

# UPPER SANTA ANA WASH LAND MANAGEMENT AND HABITAT CONSERVATION PLAN (WASH PLAN)



February 2015

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## Acknowledgements

This Master Trails Plan was prepared by Gustavo Gomez with review by Richard Corneille, Daniel Cozad, Jeffrey Beehler, and Manuel Colunga. The GIS Specialist for this project was Erin Berger. The assistance of Elizabeth Mende and Katelyn Scholte is also acknowledged in the preparation and the production of this document.

## Photo Credits

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## Introduction

### Project Purpose

The purpose of this plan is to develop a framework for creating an integrated system of pathways that will link the residents of the Cities of Highland and Redlands to the outdoors. This Master Plan contains detailed trail corridor recommendations and guidance in the creation of an interconnected network of trails. The system of trail networks described in this master plan creates the opportunity to enhance recreational opportunities and the quality of life for our cities.



### Benefits

#### Healthy Lifestyles

Trails can provide meaningful and satisfying outdoor experiences for its users while providing accessible, low-cost opportunities to meet their physical activity needs. Studies show that walking or hiking a few times per week can improve a person's physical and mental health. Recreational activity can help reduce depression by providing an enjoyable activity for users to look forward to. Use of trails for recreational activities including walking, jogging, and bicycling benefits the health of all age groups. Another benefit of physical fitness includes reductions in direct and indirect costs of illness and disease. Many of the most livable communities in the country put an emphasis on trails and recreation, and promote the positive health benefits provided by their use.

## Economic Benefits

An organized and well-managed trail system is a desirable city amenity that can contribute to a community's economic vitality. Like parks, properly designed trails can enhance the property values of surrounding properties. Trails can also generate visits from members of neighboring communities, and can create positive economic benefits to businesses in the local community.

## Alternative Transportation

Studies show that 50 percent of all car excursions are less than three miles, a distance that can easily be walked or biked. Trails increase transportation options for all members of the community, since they provide safe transportation options for those without a driver's license. A network of trails can enhance transportation systems in the cities of Highland and Redlands by providing an alternative means to parks, stores, and other destinations that are located near local trails. For example, both Orange Street (Boulder Avenue in Highland) and Alabama Street are major connections between the two cities. Greenspot Road provides transportation to and from Boulder Avenue & Alabama Street on the Highland side. Finally, Cone Camp Trail will create an unpaved connection that would connect Cone Camp Road in Highland to Opal Avenue in Mentone.



Likely Destinations for Trail Users:	Accessible Through:
Citrus Plaza (Redlands)	Alabama Street
Redlands Shooting Park (Redlands)	Orange Street / Boulder Avenue
Hangar 24 (Redlands)	Cone Camp Trail
Beattie Middle School (Highland)	Greenspot Road & Boulder Avenue
Shopping Plaza (Greenspot Rd & Church Ave in Highland)	Greenspot Road
Aurantia Park	Greenspot Road
Golden Triangle Development Area	
Orange Blossom Trail	

Downtown Mentone	
Model Airplane Airport	
Redlands Airport and Annual Airshow	
The Village at East Highlands	
Citrus Valley High School	
Mountain Grove Shopping Center	

## Public Education

With the continual expansion of urban areas, our younger generations are becoming less exposed to the environment. Trails provide a wonderful opportunity for environmental education. Also, trails play an important role in building public commitment to environmental conservation. Meaningful outdoor experiences can reaffirm one's sense of connection to and appreciation of the natural environment. Also, closing the areas for conservation will create an image of rejection to the public. Instead, we can create an image of connection by allowing educated recreation within our environment. As an educational tool, trail signage can be designed to inform trail users about environmental issues particular to the local environment. The signs could also provide advice on how to help conserve our environment and why it is important to do so. It is important to inform users that habitat loss—due to destruction, fragmentation or degradation of habitat—is a primary threat to the survival of wildlife. When an ecosystem has been dramatically changed by human activities, it may no longer be able to provide the food, water, cover, and places to raise young. The public also needs to be warned about local endangered species, and why we need to conserve them and care for our world's biological heritage.



## Social Benefits

Trails foster community involvement and pride, in addition to providing an opportunity for interaction with people of varying backgrounds and experiences. California is a richly diverse state, with more



cultures and languages than any other state in the nation. Trails can promote positive contact between different ethnic groups and open communication in a nonthreatening atmosphere. People in such activities become less concerned with differences and more concerned with having fun and enjoyable experiences. It also creates an opportunity for families and neighbors to recreate together, which can encourage a safe, lively community atmosphere. Communities that recreate together tend to be closer and more cohesive. By participating in activities together, communities also elicit feelings of loyalty, teamwork, and goodwill.

### Environmental Benefits

The local area is known to have some of the highest air pollution levels in the country.

The alternative transportation options provided by this trails system can help reduce vehicle exhaust emissions that pollute our air.



### Heritage Benefits

Trail corridors help to preserve historical and cultural resources associated with a local community. The preservation and commemoration of these types of

historical structures creates a sense of place and a sense of identity for the community.

## Vision

The vision for the proposed trail network is derived from local residents and city staff. A fundamental part of that vision is that the trail network will contribute to the overall quality of life throughout the cities of Redlands and Highland. Given the benefits of a trails system outlined in the previous section, specific visions and goals for the Master Trail Plan include the following:

- Develop a safe and interconnected city-wide network of trail facilities that link together destinations and people.
- Improve quality of life in local areas by developing a trail network that provides facilities and programs designed to expand and encourage active recreation, community strength, and alternative transportation.
- Enhance, protect, and preserve the environmental quality of open space, waterways, and wildlife habitats.
- Conserve local culture, history, and heritage through interpretative trails and signage.
- Take a step forward in the implementation of the Wash Plan Activities. As a proposal in the Wash Plan, certain existing maintenance roads and abandoned rights-of-way would be designated for the use as recreational trails. This process would formalize a detailed plan for trails.





## Existing Environment

This section describes the existing roads that would be designated for the use as recreational trails.

### Setting

The trails system would be located within the Wash Plan Area. This area is located at the base of the San Bernardino Mountains in an area created by periodic flooding of the Santa Ana River, Mill Creek, and Plunge Creek. In the past, these waterways were not channeled and large flows during the mid 1800's created the wash surface and determined the location of present channels. In times of heavy rainfall, water flowed from local mountains through the creeks and the river, and combined to create a fast-moving, turbulent river with high sediment load. When rainfall subsided, and the river and creeks returned to their smaller courses, it left large areas between the waterways consisting of rock, debris, and sediment, thus creating this area.



### Cone Camp

Within the Wash Area, we can find the remains of a camp erected to house the Bracero Program workers. The Bracero Program was a series of laws and diplomatic agreements for the importation of temporary contract laborers from Mexico to the United



States that ran for 22 years, from 1942 to 1964. Since the camp was erected in the cone of the Santa Ana River, it became known as Cone Camp, or the Highland-Redlands Labor Association. At the height of the program, over 1,000 workers were served. Busses transported the laborers to the groves and vineyards. By 1974, the area citrus industry was in decline, reducing the need for large numbers of field workers. Time, fire, and termites further decimated the camp. In February of 1977, the camp became the site of S.W.A.T. and “Burn to Learn” exercises. While Cone Camp was reportedly a model for other camps, not all the workers were happy with their situation, complaining of poor food and withheld wages. A good number remained here, marrying local girls and continuing their lives in this area. But, for now, an inconspicuous street sign is the only reminder of our huge citrus industry and those workers who supported it during a time of national crisis and beyond. Within the Cone Camp trail, we can educate users about the history of our local agriculture and community.



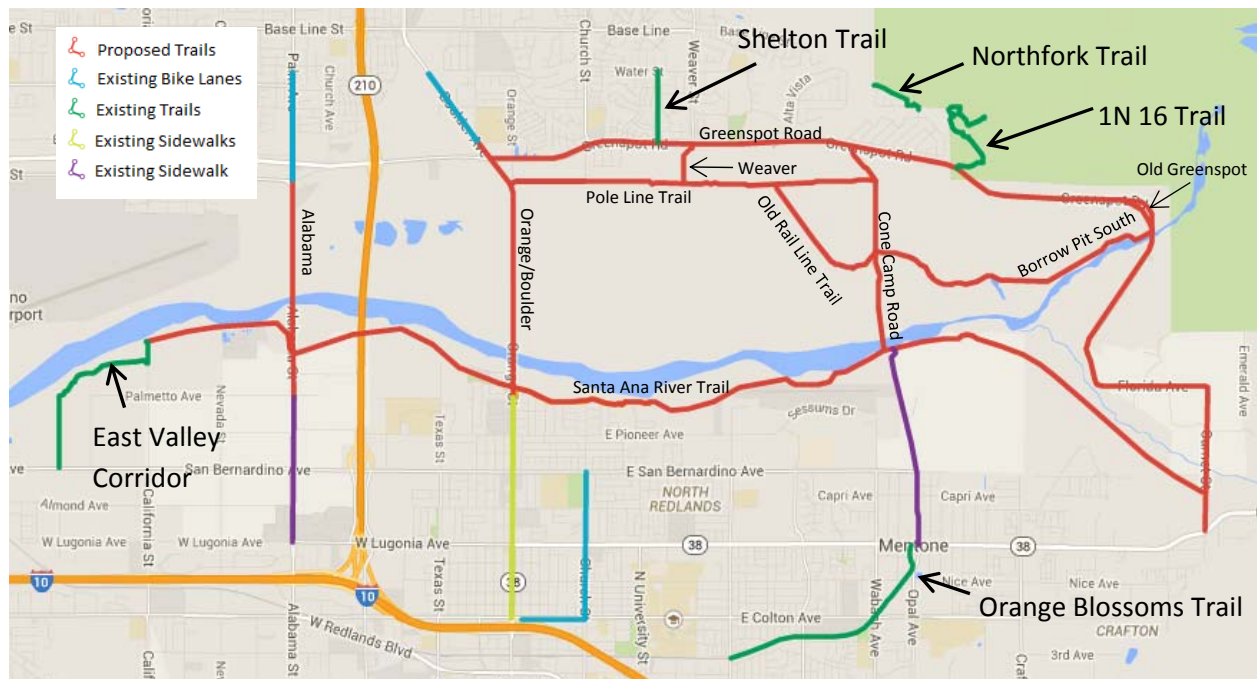
## Existing Trails and Possible Connections

The existing paths and streets that can be used for a trails system include:

- The maintenance roads that are located within the Wash Plan Area
- Abandoned rights-of-way that are located within the Wash Plan Area
- Existing rights-of-way that are located within or around the Wash Plan Area
- Planned paved paths located within or around the Wash Plan Area

## Links to Local Trail Systems

The proposed trails network would link to already existing trails in the cities of Highland and Redlands.



- The Shelton Trail branches out north from Greenspot Road, as well as the 1N 16 Trail.
- The Northfork Trail is about one-third of a mile north of Greenspot Road.
- The East Valley Corridor Trail extends north into the Santa Ana River Trail.
- There are bike lanes that continue north into Highland from Orange Street and Alabama Street.
- There are sidewalks that extend south on Orange Street into Redlands.
- Both Alabama Street and Cone Camp Trail continue as streets south of the WASH Plan Area.

Finally, the Santa Ana River Trail will connect this network of trails to the following cities:

- Loma Linda
- Colton
- San Bernardino
- Riverside
- Corona
- Norco
- Yorba Linda
- Orange
- Anaheim
- Santa Ana
- Fountain Valley
- Huntington Beach



## Existing Environment & Habitat

Approximately 638 acres of land within the Planning Area are located within BLM ACEC's (Area of Critical of Environmental Concern) and RNA's (Research Natural Areas), which are areas where natural conditions are to be maintained as much as possible. In the area, there needs to



be a long-term protection plan for the Santa Ana River Woolly Star, Slender-Horned Spineflower, San Bernardino Kangaroo Rat, Coastal California Gnatcatcher, and other species deemed critical by BLM.



It is important to keep in mind that environmental restoration is to be considered a part of this project. Mitigation will be required within our trails system to lessen the impact on our environmental treasures, which are discussed in the Design Section of this Plan.

Also, within the Wash Plan Area is the Santa Ana River Woolly Star Preservation Area. The WSPA was established as part of the mitigation for the construction of the Seven Oaks Dam. It is another area in which natural conditions are to be maintained as much as possible to preserve the Santa Ana Woolly Star.





[http://upload.wikimedia.org/wikipedia/commons/9/93/Seven\\_Oaks\\_Dam.jpg](http://upload.wikimedia.org/wikipedia/commons/9/93/Seven_Oaks_Dam.jpg)

## Endangered & Other Species

	Description
Santa Ana River Woolly Star	<p>The Santa Ana River Woolly Star (SARWS), <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>, is an endangered wild flowering plant of the Riversidian Alluvial Fan Sage Scrub community that is found on the higher elevation flood plain terraces of the Santa Ana River and its tributaries. Its branching woody stems grow 10 to 30 inches tall from the base and contain profuse leaves that are gray-green in color. Large blue-lavender flowers form slender tubes that radiate open at the top and cluster in groups of about 20 per flowerhead. The SARWS blooms annually from late May to mid-August but peaks in June. It has been listed as an endangered species by the California Fish and Game Commission since September 28, 1987.</p> 
San Bernardino Kangaroo Rat	<p>The San Bernardino Kangaroo Rat (SBKR), <i>Dipodomys merriami</i> spp. <i>parvus</i>, is an endangered species of rodent belonging to the Heteromyidae family. The physical description of this particular species is similar to other kangaroo rat species; large hind feet, long tail, cheek pouches, etc. but are generally darker and smaller than the other two subspecies in Southern California. They breed once a year, usually between January and late November and produce a litter of two and three young. The SBKR inhabits alluvial fans and flood plains with large populations near the Santa Ana River, Lytle and Cajon Creek and the San Jacinto River. Originally the SBKR's range included 320,000 acres but as of 1998 it only encompasses approximately 3,247 acres. It has been listed as an endangered species by the U.S. Fish and Wildlife Service since January 27, 1998.</p> 




## Endangered & Other Species

	Description
Coastal California Gnatcatcher	<p>The Coastal California Gnatcatcher (CCG), <i>Polioptila californica</i> spp. <i>californicus</i>, is a small insectivorous bird that grows up to 4.25 inches long. The CCG is listed as a threatened species under the Endangered Species Act (ESA) and inhabits the coastal sage scrub of Southern California and Mexico. Coastal sage scrub makes up a significant amount of vegetation within the flood plain of the Santa Ana River and the District's land. Urbanization has dramatically decreased their numbers due to the removal of coastal sage scrub; in 1997 no more than 2,900 pairs were documented to be left in the U.S. The male and female are both a dusky gray-color but vary in terms of the color of their crown with the male having a black crown and the female having a blue-gray crown. The CCG was placed on the ESA in 1993.</p>  <p><a href="http://www.prbo.org/calpif/html/docs/species/scrub/california_gnatcatcher.html">http://www.prbo.org/calpif/html/docs/species/scrub/california_gnatcatcher.html</a></p>
Slender-horned Spineflower	<p>The Slender-horned Spineflower, <i>Dodecahema leptoceras</i>, is a dicot in the family Polygonaceae and is endemic to California. Specifically, it inhabits alluvial-fan habitats in Chaparral and Coastal Sage Scrub communities. The Slender-horned Spineflower has been documented within the District's Santa Ana River Spreading Facility. In 1997 it was ranked by the California Native Plant Society as extremely rare. During the same year it was also listed as an endangered species by both the state of California and the Federal Government.</p> 



## Endangered & Other Species

	Description
Cactus Wren	<p>The Cactus Wren, <i>Campylorhynchus brunneicapillus</i>, is a species of wren that is native to the southwestern United States and central Mexico. The cactus wren is the largest North American wren, measuring 18–23 cm (7.1–9.1 in) long. The cactus wren is easily visible, unlike smaller wrens, and has the loud voice characteristic of a wren. They are found in deserts and arid foothills that have cactus, mesquite, yucca and other types of desert scrub. The cactus wren is not currently listed as endangered or threatened. However, it is protected by the Migratory Bird Treaty Act like all songbirds.</p>  <p><a href="http://www.wildphotosphotoaraphv.com/WildPhotos/birds1/cactus%20wren.ipa">http://www.wildphotosphotoaraphv.com/WildPhotos/birds1/cactus%20wren.ipa</a></p>

## Proposed Network

### Trail Type Descriptions

#### Class 1

Class 1 trails (dedicated bikeways, paved bike paths) – provide a completely separate right-of-way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized. Class 1 trails would be off-road bicycle trails that could also be used for hiking because there would be no vehicle traffic from the local street system. As applicable, these trails would be developed to Caltrans standards as published in the *Highway Design Manual (Class I Bikeway)*.

