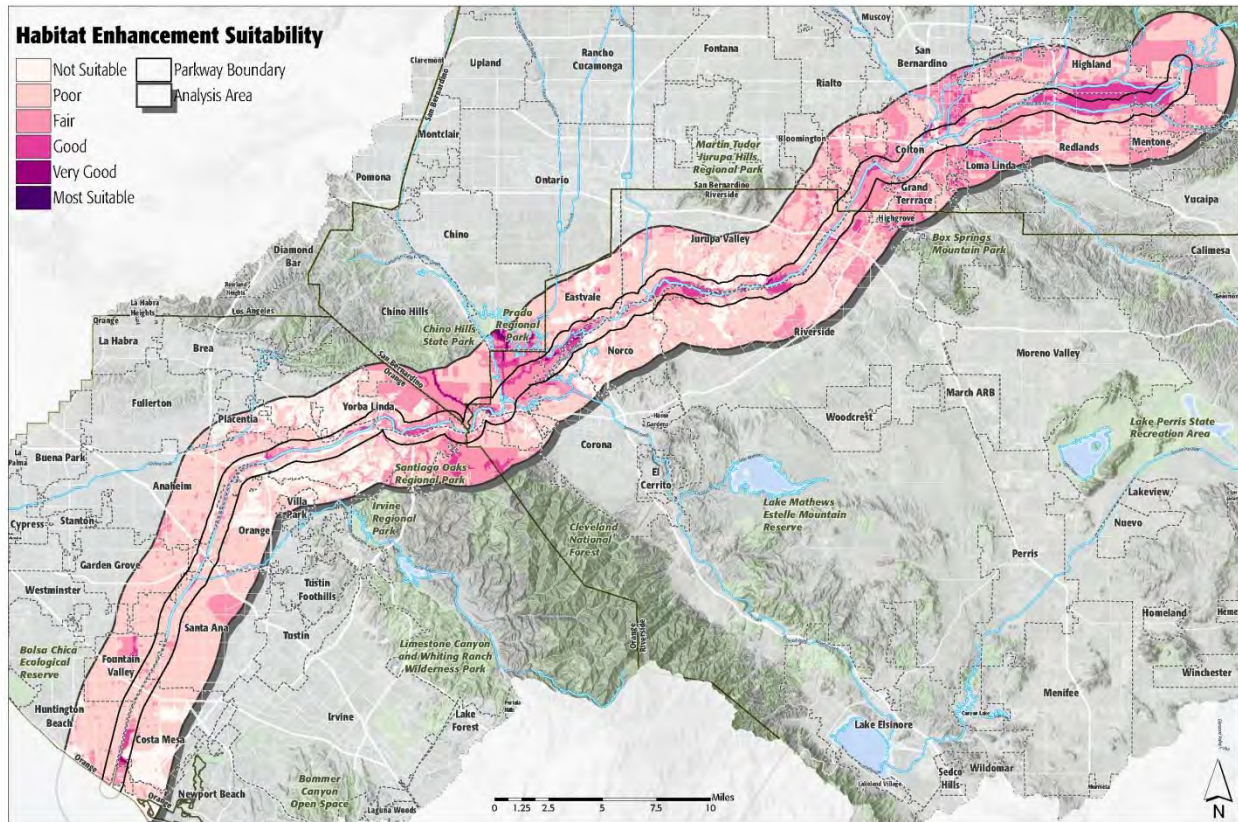
Figure 10. Habitat Protection Suitability



Where are conditions most appropriate for habitat enhancement?

Areas of the Study Area most suitable for habitat enhancement were identified by analyzing seven data types: existing protected open space, habitat types, land use, soil infiltration rate, species observations, aquatic CNDDb, and terrestrial CNDDb. This analysis is only slightly different than the habitat protection analysis in that it includes Land Use in the overlay analysis. All seven data layers were weighted evenly in the overlay analysis (14.2 percent for each data layer). Based on this analysis, 95 percent of the Study Area and 85 percent of the Parkway was classified as either Not Suitable, or having Poor or Fair suitability for habitat enhancement projects. Four percent was classified as Good and less than one percent was classified as Very Good or Most Suitable. As shown in Figure 11, Very Good or Most Suitable sites are located by the Prado Regional Park and Chino Hills State Park or within the Parkway near Costa Mesa. Some Good potential areas are further inland and to the north near Highland, Mentone, and Redlands. Areas that were identified as having high suitability for habitat protection are also identified as having high suitability for enhancement projects.

Figure 11. Habitat Enhancement Suitability



Cumulative Analysis: Habitat

Areas with the greatest potential for habitat-focused projects were identified by overlaying results from the habitat protection and habitat enhancement analysis. The two outputs were weighted evenly at 50 percent each. Reflecting the built-out character of much of the river corridor, the analysis shows that a majority of the Study Area is not suitable for habitat-focused projects with almost 95 percent of the Study Area classified as Fair or Poor, and approximately 5 percent classified as Good or Very Good. Almost zero percent of the Study Area was classified as Most Suitable for habitat-focused projects. On the other hand, 85 percent of the Parkway is classified as Fair or Poor, and approximately 15 percent as Good or Very Good. Much like the Study Area, the Parkway also had almost zero percent of the Parkway classified as Most Suitable for habitat projects. As shown in Figure 12, the most suitable areas are mostly adjacent to the river with large swaths of potential areas in the northern portion of the Study Area and near the Prado Regional Park and Chino Hills State Park. The Parkway near the cities of Colton and Grand Terrace, and Highland and Redlands also contains significant areas suitable for habitat projects.

Cumulative Analysis: Habitat

Legend:

- Not Suitable
- Parkway Boundary
- Poor
- Fair
- Good
- Very Good
- Most Suitable

Scale: 0 1.25 2.5 5 7.5 10 Miles

Education and recreation access features can be included in many projects; however access restrictions are necessary in some areas to protect resources. This analysis focuses on two questions:

- To answer the first question, GIS analysis was conducted using an overlay method to identify opportunities to increase educational and recreational access. Areas that were identified as suitable for recreation and education access, however, may include areas where access need to be restricted to protect resources and therefore project-specific site analysis is necessary prior to the development of any education and recreation project. For the analysis, four types of data were analyzed:

- Santa Ana River Parkway & Open Space Plan*
Appendix B: *Inventory and Assessment Summary Report*

developed areas may include educational and recreational facilities and therefore project-specific site analysis is necessary for full evaluation of any education and recreation project. This is the same input used in the Water and Habitat analysis.

- *Proximity to River:* Proximity to river was measured at a half-, one-, and 2.5-mile distance from the Santa Ana River. Areas within a half-mile of the river were classified as the highest priority, areas between half to one mile away were medium priority, and areas between one to 2.5 miles away were not a priority.
- *Access to River:* The *Access to River* input was created by finding areas within a half mile walking distance of river access points. This was created through a network analysis of walkable streets. Areas within a half-mile walking distance were classified as a high priority, while the remaining areas were not a priority.
- *Access to Parkway:* The *Access to Parkway* input was created in a similar manner to *Access to River* input, by finding areas within a half mile walking distance of Parkway access points. This was created through a network analysis of walkable streets. Areas within a half-mile walking distance were classified as a high priority, while the remaining areas were not a priority.

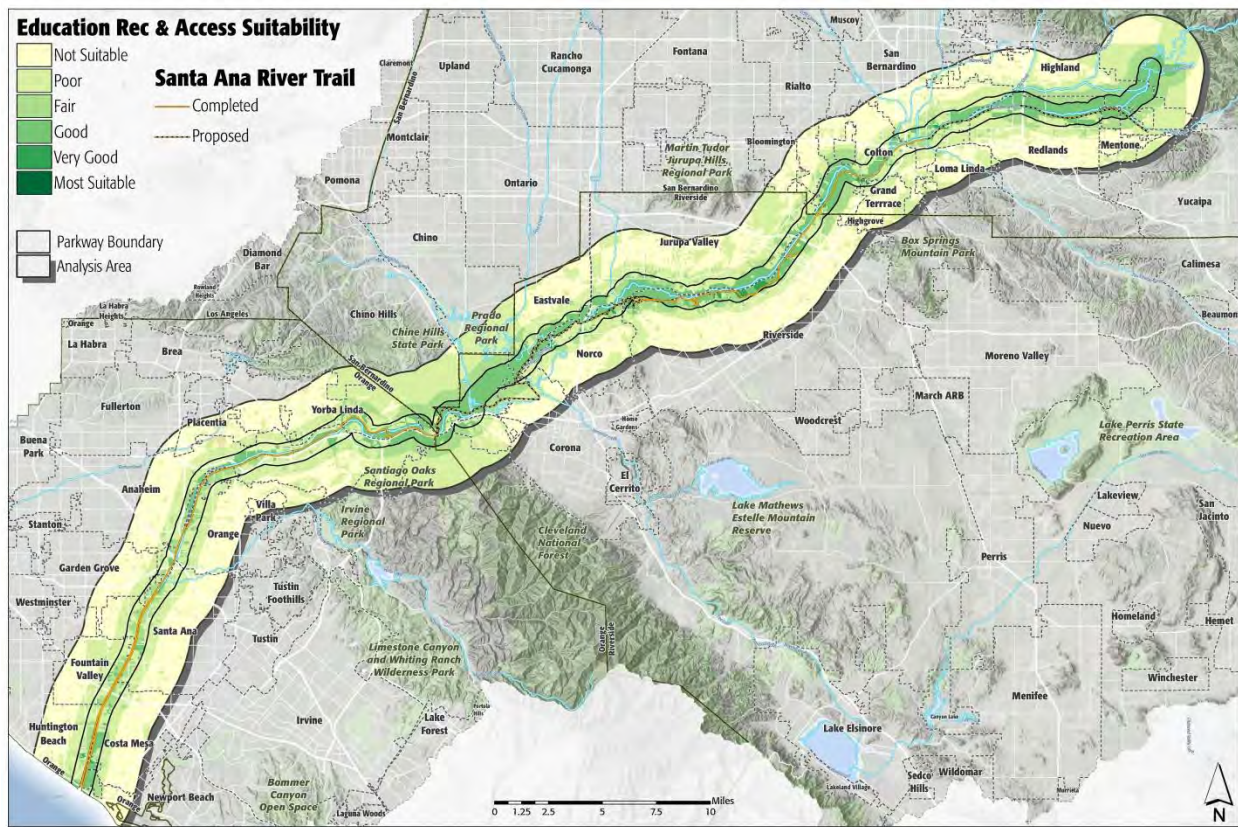
To answer the second question, GIS analysis was conducted using an overlay method to identify opportunities to increase equitable access. For the analysis, two types of data were analyzed:

- *Disadvantaged Communities:* Using US Census Bureau data, block groups were identified as disadvantaged communities based on its median household income. For this analysis, the data was classified into three priority groups. Block groups with a median household income of less than \$36,892 were classified as a Severely Disadvantaged Community and given the highest priority. Block groups with a median household income of more than \$36,892 and less than \$49,190 were classified as a Disadvantaged Community and given a medium priority. Any block groups with a median household income of greater than \$49,190 were not a priority.
- *Percentage of Population with Access to River or Parkway:* This input was created by analyzing the percentage of people by city that live within a half-mile walking distance to the river or Parkway access points. The city percentages were classified into six categories through quantile breaks. A six category gradient was assigned, with cities with the lowest percent population with access to river or Parkway at the highest priority.

Where is there potential for increasing educational and recreational use of the SART and river?

All four data types, described above, were used to identify areas with the greatest suitability for educational and recreational access. The four data types were weighted evenly at 25 percent each. Based on this overlay analysis, most areas of the Parkway are classified as Fair to Most Suitable for educational and recreational projects. Within the expanded Study Area, 10 percent of the area is classified as Fair, 10 percent classified as Good, and less than one percent as Very Good. As shown in Figure 13, the sites with the greatest suitability are concentrated within the Parkway, however, the southern half of the Parkway has less suitable sites for increasing access.

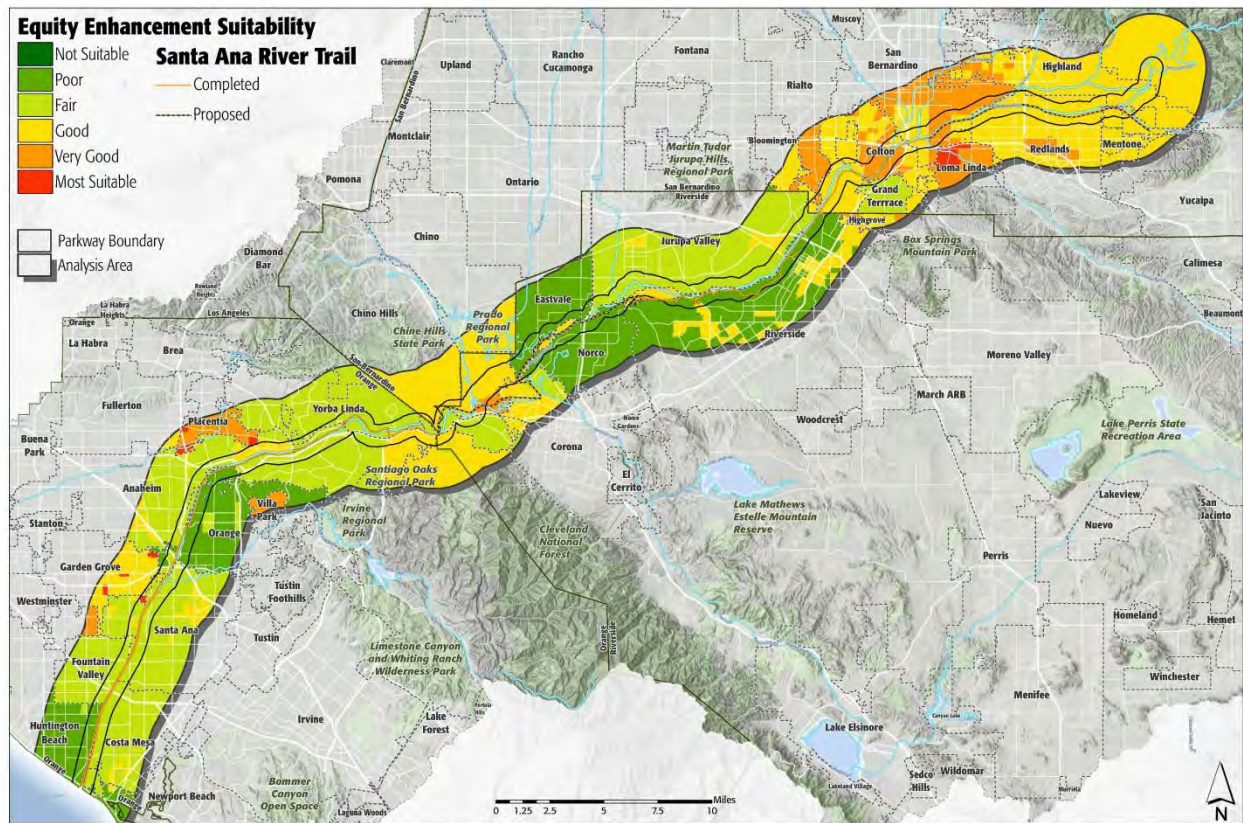
Figure 13. Education & Recreation Access Suitability



Where is there potential to provide improvements that increase equitable access to the Parkway's resources?

The two data types described above were used to find areas with the greatest potential for increasing equitable access to the river and trail. The two data types were weighted evenly at 50 percent each. Areas that were identified as having the greatest existing access for the population were identified as “Not Suitable,” while areas with greatest need for access were identified as “Most Suitable.” Given the data analyzed, the areas with the greatest need are the areas that currently lack access and are identified as disadvantaged communities. Based on this analysis, 16 percent of the Study Area was identified as highly suitable for projects focused on increasing equitable access (Very Good and Most Suitable). As shown in Figure 14, the cities where access projects have the greatest potential to improve equitable access include Placentia, Westminster, San Bernardino, Rialto, Colton, Redlands, Loma Linda, Placentia, and Garden Grove.

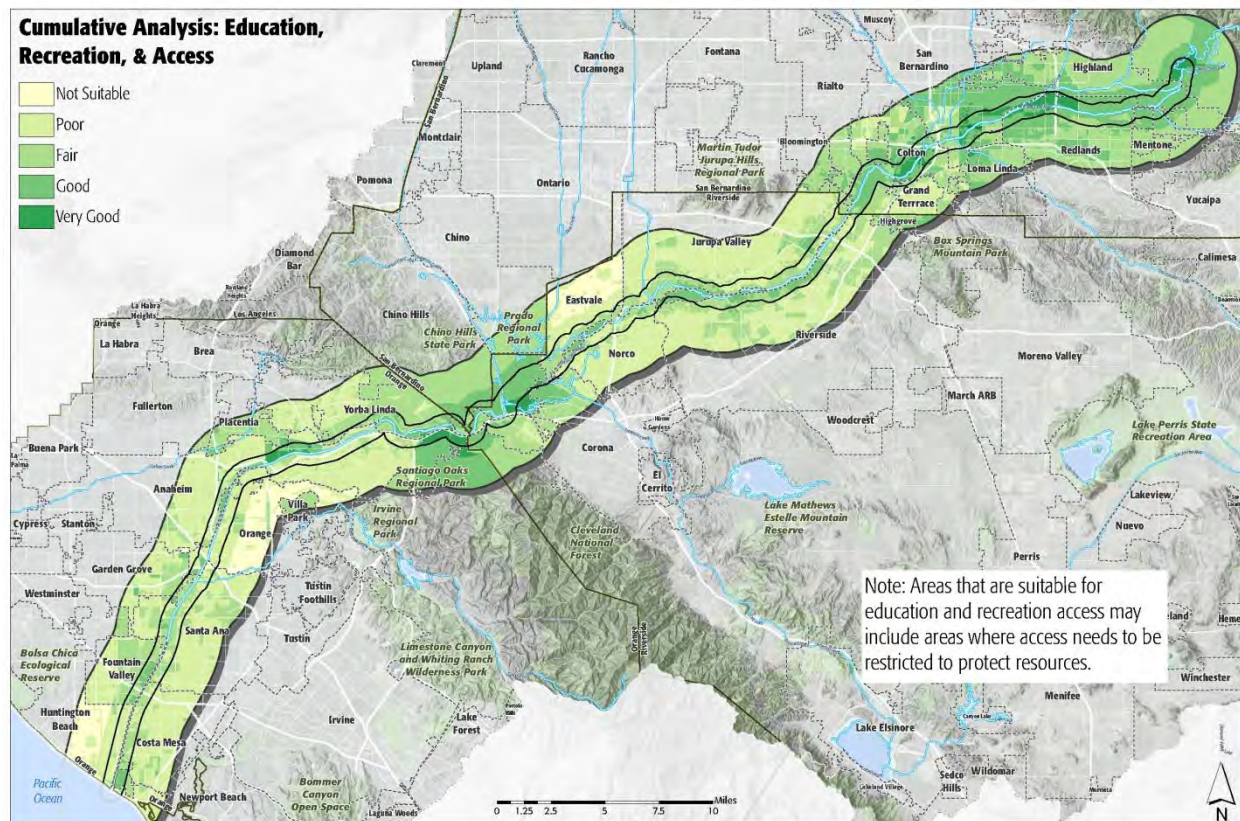
Figure 14. Equity Enhancement Suitability



CUMULATIVE ANALYSIS: EDUCATION AND RECREATION ACCESS

Based on the analysis of these five factors, many areas within the Parkway are classified as being Good for educational and recreational projects. Within the expanded Study Area, 19 percent of the area is classified as Fair, 2 percent classified as Good, and less than 1 percent as Very Good. Within the Parkway, 36 percent of the area is classified as Fair, 9 percent classified as Good, and less than 1 percent as Very Good. As shown in Figure X, the sites with the greatest suitability are concentrated in the eastern half of the Parkway.

Figure 15. Equity Enhancement Suitability



CONCLUSION

The inventory and assessment of the Santa Ana River Parkway provides a strong basis for understanding the demographics and physical characteristics of the Parkway at a Parkway-wide scale. The identification of those areas that are most suitable for projects focused on addressing water, habitat, and educational and recreational access can inform the prioritization of future projects. Projects with a strong alignment of project focus and location suitability can contribute greatly to achieving the Parkway vision. Regardless of their location and focus, all future projects can include elements that address water, habitat, and educational and recreational access in order to strengthen and realize the vision shown on the Draft Vision Map and create a regionally celebrated resource along the Parkway's entire length.

TABLE 1 AGENCIES AND ORGANIZATIONS OPERATING WITHIN PROJECT AREA*

CITIES	FEDERAL
City of Anaheim	U.S. Army Corps of Engineers
City of Chino Hills	National Park Service
City of Colton	Natural Resource Conservation Service
City of Corona	U.S. Fish and Wildlife Service
City of Costa Mesa	Bureau of Land Management
City of Eastvale	U.S. Forest Service - San Bernardino National Forest
City of Fountain Valley	OTHER
City of Garden Grove	Orange County Water District /Santa Ana Watershed Association
City of Grand Terrace	Inland Empire Resource Conversation District
City of Highland	San Bernardino Valley Water Conservation District
City of Huntington Beach	Riverside-Corona Resource Conservation District
City of Jurupa Valley (including Jurupa Community Services District)	Santa Ana Regional Water Quality Control Board
City of Newport Beach	Santa Ana Watershed Project Authority
City of Norco	Western Riverside Regional Conservation Authority
City of Orange	San Bernardino Valley Municipal Water District
City of Placentia	NONPROFIT ORGANIZATIONS
City of Redlands	Friends of Harbors, Beaches and Parks
City of Rialto	Huntington Beach Wetlands Conservancy
City of Riverside	Inland Empire Bike Alliance
City of San Bernardino	Inland Empire Waterkeeper
City of Santa Ana	Newport Banning Land Trust
City of Westminster	Orange Coast River Park
City of Yorba Linda	Orange County Bicycle Coalition
COUNTIES	Orange County Coastkeeper
Orange County	Riverside Land Conservancy - Santa Ana River Trust
Riverside County	Redlands Conservancy
San Bernardino County	Riverside Bicycle Club
STATE	Santa Ana Watershed Association
California Conservation Corps	The Wildlands Conservancy
California Department of Fish and Wildlife	Trust for Public Land
California State Parks	
State Coastal Conservancy	
California Wildlife Conservation Board	

Santa Ana River Parkway & Open Space Plan***Appendix B: Inventory and Assessment Summary Report***

**Note: this list includes those agencies and organizations known to the Santa Ana River Conservancy at the time of publication; additional agencies and organizations may operate within the parkway.*

TABLE 2. PLANNING DOCUMENTS CONSULTED

DOCUMENT	AGENCY/ORGANIZATION
Anaheim Canyon Specific Plan	City of Anaheim
City of Anaheim Bicycle Master Plan	City of Anaheim
City of Anaheim General Plan: Green Element	City of Anaheim
Santa Ana River Trail Vision Document	City of Colton Blue Ribbon Committee
Corona General Plan: Existing and Proposed Bike Trails	City of Corona
Santa Ana River National Recreational Trail Master Plan	City of Corona
Garden Grove Active Streets Master Plan	City of Garden Grove
Bicycle Master Plan	City of Huntington Beach
Bicycle Master Plan	City of Newport Beach
City of Orange General Plan: Circulation and Mobility	City of Orange
City of Redlands General Plan: Parks and Recreational Open Space,	City of Redlands
City of Redlands: Map of Open Space, Trails, Parks, City Groves	City of Redlands
City of Riverside Santa Ana River Task Force Summary and Recommendations	City of Riverside Blue Ribbon Committee
Riverside General Plan: Parks and Recreation Element; Open Space and Conservation Element	City of Riverside
Santa Ana River Concept Plan	City of San Bernardino Blue Ribbon Committee
Existing Bike Map	City of Santa Ana
San Bernardino General Plan: Open Space Element; Recreation Vision	City of San Bernardino
Orange County General Plan: Master Plan of Regional Recreation Facilities	County of Orange
Orange County General Plan: Master Plan of Regional Riding and Hiking Trails	County of Orange
Orange County Green Vision	Friends of Harbors Beaches and Parks
Santa Ana River: Every Neighbor Caring for our River	Inland Empire Waterkeeper & National Park Service
Santa Ana River Parkway Engineer's Report and Alignment Study: Trail and Bikeway From Gypsum Canyon to the Orange County Boundary	OC Public Works; OC Parks
Talbert Regional Park Final Habitat Restoration Plan	OC Parks
Santa Ana River Trail Master Plan: Corona-Eastvale-Norco Segment	Riverside County Regional Park & Open-Space District; City of Corona; City of Norco; Jurupa Community Services District
Upper Santa Ana River Habitat Conservation Plan	San Bernardino Valley Municipal Water District
Upper Santa Ana River Wash Land Management and Habitat Conservation Plan	San Bernardino Valley Water Conservation District
Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)	Western Riverside Regional Conservation Authority

Santa Ana River Corridor Trail System Master Plan	Interagency Agreement
One Water One Watershed 2.0 Plan	Santa Ana Watershed Project Authority
The Santa Ana River Trail and Parkway Five Year Work Plan	The Santa Ana River Trail and Parkway Partnership

TABLE 3. AGENCIES THAT CONTRIBUTED PROJECTS VIA WEB PORTAL

California State Parks	INLAND EMPIRE BIKE ALLIANCE
City of Anaheim	Inland Empire Waterkeeper
City of Corona	Jurupa Community Services District
City of Eastvale	OC Public Works
City of Fountain Valley	Orange Coast River Park
City of Grand Terrace	Riverside Land Conservancy - Santa Ana River Trust
City of Highland	Riverside-Corona Resource Conservation District
City of Jurupa Valley	San Bernardino County
City of Redlands	Santa Ana Regional Water Quality Control Board
City of Riverside	Santa Ana Watershed Project Authority
City of Santa Ana	Trust for Public Land

**Note: additional projects were contributed via email, online activities, and workshops by members of the public and additional agencies and organizations.*



