



# **DRAFT**

# **Santa Clara River Trail**

# **Master Plan**

**December 2011**

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# Chapter 1: Existing Conditions

## Introduction

### Background

The Santa Clara River is an ecologically rich, valuable and beautiful ecosystem. It is one of the last remaining naturalized river systems in Southern California and home to several threatened and endangered species. The project site sits nestled between emerald green farmland to the west, the Santa Clara River to the north and the City of Oxnard to the south and east. The near perfect weather of the area enables the citizens of Oxnard to enjoy outdoor recreation year-round.



The project site is located south of the Santa Clara River and north of the City of Oxnard.

In 1991, the Ventura County Watershed Protection District (VCWPD) and the California State Coastal Conservancy (CCC) initiated a management plan for the Santa Clara River and its resources. In addition to the preservation of the river's physical, biological, and economic resources, the management plan promoted the enhancement of recreational, education and public access opportunities.

In response to the Santa Clara River Enhancement & Management Plan, the city is pursuing the opportunity for a multi-use trail system along the stream bank protection (SBP) and levee system on the southern bank of the Santa Clara River. The Santa Clara River Trail (SCRT) Master Plan project study area encompasses the southern bank of the Santa Clara River from Central Avenue in the northeast down to N. Victoria Avenue in the southwest as well as connections to W. Gonzales Road, currently a bicycle route to the Pacific Ocean.

### The Master Plan Process

The purpose of the Santa Clara River Trail Master Plan is to evaluate a Class I multi-use path along the southern bank of the Santa Clara River. The study includes a review of existing setting and conditions, an analysis of gaps and geographic impediments, public outreach, a review of trail design standards and safety standard, an implementation program, as well as a financial element. The SCRT Master Plan includes a preferred alternative and the process followed to arrive at this recommendation.

## Goals and Objectives

A vision for increasing public access along the Santa Clara River has been supported by a number of agencies and non-profit groups for many years including: The California State Coastal Conservancy, Ventura County Watershed Protection District, and The Nature Conservancy. Building upon this regional vision, the following goals and objectives for the SCRT were developed with input from the City of Oxnard, the SCRT Steering Committee, and the SCRT Technical Advisory Committee.

### 1. Create a safe and attractive trail fully accessible to a wide variety of non-motorized activities for recreation and transportation.

- Coordinate with regional efforts to increase opportunities for recreation and transportation along the Santa Clara River Corridor.
- Build a trail that meets the Americans for Disabilities Act (ADA) Guidelines which will accommodate a diverse group of users of all ages including pedestrians, and bicyclists.
- Incorporate trail amenities to enhance the experience of the trail user such as: seating, interpretive elements, gateways, lighting, way-finding information, trail rules and regulations signage, and recycling/trash receptacles.



Scenic views along the Santa Clara River

### 2. Provide connectivity to existing or planned trails, schools, parks, and other key destinations

- Establish strong access points to the SCRT.
- Establish strong access to the Pacific Ocean.
- Coordinate with City of Oxnard Bicycle and Pedestrian Facilities Master Plan to ensure strong non-motorized connections.
- Connect to existing and planned regional non-motorized trails.
- Consider opportunities for future trail connections to the surrounding unincorporated areas.



Existing path in RiverPark Community

**3. Develop trail design and development standards that are easy to maintain and access by maintenance, security, and emergency vehicles and minimize impacts to the environment.**

- Establish design standards applicable for regional expansion of the Santa Clara River Trail.
- Minimize safety hazards for all user groups.
- Utilize low impact development strategies and innovative storm water management to improve run-off water quality into the Santa Clara River.



Levee road looking east toward Hwy 118

**4. Provide an enriching trail user experience through the incorporation of educational interpretation opportunities along the trail.**

- Interpret the Santa Clara River Floodplain and ecological function of the watershed.
- Highlight the local context including history of the land uses along the trail.
- Seek educational opportunities through student engagement and stewardship.

**5. Trail design, construction and long-term use should respect adjacent properties and ecosystems**

- Utilize appropriate measures so that the adjacent residential communities, commercial areas, golf course and landfill properties are not negatively affected by trail.
- Minimize impacts of trail users to the Santa Clara River habitat and wildlife.

**6. Respect the functional role of the Santa Clara River**

- Synchronize trail construction with Ventura County Watershed Protection District (VCWPD) levee and SBP improvements.
- Coordinate with VCWPD for ongoing operating and maintenance requirements for any trail segments on top of the levee.
- Minimize impacts to the capacity of the Santa Clara River floodway.

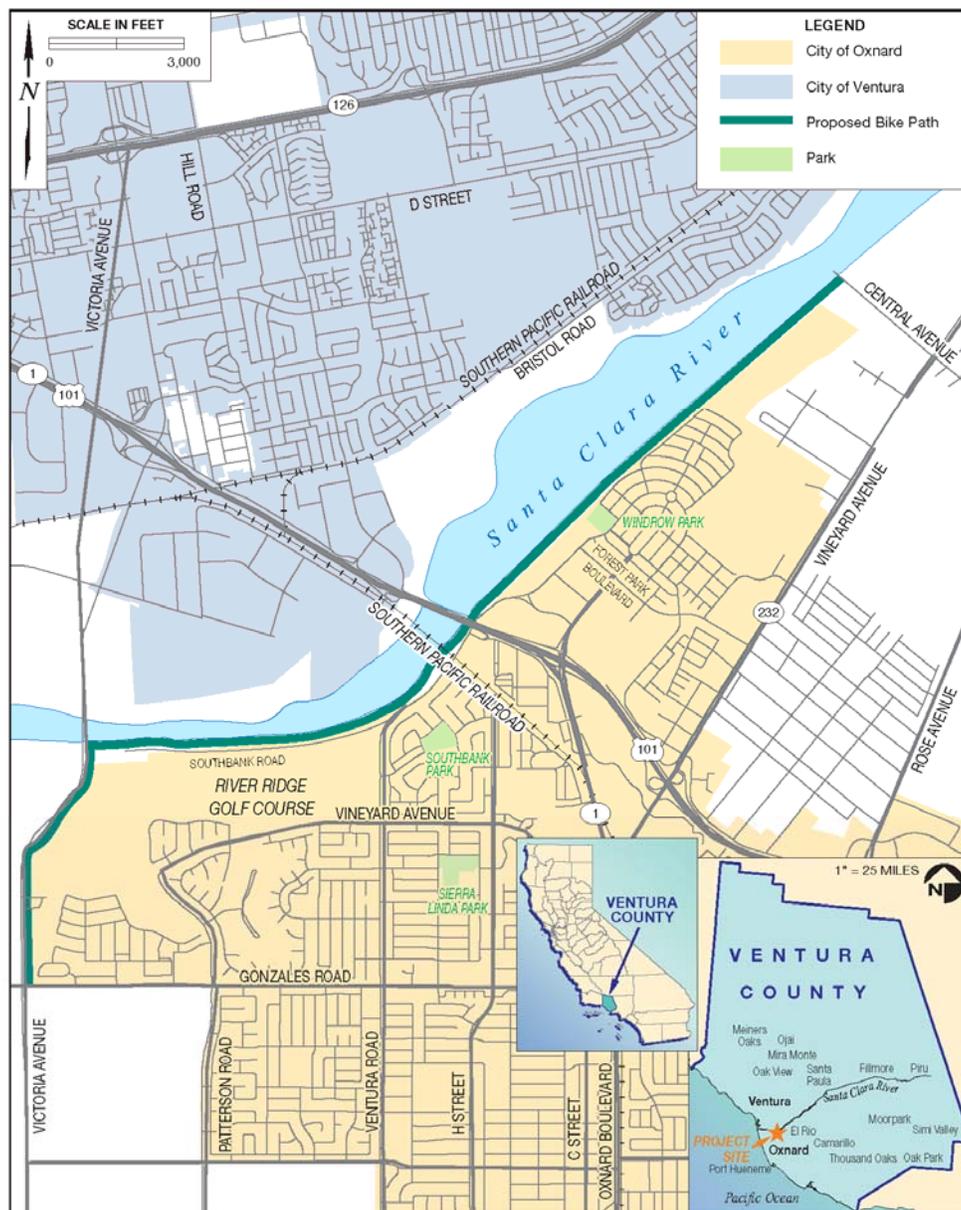


Groins serve as additional bank protection along the levee south of the U.S. 101 Freeway

## Site Setting

### Regional Site Context

The Santa Clara River is an exceptional natural resource in California. It is the largest river system remaining in Southern California with a natural river bottom. Although the river has areas with flood control measures such as levees and stream bank protection (SBP), the river has not been channelized by concrete. The 116 mile long river originates in the San Gabriel Mountains in north Los Angeles County and flows west into Ventura County and out into the Pacific Ocean. The river is recognized as supporting important scenic resources as well as a diverse range of sensitive biological resources, including sensitive habitats and endangered species (City of Oxnard 2004).



Regional Setting and Vicinity Map

## Existing Physical Setting

The project site extends for 4.87 miles along the south bank of the Santa Clara River and includes a southern spur connection south to W. Gonzales Road for a bike way connection to the Pacific Ocean. For most of this distance, the project limits are generally confined to the top of existing flood control structures (SBP areas and levees). These flood control structures vary in height from approximately 10-15 feet above the bed of the Santa Clara River in the western third of the project to 15-20 feet above the bed in the majority of the eastern segment between Highway 101 and Central Avenue. These levee segments are topped by a flood control access road of generally 25-40 feet in width. This road is paved in some areas and is dirt or gravel in others. However, in the central 2,000 foot segment of the project west of Highway 101, no levee currently exists and the project site encompasses a mix of low upland bank areas and river bed.

## Resource Areas

### AESTHETICS

The proposed project is adjacent to the Santa Clara River, a recognized valuable scenic resource adjacent to the northern boundary of the City of Oxnard. With a width that generally varies from 1,500 to 2,500 feet in the project vicinity, the riverbed provides a wide open corridor that facilitates sweeping views of the Oxnard Plain, with South Mountain and the Topa Topa Mountains to the east. The river's wide channel supports large areas of natural undeveloped open space, which contrasts with urban uses in the City of Oxnard to the south and the City of Ventura to the north.

Views to the north from the project site are dominated by the riverbed, with low-lying agricultural fields, low-density rural structures, and sand/gravel industrial facilities beyond. The large stands of native trees and shrubs enhance the natural aesthetic qualities of this open space and make the river a recognized regional scenic asset (City of Oxnard 2004).



Locations along the project offer panoramic views of the Santa Clara River valley with a backdrop of mountain peaks.

### AGRICULTURAL RESOURCES

The project site is located within the Oxnard Plain, a major agricultural production region known for its prime soils and favorable growing climate. Significant agricultural uses exist along the Santa Clara River in the general project vicinity, with the area producing a significant portion of the State of California's strawberry crop every year. Other major agriculture products in the region include sugar beets and lima beans. Within the City of Oxnard Planning Area, 22,782 acres of land are under agricultural production. Water for agriculture is drawn largely from the Oxnard Plain Basin aquifer (City of Oxnard 2004).

## Chapter 1: Existing Conditions

The proposed project is located on an existing flood control maintenance road, where no agricultural activities occur. No existing agricultural operations or prime soils are located within or border the project area; the nearest significant agricultural operations are located across the river to the north and west of N. Victoria Avenue (City of Oxnard 2004).

### BIOLOGICAL RESOURCES

The project site borders the Santa Clara River for approximately 3.87 miles. The river is a wide perennial drainage that supports important native plant communities and hosts a variety of wildlife, including some special status species. The City of Oxnard's 2030 General Plan, Open Space/ Conservation Element identifies riparian habitat throughout this reach of the Santa Clara River that borders the project site. However, this habitat varies significantly, with areas west of Highway 101 characterized by large stands of mature native trees and more perennial flows and areas to the east by more seasonal flows characterized by few mature trees and large areas of open sandy channel. During the summer months, flow is frequently limited to the low-flow channel; however winter rains can bring flash flows with high scour potential. These factors exert a strong influence on the types of plant communities found in the area. Plant communities in the vicinity of the project tend to be dominated by southern cottonwood/willow riparian forest, southern riparian scrub and emergent wetlands west of Highway 101. To the east, open wash, coastal sage scrub, scattered southern cottonwood/willow riparian forest and southern riparian scrub are the dominant plant communities.



The Santa Clara River and associated riparian and scrub vegetation provide valuable habitat to sensitive species including the least Bell's vireo.

The southern cottonwood/willow riparian forest that occurs adjacent to the eastern end of the project site is of high value for wildlife species, particularly nesting birds. This plant community is dominated by Fremont cottonwood (*Populus fremontii*), and arroyo willow (*Salix lasiolepis*). The most common plant community adjacent to the project site is southern riparian scrub, which is characterized by dense shrubs and willows within the riverbed. This community is often transitional between uplands, and open wash and is dominated by Arroyo willow; however, significant amounts of sandbar willow (*Salix hidsiana*) and mulefat (*Baccharis glutinosa*) are also present.

This dense growth of native riparian trees, shrubs and associated vegetation provide habitat for a variety of birds and small animals. The southern riparian scrub and open channel habitats adjacent to the project site are known to support the southern California steelhead trout (*Oncorhynchus mykiss*), a federally endangered species. In addition, the Federal and California endangered least Bell's vireo (*Vireo bellii pusillus*), and California endangered western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) have been recorded in the project vicinity near the Highway 101 bridge (California Department of Fish and Game 2009). Further, special status species such as the silvery legless lizard (*Anniella pulchra* Gray),

Townsend's big-eared bat (*Corynorhinus townsendii*), and coast horned lizard (*Phrynosoma coronatum*) are also known to occur in the vicinity. Additional species of concern that could occur due to the presence of potentially suitable habitat and range include the southwestern willow flycatcher (*Empidonax traillii extimus*), arroyo toad (*Bufo californicus*), and California red-legged frog (*Rana aurora draytonii*). However, these species have not been recorded in the project vicinity. The density of plant growth in combination with the linear quality of the river make the riverbed an important wildlife corridor for larger species as well, including coyotes and deer.

Approximately 2 miles downstream (west) of the project site, the river supports a large area of riparian habitat upstream of the river's estuary. This estuary has been noted to be a major stopover for migratory and/or breeding species of shorebirds and waterfowl, including the endangered California least tern (*Sterna antillarum browni*) (City of Oxnard 2004). The estuary is also known to support the tidewater goby (*Eucyclogobius newberryi*) and western snowy plover (*Charadrius alexandrinus nivosus*). The Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), an endangered species, has also been identified in this area.

Although quality riparian habitat exists along significant portions of the riverbed, disturbance along the edges of the floodplain and upland areas can be substantial. Trails are found throughout the riverbed, which are apparently used by off-road vehicles as well as foot traffic. These trails appear to be mostly limited to the edges of the floodplain, as there is little evidence of such use within the riverbed adjacent to the project site. Further, exotic (i.e., invasive) vegetation has degraded native habitats in some areas, particularly giant reed (*Arundo donax*) and salt cedar (*Tamarix* spp.), although no exotic species dominate habitats in the immediate project vicinity (Caltrans 2001).

## **GEOLOGY AND SOILS**

The proposed project is located near the center of the Oxnard Plain, a broad alluvial basin that is filled with sediments, sands, and gravels deposited by the Santa Clara River. These sand and gravel deposits are generally characterized as being rich in minerals but unsuitable for agriculture. These alluvial soils are prone to compaction and liquefaction, and the potential for liquefaction is increased by the high groundwater level found in the region. Compaction of alluvial soils caused by seismic events has the potential to affect the project area, with a potential settlement of 1-2 feet projected for the region (City of Oxnard 2004).