#### Class 1/1-B

Are trails extremely similar to class 1 type trails, however they are paved multi-use that provide for shared use with pedestrian or authorized vehicles. Class 1-B trails are approximately 10 to 12 feet wide and accommodate hiking, non-motorized bicycle use, and maintenance vehicles.

#### Class 2

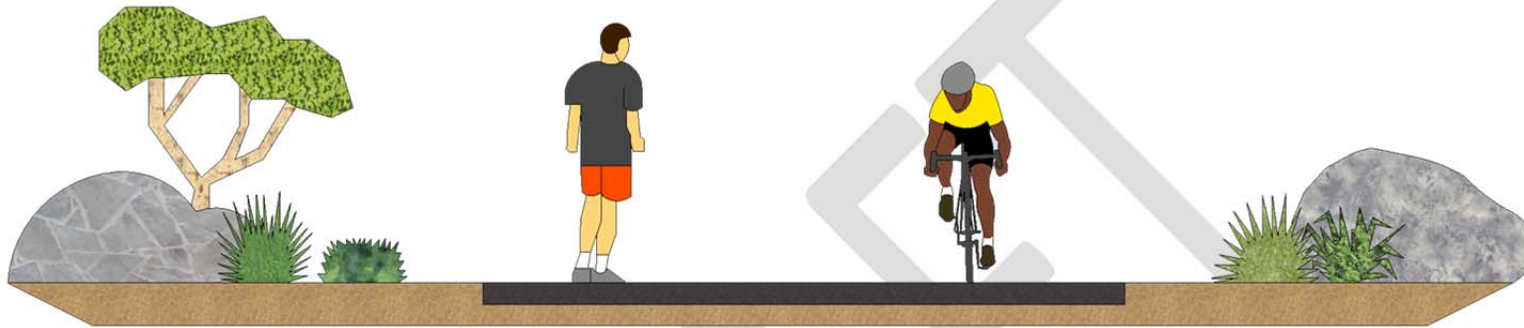
Class 2 trails/lanes (paved bikeways in street right-of-way) provide a striped lane for one-way bicycle travel on a street or highway. Class 2 trails are located along the side of and within the paved cross-section of the roadway. There would typically be a trail on both sides of the street to facilitate bicycle traffic going in each direction. As applicable, these trails would be developed to Caltrans standards as published in the *Highway Design Manual (Class II Bikeway)*.

#### Class 4

Class 4 trails (unpaved multi-use) trails that would accommodate certain types of trail activities, including bicyclers, hikers, and maintenance vehicles. The trails would not normally be paved and, in most cases, they would align with existing maintenance roads and/or abandoned railroad beds. Some paving may be required, if preferred, to keep users on the trail when nearing critical habitat areas. In the Planning Area, multi-use unpaved trails would respect the “existing/baseline” conditions to preserve the unique habitat; however there would be areas where it would be necessary to install physical barriers, such as, but not limited to, large boulders and fencing.

## Type Diagrams

### Class1



### Class 1/1-B




Class 2



Class 4





## Types of Users

Types of Users		Description	Design Needs	Amenities
<b>Pedestrians</b>	 <p><a href="http://img1.southernliving.timeinc.net/sites/default/files/image/2009/01/10-resolutions/walking-trail-l.jpg">http://img1.southernliving.timeinc.net/sites/default/files/image/2009/01/10-resolutions/walking-trail-l.jpg</a></p>	<ul style="list-style-type: none"> <li>•Walkers</li> <li>•Hikers</li> <li>•Joggers</li> <li>•Bird Watchers</li> </ul>	<p>Pedestrians tend to have fewer design requirements than other users. Most prefer softer surfaces to lessen impacts on their knees, though some users, such as power walkers and those pushing strollers may prefer more compact surfaces. The minimum recommended vertical clearance for pedestrians is eight feet. Pedestrians are allowed to walk their dogs.</p>	<ul style="list-style-type: none"> <li>•Benches</li> <li>•Drinking Fountains</li> <li>•Rest Areas</li> <li>•Restrooms</li> <li>•Dog Waste-Bag Dispensers</li> <li>•Trash Bins</li> </ul>



## Types of Users

Types of Users	Description	Design Needs	Amenities
<div data-bbox="216 521 243 634" data-label="Section-Header"> <h3>Bicyclists</h3> </div>  <p><a href="http://riversideca.gov/publicworks/traffic/bicycleprogram/images/redjersey.jpg">http://riversideca.gov/publicworks/traffic/bicycleprogram/images/redjersey.jpg</a></p>	<ul style="list-style-type: none"> <li>•Recreational Cyclists</li> <li>•Commuting Cyclists</li> <li>•Touring Cyclists</li> </ul>	<p>The AASHTO Guide for the Development of Bicycle Facilities is viewed as the national standard for bikeway design. Bicyclists prefer hard surfaces and require a vertical clearance of at least eight feet, with 10 feet needed for overpasses and tunnels. Adequate sight distances for cyclists are critical for user safety; AASHTO recommends that multi-use trails provide a minimum sight distance of 150 feet. Ideal grades for bicyclists, over long distances, are less than three percent (typical for old railroad beds), although up to five percent is acceptable. The Cal Trans Guidelines can be used as well, which are very similar to AASHTO guidelines</p>	<ul style="list-style-type: none"> <li>•Benches</li> <li>•Drinking Fountain</li> <li>•Rest Areas</li> <li>•Restrooms</li> <li>•Bicycle Racks</li> </ul>
<div data-bbox="216 984 243 1187" data-label="Section-Header"> <h3>Mountain Bikers</h3> </div>  <p><a href="http://kemptonexpress.sites.caxton.co.za/wp-content/uploads/sites/30/2014/07/Mountain-Bikes.jpg">http://kemptonexpress.sites.caxton.co.za/wp-content/uploads/sites/30/2014/07/Mountain-Bikes.jpg</a></p>	<ul style="list-style-type: none"> <li>•Mountain Bikers (considered a separate user group as they tend to seek out more challenging trails with steeper grades and uneven surfaces)</li> </ul>	<p>Mountain bikers make up a large segment of the bicycling population. We can accommodate this group of users in the same trails that will be used for hiking, since the design needs are similar.</p>	<ul style="list-style-type: none"> <li>•Benches</li> <li>•Drinking Fountains</li> <li>•Rest Areas</li> <li>•Restrooms</li> <li>•Bike Racks</li> </ul>



## Types of Users

Types of Users	Description	Design Needs	Amenities
<b>Inline Skaters</b>  <p><a href="http://www.findseedo.com/spskating.jpg">http://www.findseedo.com/spskating.jpg</a></p>	<ul style="list-style-type: none"> <li>•Inline skaters</li> </ul>	<p>Multi-use trails that accommodate pedestrians and bicyclists are likely to attract inline skaters as well. Inline skaters require the same trail width (minimum of 10 feet) and hard surfaces as bicyclists, and the same vertical clearance as pedestrians (seven feet).</p> <ul style="list-style-type: none"> <li>• Will be able to skate over any of the proposed paved trails throughout the Trails Plan</li> </ul>	<ul style="list-style-type: none"> <li>•Benches</li> <li>•Drinking Fountains</li> <li>•Rest Areas</li> <li>•Restrooms</li> </ul>
<b>Equestrian</b>  <p><a href="http://gmhainc.org/assets/images/donate/12764%20copy.jpg">http://gmhainc.org/assets/images/donate/12764%20copy.jpg</a></p>	<ul style="list-style-type: none"> <li>•Horseback Riders</li> </ul>	<p>Hard surfaces (asphalt and concrete) and coarse gravel can injure horse hooves, so equestrians prefer loose or compacted dirt trails. If you plan to use a hard surface, consider placing a softer, separate five-foot-wide tread for horses alongside the main path. Vertical clearance should be at least 10 feet, with a horizontal clearance of at least five feet.</p>	<ul style="list-style-type: none"> <li>•Staging</li> <li>•Hitching Posts</li> </ul>

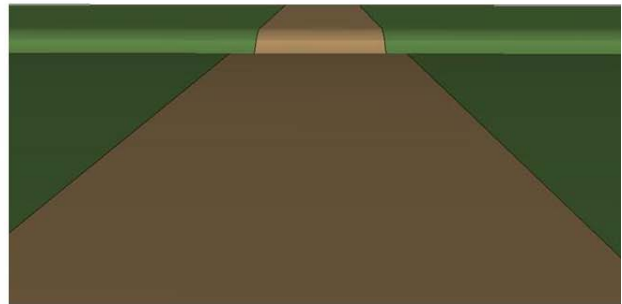
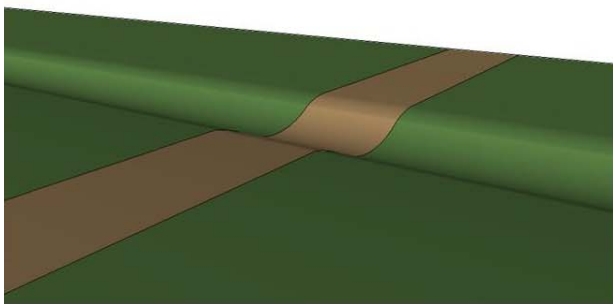
## Trail Conditions

### Erosion

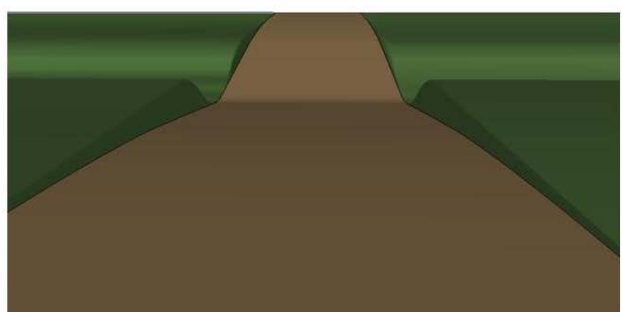
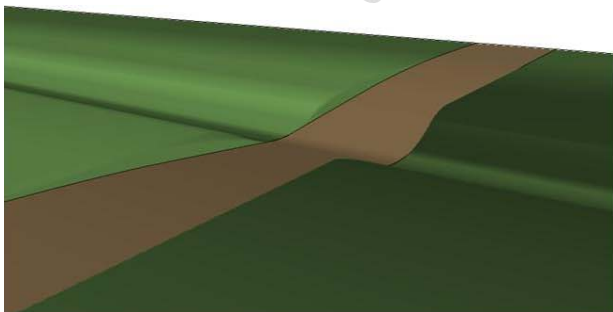
The soil within the Wash Plan Area consists of alluvial soils. Given that the Wash Plan Area is crossed by multiple streams and creeks, the soils in this area are susceptible to erosion. When excessive erosion occurs in the Wash Plan Area, basic earthwork can be done to reshape the trails. This would consist of leveling the trail to make it safer for users. The graphic below shows the earthwork that would need to be done to mitigate for erosion.



Eroded trail before leveling:



Eroded trail after leveling:

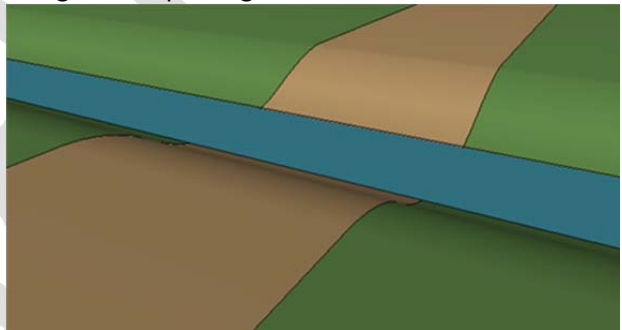
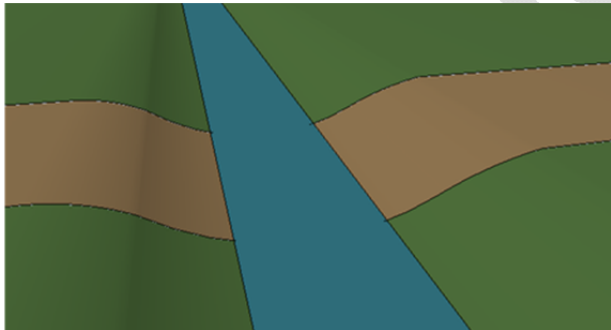


## Flooding

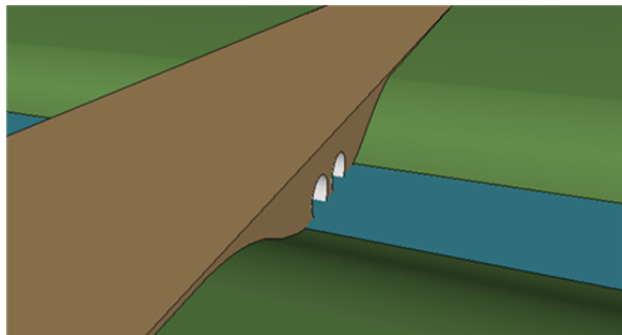
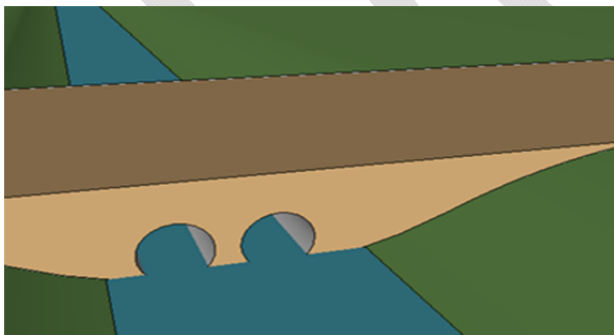
There are places within the trails system where flooding is likely to occur due to the crossing of different hydrologic paths. The addition of culverts can help the areas that are susceptible to flooding by allowing trails to remain functional during and after rain periods. The graphic below shows how adding culverts to such places can make trails accessible and safer to use during wet conditions.