Appendix C: Planned and Potential Project List

Appendix C. Planned and Potential Projects List

FOREST SERVICE								
COUNTY ID		County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
FS	1	Forest Service	Site Improvement	New Feature	Converse	Forest Service - San Bernardino Forest	Raise groundwater table, exotic plant species removal, road/trail/recreation interactions	Converse
	2	Forest Service	Site Improvement	Improvement on Existing Feature	Santa Ana River	Forest Service - San Bernardino Forest	Recondition 4.6 miles of FSR 1N45 Santa Ana River Road on the Mountaintop District of the San Bernardino National	Santa Ana River Road (1N45)
	3	Forest Service	Site Improvement	New Feature	East Santa Ana River Drainage	Forest Service - San Bernardino Forest	Raise groundwater table, exotic plant species removal	East Santa Ana River Drainage
ORANGE COUNTY								
COUNTY ID		County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
O	1	Orange	Site Improvement	Improvement to Existing Feature	N/A	Orange Coast River Park	Potential for trail staging. Would require relocation of adjacent mobile home community.	This is currently only for bicycles and pedestrians. OC Flood service vehicles use this entrance. It has very good future potential if the adjacent property, a trailer park, could be purchased as a staging and entrance area for the trail. The city of Newport Beach potentially could partner in acquisition and/or management. This is the southern terminus of the Banning Channel Bikeway.
O	2	Orange	Site Improvement	New Feature	Banning Ranch	Trust for Public Land	Opportunity for habitat restoration and active and passive recreational uses.	Banning Ranch is a long-time conservation target and the regionally significant piece of open space. At 401 acres, it is one of the largest sites along the river and can accommodate a variety of both ecological and recreational uses.
O	3	Orange	Access Point	New Feature	N/A	Orange Coast River Park	Potential for trail connection.	If/when the public gains access to the low lands of the Banning Ranch, this has potential for access. This is on the Banning Channel Bikeway.
O	4	Orange	Site Improvement	Improvement to Existing Feature	N/A	Orange Coast River Park	Potential for access point amenities. Contingent on completion of Costa Mesa Bike/Ped trail.	This existing access point will gain in value upon the completion of the proposed Costa Mesa bicycle/pedestrian trail from 19th street. Currently property is publicly accessible and is part of Talbert Nature Park. The access route coincides with an Edison right of way. This is on the Banning Channel Bikeway.
O	5	Orange	Access Point	New Feature	N/A	Orange Coast River Park	Potential for trail connection from PCH and Sunset Ridge Park to the SART.	This point is fenced off and not publicly accessible. It is a sewage line right of way. If and when the issues with the Banning Ranch property are resolved allowing public access, there is high potential for a connection from PCH and Sunset Ridge Park in Newport Beach to use this as access to the SAR. This is on the Banning Channel Bikeway.
O	6	Orange	Site Improvement	Improvement to Existing Feature	N/A	Orange Coast River Park	Potential for restrooms, drinking water, and parking.	As part of OC Parks plan for Talbert Nature Park, this access point could have water, restrooms, and parking in the future.This is on the Banning Channel Bikeway.
O	7	Orange	Trail	New Feature	N/A	Citizen	Costa Mesa Concerned Citizen Current situation needs work solution other than having cyclists,walkers,joggers have to either double back on the trail for a considerable distance or climb the concrete wall and step over cable railing needed. Signage needed.	Costa Mesa Concerned Citizen Current situation needs work solution other than having cyclists,walkers,joggers have to either double back on the trail for a considerable distance or climb the concrete wall and step over cable railing needed. Signage needed.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
O 8	Orange	Site Improvement	New Feature	N/A	Source: Blue Ribbon- Costa Mesa	Opportunity for landscaping to separate paths	River Reach 2: Greenville Banning Channel to Mesa Verde Country Club- Neighborhood-Scale Access, Multiple Paths - Add plantings to rock berm to separate SART from informal pedestrian path
O 9	Orange	Site Improvement	New Feature	N/A	Source: Blue Ribbon- Costa Mesa	Opportunity for pocket park	River Reach 1: MacArthur Boulevard to Greenville Banning Channel- Open Space Opportunities and Connections - Pocket Park recommended
O 10	Orange	Site Improvement	New Feature	N/A	Source: Blue Ribbon- Costa Mesa	Opportunity for separate pedestrian trail	River Reach 1: MacArthur Boulevard to Greenville Banning Channel- Open Space Opportunities and Connections - Recreation/separate pedestrian trail recommended
O 11	Orange	Access Point	New Feature	N/A	City of Fountain Valley	Potential access point	This a potential future access point to the Fountain Valley Crossings Specific Plan mixed use activity core. This area will be redeveloped with a mix of residential and commercial uses in the near to mid range future. Access to the river trail from this location will be a huge benefit to both the trail system and the future mixed use district. On street parking will be available in the near term will other parking facilities a potential in the long term. Bike routes will be along the roadways that parallel the river trail at this point. The city plans to apply for future park funding grants to engage this section of the river as well.
O 12	Orange	Site Improvement	New Feature	N/A	Source: Blue Ribbon- Costa Mesa	Opportunity for habitat restoration/expansion	River Reach 2: Greenville Banning Channel to Mesa Verde Country Club- Neighborhood-Scale Access, Multiple Paths - Existing wetlands, habitat enhancement and expansion/continuation of a natural areas feature recommended
O 13	Orange	Site Improvement	New Feature	Golden Loop Trailhead Site	City of Santa Ana	Opportunity for trail connection to City with habitat restoration and interpretive signage.	Golden Loop Trailhead Site - trailhead, trail connection to City along the Golden Loop Trail system, habitat restoration, and interpretive information recommended.
O 14	Orange	Site Improvement	New Feature	Centennial Park Site	Riverside-Corona RCD	potential outpost watershed citizen science program	Centennial Park Site - regional staging area, concession facilities, bicycle rentals, museum connection recommended. This site as been identified as a potential outpost for the Santa Ana River Watershed Citizen Science program.
O 15	Orange	Site Improvement	New Feature	McFadden Triangle Site	City of Santa Ana	Opportunity for rest area and habitat restoration	McFadden Triangle Site - Rest area and habitat restoration recommended.
O 16	Orange	Site Improvement	New Feature	Spurgeon Park Site	Riverside-Corona RCD	Opportunity for habitat restoration, interpretive signage, water features, educational programs, and passive open space. Potential outpost for watershed citizen science program.	Spurgeon Park Site - underutilized site with existing ball field, picnic tables, restrooms, and parking lot; habitat restoration, interpretive information, water features, educational programs, passive open space recommended. Potential outpost for the SARW Citizen Science program.
O 17	Orange	Site Improvement	New Feature	Fairview Triangle Site	City of Santa Ana	Opportunity for habitat restoration, interpretive signage, rest area, and passive open space.	Fairview Triangle Site - habitat restoration, interpretive information, rest area, and passive open space recommended.
O 18	Orange	Site Improvement	New Feature	17th Street Site	Riverside-Corona RCD	Potential for outpost/kiosk for watershed citizen science program	17th Street Site - trail access, habitat restoration, interpretive information, and passive open space recommended. This site as been identified as a potential outpost/kiosk for the Santa Ana River Watershed Citizen Science program.
O 19	Orange	Site Improvement	New Feature	Edna Park Site	City of Santa Ana	Potential for restrooms, equestrian facilities, interpretative information, habitat restoration, water features, and passive open space	Edna Park Site - restrooms, equestrian facilities, interpretative information, habitat restoration, water features, and passive open space recommended.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
O 20	Orange	Site Improvement	New Feature	Pacific Electric Site	City of Santa Ana	Potential for interpretive trail connection to City of Santa Ana and Willowick Golf Course.	Pacific Electric Site - trail connection from SART to City and to Willowick Golf Course and pedestrian bridge with interpretive information recommendation.
O 21	Orange	Site Improvement	New Feature	The Forrest Paul Site	Riverside-Corona RCD	Potential for trailhead, SART access, open space, habitat restoration, interpretive information.	The Forrest Paul Site - trailhead, SART access, open space, habitat restoration, and interpretive information recommended; part of site currently planned for Special Needs Housing Project. This site as been identified as a potential outpost/kiosk for the Santa Ana River Watershed Citizen Science program.
O 22	Orange	Access Point	New Feature	N/A	City of Anaheim	Planned access point	Lincoln Avenue North access point
O 23	Orange	Site Improvement	New Feature	Anaheim Coves North	City of Anaheim	Planned children's play area, drinking fountains, fitness area, bike maintenance. 14 acre nature park and 1 1/2 mile bike path west of the basin. 2 Staging areas including Parking, restroom, water fountain north of ball road and south of Lincoln. Lincoln also includes horse water and tie up. Also will include an 8 acres nature park and 1 mile bike and riding and hiking trail which should be completed next spring.	Includes children's play area, drinking fountains, fitness areas,, and bike maintenance stations.
O 24	Orange	Trail	New Feature	N/A	City of Anaheim	Planned-interpretive trail	Anaheim Coves Interpretive Trail (north)
O 28	Orange	Access Point	New Feature	N/A	City of Anaheim	Planned access point	Lincoln Avenue South entrance. Also includes bike maintenance station
O 29	Orange	Access Point	New Feature	N/A	OC Public Works	Planned/potential for Santa Ana River Riding and Hiking Trail to be constructed parallel to the bikeway.	This is the intersection of the Santa Ana River Class I (paved, off-road) Bikeway and the Coal Canyon Riding and Hiking (dirt) Trail. There is no road access or parking at this location. In the future the Santa Ana River Riding and Hiking (dirt) Trail will be constructed parallel the Santa Ana River Class I Bikeway.
O 30	Orange	Site Improvement	Improvement to Existing Feature	N/A	OC Public Works	Potential to complete hiking trail eastward to county boundary.	Cyclists and pedestrians can access the Santa Ana River Class I Bikeway and the Santa Ana River Riding and Hiking Trail at this location. The bikeway is complete to the ocean and east to the county boundary. The riding and hiking trail is complete from Gypsum Canyon Road west to Coast Highway. The trail is in not, however, complete east to the county boundary.
O 31	Orange	Site Improvement	Improvement to Existing Feature	N/A	OC Public Works	Currently under reconstruction. Army Corps installing bank protection along north side of the river.	Users may access the river bikeway and its parallel riding and hiking trail from the signalized intersection of La Palma Avenue and Via Lomas de Yorba West. This area of the river is under reconstruction by the US Army Corps of Engineers as it installs new bank protection along the north side of the river.
O 32	Orange	Access Point	New Feature	N/A	OC Public Works	Planned access from the SART south into Gypsum Canyon and eventually down to Irvine Regional Park.	Parking is available at Canyon RV park for a fee. This is a county-privatized park and the operator is able to charge for parking. There is a small rest area with water and a restroom however the operator may ask that the user purchase an item at its office store. In the future there will be access from the Santa Ana River Trail south into Gypsum Canyon and eventually farther south to Irvine Regional Park.
O 33	Orange	Site Improvement	New Feature	N/A	Citizen	Water diversion/low impact development/stormwater runoff treatment at Fairview Park. Trail access and wetland creation.	

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information	
O	34	Orange	Site Improvement	New Feature	N/A	City of Santa Ana	Pacific Electric rail bridge and Class I path along P/E ROW. The OC Streetcar is being designed in 2016-2017 along the Pacific Electric Rail alignment. The alignment will cut through a portion of Santa Ana that is very parks poor (about 0.25 acres/1000 residents in some places). This alignment should be targeted as a "tributary" -- a vital connection from the heart of Santa Ana out to the River Trail where OCTA should include a cycle track. The OC Streetcar is being designed in 2016-2017 along the Pacific Electric Rail alignment. The alignment will cut through a portion of Santa Ana that is very parks poor (about 0.25 acres/1000 residents in some places). This alignment should be targeted as a "tributary" -- a vital connection from the heart of Santa Ana out to the River Trail where OCTA should include a cycle track.	
O	35	Orange	Trail	Improvement to Existing Feature	N/A	Citizen	Need to enhance connection from SA river to Santiago Creek through bike and hiking trail connection with landscaping, signage, and rest area.	
O	36	Orange	Site Improvement	New Feature	N/A	Citizen	Lighting underneath the 5 bridge	
O	37	Orange	Access Point	Improvement to Existing Feature	N/A	Citizen	Better access point-currently there is a gate to get in (SART at Orangewood)	
O	38	Orange	Pedestrian Bridge	New Feature	Peralta Park Bridge	City of Anaheim	Also add a point for a future bridge east of petalta park for a bridge over the freeway and river. Pedestrian/equestrian/bike bridge.	
O	39	Orange	Pedestrian Bridge	New Feature	Peralta Park Bridge #2	City of Anaheim	Pedestrian/equestrian/bike bridge.	
O	40	Orange	Pedestrian Bridge	New Feature	Fairmont Ave Bridge	City of Anaheim	Please add a point at Fairmont ave in anaheim. We are working with all of the agencies to build a bridge over the 91 and river that will connect residents to the south to the river trail. Pedestrian/equestrian/bike bridge.	
O	41	Orange	Site Improvement	New Feature	N/A	Citizen	Wildlife movement an connectivity opportunities between Chino Hills and the Santa Ana Mountains need to be incorporated into the plans. Particularly coal canyon and other important pinch points which are not currently functioning to facilitate wildlife movement. Local extinction of mountain lions is projected to take place within our lifetimes making this is an extremely urgent issue.	
O	100	Orange, Riverside, San Bernardino	Trail	Improvement to Existing Feature	Lighting along all of SART	Citizen	Lighting along entire trail SART	

RIVERSIDE COUNTY

COUNTY ID		County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
R	1	Riverside	Site Improvement	New Feature	Potential Staging Area	California State Parks	Potential for parking lot	This is a potential project to develop a parking lot on the south side of Prado Road.
R	2	Riverside	Trail	New Feature	N/A	San Bernardino County - Regional Parks	Potential connection to State and Regional parks.	Opportunity to connect Chino Hills State Park and Prado Regional Park to the SART.
R	3	Riverside	Access Point	New Feature	N/A	Riverside-Corona RCD	Potential access point	River access to trail from Bluff and River Rd, Norco
R	4	Riverside	Site Improvement	New Feature	Crossroads Riverview Park	Riverside-Corona RCD	Potential for year round programming, outpost/kiosk, and interpretive signage for watershed citizen science program	Currently used for annual Renaissance Festival and Coffin Creek Halloween event. Area has considerable year round potential, however. This site as been identified as a potential outpost/kiosk/Interpretive signs for the Santa Ana River Watershed Citizen Science program.
R	5	Riverside	Trail	Improvement to Existing Feature	Zanja Greenway Trail	City of Redlands		Zanja Greenway trail is outside of .50 mile boundary but is located along a tributary of the SAR and includes several parks
R	6	Riverside	Site Improvement	Improvement to Existing Feature	N/A	Riverside-Corona RCD	Potential interpretive site.	Horse staging area in Norco with existing facilities and potential interpretive site.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
R 7	Riverside	Access Point	New Feature	N/A	Riverside-Corona RCD	Planned access to new trail pending approval.	Future access to new trail from Shadow Cyn Cir in Norco. Will need approvals from OC Flood Control, ACOE and City of Norco.
R 8	Riverside	Site Improvement	Improvement on Existing Feature	Altfillisch Conserved Land	Riverside-Corona RCD	In progress--Habitat restoration	Preserved habitat land and arundo removal project.
R 9	Riverside	Access Point	New Feature	N/A	Jurupa Community Services District	Planned access to river channel.	The SART access already exists, but plans are in the works to provide access to the river from this site, as well.
R 10	Riverside	Site Improvement	New Feature	River Access Opportunity	Riverside-Corona RCD	Opportunity for outpost/kiosk, interpretive signage for watershed citizen science program	We are planning to provide access to the river from Riverwalk Park through this area. This site has been identified as a potential outpost/kiosk/Interpretive Signs for the Santa Ana River Watershed Citizen Science program.
R 11	Riverside	Trail	New Feature	N/A	Jurupa Community Services District	Planned bike lane	Planned asphalt bike lane.
R 12	Riverside	Access Point	New Feature	N/A	Jurupa Community Services District	Planned access point	Desi House access point to trail.
R 13	Riverside	Site Improvement	New Feature	The Desi House	Jurupa Community Services District	Planned project with potential to include nature center or community garden.	Site of home previously owned by Desi Amaz, Sr. Still in the planning phase and may include Nature Center and or Community Garden components. Located on the "Eastvale Trail" and will have restrooms, room rental and food service.
R 14	Riverside	Site Improvement	New Feature	Hole Lake	Riverside-Corona RCD	Potential for equestrian trail staging, permit camping.	This land could accommodate a variety of uses, including equestrian trail staging. Perhaps one of the nearby commercial properties could accommodate a hotel to support any trail users going the distance from coast to crest? Or perhaps the park land could provide camping by permit only? The riparian area of this site is in a conservation easement, (protected habitat) roughly 10 acres.
R 15	Riverside	Site Improvement	Improvement to Existing Feature	N/A	City of Riverside	Potential for trail staging area and parking on south side of Jurupa. Would require mid-block safety crossings for pedestrians to cross Jurupa.	Property and the one on the S side of Jurupa, across the st, are owned by City Pks and are a good oppt for dvlp of a trail staging area and parking. Access pnt is already avl to the public but no sppt amenities presently. Rutland Pk is existing to the W, w/ drinking water and benches/tbils, no restroom. Hole Lk, property to the S of Jurupa, is large enough to accommodate equestrian staging. There is not currently a master plan for the pk, but there has been discussion of a developer including imprvs fora park on the Hole Lk property as part of a larger dvlp prj. If Hole Lk is used for trail staging, a safe way to cross Jurupa should be provided, people will probably not want to walk to the intersection of Jurupa/Van Buren to use the existing crosswalk.
R 16	Riverside	Access Point	New Feature	N/A	City of Riverside	Potential for future trail.	This access point is existing and usable by the public, but it's questionable whether it's official/authorized. The access point looks to be within City Right of Way, but the paved trail heading west from here is partially on private property, not within the recorded trail easement. There have been attempts to develop this property but currently there is not an approved project. Since the City's adopted Trails Master Plan includes the trail through this property, trails will be made a condition of approval for whatever project is approved at this location.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
R 18	Riverside	Site Improvement	New Feature	Potential Santa Ana River Watershed Citizen Science Program outpost	Riverside-Corona RCD	potential outpost watershed citizen science program	This site as been identified as a potential outpost for the Santa Ana River Watershed Citizen Science program.
R 19	Riverside	Site Improvement	New Feature	Potential Santa Ana River Watershed Citizen Science Program outpost	Riverside-Corona RCD	potential outpost watershed citizen science program	This site as been identified as a potential outpost for the Santa Ana River Watershed Citizen Science program.
R 20	Riverside	Site Improvement	New Feature	San Bernardino Valley Municipal Water District	San Bernardino Valley MWD	Plans to restore the Hidden Valley Duck Ponds	Hidden Valley Duck Ponds restoration
R 21	Riverside	Site Improvement	Improvement on Existing Feature	Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement	Santa Ana Watershed Project Authority	Potential for habitat improvement and beneficial use (water quality) improvement	Project is in the planning stage with construction planned for Fall 2018
R 22	Riverside	Site Improvement	New Feature	The Santa Ana River Watershed Citizen Science Program	Inland Empire Waterkeeper, Rivers & Lands Conservancy	potential outpost watershed citizen science program. Rivers & Lands Conservancy is a committed partner to this project. Waterkeeper's project will be a LEED certified river center with native landscaping, permeable pavers, and interpretive panels. Panels will be graffiti-proof and can be changed seasonally to include historical, biological, safety, and way finding information. The building itself will be used to store citizen science and other programming supplies where docents and volunteer staff will be able to disseminate information and supplies to the public.	This site as been identified as a potential outpost/kiosk/Interpretive Signs for the Santa Ana River Watershed Citizen Science program. Additional comments from IEWKIEWK has support to develop small interpretive center near restrooms and SART on land from Riverside Parks and Rec. IEWK continues to seek funding for project.
R 23	Riverside	Site Improvement	Improvement to Existing Feature	N/A	Inland Empire Waterkeeper	Potential for parking area	IEWK/ENCOR site assessment of potential sites with access to the river. Potential parking contingent on TORO approval.
R 24	Riverside	Site Improvement	New Feature	California Native Plant Garden	Riverside Land Conservancy - Santa Ana River Trust	Plans for expansion of native plant garden	With the help of community volunteers and in partnership with the City of Riverside Parks Department, Riverside Land Conservancy started work along this SART access point in November 2015. The goal was to improve the trailhead by planting a California Native Plant garden. The garden now provides aesthetic and ecological benefits to Trail users and wildlife. Phase II planting recently took place in November 2016, and an expansion of the garden is planned for February 2017.
R 26	Riverside	Site Improvement	Improvement to Existing Feature	N/A	Inland Empire Waterkeeper	Potential for improved landscaping, new parking lot, non-formal education space.	Site accessed by locals. Has potential for design features, parking lot, non-formal education space. Site located in a large equestrian community. Observed recreation includes equestrian, wading, and hiking. Golf course is now official housing project site.
R 27	Riverside	Site Improvement	Improvement to Existing Feature	N/A	Inland Empire Waterkeeper	Potential for parking but would require parking study and loosening of existing restrictions.	There is no place to park due to all the no parking signs, despite the appearance of a parking lot. The site could be evaluated for a small parking lot and would be a very nice site for public access.
R 28	Riverside	Site Improvement	New Feature	Tequesquite Extension	Riverside-Corona RCD	Potential for trail amenities including outpost/kiosk with interpretive signage for watershed citizen science program	This land is owned by City Parks and is a good location for trail support amenities/services. This site as been identified as a potential outpost/kiosk/Interpretive signs for the Santa Ana River Watershed Citizen Science program.
R 29	Riverside	Access Point	New Feature	N/A	City of Riverside	Potential for future access point to River Channel.	Easy, official access to SART. Potential for future access site to Santa Ana River Channel. Adjacent to amenities of Martha McLean - Anza Narrows Park. Highly utilized Trail and Park area. Previous comment by Rachel Hamilton of Riverside Land Conservancy

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
R 30	Riverside	Site Improvement	Improvement to Existing Feature	N/A	Inland Empire Waterkeeper	Potential for safety improvements including signage, signalized crosswalks, or stop lights.	Initial access point may have been unintentionally removed. Site has access to North side of river. Site used by equestrians, however, improvements to the safety of equestrian crossing are needed, such as more effective signage to alert drivers. Crosswalk treatment and addition of stop light for safer crossing or light up over head crossing light. IEWK/ENCOR site assessment of potential sites with access to the river.
R 31	Riverside	Access Point	New Feature	N/A	Inland Empire Waterkeeper	Potential for access. Would require easement approval. Potential for added amenities but easement is priority in order to provide access.	Site is complicated as ingress is on private property, however the parcel for access is owned by the Dept. of Fish and Wildlife. If a recreation easement is established for ingress would recommend for improvements at that time. Until such time, would recommend access at Bain St. There are currently homeless encampments in the (wildlife corridor or flood control) tunnels posing yet another barrier to access for recreation at this site.
R 32	Riverside	Site Improvement	New Feature	Tequesquite Ave - possible trail staging	City of Riverside	Opportunity for trail staging and amenities. Bike repair facilities and bike storage lockers.	This might be an opportunity for dedicated trail staging and amenities. Currently, trail users can find restrooms, water, parking in nearby Ryan Bonaminio Parl. There has been some discussion of a bike kitchen in this area, to provide bike support and repair to trail users. This corner lot might be a good site to set up a storage container and a small parking area for the bike kitchen
R 33	Riverside	Trail	New Feature	N/A	Santa AnaRWQCB	Unspecified	not Tequesquite Arroyo, see note
R 34	Riverside	Site Improvement	New Feature	Mission Inn Ave Bridge	City of Riverside	Potential for safety improvements	Unofficial/unauthorized access point. Small area for parking just a few cars, but City traffic engineer would need to evaluate for safety of vehicles pulling in and out. There is a traffic gate, and no official pedestrian/bike access, though people can go under gate or lift bikes over.
R 35	Riverside	Site Improvement	New Feature	Fairmount Park - "wilderness area"	City of Riverside	Opportunity to restore camping sites, add nature center interpretive trail, improve habitat restoration, and a constructed arroyo for interpretation and water play. Potential for river-front retail/commercial development. Dependent on mitigation for flooding and soil testing.	This land is considered part of Fairmount Park. The City has a vision to restore camping here (there used to be a boy scout camp), and to put in a nature center, interpretive trail, do some habitat restoration, and possibly a constructed arroyo for interpretation and water play. This area could possibly be configured to allow vehicular access from Mission Inn Avenue or through Fairmount Park. This is a potential site for river-front retail/commercial businesses, such as a coffee shop or restaurant. Unfortunately, with the current layout/grade, the levee blocks the view of the river from the park side. There may be some issue with putting buildings on this site, because of potential flooding, or unsuitable soils on-site.
R 36	Riverside	Access Point	New Feature	N/A	City of Riverside	Potential for access point	ENCOR site assessment of potential sites with access to the river. [City of Riverside Parks Dept - comments below] There is currently no public access at this point, though a segment of decomposed granite trail leads from Rivera Street to the levee. Permission from Riverside County Flood Control for access through fence and up levee embankment needs are required before public access can be provided.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
R 38	Riverside	Pedestrian Bridge - River	New Feature	N/A	Citizen	River crossing with identity bridge from existing SART at Norco boundary to riverbend open space in Jurupa Valley. Extend trail under I-15 along Eastvale parks and existing trail to Prado bridge. Something similar to the Redding Sundial Bridge.	
R 39	Riverside	Access Point	Improvement to Existing Feature	Etiwanda Access Point	City of Jurupa Valley	the Etiwanda access point was closed before last summer by Riverside County Parks due to lack of funding to maintain it. If this access point can be utilized again, it will relieve some of the pressure off of the Downey entrance.	
R 40	Riverside	Site Improvement	New Feature	N/A	Citizen	I think that wetlands should not only be preserved but proactively expanded to some semblance of prior years where practical.	
R 41	Riverside	Site Improvement	New Feature	Jurupa Valley Downey Access Point Land (15 acres)	City of Jurupa Valley	We also will be receiving an additional 15 acres of open space adjacent and directly to the west as part of an agreement in place with the developer of Paradise Knowles planned community which is currently a golf course. This project is entitled and just waiting to begin.	
R 42	Riverside	Trail	New Feature	New Trail on Downey Access Point Land	City of Jurupa Valley	We would like to consider a trail that runs along the River across all 40 acres with possible additional connections in the future.	
R 43	Riverside	Site Improvement	New Feature	Jurupa Valley Downey Access Point Land (26 acres)	City of Jurupa Valley	We have purchased 26 acres of land at the Downey access point and are in the early stages of planning for the property. We are meeting with National Parks May 26 to tour the site and begin discussions regarding an intern they are providing to help with the planning. We have already set up resident permitted parking (seasonal) surrounding the site to alleviate many of the parking issues that we had last summer season. We are also marking out a temporary parking lot that will be in place by Memorial Day weekend to allow people to park to utilize the River. We would eventually like to include an interpretive center, picnic tables, restrooms, trash receptacles, information kiosks, possibly a corral, etc. We will know more once the planning details are set. Some trash receptacles and outhouses will be in place for this summer season.	
R 44	Riverside	Pedestrian Bridge - River	New Feature	Martha McLean Bridge	City of Jurupa Valley	Pedestrian Bridge (horse, bike, walking) across the River in the area that is I think is called the Narrows. I believe it is where either De Anza or Juan Bautista (I going off the top of my head) crossed many years ago and is in the vicinity of Martha McLean Park. It would allow access to the Santa Ana River Trail for Jurupa Valley residents and allow Riverside residents to access our Trail system. It would bring another access point for interconnectedness for our two cities. There may need to be enhancements made to the existing Trail system on the Jurupa Valley side for a smooth connection.	
R 45	Riverside	Trail	Improvement to Existing Feature	N/A	Citizen	Between Bonamino Park and Martha McLean park, there is a dangerous turn where many many people have been injured to a point where an ambulance has to drive on the trail. Concrete repair is needed.	

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information	
R	46	Riverside	Trail	New Feature	Trail from Van Buren Bridge to Mission Bridge	City of Jurupa Valley	for the River on the Jurupa Valley side with clear connections at the Van Buren Bridge and the Mission Bridge to the Santa Ana River Trail. for the River on the Jurupa Valley side with clear connections at the Van Buren Bridge and the Mission Bridge to the Santa Ana River Trail. Trail Plan for the River on the Jurupa Valley side with clear connections at the Van Buren Bridge and the Mission Bridge to the Santa Ana River Trail.	
SAN BERNARDINO								
COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information	
SB	1	San Bernardino	Site Improvement	New Feature	Shopoff Property	Trust for Public Land	Potential to acquire land	This 400 acre parcel is for sale and a great addition to the protected lands along the Santa Ana River.
SB	4	San Bernardino	Trail	New Feature	N/A	Riverside-Corona RCD	Potential connection to Box Springs, Springbrook Wash	potential connections to SART and Springbrook Wash and Box Springs Mtns.
SB	5	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	San Bernardino County	Potential for parking and camping	IEWK/ENCOR site assessment of potential sites with access to the river.Potential parking and camping opportunities. Existing homeless issues. IEWK/ENCOR site assessment of potential sites with access to the river.
SB	6	San Bernardino	Site Improvement	Improvement on Existing Feature	S Riverside Ave	San Bernardino County	Unspecified	Opportunities present. Existing homeless problem.
SB	7	San Bernardino	Site Improvement	New Feature	Colton	Santa Ana RWQCB	Potential for mitigation area, water management, or park.	Vacant area; adjacent SAR trail and river levee, Potential for mitigation area, water management, park. Same elevation as river bottom, excess river flows could be directed into area to create riparian and water management area. Some old cottonwood trees are present indicating potential for successful riparian forest if river flows could be directed into area. Also without flows could be park of any type. Area fenced off, so no official access. The river in this area has no official access however there are numerous homeless camps and much illegal off road vehicle activity. The river in this area receives flows from the RIX and Rialto Wastewater treatment plants which has provide habitat for the Santa Ana Sucker.
SB	8	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	Inland Empire Waterkeeper	Potential for nature center.	Plenty of space. There is a lot of rebar and construction materials on the bank of the river Very rich wildlife. Property would be great for a nature center.
SB	9	San Bernardino	Site Improvement	New Feature	Abandoned Rail Line	City of Grand Terrace	Potential for new trail along unused rail line	This is an abandoned rail line that can be utilized to create a trail to connect to the SART to the north. The City was awarded an state grant to prepare an Active Transportation Plan and this is an area that will included in the ATP.
SB	10	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	San Bernardino County - Regional Parks	Planned for Active transportation with new access point.	Street parking is limited. Recently the City was awarded a grant to prepare an Active Transportation Plan. Part of that plan will include access to the SART.
SB	11	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	Santa AnaRWQCB	Potential trails	potential areas could be all the way to Riverside Dr.
SB	12	San Bernardino	Site Improvement	Improvement on Existing Feature	LaCadena Bridge Project	San Bernardino County - Regional Parks	In progress-bridge repair	City of Colton making repairs to the bridge abutments.
SB	13	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	San Bernardino County	Potential for unspecified enhancements.	Preexisting asphalted access.Closed Landfill Title 14 issues. Minor opportunities for enhancement.
SB	14	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	San Bernardino County	Potential for restrooms and camping facilities.	Preexisting asphalted access.Opportunities for enhancement such as camping, bathrooms, are present.