The project vicinity is located within a seismically active region subject to the effects of moderate to large earthquake events along major faults (City of Oxnard 2004). No active faults have been mapped across the study area. Several active and potentially active regional faults that may affect the area include the San Andreas Fault, the Simi-Santa Rosa fault system, the Oakridge fault system, the Santa Monica-Anacapa and Malibu fault zones and the Ventura-Pitas Point faults, all within 60 miles from the proposed project area. A complete description of area geologic resources can be found in the City of Oxnard 2030 General Plan, Open Space/ Conservation Element.

## **HAZARDS AND HAZARDOUS MATERIALS**

There is potential for hazards and hazardous materials to exist within the project area. Natural hazards are described in *Geology and Soils* above and *Hydrology and Water Quality* below. Previous uses of hazardous

## Chapter 1: Existing Conditions

materials in the general project vicinity are known to have resulted in soil and groundwater contamination. Although pesticides and herbicides used for agricultural operations can pose a hazard to humans and native biological communities, the County of Ventura Agriculture Commissioner's Office records show the only remaining residue is DDT and breakdown products. A search of Ventura County files and the GeoTracker database identified four Underground Storage Tank (LUST) cleanup sites and 'other' cleanup sites near the project area (SWRCB 2009). None exist within the project area.

The River Ridge Golf Course was constructed on top of the former Santa Clara landfill. The landfill was lined and accepted only Class III (non-hazardous) waste during its operation, and was closed according to closure requirements of the Ventura County Environmental Health Division and California Regional Water Quality Control Board (City of Oxnard 2008). Hazardous materials are routinely transported on Highway 101 and the railroad, presenting the possibility of an accident in the vicinity of the project area. Of the trucks that enter Ventura County on Highway 101, the California Highway Patrol estimates that 52 percent carry hazardous materials and an additional 22 percent carry hazardous wastes (City of Oxnard 2004). Although the probability of a railroad hazardous materials incident is lower, the severity is potentially greater because of the greater potential quantities involved as well as the potential for chemicals and explosive substances to be mixed together.

### HYDROLOGY AND WATER QUALITY

The Santa Clara River is the predominant surface water hydrologic feature in the region, with a watershed drainage area of 1,634 square miles and generally produces an intermittent flow regime, which reflects the area's predominant wet winter/ dry summer pattern. Flows can increase rapidly in response to high intensity winter rainfall events. This can result in flooding along the river, which has required municipalities such as the VCWPD and the City of Oxnard to construct a system of levees. This flow regime also significantly shapes the vegetative communities of the Santa Clara River.



The Santa Clara River channel is a wide, sandy wash through much of the year; however wet season flows can flood the channel.

The water flow in the project area reaches its high flow period during the local wet season which occurs December through April. Natural flow in the river is affected by groundwater withdrawals, diversions, municipal uses, and groundwater recharge. Flow is also regulated by operational conditions at upstream reservoirs, including Lake Piru, Pyramid Lake, and Castaic Reservoir.

The Federal Emergency Management Agency (FEMA) identifies much of the City of Oxnard to the south of the project site, as well as the agriculture and recreation areas to the north as being subject to a 1% annual chance flood event (formerly referred to as 100-year flood event) associated with the river. Flooding associated with the river has historically posed a significant hazard to communities along its banks, including the City of Oxnard and the project vicinity. However, as noted above, with the exception of the project site's middle segment from N. Ventura Road to the Highway 101 Bridge, the

much of the project site is located on elevated flood control structures generally protected from most flood flows (City of Oxnard 2008).

The Oxnard Plain Basin, the largest underground water source in the region, has approximately 7,800,000 acre-feet of storage and is mostly confined (covered by an impermeable clay layer). The confined nature of the basin means that in most areas of the basin rain water or surface water cannot penetrate the surface of the ground to replenish or recharge the basin. The Oxnard Aquifer, which is a part of the Oxnard Plain Basin, is currently being overdrafted at a rate of about 12,400 acre-feet per year, and the overdraft has resulted in more than 22 square miles of the aquifer being intruded upon by seawater. In the areas of salt water intrusion, the water is no longer suitable for domestic consumption or agriculture. In addition to salt water intrusion, primary water quality concerns within the Oxnard Planning Area also include increasing mineralization and chemical degradation of groundwater. Runoff from agricultural uses degrades surface and groundwater quality via increased mineral concentrations, nitrates, and high levels of total dissolved solids (TDS). Additional threats to surface and groundwater quality include runoff from urban and industrial uses, improperly abandoned water wells and underground storage tanks. The potential for groundwater contamination is higher in recharge areas where the clay cap is absent. As of 2006, contaminants that significantly exceed threshold values within the Oxnard Plain Basin include TDS, nitrate, iron, manganese, chloride and sulfate (Metropolitan Water District of Southern California 2007).

## LAND USE AND PLANNING

The proposed project is within the City of Oxnard and the County of Ventura on land zoned as open space. The project area is located entirely outside of the Coastal Zone. The Santa Clara River falls within the jurisdiction of the VCWPD, which operates and maintains the levee and flood control maintenance road. The VCWPD also implements the Flood Plain Management Ordinance 3841 on behalf of the County of Ventura to ensure compliance with the National Flood Insurance Program. This includes permit review for structures built in the floodplain and evaluation of site plans for developments that include identified floodplains. Additional agencies that may have interest in and permitting authority over this site include the U.S. Army Corps of Engineers, Ventura Regional Sanitation District, California Integrated Waste Management Board, Ventura County Local Enforcement Agency, Ventura Regional Sanitation District, Regional Water Quality Protection Board, U.S. Fish and Wildlife Service, Caltrans, and the California Department of Fish and Game. The river is not designated as a Wild and Scenic River by the United States Forestry Service, National Park Service, United States Fish and Wildlife or Bureau of Land Management.

In the City of Oxnard adjacent land uses to the project include recreation; low density, low-medium density, and high density residential; regional commercial, and a school (City of Oxnard 2009). The City's General Plan recognizes the importance of bicycle and pedestrian facilities and identifies the need for their additional development throughout the City of Oxnard and the surrounding communities within Ventura County. In response, the City



The proximity of trains and roads, the primary noise generators in the vicinity of the project, can degrade sensitive habitats and recreation.

## Chapter 1: Existing Conditions

developed a Bicycle and Pedestrian Facilities Master Plan in 2002, which conceptualized and outlined the implementation of a system of paths throughout the City and surrounding communities. This Plan is currently in the process of being updated, with completion scheduled for 2010.

### **NOISE**

Dominant noise sources on and near the proposed project site are primarily vehicular traffic traveling along the local roadway system, Highway 101, and the railroad. The primary land uses in the project's vicinity include a large open space, agricultural, recreational (golf), and residential uses, which generally generate low levels of noise.

Sensitive noise receptors within the project include common and rare wildlife, such as certain threatened and endangered species (see *Biological Resources*). This is especially true during avian breeding seasons which typically fall between March and September. Recreational users including walkers, bikers, and bird watchers, as well as residents adjacent to the project area, are also considered sensitive receptors for potential noise impacts.

### **PUBLIC SERVICES**

Due to the nature of the proposed project, few public services would be required throughout the life of the project; however the City of Oxnard would provide basic services, such as maintenance, fire, and police protection, as necessary. Fire protection and emergency medical services would be provided by the Oxnard Fire Department, which has 7 fire stations and a staff of approximately 90. The Oxnard Police Department provides police protection in the project area. The nearest station is located at 181 W. Gonzales Road, approximately 1.2 miles from the project site. The project vicinity is presently included in routine patrol routes.

### **RECREATION**

The proposed project site currently provides undeveloped recreational opportunities for walking, biking, and nature viewing. The project location is maintained as a flood control maintenance road, however due to infrequent traffic, it has become a popular route for passive uses. The site's proximity to residential areas and the scenic views it provides make it an accessible and aesthetically pleasing area for urban recreation. According to the City of Oxnard's 2030 General Plan, there are approximately 881.7 acres of parks and special purpose facilities maintained by the City of Oxnard. The proposed project is located near a variety of recreational facilities including the River Ridge Golf Course (over 450 acres), Southbank Park, and Sierra Linda Park. However, these areas provide urban park recreational opportunities and are not integrated into the natural and scenic qualities of the region.

Most of the current recreational users of the project site are likely to be residents of nearby neighborhoods, given the site's proximity to large residential areas. The project area is also accessed from



The project area currently supports passive recreational use, including excellent bird and wildlife viewing opportunities.

N. Victoria Avenue, N. Ventura Road, and Central Avenue though no designated parking areas currently exist.

### **TRANSPORTATION/TRAFFIC**

The project will have designated parking for vehicle access off of N. Ventura Road. The project is located near N. Victoria Avenue, N. Ventura Road, Albion Drive, and Central Avenue (currently VCWPD access only), and runs perpendicular to Highway 101. The estimated average daily traffic (ADT) is 133,000 for the Highway 101 overcrossing in the vicinity of the project site. The ADT for N. Ventura Road is 18,000 at the project site, just north of the River Ridge Golf Course. The ADT at N. Victoria Avenue, where the project would terminate, is estimated to be 33,000 (City of Oxnard 2005). The project area does not intersect or border any other roadways.

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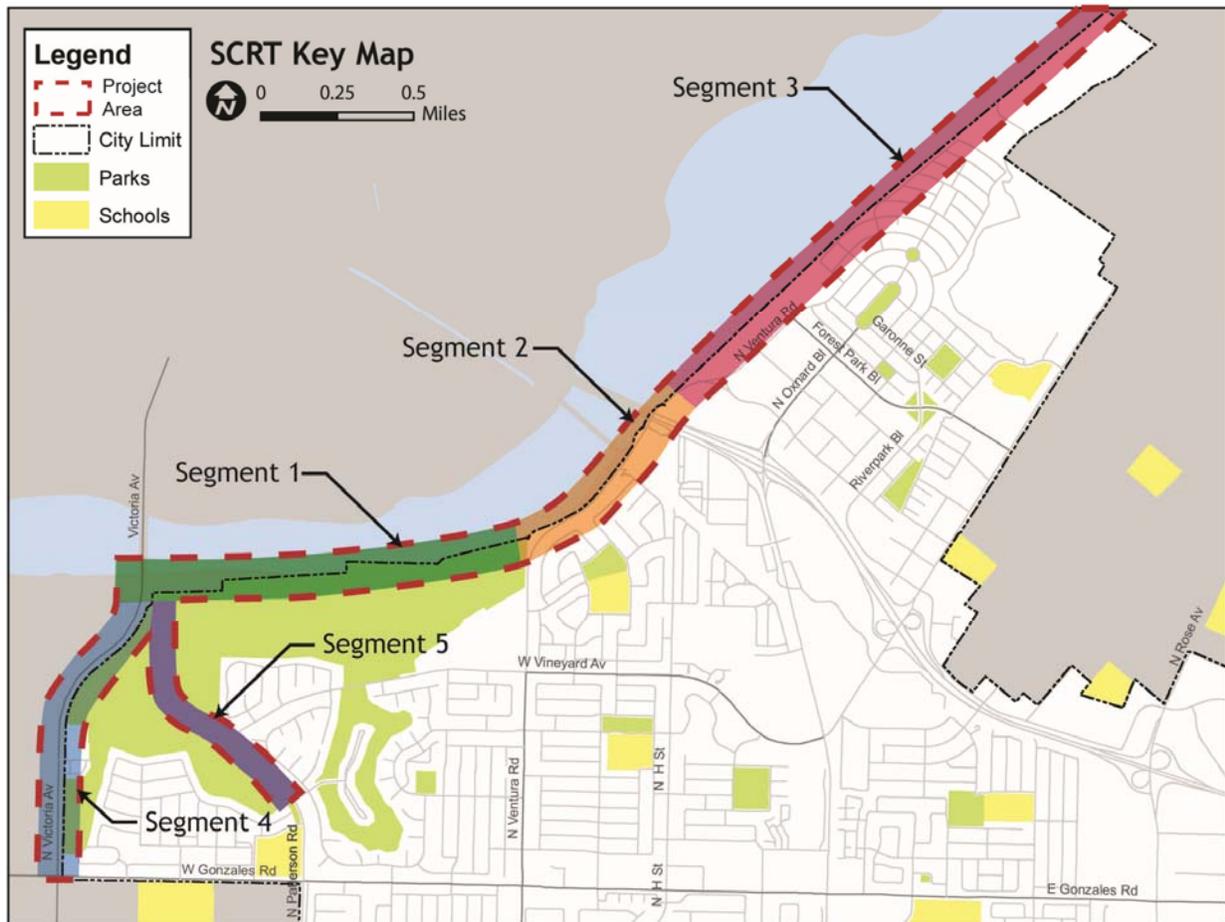
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## Segment Analysis



Santa Clara River Trail Segments

**Segment 1:** The western segment of the project site extends approximately 1.5 miles east from N. Victoria Avenue to approximately 2,000 feet west of Highway 101 at a flood control access gate off of N. Ventura Road.

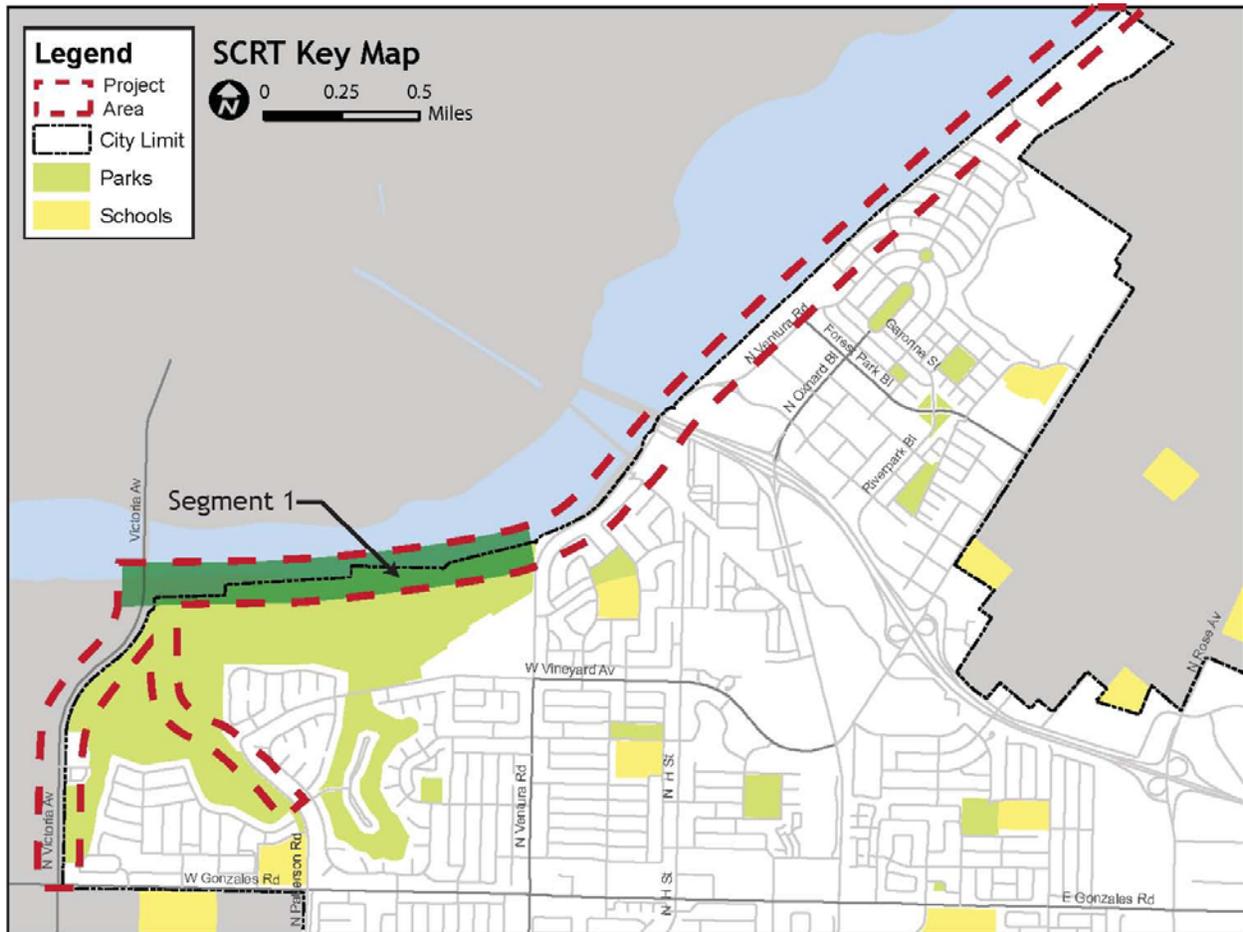
**Segment 2:** The middle segment extends from the flood control access gate at the junction of Southbank Road with N. Ventura Road to the east side of Highway 101.