Trail before adding culvert passing



Trail after adding culvert passing



## Growth of Vegetation on Trails

We can expect vegetation to grow in the trail paths. This would make the trail more difficult to walk, bike, or run. The vegetation that we expect to grow in the trail path can be removed by maintenance workers on a periodic basis. If the vegetation is consistently removed, then it will be easier to remove the vegetation. This is because it wouldn't be allowed to grow big enough to require large tools or heavier labor.

## Vandalism

Vandalism is also expected to occur within the trails system. We expect prohibited actions such as graffiti painting, trash dumping, and property damaging. Again, maintenance workers would periodically inspect for vandalism, and fix damages that result from it.

## Flood Debris

Cone Camp trail crosses the Santa Ana River in what we refer to as the WSPA Crossing. The flow from the Santa Ana River originates from snowmelt and precipitation runoff in the San Bernardino Mountains that washes into valleys in the Big Bear and Seven Oaks area. The runoff channels through these valleys and accumulates behind the Seven Oaks Dam. Water is released from the Seven Oaks Dam in a controlled, temporary manner. The released water is diverted to the District's infiltration facilities.

Water that isn't diverted remains in the Santa Ana River channel and unites with Mill Creek. The proximity of Mill Creek to the mountains, along with the slope and topography of the Mill Creek wash leads to flashy, debris flows in Mill Creek. This flow continues downstream and eventually crosses the WSPA Crossing. If we have a boulder crossing at the WSPA Crossing, we can expect debris to accumulate and damage the boulder crossing. Maintenance would be required to maintain this crossing.





## Proposed Trail Locations

The trails network that is proposed in this plan consists of ten trails. The following list provides general characteristics of each trail:

Number	Trail Name	Class Designation	Distance (mi)	User Types
1	Alabama Street	2	1.5	Bicyclist
2	Borrow Pit South Rim	1/1-B & 4	1.5	Pedestrians Mountain Bikers
3	Boulder Avenue / Orange Street	2	2	Bicyclist
4	Cone Camp Road	1/1-B	2	Pedestrian Mountain Bikers
5	Greenspot Road	2	6.3	Bicyclist
6 & 7	Old Greenspot Road (& Horse Trails)	1/1-B & 4	0.8	Equestrian Pedestrian Bicyclist
8	Old Rail Line	4	1	Pedestrian Mountain Biker
9	Pole Line	4	2.5	Pedestrian Mountain Biker
10	Santa Ana River	1	7	Pedestrian Bicyclists Inline Skaters
11	Weaver	4	0.3	Pedestrian Mountain Biker



The trail system would create connections between the cities of Redlands and Highland. The following page displays a map of the proposed trail locations and how it connects the cities of Redlands and Highland.

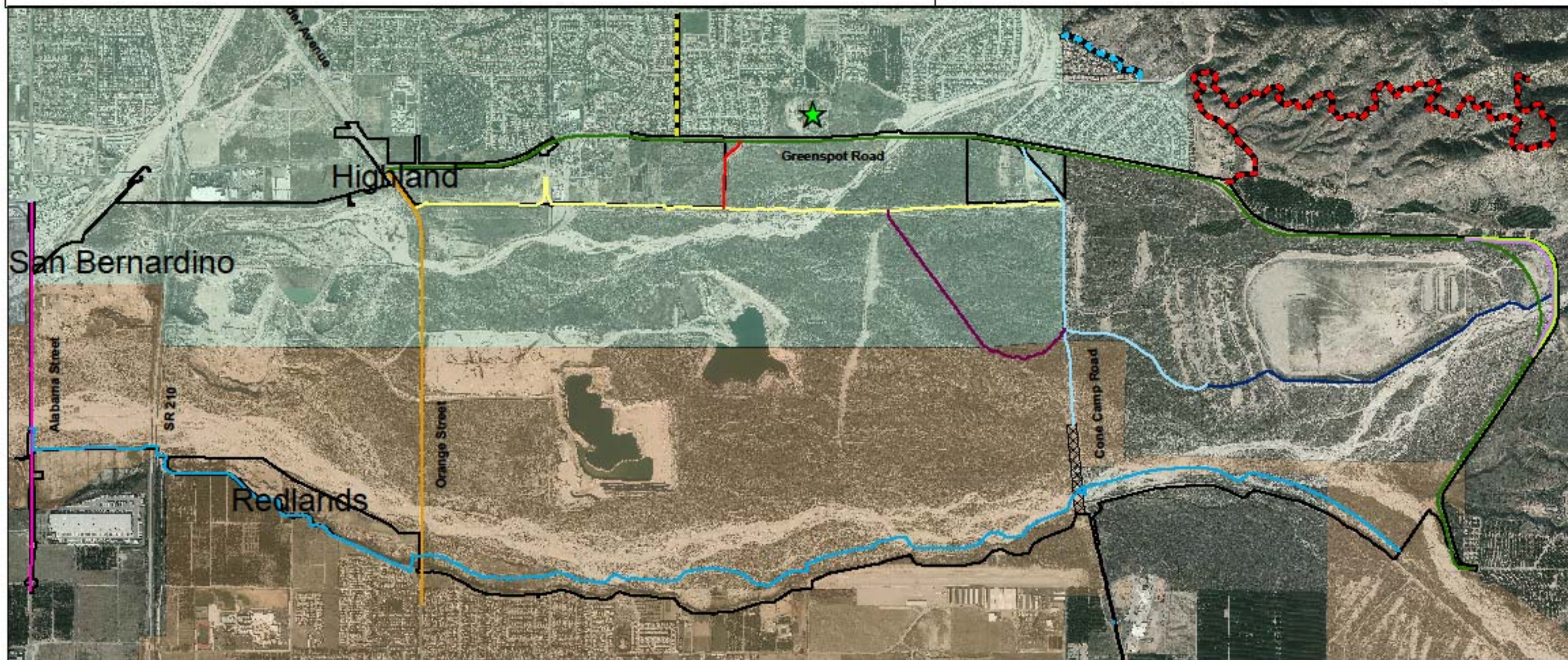


# PROPOSED TRAILS NETWORK



Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBWCD GIS  
GIS Contact: Erin Berger

November, 14 2014



## Trails

- |   |                                      |    |                                |
|---|--------------------------------------|----|--------------------------------|
| 1 | Alabama Street Trail                 | 6  | Old Greenspot Road Horse Trail |
| 2 | Borrow Pit South Rim Trail           | 7  | Old Greenspot Road Trail       |
| 3 | Boulder Avenue / Orange Street Trail | 8  | Old Rail Line Trail            |
| 4 | Cone Camp Road Trail                 | 9  | Pole Line Trail                |
| 5 | Greenspot Road Trail                 | 10 | Santa Ana River Trail          |
|   |                                      | 11 | Weaver Street Trail            |

## Local Trails and Connections

- Alder Creek Road
- East Valley Corridor
- Northfork Trail
- Shelton Trail

- Aurantia Park
- WSPA Trail Connection
- Wash Plan Boundary



## Description of Proposed Trail Locations

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3	Boulder Avenue / Orange Street	2	2	Bicyclist
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5	Greenspot Road	2	4.5	Bicyclist
6 & 7	Old Greenspot Road (& Horse Trails)	1/1-B & 4	0.8	Equestrian Pedestrian Bicyclist
8	Old Rail Line	4	1	Pedestrian Mountain Biker
9	Pole Line	4	2.5	Pedestrian Mountain Biker
10	Santa Ana River	1	7	Pedestrian Bicyclists Inline Skaters
11	Weaver	4	0.3	Pedestrian Mountain Biker



The following pages explain each trail in more detail:

### **1) Alabama Street Trail**

**Class 2**

**Users: Bicyclists**

The Alabama Street Trail would run north-south along the westerly edge of the project boundary. This trail is shown a Class 2 bikeway located on the paved road section of Alabama Street right-of-way. This trail is currently shown on the City of Highland General Plan Update Multi-Use Trails Map where its City Creek Trail connects to Alabama Street; therefore, the City of Redlands General Plan would need to be amended to include this trail.

This trail would be a major connection between Highland and Redlands, and can be used for transportation to/from the Citrus Plaza in Redlands.



**2) Borrow Pit South Rim Trail****Class 1/1-B & 4****Users: Pedestrians. Mountain Bikers**

The Borrow Pit South Rim Trail would begin at the existing Greenspot road (Old Greenspot Road Trail) on the east, and proceed westerly under the proposed new Greenspot Road Bridge (when constructed), along the existing paved maintenance road on the southern rim of the borrow pit, and connect to the Cone Camp Road Trail at the old Cone Camp campground, signs will be erected along the inner edge of this trail to prevent entry on to the pit side slopes, and any potential interference with water spreading activities.

This trail is classified as both Class 3 and Class 4 due to the fact that there is a portion of it that is paved (Class 3) and the rest is unpaved (Class 4).

This trail is sometimes used by vehicles to transport in and out of the Borrow Pit, therefore adequate safety measures will be implemented.





**3) Boulder Avenue / Orange Street Trail**

**Class 2**

**Users: Bicyclists**

Passing through the Cities of Highland and Redlands, the Orange Street-Boulder Avenue Trail runs north-south along Boulder Avenue to Orange Street in the City of Highland and Orange Street in the City of Redlands. It would be a Class 2 bikeway located on both sides of the paved road section of Orange Street-Boulder Avenue rights-of-way. This trail is currently shown on the City of Highland General Plan Update Multi-Use Trails Map; but the City of Redlands 1995 General Plan currently shows a “north-south” trail, following the unconstructed Church Street alignment located to the east of Orange Street. The Church Street trail would no longer be feasible with the implementation of the Wash Plan, because any future construction of Church Street would be set aside for mining activities. The City of Redlands General Plan would need to be amended to remove the existing alignment for the Church Street trail to realign with the Orange Street-Boulder Avenue Corridor to link with the Orange Street boulder Avenue Trail proposed by the City of Highland. The Circulation Element of the City of Redlands General Plan currently identifies a Class 3 bikeway occurring along Orange Street within the City. The City of Redlands General Plan would need to be amended to reclassify the Class 3 bikeway occurring along Orange Street to a Class 2 bikeway/trail to be consistent with the proposed trails plan.



**4) Cone Camp Road Trail****Class 1/1-B****Users: Pedestrians, Mountain Bikers**

The Cone Camp Trail would use the existing Cone Camp Road beginning at Greenspot Road on the north and proceeding southerly. The trail proceeds to an existing boulder and pylon barrier turn-around point, to prohibit traversing the Santa Ana River Woolly Star Preservation Area. Additionally, the trail turns easterly towards the old Cone Camp Site, where it becomes the Borrow Pit South Rim Trail. A new trail bed is not proposed; rather, this multi-use unpaved trail would utilize the existing disturbed area Cone Camp Road, to preserve the unique habitat in the Planning Area. This trail is currently shown on the City of Highland General Plan Update Multi-Use Trails Map where the Cone Camp Road currently exists. The city of Redlands General Plan depicts a trail in the vicinity of the proposed Cone Camp Road Trail; the Santa Ana – Mentone Trail. Because the proposed Cone Camp Road Trail would terminate at an existing boulder and pylon barrier turn-around point and not connect with the existing Santa Ana – Mentone, the City of Redlands General Plan requires an amendment to remove the Santa Ana – Mentone Trail. Additionally, the City of Redlands General Plan does not depict a trail on Cone Camp Road; therefore, the City of Redlands General Plan would need to be amended to include Cone Camp Road Trail.



## 5) Greenspot Road Trail

Class 2

Users: Bicyclists

The Greenspot Trail would run east-west along the north side of the Planning Area predominantly in the City of Highland; however, it would enter the City of Redlands at the southeast corner of the Planning Area eventually intersecting the Santa Ana River Trail. This trail is shown as a Class 2 bikeway located on the paved road section of the Greenspot Road right-of-way inclusive of the new “S” curve realignment and new bridge over the Santa Ana River westerly of the existing Greenspot Iron Trestle Bridge. The Greenspot Road Trail would be located along both sides of the paved street section to accommodate bicycle traffic in both directions.

This trail will provide a major transportation opportunity for bicyclists, since it covers 4.5 miles across Highland in the east-west direction.





## 6 & 7) Old Greenspot Road Trail

Class 1/1-B & 4

Users: Pedestrians, Bicyclists, Equestrian

The Old Greenspot Road Trail runs along the existing alignment of Greenspot Road where it travels across the Greenspot Iron Trestle Bridge, about one mile downstream from the base of the Seven Oaks Dam. When the new Greenspot Road Bridge is completed just westerly of the Iron Trestle Bridge, the existing roadway would be converted into a Class 1 Dedicated Bikeway with connection to newly realigned Greenspot Road. This new trail alignment could also be used for occasional maintenance vehicles for the Seven Oaks Dam and the District.

The Old Greenspot Road Horse Trail will run adjacent to the Old Greenspot Road Trail. A few modifications will be required to accommodate the existing road for equestrian use. Some paving will need to be removed, which will make the trail have sections that are paved and some that are not, giving it the Class 3 and Class 4 classification.



## 8) Old Rail Line Trail

Class 4

Users: Pedestrians, Mountain Bikers

The Old Rail Line Trail would extend along the abandoned railroad bed from the northerly alignment of the Pole Line Road Trail, southerly to an existing maintenance road, the easterly to Cons Camp Road. The abandoned rail line is a straight-line path surfaced with crushed lava (remnant of the old railway that served the local citrus industry). A new trail bed is not proposed. This multi-use unpaved trail would utilize the vacated railroad bed, preserving the natural habitat in the Planning Area. The trail bed is slightly raised above the elevation of surrounding habitat, which is bordered by fairly rough terrain dominated by boulders and perennial shrubs. Consequently off-road/off-trail use would be discouraged from entering the natural habitat/habitat conservation areas because of these obstacles. This trail is currently shown on the City of Highland General Plan Update Multi-Use Trails Map where the abandoned rail line currently exists, The City of Redlands General Plan does not depict a trail connecting the old rail line with Cone Camp Road; therefore, the City of Redlands General Plan would need to be amended to include the Old Rail Line Trail.