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
SB 15	San Bernardino	Trail	Improvement to Existing Feature	N/A	Inland Empire Bike Alliance	Potential connection from San Timoteo Canyon trail to SART.	This is a section of the San Timoteo Canyon Trail that was orphaned when Caltrans rebuilt the onramp from E. Hospitality Lane onto I-10 West. It would be simple to repair and would provide an excellent link to the Santa Ana River Trail from Loma Linda a
SB 16	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Potential access point	Future access point
SB 17	San Bernardino	Site Improvement	New Feature	Trail/Urban Interface	San Bernardino County - Regional Parks	Opportunity for mitigation zone, tree planting, interpretive and directional signage.	Opportunity: provide mitigation zone between open space, trail and urban development. Trees, no hardscape. Interpretive and directional signage for trail users or educational.
SB 18	San Bernardino	Site Improvement	New Feature	Hospitality Commerce Park	San Bernardino County - Regional Parks	Potential for restroom	Opportunity: Formalized SART trail head. due to proximity to public buildings, security, lighting, a trail user restroom and park area would serve dual purpose for employee break/lunch park as well as trail users stop.
SB 19	San Bernardino	Site Improvement	New Feature	Open Space	San Bernardino County - Regional Parks	Opportunity for trail access and connections to Redlands Rail	Opportunity: trail access and transportation node of connectivity with planned Redlands Rail.
SB 20	San Bernardino	Trail	New Feature	N/A	San Bernardino County - Regional Parks	Unspecified	Planned Trail
SB 21	San Bernardino	Trail	New Feature	Unknown	Source: SANBAG	Unspecified	Planned Trail
SB 22	San Bernardino	Trail	New Feature	Unknown	City of Redlands	Unspecified	Planned Trail
SB 23	San Bernardino	Trail	New Feature	EAST VALLEY CORRIDOR MULTI-PURPOSE TRAIL	City of Redlands	Unspecified	Planned trail
SB 24	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	San Bernardino County	Potential for parking, camping, restrooms.	San Bernardino County Flood control road access to river Opportunities for parking, camping, bathrooms.
SB 25	San Bernardino	Trail	New Feature	Orange Blossom Trail	City of Redlands	Unspecified	Planned Trail
SB 26	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Potential connection point. Potential parking area.	connection point should be built as the SART is constructed through this location. Parking opportunity up to approximately 6 spots. Minimal bathroom opportunities.
SB 27	San Bernardino	Trail	New Feature	TEXAS ACCESS TRAIL	City of Redlands	Planned realignment	Redlands SART realignment
SB 28	San Bernardino	Site Improvement	New Feature	N/A	Source: Redlands-Trailheads	Potential trailhead	Potential trailhead/parking Israel Beal Park
SB 29	San Bernardino	Trail	New Feature	N/A	City of Redlands	SART realignment	SART alignment through Redlands
SB 30	San Bernardino	Trail	New Feature	N/A	City of Redlands	Planned realignment	SART alignment through Redlands
SB 31	San Bernardino	Trail	New Feature	Greenspot Road Trail	Source: SANBAG	Unspecified	Planned Trail
SB 32	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	City of Redlands	Planned for Active transportation	Under design from ATP Cycle 2 grant funding.
SB 33	San Bernardino	Trail	New Feature	Unknown	Source: SANBAG	Unspecified	Planned Trail
SB 34	San Bernardino	Trail	New Feature	Alabama Street Trail	City of Redlands	ATP cycle 3	ATP Cycle 3 project
SB 35	San Bernardino	Trail	New Feature	Orange Street Trail	City of Redlands	In progress-ATP Cycle 2	Under design as part of Redlands/Highland ATP Cycle 2 grant project.
SB 36	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Potential for access point	Future access Biological issues.
SB 37	San Bernardino	Trail	New Feature	SANTA FE MENTONE TRAIL	Source: SANBAG	Unspecified	Planned Trail
SB 38	San Bernardino	Trail	New Feature	N/A	City of Redlands	SART spur	SART spur
SB 39	San Bernardino	Trail	New Feature	Greenspot Road Trail	Source: SANBAG	Unspecified	Planned Trail
SB 40	San Bernardino	Site Improvement	New Feature	Santa Ana River Crossing	Source: Redlands-Trailheads	Potential river crossing	Santa Ana River Crossing
SB 41	San Bernardino	Site Improvement	Improvement on Existing Feature	Centennial Park	City of Redlands	Unspecified	Future Parks (Centennial Park - Specific amenities may include a dog park, seating, water stops, restrooms, and bike parking along with relevant landscaping and fencing. The total parcel is roughly 30 acres.)
SB 42	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Potential access point	Potential access.
SB 43	San Bernardino	Trail	New Feature	MILL CREEK REGIONAL TRAIL	Source: Redlands Institute	Unspecified	Planned Trail

COUNTY ID	County	Project Type	Existing Or New?	Name	Submitting Agency	Description	Additional Information
SB 44	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Planned (and funded) connection to bikeway. Potential for parking area.	Funded connection to Alabama street bikeway ATP Cycle 3 project. Limited parking opportunity.
SB 45	San Bernardino	Trail	New Feature	Orange Street/Boulder Avenue Trail	City of Redlands	ATP cycle 2	Redlands/Highland connector project (atp Cycle 2)
SB 46	San Bernardino	Trail	New Feature	SANTA FE MENTONE TRAIL	Source: SANBAG	Unspecified	Planned Trail
SB 47	San Bernardino	Trail	New Feature	N/A	City of Redlands	SART realignment	Redlands SART Alignment
SB 48	San Bernardino	Trail	New Feature	Alabama Street Trail	City of Redlands	ATP cycle 3	ATP Cycle 3 project
SB 49	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	City of Highland	Major Trail Nodes	Major Trail Nodes
SB 50	San Bernardino	Trail	New Feature	Cone Camp Road Trail	Source: Upper Santa Ana River Land MP	Unspecified	Planned Trail
SB 51	San Bernardino	Trail	New Feature	South Rim Trail	Source: Upper Santa Ana River Land MP	Unspecified	Planned Trail
SB 52	San Bernardino	Trail	New Feature	N/A	San Bernardino County - Regional Parks	Planned connections from SART to USFS SART (Harmony Development)	Planning: connectivity between the San Bernardino County SART and USFS SART. Connectivity would occur at the planned City of Highland Harmony Development.
SB 53	San Bernardino	Site Improvement	New Feature	N/A	Source: Redlands-Trailheads	Potential trailhead	Potential trailhead
SB 54	San Bernardino	Trail	New Feature	Old Rail Line Trail	Source: Upper Santa Ana River Land MP	Unspecified	Planned Trail
SB 55	San Bernardino	Trail	New Feature	SANTA ANA RIVER REGIONAL TRAIL	Source: SANBAG	Unspecified	Planned Trail
SB 56	San Bernardino	Trail	New Feature	Cone Camp Road Trail	Source: Upper Santa Ana River Land MP	Unspecified	Planned Trail
SB 57	San Bernardino	Access Point	New Feature	N/A	San Bernardino County	Potential/Planned connection point	Future connection point. Noise and flood hazards at this access point.
SB 58	San Bernardino	Trail	New Feature	N/A	City of Redlands	SART realignment	SART alignment through Redlands
SB 59	San Bernardino	Access Point	New Feature	N/A	City of Redlands	Potential for access point	Future access
SB 60	San Bernardino	Site Improvement	New Feature	N/A	Source: Redlands-Trailheads	Potential trailhead and parking area	Potential trailhead/parking. Property owned by EVWD, SBCFCD or Greenspot Corridor
SB 61	San Bernardino	Site Improvement	Improvement to Existing Feature	N/A	City of Highland	Major Trail Nodes	Major Trail Nodes
SB 62	San Bernardino	Trail	New Feature	Greenspot Road Trail	Source: SANBAG	Unspecified	Planned Trail
SB 63	San Bernardino	Site Improvement	Improvement on Existing Feature	Iron Bridge Kiosk	City of Highland	In progress--kiosk with shelter and interpretive signage	Iron Bridge Kiosk: This site includes a shade shelter and interpretive signs about the area along the Greenspot Bike Trail.
SB 64	San Bernardino	Trail	New Feature	Old Greenspot Road Trail	Source: SANBAG	Unspecified	Planned Trail
SB 65	San Bernardino	Trail	New Feature	Greenspot Road Trail	Source: Upper Santa Ana River Land MP	Unspecified	Planned Trail
SB 69	San Bernardino	Trail	Improvement to Existing Feature	N/A	Citizen	Emergency trail replacement west of Colton landfill	
SB 71	San Bernardino	Access Point	New Feature	N/A	Coastal Conservancy	Trail nexus with information and restrooms	
SB 73	San Bernardino	Access Point	New Feature	N/A	City of Redlands	Trail nexus off west end of Orange Blossom Trail and SART. Restrooms/water and shade would be great.	
SB 75	San Bernardino	Trail	New Feature	N/A	Citizen	Connection to the Santa Ana Wash Plan Trails would expand the opportunities to improve the trail amenities in the future.	
SB 77	San Bernardino	Access Point	New Feature	N/A	Redlands/ Mentone/ SB County	Restrooms/ info/ trail nexus at Redland Orange Blossom Trail	
SB 78	San Bernardino	Trail	New Feature	N/A	Citizen	The paved trail should connect at least to Greenspot Rd in East Highland/Mentone if not to Bryant Rd in Yucaipa	
SB 79	San Bernardino	Access Point	New Feature	N/A	Highland/ USFS/ SB Regional Parks	Transitional information and signage indicating trail transition from class I to natural surface wilderness trail. Add water and restrooms	



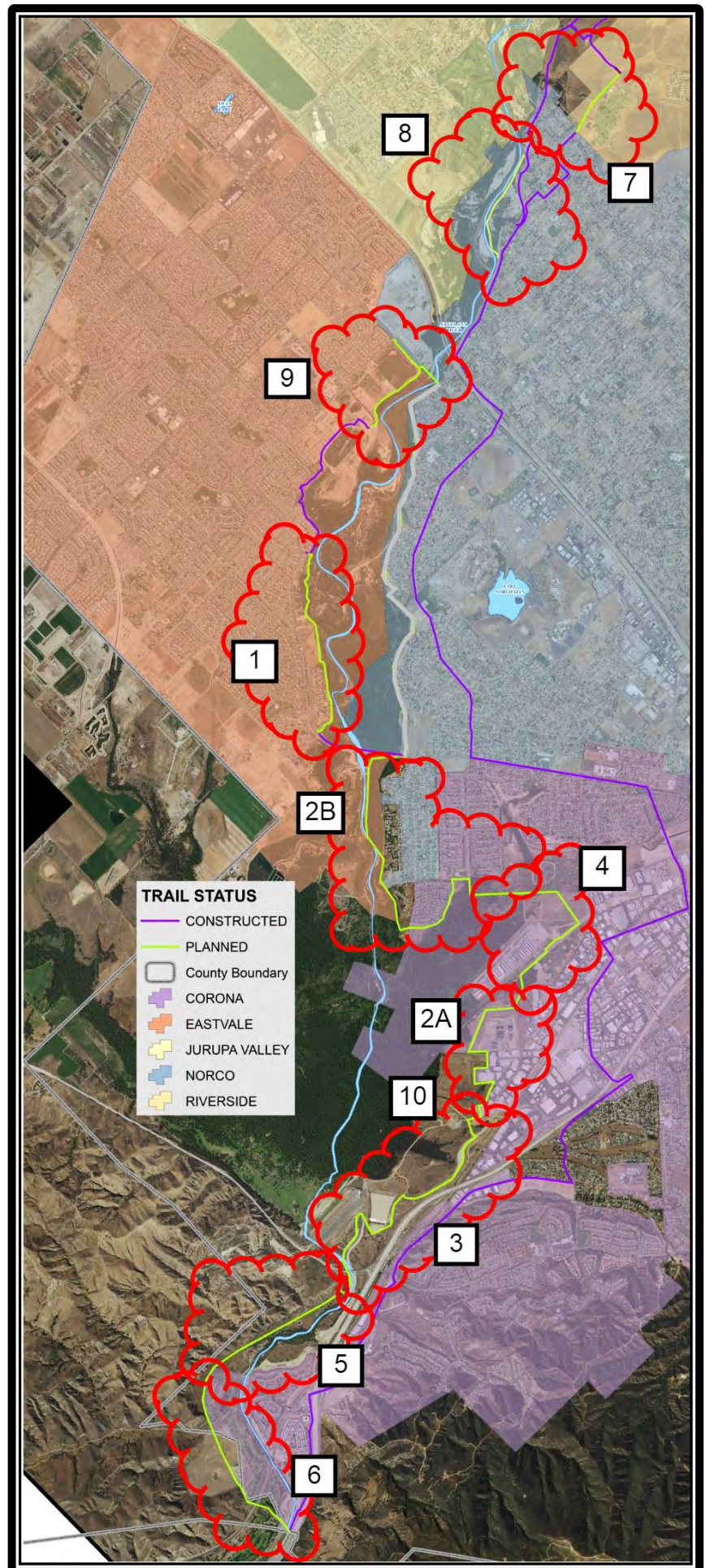
Appendix D: Santa Ana River Trail Phasing Sheets



SANTA ANA RIVER TRAIL

Phasing Sheets:

- Phase 1: Eastvale/River Road Connection
- Phase 2A: Corona Airport/Auxiliary Dike Connection
- Phase 2B: Orange County Water District Connection
- Phase 3: Auxiliary Dike Connection to Phase 5
- Phase 4: Alcoa Dike Connection
- Phase 5: CA State Parks/Phase 3
- Phase 6: CA State Parks/Orange County Connection
- Phase 7: Hidden Valley/Norco Connection
- Phase 8: Norco Bluff Connection
- Phase 9: Hamner Bridge/Eastvale Connection
- Phase 10: Corona Staging Area





SART Phase 1

EASTVALE/RIVER ROAD CONNECTION

PROJECT FUNDING: PROPOSITION 84, County DIF

PROJECT COSTS: \$6,000,000

ESTIMATED TIMELINE: 2018

PROJECT DESCRIPTION:

SART Phase 1 connects the existing trail in Eastvale to the River Road Bridge. This is a critical link that will be placed upon a constructed bluff, providing a wonderful view of the river along a meandering portion of the trail. To the east it connects to the existing trail that was constructed by the Jurupa Community Services District. To the west it connects to River Road Bridge, which ultimately connects to Phase 2B. Project costs include \$1,000,000 for securing and constructing mitigation measures, which must be initiated during construction of this phase.

CRITICAL PATH ITEMS:

- Completion of DBESP and supplemental EA
- City of Eastvale Construction Permit
- City of Eastvale Conditional Use Permit
- CAFW 1602 Streambed Alteration Permit
- SARWQCB- 401 Stormwater Permit
- USACOE- 404 Clean Water Act Permit
- SCAQMD- Authority to Construct Permit

TIMELINE DETAILS:

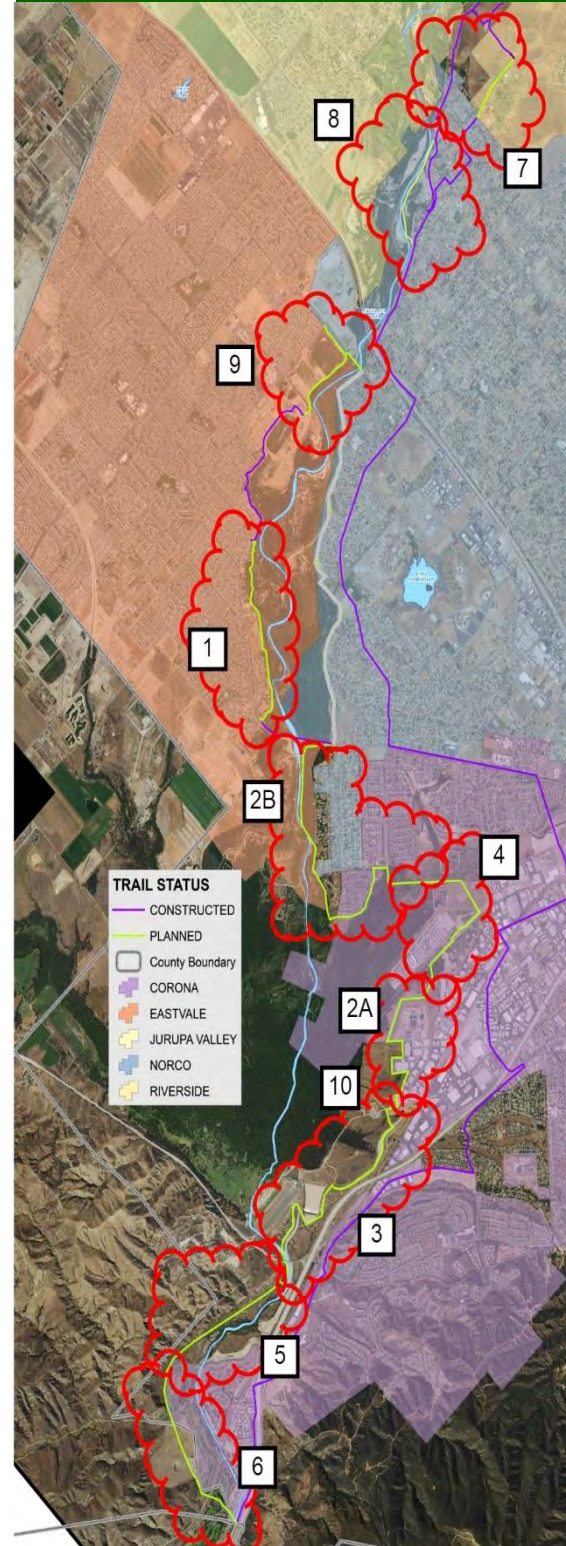
Environmental: Pending approval from the Agencies
Design: 100% Complete
Construction: 2018
Open to Public: Upon Completion

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Commission

PROJECT CONTACTS:

Alex Menor • Amenor@RCTC.org • (951) 787-7970





SART Phase 2A

CORONA AIRPORT/AUXILIARY DIKE CONNECTION

PROJECT FUNDING: Proposition 84

PROJECT COSTS: \$3,000,000

ESTIMATED TIMELINE: 2019

PROJECT DESCRIPTION:

SART Phase 2A navigates from Auto Center Drive to Butterfield Drive in Corona. This trail links to other segments at the following points. To the east it connects with Phase 4 -Alcoa Dike Connection, to the west it connects to Phase 10-Staging Area and Phase 3-Auxiliary Dike.

CRITICAL PATH ITEMS:

- Completion of DBESP and supplemental EA
- City of Corona Construction Permit
- SARWQCB- Section 401 Stormwater Permit
- USACOE- Section 404 Clean Water Act Permit
- SCAQMD- Authority to Construct Permit

TIMELINE DETAILS:

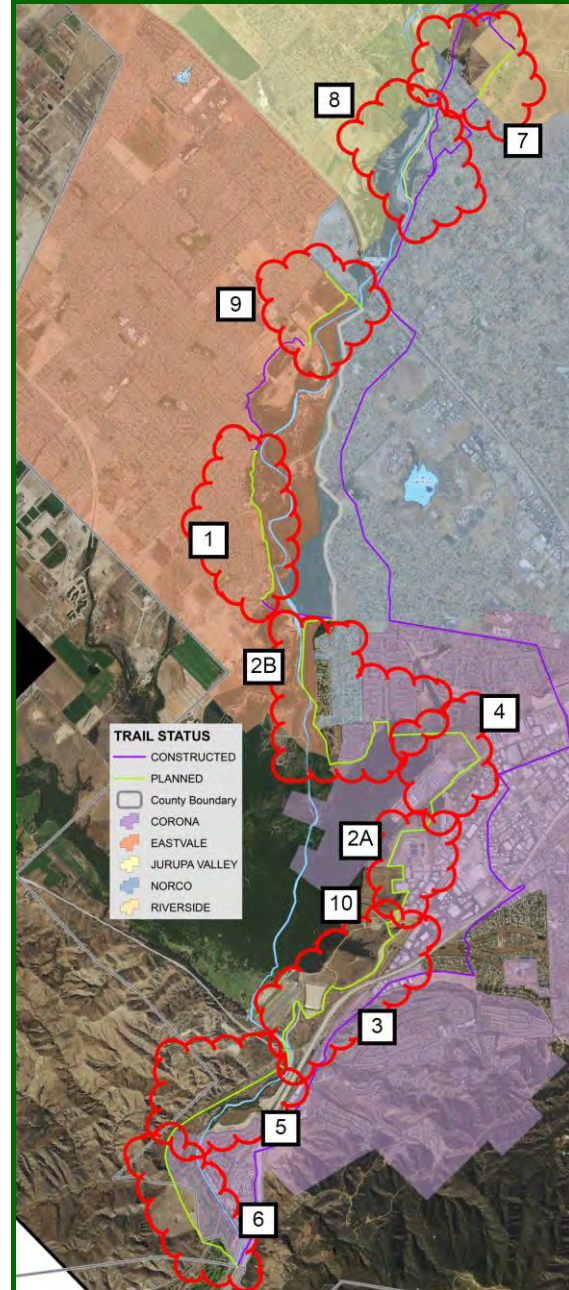
Environmental: Pending approval from the Agencies
Design: 95%
Construction: 2019
Open to Public: Upon Completion

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Commission

PROJECT CONTACTS:

Alex Menor • Amenor@RCTC.org • (951) 787-7970



Revised: 10-30-2017



SART Phase 2B

ORANGE COUNTY WATER DISTRICT CONNECTION

PROJECT FUNDING:	Proposition 84
PROJECT COSTS:	\$5,700,000
ESTIMATED TIMELINE:	Based upon funding (Will bid in 2018)
PROJECT DESCRIPTION:	

This segment navigates from River Road Bridge to Rincon Road in Corona. To the east trail users will connect to Phase 1 Eastvale/River Road connection by crossing River Road Bridge. To the west, it connects to Phase 4, the Alcoa Dike Connection.

CRITICAL PATH ITEMS:

- Completion of DBESP and supplemental EA
- OCWD- Trail Agreement through OCWD Property
- City of Corona Construction Permit
- City of Eastvale Conditional Use Permit
- City of Eastvale Construction Permit
- CAFE 1602 Streambed Alteration Permit
- SARWQCB 401 Stormwater Permit
- USACOE 404 Clean Water Act Permit
- SCAQMD Authority to Construct Permit

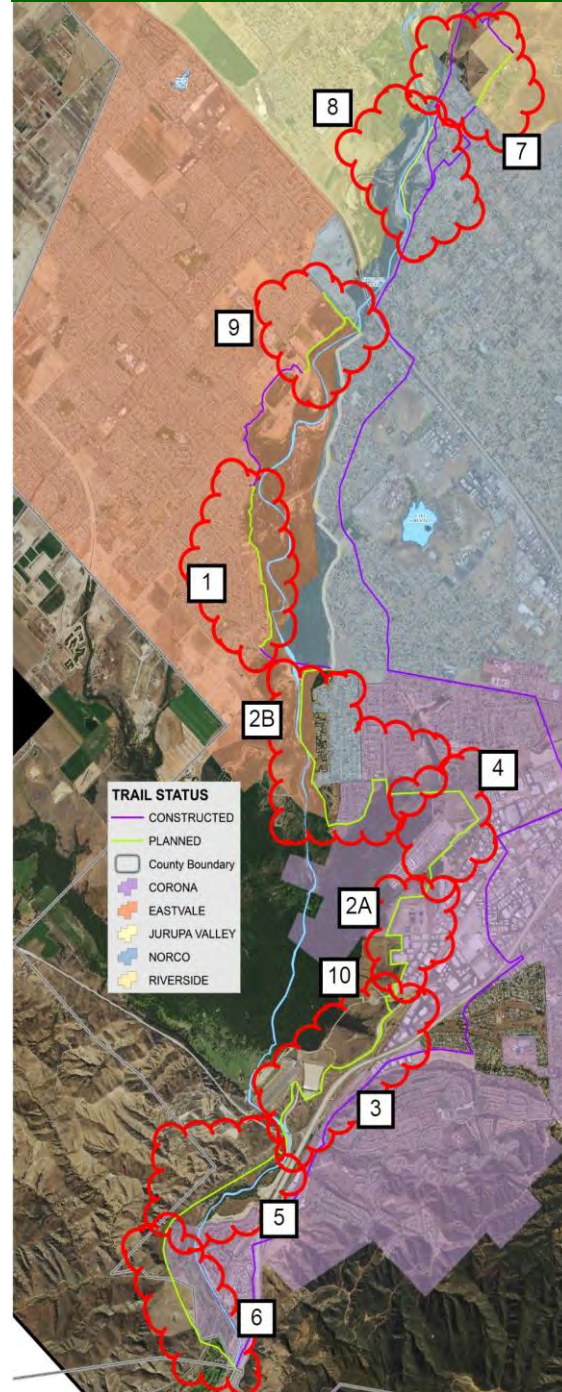
TIMELINE DETAILS:

Environmental:	Pending approval from the Agencies
Design:	100%
Construction:	T.B.D.
Open to Public:	Upon Completion

PROJECT SPONSOR:	Riverside County Regional Park and Open-Space District
PROJECT MANAGER:	Riverside County Transportation Commission

PROJECT CONTACT:

Alex Menor • Amenor@RCTC.org • (951) 787-7970



Revised: 10-30-2017



SART Phase 3

AUXILIARY DIKE CONNECTION TO PHASE 5 CONNECTION

PROJECT FUNDNG: Proposition 84

PROJECT COSTS: \$5,500,000

ESTIMATED TIMELINE: 2019

PROJECT DESCRIPTION:

This Phase connects the U.S. Army Corps of Engineers' Auxiliary Dike on the east to phase 5 which is considered the Chino Hills State Park connection. The travels parallel to the 91 Freeway until it reaches the Prado Dam spillway, eventually crossing under the 71 Freeway.

CRITICAL PATH ITEMS:

- Completion of DBESP and supplemental EA
- City of Corona Encroachment Permit
- CalTrans Encroachment Permit
- Riverside County Construction Permit
- CAFE-1602 Streambed Alteration Permit
- SARWQCB 401 Stormwater Permit
- USACOE 404 Clean Water Act Permit
- SCAQMD Authority to Construct Permit
- Chino Hills State Park-Construction Permit

TIMELINE DETAILS:

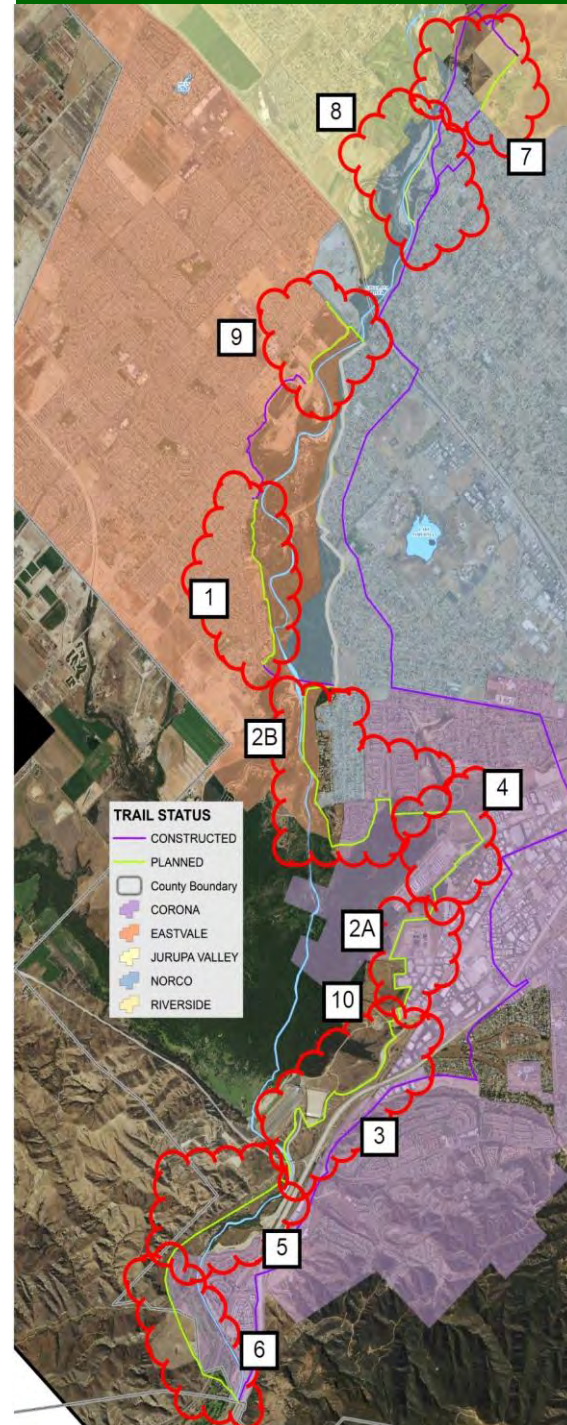
Environmental: Pending Approval from the Resource Agencies
Design: 95%
Construction: TBD
Open to Public: When adjacent segments are complete

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Commission

PROJECT CONTACTS:

Alex Menor • Amenor@RCTC.org • (951) 787-7970



Revised: 10-30-2017



SART Phase 4

ALCOA DIKE CONNECTION

PROJECT FUNDING: Proposition 84

PROJECT COSTS: \$3,500,000

ESTIMATED TIMELINE: TBD

PROJECT DESCRIPTION:

The Alcoa Dike Connection connects on the east to segment 2B (Orange County Water District Connection) which leads to the River Road Bridge. To the west it connects to segment 2A which ultimately connects to phase 10 (Corona Staging Area).

CRITICAL PATH ITEMS:

- Federal Funding for Dike Project
- USAOCE Betterment Agreement

TIMELINE DETAILS:

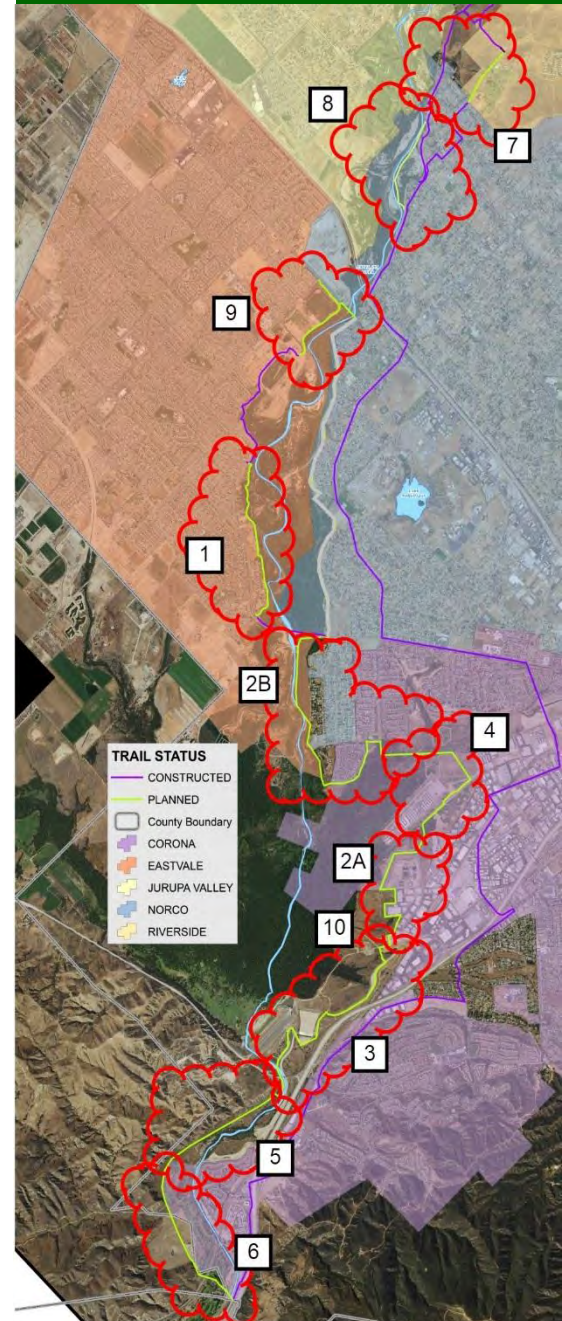
Environmental:	TBD
Design:	TBD
Construction:	2018/19
Open to Public:	Once constructed

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

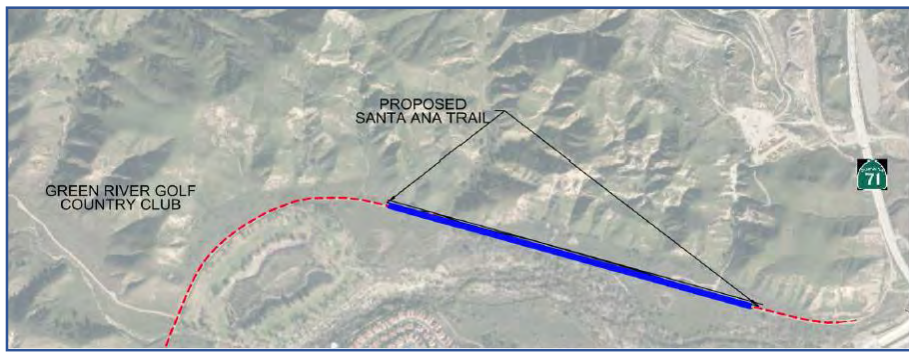
PROJECT MANAGER: TBD

PROJECT CONTACTS:

Riverside County Regional Park and Open Space District • (951) 955-4558



Revised: 10-24-2017



SART Phase 5

STATE PARKS/PHASE 3 CONNECTION*

PROJECT FUNDING: Proposition 50, County DIF

PROJECT COSTS: \$2,069,000

ESTIMATED TIMELINE: 2018

PROJECT DESCRIPTION:

The Chino Hills State Park portion of the trail links Riverside to Orange County. To the east the trail connects to Phase 3. To the west Phase 5 connects to Green River Golf Course/ Orange County (Phase 6).