**Segment 3:** The eastern segment extends east of Highway 101 for almost 2 miles to Central Avenue.

**Segment 4:** Segment four parallels N. Victoria Avenue from the levee to W. Gonzales Road

**Segment 5:** The River Ridge Golf Course (golf course) segment follows an asphalt Ventura Regional Sanitation District (VRSD) access road that goes south and east ultimately connecting to N. Patterson Road at the intersection of Patterson and Vineyard Ave (this Segment was not chosen for the final alignment).

**Segment 1: North Victoria Avenue to North Ventura Road**



Key Map- Segment 1: N. Victoria Avenue to N. Ventura Road

**LAND USE**

- The golf course, a public golf course owned by the City of Oxnard runs nearly the entire length of the segment.
- The golf course was constructed on two closed landfills; the Santa Clara Landfill owned by the City of Oxnard and the Coastal Landfill owned by the VRSD and leased by the City of Oxnard.
- A methane recovery pipeline runs above ground along the stream bank protection (SBP) on golf course property.
- Stray golf balls from the golf course occasionally encroach upon the project area along specific segments.



River Ridge Golf Course

## Chapter 1: Existing Conditions

- The cogeneration facility located adjacent to the project site has been converted into a maintenance building for the golf course. Maintenance staff will need vehicular access from N. Victoria Avenue along the proposed segment from 5:30-6:30 am and from 1:00-3:00 pm daily.
- Vineyard-Ventura residential development is a new 35 acre project proposed to be adjacent to the flood control levee on the northwest corner of W. Vineyard Avenue and N. Ventura Road.
- The Santa Clara riverbed is home to several homeless encampments. The area around N. Victoria Avenue is a popular spot for the homeless because the road bridge provides a connection between the Cities of Oxnard and Ventura.

### SBP/LEVEE CONDITIONS

- The western segment of the project site extends approximately 1.5 miles east from N. Victoria Avenue along a flood control levee and access road known as Southbank Road.
- This existing levee and access road terminates approximately 2,000 feet west of Highway 101 at a flood control access gate off of N. Ventura Road.
- A Ventura County Watershed Protection District (VCWPD) SBP facility is adjacent to the River Ridge Golf Course.
- Adjacent to the Vineyard-Ventura residential development property there is a VCWPD levee with groins for added flood protection.
- The width of the SBP facility ranges between 25' and 40'.
- A methane gas recovery pipeline runs above ground along the SBP facility on golf course property.
- The SBP facility is bisected by a methane gas recovery pipeline which runs down the middle of the facility.
- Four protruding methane gas extraction wells are located at regular intervals along the gas line.
- Clearance of approximately 20' from the top of the SBP facility to the underside of the Victoria Avenue Bridge.



Segment 1 views are dominated by riparian habitat.

### CIRCULATION

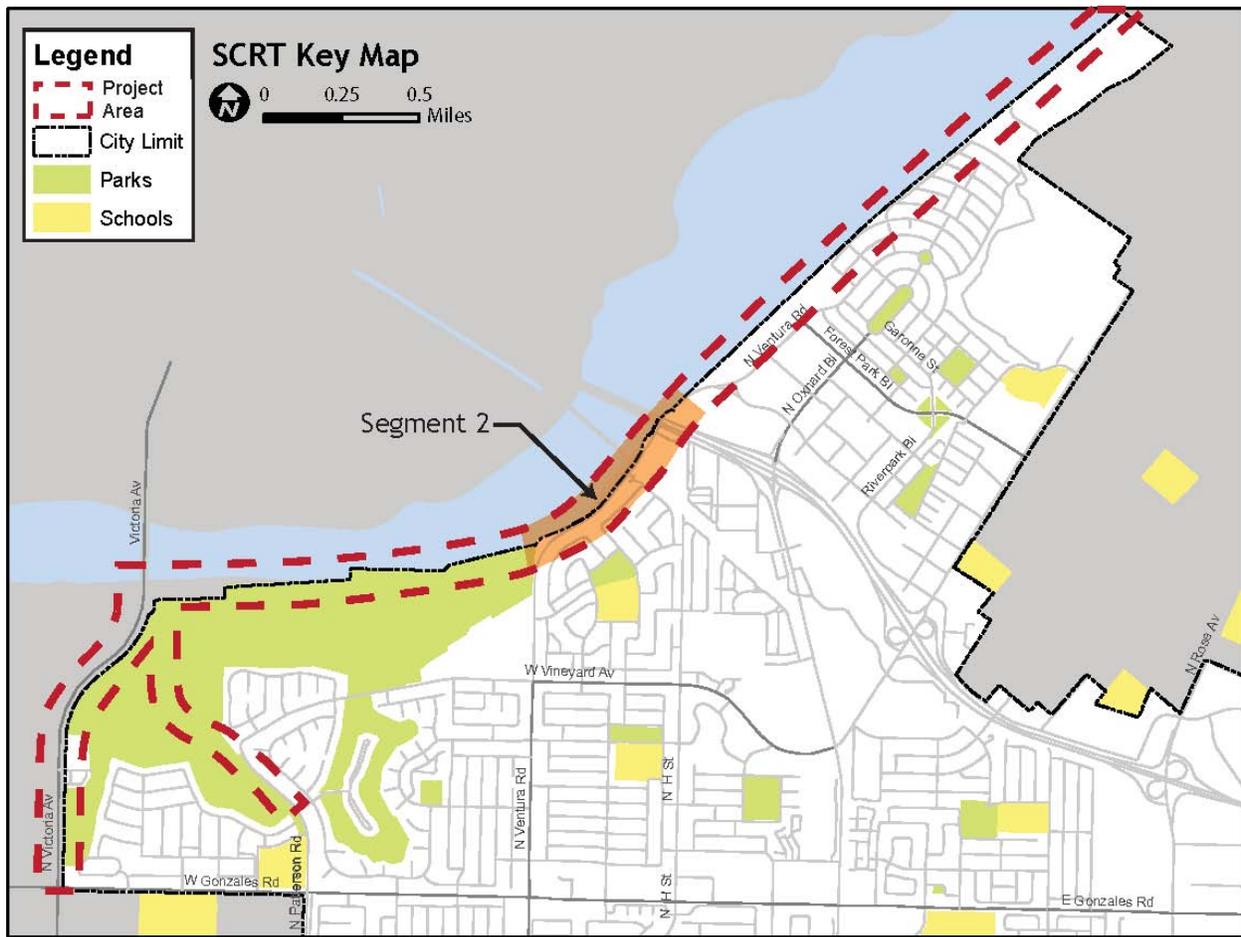
- A VCWPD gated access ramp leads to the levee at N. Ventura Road and to the north-bound side of N. Victoria Avenue as well.
- Connection points to the trail within the segment are limited.

- A current access road within the future Vineyard-Ventura residential development services a maintenance yard and nursery for the golf course.
- Two informal access points to the golf course exist.

### **AESTHETICS**

- This segment has a more naturalized and enclosed feel characterized by rural views of native habitats and the open lands of the golf course.
- The western section of the project site is bordered by mature riparian habitat to the north and by undeveloped lands of the golf course to the south.
- The river supports dense stands of riparian forest, including mature southern cottonwood and willow trees, often adjacent to the toe of the existing levee and thus in relatively close proximity to the proposed project limits providing areas of shade.
- Mature vegetation in the river bottom restricts views across river along the western segment.
- To the south, the golf course slopes up as it is built on a former land fill.
- The area under the Victoria Avenue Bridge is very dark. Holes in the fencing and information from Oxnard Police indicate frequent trespassing by young adults.
- There is a significant amount of graffiti under the Victoria Avenue Bridge.

**Segment 2: North Ventura Road to Highway 101**



Key Map- Segment 2: North Ventura Road to Highway 101

**LAND USE**

- A large commercial area, The Esplanade is located at Oxnard Boulevard and the Highway 101.
- The Village Specific Plan outlines a vision for a future Transportation Oriented Development at the former Wagon Wheel site.
- Rio Del Norte Elementary School is located in the South Bank Neighborhood.
- The South Bank Neighborhood is a single-family residential neighborhood south of N. Ventura Road. There is a city park and elementary school in the middle of the neighborhood.



N. Ventura Road looking east toward U.S. 101 Freeway

## LEVEE CONDITIONS

- There is a gap in the levee from Highway 101 southwest approximately 3,000 feet.
- N. Ventura Road is protected by rip-rap bank protection along part of this segment.
- A levee protects the Highway 101 Bridge.
- Clearance of approximately 5'-2" from the top of the levee to the underside of the Highway 101 Bridge.
- Clearance of approximately 10' from the top of the existing grade to the underside of the railroad bridge.

## CIRCULATION

- A Class I bike path exists along the El Rio Drain from Violet Way in the South Bank Neighborhood to 650' west along N. Ventura Road.
- A pedestrian bridge at Highway 101 provides access to the south side of N. Ventura Road.
- There is currently no access from the pedestrian bridge to the north side of N. Ventura Road.
- N. Ventura Road is an 80' wide four lane road with a raised median.



View Looking North from the Pedestrian Bridge at Highway 101 towards the Proposed Santa Clara River Trail

## AESTHETICS

- The central segment of the project is more urban in nature and is characterized by the Highway 101 and the railroad crossings, as well as a high speed segment of N. Ventura Road immediately south of the project site.
- The major urban improvements are a notable contrast to the undeveloped character of the site found further to the west.
- The open and undeveloped character of the river bed provides significant visual relief from these surrounding urban uses, and large groves of native trees are also present along this segment.
- The Highway 101 underpass is newly constructed with a pleasing public art element depicting salmon swimming upstream.



- Existing mining pits have exposed groundwater and will be reclaimed as open space under the RiverPark Specific Plan.
- The project site terminates adjacent to the north-south trending Central Avenue.
- Schools: Rio Del Mar Elementary School and Rio Vista Elementary Schools are located within the RiverPark development.

### LEVEE CONDITIONS

- This segment is located along the top of a VCWPD flood control levee.
- The width of the top of the levee ranges from 32' to 44' wide and is composed of graded dirt and gravel fill.
- Areas with access ramps extend out as wide as 60' (i.e. ramp adjacent to Windrow Park in RiverPark).
- There are areas of erosion along the south side of the levee, adjacent to the RiverPark neighborhood.

### CIRCULATION

- The multiple crossroads and adjacent neighborhoods in this segment allow for several possible connections along the trail.
- RiverPark proposes to build a walking and biking trail loop around the reclaimed mining pits.

### AESTHETICS

- To the north, the open, generally sandy bed of the river provides views across the river to undeveloped agricultural land and residential and commercial uses in the City of Ventura.
- The levee moves away from N. Ventura Road in this area providing greater separation from traffic and noise.
- To the south are views across the RiverPark community, including large commercial structures, medium-density residential neighborhoods and older industrial facilities associated with gravel/sand mining at the project's eastern end.
- The levee is set back from the river bed and is clear of vegetation.
- The river channel is predominantly a wide sandy wash, with limited riparian and upland vegetation creating a sunny corridor with little to no shade.

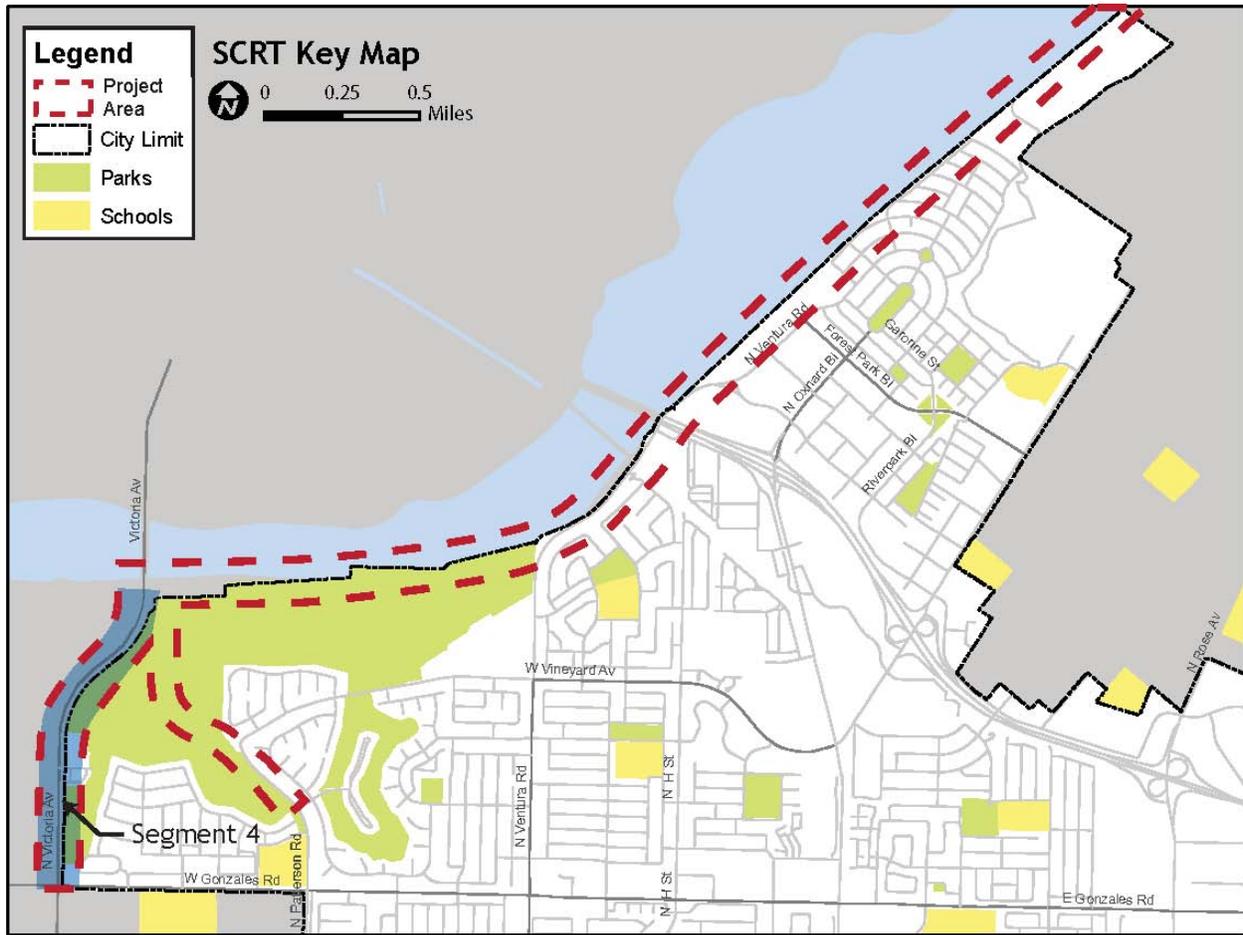


Levee north of Highway 101 with RiverPark development in Background

## Chapter 1: Existing Conditions

- Existing fencing types along the south (developed) side range from simple steel pipe, chain link, vinyl coated chain link to wrought iron picket fence.
- Fencing separates the levee from stored industrial equipment, warehouses, smaller structures, and ruderal open lots along the eastern area of the segment.
- There is graffiti on nearly every vertical concrete surface including; the railroad bridge, retaining walls, drains structures and concrete blocks.