Where the Old Rail Line Trail converges with the maintenance road to Cone Camp Road, the trail would be blocked to deter public use beyond this point for the following reasons:

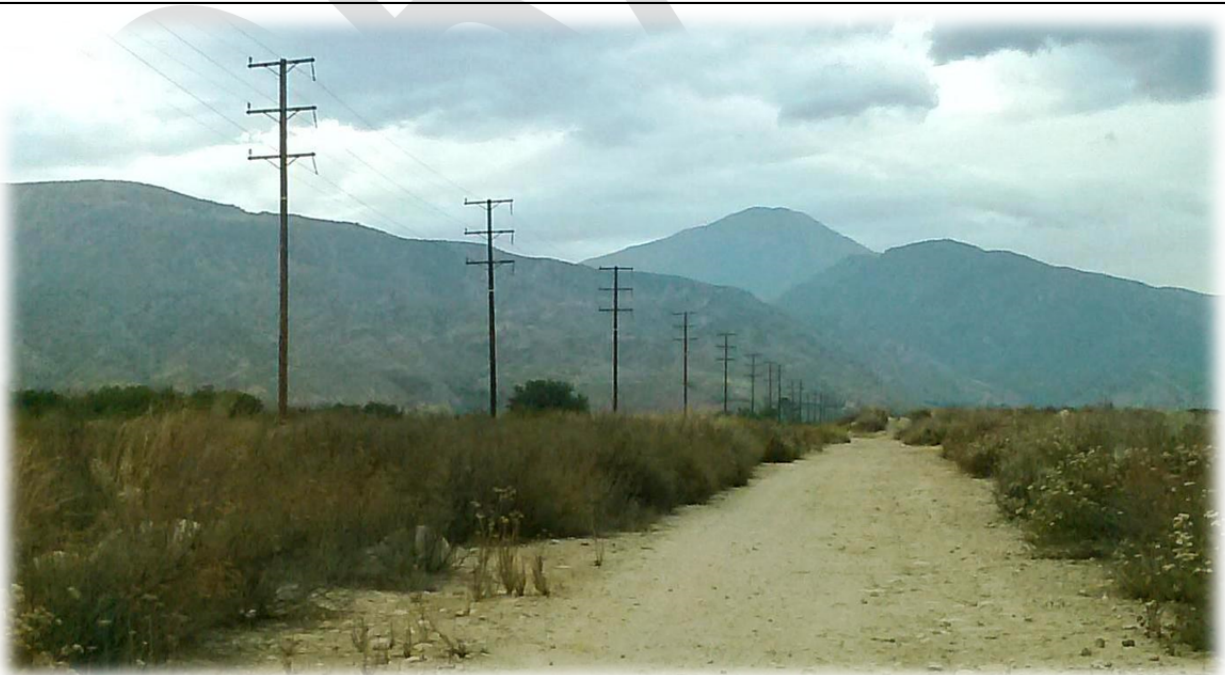
- The Old Railroad bed grade becomes significantly raised in elevation south of this point;
- Federally listed species occur in greater abundance in this area; and
- The BLM ACEC and RNA are located in this area.



**9) Pole Line Road Trail****Class 4****Users: Pedestrians, Mountain Bikers**

The Pole Line Road Trail extends along the northerly portion of the project area between the Orange Street-Boulder Avenue Trail and the proposed Cone Camp Road Trail. This trail is currently shown on the City of Highland General Plan Update Multi-Use Trails Map as an unpaved maintenance road for electrical utility and water conservation use. Construction of the portion of this trail from Orange Street to Church Street in the City of Highland is anticipated to occur as part of residential development entitlements and could be built on or contiguous to the existing Metropolitan Easement. The trail section east of Church Street in the City of Highland would be constructed in the existing Abby Way right-of-way outside of the project area boundaries. Abby Way currently terminates near an EVWD Well Site (APN 1210-211-24). The Pole Line Maintenance road enters and traverses the Planning Area at this location.

The Pole Line Road trail would stay within its existing alignment, so as to preserve nearby natural habitat in the Planning Area. In areas where the Pole Line Trail would pass adjacent or near to areas of sensitive habitat, it may be necessary to install physical barriers to prevent trail user incursions into the habitat. The types of barriers to be used would mimic current features found in the Planning Area whenever possible, utilizing large boulders or other naturally occurring materials from the surrounding area. When more prohibitive barriers would be required, step through facilities and fencing may be used.





## 10) Santa Ana River Trail

Class 1

Users: Pedestrians, Bicyclists, Inline Skaters

The Santa Ana River Trail is a class 1 Bicycle path that runs from the Pacific Ocean at Huntington Beach along the Santa Ana River to S Waterman Avenue in San Bernardino. The trail is expected to be expanded to Alabama Street by 2015 and to Mentone by 2016. The trail is striped for bicyclists to ride almost 2 abreast going either East to West or West to East for the entire route. It is a joint effort by multiple counties and agencies.

This trail is a major trail connection between many the cities that intersect with the Santa Ana River. This trail would connect Redlands and Highlands to the rest of those cities.



**11) Weaver Trail****Class 4****Users: Pedestrians, Mountain Bikers**

The Weaver trail extends into the Wash Plan Area from the Weaver Street and Greenspot Road traffic Intersection. The trail runs adjacent to a water channel. It is unpaved and connects Greenspot Road to the Pole Line trail. Due to its location, it is an entry point to the trails system from the Highlands area. People can bike/hike from the staging location (Aurantia Park) and use the traffic light at Weaver Street to get across Greenspot Road safely.



## Considered Trail Location

### Plunge Creek Trail

Class 4

Users: Pedestrians, Mountain Bikers

Plunge Creek Trail was to become a designated trail at the beginning of this project. It was surveyed and planned-for like the other trails in this project. However, at a point during the planning process, it was decided that Plunge Creek Trail would be dropped because is impractical to make this trail.

There is no trail currently in place. To implement a trail path, large machinery would be required. This means that it would be a very costly project, and would have a large impact on the surrounding delicate environment. The Woolly star Protection Area (WSPA) is adjacent to each side of Plunge Creek, which makes this a more difficult project. Also, Plunge Creek floods with frequency, and washes out the surrounding area, meaning the trail would be washed out at every large rain event.





## Proposed Rules for Public Use of Trails in the Plan Area



It is essential that we have rules for the use of the trails. These rules will provide the boundaries that allow users to make decisions for the benefit of the local environment and the sustainability of the trails systems. We also need these rules to keep our trails safe for everyone.

1. All Class 4 multi-use unpaved trails would be for passive recreational uses, limited to:
  - a. Bird watching;
  - b. Hiking and mountain bike use on designated trails;
  - c. Photography; and
  - d. Scientific Research.
2. Equestrian and off-highway (inclusive of motorized bikes) use is prohibited within the interior of the Planning Area (excluding normal maintenance vehicle). Equestrian uses frequently bring non-native seeds and other plant materials into sensitive habitat areas, compromising the non-native vegetation control plan. Consultations with representatives of the USFWS indicate that the acreage compromises reached in the Task Force deliberations on mining and habitat balances would be threatened if regular equestrian uses were permitted on such interior trails and habitat preservation areas. Consequently, in working with development of a trails plan, the Cities of Redlands and Highland agreed that equestrian uses would be prohibited.
3. Trail Markings, maintenance, directional signage, and barriers shall be designed and implemented such that adverse effects of passive recreation, such as trampling vegetation and erosion would be minimized.
4. Motorized vehicular access by the public would be strongly prohibited. Vehicular use shall be restricted to use as necessary by public safety or emergency personnel, or for repair and maintenance activities.
5. As appropriate, daily and seasonal limits on trails use would be established. When necessary, trails would be closed on a temporary basis to minimize disruption of nesting and other wildlife functions for species that would be covered by the subsequent Santa Ana River Wash HCP, WSPA as modified by the proposed project, or ACEC and RNA as modified by the subsequent BLM land exchange, or if public access has resulted in, or is expected to result in, significant negative impacts to sensitive species. Passive recreational uses would be limited or restricted in critical wildlife areas during breeding season, as determined appropriate. The trails system would also need to be closed at sunset and not reopened until sunrise the following day.
6. Education and outreach would be used to increase public awareness and appreciation for habitat and wildlife values. Informational signage would be placed at strategic locations throughout the trails of the Planning Area to explain the nature and sensitivity of the protected habitat. Public access information packets and guides would be developed for users of trails in the Planning Area. These packets would be made available on all participating agency websites
7. Feeding of all wildlife would be prohibited.
8. The following litter control measures would be implemented along the trails:
  - a. Closed garbage cans and recycling bins would be provided at trailheads and access points.
  - b. Litter and trash would be collected and removed on a regular basis, either as a matter of funding for the administration of the trails or through implementation of an “adopt a trail” program. Garbage cans and recycling bins would be maintained appropriately
  - c. Penalties would be imposed for littering and dumping on Planning Area Trails
9. Pets would be required to be leashed at all times.



## Design Guidelines

### Ancillary Trail Facilities and Amenities

The following facilities and amenities would need to be implemented throughout the network to allow users to better enjoy their trails experience.

		Description	Recommendations
Benches	 <p><a href="http://images3.alphacoders.com/267/267159.jpg">http://images3.alphacoders.com/267/267159.jpg</a></p>	A wide variety of benches exist for use along trails. Style and material selection should be based on desired design and cost, or standard set by the city.	In general, benches should have back rests and arm rests on both sides (with optional arm rests in the middle). Benches should generally be 16" to 20" above the ground, 18" to 20" in depth, and 60" to 90" in width. Benches should be placed along trail routes and near trail entrances.
Waste Receptacles	 <p><a href="http://pqliving.com/wp-content/uploads/2008/03/new-can.jpg">http://pqliving.com/wp-content/uploads/2008/03/new-can.jpg</a></p>	Waste receptacles for trash and recyclables help reduce litter.	In general, trail entrances and activity areas should have waste receptacles. The location of receptacles should be easily accessible by service vehicles.

The "Ancillary Trail Facilities and Amenities" section of this Trails Plan was created using guidelines that are presented in the "TRAILS & BICYCLE MASTER PLAN FOR THE WATSONVILLE SCENIC TRAILS NETWORK" [http://cityofwatsonville.org/download/Public%20Works/Final%20Watsonville%20Trails%20and%20Greenways%20Master%20Plan\\_v6.0.pdf](http://cityofwatsonville.org/download/Public%20Works/Final%20Watsonville%20Trails%20and%20Greenways%20Master%20Plan_v6.0.pdf)

		Description	Recommendations
Bicycle Racks	 <p><a href="http://bostonbiker.org/files/2008/03/bike-rack-480.jpg">http://bostonbiker.org/files/2008/03/bike-rack-480.jpg</a></p>	Bicycle racks should be located in trail-associated parking facilities and at selected trail heads that are located at parks or other significant recreation facilities.	Bicycle racks should be placed near activity areas. They should be constructed using durable materials and resistant to vandalism.
Pet Waste Bags	 <p><a href="http://4.bp.blogspot.com/_OL4722CgKg/Tt1kWU0Ukfi/AAAAAAAAA0s/UZ9gHv-zY2E/s1600/New+Dog+Bag+Dispenser+Ad+sign+2011.jpg">http://4.bp.blogspot.com/_OL4722CgKg/Tt1kWU0Ukfi/AAAAAAAAA0s/UZ9gHv-zY2E/s1600/New+Dog+Bag+Dispenser+Ad+sign+2011.jpg</a></p>	Pet waste bags to facilitate users in cleaning up after their pets.	In general, trail entrances and activity areas should have pet waste bag dispensers. The location of dispensers should be easily accessible by service vehicles.



	Description	Recommendations
<b>Restroom</b>  <p><a href="http://www.freeguidetonwcamping.com/Oregon_Washington_Main/Camping_Photos/Griffin%20Park%20Camping/Griffin_Park_Restrooms.jpg">http://www.freeguidetonwcamping.com/Oregon_Washington_Main/Camping_Photos/Griffin%20Park%20Camping/Griffin_Park_Restrooms.jpg</a></p>	Restrooms should be provided in high-use areas such as at trail heads located adjacent to a parking lot.	Restrooms should be constructed of durable materials such as steel and/or wood. Pre-fabricated facilities should be considered to help minimize design and construction costs. Drinking fountains and trash receptacles should be included.
<b>Trail Head Area (Including Trail Heads)</b>  <p><a href="http://timberhomesllc.com/wp-content/uploads/2013/12/trailhead-kiosks.jpg">http://timberhomesllc.com/wp-content/uploads/2013/12/trailhead-kiosks.jpg</a></p>	Trail heads will help users understand the network of trails by displaying maps and other relevant information on an informational kiosk.	Trail heads should be located at major entry points in the trails system.
<b>Drinking Fountain</b>  <p><a href="http://www.pekinparkfoundation.org/images/WaterFountain2.jpg">http://www.pekinparkfoundation.org/images/WaterFountain2.jpg</a></p>	Drinking fountains are essential because it will provide users with opportunity to hydrate.	Place them at the Aurantia Park, which will be a major staging area.



# ANCILLARY TRAIL FACILITIES AND AMENITIES



Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBWCD GIS  
GIS Contact: Erin Berger

November 14, 2014



## Ancillary Trail Facilities and Amenities

- |                   |                   |
|-------------------|-------------------|
| Bench             | Pet Waste Baggies |
| Bike Rack         | Rest Area         |
| Crosswalk         | Restroom          |
| Drinking Fountain | Waste Receptacle  |
| Parking           |                   |

## Trails

- Alabama Street Trail
- Borrow Pit South Rim Trail
- Boulder Avenue / Orange Street Trail
- Cone Camp Road Trail
- Greenspot Road Trail

- Old Greenspot Road Horse Trail
- Old Greenspot Road Trail
- Old Rail Line Trail
- Pole Line Trail
- Santa Ana River Trail
- Weaver Street Trail

- Wash Plan Boundary
- WSPA Trail Connection



## WSPA Crossing

The Cone Camp Trail has a small section that crosses the WSPA Area on the southern end of the trail. Within that WSPA Area, the trail crosses the Santa Ana River. Although the Santa Ana River is dry during most of the year, during a few seasons there is flow in this section of the river. During the times when there is flow, there will need to be structure in place that would allow users to go across the river without getting wet. That structure has to have minimal impact on the local, sensitive environment. A boulder crossing would be adequate in this location.

Hikers would cross at their own risk, and signs need to be implemented to transfer the liability. We will put in hazard sign on each side that warns users to cross at their own risk. There are plenty of boulders within the Wash Plan Area that could be relocated to this location to create this boulder crossing.

To place this structure in the WSPA area, further permits would be required, because the WSPA Area is a protected habitat for the endangered Santa Ana Woolly Star.