CRITICAL PATH ITEMS:

- Right of Entry Permits from Army Corps. of Engineers, Flood Control and CalTrans (In Progress)
- California State Parks Review/Approval
 - Construction Drawings
 - Easement Agreement
 - Approved Appraisal
- CAFW 1602 Streambed Alteration Permit
- SARWCQB- 401 Stormwater Permit
- USACOE- 404 Clean Water Act Permit
- Possible mitigation requirements

TIMELINE DETAILS:

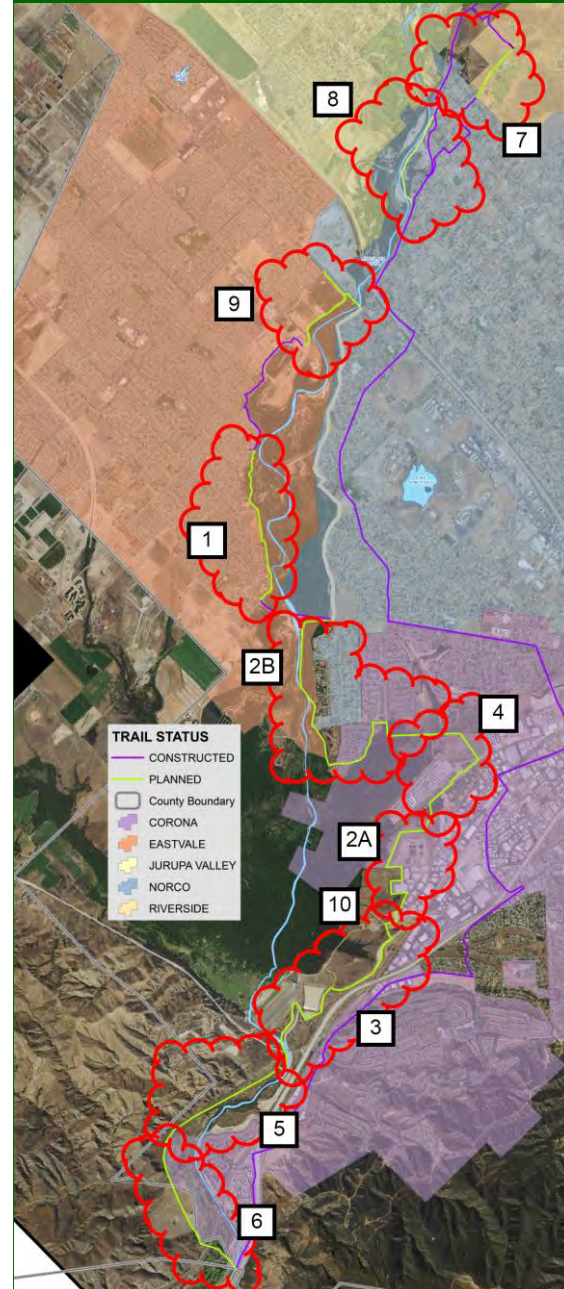
Environmental: 6-8 months
Design: Redesign, pending comments from State Parks
Construction: 2018
Open to Public: Once Phase 3 and Phase 6 connection are complete

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Department

PROJECT CONTACTS:

Cesar Tolentino • ctolenti@rivco.org • (951) 955-1520



Revised: 10-24-2017

*Formerly referred to as
Prop. 50/State Parks Segment



SART Phase 6

STATE PARKS/ORANGE COUNTY

CONNECTION*

PROJECT FUNDING: Proposition 84

PROJECT COSTS: \$5,700,000

ESTIMATED TIMELINE: 2017-2020

PROJECT DESCRIPTION:

SART Phase 6 links the Chino Hills State Park on the east to the connection in Orange County on the west. Currently three alignments are being explored for constructability and environmental implications. Funding has been approved to begin planning and CEQA review

CRITICAL PATH ITEMS:

- Completion of EA
- Results of Request for Proposals (RFP)
- CEQA Permitting
- Full Plans Specifications and Engineer's Estimate

TIMELINE DETAILS:

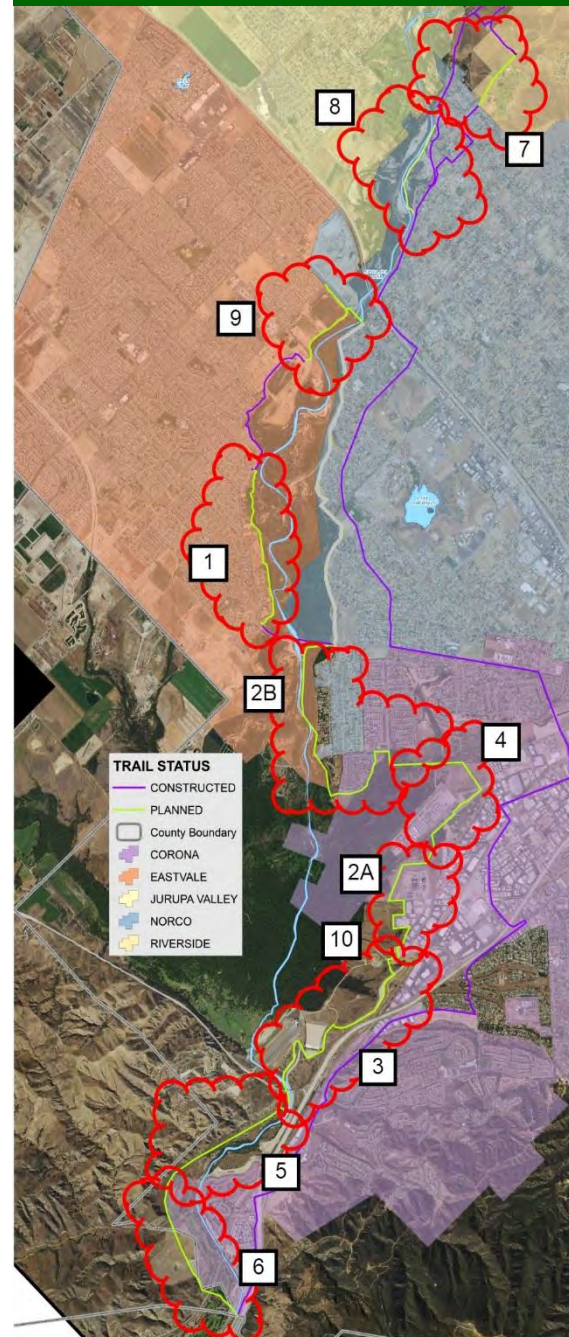
Environmental: 12/2019
Design: 6/2020
Construction: 2020
Open to Public: Upon Completion of Phase 5 and 3

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Commission

PROJECT CONTACTS:

Alex Menor • amenor@rctc.org • (951) 787-7970



Revised: 10-30-17

*Formally referred to as SART 2



SART Phase 7

HIDDEN VALLEY/NORCO CONNECTION

PROJECT FUNDING: County DIF, AQMD Grant

PROJECT COSTS: \$450,000 to \$1,200,000

ESTIMATED TIMELINE: 2018-19

PROJECT DESCRIPTION:

This small segment is funded through a grant and matching County funds. The County and City of Riverside are working in partnership and have identified two alternatives that significantly vary in costs. The City has provided estimates and will plan and construct the trails, provided the County funds the entire project. To the east it connects to Hidden Valley reserve and to the west it connects to Phase 8- Norco Bluff.

CRITICAL PATH ITEMS:

- Estimate from City of Riverside- Completed 10/23/17
- Agreement between City and County
- CEQA
- Plans and Specs
- Funding- In Discussion

TIMELINE DETAILS:

Environmental: TBD
Design: TBD
Construction: TBD
Open to Public: Upon Completion

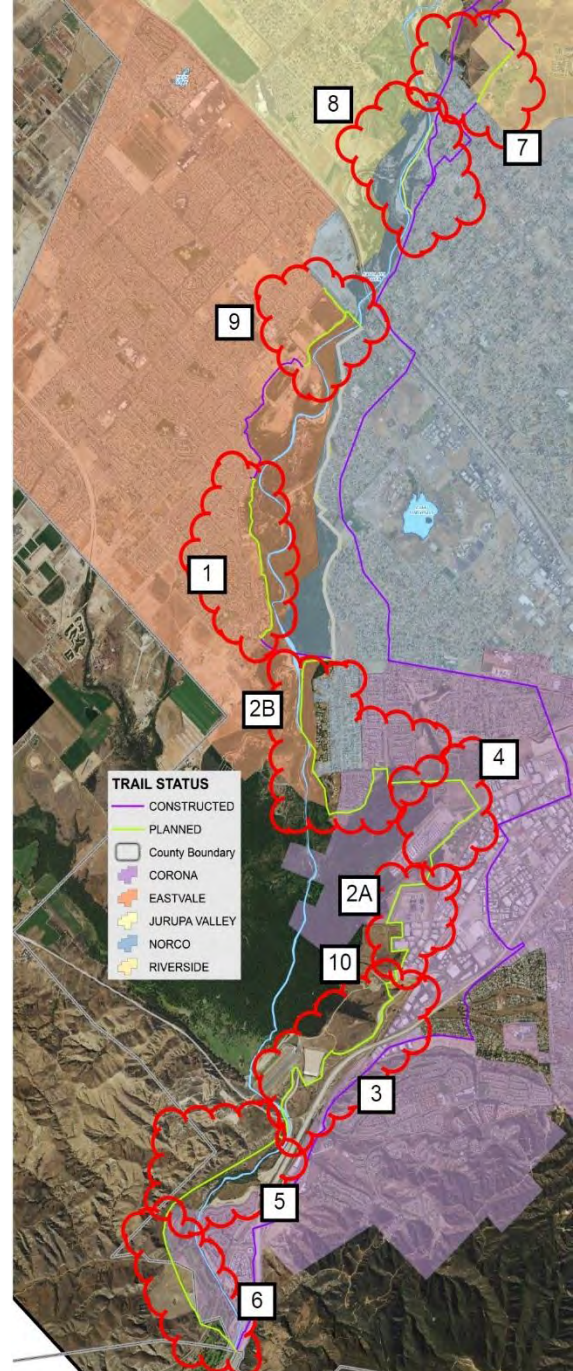
PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

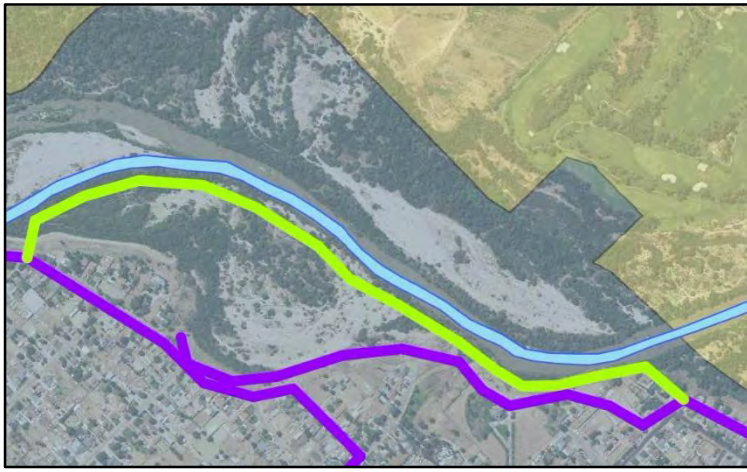
PROJECT MANAGER: City of Riverside Public Works Department

PROJECT CONTACTS:

Riverside County Regional Park and Open Space District • (951) 955-4398

Thuy Nguyen • TNNguyen@riversideca.gov • (951) 826-5706





SART Phase 8

NORCO BLUFF CONNECTION

PROJECT FUNDING: Unfunded

PROJECT COSTS: TBD

ESTIMATED TIMELINE: TBD

PROJECT DESCRIPTION:

The current trail alignment in Norco between Hamner Avenue and Hidden Valley Reserve is primarily on public streets and shoulders. This alignment was necessary to maintain connectivity through Norco. Phase 8 will construct Class II Bikeway on River Road and other public streets. The soft trail will be constructed when the Hamner Bridge project is complete, eventually connecting to phase 7 in the east and phase 9 to the west.

CRITICAL PATH ITEMS:

- Flood Control Finalization
- Plans And Specifications
- CEQA Permitting
- Private Easements
- Funding

TIMELINE DETAILS:

Environmental: TBD
Design: TBD
Construction: TBD
Open to Public: Once constructed

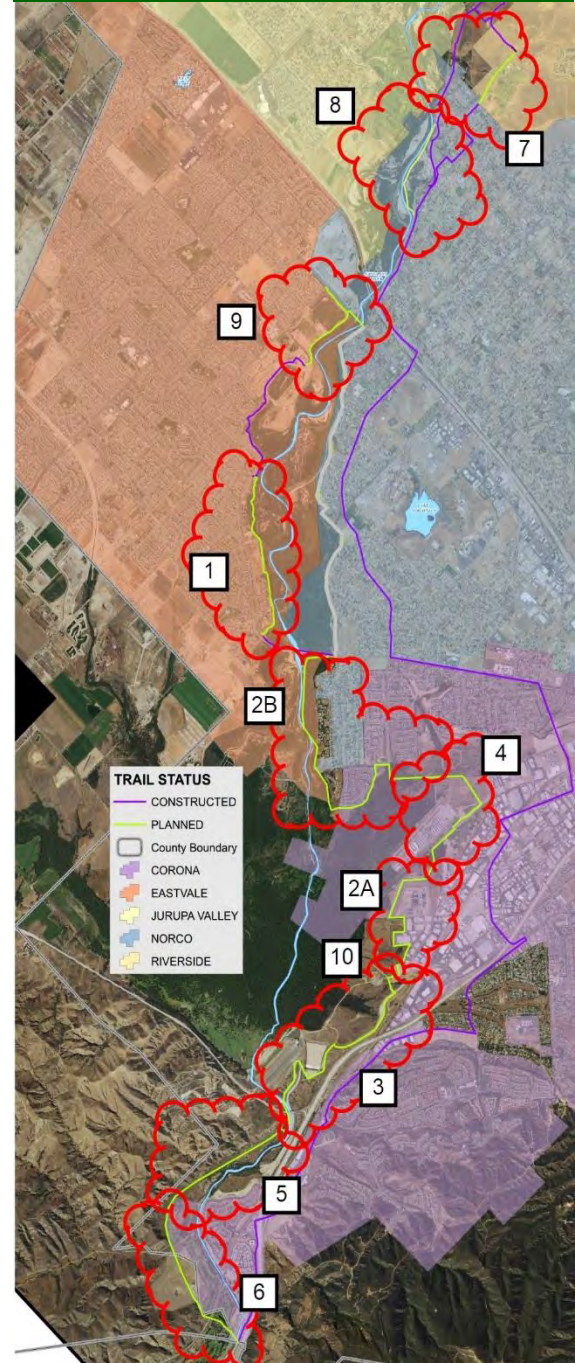
PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: TBD

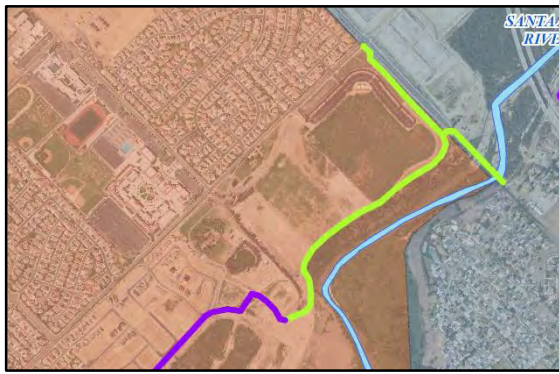
PROJECT CONTACTS:

Riverside County Regional Park and Open Space District • (951) 955-4398

City of Norco • (951) 371-1143



Revised: 10-24-2017



SART Phase 9

HAMNER BRIDGE/EASTVALE

CONNECTION

PROJECT FUNDNG: TBD

PROJECT COSTS: \$3-4 Million

ESTIMATED TIMELINE: 2022

PROJECT DESCRIPTION:

SART Phase 9 is a critical linkage point allowing users to cross the river at Hamner, connecting to trails in Norco and Eastvale. Funding for the Hamner Bridge project has been secured and the project is scheduled to be completed in 2022. The pedestrian and bikeway segment of the bridge is being discussed with various stakeholders, however, funding must be identified to include the linkage from the bridge to Norco and Eastvale connections.

CRITICAL PATH ITEMS:

- Identify and secure funding
- Include trail connection in bridge construction plans

TIMELINE DETAILS:

Environmental: TBD
Design: 2018
Construction: 2019-2022
Open to Public: After Construction

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

PROJECT MANAGER: Riverside County Transportation Department

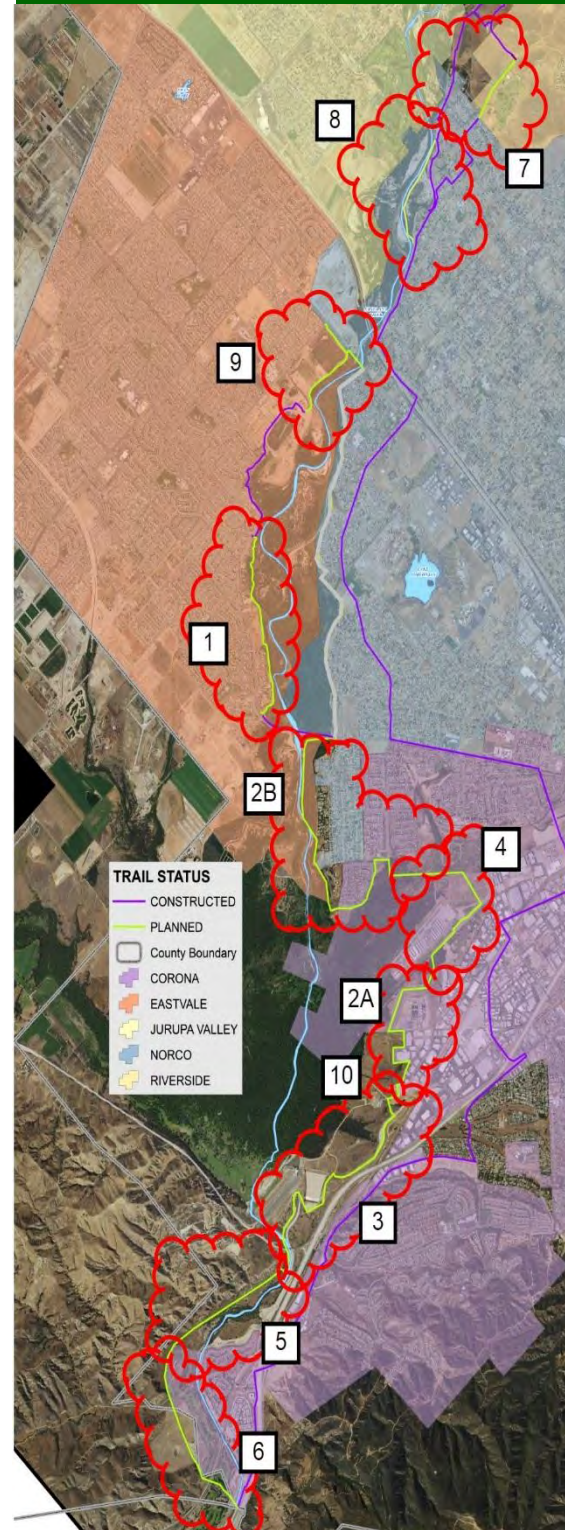
PROJECT CONTACTS:

Cesar Tolentino • ctolenti@rivco.org • (951) 955-1520

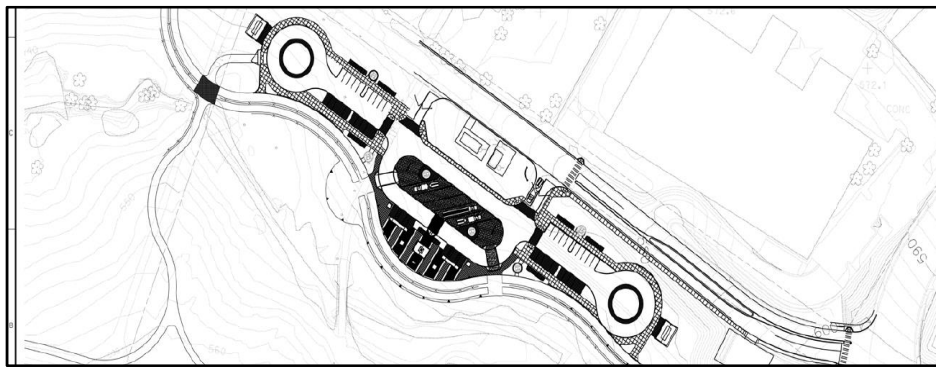
Jurupa Community Services District • (951) 685-7434

City of Norco • (951) 371-1143

Riverside County Regional Park and Open Space District • (951) 955-4558



Revised: 10-24-2017



SART Phase 10

CORONA STAGING AREA

PROJECT FUNDING: Unfunded

PROJECT COSTS: \$4,500,000

ESTIMATED TIMELINE: TBD

PROJECT DESCRIPTION:

SART Phase 10 sits on Auto Center Drive, near Corona. It is at the juncture of Phase 3 and Phase 2A. The staging area includes a restroom, parking and other amenities that will enhance the trail user experience. A sewer line extension project was initiated between, Orange County Flood Control, the Riverside County Park District and the City of Corona to ensure that required infrastructure will be available when the project receives funding. A formal operations agreement will be required outlining which agency will assume maintenance and operation of the site, once construction is complete.

CRITICAL PATH ITEMS:

- Completion of DBESP and supplemental EA
- OC Flood District/ Park Maintenance Agreement
- City of Corona Construction Permit
- City/Park Maintenance Agreement
- Riverside County Construction Permit
- CAFW 1602 Streambed Alteration Agreement
- RWQCB 401 Stormwater Permit
- SCAQMD Authority to Construct Permit
- USACOE 404 Clean Water Act Permit

TIMELINE DETAILS:

Environmental: TBD
Design: 95%
Construction: TBD
Open to Public: Upon Completion

PROJECT SPONSOR: Riverside County Regional Park and Open-Space District

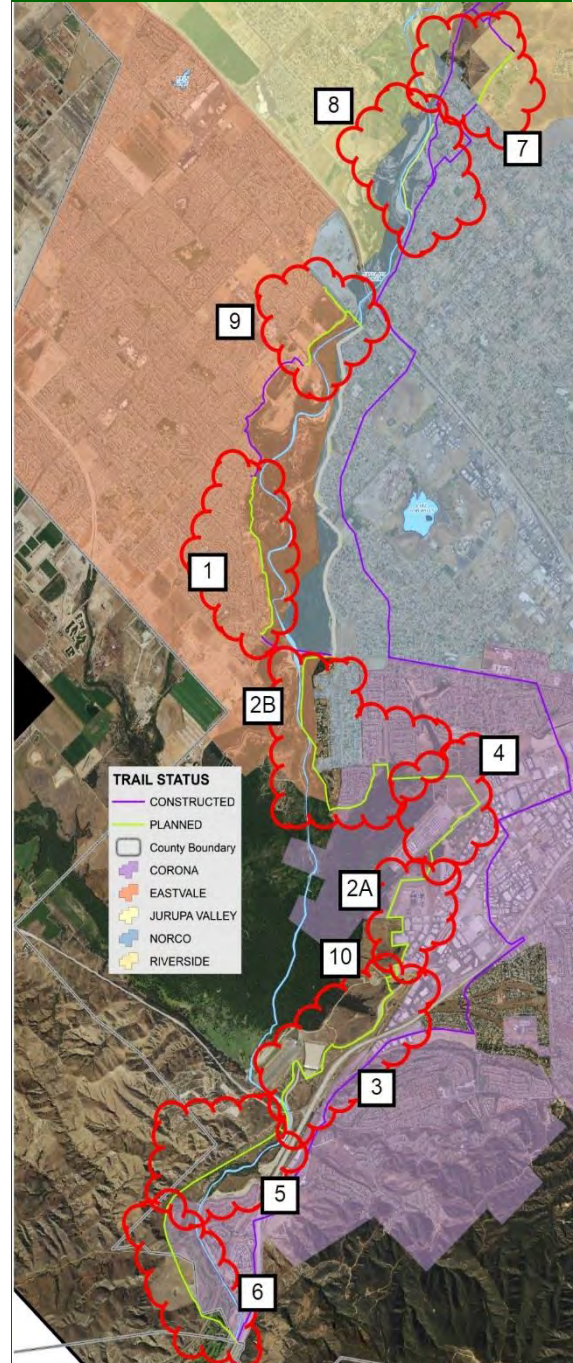
PROJECT MANAGER: Riverside County Transportation Commission

PROJECT CONTACTS:

Riverside County Regional Park and Open Space District • (951) 955-4558

City of Corona • (951) 726-2266

Alex Menor • amenor@rctc.org • (951) 787-7970



Revised: 10-30-2017

GLOSSARY OF TERMS

- CAFE- California Department of Fish and Wildlife
- CEQA- California Environmental Quality Act
- DBESP- Determination of Biologically Equivalent or Superior Preservation
- DIF- Riverside County Development Impact Fees
- NEPA- National Environmental Policy Act
- OC- Orange County
- OCWD- Orange County Water District
- SART- Santa Ana River Trail
- SARWQCB- Santa Ana River Water Quality Control Board
- SCAQMD- South Coast Air Quality Management District
- USACOE- United States Army Corps of Engineers



SART Phase III

Waterman Avenue to California Street

PROJECT FUNDING: COASTAL CONSERVANCY

PROJECT COSTS: \$5,150,000

ESTIMATED TIMELINE: Summer 2019

PROJECT DESCRIPTION:

The Santa Ana River Trail (SART) Phase III will begin at the existing terminus of the trail at Waterman Avenue in the City of San Bernardino, California and continue east approximately 3.8 miles to California Street in the City of Redlands. In general, the project consists of constructing a 14-foot wide recreational trail along the south bank of the Santa Ana River. Features of the trail include five trail access ramps, four roadway undercrossings, installation of a culvert and a pre-fabricated clear-span steel bridge over the Mission Zanja Creek and constructing several hundred feet of keystone retaining wall and slope protection. Project costs include \$1,070,000 for securing and constructing mitigation measures, which must be initiated during construction of this phase.

PROJECT PHASING:

- Reach A1 – 400' West of Waterman Avenue to Waterman Avenue
- Reach A2 – Waterman Avenue to California Street (excluding Bridge over Mission Zanja and Redlands Rail Undercrossing)
- Reach B – Bridge over Mission Zanja and Redlands Rail Undercrossing

CRITICAL PATH ITEMS:

- Army Corps. of Engineers 408 Permit Issuance (Reach A1)
- Coastal Conservancy Funding Extension
- Reach B dependent on SBCTA Redlands Rail project construction completion
- Various Environmental Permits
- Mitigation Plan and Costs

TIMELINE DETAILS:

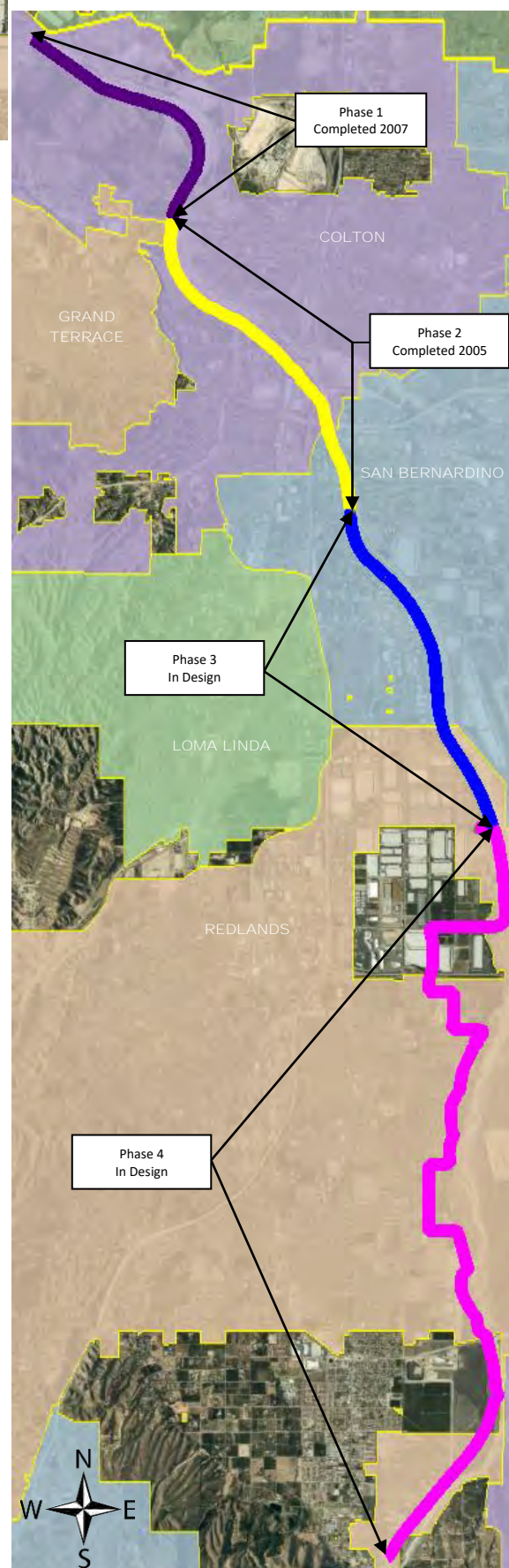
Environmental: Pending approval from the Agencies
Design: 95% Complete (Reach A1 & A2) 65% Complete (Reach B)
Construction: 2019
Open to Public: Upon Completion

PROJECT SPONSOR: San Bernardino County Regional Parks

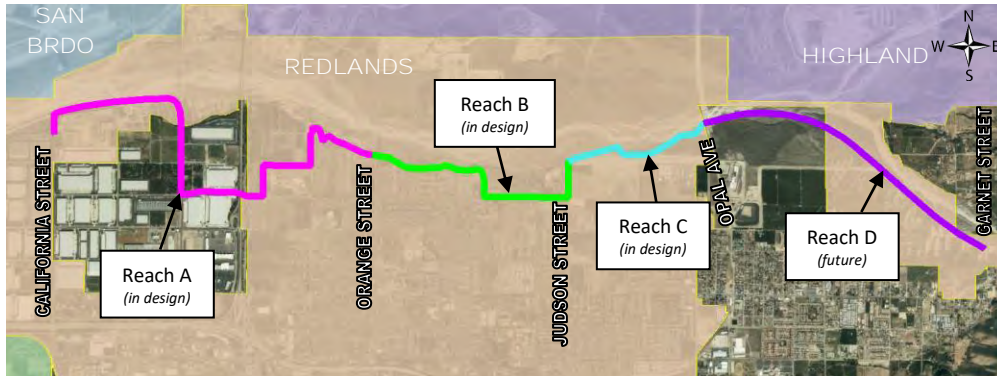
PROJECT MANAGER: San Bernardino County Public Works

PROJECT CONTACTS:

Beahta Davis • Beahta.Davis@parks.sbcounty.gov • (909) 387-2757
 Andy Silao • asilao@dpw.sbcounty.gov • (909) 387-7922



Revised: 2/15/2018



SART Phase IV

Reach B & C

Orange Street to Opal Avenue

PROJECT FUNDING: ATP CYCLE 2 & COASTAL CONSERVANCY

PROJECT COSTS: \$5,000,000

ESTIMATED TIMELINE: Summer 2020

PROJECT DESCRIPTION:

The Santa Ana River Trail (SART) Phase IV, Reaches B and C will begin at Orange Street in the City of Redlands, California and extend 3.20 miles east to Opal Avenue in the unincorporated community of Mentone. In general, the project consists of constructing a 14-foot wide recreational trail along the south bank of the Santa Ana River with a portion of the trail diverting along the City of Redlands roadways. Features of the trail include construction of a bridge over Orange Street, installation of fencing, railing and access gates and constructing retaining walls and slope protection.