**Segment 4: North Victoria Avenue to West Gonzales Road**



Key Map- Segment 4: North Victoria Avenue to West Gonzales Road

**LAND USE**

- The western side of N. Victoria Avenue is boarded by farmland and a land fill.
- River Ridge Golf Course and a housing development boarder the eastern side of N. Victoria Avenue.
- Stray golf balls from the River Ridge Golf Course encroach upon the project area along specific segments.
- Nearby schools: Thurgood Marshall Elementary School is located within ¾ mile of N. Victoria Avenue and Oxnard High School is located within ½ mile.



Looking north at narrow bicycle and pedestrian facilities on the east side of N. Victoria Avenue, a highly traveled and high-speed roadway.

### LEVEE CONDITIONS

- No levee exists in this segment.

### CIRCULATION

- Dirt access ramps slope down to the SBP road south of the bridge on both sides of N. Victoria Avenue.
- A dirt shoulder and/or farm road runs the length of the west side of N. Victoria Avenue.
- A drainage ditch lies on the west side of the farm road.
- A paved sidewalk 7-10' wide and directly adjacent to the east side of N. Victoria Avenue is marked as a bicycle route and serves as the current connection to bike lanes on W. Gonzales Road. Field observations reported most pedestrians choose to walk on a shaded and unpaved area east of the paved sidewalk buffered from the traffic on N. Victoria Avenue.
- North of the housing development, a paved road provide access to a City of Oxnard sewer lift station. The sewer access road has gated access to N. Victoria Avenue approximately 500' south of the Santa Clara River.
- A drainage channel on the east side of the sewer road enters a culvert and drains under N. Victoria Road.

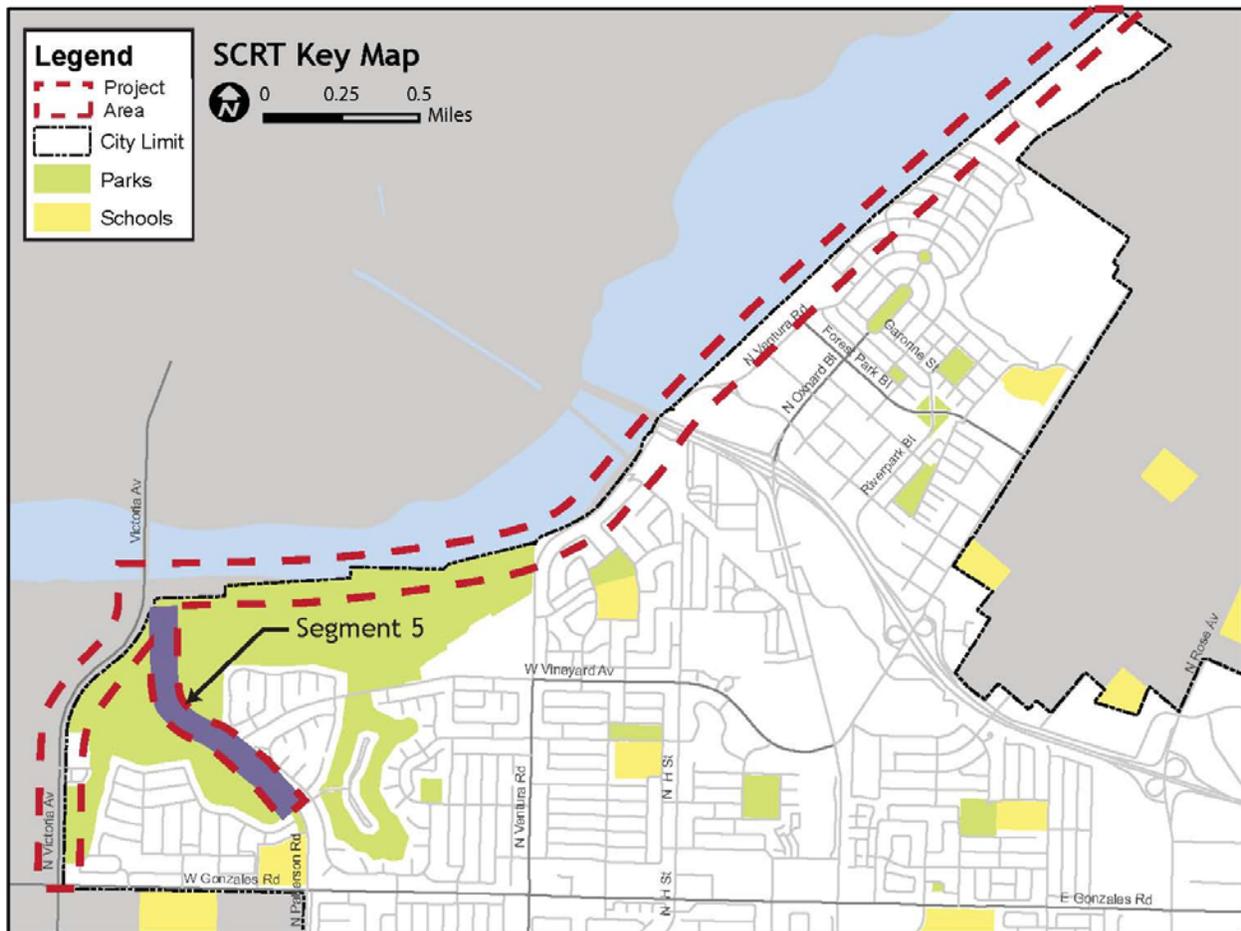


Looking north on N. Victoria Avenue, an unpaved path east of the paved sidewalk is popular location for pedestrians to walk.

### AESTHETICS

- In most instances the existing sidewalk is directly adjacent to N. Victoria Avenue with little or no buffer creating an unsafe feeling for pedestrians and bicyclists.
- The houses and golf course on the east side are a notable contrast to the undeveloped character of the farmland and landfill on the west.
- This area has few tall buildings creating distant views to the mountains, farmland and golf course.

**Segment 5: River Ridge VRSD Access Road to North Patterson Road\***



Key Map- Segment 5: River Ridge VRSD Access Road to North Patterson Road

\* Segment 5 was not chosen for the alignment of the SCRT

**LAND USE**

- The northern portion of Segment 5 traverses through River Ridge Golf Course, a public golf course owned by the City of Oxnard.
- This area of the golf course was constructed on the Coastal Landfill owned by the Ventura Regional Sanitation District and leased by the City of Oxnard.
- Stray golf balls from the River Ridge Golf Course encroach upon the project area along many segments.
- A private commercial property is located at the corner of Vineyard Avenue and N. Patterson Road.
- At Vineyard Ave, the segment transitions to an existing multi-use path adjacent to two single-family neighborhoods, Northwest Neighborhood and Windsor North River Ridge Neighborhood.

## Chapter 1: Existing Conditions

- Thurgood Marshall Elementary School is located adjacent to the existing multi-use path on N. Patterson Road and Oxnard High School is located on the south side of W. Gonzales Road between N. Victoria Avenue and N. Patterson Road.

### LEVEE CONDITIONS

- No levee exists in this segment.

### CIRCULATION

- A landfill maintenance road owned by Ventura Regional Sanitation District (VRSD) bisects River Ridge Golf Course from the project site at N. Victoria Avenue to the corner of W. Vineyard Avenue and N. Patterson Road.
- A drainage channel parallels the landfill maintenance road on the west and south sides.
- The existing Class I Multi-use Path along the west side of N. Patterson Road connects from a gate at the VRSD access road to the north side of W. Gonzales Road.



Multi-use path and bike lane along west side of N. Patterson Road.

### AESTHETICS

- The segment along the VRSD maintenance road has an enclosed and natural feel providing a unique experience traveling between the backsides of the golf course greens.
- The tree lined multi-use path is neatly landscaped and well maintained. Views of the Windsor North River Ridge Neighborhood are buffered by a landscaped center median on N. Patterson Road and mature trees and fencing along the neighborhood.



Sloping golf course views along Segment 5.

## Relevant Projects and Plans

It is important for the SCRT Master Plan to build upon existing project and planning efforts affecting the short-term construction and long-term sustainability and vitality of the SCRT. Relevant plans include regional Santa Clara River conservation planning efforts, neighboring city and county bicycle plans, flood protection studies as well as several City of Oxnard specific plans.

### Santa Clara River Regional Plans

#### Santa Clara River Enhancement and Management Plan

The Santa Clara River Enhancement and Management Plan (SCREMP) began in 1991. It is directed by a Steering Committee of federal, state, and local public agencies, owners of property along the river corridor and local conservation organizations. In 1999 the Steering Committee approved a set of management recommendations to provide guidance for the preservation, enhancement, and sustainability of the physical, biological, and economic resources that occur within the Santa Clara River's main stem.

The SCREMP recognizes that the south side of the river features extensive levees, SBP, groins, and access roads necessary for flood control maintenance. These areas in Oxnard are not currently designed for pedestrian use. Collaboration with VCWPD and Los Angeles County Department of Public Works – Watershed Management Division (LACDPW-WMD) will be required. Riverwide Recommendation 3 from SCREMP states "Encourage local jurisdictions to develop Joint Agreements with VCWPD and LACDPW-WMD to allow joint use of flood control maintenance roads with hiking and biking opportunities, particularly on existing flood control levees on the south side of the river in the cities of Oxnard and Ventura." The SCRT Master Plan effort is in direct alignment with the recommendations of SCREMP.

#### Santa Clara River Parkway

In 2000, the California Coastal Conservancy (CCC) established the Santa Clara River Parkway Project. The vision of the Santa Clara River Parkway is the acquisition and restoration of a 25 mile-long corridor from the mouth of the Santa Clara River to the Sespe Creek confluence. The project has three goals: to restore hydrologic and geomorphic processes that create and maintain habitat for endangered and threatened species, to provide enhanced flood protection for adjacent private land and public facilities, and to facilitate public access and environmental education, including the creation of a continuous public trail system along the length of the Parkway.

Planning and acquisition for the Parkway has begun. The Santa Clara River Parkway Floodplain Restoration Feasibility Study has been completed to assist the CCC with restoration and management strategies for 2,400 acres of acquired property within the lower Santa Clara River corridor. The CCC is in support of the City of Oxnard's efforts to construct a trail along the Santa Clara River.

## **Neighboring City and County Bike Plans**

### **San Buenaventura General Bikeway Plan (2004)**

The City of San Buenaventura, also known as Ventura, is located along the coast directly north of Oxnard. Ventura's bikeway network provides existing on-road connections to Oxnard along Harbor Boulevard and N. Victoria Avenue as well as a separated path along the east side of the Victoria Avenue Bridge. The Ventura Bike Plan proposes to construct a trail along the north bank of the Santa Clara River with an alignment connecting to Harbor Boulevard bike lanes, the Omer Rains Bike Trail at Surfer's Point, the Ventura River Trail and the Ojai Valley Trail.

### **Ventura Countywide Bicycle Master Plan (2007)**

The Ventura Countywide Bicycle Master Plan outlines a plan for regional bicycling connections, some of which are located in Oxnard. One of the higher priority projects it recommends includes bike lanes on N. Victoria Avenue from W. Gonzales Road to Fifth Street. The access from N. Victoria Avenue to W. Gonzales Road was identified as an important connection to the project in the early planning stages for the SCRT.

## **Flood Protection Projects**

### **Ventura County Watershed Protection District Levee Design Study**

VCWPD is conducting a Gap Closure Study along the segment of the levee west of the Highway 101 to the Bailard landfill. The gap in the levee west of the Highway 101 Bridge leaves adjacent land uses with a high risk of flooding during times of high flow. The intent of the 30% design study is to select the best design alternative to close the gap and develop preliminary design documents. VCWPD estimates construction to rebuild the levee gap will be within 5-6 years.

Strong collaboration with the VCWPD presents an opportunity to leverage funding for trail construction from federal, state and local agencies. Construction of the SCRT west of the Highway 101 should coordinate with potential construction activities associated with future levee improvements.

## **Specific Plans**

### **RiverPark Specific Plan**

RiverPark is a 702 acre mixed-use community designed to be a pedestrian-oriented community with a complete range of facilities for living, learning, working, entertainment and recreation. RiverPark is located adjacent to the eastern end of the SCRT project site. The RiverPark Specific Plan establishes four main land uses for the project site including 129.9 acres of commercial areas, 256.6 acres of residential neighborhoods (2,805 single-family and multi-family dwelling units), 274.2 acres of open space, and 3.9 acres public facilities including an elementary and middle school. The development is broken into two phases. 'Area A' is the southern portion of the site and is largely developed. The northern 432 acres of the site, 'Area B' consists of a former sand and gravel mine, active ready-mix concrete facility plants, and

former mining pits. RiverPark Area B includes residential communities with parks, schools and storm water storage/recharge basins.

A trail system throughout the development and around the reclaimed mine pits is planned. The trail system has been planned to support pedestrian travel throughout the community. Existing paths in 'Area A' are 8.5 feet wide. Future trail construction around the reclaimed mine pits should be built to Caltrans Class I standards and meet the standards of the Caltrans Highway Design Manual to provide safe bicycling facilities and smooth transition for SCRT riders.

### **The Village Specific Plan**

The Village Specific Plan is a 63-acre transit-oriented development in the Wagon Wheel area west of the Highway 101 and south of N. Ventura Road. The Wagon Wheel site is located within the City's Historic Enhancement and Revitalization (HERO) area and is currently a mix of industrial and commercial facilities and a mobile home park. The goal of the Village Specific Plan is to build a mix of residential, neighborhood serving commercial, recreational and transit-oriented development. A transit hub is proposed in the southwest corner of the site which may serve as a stop on the Metrolink line as well as a rapid bus transit (BRT) line to downtown Oxnard.

The plan seeks to be pedestrian oriented and proposes several non-motorized facilities. These include; Class I bicycle path along the northern portions of the site along N. Ventura Road and Oxnard Boulevard, Class II and III bicycle facilities along the development's new "Main Street", and traffic calming along all internal roadways. The SCRT plan will need to provide safe connections to the Village Class I paths across N. Ventura Road.

### **Vineyard-Ventura Residential Development**

In 2009 the City of Oxnard approved a residential development on 35 acres at W. Vineyard Avenue and N. Ventura Road. The development will include single family, two and three story townhomes. If development moves forward the project would be directly adjacent to the SCRT east of River Ridge Golf Course.

## **Transportation Projects**

### **North Ventura Road**

As part of the work associated with the new reclaimed water main going in under N. Ventura Road, the City of Oxnard will be redesigning N. Ventura Road to accommodate three travel lanes in each direction, where possible. The City has placed a priority on incorporating Class I multi-use paths and/or Class II bike lanes on each side of N. Ventura Road into the redesign. Construction began June 7, 2010.

### **N. Victoria Avenue Signal at Gum Tree Lane**

The City of Oxnard designed a new signal with crosswalks on N. Victoria Avenue at Gum Tree Lane. Construction of the traffic signal was completed in 2011.