This structure will also have grade stabilization effects. However, the height and general dimensions of the structure will be optimized to minimize the effects on the natural development of the local environment. The length of the barrier will be about 35-45 ft. in length, and about 10 feet in width.



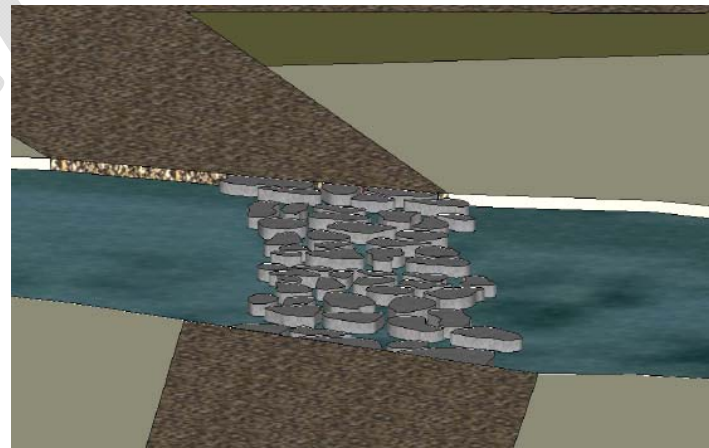
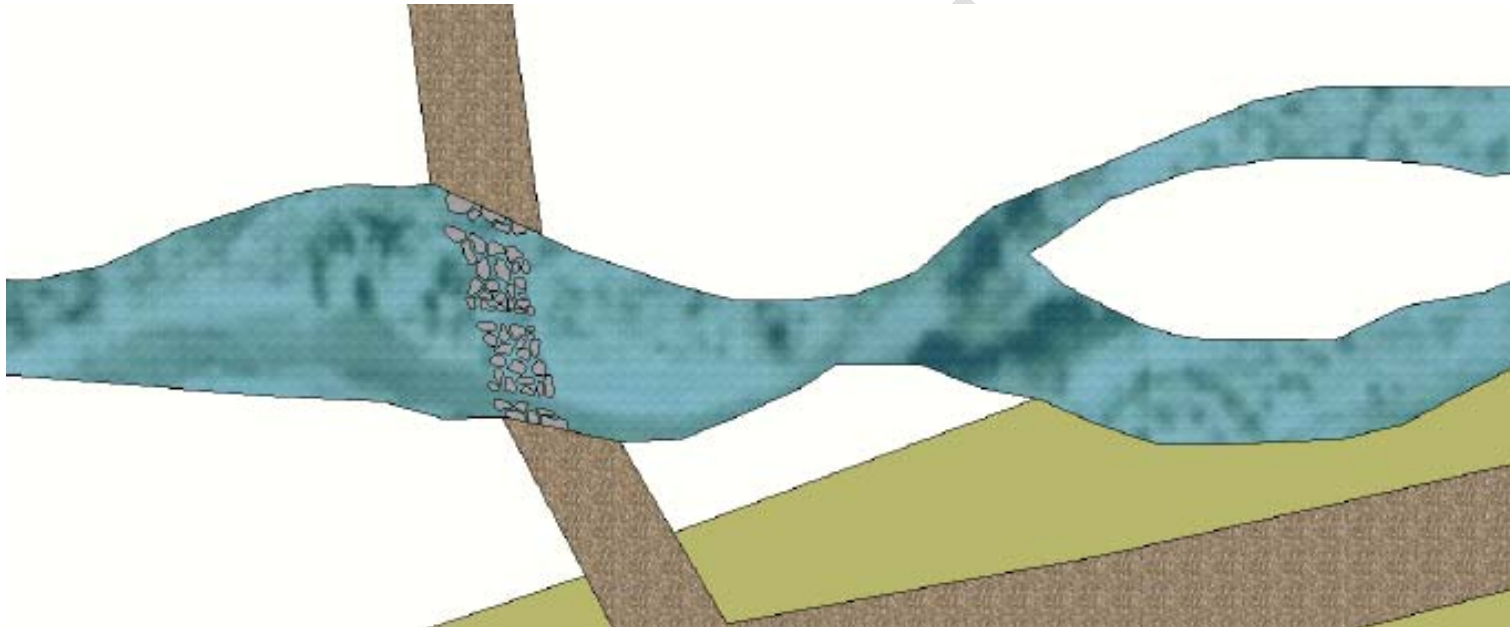
*Cone Camp Trail & Santa Ana River Crossing*



*Examples of Boulder Crossings*



The following figures conceptual examples of a boulder crossing at the WSPA Crossing:



## Hazards

Every hazard has its own safety measure, and every ailment a particular remedy.

The common practice of traveling in a group improves safety in all regards. If one person is injured, group members can administer first aid or seek help. A group can avoid poor decisions that a lone traveler might make. If an emergency occurs, a group can pool its muscle and brain power

Another precaution is informing people outside of the group of the itinerary and expected return time.




A communication device, such as a cell phone or a satellite phone, may help in the case of an emergency.




The hazards that are present in this trail network are the following:




- Fire
- Hazardous Terrain
- Inclement Weather
- Pre-existing Medical Conditions
- Metabolic Imbalances
- Rattlesnakes
- Mountain Lions
- Coyotes
- Bees
- Mosquitoes

		Description	Recommendations	Sources
Fire	 <p><a href="http://www.quoteaustininsurance.com/images/Grass%20Fire.jpg">http://www.quoteaustininsurance.com/images/Grass%20Fire.jpg</a></p>	<p>Wildfires can create widespread threats to public health and the environment. Air quality can be affected by smoke, ash, toxins, and dust. Soil and water quality can be affected by uncontrolled hazardous materials and debris.</p> <p>It is critical that response and recovery efforts quickly address any potential hazards. This will reduce impacts to surrounding communities.</p>	<p>The following recommendations can be made to the public with a sign:</p> <ul style="list-style-type: none"> <li>•Leave the area. Don't wait around to see how things develop.</li> <li>•Maintain situational awareness. Be aware of what's going on around you at all times.</li> </ul> <p>Plan ahead. Identify escape routes/safe zones where you could take shelter if a fire came roaring through the area.</p> <ul style="list-style-type: none"> <li>• Breathe inside your clothing next to your body to protect your respiratory tract so you don't inhale hot gasses.</li> </ul>	<p>Fire Response and Recovery (CalEPA Information)</p> <p><a href="http://www.calepa.ca.gov/disaster/fire/">http://www.calepa.ca.gov/disaster/fire/</a></p>
Hazardous Terrain		<p>In some trails, there are sections with piled-up rocks. This creates the hazards for hikers that chose to climb them and walk on them. Gusts of wind may physically knock a hiker off an edge. Similar hazards exist with our water diversion structures. Also, roads used by industry within the borrow pit can be a hazard because of the large truck that travel on them.</p>	<p>Implementation of a sign warning the public about this hazard, such as this one:</p>  <p><a href="http://www.perfectduluthday.com/wp-content/uploads/2010/05/Handicapped-Stay-off-the-Rocks-350x262.jpg">http://www.perfectduluthday.com/wp-content/uploads/2010/05/Handicapped-Stay-off-the-Rocks-350x262.jpg</a></p>	





		Description	Recommendations	Sources
Inclement Weather		Storms, fog, flash floods and other weather related events may or may not be predictable, and may require an immediate response for survival. Some restrict visibility, as does nightfall, which may prevent further travel.	<p>Warning signs about flash floods, specially at two places:</p> <ul style="list-style-type: none"> <li>the intersection of Pole Line Trail and Plunge Creek</li> <li>the intersection of Pole Line Trail and Weaver Trail</li> </ul> 	
Pre-existing Medical Conditions	 <a href="http://www.z-id.com/wp-content/uploads/2013/11/inhaler-2-1024x862.png">http://www.z-id.com/wp-content/uploads/2013/11/inhaler-2-1024x862.png</a>	Some medical pre-existing conditions may be triggered or worsened by outdoor activity, particularly when it is sudden or strenuous. Examples include heart disease, asthma, diabetes, anemia, and allergies. Vertigo and neurological illnesses may have serious consequences on dangerous terrain.	Orientation signs and maps to help first responders locate hikers in need of medical assistance.	<p>Camping and Outdoor Equipment (: Hazards of outdoor activities)</p> <p><a href="http://campingandoutdoorequipments.blogspot.com/2011/03/hazards-of-outdoor-activities.html">http://campingandoutdoorequipments.blogspot.com/2011/03/hazards-of-outdoor-activities.html</a></p>

		Description	Recommendations	Sources
Metabolic Imbalances	 <p><a href="http://www.ironsimba.co.uk/wp-content/uploads/2012/12/drink-water.jpg">http://www.ironsimba.co.uk/wp-content/uploads/2012/12/drink-water.jpg</a></p>	<p>Dehydration can rapidly incapacitate an adventurer, especially in warm weather. In conditions of low humidity, sweat evaporates so quickly that a person may not notice the water loss.</p> <p>Heat exhaustion, possibly developing into heatstroke, can occur in hot weather, particularly if one is dehydrated or dressed too warmly.</p>	<ul style="list-style-type: none"> <li>• Carrying and drinking an adequate amount of water helps avoid dehydration. Infiltration basin water is unfit to drink.</li> <li>• Eating salty snacks together with drinking water helps to avoid sodium deficiency.</li> <li>• The risk of heatstroke can be minimized by avoiding direct sun if the temperature is too high, and staying wet when possible. This is a life-threatening condition: a victim must be cooled off and transported to a hospital immediately.</li> </ul>	<p>Hazards of outdoor activities (Wikipedia)</p> <p><a href="http://en.wikipedia.org/wiki/Hazards_of_outdoor_activities">http://en.wikipedia.org/wiki/Hazards_of_outdoor_activities</a></p>
Wildlife Hazards				
Rattlesnakes		<p>Rattlesnakes are native to this area and are more active in warm weather. Be careful stepping over logs, and be cautious of putting hands or feet under logs or rocks.</p>	<p>Hikers need to be warned about the presence of rattlesnakes in the trail areas with signs, such as the following:</p>  <p><a href="http://upload.wikimedia.org/wikipedia/commons/b/be/Caution_rattlesnakes_(sign).jpg">http://upload.wikimedia.org/wikipedia/commons/b/be/Caution_rattlesnakes_(sign).jpg</a></p>	

		Description	Recommendations	Sources
Mountain Lions	 <p><a href="http://imgs.sfgate.com/blogs/images/sfgate/inmarin/2010/09/20/MountainLion3480x360.jpg">http://imgs.sfgate.com/blogs/images/sfgate/inmarin/2010/09/20/MountainLion3480x360.jpg</a></p>	<p>About half of California is prime mountain lion country. This fact is a surprise to many residents and visitors. These large, powerful predators have always lived here, preying on deer and other wildlife, and playing an important role in the ecosystem.</p> <p>Like any wildlife, mountain lions can be dangerous. With a better understanding of mountain lions and their habitat, we can coexist with these magnificent animals.</p>	<p>A public warning sign with basic instructions on what to do when encountering a mountain lion such as the following sign:</p>  <p><a href="http://hilobrow.com/wp-content/uploads/2010/12/Mountain-Lion-Warning-Sign.jpeg">http://hilobrow.com/wp-content/uploads/2010/12/Mountain-Lion-Warning-Sign.jpeg</a></p>	<p>Nature &amp; Science (Mendocino National Forest -)</p> <p><a href="http://www.fs.usda.gov/detailfull/mendocino/learning/nature-science/?cid=FSBDEV3_004447&amp;width=full">http://www.fs.usda.gov/detailfull/mendocino/learning/nature-science/?cid=FSBDEV3_004447&amp;width=full</a></p>
Coyotes	 <p><a href="http://activerain.trulia.com/image_store/uploads/agents/beaniehunter/files/IMG_7967.JPG">http://activerain.trulia.com/image_store/uploads/agents/beaniehunter/files/IMG_7967.JPG</a></p>	<p>Coyotes are found in nearly every type of habitat in California from deserts to mountains, and from wild lands to urban areas. While they typically forage for birds, mice, insects, fruits, and rabbits, they have been known to pick through garbage cans and attack pets.</p>	<p>Provide the following recommendations to the public:</p> <ul style="list-style-type: none"> <li>•Keep your distance and do not approach the animal.</li> <li>•Keep your pets on leash.</li> <li>•If a coyote approaches you or your pet, throw rocks or sticks to frighten it.</li> <li>•Use a loud authoritative voice to frighten the animal.</li> </ul>	<p>Coyotes (Openspace.org)</p> <p><a href="http://www.openspace.org/preserves/highlight_coyotes.asp">http://www.openspace.org/preserves/highlight_coyotes.asp</a></p>



		Description	Recommendations	Sources
Bees		Within the Wash Plan Area, there are artificial beehives. Bee stings are at least painful and can be deadly, depending on if the victim is allergic to the bee venom.	Warning Signs about beehives:  <a href="http://channel.nationalgeographic.com/exposure/content/photo/photo/2076633_photo-162_7hqdmj4am3d2cszsyeykq4xpncurxbvj6lwhuht2ya6mzmama_990x742.jpg">http://channel.nationalgeographic.com/exposure/content/photo/photo/2076633_photo-162_7hqdmj4am3d2cszsyeykq4xpncurxbvj6lwhuht2ya6mzmama_990x742.jpg</a>	
Mosquitoes	 <a href="http://www.mosquitotrap.com/wp-content/uploads/2010/01/disease-warning1.jpg">http://www.mosquitotrap.com/wp-content/uploads/2010/01/disease-warning1.jpg</a>	The mosquitoes are much less of a problem in Southern California than in most of the rest of the country. Due to the infiltration basins however, we can attract mosquitoes and therefore it is important to notify hikers about the hazards of mosquitoes.	Warning signs by infiltration basins.	

## Way finding and Signage

The challenge of a comprehensive trails signage system is to represent a wide variety of information clearly and attractively.

Further, it is important to respect the natural environment by avoiding sign clutter and unnecessary messages. A wayfinding system should be apparent when you need it and transparent when you don't.