PROJECT PHASING:

Reach B – Orange Street to Judson Street
Reach C – Judson Street to Opal Avenue

CRITICAL PATH ITEMS:

- NEPA/CEQA Clearance
- Various Environmental Permits
- Mitigation Plan and Costs
- Right-of-Way Acquisition

TIMELINE DETAILS:

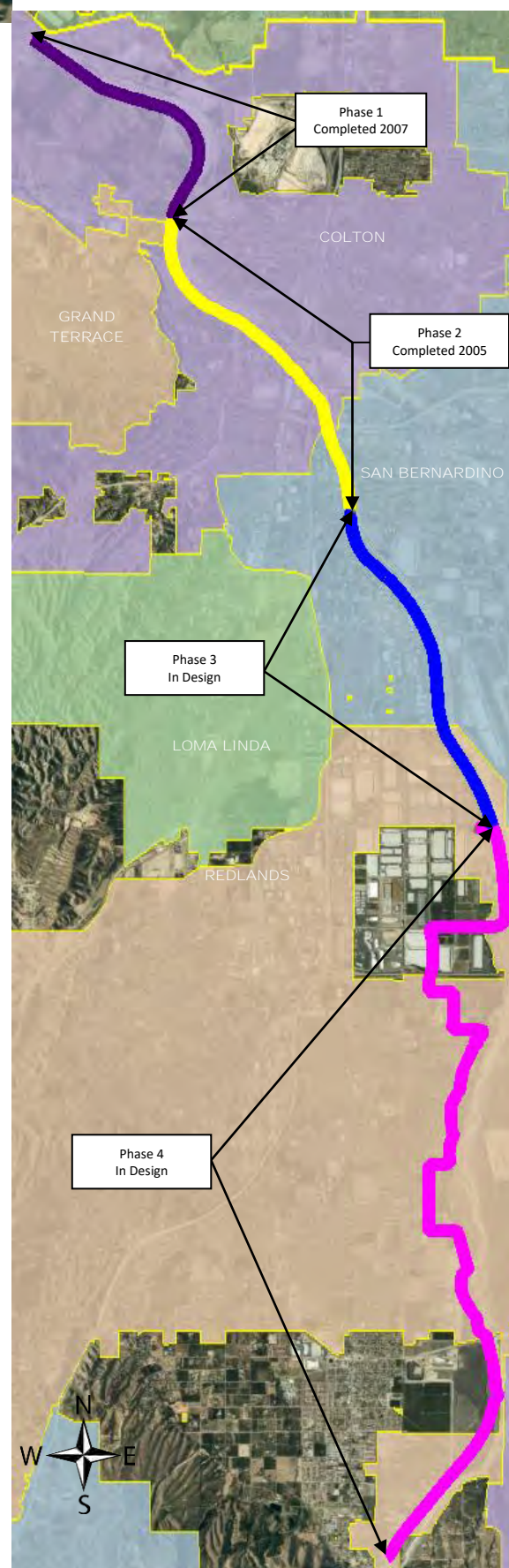
PA&ED: January 2019
PS&E: February 2020 (Design >35% Complete)
R/W: January 2020
Construction: 2020
Open to Public: Upon Completion

PROJECT SPONSOR: San Bernardino County Regional Parks

PROJECT MANAGER: San Bernardino County Public Works

PROJECT CONTACTS:

Beahta Davis • Beahta.Davis@parks.sbcounty.gov • (909) 387-2757
Andy Silao • asilao@dpw.sbcounty.gov • (909) 387-7922



Revised: 2/21/2018



Appendix E: Supplemental Design Guidelines

Appendix E. Supplemental Design Guidelines

- Santa Ana River Parkway Minimum Sign Guidelines, 2011
- Santa Ana River Parkway Public Art Policy, 2011
- Santa Ana River Parkway Minimum Maintenance Guidelines, 2008
- Detailed Trail Design Guidelines

Santa Ana River Parkway

Minimum Sign Guidelines



October 2011

TABLE OF CONTENTS

Title sheet.....	1
Table of Contents.....	2
Background, Purpose, Goals and Tasks.....	3
Wayfinding and Name Signs.....	4, 5
Mileage Markers.....	6, 7
Map and Exhibit Signs.....	8, 9
Regulatory Signs.....	10, 11
Arterial Roadway Name Signs.....	12
Parkway Condition and Public Safety Signs.....	13
Bikeway Marking Template	14
Maintenance.....	15
Glossary of Terms.....	16
Mileage Marker Information Template.....	17
Parkway Sign Post Template.....	18
Parkway Mileage Striping Template.....	19
Regulatory Sign Template Example	20

SANTA ANA RIVER PARKWAY MINIMUM SIGNAGE GUIDELINE

Background

The Santa Ana River Technical Advisory Committee (TAC) has prepared a draft Minimum Sign Guideline (Guideline) for use along the Santa Ana River Parkway. The Guideline was prepared at the request of the Santa Ana River Policy Advisory Group (PAG). The Guideline includes information from local agencies and from other sign guidelines.

Purpose

To communicate important Wayfinding, Interpretation, Safety and Regulation and Branding information about the Santa Ana River Parkway through cost-efficient methods agreeable to the Santa Ana River Parkway Partners.

Goals

1. Create a Guideline, which unifies and recommends Wayfinding, Interpretation, Safety and Regulation and Branding signs for use along the Santa Ana River Parkway.
2. Adopt the draft Guideline
3. Implement the Wayfinding portion of the Guideline as a first step.

Tasks

1. Develop minimum Wayfinding, Interpretation, Safety, Regulation, and Branding signs with emphasis initially given to Wayfinding signs.
2. Expand the Guideline to include additional Interpretation, Safety and Regulation and Branding signs in a subsequent revision.
3. Recommend a modular sign system that is readily available, easily implemented, expandable and inexpensive.
4. Remove old or outdated Parkway signs as appropriate

WAYFINDING

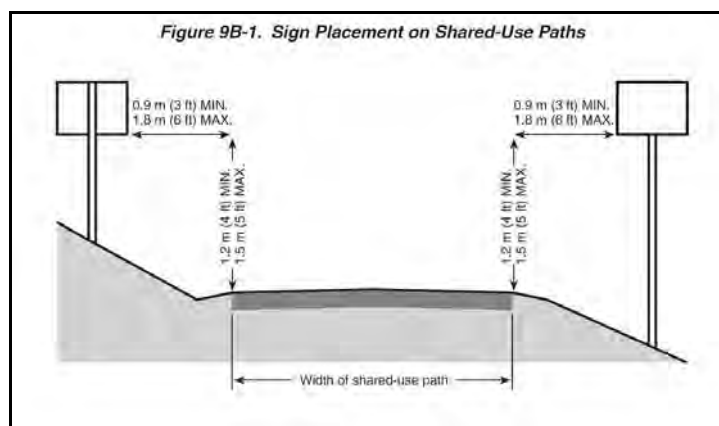
NAME SIGNS

Wayfinding signs are an important device to convey key information to Parkway visitors. Signs can direct, place emphasis, inform and warn. Signs can also create a sense of place and create value and significance.

Wayfinding name signs should clearly identify the Santa Ana River Parkway and its Riding and Hiking Trail and Class I (off-road paved) Bikeway. Name signs are commonly placed on vertical posts with a sign affixed to its top. Another option is to affix the name sign (as a sticker) on the post itself. Stickers affixed to sign posts (on 2 or more vertical edges) allow signs to face bicyclists from multiple directions.

Signs should be located where the visitor enters the Parkway right-of-way and begins to interact with other trail users. Name signs should be installed at least 3 feet from the edge of the trail or bikeway.

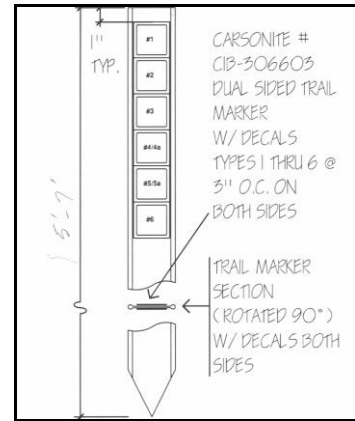
Suggestion #1: Install name signs at locations just outside of the Parkway right-of-way and into other public right-of-way as a way to suggest an alternative route of travel. Signs may be placed where road right-of-way adjoin Parkway right-of-way and/or along road right-of-way as cyclists approach the connection to the Parkway (similar to signs used to alert motorists to an approaching road intersection.)



Suggestion #2: Consider a modular signpost that addresses:

- Post and materials
- Signs and stickers
- Wording and information order
- Sign Placement
- Durability
- Easily obtainable sign materials and processes to install and maintain

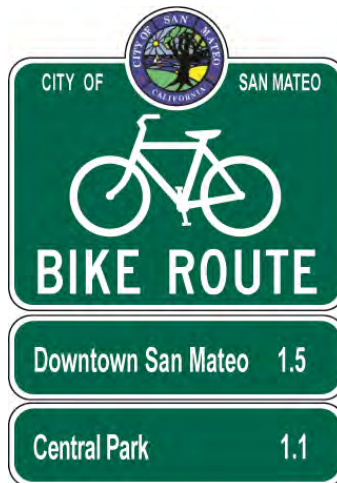
Examples of Flexible Sign Posts and Decals



Optional Name Sign Treatments

Option #1:

In the future consider using color and symbols (combined) to further emphasize the Parkway name and user location along the Parkway. Limit the types of signs to reduce cost. An example of a bikeway sign from San Mateo, California is below.



MILEAGE MARKERS

Mileage Markers can provide the following benefits:

- Designate where users can enter and exit the Parkway,
- Identifies the path of the bikeway and trail
- A point or destination along the Parkway
- Useful to plan rides and hikes
- Measure distance between 2 or more points
- Serves Parkway operators
- Wayfinding for emergency service staff

Mileage Markers should have the following characteristics:

- Visible and easy to read from the surrounding space
- Accurately placed (beginning at a fixed point along the Parkway)
- Installed at regular intervals (between $\frac{1}{4}$ and $\frac{1}{2}$ mile) and where users may be expected to stop and rest
- Contain useful information organized in a uniform manner
- Of a height and scale to not be a hazard
- Include features (such as a reflective surfaces) that allow the marker to be seen day and night
- Easy to maintain and to replace
- Made of readily available materials that are durable and economical

Develop a Sign Post Template (see Mileage Marker and Sign Post Templates) that addresses:

- Acceptable public uses of the Parkway
- Post shape
- Seals and Logo
- Mileage Number
- Installation

Suggestion #1: Prepare a map of the Mile Markers as part installation. The map will identify marker sites (estimated to be about 250 to 300) with unique mileage designations.

Suggestion #2: Coordinate the following Mileage Marker activities:

- Agreement on a modular post and sign palette
- Purchase of posts, stickers, and other sign materials
- Installation of the signs along the river
- Removal of unnecessary posts and signs

Examples of Mileage Markers



Optional Marker Treatments

Option #1: Use color and symbol codes (if useful) to emphasize the user's location along the Parkway

Option #2: Use 2 or 4 sided posts to communicate multi-directional travel information.

Option #3: Consider painting a bar across the bikeway that corresponds to the location of the marker as a way to highlight the post.

MAP AND EXHIBIT SIGNS

Prepare regional and local maps of the Parkway. Regional maps should include the entire Parkway. Local maps should depict sections of the Parkway with sufficient detail of the surrounding area. Parkway maps should be designed to serve:

- The widest visitor population
- Parkway staff and their contractors
- Emergency services staff
- Other stakeholders

Parkway maps should be easy to read, accurate, allow visitors to find their position, show destinations and features along the Parkway and occur at regular intervals. Parkway maps should contain the following information:

- Entire Parkway as the primary map or as an insert to a map
- Parkway information where the exhibit is located
- Agency jurisdictions
- Key staging and entry points to the Parkway
- Major destinations along the Parkway - parks, commercial, educational and residential areas.
- Provide information where to download Parkway maps

Parkway maps should be located at:

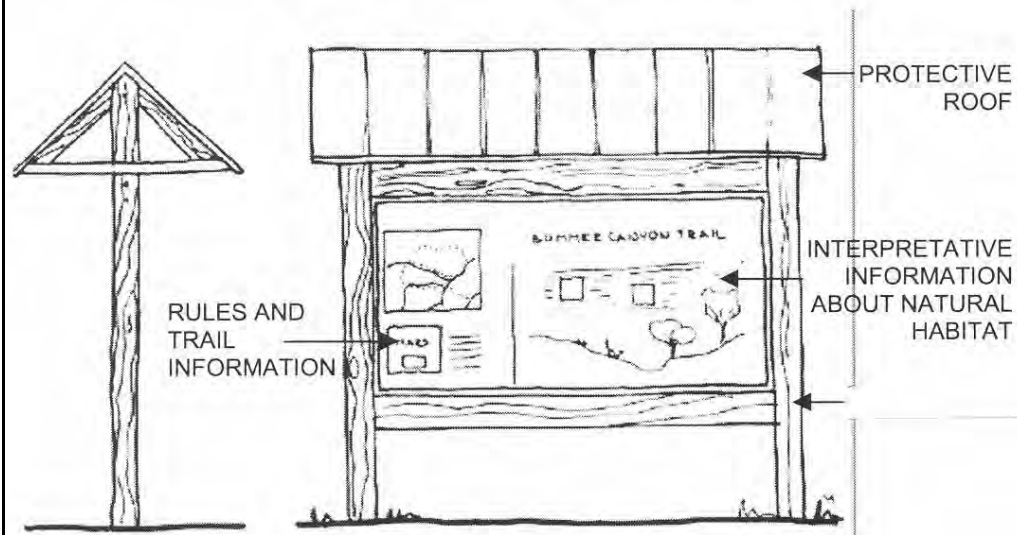
- Intersections with other local and regional trails and bikeways
- Parkway end points and key entries to cities and communities as requested by each Partner.
- Staging and major rest areas
- Significant interpretative features (as needed)
- Where visitors can safely pull off the bikeway to access and read the map.

Parkway maps should be designed to also include:

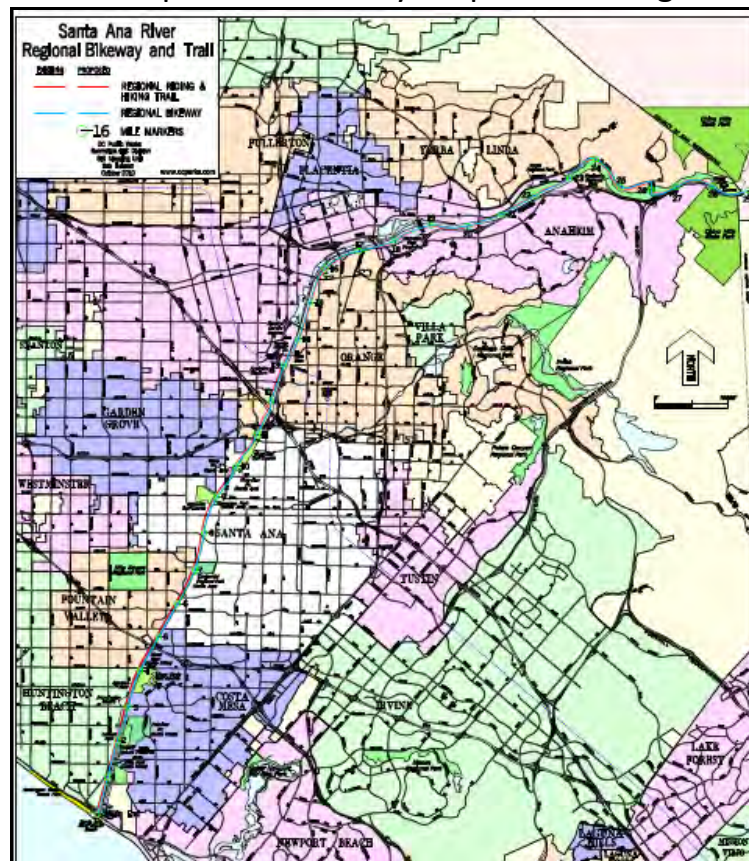
- Disabled parking
- Step-free access points
- Facilities for those with disabilities
- Scan-able icons to download a regular and large-print version of the Parkway map

Suggestion #1: Consider developing a Parkway Kiosk Template (example below)

Typical Kiosk / Bulletin Board Sign (Conceptual Only, Final Design Will Vary)



Example of a Parkway Map with mileage



REGULATORY SIGNS

Regulatory signs impart official information about permitted uses and activities within the Parkway. Regulatory signs are commonly located at entrances to the Parkway (mostly at intersections with public roadways), staging lots and information kiosks.

Regulatory Signs:

Rules and Regulation: Explain the operation and use of a facility including information about the operator, hours of operation and approved uses. Seals or logos often accompany this type of sign. (See Template for larger example)



Yield/Courtesy: Identify acceptable Parkway uses and user right-of-way.



Animal Ordinance: Consider unifying the different animal control signs into one sign in a subsequent amendment to the Guideline.

Closure/Detour: These signs inform the user about a change to the public's use of the Parkway when:

- There is a closure or interruption of the public's use of the Parkway
- Alternative routes are available through or around affected areas.





M4-9a



M4-9c

Regulatory signs should be installed where the visitor enters the Parkway right-of-way and where the adopted rules and regulations apply. Sign posts should be installed a minimum of 3' off the edge of the trail or bikeway tread.

Suggestion #1:

Compare existing Rules and Regulations signs of the Parkway partners. Possible differences may include:

- Seasonal operating hours
- Acceptable activities within the Parkway
- Use of paved and soft treads by different users
- Sections of the Parkway where only the trail or bikeway are open and both groups must share a single path.

Suggestion #2:

Consider developing a Minimum Regulatory Sign Template to be used by the Parkway partners (see Regulatory Sign Template). Consider adopting one or two Minimum Regulatory Signs that:

- Are uniform in appearance and content
- Provide key information
- Made of inexpensive and readily obtainable sign materials which are easy to install and maintain.
- Can be modified or expanded

Suggestion #3:

- Consider including Rules and Regulations information in the Parkway kiosk.

Optional Regulatory Sign Treatments

Option #1: Use colors and symbols to highlight the Parkway's rules and regulations where emphasis is needed.

Option #2: Consider a sign template which groups signs to reduce cost and clutter

Option #3: Design a Regulation Sign to also include the Parkway logo and local seal

ARTERIAL ROADWAY NAME SIGNS

Roadway name signs are an indispensable type of guidance sign common to every highway system in the nation. As the popularity of cycling grows, roadway name signs can provide the same location and decision-making benefit for the non-motorized Parkway user.

Arterial Roadway Name signs would be used to identify arterial highways, which over-cross the Parkway. Roadway signs are popular and often requested by cyclists.

Roadway name signs should be prominently displayed on the upstream and downstream sides of a bridge soffit (2 signs per bridge). Lettering should be sufficiently large to insure cyclists can easily read the signs before reaching the undercross.

Suggestion #1: Develop an Arterial Roadway Name Template employing large, reflective lettering.

PARKWAY CONDITION AND PUBLIC SAFETY SIGNS

Safety signs call attention to those areas of the Parkway where additional information is to be provided to the visitor. Safety signs alert users to:

- Route conditions (such as a curve, a climb or descent)
- Shared use (where trail and bikeway merge)
- Edges or seams in the tread
- Transitions to a bridge or other crossing or from concrete pavement to asphalt



Safety Signs: Alerts users to locations where:

- The Parkway is not open for public use (the channel invert or a plant restoration area)
- Riders are asked to slow (such as a narrow area)
- Line of sight is reduced (at undercrossings)
- The Parkway is in need of repair or maintenance
- The Parkway is closed or is detoured

Condition and Safety signs installation sites: Should be located at or near the site where the information is needed and on the approach to the site (if advance notice is needed.)

Suggestion #1: Condition and safety signs should be easy to identify and read. Consider colors that are appropriate such as yellow or other strong color.

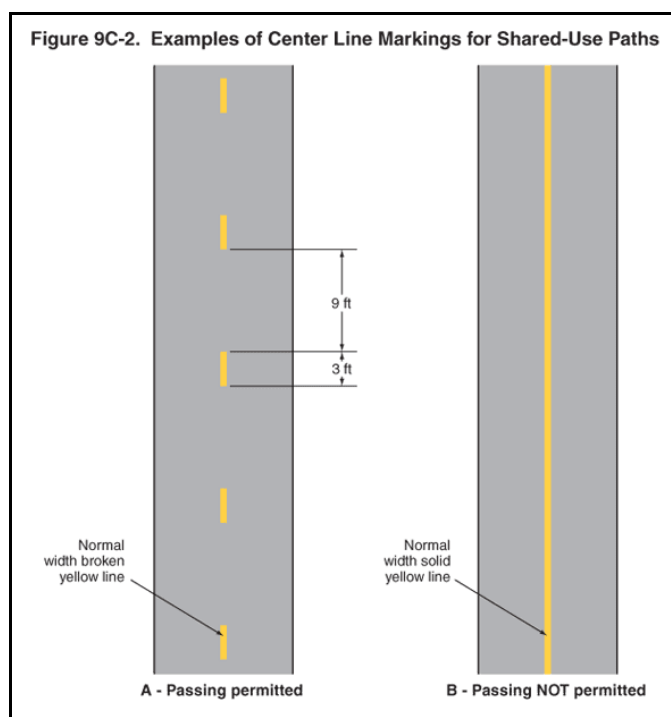
Suggestion #2: Limit Condition and Safety signs to only those areas where additional information is needed.

BIKEWAY MARKING TEMPLATE

Background: These markings denote bidirectional travel and provide information for turning, passing and crossing maneuvers.

Bikeway Marking: Where shared-use paths are of sufficient width to designate two minimum width lanes, a solid yellow line may be used to separate the two directions of travel where passing is not permitted, and a broken yellow line may be used where passing is permitted. Broken lines should have a 1-to-3 segment-to-gap ratio. A nominal 0.9 m (3 ft) segment with a 2.7 m (9 ft) gap should be used. If conditions make it desirable to separate two directions

Striping sites: Bikeway markings should conform to the Caltrans Highway Design Manual Chapter 1000. Chapter 1000 refers the reader to California Manual on Uniform Traffic Control Devices for Streets and Highways.



Suggestion #1: Adopt a uniform Bikeway Marking Template

Suggestion #2: Strip both edges of the Class I Bikeway with a 4" wide reflective white line to identify the edge of pavement.

MAINTENANCE

Condition: Maintain Parkway signs, markers and kiosks in a manner that:

- Establishes the Parkway theme
- Wayfinding signs are up-to-date
- Provides sufficient Wayfinding information for the Parkway visitor

Inspection: Inspect Parkway signs annually (or more regularly as needed) as part of routine service.

Repair: Repair or replace damaged signs as soon as possible. Keep a supply of signs for easy replacement.

Routine Maintenance: Replaces missing or damaged signs, posts, cleans signs and replaces stickers or reflective decals. Inspect all Parkway signs annually. Keep a 20-30% stock of replacement signs until a pattern of replacement is established.

Remedial Maintenance: Where a majority of Parkway signs are upgraded or replaced.

GLOSSERY

Wayfinding - Methods used to arrange indicators to guide people to their destinations.

Sign Post – A post that bears a sign showing the way along a route or path

Mile Marker – A post or sign that indicates miles measured from a fixed point along a route or path.

Miles in County (aka postmiles) – Miles beginning at zero at the western or southern end of the parkway or at the western or southern boundary of the county through which the route is traveling. Mileage increases as you travel north or east and then restarts at zero at the next county line.

Miles from Ocean – Miles beginning at zero at the point where the Santa Ana River Class I Bikeway travels upstream from the Pacific Ocean.

Kiosk - A small structure with one or more sides used to post information.

Bikeway – A designated place for bicycle passage

Parkway – A broad landscaped thoroughfare

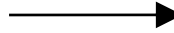
Riding and Hiking Trail – A recreational route or path

Santa Ana River Trail & Parkway Mileage Marker Information Template

Face
View

Edge
View

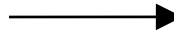
Parkway Logo



Trail Courtesy Logo



Mileage in direction of travel

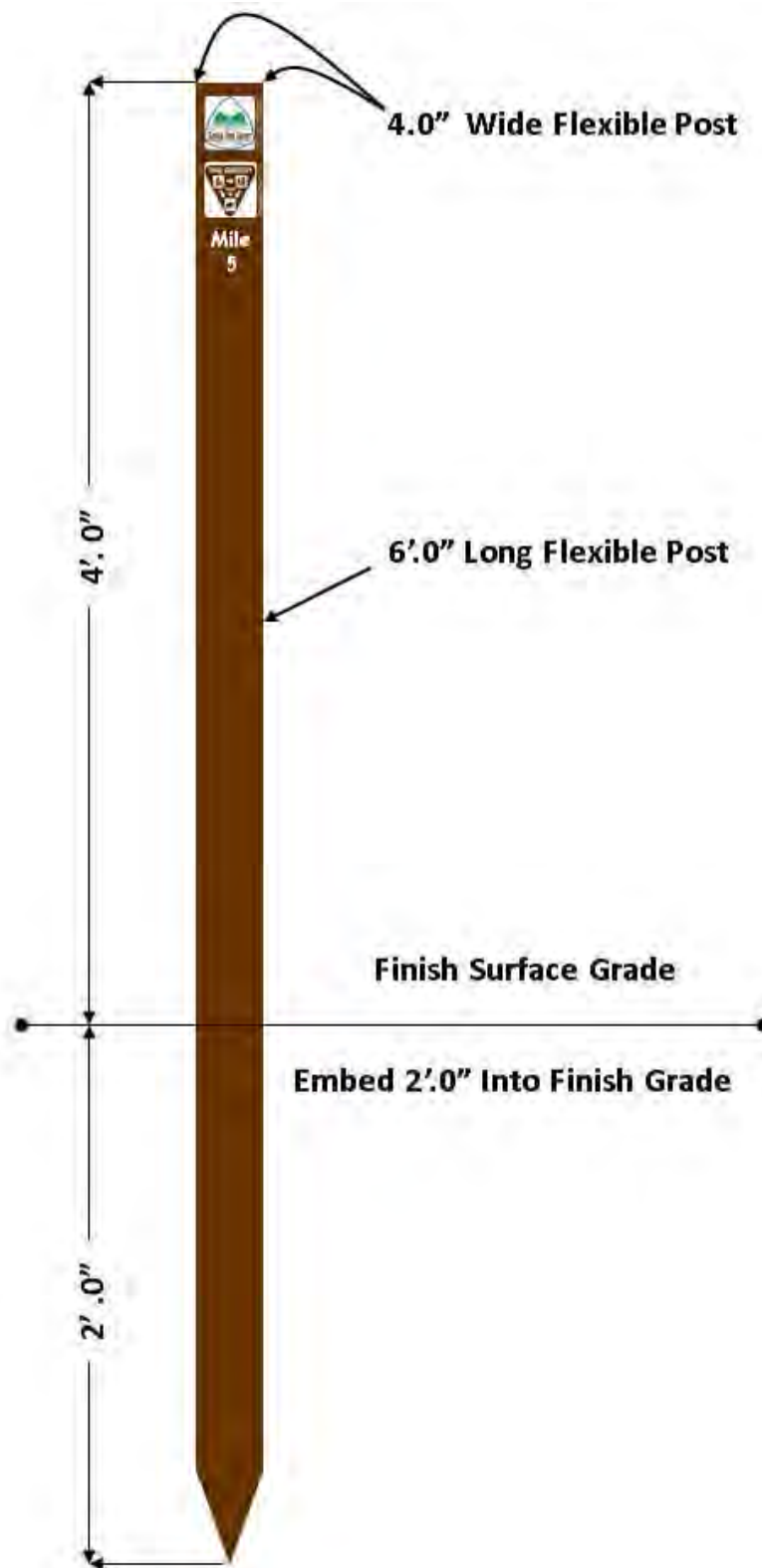


**Mile
5**

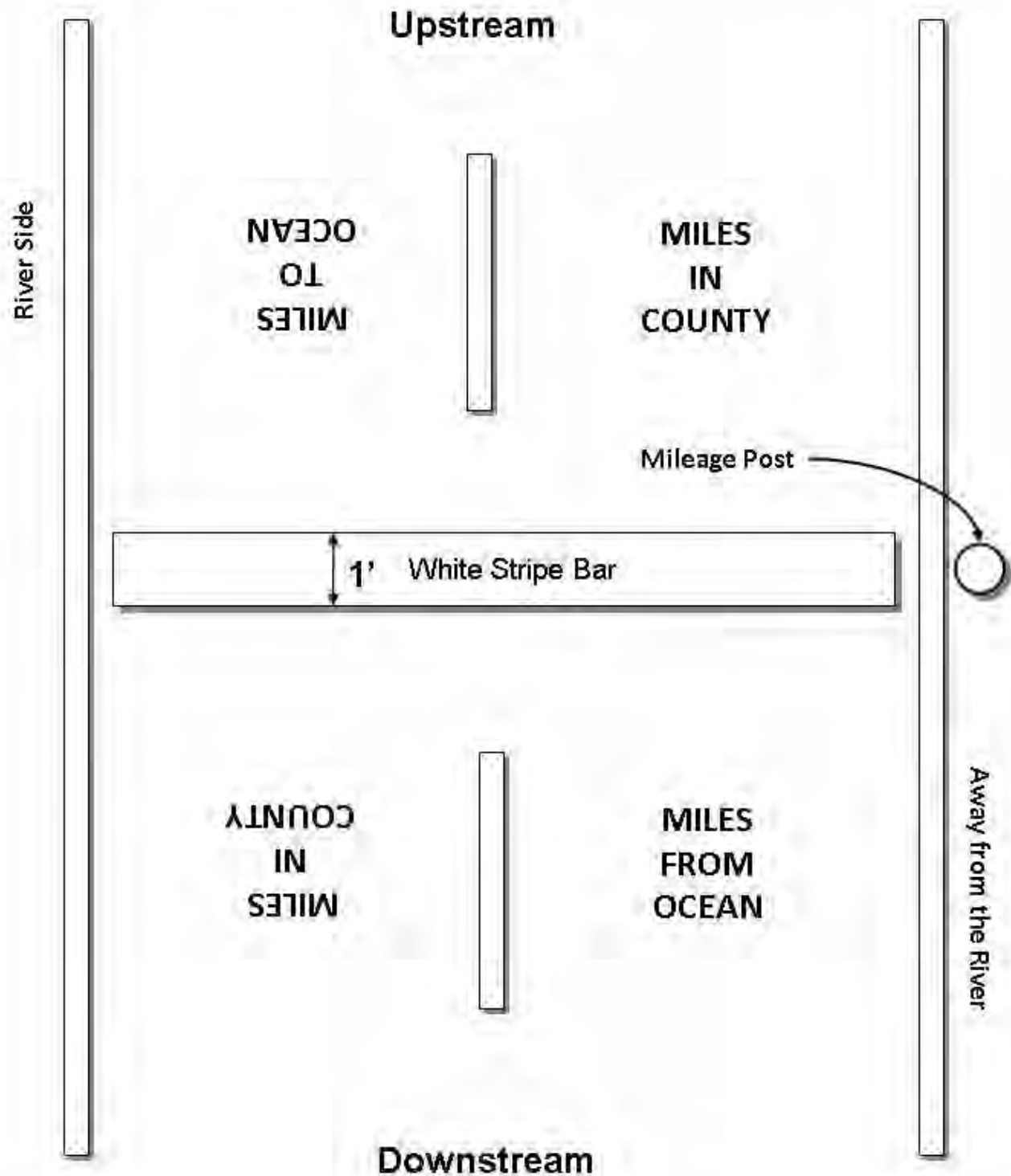


Santa Ana River Trail & Parkway Sign Post Template

Install posts every ½ mile



Santa Ana River Trail & Parkway One-Mile Mileage Striping Template



Example of a Santa Ana River Trail and Parkway Regulatory Sign Template



Santa Ana River Parkway

Public Art Policy



October 2011

Introduction

Public art, art in any media, sited or staged in a publicly accessible space, can enhance the public's experience of the outdoors. This artwork can create a sense of place associated with the Santa Ana River Trail and enrich the experience of those using the Parkway. Public art may be produced professionally or be planned and executed by community members. It may be installed permanently, temporarily or may be performance based, as in dance or a musical performance. In all cases, public art provides an opportunity to complement the natural beauty, history and cultural resources found along the Parkway.