## Important Agencies/Partners

### Technical Advisory Committee

The Technical Advisory Committee (TAC) was created to gather technical input from Federal, State, regional and local agencies with direct knowledge of the trail corridor. The active TAC members included:

- City of Oxnard
- Caltrans
- Friends of the Santa Clara River
- Rio School District
- State Coastal Conservancy
- The Nature Conservancy
- U.S. Fish and Wildlife
- California Department of Fish and Game
- Ventura Coastkeeper

### Stakeholders

The City and consultant team identified key project stakeholders early in the planning process in order involved them directly in development of the trail alignment and design features. The stakeholders include property owners within the project area, neighboring property owners and managers, and other special interest groups with direct social or economic ties to the project area. The active project stakeholders included:

- Channel Islands Bike Club
- City of Oxnard Engineering
- City of Oxnard General Services
- City of Oxnard Planning Department
- City of Oxnard Police Department
- City of Oxnard Transportation Planning
- Oxnard Village Investments, LLC (The Village)
- Plaza Development Partners
- RiverPark Legacy
- River Ridge Golf Course
- Ventura County Transportation Commission

- Ventura County Watershed Protection District (VCWPD)
- Ventura Regional Sanitation District (VRSD)

## Opportunities and Constraints

Using Geographic Information System (GIS) data provided by the City of Oxnard, aerial photos, field notes and photographs from field inventory, and a review of existing plans and documents, an opportunities and constraints map was developed for the SCRT. Key opportunities and constraints by segment were identified as follows:

### Segment 1: North Victoria Avenue to North Ventura Road

#### Opportunities

- The existing N. Victoria Avenue undercrossing has the vertical clearance to allow for a safe grade separated crossing.
- The Stream Bank Protection (SBP) road is amply wide (25'-48') and provides opportunities for a dual-direction multi-use path.
- Connection to the Northwest Community Neighborhood via the existing multi-use path on the east side of N. Victoria Avenue.
- Connection to the future Vineyard-Ventura residential development via proposed bicycle and pedestrians facilities.
- There are mature trees to provide shade.
- City leases the River Ridge Golf Course (golf course) which includes portions of the SBP access road along the segment.

#### Constraints

- Siting the proposed trail within VRSD property on the south side of the SBP will trigger involvement of landfill regulators.
- Need strong collaboration and approval of VCWPD and VRSD to use any of their rights-of-way.
- The methane gas extraction wells cannot be relocated and limit the width of the trail section.
- There is concern that the methane gas extraction wells may become a target for vandalism.
- Potential conflicts with golf course, VRSD and VCWPD vehicles.
- Connection points to the trail within this segment are limited.
- The secluded nature of this segment will require special safety considerations per CPTED (Crime Prevention Through Environmental Design) guidelines.

## **Segment 2: North Ventura Road to Highway 101**

### **Opportunities**

- N. Ventura Road right-of-way provides ample width (approximately 80') to provide bike lanes and/or multi-use paths.
- Connections to the South Bank Neighborhood via the existing Class I bike paths on El Rio Drain and N. Ventura Road.
- Proposed on-road bicycle connections from Downtown Oxnard will connect through the South Bank Neighborhood via bike lanes on H Street or bicycle routes on C Street and Lantana Street to Kentia Street.
- Connection to regional transit and Esplanade Shopping Center via proposed bicycle and pedestrian facilities within the Village development.

### **Constraints**

- Constrained undercrossing at Highway 101. Clearance does not allow trail to pass under bridge on top of levee.
- Trail construction will need to follow any necessary levee improvements.
- There is minimal clearance (approximately 10') under the Union Pacific Railroad (UPRR) Bridge for a trail. If the levee is rebuilt west of the Highway 101 the clearance under the UPRR Bridge will be too constrained for a trail.
- Need a crossing along N. Ventura Road to connect to the Southbank Neighborhood and the existing pedestrian ramp on Highway 101 Bridge.
- Automobile traffic speeds are high (50 mph posted) for an on-road/non-separated bike lane.
- There are few mature trees to provide shade and traffic calming.
- There are flood plain limitations on the river side crossings under existing bridges.

## **Segment 3: Highway 101 to Central Avenue**

### **Opportunities**

- Great open views to surrounding mountains.
- The levee is amply wide (16'-60') for a trail.
- Connections to existing and proposed bicycle facilities in the RiverPark Neighborhood.
- Connection to the existing Windrow Park and restroom facilities.
- Connection to proposed trails around the reclaimed gravel pits.

**Constraint**

- Trail construction will need to follow any necessary levee improvements.
- There are very few existing trees to provide shade along this segment of the trail.

**Segment 4: North Victoria Avenue to West Gonzales Road**

**Opportunities**

- VRSD access ramps allow for ADA compliant access to the levee from both north-bound and south-bound N. Victoria Avenue.
- City owned access road adjacent to the drainage ditch could facilitate an off-road alignment one-half mile from W. Gonzales Road.
- Potentially wide right-of-way along N. Victoria Avenue may allow for a setback of existing substandard (7-10' wide with no shoulders) multi-use path.

**Constraints**

- Some existing mature Eucalyptus may need to be removed to accommodate the trail.
- Automobile traffic speeds are high (55 mph posted) for an on-road/non-separated bike lane.
- Constrained shoulders: large vehicles were observed straying over the lane line into the shoulder.

**Segment 5: River Ridge VRSD Access Road to North Patterson Road**

**Opportunities**

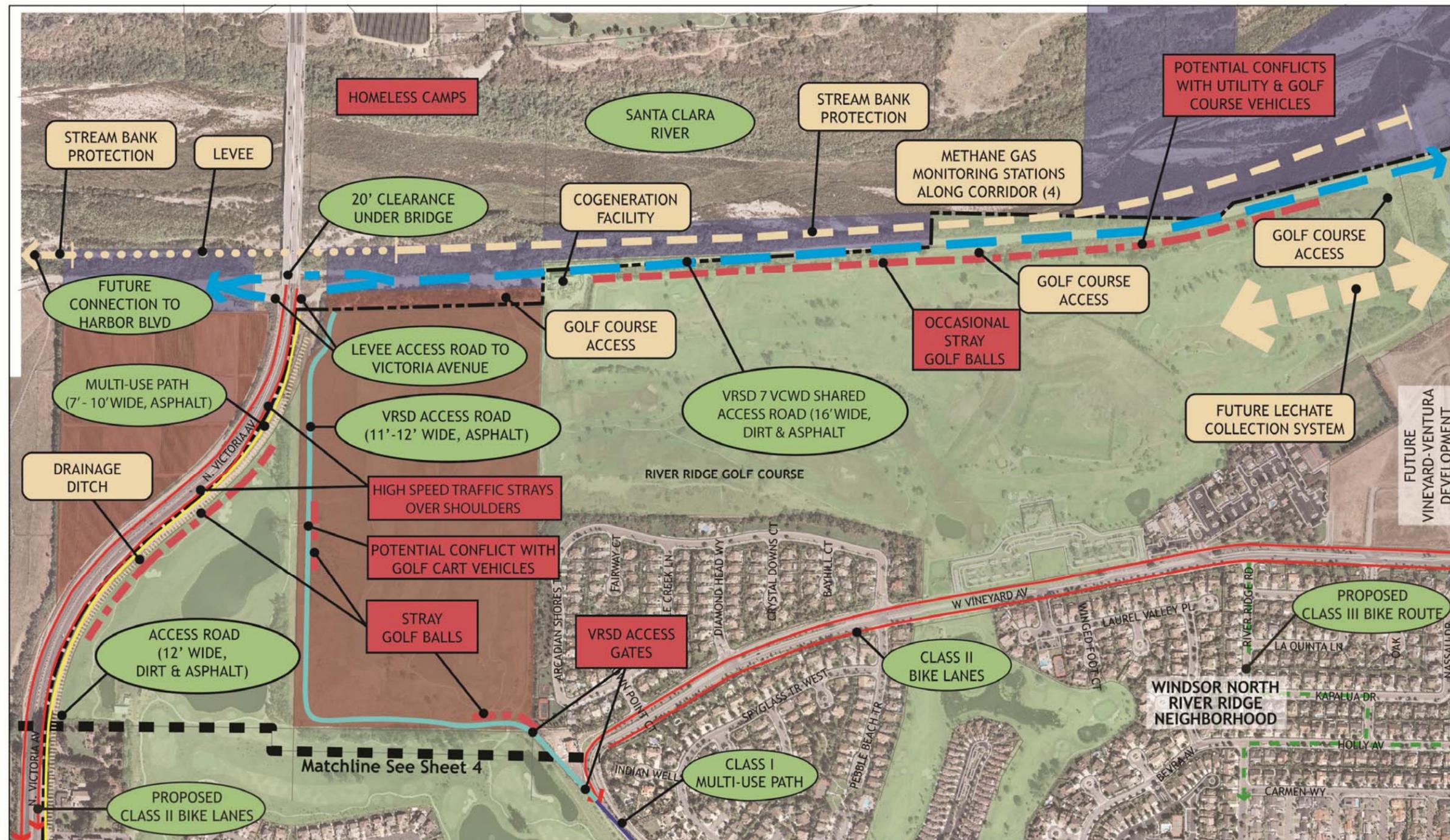
- Connecting through the golf course to an existing Class I path on the west side of N. Patterson Road would provide a pleasant and off-road connection to bike lanes on W. Gonzales Road. The existing path adjacent to N. Patterson Road continues south to W. Gonzales Road, extending the complete off-road connection to adjacent neighborhoods.
- The asphalt VRSD access road has sufficient width (11' - 12') for a trail.
- Potential for connections to proposed on-road bicycle facilities through the Windsor North River Ridge and Cabrillo neighborhoods.
- N. Patterson Road also has an 8' wide striped bike lane heading south.
- The City of Oxnard has an existing lease agreement with VRSD for the River Ridge Golf Course Property.

**Constraints**

- Potential conflicts with golf course and VRSD vehicles.
- Safety hazard from golf balls exist in many areas throughout the golf course.

## Chapter 1: Existing Conditions

- Siting a trail within the Coastal Landfill property will trigger involvement of landfill regulators/VRSD.
- Need strong collaboration and approval of VRSD to use any of their right-of-way.
- Collaboration with the private commercial property is encouraged for successful trail implementation.
- The secluded nature through the golf course will require special safety considerations per CPTED (Crime Prevention Through Environmental Design) guidelines.



**Opportunities and Constraints - Sheet 1 of 4**

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

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|---|---|--|---|---|--|
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|---|---|--|---|---|--|



**Opportunities and Constraints - Sheet 2 of 4**

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:**
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:**
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

Potential Trail Access Point

- OPPORTUNITY
- NEUTRAL / UNDETERMINED
- CONSTRAINT



Matchline See Sheet 2



Opportunities and Constraints - Sheet 3 of 4

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:**
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:**
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

- Potential Trail Access Point

- OPPORTUNITY
- NEUTRAL / UNDETERMINED
- CONSTRAINT

0 250 500 Feet





Opportunities and Constraints - Sheet 4 of 4

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: 11/14/11

- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

- Potential Trail Access Point
- OPPORTUNITY
- NEUTRAL / UNDETERMINED
- CONSTRAINT

0 250 500 Feet

## Chapter 2: Summary of Gap Analysis, Geographic Impediments and Alternatives Analysis

### Gap Analysis

This section discusses the identification of gaps on the Santa Clara River Trail within the City of Oxnard. The text first defines common trail gaps. Various gap closure measures used throughout the United States and other countries are listed, that could be applied in Oxnard. The text concludes with a procedure for identifying Santa Clara River Trail gaps.

### Defining Trail Gaps

Trail gaps exist in various forms, ranging from short “missing links” on a specific street or path corridor, to larger geographic areas with few or no facilities at all. Determining specifically what constitutes a “gap” requires setting parameters for the walkway and bikeway networks and determining which activity centers require direct links to the networks. For example, the desired bikeway network may be a grid with approximately two-mile spacing in developed areas—a network density of approximately one mile of bikeway per square mile. Under this scenario, areas where parallel bikeways are more than two miles apart would be identified as gaps. Likewise, if it is determined that all transit stations should be directly served by the walkway network, any missing walkways within a half-mile of a transit station would constitute a gap. Gaps can then be organized based on length and other characteristics. Gaps can be classified into five main categories:

- **Spot gaps:** Spot gaps refer to point-specific locations lacking dedicated facilities or other treatments to accommodate safe and comfortable pedestrian or bicycle travel. Spot gaps primarily include intersections and other areas with potential conflicts with motor vehicles. Examples include bike lanes on a major street “dropping” to make way for right turn lanes at intersection, or a lack of intersection crossing treatments for pedestrians on a route or sidewalk as they approach a major street.
- **Connection gaps:** Connection gaps are missing segments ( $\frac{1}{4}$  mile long or less) on a clearly defined and otherwise well-connected walkway or bikeway. Major barriers standing between destinations and clearly defined routes also represent connection gaps. Examples include bike lanes on a major street “dropping” for several blocks to make way for on-street parking; a discontinuous sidewalk along a street; or a freeway standing between a major pedestrian or bicycle route and a school.
- **Lineal gaps:** Similar to connection gaps, lineal gaps are  $\frac{1}{2}$ - to one-mile long missing link segments on a clearly defined and otherwise well-connected walkway or bikeway.
- **Corridor gaps:** On clearly defined and otherwise well-connected bikeways, corridor gaps are missing links longer than one mile. These gaps will sometimes encompass an entire street corridor where bicycle facilities are desired but do not currently exist (does not apply for walkway gaps).

- **System gaps:** Larger geographic areas (e.g., a neighborhood or business district) where few or no bikeways exist would be identified as system gaps. System gaps exist in areas where a minimum of two intersecting bikeways would be required to achieve the target network density (does not apply for walkway gaps).

Gaps typically exist where physical or other constraints impede walkway or bikeway network development. Typical constraints include narrow bridges on existing roadways, severe cross-slopes, and potential environmental damage associated with wider pavement widths. Traffic mobility standards, economic development strategies, and other policy decisions may also lead to gaps in a network. For instance, a community's strong desire for on-street parking or increased vehicle capacity may hinder efforts to install continuous bike lanes along a major street.

Figure 1 presents a theoretical diagram illustrating the five gap types described above.

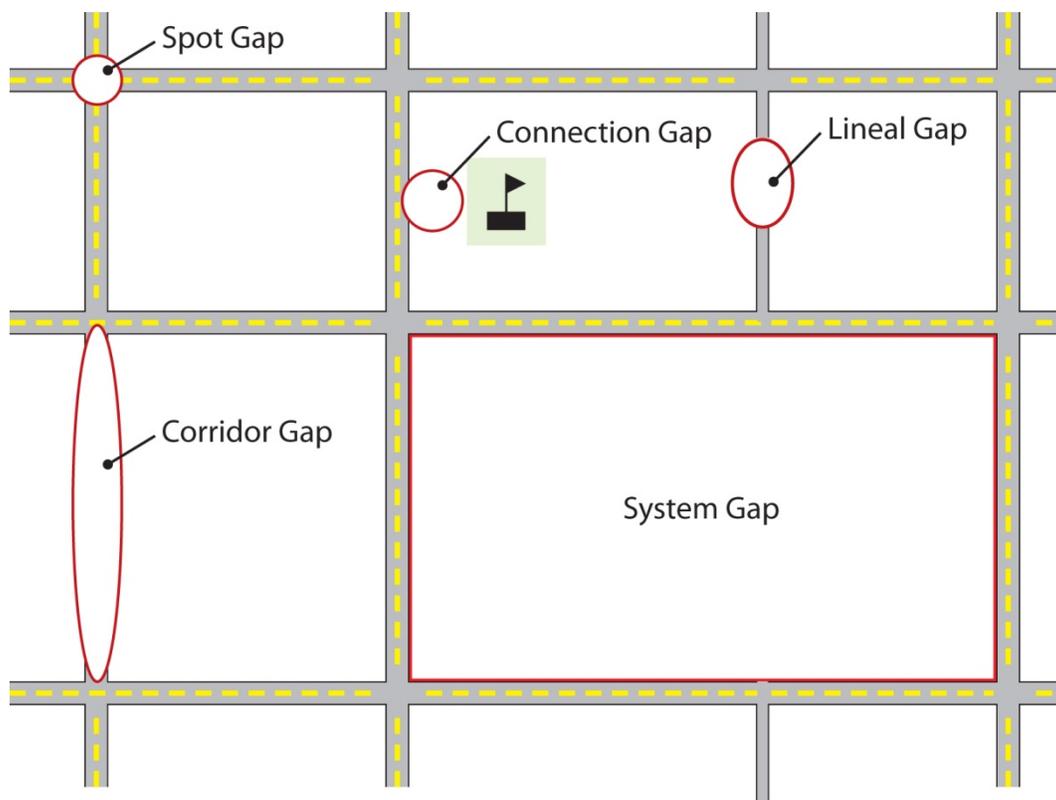


Figure 1. Diagram of Gap Types

### Gap Closure Measures

Numerous approaches exist for addressing walkway and bikeway system gaps. The following sections discuss various gap closure measures, ranging from minor treatments (e.g., signage) to larger-scale applications (e.g., new off-street path corridors). The measures generally fall into three categories:

- On-street pedestrian gap closure measures
- On-street bicycle gap closure measures
- Off-street gap closure measures

The three categories merely reflect the typical location of gap closure measures (e.g., off-street measures utilize non-roadway corridors to complete system gaps) and the users of the facility (pedestrians or bicyclists). In some scenarios, the on- and off-street measures can be used interchangeably to complete system gaps where necessary. For instance, on-street gap closure measures (e.g., intersection treatments) may be necessary to complete an off-street path that crosses several major streets with difficult crossings.