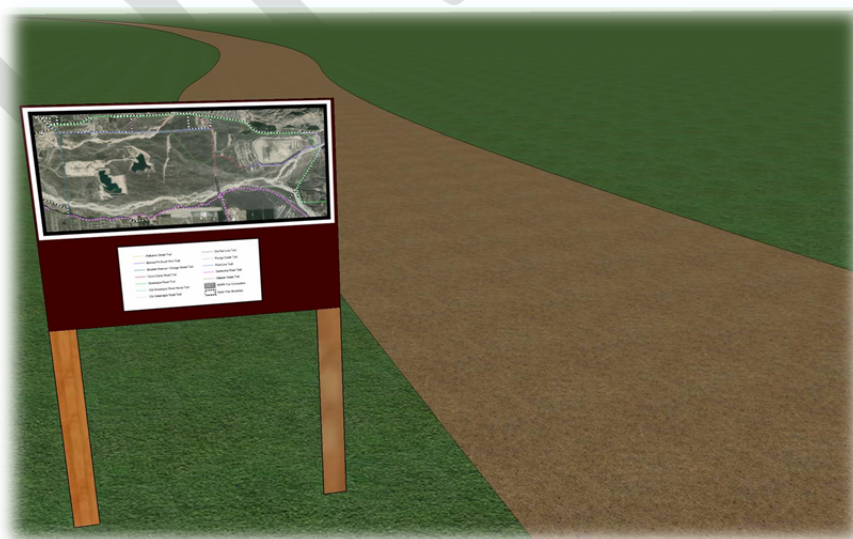
The system must be designed to work year-round to support all year public access. Signage elements must be designed to remain effective through winter conditions and significant rain.

### Information Brackets

The wayfinding system needs to convey eight brackets of information:

- Bracket 1: Identification
- Bracket 2: Orientation
- Bracket 3: Regulations
- Bracket 4: Safety
- Bracket 5: Brand Identity
- Bracket 6: Interpretive
- Bracket 7: Water Recharge/Conservation
- Bracket 8 :Habitat

Each wayfinding element will serve a specific function, but they should all be visually integrated to present a seamless system to users.



*Category 2 Sign: Map*

### Bracket 1: Identification

- Portal and trailhead entrances
- Parks that include trail access
- Neighborhood and resort exits/entrances
- Indication of transitions between Town and/or private, state or federal land ownership
- Underpasses and cross streets
- Seasonal trail types
- Landmarks, historical sites or other points of interest along the trail



### Bracket 2: Orientation

- “You are Here” maps placed at trailheads and major entrances to the trail
- Maps placed along the path to help users gauge their progress along the trails
- Signs pointing to major destinations
- “Distance to...” and length of trail information
- Mile and/or Kilometer markers
- Cardinal directions and GPS coordinates





### Bracket 3: Regulations

- Stated rules and regulations
- Trail Access Information label
- Signage on trails warning users of upcoming roadway crossings
- Vehicular guides on surrounding roadways directing to parking areas (handled through the Town and Caltrans)
- All regulatory signs shall conform to the Manual on Uniform Traffic Control Devices (MUTCD).



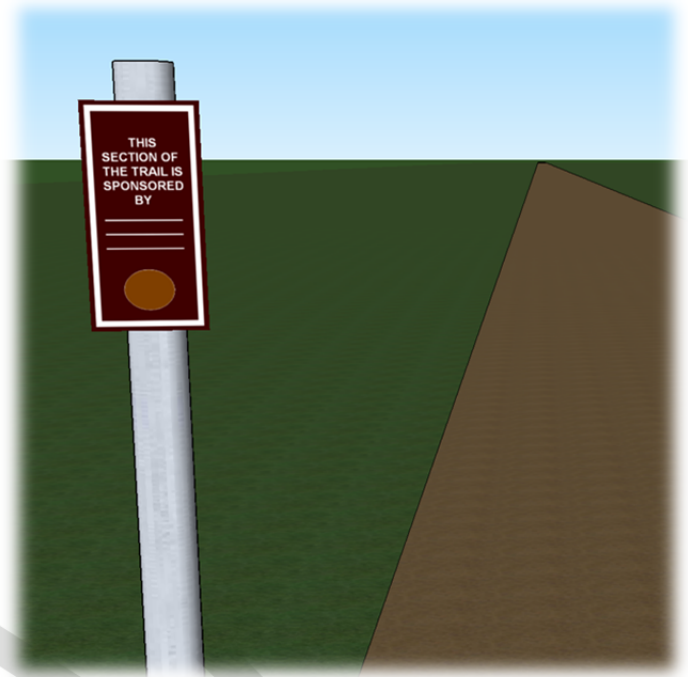
### Bracket 4: Safety

- Roadway signage to inform drivers of an upcoming trail crossing (handled through the Town and Caltrans)
- Signage to inform users when the trail ends, possibly also indicating distance



### Bracket 5: Brand Identity

- Unifying identity element or elements serve as the “brand”
- Consistent aesthetic standard communicates brand
- Private or organizational sponsorship information where needed



### Bracket 6: Interpretive

- Provide visitors with historic, scenic or interesting information along the trail
- Design should coordinate visually with the wayfinding signage



### Bracket 7: Water Recharge & Conservation

- Inform visitors about the importance of maintaining water clean
- Explain the local water conservation process
- Establish the connection between pond water and the water they use



### Bracket 8: Habitat Conservation

- Explain the importance of habitat conservation
- Describe the local endangered species and their habitat
- Denote the location of WSPA



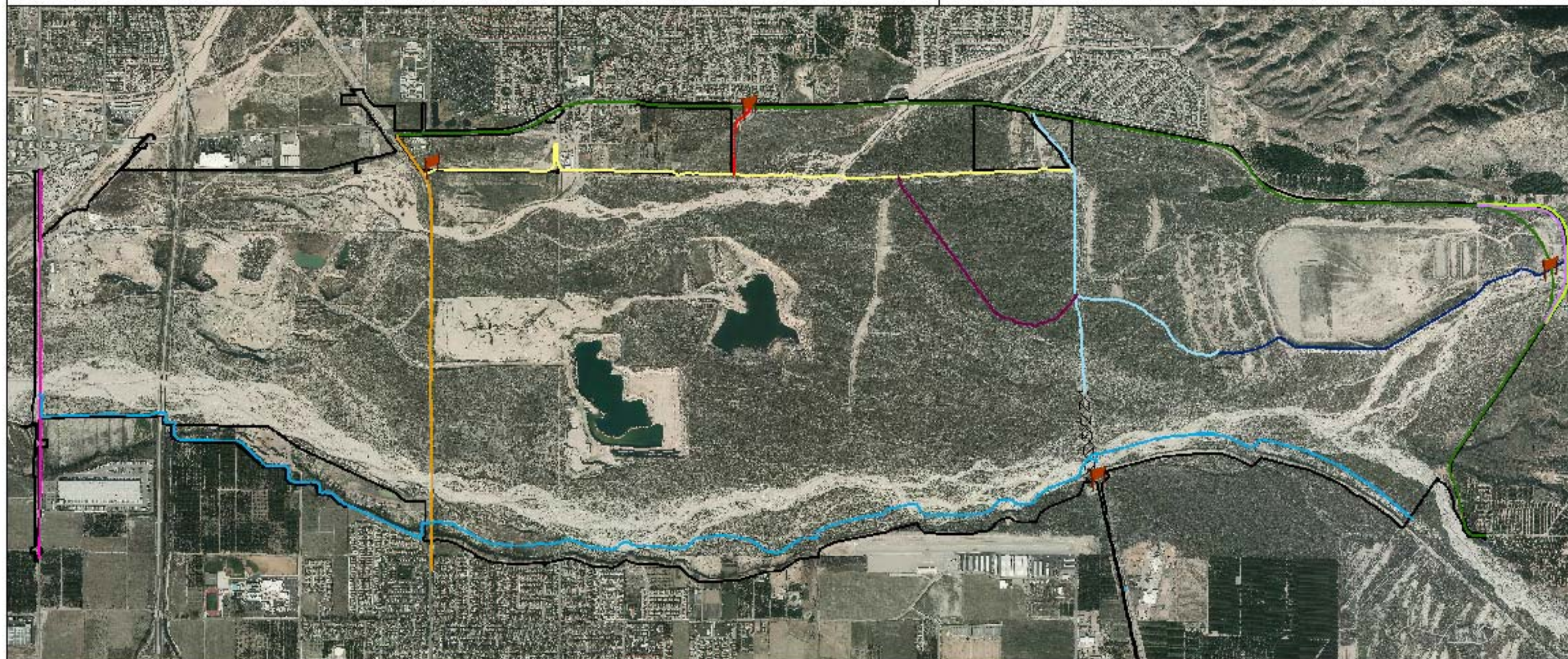


# BRACKET 1 SIGNS: IDENTIFICATION






Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Berger

November 14, 2014



## Bracket 1 Signs: Identification

-  Identification Signs
-  WSPA Trail Connection
-  Wash Plan Boundary

## Trails

-  Alabama Street Trail
-  Borrow Pit South Rim Trail
-  Boulder Avenue / Orange Street Trail
-  Cone Camp Road Trail
-  Greenspot Road Trail
-  Old Greenspot Road Horse Trail
-  Old Greenspot Road Trail
-  Old Rail Line Trail
-  Pole Line Trail
-  Santa Ana River Trail
-  Weaver Street Trail



# BRACKET 2 SIGNS: ORIENTATION







Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Beiger

November 14, 2014



## Bracket 2 Signs: Orientation

-  Directional Sign
-  Map
-  WSPA Trail Connection
-  Wash Plan Boundary

## Trails

-  Alabama Street Trail
-  Borrow Pit South Rim Trail
-  Boulder Avenue / Orange Street Trail
-  Cone Camp Road Trail
-  Greenspot Road Trail
-  Old Greenspot Road Horse Trail
-  Old Greenspot Road Trail
-  Old Rail Line Trail
-  Pole Line Trail
-  Santa Ana River Trail
-  Weaver Street Trail

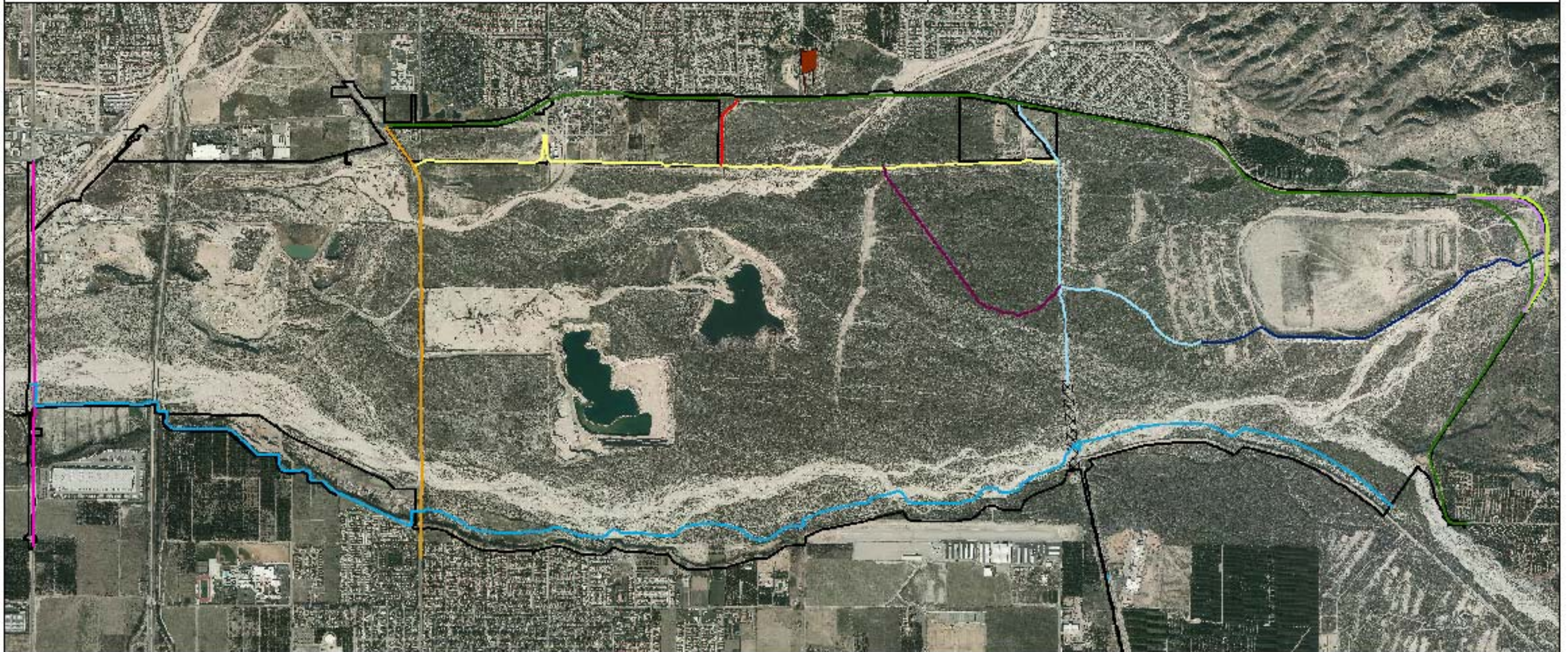


# BRACKET 3 SIGNS: REGULATIONS



Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Beiger

November 14, 2014



## Bracket 3 Signs: Regulations



Regulation Sign



WSPA Trail Connection



Wash Plan Boundary

## Trails

Alabama Street Trail

Borrow Pit South Rim Trail

Boulder Avenue / Orange Street Trail

Cone Camp Road Trail

Greenspot Road Trail

Old Greenspot Road Horse Trail

Old Greenspot Road Trail

Old Rail Line Trail

Pole Line Trail

Santa Ana River Trail

Weaver Street Trail

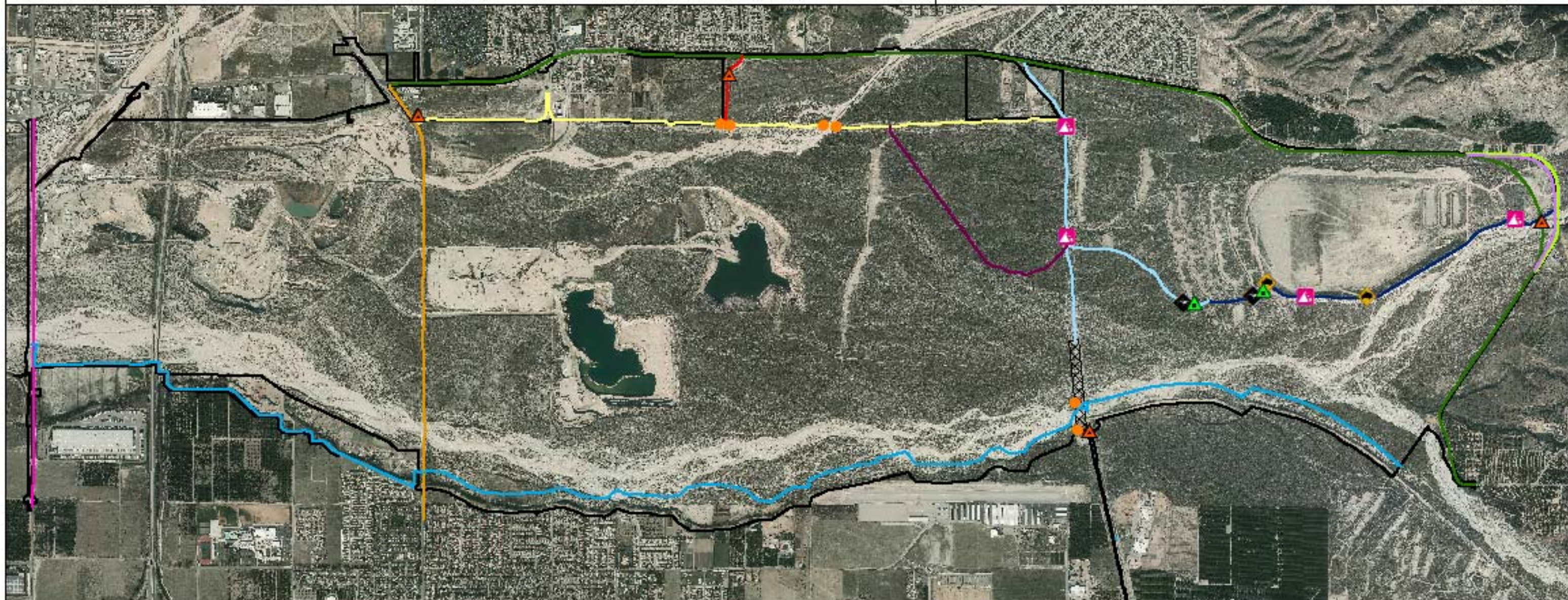


# BRACKET 4 SIGNS: SAFETY & HAZARDS



Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Berger

November 14, 2014



## Bracket 4 Signs: Safety Hazards

- Road Hazard
- Basin Structure
- Flash Flood
- General Advisories
- Mosquitoes
- Rock Climbing Hazard