Although placement of art is often a local decision, the following policy considerations will provide guidance of the use of public art along the Santa Ana River Parkway.

1. Consistency

Any public art installed or performed along the Santa Ana River Trail should be:

- Consistent with any Public Art Policy adopted by the local jurisdiction
- Developed, vetted, and adopted by the community to reflect their preference and values

2. Permissions

Installation or performance of Public Art along the Santa Ana River Trail requires the expressed written permission of the entity operating and maintaining the Parkway at that location. Permission should explicitly provide:

- A term for which the installation or performance is permitted
- Identify a responsible party
- Address insurance and liability requirements
- Secure any required permits

3. Accessibility and Safety

- Public art installed or performed within the boundary of the Parkway should be placed in such a manner where it is accessible and safely viewed or enjoyed by trail users. Public access and safety should be considered in the placement of art and the location of a performance. Consideration should also be given to the safety of those otherwise making use of the Santa Ana River Trail. An art installation should be placed in such a manner where the art may be enjoyed by all Parkway visitors and normal recreation activity on the trail can continue. Art works must minimize distractions such as light and noise which could impact the trail user experience.

4. Maintenance

Art installed permanently or temporarily along the Santa Ana River Trail should be regularly maintained in such a manner that the public may continue to enjoy it for the duration of the installation. Site clean-up should be part of the planning for performance art and other temporary events.

5. Community Standards

The Santa Ana River Trail serves a diverse community. Public art that is offensive or derogatory to any age, ethnicity or cultural group is discouraged. It should be noted, that viewing art in a public place is not a discretionary act and consideration should be given for all users.

6. Amendment of the Public Art Policy

From time to time it may be necessary to amend the Public Art Policy document. Amendments to this document will require the approval of the Santa Ana River Policy Advisory Group.

Santa Ana River Parkway



Minimum Maintenance Guidelines

April 8, 2008

Table of Contents

Santa Ana River Parkway Background

Early Planning Efforts.....	3
Coordinated Parkway Planning.....	3
Operations and Maintenance Subcommittee.....	3, 4
Guide Terminology.....	4

Minimum Maintenance Guidelines

<u>Riding and Hiking Trails</u>	5
<u>Class I Bikeways</u>	5
<u>Trail and Bikeway Closures</u>	6, 7
<u>Parkway Landscaping</u>	8
Trees.....	8
Turf.....	9
<u>Fixed Parkway Facilities</u>	10
All Access.....	10
Bollards.....	11
Drinking Fountains and Animal Waterers.....	11
Fences.....	12
Graffiti Removal.....	12
Lighting Repairs	
Restrooms.....	13
Temporary Restrooms.....	14
Signs.....	14
Staging and Rest Areas.....	15
Sweeping and Debris Removal.....	15, 16
Tables and Benches.....	16
Trash Receptacles.....	17
Weed and Brush Removal.....	17
<u>Public Safety</u>	18, 19
<u>General Parkway Design Considerations</u>	19

Santa Ana River Parkway Background

Early Planning Efforts

In 1990 a number of agencies participated in an interagency agreement to prepare the Santa Ana River Corridor Trail System Master Plan (also known as the EDAW Plan). These agencies included:

- Counties of Orange, Riverside, and San Bernardino.
- Cities of San Bernardino, Highland, Redlands, Loma Linda, Colton, Rialto, Corona, Anaheim, and Huntington Beach.
- Orange County Water District.
- State of California – Department of Parks and Recreation.
- US Forest Service.
- National Park Service – Rivers, Trails and Conservation Assistance Program.

The plan was never adopted; however, it addressed several planning objectives important to the counties and cities, including the creation of a continuous trail along the entire Santa Ana River with linkages to feeder-trail systems.

Coordinated Parkway Planning

Since the EDAW Plan, the counties, cities, and other agencies continued to meet, to share information regarding their efforts to plan and implement a parkway and trail system along the river. Eventually, with the ever-increasing demand for public recreation along the Santa Ana River, the counties, the Santa Ana Watershed Project Authority (SAWPA), and the Wildlands Conservancy agreed to jointly coordinate the planning of the Santa Ana River “Parkway”, a linear open space corridor with trails and amenities. As part of this coordinated effort, the Parkway partnership created a Policy Advisory Group (PAG), to monitor the progress of the Santa Ana River Parkway, and to coordinate decision making. The PAG is composed of elected city and county officials, and representatives from SAWPA and the Wildlands Conservancy. To assist the PAG regarding trail signage installation and operations and maintenance, a Technical Advisory Committee (TAC) was created.

Operations and Maintenance Subcommittee – Minimum Maintenance Guidelines

The TAC created the Operations and Maintenance Subcommittee (Committee) to develop a set of Minimum Maintenance Guidelines (Guide) for use by the counties and cities along the Parkway. In early 2007 the Committee began to review local, regional, and national guidelines and standards for trail, bikeway, and parkway operations and maintenance. By early 2008, the Committee had finished a draft version of the Guide for TAC review and approval. The Guide is not intended as an absolute standard for parkway maintenance, but instead as a set of recommendations acceptable to the PAG. Included in the Guide is a list of maintenance recommendations for:

- Riding and Hiking Trails
- Class I (paved off-road) Bikeways
- Trail and Bikeway Closures
- Parkway Landscaping
- Fixed Parkway Facilities
- Public Safety
- General Parkway Design Considerations

Guide Terminology

The following words and phrases are used throughout the Guide, and warrant clarification:

Class I bikeway – a paved, off-road thoroughfare for bicyclists and pedestrians.

Fixed facility - defined herein as any permanent, parkway-related facility (such as a restroom).

Inspection – the act of a monitoring authority to check or test something against established standards.

Operations and maintenance – the safe operation of a facility combined with routine and remedial maintenance.

Remedial maintenance – When routine maintenance is no longer sufficient and extensive repairs are needed

Riding and hiking trail – an unpaved path for equestrians, pedestrians, and mountain bicyclists.

Routine maintenance – repeating tasks and/or practices which provide for upkeep

Minimum Maintenance Guidelines – Riding and Hiking Trails

Condition: Keep trail surfaces even and free of erosion damage.

Inspection: Inspect Trail surfaces annually, or as needed.

Repair: Grade and replace the trail surface as needed determined by periodic inspections. If repairs made annually, perform work soon after the conclusion of the rainy season. Ensure that trails are at least 10 feet wide.

Routine Maintenance: Includes cleaning the trail, incidental repairs to address minor erosion, preventive erosion control (installing or maintaining sand bags, water bars, rolling grade dips and spoons) and weed management.

Remedial Maintenance: Includes regrading, resurfacing or repairing a trail. Check for encroaching landscaping.

Note: Clean, native, compacted soil provides the ideal trail surface. Where a trail also serves as a maintenance road, shape the trail surface so water sheet-flows to a location where it can safely leave the trail. Design a trail with a center crown or uniform cross-flow as a simple and effective way to reduce erosion and therefore costs. Use soil cement as a way to stabilize native soil on grades exceeding 6 percent.

Minimum Maintenance Guidelines – Class I Bikeways

Condition: Keep bikeway surfaces smooth and even, and free of cracks or holes of 1 inch width or wider.

Inspection: Inspect bikeway surfaces annually, or as needed.

Repair: Unlike trails, bikeways require a smooth and clean surface to ensure safe use.

Routine Maintenance: Includes minor repairs (or patching) to asphalt or concrete surfaces and edges.

Remedial Maintenance: Includes major repairs, such as replacing large areas of the bikeway, filling-in eroded sections, re-striping, re-surfacing, and asphalt sealing.

Note: Re-stripe annually. Re-seal every 2-3 years or when the eroded surface exposes the underlying aggregate. Bikeway re-surfacing (re-covering with asphalt) is performed 7 - 10 years. Consult your Transportation Operations Department for recommendations about their routine and remedial maintenance. Use durable materials and processes as a way to extend the usable life of a bikeway surface.

Minimum Maintenance Guidelines – Trail and Bikeway Closures

Trails and Bikeways, like any other facility, must periodically close for maintenance or repair. It is the goal of the partnering agencies to provide a detour so as not to interrupt the public's use of the bikeway or trail. Include detours as a budgeted, programmed part of a Parkway construction or maintenance project.

Some closures are unanticipated. When a closure must occur, the agency or its contractor is requested to provide at least one safe alternate off-road route. Where an off-road route is not feasible, an on-road route should instead be provided.

The Santa Ana River Trail is frequently constructed on Flood Control District or Water district property. Other agencies such as utility companies may have easements on or across the trail which require periodic inspection or maintenance. Those agencies shall provide warning signage and detour while working on or adjacent to the trail.

Off-road Detour

Off-Road detours are generally more desirable than an on-road detour. Off-road detours are comparable to the original Class I Bikeway, in that users remain separated from roadway vehicle traffic. Off-road cyclists and trail users may have less experience riding on-road parallel to vehicle traffic.

On-Road Detour

Where an off-road detour is not possible provide an on-road detour. Coordinate the on-road detour with the regional or local roadway department. Where possible, provide on-road detours through other public right of way including local or neighborhood streets, parks or along other flood control facilities. Develop a Detour Plan, to be approved by the appropriate jurisdiction that provides the route of the detour, detour signage, barricades, flag-persons (as needed), illumination, enclosed boxes (see Caltrans) and other protective measures.

Full Trail or Bikeway Closure

When neither an off-road or on-road trail nor bikeway detour is possible, it is advisable to develop a trail closure policy with pre-arranged steps to inform the public, and others, about the closure prior to the closure.

Basic inform steps may include, but are not limited to:

- Install information signs at least one month prior to the start of work alerting users to the pending closure
- Include dates when the closure is to begin and when the route is to reopen. If a reopening date is expected to be change, notify users as soon as possible of that change
- Provide project information for the contractor and the agency
- Provide notification on the agencies web site
- Where appropriate mail notices to key user groups or businesses

Note:

When a maintenance project requires the closure of a portion of the bikeway or trail, structure the maintenance or repair work in such a way that only one travel lane of the bikeway or trail is closed. Segregate users from the repair work with temporary dividers such as a wood fence, a plywood partition or bollards. Temporary surfaces, like heavy metal plates, allow users the ability to ride over trenches or other excavated work areas.

Keep detours on-site and within public right of way. Obtain a temporary construction easement from an adjacent private property owner if there is insufficient public right of way.

Minimum Maintenance Guidelines – Parkway Landscaping

Trees

Condition: Parkway trees are a particularly valuable resource and an important amenity. Properly maintain trees that line the Parkway or are found at rest stops and entry locations.

Repair: Trim trees properly. Assess and treat sick or damaged trees. Remove dead or dying trees unless the tree serves as habitat and does not pose a threat to public safety.

Inspection: Inspect Parkway trees annually, especially where the public may gather. Monitor trees for damage from wind, age, and disease. Remove damaged trees as soon as possible.

Routine Maintenance (for younger trees) includes watering, proper pruning, and removal of damaged or diseased branches. Remove fallen leaves and limbs as needed. Stake and replace trees where needed. Monitor tree health to avoid loss. Treat damaged trees to avoid loss. Take corrective measures as needed. Maintain Parkway trees in a good condition except those trees which succumb to natural causes.

Remedial Maintenance include expanded pruning of larger branches and tree removal or replacement. May also include larger reforestation efforts and landscape planning.

Note: Use native trees in the Parkway. Line the trail and bikeway with trees and provide shade where access points and rest stops are planned. When a tree is removed replace with palette-approved trees. Install new trees in locations as part of a landscape plan. Introduce new trees so they are at least 10 feet from the edge of the trail or bikeway. Use root-barriers, as appropriate, and deep watering techniques to protect infrastructure. Use drought-tolerant and native trees in the Parkway to provide habitat along the Santa Ana River. Maintain trees to achieve a 12 foot minimum clearance for branches overhanging trails and bikeways.

Adopt basic tree care techniques such as those promulgated by the National Arborists Association. Properly pruned young trees will require less maintenance while producing full and attractive trees. Trees moderate climate, provide shade, improving air quality, conserve water, and harbor wildlife.

By adopting a Parkway Plant Palette the partners will help reduce the use of non-native and other invasive plants along or near the Parkway. A Parkway Plant Palette will also act as a Guide for future Parkway planners to exclude undesirable plants from the Parkway.

Where feasible, recreate the historic riverine plant community of the river. Use the recreated plant areas to develop public/private partnerships, expand volunteerism and provide for opportunities for interpretation. The historic riverine plant community and native plant palette will change with elevation changes and localized micro environments along the length of the river. Enhance localized conditions and changes in habitat whenever possible.

Turf

Condition: Maintain turf so that it is not long or weed-like. Turf should not be brown or spotty unless this is the seasonal characteristic of the grass.

Inspection: Inspect turf areas monthly.

Repair: Monitor damaged turf as part of a regular maintenance schedule to avoid brown spots, invasive weeds, and over-watering.

Routine Maintenance: Mow turf (every 1 – 2 weeks), fertilize and re-seed as needed.

Remedial Maintenance: Replace large areas of turf, may include removing weed infested turf.

Note: Turf is an expensive Parkway amenity. Turf requires regular maintenance and inspection, often through contacted labor. Turf and other plants requiring a high volume of water should not be planted adjacent in the Parkway. Turf may be appropriate at select locations such as a staging area or a rest stop located at the edge of the Parkway.

Recommendation:

Remove turf and other plants that require a high volume of water. It is also recommended that new turf not be installed; instead install drought-tolerant native plants.

Minimum Maintenance Guidelines – Fixed Facilities

Fixed facilities are defined (herein) as any permanent parkway-related facility. Fixed facilities will include both above-ground facilities and related subsurface infrastructure. Common above-ground facilities are the trail and bikeway, restrooms, signs, and trail-related amenities. Common below-ground facilities include irrigation lines, valves, and electric lines and buried footings. Fixed facilities will likely be owned and managed by the local or regional Parkway provider.

The Committee does not recommend which of these facilities are to be provided along the Parkway. The Committee does however list what it believes are a range of common facilities found along Parkways. Fixed Facilities and their corresponding maintenance tasks are discussed below. It is recommended that the Parkway planners also agree where fixed facilities will be located.

Install fixed facilities (when and where appropriate) which can be maintained to the Minimum Maintenance Guidelines. Parkway operators, individually or cooperatively, may decide to expand their fixed facilities when resources are available.

All-access

Condition: Safe use of the Parkway includes providing access to all Parkway visitors.

Inspection: Inspect Parkway annually, or as needed, to document and remedy inconsistencies in Parkway access.

Repair: Maintain Parkway entries, pathways and facilities in usable condition so as not to limit the public's access.

Routine Maintenance: Making minor repairs to Parkway facilities that promote or encourage public access.

Remedial Maintenance: Improves or expands all-access type Parkway facilities. Common improvements include staging and entry areas, pathways and restroom facilities, access to water and kiosk information.

Note: Parkway facilities should meet or exceed ADA requirements. Identify for improvement those facilities which do not meet ADA requirements. Seek certification for those areas and lengths of the Parkway that can meet ADA standards. As part of routine and remedial maintenance and other future Parkway projects, expand All-access to as much of the Parkway as possible.

Bollards

Condition: Maintain bollards in good working repair so they function properly.

Inspection: Inspect bollards annually or as part of other routine inspection.

Repair: Damaged bollards are to be repaired or replaced as soon as possible especially at access locations to the river. Keep a ready supply of replacement bollards.

Routine Maintenance: includes replacing missing or damaged bollards, painting bollards and/or replacing stickers or reflective decals.

Remedial Maintenance: includes adding new bollards or replacing heavily damaged bollards of their footings.

Note: Install bollards only where needed. Design bollards with sturdiness in mind. Install the correct number of bollards. Ensure that bollards are highly visible. Use different types of bollards where appropriate. Place bollards on the outside of the fog lines (right and left paint stripes) and on the trail center line. Do not place bollards within the bicycle/pedestrian path of travel.

Drinking Fountains and Animal Waterers

Condition: Fountains should work properly, have adequate water pressure and be clean and free of foreign objects.

Inspection: Inspect Parkway fountains quarterly or as appropriate. Include recommendations for remedial maintenance as part of an inspection.

Repair: Damaged or non-working fountains are to be repaired, replaced or removed as soon as possible. Keep a supply of pipe valves and fittings in stock. Alert the public when potable water is no longer provided.

Routine Maintenance: includes cleaning and disinfecting fountains and bowls weekly using products and following procedures required by the manufacturer. Routine maintenance should also include adjusting the water stream and water pressure as needed.

Remedial Maintenance: includes replacing missing or damaged fountain heads, bowls, footings and water lines or pumps.

Note: Ensure drinking fountains are all-access. Select simple but durable fountain components that are readily available and easy to install. Locate fountains where they best serve the public. Alert the public where potable is not available.

Fences

Condition: Maintain Parkway fences in good condition. Remove old or unnecessary fences and footings.

Inspection: Inspect fences quarterly or as part of other routine inspection.

Repair: Replace or repair Parkway fences as soon as possible especially where the public must be separated from known hazards.

Routine Maintenance: Clean or paint fence boards and posts, reaffixing loose boards and resetting old footings.

Remedial Maintenance: Replace or adding new lengths of fence, installing foots, constructing and painting or staining the new fence.

Note: Use materials that require the least maintenance. Fence materials should compliment the Parkway. Use fences only as needed. Use fences to identify the trail and bikeway particularly at curves or near slopes.

Graffiti Removal

Condition: Keep Parkway facilities free of graffiti.

Inspection: Inspect Parkway facilities monthly for graffiti as part of routine inspection.

Repair: Repair or replace damaged signs as soon as possible especially if they are minimally placed. As with other Parkway items, keep a ready supply of different signs for easy replacement.

Routine Maintenance: includes repainting graffiti covered or scratched surfaces. Match paint so the repair does not further mar the appearance of the facility.

Remedial Maintenance: includes removing or relocating facilities that are prone to excessive graffiti. Replace with facilities that have smaller surfaces or posts to limit exposure.

Note: Where feasible, design Parkway facilities with a clear-coat that resists graffiti. Where graffiti is a problem use clear protective coats on signs and painted walls. Limit large flat surfaces.

Document Graffiti and “tagging art”, where appropriate. Contact Local Police before the graffiti is removed or covered.

Lighting Repair

Condition: Parkway lighting (where provided) is to be kept in good working repair. Footings, poles and fixtures must function properly to provide the necessary illumination.

Inspection: Inspect Parkway lighting quarterly or as appropriate. Include recommendations for maintenance and repair as part of an annual inspection.

Repair: Repair Parkway lighting as soon as possible. Keep a supply of materials to repair or replace lighting as needed. Use readily available products.

Routine Maintenance: includes cleaning globes, replacing bulbs and adjusting lights as needed.

Remedial Maintenance: includes replacing missing or damaged poles and fixtures, wiring and footings. Anticipate these cyclical steps by following product manufacturer guidelines.

Note: Installing and maintaining lighting is expensive. Use artificial lighting only where it supports Parkway policy such as night time use. Carefully review the purposes artificial lighting serves (including route illumination, public safety and facility illumination) before installing lighting. Explore the benefits and liabilities of allow after hours use and the lighting that may be needed to support such use. Where possible, use solar panels as the source of Parkway lighting as part of a “Green” Parkway concept.

Restrooms

Condition: Maintain rest rooms in good operating condition allowing for only minimal wear. Operators will determine which restroom features are to be provided. Common features include a permanent restroom building, flush toilets, urinals, sinks, soap dispensers, hand dryers or towels dispensers, lighting and signage.

Inspection: Inspect Parkway restrooms daily (and fixed facilities monthly) or as needed.

Repair: Repair or replace damaged or non-working restroom fixtures as soon as possible.

Routine Maintenance: includes cleaning, minor repairs, and general servicing.

Remedial Maintenance: includes replacing missing or damaged features such as sinks, toilets bowls, entrance doors and water lines.

Note: Unlock and open the restroom in the morning and close and lock at dusk (unless the facility is continuously open). Use waterless urinals where appropriate. Locate restrooms where they best serve the public. Provide maintenance vehicles turn-outs to allow for servicing of the restroom. Indicate restroom locations on all kiosk maps and brochure graphics.

Temporary Restrooms (Portables)

Condition: Maintain portable rest rooms in good, operating condition showing only minimal wear. Common portable features include a moveable single or a double facility, chemical toilet, urinal, and sink.

Inspection: Inspect Parkway restrooms daily (and fixed facilities monthly) or as needed.

Repair: Repair or replace damaged restrooms as soon as possible.

Routine Maintenance: includes daily cleaning, minor repairs, and general servicing.

Remedial Maintenance: includes replacing missing or damaged restroom features, skirting (if any).

Note: Use portable restrooms as a way to provide inexpensive restroom service. Unlock and open the restroom in the morning and close and lock at dusk (unless the facility is continuously open). Locate portable restrooms where cost or other factors preclude installing a permanent restroom. Where possible, provide maintenance vehicles turn-outs to allow for servicing of the restroom. Indicate portable restroom locations on all kiosk maps and brochure graphics.

Design Parkway facilities to use portable restrooms where appropriate. The design might include a concrete pad, lattice enclosure, bike rack and horse tie. Use ADA-approved all-access portable restrooms where needed.

Signs

Condition: Maintain Parkway signs in good repair so they are useful to the visitor.

Inspection: Inspect Parkway signs quarterly or as part of routine inspection.

Repair: Repair or replace damaged signs as soon as possible especially if they are minimally placed. As with other Parkway items, keep a ready supply of different signs for easy replacement.

Routine Maintenance: includes replacing missing or damaged signs, cleaning signs and adding or replacing stickers or reflective decals.

Remedial Maintenance: includes upgrading or replacing a substantial part of Parkway signage.

Note: Install signs only where needed. Place signs at all entry locations to the Parkway and junctures along the Parkway. Design Parkway signs to be sturdy and vandal resistant.

Use a unified logo design, expressed, at a minimum, as a small decal or plastic sign that can be inexpensively produced and easily installed. The logo sign may be used as a supplement to existing signage or developed as part of a larger Parkway sign plan.

Incidental repairs from damage and fading is as needed determined by regular inspection. If periodic inspection is not possible, ensure that all signs are inspected annually. Keep signs and sign materials in stock for immediate repairs. Keep a 20-30% stock of material initially until a pattern of replacement is established.

All bikeway signs should conform to the Caltrans Traffic Manual and/or the Manual of Uniform Traffic Control Devices (MUTCD) as appropriate.

Staging and Rest Areas

Condition: Parkway staging facilities are an entry (and therefore a face) to the entire Parkway.

Staging facilities often receive intensive use by the public, particularly where vehicle parking is permitted. As such, a staging facility may require a higher level of inspection and maintenance to avoid becoming overused.

Inspection: Inspect staging facilities quarterly, or as needed.

Repair: Replace or repair staging amenities as soon as they become worn or damaged.

Routine Maintenance: includes trash removal and general cleaning and minor repairs. Replace sign boards or kiosk maps as needed.

Remedial Maintenance: includes regrading and repaving parking surfaces, adding aggregate rock and correcting improper drainage.

Note: Well designed staging facilities should include parking for at least 7 vehicles with at least 2 spaces reserved for vehicles with horse trailers. Basic features include signage, a kiosk board, horse ties and waterers and parking barriers. Other amenities may include potable water, benches, shelters and a restroom.

Use durable, easily replaced staging facility components. Design the site surface to have proper drainage. Install a bio-swale to collect and drain water into the ground.

Sweeping/Debris Removal

Condition: Bikeway sweeping shall be performed weekly to monthly or as needed. Bikeway is best swept by machine sweepers. Bikeways that require only spot sweeping can be done by hand or with blowers.

Inspection: Inspect surfaces for sweeping/debris removal as part of routine inspection.

Repair: Sweep bikeway and other hard-surfaces as needed. Where appropriate patch small holes or cracks. Avoid allowing debris to accumulate on the bikeway or trail surfaces.

Routine Maintenance: Sweep surfaces as appropriate. Remove accumulated debris away from the bikeway or trail surface.

Remedial Maintenance: May require the use of mechanized equipment to remove thick, accumulated debris or large items such trees which might result from flooding or other storm activity. Check paved surfaces following heavy rains or flooding to ensure the paved surface remains sound and usable.

Note: Mud and other sediment, leaves and branches should also be removed from the bikeway and trail since they may impact rider safety. Removing debris may also increase the life expectancy of the bikeway and trail. Debris removal should follow mowing and other maintenance operations.

Some areas of the Parkway in Orange County quickly become littered with debris where there are homeless encampments. Review Maintenance Logs periodically to correctly schedule sweeping in these areas. Allow for flexibility in the sweeping schedule.

For Inland areas, inspect and sweep and clean the bikeway following the Santa Ana winds.

Recommendation: Develop a Santa Ana Parkway *Adopt-A-Parkway* program

Tables & Benches

Condition: Maintain Parkway tables and benches so they are free from damage except incidental wear. Benches and tables are to be sound and usable. Securely fix components together.

Inspection: Inspect tables and benches quarterly or as needed.

Repair: Repair or replace bench and table surfaces that show visible and un-repairable damage. Keep a supply of wood or appropriate material and other components in stock.

Routine Maintenance: includes inspecting and tightening all nuts and bolts as needed.

Remedial Maintenance: includes replacing missing or damaged table tops and benches as needed.

Note: Use semi-gloss or high gloss paint instead of a flat or pearl finish to extend the surface life of wood. Use colored and recycled plastic wood instead of real wood.

Trash and Recycle Receptacles

Condition: Parkway trash receptacles and recycling bins are to be maintained in good condition free of damage except incidental wear. Keep footings, posts and lids secure and in good working order.

Inspection: Inspect Parkway receptacles quarterly, or as appropriate. Include any recommendations for maintenance and repair as part of a quarterly inspection.

Repair: Repair or replace trash cans when the device shows visible and un-repairable damage. Keep a supply of cans, lids, footings and other components in stock.

Routine Maintenance: includes replacing trash can liners, cleaning and adjusting cans as needed.

Remedial Maintenance: includes replacing missing or damaged trash cans, footings, posts or foundations.

Note: Use trash and recycle receptacles that are durable and easily maintained. Determine what types of receptacles are needed at different locations along the Parkway. Provide maintenance vehicle turn-outs where trash and recycle receptacles are located.

Weed and Brush Removal

Condition: Brush and weeds, particularly along the bikeway or at entry location to the Parkway should not become unsightly or present a hazard. In habitat restoration areas, invasive plants should not be allowed to become established. Brush and grass that grow along trails should not be allowed to grow to excessive heights within two feet of the edge of the trail surface. Environmentally safe weed removal methods such as hand and mechanical shall be used especially along the waterway.

Inspection: Inspect public areas quarterly or as needed.

Repair: Brush and weeds should not be allowed to impact Parkway facilities such as the bikeway, fences or signs. Brush or weeds should not obscure signs, entries, block line-of-sight or create prey areas.