### Off-Street Gap Closure Measures

The sections below describe shared use path gap closure measures emphasizing off-street treatments. The measures largely focus on completing off-street walkway/bikeway gaps (e.g., discontinuous path segments), and are most appropriate for addressing connection, lineal, corridor and system gaps on the off-street network. It should be noted however that some measures could effectively address some on-street walkway or bikeway gaps, especially connection gaps near on-street bikeways (e.g., a bicycle/pedestrian bridge crossing a freeway to connect an on-street bikeway with a nearby school).

Off-street gap closure methods can include:

- Rails-to-Trails utilize abandoned railroad corridors to complete shared use path system gaps. Rail corridors offer several advantages, including relatively direct routes between major destinations, and generally flat terrain.
- Rails-with-Trails typically consist of paths adjacent to active railroads. Offering the same benefits as rail-to-trail projects, these projects often have additional constraints, including a need for space preservation, limited right-of-way width, inadequate setbacks, concerns about trespassing, and numerous mid-block crossings. (Figure 2)
- Utility and Waterway Corridor Trails typically include power line and sewer corridors, as well as canals, drainage ditches, rivers, and beaches. These corridors offer excellent transportation and recreation opportunities for walkers and cyclists of all ages and skills.
- Bicycle/pedestrian overcrossings and undercrossings provide critical non-motorized system links by joining areas separated by any number of barriers. Overcrossings and undercrossings address real or perceived safety issues by providing users a formalized means for traversing “problem areas” such as deep canyons, waterways or major transportation corridors.



Figure 2. Rail-with-trail along Metro Orange Line, Los Angeles, CA



Figure 3. Accessways provide connections through cul-de-sac neighborhoods

- Accessways provide short connections from trails to important destinations such as schools, parks, transit centers and mixed-use centers (Figure 3).

### Geographic Impediments

This section discusses the geographic impediments affecting the Santa Clara River Trail. As the project title suggests, the Santa Clara River Trail is intended to be a trail adjacent to the Santa Clara River. For this reach of the SCRT adjacent to/within the City of Oxnard, the Santa Clara River Enhancement and Management Plan (SCREMP) suggested joint use facilities located on the top of the network of existing levees and stream bank protection on the south side of the Santa Clara River. Larger regional goals include connecting a network of trails along the Santa Clara River from the San Gabriel Mountains to the Pacific Ocean.

This project evaluates the trail segments within/adjacent to the City of Oxnard and provides a feasible connection to the Pacific Ocean. There are primarily two major gaps in this project, the gap between the Pacific Ocean and the north-western city limits of Oxnard (N. Victoria Ave.) and the gap in the levee system south-west of the UPRR Bridge along N. Ventura Road.

The property between the Pacific Ocean and the first potential segment of the SCRT is located outside the City of Oxnard, privately owned, and is not currently for sale. This important connection is over a mile in length and therefore considered a corridor gap in the SCRT project. Until the property owner is ready to consider selling/leasing the right-of-way needed for the trail an alternate route will be evaluated.

The levee system adjacent to the Santa Clara River is an important asset to the overall trail system because it allows for trail development with minimal disturbance to the river and the associated riparian habitat. The gap in the levee affects the entire segment along N. Ventura Road and is therefore considered a lineal gap. This area is being evaluated by the Ventura County Watershed Protection District (VCWPD) as part of the SCR-3 Levee System Public Safety Project. The VCWPD in conjunction with the City of Oxnard will be determining the final design of this segment, and staff for both agencies are well aware of the trail project and working to incorporate the trail design guidelines into the levee improvements.

The following map shows the primary gaps for the Santa Clara River Trail.



## Potential Alignments

In most cases, there was only one alignment option that was both adjacent to the Santa Clara River and atop existing levees and stream bank protection. Field visits, coupled with the alignments suggestions by the SCRT Steering and Technical Advisory Committees, resulted in the following potential alignments:

**Segment 1 Alignment:** The proposed alignment follows the existing Ventura Regional Sanitation District (VRSD)/Ventura County Watershed Protection District (VCWPD) access road atop the stream bank protection along the northern border of the River Ridge Golf Course. This is the westernmost segment which extends from N. Victoria Avenue to approximately 2,000 feet west of Highway 101 at a VCWPD access gate off of N. Ventura Road. This alignment includes a trail head/gateway at N. Ventura Road.

**Segment 2 Alignment:** This alignment extends from the VCWPD access gate at N. Ventura Road to the east side of Highway 101. This segment is part of the SCR-3 Levee System Public Safety Project currently being evaluated by the VCWPD. In order to coordinate interagency efforts and minimize costs, the trail in this segment will be built after or in conjunction with the SCR-3 project. The alternatives were evaluated with the understanding that the design of the trail would ultimately be determined by the design of the flood protection structures. Potential alignments include:

**Alternative 1** – Alternative 1 is a 12' wide trail with two 2' shoulders adjacent to the north side of N. Ventura Road. At the railroad undercrossing the trail would narrow to approximately 10' wide. It is expected that the trail will require some grading and fill on the bank above the riverbed.

**Alternative 2** – Alternative 2 is class II bike lanes added to the north and south sides of N. Ventura Road. This alternative would not provide a separated facility appropriate for all users, however it is already included in the City's transportation plan and the bike lanes were installed during the course of this study.

**Segment 3 Alignment:** This alignment is on top of the levee and is 12' wide trail with two 2' shoulders. This alignment extends east of Highway 101 for almost 2 miles to Central Avenue and includes a trail head/gateway at Windrow Park. At the northern terminus of the trail, bike lanes should be provided down Central Avenue to connect to N. Vineyard Avenue and existing bike lanes that continue down to Rio Mesa High School.

**Segment 4 Alignment:** This alignment effectively provides a spur connection from the SCRT to the Pacific Ocean via the proposed bike route on W. Gonzales Road. It also provides a much needed bicycle and pedestrian connection to the surrounding neighborhoods along N. Victoria Avenue. This alignment is a 12' wide trail with two 2' shoulders on the east side of N. Victoria Avenue from the levee to W. Gonzales Road. The trail is adjacent to the fences, trees and walls of the adjacent properties and will require the removal of some of the existing Eucalyptus trees.

**Segment 5 Alignment:** This alignment also provides a spur connection from the SCRT to the Pacific Ocean via the proposed multi-use path on Patterson Road and bike lane and proposed bike route on W. Gonzales Road. This alignment is a 12' wide trail with two 2' shoulders through the golf course along the maintenance road that would ultimately connect to N. Patterson Road at the intersection of Patterson

and Vineyard Ave. This alignment would require some form of overhead protection from flying golf balls in several key areas.

### **Alignment Evaluation Criteria**

In order to develop a preferred alignment, an evaluation matrix was constructed to inform the strengths and weaknesses of each potential alignment, as well as highlight the alignments most likely to result in a successful trail route. The evaluation criteria include:

#### **Safety and Security**

- Conform to state and federal standards and guidelines.
- Reflects input from the VRSD, VCWPD, River Ridge Golf Course and the City of Oxnard Police Department, planners and engineers.
- Reflects traffic crash data.

#### **Access and Connectivity**

- Provides access to trail users of all abilities.
- Provides direct and convenient access to other trails or bikeways, schools, parks, commercial or employment areas and neighborhoods.
- Provides access to multiple types of users, i.e., recreational and commuter users.
- Separation of trail from vehicular traffic.
- Line of sight and “eyes on the route” that exist along a given alignment (this refers to the visual proximity and access to and from occupied homes, businesses, and other people near the route).

#### **Maintenance**

- Minimizes future maintenance needs and operational costs.

#### **Education**

- Provides context and opportunity for placement of an educational component (e.g., interpretive signage at various points) into trail design.

#### **Environmental Sensitivity**

- Avoids or minimizes any negative impacts to the natural environment.

#### **Partners**

- Minimizes negative impacts to property owners and adjacent properties.

#### **Cost/Implementation Opportunities**

- Needs major investments for trail construction and improvements.
- Needs major investments in land, right-of-way or easement acquisition.
- Costs of construction, right-of-way acquisition and design services for trails can be leveraged into other planned developments or public projects.

### **Scoring**

In the evaluation matrix, a score was assigned to segments 2, 4 and 5 to reflect how well each alternative met the criterion. Segment 2 had two alternative options (trail and bike lanes). The higher the score, the better suited the alignment to meet the multiple goals of the trail. The two alignments with no alternatives become the proposed alignments for those segments.

The Cost category had additional weight applied, as cost is a major factor in the feasibility of planning, constructing and maintaining trails. The Safety category also received additional weight primarily because of the goal to provide a multi-use path for users of all abilities. The matrix on the following page shows the alignments that were evaluated.

**Santa Clara River Trail Master Plan**

Alta Planning + Design

| Alignment Option               | Safety and Security                   | Access and Connectivity | Maintenance | Education | Environmental Sensitivity | Partners | Cost/Implementability on Opportunities | Total Score | Weighted Score | Recommended |
|--------------------------------|---------------------------------------|-------------------------|-------------|-----------|---------------------------|----------|--|-------------|----------------|-------------|
| <i>Weight</i>                  | 1.5                                   | 1                       | 1           | 1         | 1                         | 1        | 1.5                                    |             |                |             |
| <b>Option</b>                  | <b>Alignment</b>                      |                         |             |           |                           |          |  |             |                |             |
| <b>Segment 2 Alternative 1</b> | Trail along Ventura                   | 2                       | 2           | 3         | 2                         | 2        | 2                                      | <b>16</b>   | <b>18.5</b>    | Yes         |
| <b>Segment 2 Alternative 2</b> | Bike lanes along Ventura              | 2                       | 3           | 1         | 3                         | 2        | 2                                      | <b>14</b>   | <b>15.5</b>    | No          |
| <b>Segment 4</b>               | Trail to Gonzales along Victoria      | 2                       | 2           | 2         | 2                         | 3        | 3                                      | <b>17</b>   | <b>20</b>      | Yes         |
| <b>Segment 5</b>               | Trail to Gonzales through golf course | 2                       | 2           | 2         | 2                         | 1        | 2                                      | <b>12</b>   | <b>13.5</b>    | No          |

Scoring: scale of 1 to 3

1: option does not meet criteria

2: option has neutral or moderate positive impact to criteria

3: best solution to satisfy criteria

## Preferred Alignment

The four alternatives were measured against the evaluation criteria; each has its advantages and disadvantages. Based on this analysis, Segment 2 Alternative 1 and Segment 4 are the recommended alternatives primarily because these segments provide the safest route for trail users of all ages/abilities and in regards to the trail along N. Ventura Road, the trail provides a stronger connection to the Santa Clara River.

The preferred trail alignment will be primarily located on the south side of the river from N. Victoria Avenue to the Central Avenue. The trail will be designed to highlight the importance of the Santa Clara River and the larger watershed area, with key interpretive sites representing the river hydrology, riparian habitat and recycling/sustainability as well as the history of various sites along the river. The Santa Clara River Trail will serve transportation and recreation purposes, and helps create a connection for the community to an important natural resource. The SCRT alignment and the Victoria spur are described in the following sections as follows:

### **Segment 1 improvements include (Victoria Ave to N. Ventura Rd):**

- Provide wayfinding signage at trail access locations on east and west sides of N. Victoria Avenue near ramps down to trail to direct community to the SCRT.
- Provide interpretive signage at trailhead; possible subjects could include Santa Clara River hydrology, riparian habitat, recycling, re-use of a closed landfill, and methane gas collection (at N. Ventura Rd too)
- Provide regulatory signage to prohibit illegitimate uses and warn trail users of maintenance vehicle traffic.
- Provide protective enclosures for existing utilities within the trail corridor.
- Remove or paint over graffiti.
- Provide police call boxes.
- Provide surveillance cameras under bridge.
- Remove and/or replace dilapidated fencing that meets the needs of the golf course and VRSD operations.
- Provide chain link fencing with small openings at ground level and gates at access roads along the north side of the golf course to curb unwanted behavior, allow passive surveillance, protect habitat and allow for protected/endangered species migration.
- Remove abandoned structures within the river corridor.
- Remove litter and invasive vegetation.
- Provide a highly visible gateway connection/trailhead to the Santa Clara River Trail for pedestrians and cyclists coming from N. Ventura Road.