## Trails

- Alabama Street Trail
- Borrow Pit South Rim Trail
- Boulder Avenue / Orange Street Trail
- Cone Camp Road Trail
- Greenspot Road Trail
- Old Greenspot Road Horse Trail
- Old Greenspot Road Trail
- Old Rail Line Trail
- Pole Line Trail
- Santa Ana River Trail
- Weaver Street Trail

- Wash Plan Boundary
- WSPA Trail Connection

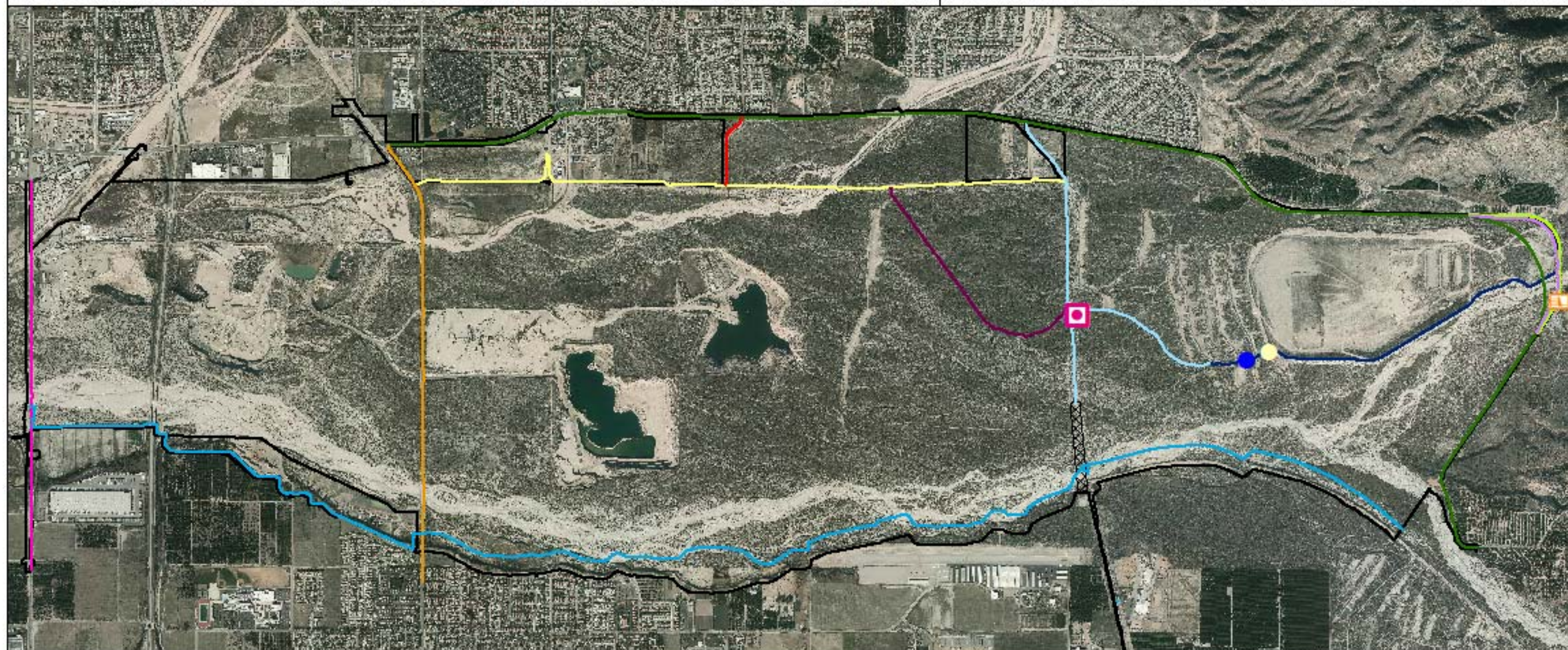


# BRACKET 6 SIGNS: INTERPRETIVE BRACKET 7 SIGNS: WATER RECHARGE & CONSERVATION



Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Berger

November 14, 2014



## Bracket 6 Signs: Interpretive

- Borrow Pit Info
- Cone Camp History
- Seven Oaks Dam Info
- Spreading Basin Info

## Trails

- Alabama Street Trail
- Borrow Pit South Rim Trail
- Boulder Avenue / Orange Street Trail
- Cone Camp Road Trail
- Greenspot Road Trail

- Old Greenspot Road Horse Trail
- Old Greenspot Road Trail
- Old Rail Line Trail
- Pole Line Trail
- Santa Ana River Trail
- Weaver Street Trail

- WSPA Trail Connection
- Wash Plan Boundary

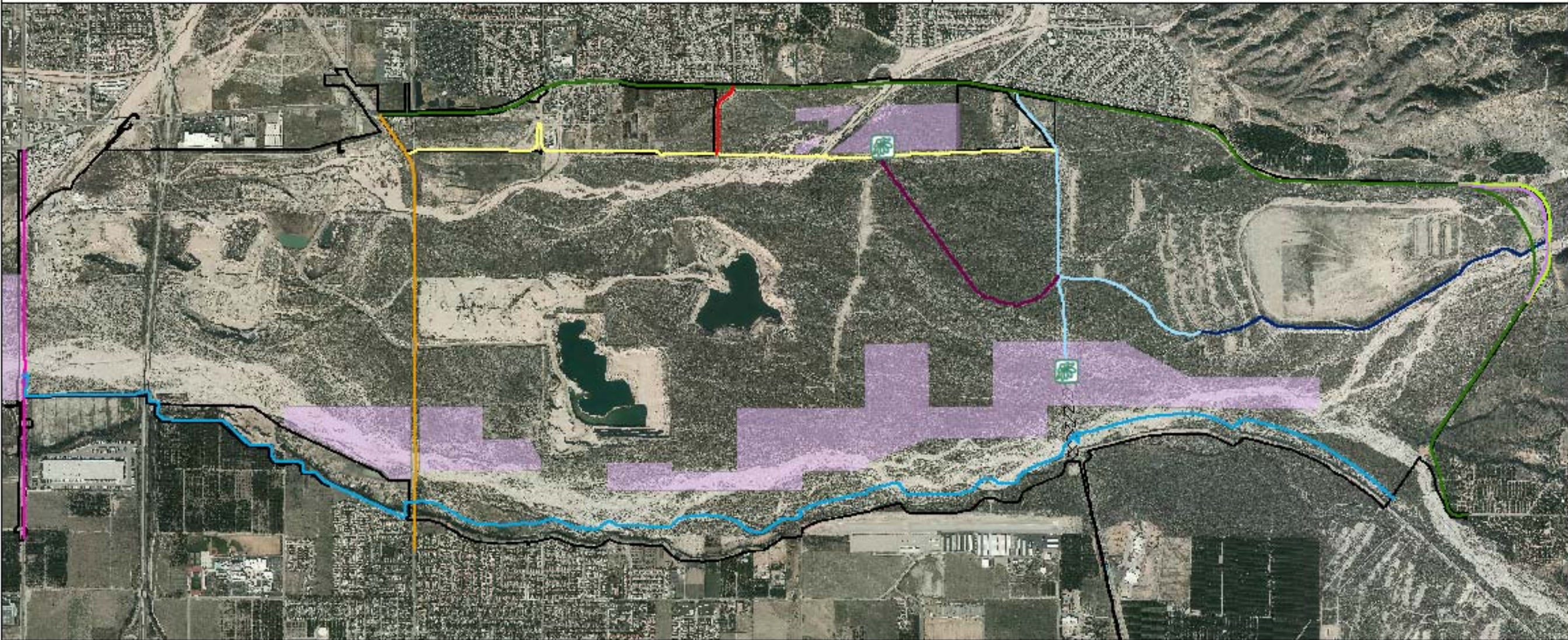


# BRACKET 8 SIGNS: HABITAT CONSERVATION







Coordinate System:  
NAD 1983 StatePlane California V FIPS 0405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
GIS Contact: Erin Berger

November 14, 2014



## Bracket 8 Signs: Habitat Conservation

-  Bracket 8 Signs: Habitat Conservation
-  WSPA
-  WSPA Trail Connection
-  Wash Plan Boundary

## Trails

-  Alabama Street Trail
-  Borrow Pit South Rim Trail
-  Boulder Avenue / Orange Street Trail
-  Cone Camp Road Trail
-  Greenspot Road Trail
-  Old Greenspot Road Horse Trail
-  Old Greenspot Road Trail
-  Old Rail Line Trail
-  Pole Line Trail
-  Santa Ana River Trail
-  Weaver Street Trail

## Habitat Remediation

One common type of environmental remediation project is the removal and cleanup of trash that is dropped on the trails. This can be achieved by having community cleanup days where teams of people work to pick up garbage found along the road or in a river. Another remediation mechanism we can implement is the addition of boulders to prevent trail users from entered environmentally sensitive areas.



## Other Safety & Regulation Measures:

		Description	Recommendations
Boulder Barriers	 <p><a href="http://www.gardeninggonewild.com/wp-content/uploads/2008/05/boulder-wall-on-canary-rd-march-08.jpg">http://www.gardeninggonewild.com/wp-content/uploads/2008/05/boulder-wall-on-canary-rd-march-08.jpg</a></p>	Boulder barriers may be used to ensure that users stay on the path, particularly when approaching roadways or other potential safety hazards.	Barriers should be made of natural materials whenever possible to maintain a natural look. They should be durable and generally resistant to vandalism.
Gates	 <p><a href="http://www.unisoncctv.co.uk/wp-content/uploads/2012/08/manual-swinging-access-gate.jpg">http://www.unisoncctv.co.uk/wp-content/uploads/2012/08/manual-swinging-access-gate.jpg</a></p>	Swing gates may be used to ensure that users stay on the path, particularly when approaching roadways, potential safety hazards, and where maintenance access is required.	Barriers should be made of natural materials whenever possible to maintain a natural look. They should be durable and generally resistant to vandalism.

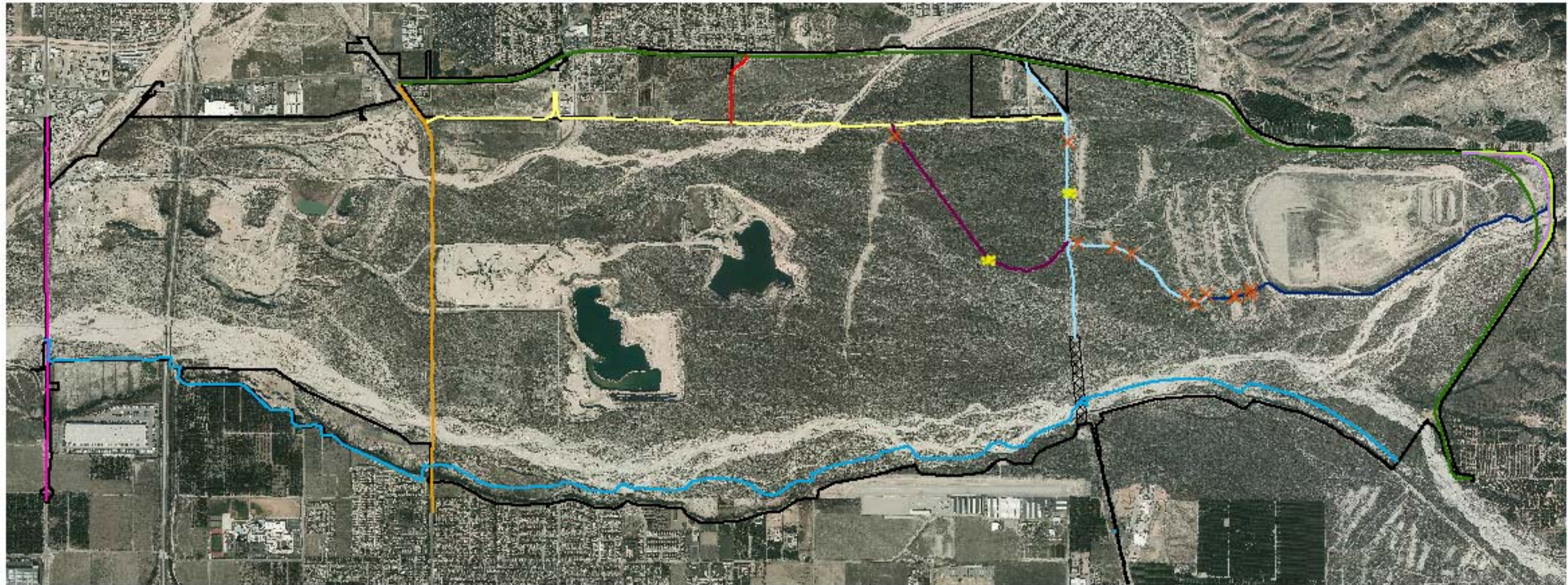


# TRAIL MASTER PLAN: PROPOSED TRAIL GATES AND BARRIERS



Coordinate System:  
NAD 1983 StatePlane California V FIPS 6405 Feet  
Projection: Lambert Conformal Conic  
Datum: North American 1983  
Source: SBVWCD GIS  
Scale: 1:24,000  
GIS Contact: Erin Berger

November 14, 2014



## Proposed Structures

- Boulder Barrier
- × Gate

## Trails

- |  |  |
|--|--|
| <span style="color: magenta;">—</span> Alabama Street Trail                | <span style="color: purple;">—</span> Old Greenspot Road Trail |
| <span style="color: darkblue;">—</span> Borrow Pit South Rim Trail         | <span style="color: darkred;">—</span> Old Rail Line Trail     |
| <span style="color: orange;">—</span> Boulder Avenue / Orange Street Trail | <span style="color: yellow;">—</span> Pole Line Trail          |
| <span style="color: lightblue;">—</span> Cone Camp Road Trail              | <span style="color: blue;">—</span> Santa Ana River Trail      |
| <span style="color: green;">—</span> Greenspot Road Trail                  | <span style="color: red;">—</span> Weaver Street Trail         |
| <span style="color: limegreen;">—</span> Old Greenspot Road Horse Trail    |  |

- Wash Plan Boundary
- WSPA Trail Connection



## Implementation

Prioritization and phasing of this project will be based on the capital and anticipated operation and maintenance budget and other potential funding sources. Implementation will be based on phasing and budget.