Routine Maintenance: Includes the use of approved herbicides and pre-emergent chemicals. Focus work on areas where the public may gather such as staging and entry areas.

Remedial Maintenance: Remove large areas of invasive or overgrown plants.

Note: Set a priority to this work that includes removal of damaging and fast-spreading plants. When removing large areas of invasive plant materials replant with approved native plants to begin to reestablish local flora. Install a 2-foot-wide clear shoulder parallel the edge of the trail and bikeway. Construct the shoulder of compacted soil and aggregate as a way to reduce weed and grass growth.

Minimum Maintenance Guidelines – Public Safety and Security

Parkway security is a common concern for users and those living next to a trail. Security, for this Guide, refers to general public safety. As the 1990 EDAW study noted, the river is a natural attraction with or without a trail. Public Safety and Security, in its broadest expression, may include:

- A safe Parkway experience though well-designed facilities
- Useful information about the Parkway and its setting
- Policies appropriate to the use, restrictions, and operation of the Parkway
- Law enforcement
- A Safety Plan

Parkway Use

It is recommended that the Santa Ana River Parkway remain non-motorized. Except for authorized maintenance or public safety vehicles. The general public's use of the Parkway is limited to walking, running, jogging, horseback riding, mountain and road bicycle uses. If motorized or other uses are proposed, create a Parkway Usage (or similar) Committee to examine the proposal. Non-traditional uses of the Parkway may increase maintenance and operation costs as well as affect the design of new Parkway improvements to accommodate new uses.

Public Access

It is recommended that Parkway access be managed. Direct the public's access through approved locations. Examine the need, opportunity, safety and setting when planning a new Parkway access.

Parkway Hours of Operation

Use of the Parkway is limited to day-time hours only (sunrise to sunset). Inviting the public to use the Parkway after hours may require agencies monitor these after-hour uses.

Private Access to the Parkway

Private access is to the Parkway (other than by public rights-of-way) is generally discouraged. Where future commercial or residential developments are proposed adjacent to the Parkway, the agency and the applicant may want to allow access where it serves the public's interest.

Note: As the Parkway develops, its use and development linkages will increase. To address future requests for access, create an entry design to include signs, landscaping and other appropriate amenities, to improve the river through the development entitlement process.

Agency Coordination

In addition to the developing a common Minimum Design Guidelines, it may prove useful for the partners to also develop a nomenclature of terms and words used to describe the Parkway. It may also benefit the partners to create a single Parkway map, common signage and patrol programs. By creating a single Parkway map, the partners will see their vision begin to grow and unify. A common Parkway map will serve as a base for discussion for future Parkway meetings. A map may also serve public safety departments in their routine patrols and emergency service calls to the

Parkway. This same map can be incorporated into public information displays, brochures and on-line web sites.

Locator Signage

In addition to the previously discussed signage, Parkway planners may use locator signage that allows visitors to find themselves along the Parkway. Locator signage may identify roadways, distance to roadways, Parkway entrances, and mileage markers.

Parkway Patrols

Patrol the Parkway on a daily basis or as needed. Service providers may include regional, local or volunteer organizations. Patrols should focus on areas where the public gather particularly at staging areas, rest areas and restrooms.

Minimum Maintenance Guidelines – General Parkway Design Considerations

- Consider making the Santa Ana River Parkway a “Green Trail”.
- Develop and implement a Maintenance Log process to record routine and remedial maintenance activities. Maintenance Logs should include all Parkway facilities.
- Create a Maintenance Schedule for Parkway facilities. When new fixed facilities are added to the Parkway include these facilities to the Maintenance Schedule.
- Parkway operators should discourage the uncontrolled access and use of the river’s edge.
- Give attention to identifying and protecting the cultural, historical and natural resources of the Parkway.
- Parkway facilities should grow when the means to maintain those facilities exist.
- New lengths of the Parkway trail or bikeway should not dead-end, but instead link to another section of existing trail, public road, or Public Park. Unconnected lengths of the Parkway may create a setting that may impact public safety.
- Design Parkway facilities and landscaping so as to provide the visitor the maximum visibility along the Parkway and to its nearest exit.
- Where possible, eliminate prey areas

Detailed Trail Design Guidelines

The following trail design guidelines for the Santa Ana River Trail system provide additional design detail to supplement the trail design principles provided in Chapter 8, Design Guidelines, of the Santa Ana River Parkway & Open Space Plan (SARP&OSP). These guidelines begin by restating the design framework and trail terminology as provided in the SARP&OSP, followed by specific design guidelines that address the following topic areas:

- Trail Geometrics
- Underground Utilities
- Grade Separations
- Street Crossings
- Sustainability
- Lighting

As with all guidelines presented in the SARP&OSP, these guidelines have been developed for use by public agencies, private developers, design professionals, and the interested public. They are to be used only in combination with other approved plans. Examples include: habitat conservation plans such as the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP); San Bernardino National Forest Land Management Plan; State Park General Plans; the California Department of Transportation's standards and additional guidelines contained in the Highway Design Manual (HDM) for bikeways, as well as other national, state, regional and local municipality guidelines about shared-use trails. There are many unique conditions along the Parkway corridor that will require departure from these guidelines. As such, these guidelines should not constrain inspiration when an opportunity exists for a design that is visionary.

Overarching Trail Design Framework

The trail design framework identifies the key design considerations for the SART and associated trails from the Pacific Crest National Scenic Trail to the base of the Seven Oaks Dam, as well as from the base of Seven Oaks Dam to the Pacific Ocean.

Pacific Crest National Scenic Trail to the base of the Seven Oaks Dam (Wash Plan Area Boundary)

The portion of the SART above Seven Oaks Dam within the San Bernardino National Forest encompasses about 30 percent of the entire SART length. This section of the SART will be unpaved. The SART and related system trails on Forest Service land would be designed and maintained based on the following Forest Service Guidelines:

- Forest Service Trail Accessibility Guidelines (USDA 2015 or latest edition).
- Forest Service – Trail Construction and Maintenance Notebook (USDA 2007 or latest edition).

DETAILED TRAIL DESIGN GUIDELINES

- Forest Service Handbook (FSH) 2309.18 – Trails Management Handbook (USDA 2008); Amendment No. 2309.18-91-2 (USDA 1991).
- EM-7720-103 – Engineering Management Series – Standard Specifications for Construction and Maintenance of Trails (USDA 1996).

Base of Seven Oaks Dam to the Pacific Ocean

The Design Principles and Guidelines that follow describe and illustrate solutions that represent creative responses and best practices for use by government agencies and developers, as well as their qualified trail design professionals in planning, designing, developing, and upgrading any SART segment below Seven Oaks Dam. The guidelines are intended as an aid in addressing common design issues that could exist along the SART and many trails that tie into the SART from surrounding cities. Although these guidelines provide examples of design solutions, they are not meant to preclude creativity in design based on individual project site and contextual considerations or as exemplified in other agency or industry standards and guidelines.

The guidelines are to be used in combination with the California Department of Transportation’s standards and additional guidelines contained in the current editions of the following as well as other national, state, regional and local municipality guidelines about shared-use trails:

- California Department of Transportation, *Highway Design Manual (HDM) Chapter 1000*.
- American Association of State Highway and Transportation Officials (AASHTO), *Guide for the Development of Bicycle Facilities*.
- National Association of City Transportation Officials (NACTO): *Urban Bikeway Design Guide*.

Trail Terminology

In the trail design guidelines below, the following terminology applies.

- **“Santa Ana River Trail” or “SART” or “Trail”** refers to the paved and/or natural surface portion that defines the user’s primary travel space including trail shoulders if present. In cases where the Santa Ana River Trail passes through heavily used areas such as urban parks or plazas, striped pavement edge markings may define the trail. In some cases the SART will be a shared-use trail. In some segments the SART may segregate trail users with two parallel trail routes.
- **“Shared-Use Trail”** is used to describe the SART where it provides a completely separated right-of-way for exclusive non-motorized use with cross-flow minimized to the extent possible. A shared-use trail is used by people of all shapes, sizes, ages, and abilities. In selected locations a shared-use trail may, by design, include equestrians although nothing in the guidelines precludes equestrians from using any segment of the SART. A shared-use trail may be paved or unpaved depending on the surrounding land use circumstances. A shared-use trail may generally analogous to the terms “Class I” bike path used in the California Highway Design Manual and the term “Shared-Use Path” used by the American Association of State Highway Transportation Officials.
- **“Trail Shoulder”** as part of the SART refers to a clear area immediately adjacent to the trail that serves a number of functions including: use for a wide variety of trail-related activities; providing a buffer free of obstructions; and/or being used as a permeable water quality control feature.

DETAILED TRAIL DESIGN GUIDELINES

- **“Riding and Hiking Trail”** as part of the SART trail system, is a natural-surfaced trail that would be used by equestrians, hikers, and mountain bicyclists and would typically be in conjunction with either a Class I bicycle path or other bicycle route facilities.
- **“Side or Connecting Trail”** as part of the SART trail system, is a trail that may be of the same design of the SART, or may be a narrower trail that either provides river access, trail loop opportunities, or access from surrounding communities.
- **“Tributary Trail”** is a trail that may be of the same design of the SART or may be a Class IV cycle track and sidewalk system that connects core urban areas with the SART.

Trail Geometrics

Trail geometrics refers to the parameters and measurements that define a trail configuration. Guidelines for trail geometrics are organized in this section by topic area including:

1. Trail width
2. Horizontal Trail Alignment
3. Alternative Surfaces
4. Obstructions and Clearances
5. Barrier Treatments for Trails Entryways
6. Clearance Between SART and Streets
7. Railings and Visibility

Trail Width

The standard width of the SART should accommodate the user’s primary travel space and the use of shoulders, when present. The SART and its clear space should consist of a minimum 18-foot width to accommodate multiple users, with 10 feet of vertical clearance (Figure 8-4). The trail and shoulder widths are considered minimum standards necessary to accommodate a typical level of use along the SART when completed. In some instances, projected use levels may be high, and therefore the SART should be wider, such as along river promenades. If use levels are anticipated to be extremely high, consideration should be given to separating fast-moving users (e.g., bicyclists, rollerbladers, or skateboarders) from slower-moving pedestrians. In any case, all SART users should be able to enjoy a river experience, including river views.

DETAILED TRAIL DESIGN GUIDELINES

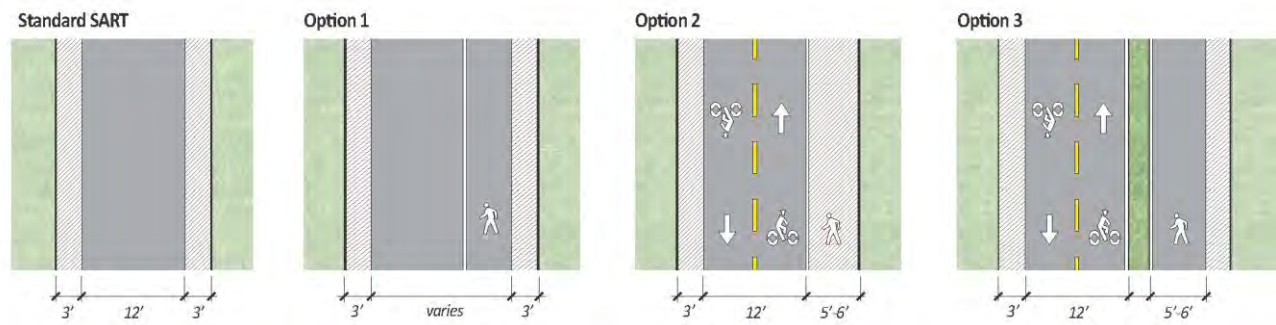
Figure 8-4 Standard Santa Ana River Trail Width – Shared-Use (Bicyclists and Pedestrians)



On high-volume sections of the SART, it may be appropriate to separate trail users to either facilitate use or to discourage user conflicts related to different travel speeds. Separating bicycle and pedestrian use of the trail can be done in a variety of ways, such as pavement striping or inclusion of physical barriers. Each of these methods requires a wider trail corridor (Figure 8-5):

- Option 1: a wider trail with striping and pavement markings to separate bicyclists from pedestrians.
- Option 2: 5- to 6-foot-wide shoulders on one side of the trail or both, with signs and/or pavement markings directing pedestrian use to the shoulder.
- Option 3: two paths separated by landscaping.

Figure 8-5 Alternative Santa Ana River Trail Widths

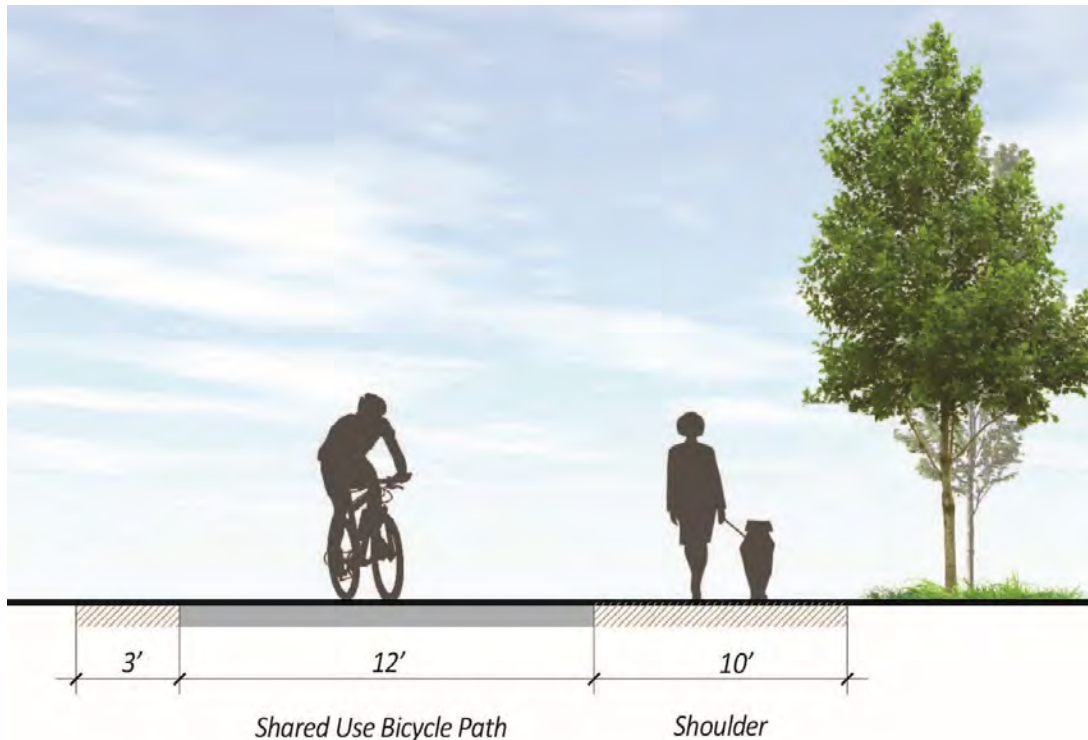


Where equestrian use of the trail is possible, and where it is beneficial to segregate equestrians from other trail users, there should be ample space provided for that separation. Separation could involve:

- Separating bicyclists from other trail users with a wide shoulder (Figure 8-6).
- Providing a separate riding and hiking trail (Figure 8-7).

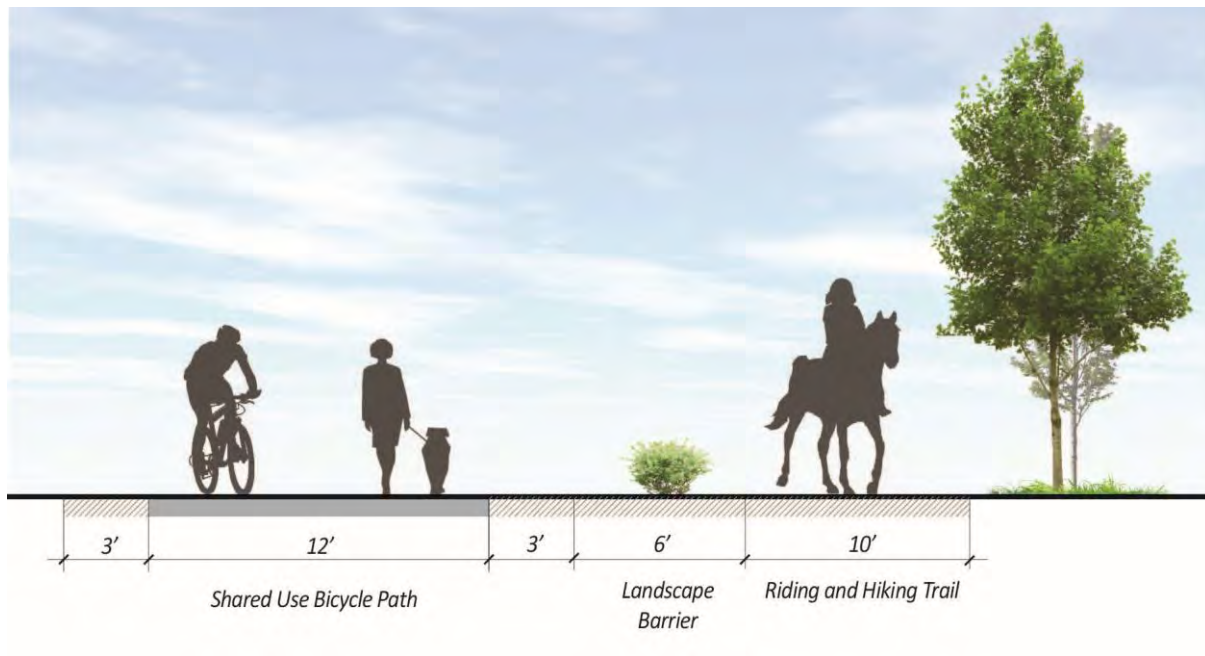
Alternatively, a separate riding and hiking trail could be located in the floodplain, or on the opposite side of the river from the SART.

Figure 8-6 Santa Ana River Trail – Bicycles Separated from Pedestrians



DETAILED TRAIL DESIGN GUIDELINES

Figure 8-7 Santa Ana River Trail – Riding and Hiking Trail



Side, Connecting, and Tributary Trails

There are settings where the SART takes on the role of a short loop or point access trail leading to a destination but not continuing beyond it. Examples include connections to a visitor center, swimming beach, or wildlife overlooks. These segments of the SART, depending on the managing agency involved, may have restrictions about use or requirements regarding types of trail surfacing.

- **Trail Geometrics:** Generally the trail geometrics should be the same in these situations as any segment of the SART. In certain situations those segments may be narrower but should be at least 8 feet wide to accommodate pedestrians, bicyclists, and service and emergency vehicle access.
- **Alternative Surfaces:** In selected circumstances, compacted gravel surfacing or other natural material, such as decomposed granite that is firm and stable and meets accessibility requirements, may be possible.

Horizontal Trail Alignment

The horizontal alignment of the SART is defined in part by a bicycle design speed decided on a project-by-project basis. Low design speeds and trail traffic calming devices could be considered for 1) crowded areas, 2) locations where considerable cross-traffic is projected, and 3) locations with sharp horizontal curvatures where right-of-way widths are constrained.

Alternative Surfaces

In limited circumstances, the entire shared-use trail width may be constructed of natural materials that meet accessibility requirements. Depending on soil type and other site-specific conditions, the design could involve compacted gravel, decomposed granite, and/or native soil and may incorporate any number

of stabilizing agents. Such surfaces should be firm, smooth, and stable. An example is a trail near sensitive habitat where paving may be discouraged by the managing agency.

Obstructions and Clearances

The SART includes a zone around the trail free of any trailside or overhead obstructions. Obstructions may present hazards to safe, unimpeded trail use. Obstructions may also limit sight lines and/or funnel trail users toward the center of the trail, effectively narrowing the width of the usable trail surface.

There are many types of obstructions that can intrude into the trail's horizontal and vertical clearance zone such as:

- Bollards
- Lights poles and fixtures
- Sign poles and signs of all types
- Bicycle racks
- Benches and drinking fountains
- Fences and walls
- Railings
- Utility boxes
- Curbs
- Boulders
- Landscaping
- Drains
- Trees

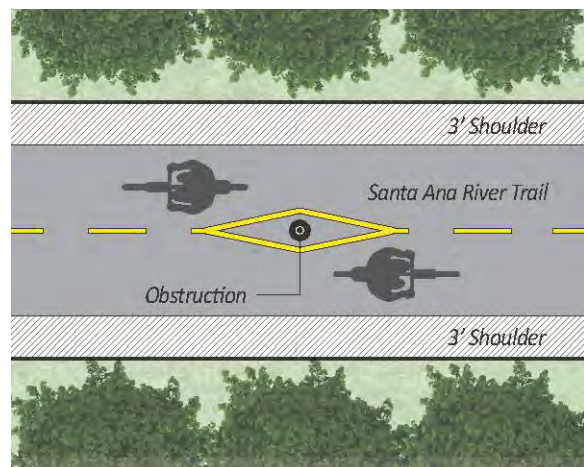
Obstructions within the Trail

When obstructions within the trail are unavoidable, solid yellow diamond pavement markings should be used. The obstruction should also be identified with yellow reflective tape (Figure 8-8).

Obstructions within the Trail Shoulder

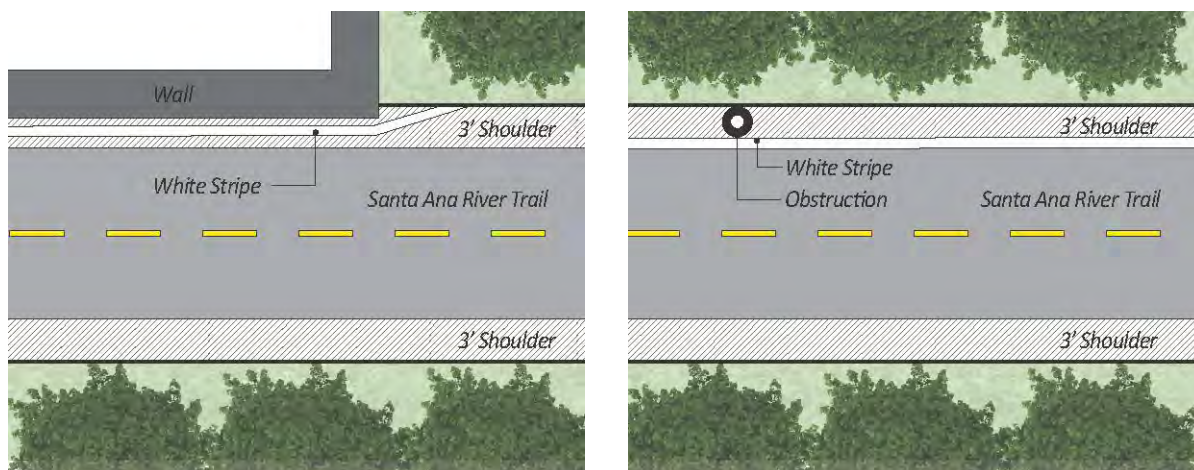
When an obstruction is unavoidable within the trail shoulder, a solid white stripe should be located along the edge of the trail to visually notify the SART user about the presence of the obstruction. When located within 3 feet of the paved trail, all curbs, freestanding walls, railings on bridges and boardwalks, and retaining walls should be treated as obstructions. There should be a continuous white stripe at the edge of the trail for the length of the feature (Figure 8-9).

Figure 8-8 Obstruction within Trail



DETAILED TRAIL DESIGN GUIDELINES

Figure 8-9 Obstruction on Shoulder



Vertical Clearance

A 10-foot vertical clearance across the width of the SART is desirable. If equestrian use is anticipated, the vertical clearance should be 12 feet (Figure 8-10).

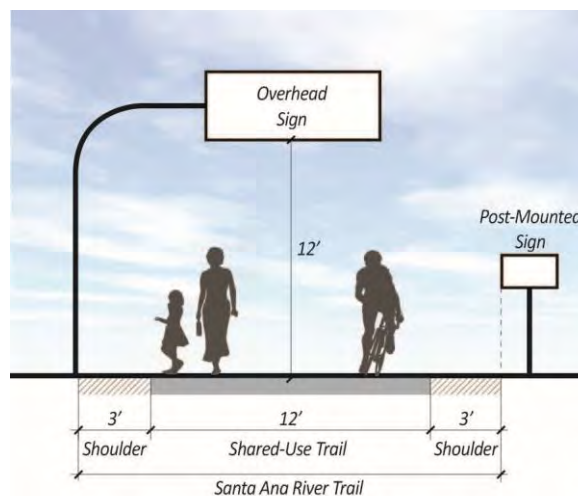
This clearance applies to such items as:

- Undercrossing and tunnel ceilings.
- Overhanging trees.
- Signs.
- Overhead security fencing.

Barrier Treatments for Trail Entryways

- **Bollards** can be removable, fixed, retractable, or flexible. Whether stand-alone or grouped together, bollards are often used to discourage non-authorized motor vehicles from accessing the SART. Installing bollards should be considered only as a last resort.
- **Fold-down/collapsible bollards** should not be installed along the SART because they can be a hazard to users, even when left in the down position.
- **Other design elements** that would help discourage motorized vehicles from entering the SART are:
 - Gateway design with a strong sense of identity and transition.
 - Entry signage.
 - Prohibition signage with associated fine for violations.
 - Ramps and trail shoulders that look like a shared-use trail, not driveways.
 - Split-path entry into inbound and outbound lanes divided by a narrow median. This has the added benefit of alerting cyclists about the intersection ahead and the need to slow down

Figure 8-10 Vertical Clearance



Clearance between the SART and Streets and Highways

- The separation between the edge of the SART and the edge of a parallel road or street should be at least 7 feet (Figure 8-11).
- If the trail is less than 7 feet away from the street, a fence or other physical barrier separation should be included to prevent the SART user from straying into the street. A physical barrier should be at the outside edge of the shoulder (3 feet away from the trail) unless obstacle striping is used at the edge of the trail (Figure 8-12). The same buffer and/or physical barriers would apply for SART riding and hiking trails.

Figure 8-11 Standard Street Clearance

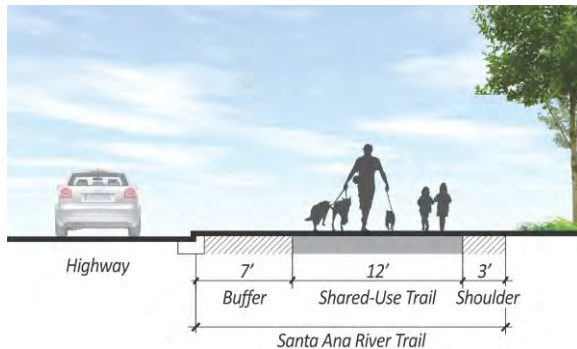
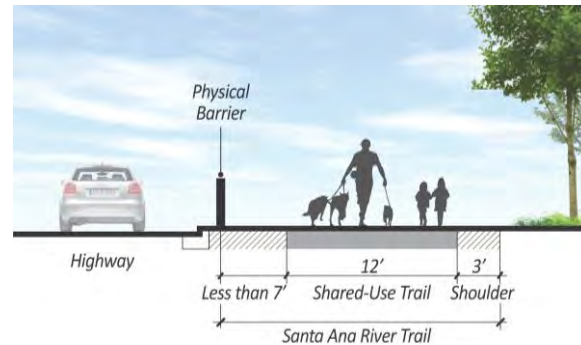


Figure 8-12 Decreased Street Clearance

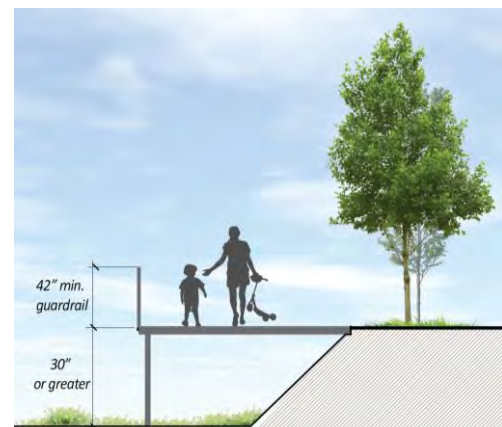


Railings and Visibility

In some situations, the SART may need to include protective railings. Generally, railing design and materials should preserve views to the river and should relate to the architectural or landscape style of the surrounding area. There are three types of railings that could be used along the SART:

- **Guardrails:** used to prevent the trail user from falling off a bridge or boardwalk. This is required in all cases where the bridge or boardwalk is 30 inches or more above the ground or water surface; local codes may require guardrails for bridges and boardwalks with less height. The guardrail should be between 42 and 48 inches in height with no opening greater than 4 inches (Figure 8-13). Design considerations for guardrails include:
 - Allowing maximum views, especially on bridges. Using vertical pickets or horizontal wire cables is recommended.
 - Providing additional hand rails for accessibility purposes.
 - Including wide “rub rails” in some settings to reduce the likelihood that a bicyclist’s handlebar might be caught by the railing.

Figure 8-13 Standard for Guardrails



DETAILED TRAIL DESIGN GUIDELINES

- **Hand Rails:** used for accessibility purposes on slopes and to help prevent the trail user from going off the trail. Hand rails must meet the dimensioning requirements of the U.S. Access Board and may have broad openings that do not constrain views.
- **Protective Rails:** used to help prevent the trail user from going off the trail into a dangerous situation such as a steep side slope. Like hand rails, protective rails may have broad openings, but should be between 42 and 48 inches in height.

Underground Utilities

These consist of electrical, communications, water, sanitary sewer, or surface water utility systems.

- Where underground utilities exist within the SART corridor, utility lines and access covers should be located away from the SART and shoulders, not within the trail.
- If unavoidable and when within the SART including shoulders: utility covers must meet accessibility guidelines.
- Utility grates with openings, such as catch basins or drop inlets for surface water, must be bicycle-safe to prevent a bicycle wheel from catching or falling into the slots of the grate.

Grade Separations

The edges of the Santa Ana River include many circumstances where the SART must go over or under obstacles, such as freeways, streets, railroads, side streams, and the river's waters to achieve continuity.