**Segment 2 improvements include (N. Ventura Rd to east of 101 Bridge):**

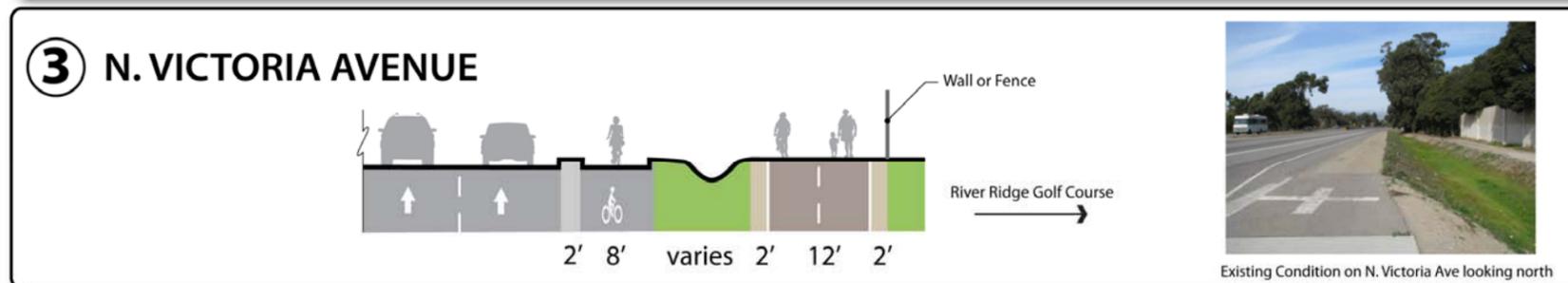
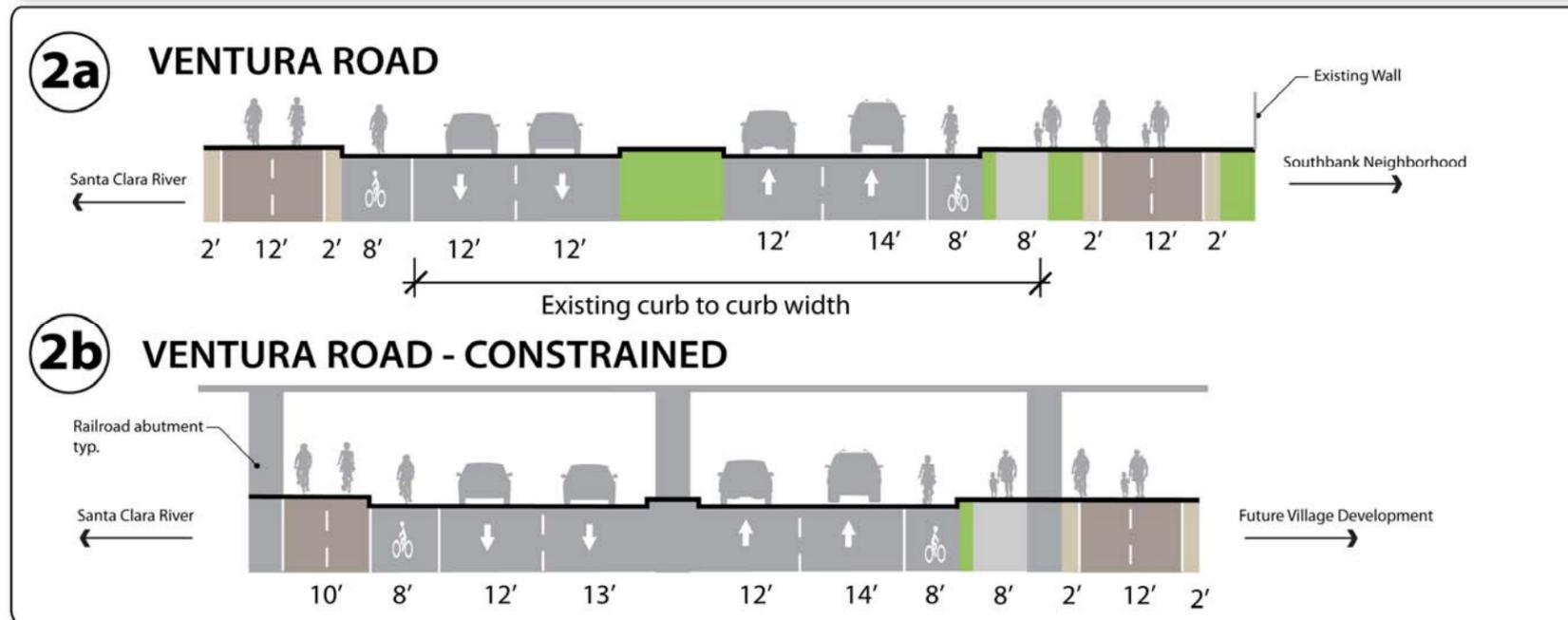
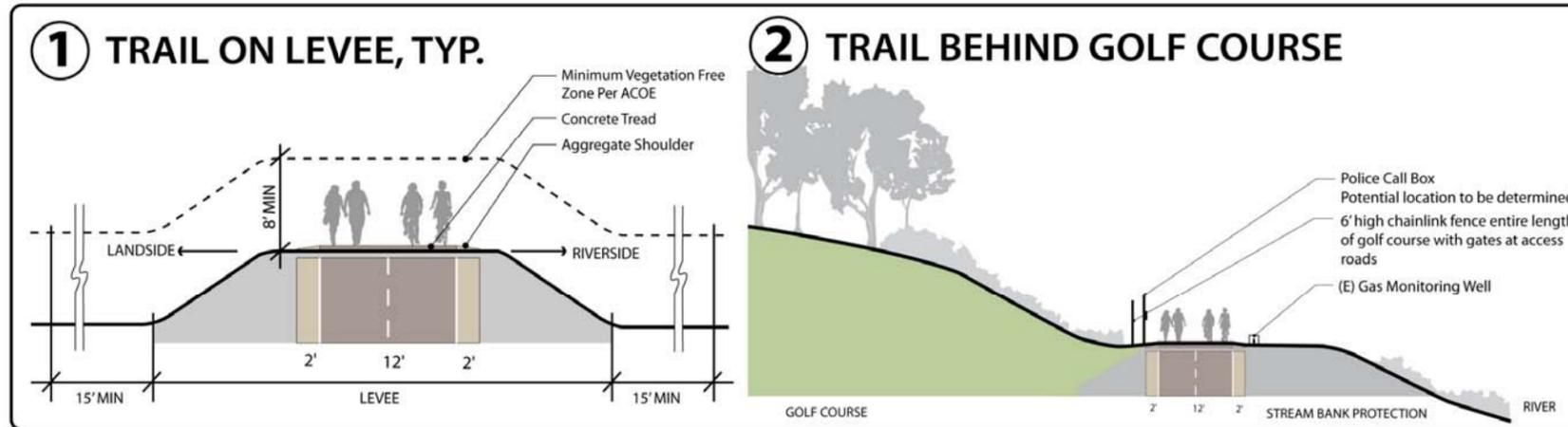
- Remove and/or replace dilapidated fencing.
- Provide interpretive signage; possible subjects could include Santa Clara River hydrology, riparian habitat, and history of the Union Pacific Railroad, Ventura Freeway and the Wagon Wheel areas.
- Provide regulatory signage to prohibit illegitimate uses.
- Provide highly visible and convenient connections to the pedestrian bridge at the U.S. 101 Freeway and to the Class I bike path that runs along the south side of N. Ventura Road and continues south adjacent to the El Rio Drain.
- Provide wayfinding signage at trail access locations at Stone Creek Drive on the east side of N. Ventura Road and at the future “Main” Street of the Village development to direct the community to the SCRT. Improve roadway crossings in these areas, incorporating safety measures such as instant-on pedestrian and cyclist activated signals and highly visible ladder style crosswalks.
- Remove abandoned structures within the river corridor.
- Remove litter and invasive vegetation.
- Where width allows, provide additional trees along the north side of North Ventura Road.

**Segment 3 improvements include (101 Bridge to Central Ave.):**

- Provide highly visible gateway connections to the Santa Clara River Trail for pedestrians and cyclists at Windrow Park.
- Provide wayfinding signage to the trail from Xanadu Way, Central Avenue and N. Vineyard Avenue.
- Remove or paint over graffiti.
- Remove and/or replace dilapidated fencing.
- Provide fencing in key areas to curb unwanted behavior and allow passive surveillance.
- Provide interpretive signage at Windrow Park Gateway; possible subjects could include Santa Clara River hydrology, riparian habitat and history of the quarry.
- Provide regulatory signage to prohibit illegitimate uses.
- Remove litter and invasive vegetation.

**Segment 4 improvements include (Victoria Ave: SCR to W. Gonzales Rd):**

- Provide a highly visible gateway connection to the Santa Clara River Trail for pedestrians and cyclists coming from N. Victoria Avenue and W. Gonzales Road.
- Remove or paint over graffiti.
- Provide regulatory signage to prohibit illegitimate uses.
- Remove litter and invasive vegetation.
- Prune branches up and/or remove Eucalyptus trees.



**MULTI-USE PATH ON LEVEES**

Multi-use path with paved shoulders, Santa Ana River Path, San Bernardino, CA.

Multi-use path with soft surface shoulders, Santa Ana River Path, Orange County, CA.

**SEPARATED BIKE PATHS**

Bike lane and sidewalk separated from roadway with curb and paved shoulder.

Separated bi-directional bike path adjacent to roadway, Bronx, NY.

**LEVEE ACCESS RAMPS**

Entrance ramp to Ballona Creek Path, Culver City, CA.

Access ramp to Coyote Creek Path, Los Angeles County, CA.

**GATEWAY ENTRANCES**

Entrance gates to Los Angeles River Path.

Formal gateway to the entrance of the Caperton Trail.

**Trail Cross Sections and Character Images**

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011





Proposed Trail Alignment - Sheet 1 of 4

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

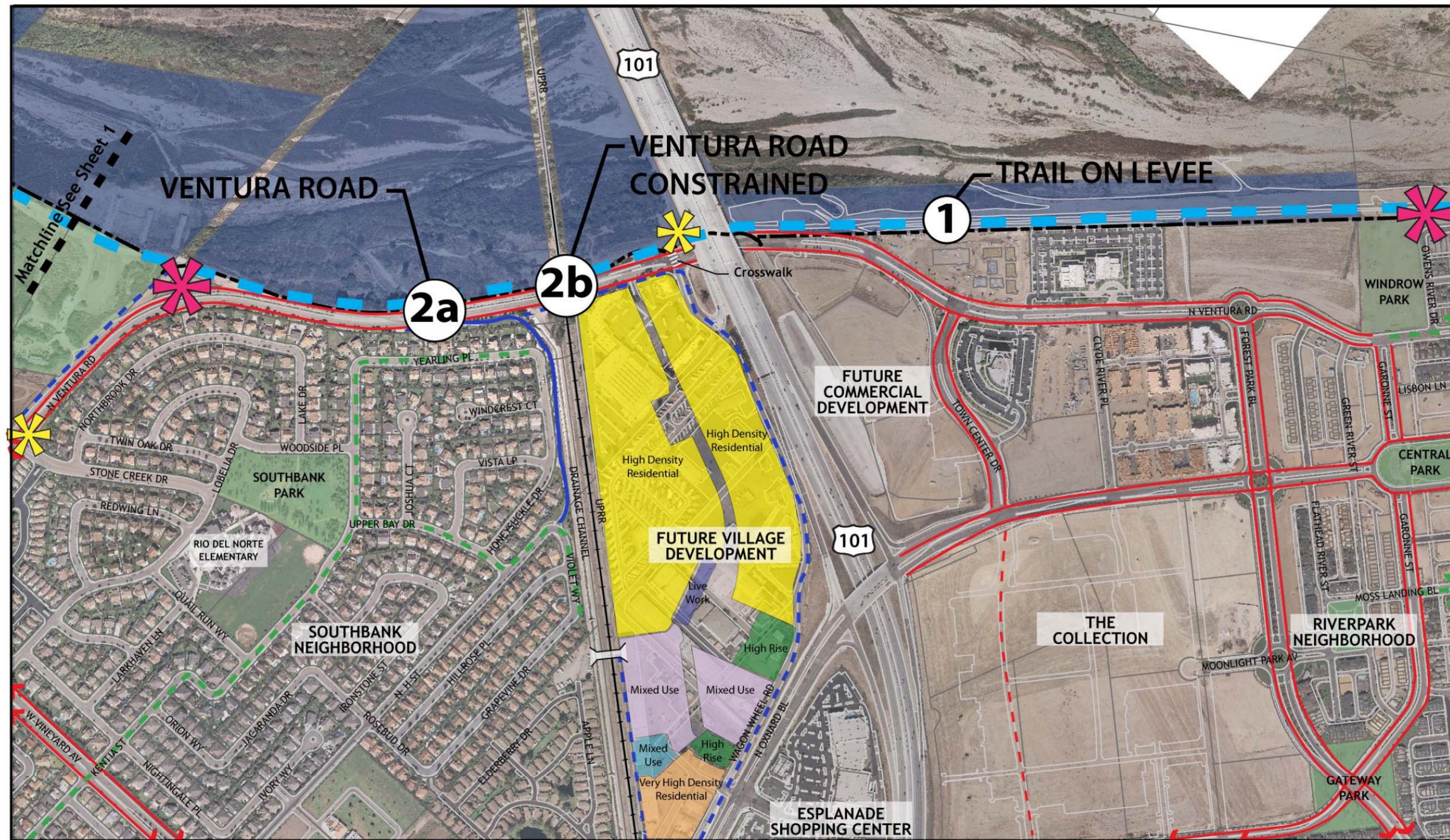
- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

- Santa Clara River Trail
- Trail Access with Wayfinding Signage





Proposed Trail Alignment - Sheet 2 of 4

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

- Proposed Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
  - Bicycle and Pedestrian Bridge

- Santa Clara River Trail
- Trail Access with Wayfinding Signage
- Gateway with Entry Feature & Site Amenities



Matchline See Sheet 3



Proposed Trail Alignment - Sheet 3 of 4

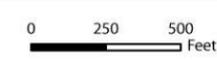
Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: November 14, 2011

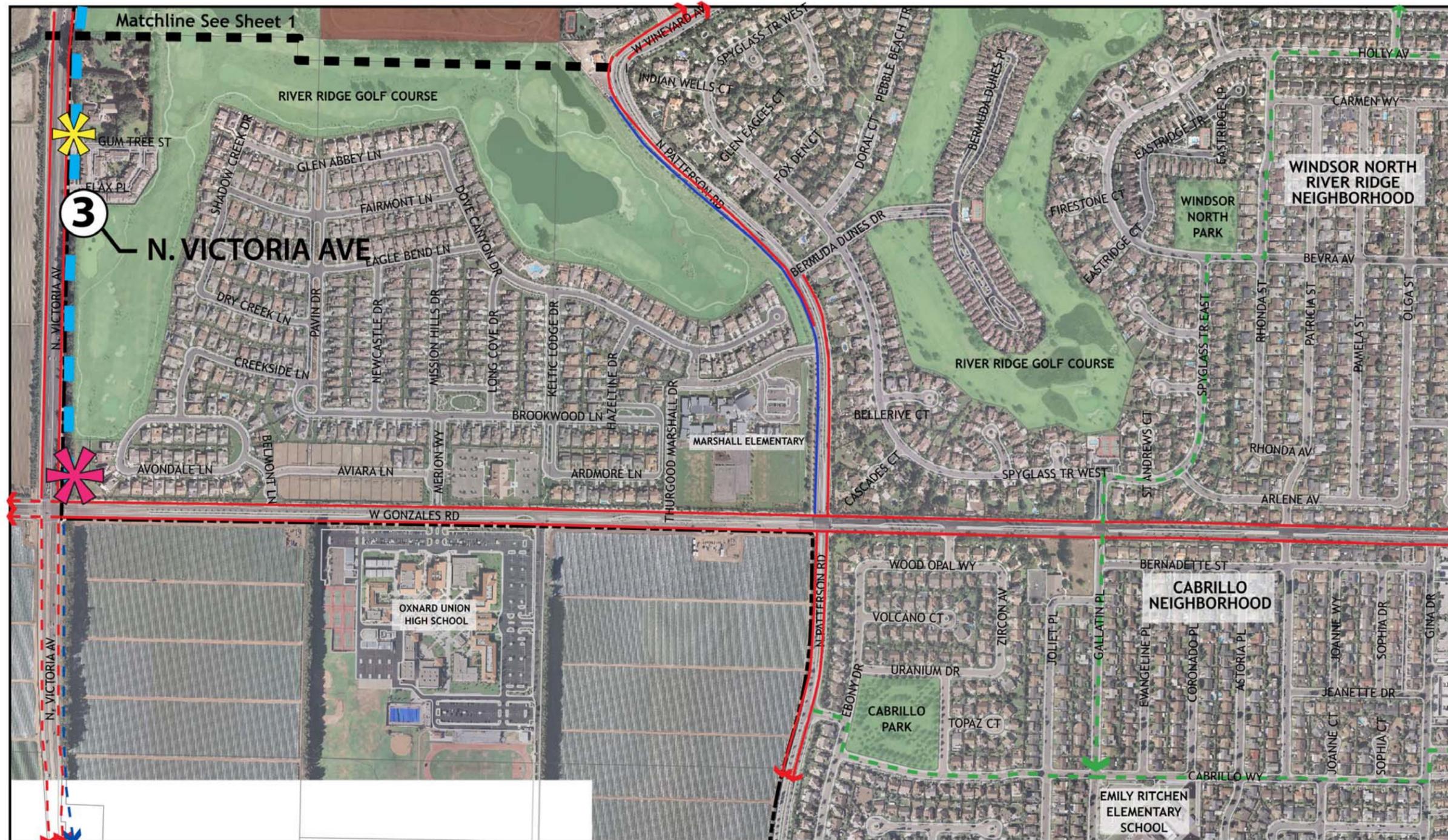
- VCWPD Property
- VRSD Property
- Parks
- City Boundary

- Existing Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:
- Multi-use Path
  - Bicycle Lane
  - Bicycle Route
- \* From Bicycle and Pedestrian Master Plan

- Santa Clara River Trail
- Trail Access with Wayfinding Signage
- Gateway with Entry Feature & Site Amenities





Proposed Trail Alignment - Sheet 4 of 4

Santa Clara River Trail Master Plan  
 Oxnard, CA  
 Date: 11/14/11

-  VCWPD Property
-  VRSD Property
-  Parks
-  City Boundary

- Existing Bicycle & Pedestrian Facilities:
-  Multi-use Path
  -  Bicycle Lane
  -  Bicycle Route

- Proposed Bicycle & Pedestrian Facilities:
-  Multi-use Path
  -  Bicycle Lane
  -  Bicycle Route

\* From Bicycle and Pedestrian Master Plan

-  Santa Clara River Trail
-  Trail Access with Wayfinding Signage
-  Gateway with Entry Feature & Site Amenities





## Chapter 3: Summary of Project Public Involvement

The Santa Clara River Trail concept has been in the minds and hearts of citizens and trail providers in the community for many years. Local and regional trail advocates care deeply about the success of this project. The master planning work benefited greatly from the knowledge and expertise provided by a large number of project partners and stakeholders.