## Implementation Measures

A number of actions are recommended as part of the implementation of this Master Plan.

These include the following:

1. Develop a prioritization plan for trails in each city utilizing the new trail construction priorities outlined in this Master Plan.
2. Develop a trail promotion program which includes developing new/additional trail brochures, providing information on the cities' web page and providing information at activity centers such as the cities' community centers and parks, on the location of trails within the city and connections to regional trails surrounding the city.
3. Maintain the Cities' GIS-based trail map with parcel information so that the cities can track existing and required easements.
4. Apply for grants and alternative funding sources for trails for various state and federal sources, particularly via local transportation organizations.
5. Establish an "Adopt a Trail" program for ongoing trail construction, maintenance and patrol activities.
6. Coordinate the cities' trail system planning, implementation and management efforts with those of regional jurisdictions and public agencies.
7. Identify partnership opportunities with neighborhood groups, private individuals and local businesses as a means to acquire various trail amenities.
8. Ensure that trails and bike lanes are included in plans for new transportation projects such as bridges and overpasses.
9. Identify potential tax-related incentives and seek funding for other

## Governance Coordination

TO BE DEVELOPED



## Timeline (Cost Dependent)

The project can be divided into 3 phases, which would be:

1. Preopening Phase – preparations to allow use of trails
2. Early Phase – gradual enhancements and improvements to trails system
3. Ongoing – maintenance and long-term improvements to trails system

Phase			Short-Term (0 - 2 yrs)	Intermediate (3 - 5 yrs)	Long-Term (5 yrs+)	On-Going
	Priority					
<b>1</b>	1	Place Wash Plan Trail route maps throughout the network	○			
	2	Develop a trail promotion program	○			
	3	Explore the possibility of a service grant program to assist in trail development activities.	○			
	4	Install signage along the trail system	○			
	5	Install gates and boulder barriers	○			
<b>2</b>	6	Install facility amenities	○	○		
	7	Install WSPA crossing	○	○	○	
	8	Establish an “Adopt a Trail” program for ongoing trail construction, maintenance and patrol activities	○	○		
<b>3</b>	9	Inspect the grading of trails and perform necessary re-grading			○	○
	10	Inspect the deterioration of trail amenities, and perform necessary repairs			○	○
	11	Review Master Plan in 5 years and consider update to reflect current standards, and priorities			○	
	12	Continue discussions about potential improvements to the trails system				○

## Trail Facility Cost Estimate

Using Swing Gates to prevent public access to pond maintenance roads:

	Number of Units	Cost per Unit	Labor	Total Cost
<b>Ancillary Trail Facilities and Amenities</b>				
Bench	3	\$ 650.00	\$ 1,950.00	\$ 3,900.00
Bike Rack	1	\$ 1,040.00	\$ 650.00	\$ 1,690.00
Crosswalk	1	\$ 2,600.00	\$ 3,250.00	\$ 5,850.00
Drinking Fountain	0	\$ 2,600.00		\$ -
Parking	0	\$ -		\$ -
Pet Waste Baggies	5	\$ 390.00	\$ 650.00	\$ 2,600.00
Rest Area	2	\$ -		\$ -
Restroom	0	\$ -		\$ -
Waste Receptacle	4	\$ 650.00	\$ 520.00	\$ 3,120.00
<i>Total: Ancillary Trail Facilities and Amenities</i>				<b>\$ 17,160.00</b>
<b>Signage</b>				
Habitat Protection (WSPA)	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Identification	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Orientation				\$ -
Directional Sign	8	\$ 390.00	\$ 3,120.00	\$ 6,240.00
Map	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Regulations	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Safety & Hazards				\$ -
Basin Structures	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Flash Flood	6	\$ 390.00	\$ 2,340.00	\$ 4,680.00
General Advisories	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Mosquitoes	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Road Hazard	1	\$ 390.00	\$ 390.00	\$ 780.00
Rock Climbing Hazard	4	\$ 390.00	\$ 1,560.00	\$ 3,120.00
Interpretive	4	\$ 650.00	\$ 1,560.00	\$ 4,160.00
<i>Total: Signage</i>				<b>\$ 36,140.00</b>
<b>Signs</b>	13	\$ 1,300.00	\$ 19,500.00	<b>\$ 36,400.00</b>
<b>Barriers</b>	2		\$ 19,500.00	<b>\$ 19,500.00</b>
<b>WSPA Crossing</b>	1	\$ 1,300.00	\$ 19,500.00	<b>\$ 20,800.00</b>
<b>Total</b>				<b>\$ 109,200.00</b>



Using signs to prevent public access to pond maintenance roads:

	Number of Units	Cost per Unit	Labor	Total Cost
<b>Ancillary Trail Facilities and Amenities</b>				
Bench	3	\$ 650.00	\$ 1,950.00	\$ 3,900.00
Bike Rack	1	\$ 1,040.00	\$ 650.00	\$ 1,690.00
Crosswalk	1	\$ 2,600.00	\$ 3,250.00	\$ 5,850.00
Drinking Fountain	0	\$ 2,600.00		\$ -
Parking	0	\$ -		\$ -
Pet Waste Baggies	5	\$ 390.00	\$ 650.00	\$ 2,600.00
Rest Area	2	\$ -		\$ -
Restroom	0	\$ -		\$ -
Waste Receptacle	4	\$ 650.00	\$ 520.00	\$ 3,120.00
<i>Total: Ancillary Trail Facilities and Amenities</i>				\$ 17,160.00
<b>Signage</b>				
Habitat Protection (WSPA)	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Identification	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Orientation				\$ -
Directional Sign	8	\$ 390.00	\$ 3,120.00	\$ 6,240.00
Map	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Regulations	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Safety & Hazards				\$ -
Basin Structures	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Flash Flood	6	\$ 390.00	\$ 2,340.00	\$ 4,680.00
General Advisories	3	\$ 650.00	\$ 1,170.00	\$ 3,120.00
Mosquitoes	2	\$ 390.00	\$ 780.00	\$ 1,560.00
Road Hazard	1	\$ 390.00	\$ 390.00	\$ 780.00
Rock Climbing Hazard	4	\$ 390.00	\$ 1,560.00	\$ 3,120.00
Interpretive	4	\$ 650.00	\$ 1,560.00	\$ 4,160.00
<i>Total: Signage</i>				\$ 36,140.00
<b>Signs</b>	13	\$ 390.00	\$ 5,070.00	\$ 10,140.00
<b>Barriers</b>	2		\$ 19,500.00	\$ 19,500.00
<b>WSPA Crossing</b>	1	\$ 1,300.00	\$ 19,500.00	\$ 20,800.00
<b>Total</b>				\$ 82,940.00

\*\*\* These cost estimates were computed by using the average catalog price for items. Labor costs are estimated. The labor cost calculations are based on the number of hours it would take to get the work done, as well as the equipment that would need to be used for the work. A 30% contingency was added to these preliminary estimates.

## Conditional Use Requirements

To be addressed in Habitat Conservation Planning documents.

## Program/Policy Recommendation

### Adopt-a-Trail Program

An Adopt-a-Trail Program can help with the challenges of maintaining an operational trails system. This program helps coordinate volunteers and events to assist jurisdictions in monitoring trail use and conditions. Volunteers can be trained to report back to the cities on maintenance, needs, improvements, environmental issues and other concerns as well as provide details on trail conditions after each walk, provide trail information to other users, help prioritize maintenance needs requiring immediate versus long-term attention, and organize periodic maintenance days to improve the trail environment. Adopt-a-Trail is a cost efficient solution to keeping existing trails clean, accessible, and safe and may serve as an effective tool for enabling the development of new trails.

## Evaluation and Monitoring

The involved agencies should work with local communities and advocacy organizations to establish performance measures to benchmark progress towards achieving the goals of this Plan. These performance measures should be stated in an official report within one to two years after the Plan is adopted. This report should discuss opportunities that are created through performance measures, such as the ability to track trends in pedestrian and bicycle use and safety over time, present accurate information on pedestrian and bicycle facility use to policy makers, cite accurate inventories of the quantity and quality of facilities during planning and analysis tasks, and understand the characteristics and needs of pedestrians and bicyclists in the community. The report should also discuss challenges, such as the cost of data collection and reporting, accuracy of data, and how to establish realistic performance targets for pedestrian and bicycle improvements. Baseline data should be collected as soon as the performance measures are established. The performance measures can address the following aspects of pedestrian and bicycle transportation and recreation in the Wash Plan area:

**Safety:** Measures of pedestrian/bicycle crashes or injuries.

**Usage:** Measures of how many people are bicycling and walking on on-road and off-road facilities.

**Facilities:** Measures of how many pedestrian and bicycle facilities are available and the quality of these facilities.



**Education/Enforcement:** Measures of the number of people educated or number of people ticketed as a part of a bicycle and pedestrian safety campaign.

**Institutionalization:** Measures of the total budget spent on bicycle, pedestrian, and greenway projects and programs or the number of municipal employees receiving bicycle facility design training.

**Cost:** Measures of the total cost of pedestrian and bicycle facilities per mile or per user.

When establishing performance measures, the involved agencies should consider utilizing data that can be collected cost-effectively and be reported at regular intervals, such as in a performance measures report that is published every two to three years. As the process of collecting and reporting pedestrian, bicycle, and greenway data is repeated over time, it will become more efficient. The agencies should review progress and evolve and adapt as needed. Land use, transportation, development, and the overall landscape will continue to change as the cities of Highland and Redlands grow, resulting in a more urban area. Also, new opportunities or input from an on-going monitoring and evaluation process may emerge, leading to the need to adapt and update the recommendations of this Plan.



## Operations and Management

### Overview / Guiding Principles

Multi-use trail in the Santa Ana River Bed will be designated to accommodate hikers and mountain bikers. These trails will be able to accommodate users with and without disabilities. The guidelines for accessible multiuse trails are, for the most part, the same as those for accessible hiking trails. The following is recommended to be considered when designing multi use trails in this plan:

**Width:** Typically, multiuse trails could range from 3.6 meters to 4.2 meters (12 feet to 14 feet) wide. The optimum trail bed width is 2.5 meters to 3 meters (8 feet to 10 feet).

**Grade:** Multi-use trails that are used by both hikers and mountain bikers should be designed with moderate grades. The recommended slope for multi-use trails should be 1:10 (10 percent). This slope can go up to 1:5 (20 percent) for short spans along the trail.

**Edge Protection:** Multi-use trails should consider the safety needs of trail users. Some types of edges can be hazardous to bikers. Vegetation around edges of trail should be cleared between 600 mm and 1525 mm (2 to 5 feet) on either side of the trail.





## Routine and Remedial Operations

Patrolling will take place throughout the trail system multiple times each week. Patrol objectives include:

- Discouraging off-trail Travel
- Watch out for un-extinguished campfires along the trails
- Monitor and report any trail damage that requires trail work
- Pickup/remove trash
- Report signs of vandalism or other illegal activities
- Promote responsible trail use through information and education
- Maintain public safety
- Respond to emergency situations

## Routine and Remedial Maintenance and Operations

Routine and remedial maintenance activities can be seen in Table 1 below.

Maintenance Activity	Description	Maintenance Frequency
Empty trash cans along trails	Trashcans will be located throughout the trails system and will need to be emptied so that trash stays off of the trails.	1 time a week
Refill pet waste baggies	Pet waste dispensers will be located throughout the trails system and will need to be refilled when they become empty.	1 time every 3 months
Maintenance of informational signs	Informational signs will be located at each of the staging zones. These signs will need to be maintained and repaired so that the public will always have access to them.	1 time every 3 months
Updating information in informational kiosks	Information will be located at the informational kiosks at the staging areas. This information will need to be kept up to date so all hikers are aware of current conditions on the trail network.	1 time a week

Maintenance Activity	Description	Maintenance Frequency
Installations of signs	Signs will need to be installed to warn hikers of hazards and let them know where not to enter. Signs will also be used to guide hikers through the trail network.	As needed
Repair/Maintenance of signs	Repair and maintenance on signs should take place as needed. Signs should be visible and easy to see at all times.	As needed
Removal of invasive species	Invasive species removal will take place periodically to make sure no trails are blocked or obscured.	1 time a year
Recovery from acts such as vandalism or dumping	There is a possibility that vandalism and dumping of trash may take place on the trail networks. Maintenance will include repairing and or replacing anything that is damaged in such acts.	As needed
Grade non-asphalt trail	Trails should be maintained so that hikers and bikers can travel easily. This includes grading, resurfacing, and filling potholes on trails.	As needed
Patrol	Trails will need someone to be responsible for providing public safety, park information and protecting properties within the Wash Plan Area.	A few days per week

Routine and remedial maintenance and operations activities



## Cost of O & M

Maintenance Activity	Cost	Frequency	Frequency/ Year	Yearly Cost
Empty trash cans along trails	\$ 195.00	Every week	52	\$ 10,140.00
Refill pet waste baggies	\$ 260.00	Every 3 months	4	\$ 1,040.00
Sign Replacement	\$ 1,300.00	1 Sign/Year	1	\$ 1,300.00
Updating information in informational kiosks	\$ 130.00	Every month	12	\$ 1,560.00
Installations of signs	\$ 260.00	Every 2 years	0.5	\$ 130.00
Removal of invasive species	\$ 1,040.00	Every 2 months	6	\$ 6,240.00
Recovery from acts such as vandalism or dumping	\$ 650.00	Every 2 weeks	26	\$ 16,900.00
Grade non-asphalt trail	\$ 13,000.00	Every 2 years	0.5	\$ 6,500.00
Patrol	\$ 780.00	Every week	52	\$ 40,560.00
<b>Total</b>				<b>\$ 84,370.00</b>

\*\*\* These cost estimates were computed by using the average estimated labor & costs are estimated.

The labor cost calculations are based on the number of hours it would take to get the work done, as well as the equipment that would need to be used for the work. A 30% contingency was added to these preliminary estimates.

## Approvals

To be addressed in later phase of this plan.

## Regulatory Impediments

To be developed in later phase of this plan.

## Appendix