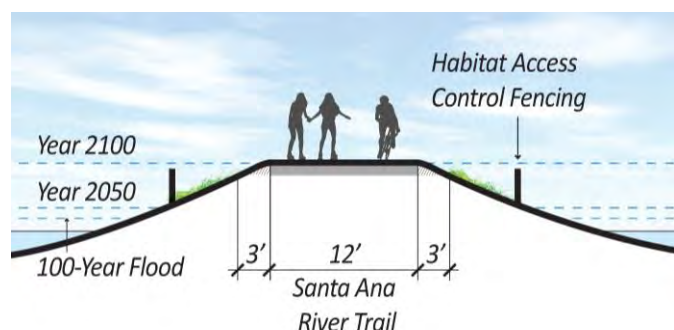
Ramps

- Going either up or down involves ramping. Accessibility guidelines for ramps related to grades, rails, and resting places apply to the SART.

Bridges, Viaducts, and Boardwalks

- The clear, unobstructed width of the SART between railings should be at least 12 feet.
- Structures could be designed to carry service and emergency vehicles where possible.
- The clearing height from overhead obstructions, including fencing, should be at least 12 feet when equestrian use is anticipated. Otherwise the ceiling height should be at least 10 feet.
- The design style of these SART features should be one that is compatible with surrounding land uses, habitats, and adjacent developments.
- The SART should be elevated adequately to accommodate anticipated flood levels or projected future sea level rise (Figure 8-14).
 - The base trail elevation should ideally be set above the projected high water line.

Figure 8-14 SART and Sea Level Rise



- For any bridge segments of the SART, the lower support surface should be set above the projected high water line.
- Where space is limited, the SART may need to be cantilevered or elevated above the projected high water line.
- Bridges and boardwalks that may be subject to direct flood or tidal effects should be composed of materials that can withstand occasional flooding, and resist erosion that may undercut the trail. Materials subject to sea level rise should endure salt water's corrosive effects. Bridging or boardwalks should be constructed with a concrete surface. Where the SART is located on top of a levee, design guidelines for Floodplain Erosion Control (page 8-13) should be followed.

Tunnels

- The clear, unobstructed width of the SART between tunnel walls should be at least 12 feet.
- The ceiling height should be at least 12 feet when equestrian use is anticipated. Otherwise the ceiling height should be at least 10 feet.
- Additional lighting or security cameras may be required by the managing agency.
- If the tunnel is prone to flooding, cautionary signs and/or possible trail closure mechanisms (e.g., red and white striped gate arms, warning lights) should be considered along with adequate drainage and pump designs.

Street Crossings

Ideally, the SART should be provided with separated grade crossings at intersections with automobile traffic. This may not be possible due to costs or topography. When an at-grade crossing is unavoidable, it is desirable to locate the SART to take advantage of an existing traffic light, or to install one mid-block or at the intersection.

Trail design for street crossings varies depending on whether the crossing is midblock or at an existing intersection of two streets.

Both cases meet the definition of a "Bicycle Path Crossing" as defined by the California Vehicle Code (CVC 231.6). In both cases curb cuts and truncated domes should cover the full width of the trail. Stop controls, other warning signs, or designs to slow cars and/or trail users at the crossing could be considered.

- In all cases the MUTCD should be referenced for crossing options, signs and pavement markings, related signalization, and signal activation methods.
- Where there is no traffic signal, then design of the SART crossing should employ any number of tools including high visibility pavement markings, trail and roadway crossing signs, and median pedestrian (and bicycle) refuges if possible. This applies to scenarios both when the motorists have the right-of-way and when they don't.
- If the motorist does have the right-of-way, additional design tools such as rectangular rapid flashing beacons or pedestrian hybrid beacons should be considered.

DETAILED TRAIL DESIGN GUIDELINES

Mid-Block Crossings

- **Shared-Use Trail:** Use ladder/zebra style pavement markings on the outside edges of the crosswalk / trail crossing to encourage pedestrians to be on the outer edges of the crosswalk and bicyclists to remain in the middle. This technique reflects the dynamic that pedestrians will gravitate to the outer edges of the trail where the traffic signal-control button is typically located. This can be accomplished in two ways:
 - With a traffic signal: use bicycle shared-lane markings (a bicycle symbol and two white chevrons also called 'sharrows') in the middle of the crossing.
 - Without a traffic signal: use a solid green color pavement in the middle of the crosswalk if the intersection is controlled with a two-way stop. This is to increase the visibility of the trail crossing to motorists on the roadway.
- **Separate Trails:** When bicyclists and pedestrians(or equestrians) are on two separate trails or on the same trail separated through pavement markings:
 - Use ladder/zebra style pavement markings for the pedestrians and outside parallel lines for the bike crosswalk with no markings in the center where the bicyclists would ride. Each crosswalk should be approximately the width of the approaching pedestrian and bicycle trails, respectively.
 - Use a non-slippery green-colored pavement surface when not signalized, understanding that use of a solid colored pavement surface presents ongoing maintenance requirements.

Intersection Crossings

Guidelines for mid-block crossings also apply to where the SART crosses at an existing intersection of two roadways. Additionally, the following three design scenarios can be applied to intersection crossings.

- Providing bicycle-specific traffic signals (also known as signal "heads"). These should be used in conjunction with standard pedestrian signals at a signalized intersection with timing appropriate to the trail users.
- Coordinating existing crosswalk or protected intersection designs on a site-specific basis.

Intersection Control Signals

If the intersection has a traffic light with a push-button signal actuator the actuator should:

- Be located to easily be accessible to all users, particularly bicycles and equestrians such that they do not have to dismount.
- Have multiple controls at different heights as needed.

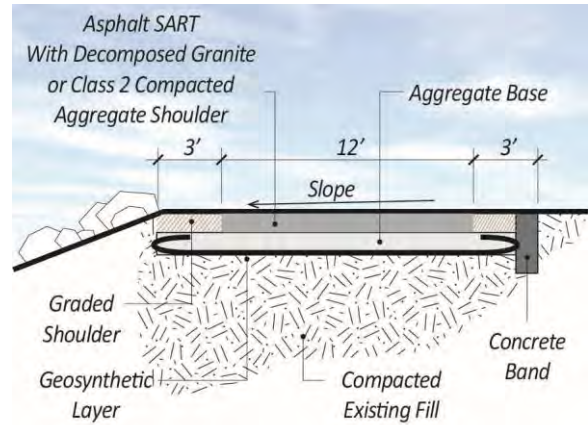
Sustainability

The SART and side or connector trails should maximize sustainability in terms of design and materials selection. For many managing agencies, the typical project life of an asphalt trail is 25 years. There are a number of design considerations that can reduce ongoing maintenance costs and extend the life of the trail.

Trail Structure

- Over time, a concrete trail will need less maintenance than asphalt; and an asphalt trail will need less maintenance than a gravel or natural surface one.
- Base the trail cross-section on geotechnical recommendations emphasizing durability whether for pedestrian/bicycle loads or accommodating use by service and emergency vehicles (Figure 8-15).
- Design foundations/footings for retaining walls and bridge structures on a conservative assumption regarding earthquake hazards. Where possible, avoid designing for a pedestrian load only.

Figure 8-15 Trail Structure



Drainage

- Assure there is no overspray from adjacent irrigation systems onto the trail.
- Assure there is positive drainage away from the trail and that there are no standing puddles created from surface water, storm surges, or irrigation (Figure 8-15).
- Direct all trail drainage through water quality systems or use permeable paving systems where allowable.

Edging

- Consider specifying flush concrete header curbs (unless the trail is concrete) along the trail edge to reduce maintenance and retain integrity over time (Figure 8-15).
- For trail shoulders, use natural materials with stabilizers or compacted Class II aggregate.

Trail-Related Furnishings and Materials

Specify site furnishings that are:

- Durable to minimize maintenance requirements.
- Composed of recycled, recyclable, reused materials, and/or certified sustainably produced lumber where appropriate.
- Specify energy-efficient lighting suitable for a riverside environment.

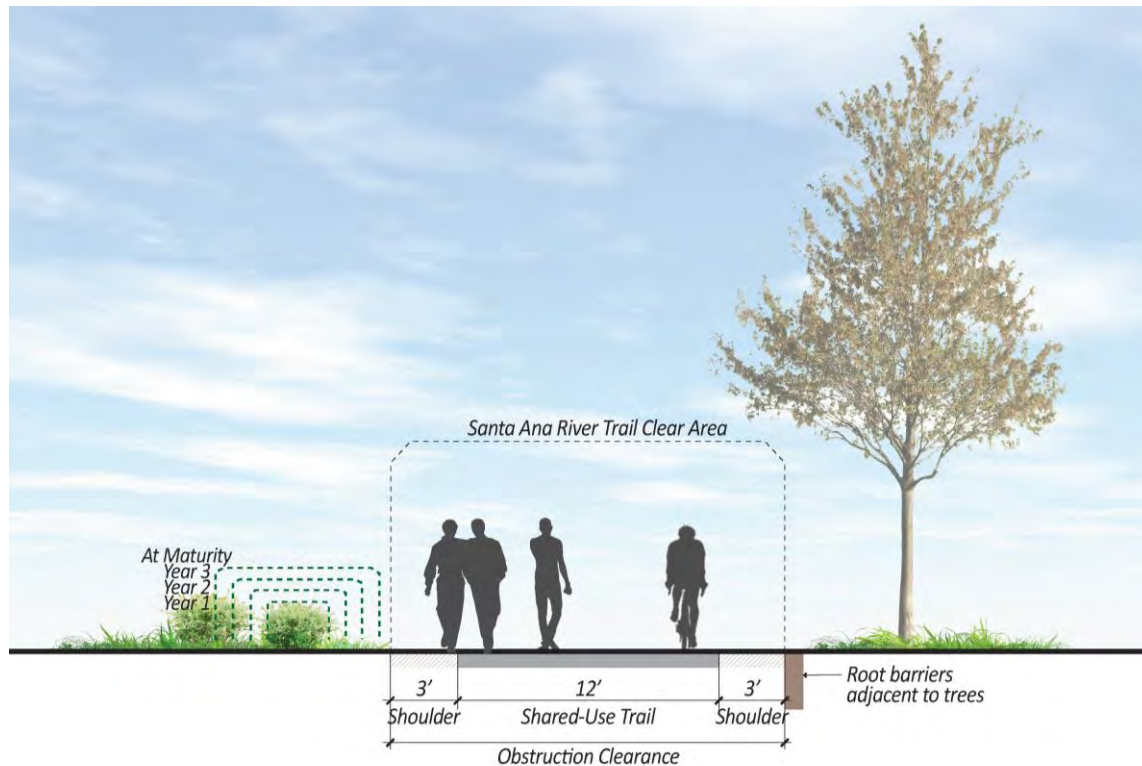
Landscaping

- Specify river-friendly landscape materials, particularly mulch to nurture the soil, conserve water, and enhance wildlife habitat while also protecting the water quality of the river.
- Design trailside landscaping to preserve and dramatize river views.
- Use native plants local to the area that provide habitat for wildlife whenever possible.

DETAILED TRAIL DESIGN GUIDELINES

- Select and locate trees and shrubs to reflect their growth rates and sizes as they relate to maintaining the obstacle clearances of the SART to minimize need for landscape maintenance (Figure 8-13).
- When trees are planted near the trail, include root barriers along the edge of the trail shoulder for a distance of 20 feet centered on the tree (Figure 8-16).

Figure 8-16 Plant Growth Considerations



Lighting

- Provide lighting along the SART based on the surrounding land use requirements, the trail's potential function as an alternative transportation corridor, and the need for security.
- Avoid lighting that would conflict with wildlife habitat; locate night lighting away from sensitive habitat areas if it is shown to be incompatible with adjacent wildlife.
- Assure that lighting fixtures are located outside the shoulder of the SART.

Use energy-efficient lighting that conforms to the managing agency's standards including emergency fire egress requirements from nearby buildings as appropriate.



Appendix F: Potential Funding Sources

Appendix F. POTENTIAL FUNDING SOURCES

There are a wide range of programs and grants that could potentially fund SARP & OSP projects. This Appendix is intended to be provide a reference for potential programs, but is not an exhaustive list. Potential grant programs are organized according to project type: bike and pedestrian infrastructure; surface water management/creek restoration; river corridor projects; park and open space construction, improvement, and maintenance; public art; trails; shade trees and landscaping; general urban greening; and potential environmental assessment and cleanup. Many of these funding opportunities have online websites that should be checked for ongoing grant announcements throughout the year.

BIKE AND PEDESTRIAN INFRASTRUCTURE

United States Department of Transportation (DOT) Congestion Mitigation and Air Quality (CMAQ)

CMAQ funds support surface transportation projects, such as bike and pedestrian infrastructure, and other related efforts that contribute to air quality improvements and provide congestion relief. The focus is on “projects that shift traffic demand to nonpeak hours or other transportation modes, increase vehicle occupancy rates, or otherwise reduce demand.” Of the \$2.3 to 2.5 billion in annual funding, 13% of funds are directed to bike and pedestrian infrastructure projects. Caltrans administers these funds for the State of California.

More information is available at:

www.fhwa.dot.gov/environment/air_quality/cmaq/

DOT Transportation, Community, and System Preservation

The Federal DOT awards discretionary grants to plan and implement strategies that:

- Improve the efficiency of the transportation system.
- Reduce environmental impacts of transportation.
- Reduce the need for costly future public infrastructure investments.
- Ensure efficient access to jobs, services, and centers of trade.
- Examine development patterns and identify strategies to encourage private sector development patterns that achieve these goals.

More information is available at:

www.fhwa.dot.gov/discretionary/tcsp2012selc.cfm.

California Department of Transportation (Caltrans) Grants

Caltrans Sustainable Transportation Planning Grant Program funds are available for projects that improve mobility by integrating sustainability and innovatively address problems or deficiencies in the multimodal transportation system. Grants are either in the Strategic Partnerships or Adaptation Planning categories. The goals of the program include sustainability, preservation, mobility, safety, innovation, economy, health, and equity. In Fiscal Year 2015-16, 51 applications totaling \$9.8 million were selected for funding.

Bicycle Transportation Account is an annual Caltrans project that provides funding for planning and implementation of projects that improve safety and convenience for bicycle commuters. Caltrans anticipates allocation of \$7.2 million annually for eligible projects and activities proposed by local agencies that have adopted a Bicycle Transportation Plan (BTP) that complies with SHC Section 891.2. The BTP must be approved by the local agency's Regional Transportation Planning Agency.

More information is available at: <http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm>

US Office of Housing and Urban Development (HUD) Planning Grants

These grants were created to support metropolitan and multi-jurisdictional planning efforts that integrate housing, land use, economic and workforce development, transportation, and infrastructure investments. HUD has created six livability principles that translate into strategies that drive the Regional Planning Grant Program. These livability principles place a priority on investing in projects that provide more transportation choices. Specifically, HUD identifies the development of safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions and promote public health, all of which dovetail well with bicycle and pedestrian infrastructure. The Community Challenge Planning Grants foster reform and reduce barriers to economically vital and sustainable communities through efforts such as replacing local master plans and promoting sustainability at the local or neighborhood level.

More information is available at:
portal.hud.gov/hudportal/HUD?src=/hudprograms/sci

The California Transportation Commission (CTC) Active Transportation Program (ATP)

The CTC's ATP program consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program to make California a national leader in active transportation. The goal of the program includes enhancing public health, increasing the proportion of trips accomplished by biking and walking, increasing safety and mobility for non-motorized users, and ensuring that disadvantaged communities fully share in the benefits of the program.

More information is available at:
<http://www.catc.ca.gov/programs/ATP.htm>

Office of Traffic Safety (OTS) Grants

The Office of Traffic Safety (OTS) administers federal traffic safety grant funds that are apportioned to California under the National Highway Safety Act. The OTS supports a wide variety of traffic safety programs; including pedestrian and bicycle safety programs for children; child passenger safety outreach; and support for increased law enforcement services and resources, such as safety helmet distribution, and court diversion programs for safety helmet violators. State governmental agencies, State colleges, and State universities, local city and county government agencies, school districts, fire departments, and public emergency services providers are eligible to apply for and receive OTS grant funding. Grants are awarded on a competitive basis.

More information is available at:

http://www.ots.ca.gov/Grants/Pedestrian_and_Bicycle_Safety.asp

SURFACE WATER MANAGEMENT/CREEK RESTORATION

Community Development Block Grants (CDBG)

CDBG funds public works, community facilities, and public service projects serving lower-income areas. These projects may include public improvements including water and wastewater systems.

More information is available at:

https://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

National Fish and Wildlife Foundation (NFWF) grants

The Five Star and Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, and stormwater management, as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support. NFWF may use a mix of public and private funding sources to support any grant made through this program.

More information is available at:

www.nfwf.org/pages/grants/home.aspx

National Integrated Water Quality Program

These funds contribute to improving the quality of surface water and groundwater resources through research, education, and extension activities. Projects funded through this program will work to solve water resource problems by advancing and disseminating the knowledge base available to agricultural, rural, and urbanizing communities. Funded projects should lead to science-based decision-making and management practices that improve the quality of the nation's surface water and groundwater resources in agricultural, rural, and urbanizing watersheds.

More information is available at:

<https://nifa.usda.gov/national-integrated-water-quality-program-frequently-asked-questions>

Prop 1E Stormwater Flood Management Grants

This grant program allocates \$300 million for Stormwater Flood Management for areas outside the State Plan of Flood Control. The program will provide grants to local entities to cost-share stormwater runoff projects, consistent with an integrated regional water management plan.

More information is available at:

bondaccountability.resources.ca.gov/PDF/Prop1E/PROPOSITION_1E_fact.pdf

The Water Quality, Supply, and Infrastructure Improvement Act of 2014

The California Water Bond was approved by California voters on November 4, 2015 and enacts the Water Quality, Supply, and Infrastructure Improvement Act of 2014. The water bond authorizes \$7.12 billion in general obligation bonds for state water supply projects, such as:

- Public water system improvements.
- Surface and groundwater storage.
- Drinking water protection.
- Water recycling and advanced water treatment technology.
- Water supply management and conveyance.
- Wastewater treatment.
- Drought relief.
- Emergency water supplies.
- Ecosystem and watershed protection and restoration.

The Water Bond could fund multi-benefit ecosystem and watershed protection and restoration projects, such as stormwater management programs, flood management projects and activities, and integrated regional water management plan projects.

More information is available at:

http://www.water.ca.gov/waterbond/Regional_Bond_Summary_2014_Final_web_2.pdf

RIVER CORRIDOR PROJECTS

The California Natural Resources Agency River Parkways Program

Parkways funds are granted to projects that produce multiple benefits that reduce greenhouse gas emissions, increase water use efficiency, reduce risks from climate change impacts, and demonstrate collaboration with local, State, and community entities. Given California's current drought, projects should promote water conservation with practices such as planting native and drought-tolerant vegetation, enabling groundwater recharge, and protecting watersheds.

More information is available at:

<http://resources.ca.gov/grants/california-river-parkways/>

Federal Land and Water Conservation Fund (LWCF)

This fund can be used to reimburse development costs for outdoor recreation areas and facilities. The funds provide matching grants to cities and counties seeking funds covering up to 50 percent of project costs.

More information is available at:

www.parks.ca.gov/default.asp?Page_id=21360

California Riparian Habitat Conservation Program

These funds were created to protect, preserve, restore and enhance riparian habitat throughout California. Riparian habitats are found along rivers, creeks, streams and lakes and are made up of plant communities of woody vegetation. Riparian habitat can range from a dense thicket of shrubs to a closed canopy of large mature trees covered by vines.

More information is available at:

www.wcb.ca.gov/Programs/Riparian

Wildlife Conservation Board (WCB)

The Wildlife Conservation Board provides public access funding and can enter into cooperative project agreements with local agencies or nonprofit organizations for the development of facilities for “public access for hunting, fishing or other wildlife-oriented recreation,” such as wildlife viewing and bird watching. The WCB may fund the construction of project elements such as trails, boardwalks, and interpretive facilities. Applications are accepted on a continuous basis.

More information is available at:

<https://wcb.ca.gov/Programs/Public-Access>

National Park Service Rivers, Trails, and Conservation Assistance Program

The National Park Service Rivers, Trails, and Conservation Assistance program can assist state and local agencies, tribes, nonprofit organizations, or citizen groups for community-led resource conservation and outdoor recreation projects. This program provides technical assistance and can help develop projects and identify potential funding sources, but does not provide funding.

More information is available at:

<https://www.nps.gov/orgs/rtca/apply.htm>

PARK AND OPEN SPACE CONSTRUCTION, IMPROVEMENT, AND MAINTENANCE

HUD Grant Programs

Eligible activities funded through the HUD grants program include land acquisition, site preparation and assessment, demolition and clearance of property or remediation, acquisition and construction of public facilities, and rehabilitation of public real property. These funds could be used for urban greening projects,

including purchase of vacant lands, remediation of industrial properties that may contain hazardous waste, and creating additional open spaces.

More information is available at:

portal.hud.gov/hudportal/HUD?src=/topics/grants

National Environmental Education Foundation (NEEF) Every Day Event Grants

Nonprofit volunteer “Friends” organizations are eligible to apply for Every Day Event Grants to support educational, recreational, health-oriented events on public land. Grantees must have a two-year relationship with a public land site and propose an event that will strengthen the capacity of the organization to serve the public or sites. The program offers \$2,000 awards and accepts applications annually.

More information is available at:

<https://www.neefusa.org/grants>

Preventative Health and Health Services Block Grant

This grant provides funding to address the communities’ unique public health needs in innovative and locally defined ways. By providing flexibility to use funds to respond rapidly to emerging health issues and to fill funding gaps in programs, these funds are well suited to parks and open space projects that seek to engage residents in healthy lifestyles.

More information is available at:

www.cdc.gov/phhsblockgrant/

California Department of Boating and Waterways

The CA Department of Boating and Waterways has grants available for recreational boating facilities with public access. Grants are restricted to qualifying public agencies to fund boat launching ramps, boarding floats, and associated parking areas, restrooms, and lighting.

More information is available at:

http://www.dbw.ca.gov/?page_id=28818

California Strategic Growth Council

Revenues from California’s Cap & Trade program are being allocated to eligible projects around the State, working to reduce greenhouse gas emissions and improving public health and the environment. These projects could include green infrastructure that explicitly includes shade trees, heat island mitigation measures, community gardens, stormwater planters, parks and open space.

More information is available at:

<http://sgc.ca.gov/Grant-Programs/> California Department of Parks and Recreation

California State Parks

California State Parks offers many grants for local, State and nonprofit use, administered by the Office of Grants and Local Services (OGALS). Projects eligible for these grants include nature interpretation

programs to bring urban residents into park and wildlife areas, protection of various plant and animal species, and acquisition and development of wildlife corridors and trails.

More information is available at:

www.parks.ca.gov/?page_id=1008

PUBLIC ART

Financing public art can be a challenge. Many cities have established policies that help fund public art through new development. The City of San Francisco has a “1% Art Program” that requires large projects in Downtown and nearby neighborhoods to provide public art that equals at least 1% of the total construction cost, while the City of Vancouver, BC, requires private sector development greater than 100,000 square feet to contribute \$1.81 per buildable foot to a public art process approved by the City.

While some cities manage public art programs, public art can also be curated, installed, and maintained by non-profit organizations and other groups. Additionally, the Americans for the Arts Public Art Network (PAN) is a professional network created to advance public art programs and projects through advocacy, policy, and resource sharing, such as information on available grants, to both individuals and organizations.

TRAILS

Federal Recreational Trails Program

Federal transportation funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. While available funds vary from year to year, there was \$5.7 million available to California in 2014.

More information is available at: www.fhwa.dot.gov/environment/recreational_trails/

National Trails Fund

The American Hiking Society provides micro-grants to trail crews specifically to support hiking trails. Grants are available in amounts between \$500 and \$5,000 to members of the American Hiking Society’s Alliance of Hiking Organizations for projects that have hikers as the primary constituency; are seeking to secure trail lands, including acquiring trails and trail corridors; and will build and maintain trails resulting in visible and substantial ease of access, improved hiker safety, or avoidance of environmental damage. Higher preference is given to projects with volunteer labor.

More information is available at:

www.americanhiking.org/national-trails-fund

SHADE TREES AND LANDSCAPING

Community Benefit Districts

Should a neighborhood have a strong interest in seeking additional financing for landscaping, one possible option is to form special financing or landscape improvement districts with restricted boundaries and limited taxing authority.

Donation Programs and Memorial Trees

A tree donation program would create a mechanism for individual and corporate donors to contribute to the urban forest. A commemorative plaque could be included to recognize these donors for their contribution. Donors may include residents, business owners, and local nurseries. A memorial tree program would provide an opportunity for community members to dedicate trees in honor of a loved one's life or for special occasions, including births, quinceañeras, marriages, retirement, graduations, and even local championship games.

US Department of Agriculture (USDA) Urban and Community Forestry Program

The Urban and Community Forestry Program provides technical, financial, research and educational services to local government, non-profit organizations community groups, educational institutions, and tribal governments. Over the next five years an increasing percentage of funding will be focused on landscape-scale projects. Three national themes provide a framework for this work: conserve working forest landscapes, protect forests from harm, and enhance benefits associated with trees and forests.

More information is available at:

www.fs.fed.us/ucf/about_overview.shtml

US Forest Service (USFS) National Urban and Community Forestry Challenge Cost-Share Program

The Challenge grants provide funding that will help enhance urban forest stewardship, support new employment opportunities, and help build resilience in the face of a changing climate. Furthermore, these funds will address urban forest resiliency to extreme weather events and the long-term impacts of climate change; strategies for bolstering green jobs; and opportunities to use green infrastructure to manage and mitigate stormwater and improve water quality.

More information is available at:

www.fs.fed.us/ucf/nucfac.shtml

California ReLeaf

This urban forestry program administers grants provided through funding from California Department of Forestry and Fire Protection (CAL FIRE), Region IX of the Environmental Protection Agency (EPA), and the United State Department of Agriculture (USDA) Forest Service. Through roving applications, grants are provided to nonprofit groups, local agencies, and community groups to plant trees in communities with

low urban canopy coverage, including their Arbor Week Urban Forestry Grant. ReLeaf also tracks public grants and compiles resources for applicants on their website.

More information is available at:
californiareleaf.org/programs/grants/

Sustainable Forestry Initiative (SFI) Conservation and Community Partnership Grants

This non-governmental initiative promotes sustainable forestry management, improved forestry practices and responsible purchasing of forest products. SFI provides conservation and community grants for forestry programs emphasizing sustainable forestry practices and sourcing, as well as incorporating an educational component for youth or community-based groups.

More information is available at:
www.sfiprogram.org/community-conservation/conservation-community-partnerships-grant-program/

Urban Streams Restoration Program

Administered through the California Department of Water Resources, this program provides funding for urban stream projects, including the revegetation efforts.

More information is available at:
www.water.ca.gov/urbanstreams/

Project Learning Tree

This environmental education grant program provides funding for schools and communities to enhance their local urban forest as a method of enhancing nature-based learning opportunities within the community.

More information is available at:
www.plt.org/

GENERAL URBAN GREENING FUNDING SOURCES

Corporate Grants

Many small-scale grants and sponsorships are available to support the development and revitalization of parks and recreation. Some of these are through established corporate giving programs such as PowerBar's Direct Impact on Rivers and Trails program, which has provided funds up to \$5,000 to create, maintain, improve or restore access to valued recreational areas. While smaller companies are less likely to have established programs, local businesses often designate funds for donation to their community and can be particularly tapped for sponsorships of local projects that support the community.

More information is available at:
www.americantrails.org/resources/funding/DIRTfund.html

Mello-Roos Community Facilities Districts

The Mello-Roos Community Facilities Act of 1982 allows any County, City, special district, school district, or joint powers authority to establish a Community Facilities District (CFD), which allows for financing of

public improvements and services through taxation within the district. The services and improvements that CFDs can finance include streets, sewer systems, and other basic infrastructure. A CFD is created by a sponsoring local government agency and includes all properties that will benefit from the improvements to be constructed or the services to be provided. A CFD cannot be formed without a two-thirds majority vote of residents living within the boundaries. Once the CFD is approved, a Special Tax Lien is placed against each property in the CFD and property owners pay a special tax annually.

POTENTIAL ENVIRONMENTAL ASSESSMENT AND CLEANUP FUNDING SOURCES

Community Development Block Grant (CDBG)

Since 1974, the US Department of Housing and Urban Development has administered CDBG funds. The goal of the CDBG program is to develop viable urban communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low and moderate income. Projects funded must meet specific criteria of benefiting low-income households, creating new jobs, or accommodating specific business expansion or retention. CDBG funds are available for a number of different types of projects, including housing rehabilitation, new housing construction, community facilities, public services, and public works projects.

More information is available at:

https://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

HUD Brownfields Economic Development Initiative (BEDI)

BEDI funds are intended to enhance the viability of brownfields economic development projects by enhancing security of Section 108 loans. Eligible uses include land write-downs, site remediation costs, funding reserves, over-collateralizing Section 108 loans, and financing businesses at below market interest rates.

More information is available at: <https://www.hudexchange.info/programs/bedi/>

California Illegal Disposal Site Abatement Grant Program

This program provides financial assistance in the form of reimbursement grants up to \$500,000 to help public entities accelerate the pace of cleanup, restore sites, and turn today's problems into tomorrow's opportunities. Properties on which illegal dumping occurs lose economic value, create public health and safety and environmental problems, and degrade the community's enjoyment and pride in the affected communities. Abandoned, idled, or underutilized properties that suffer from unauthorized dumping deteriorate areas that were once sources of economic benefits to a community. Many such properties have been abandoned or have owners who are unable or unwilling to pay the costs of cleanup.

More information is available at:

www.calrecycle.ca.gov/LEA/GrantsLoans/SolidWaste/LEA/default.htm

Local Government Incentives

In addition to dedicating money from the City or County budget for cleanup, local government can provide incentives such as disposal fee waivers or vouchers, or free disposal days. These both encourage organizations and neighborhood associations to conduct wholesale cleanups, and reduce future dumping.

US EPA Brownfields Program

EPA's Brownfields Program empowers states, communities, and other stakeholders to work together to prevent, assess, safely clean up, and sustainably reuse brownfields. A brownfield site is real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. In 2002, the Small Business Liability Relief and Brownfields Revitalization Act was passed to help states and communities around the country cleanup and revitalize brownfields sites. Under this law, EPA provides financial assistance to eligible applicants through four competitive grant programs: assessment grants, revolving loan fund grants, cleanup grants, and job training grants. Additionally, funding support is provided to state and tribal response programs through a separate mechanism.

More information is available at:

<http://www2.epa.gov/brownfields/types-brownfields-grant-funding>