### Project Partners

During the planning process the City of Oxnard worked with many active project partners (see Table 1).

**Table 1: Project Partners**

| Santa Clara River Trail Project Partners |   |
|--|---|
| City of Oxnard Departments & Agencies    | Development Services: Planning Division, Transportation Division, & Engineering Division.<br>Public Works<br>General Services<br>City Manager’s office<br>Police<br>River Ridge Golf Course |
| Regional Agencies                        | Ventura Watershed Protection District<br>Ventura Regional Sanitation District<br>Ventura County Transportation Commission   |
| Districts                                | Rio Elementary School District  |
| State                                    | California Fish & Game<br>State Coastal Conservancy<br>California Department of Transportation (Caltrans)   |
| Federal                                  | U.S. Fish & Wildlife  |
| Community-Based Organizations            | The Nature Conservancy<br>Ventura Coastkeeper<br>Friends of the Santa Clara River<br>Channel Islands Bike Club  |
| Private Entities                         | Plaza Development Partners<br>Oxnard Village Investments<br>RiverPark Legacy  |

One-on-one interviews were held with several residents and business owners along the trail corridor and other groups who had a vested interest in the project. Similar meetings were held as needed with project stakeholders. These meetings were very helpful in addressing the concerns of the stakeholders and building mutual trust and respect between the parties.

## Stakeholder and Technical Advisory Committees

Stakeholder and Technical Advisory Committees met during the master planning process to provide ongoing input and guidance to the consultant team. Committee members represented public and private organizations. They volunteered their time and expertise at meetings, public open houses and many other planning-related activities. The committee provided substantial input on the goals, objectives and policies of the plan, existing conditions analysis and project prioritization, and assisted in gathering broader public input.

The Santa Clara River Trail Technical Advisory Committee was comprised of 12 individuals representing a school district, state and federal agencies and community-based organizations. The Technical Advisory Committee provided technical advice regarding community needs and specific agency requirements regarding permitting and trail design. Members included representatives from Rio Elementary School District, Friends of the Santa Clara River, California Fish & Game, U.S. Fish & Wildlife, State Coastal Conservancy, The Nature Conservancy, Caltrans and Ventura Coastkeeper.

A 17-person Santa Clara River Trail Stakeholder Committee was comprised of representatives from a local bicycling advocacy organization, regional agencies, private entities, and City departments and agencies who have a stake in the project. Members included representatives from the City of Oxnard, Ventura County Watershed Protection District, Ventura Regional Sanitation District, River Ridge Golf Course, Oxnard Police Department, Channel Islands Bike Club, and business owners along the right-of-way.

Meeting the needs and concerns of these committees and future trail users were primary objectives of the following public involvement activities:

- Meetings of the Santa Clara River Trail Stakeholder and Technical Advisory Committees to review and advise the consultant team on important project information.
- Project mailings to the Neighborhood Council Chairs of the neighborhoods adjacent to the project boundary..
- Project information and public meeting announcements on the City's website.
- Site visits to meet with State and Federal Agencies and property owners along the public right-of-way.
- Presentations were conducted at a public workshop and a Transportation Policy Committee meeting to provide project information for public review and comment.
- Prior to adoption the Master Plan will be reviewed and approved by the planning commission and city council.

*Please see the appendices for public involvement information and meeting minutes.*

## Chapter 4: Entitlement Process and Policy Review

### Potentially Required Permits

Trail design and development will require certain land use approvals and permits. These are listed in Table 2 below.

**Table 2: Permit Agencies and Processes**

|                | Agency                            | Contact   | Permit   | Process/Timeline/Fee   |
|----------------|-----------------------------------|---|--|--|
| <b>Federal</b> | U.S. Army Corps of Engineers      | Ventura Field Office<br>(805) 585-2140<br>District Office<br>(213) 452-3333   | <b>404 Permit:<br/>Nationwide Permit</b>   | Application submittal prior to construction after completion of RWQCB 401 Certification. Receipt of a RWQCB 401 Certification (see below) is required before NWP/IP issuance for most projects. Allow 3 to 4 months to process. No fee for most projects.  |
|                | U.S. Fish and Wildlife Service    | Jenny Marek<br>(805) 644-1766 ext. 325<br>Jenny_Marek@fws.gov<br>2493 Portola Road, Suite B<br>Ventura CA 93003<br>www.fws.gov/ventura/ | <b>Unknown, likely informal consultation.</b> Due to known presence of T+E species, consultation with USFWS or NMFS should occur as soon as possible to ensure avoidance of Section 7 Consultation | Consultation should occur as early as possible to identify potential impacts to species and allow for project modifications as necessary. CEQA analysis should be submitted for review and confirmation of less than significant impacts to T+E species. If a Section 7 Consultation were to be required, it must be processed in a maximum of 135 days. Section 7 and 10 processes are very complex and involve multiple steps and costs. |
|                | National Marine Fisheries Service | Southwest Regional Office<br>(562) 980-4020<br>http://swr.nmfs.noaa.gov/  | Similar to above, however consultation only pertains to steelhead trout. Construction should occur outside of Dec. 1 and June 15 to limit potential impacts and permitting requirements.           | See above.   |

|              |  |  |   |   |
|--------------|--|--|---|---|
| <b>State</b> | California Department of Fish and Game           | Helen Birss<br>(Jeff and Rick)<br>South Coast Region 5<br>(805) 569-6863<br>805.448.3432<br>4949 Viewridge Avenue San Diego CA 92123<br>www.dfg.ca.gov/hcpb/ceqacesa/cesa/cesa.shtml | <b>Streambed Alteration Agreement</b>   | CEQA compliance is required before a permit will be issued. A biological review, including estimates of impacts to CDFG waters of the state, may be required, along with completion of the CDFG application forms and supporting documentation. SAAs typically take 3 to 4 months to process if CEQA compliance is complete. Upon receipt of your draft SAA, you have 30 days to review it and notify CDFG if you disagree with any measures. An application fee is typically required. |
|              |  |  | <b>Section 2801 Incidental Take Permit</b>  | Consultation and initiation of permit is required if biological survey finds presence of CSC species. If a CDFG Streambed Alteration Agreement is required for a project, then CSC species protection is often handled as part of that process. Permitting can take 6 to 8 months.  |
|              | Los Angeles Regional Water Quality Control Board | 320 W. Fourth Street, Suite 200<br>Los Angeles, CA 90013<br>Phone:(213) 576-6600<br>WDR Issues- Enrique Casas; 213 629-2299  | <b>RWQCB 401 Certification</b>  | A biological review, including estimates of impacts to waters of the U.S., adjacent wetlands and receiving waters, may be required to complete the permit application. Permit process typically takes 3 to 4 months. An application fee is typically required. In addition, Waste Discharge Requirements (WDR) also apply.  |
|              | State Water Resources Control Board              | State Water Resources Control Board<br>P.O. Box 100<br>Sacramento, CA 95812-0100<br>(916) 341-5536<br>www.swrcb.ca.gov/stormwtr/construction.html                                    | <b>Construction General Permit and Stormwater Pollution Prevention Plan (SWPPP)</b> | Prepare SWPPP and NOI 1 month before construction. Submit NOI and required documentation 2 weeks before construction to receive a Waste Discharger Identification (WDID) number. The permit is considered valid upon receipt of complete NOI. No fee.   |
|              | Caltrans (District 7)                            | 100 S. Main Street, Los Angeles, CA 90012<br>(213)897-3656   | <b>Encroachment Permit</b>  | Caltrans reviews all requests from utility companies, developers, volunteers, nonprofit organizations, etc., desiring to conduct various activities within the right of way.  |

|              |  |  |   |   |
|--------------|--|--|---|---|
|              | California Department of Resource Recovery and Recycling | Scott walker-916 341-6319  | <b>Landfill issues</b>                      | May review portions of bike path overlying landfills  |
| <b>Local</b> | VC Watershed Protection District                         | 800 South Victoria Avenue, Ventura, CA 93009-1610. (805) 662-6882  | <b>Encroachment Permit</b>                  | Prior to construction, contact the VCWPD to initiate permit process. Permitting typically takes about 1 month. Trust Deposit of \$2,000.00 towards Plan Review, Investigation, and Inspection fee is required. Final fees are for actual costs. After completion of plan checking, construction, or inspection, a refund will be processed or additional fees required. |
|              |  |  | <b>Watercourse Permit</b>                   | Prior to construction, contact the VCWPD to initiate permit process. Permitting typically takes about 1 month.  |
|              | Ventura County Planning Division                         | (805) 654-2488<br>www.ventura.org/planning/permits/permits.htm<br><br>Oxnard: Planning & Environmental Services (805) 385-7858 | Potential <b>Land Use Permit</b> required.  | Many of the projects within streams and wetlands do not require a VCPD Land Use Permit. Contact the VCPD to determine if your project requires a permit.<br><br>Permitting can take 6 to 8 months for small projects with limited environmental effects   |
|              |  |  | <b>Protected Tree Permit</b>                | Contact the VCPD to initiate the permit process. Trimming or removal of protected trees can require not only a permit but also tree replacement or other mitigation. Completion of a tree survey by a qualified arborist or biologist is also typically required. Ministerial permits may be issued in 1 day. Discretionary permits take a minimum of 3 months.         |
|              | Ventura County Public Works Agency                       | Unincorporated VC County (805) 654-2030<br><br>Oxnard: Public Works Department (805) 385-7821                                  | <b>VCPWA Grading Permit (Discretionary)</b> | Submit application prior to construction. The VCPWA would utilize the grading permit process to review the proposed grading and drainage plan. Discretionary permits require CEQA compliance, which can take 6 to 8 months or longer. About 1 month for ministerial permits.  |

|  |  |  |   |  |
|--|--|--|---|--|
|  |  |  | <b>VCPWA Building Permit</b>  | Submit application prior to construction. VCPWA would utilize the building permit process to review the landscaping, habitat restoration and irrigation plans.   |
|  | Ventura County Resource Management Agency, Environmental Health Division | Richard Hauge<br>(805) 654-3524  | <b>Landfill Issues</b>  | May review portions of bike path overlying landfills   |
|  | Ventura Regional Sanitation District                                     | 1001 Partridge Drive, Suite 150, Ventura, CA 93003-0704<br>Chi Hermann<br>(805) 658-4614 | Amendment to the Closure/Post-closure Plan for Santa Clara Landfill | Contact the VRSD to initiate the amendment process. Process may require 6 or more months and require coordination with California Department of Resource Recycling and Recovery, Ventura County and the RWQCB. |

## Permit Triggers/Extra Info

### USACE

A USACE 404 Permit is triggered by moving (discharging) or placing materials—such as dirt, rock, geotextiles, concrete or culverts—into or within USACE jurisdictional areas (areas within the “ordinary high water mark” and adjacent wetlands). This type of activity is also referred to as a “discharge of dredged or fill material.” A **Nationwide Permit (NWP)** standard categories are numbered, and include projects such as road crossings, bank stabilization, repairs to existing structures, flood control maintenance and wetland restoration for wildlife habitat. There are approximately 40 types of NWPs. NWPs generally authorize up to 0.5 acre of permanent impacts within USACE jurisdiction. If the impact exceeds 0.5 acre of USACE jurisdiction, an Individual Permit (IP) is required. [www.spl.usace.army.mil/regulatory/lad.htm](http://www.spl.usace.army.mil/regulatory/lad.htm)

The USACE “Application for Department of the Army Permit” is used and can be found at <http://www.spl.usace.army.mil/regulatory/eng4345.pdf>

### USFWS

The presence of federally protected plant or animal species most likely will already have been revealed in a biological survey as part of CEQA compliance. When species are found, coordinate with USFWS or NMFS as soon as possible to redesign your project to minimize impacts on the species and avoid Section 7 Consultation.

### NMFS

The main triggers for a NMFS formal Section 7 Consultation for a project where steelhead trout are present include:

- Working in or near a stream channel between Dec. 1 and June 15

- Diverting water in a stream channel
- Catching and relocating steelhead
- Grouting rip-rap

## CDFG

**Streambed Alteration Agreement:** If your project includes alteration of the bed, banks or channel of a stream, or the adjacent riparian vegetation, then you may need a Streambed Alteration Agreement from the California Department of Fish and Game (CDFG). The California Fish and Game Code, Sections 1600-1616, regulates activities that would alter the flow, bed, banks, channel or associated riparian areas of a river, stream or lake—all considered “waters of the state.” The law requires any person, state or local governmental agency or public utility to notify CDFG before beginning an activity that will substantially modify a river, stream or lake.

Two forms are required in the SAA application packet:

- “Notification of Lake or Streambed Alteration” form (FG 2023)
- “Project Questionnaire” form (FG 2024)

These forms are available at [www.dfg.ca.gov/1600/notification\\_pkg.html](http://www.dfg.ca.gov/1600/notification_pkg.html)

**Section 2081 Incidental Take Permit.** The California Department of Fish and Game (CDFG) will require a Section 2081 Incidental Take Permit if a project has the potential to negatively affect state-protected plant or animal species or their habitats, either directly or indirectly. Protected species include those “listed” by the state as endangered or threatened. Besides listed species, there are other categories of species protection, including “fully protected” and California Species of Special Concern (CSC). Adverse impacts to species that have the “fully protected” designation are prohibited.

## RWQCB

A RWQCB 401 Certification is triggered whenever a USACE 404 Permit is required, or whenever an activity could cause a discharge of dredged or fill material into waters of the U.S. or wetlands. In California, the state and regional water boards are responsible for certification of activities subject to USACE Section 404 Permits. The RWQCB “Section 401 Water Quality Certification Application Form” is used and is located with directions at [www.waterboards.ca.gov/losangeles/html/meetings/401wqc.html](http://www.waterboards.ca.gov/losangeles/html/meetings/401wqc.html).

The RWQCB Solid Waste Division also manages Waste Discharge Requirements for these landfills.

## SWRCB

**Construction General Permit:** The State Water Resources Control Board (SWRCB) administers a statewide general permit, called a Construction General Permit, to cover a variety of construction activities that could result in wastewater discharges. Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) is required as part of the permit.

## Chapter 4: Entitlement Process and Policy Review

If your project disturbs more than an acre of land, you may need a Construction General Permit (sometimes called a Section 402 Permit) and associated SWPPP from the SWRCB.

### **VCWPD**

**Ventura County Watershed Protection District Encroachment Permit.** While some activities require an “encroachment” permit due to work being done within the District’s real estate holdings, other allowed activities call for a “watercourse” permit where development or activity will affect the floodplain adjacent to a jurisdictional channel.

Permit required if any of the following apply:

- Impair, divert, impede, or alter the characteristics of the flow of water running in a watercourse;
- Deposit any material of any kind in a watercourse so as to obstruct it, or to impair, divert, impede, or alter the characteristics of flow of water therein;
- Alter the surface of land by construction, excavation, embankment, or otherwise, so as to alter the capacity of a watercourse or the characteristics of the flow of water therein;
- Construct, alter, or remove any flood control, storm water drainage, or water conservation facility, structure or channel of or in a watercourse;
- Construct or place any structure in, upon, or across a watercourse;
- Plant any vegetation (other than grasses or annual crops) within a watercourse or plant any vegetation on the banks thereof which impairs, impedes, diverts, or alters the characteristics of flow of water in such a watercourse;
- Commit any act on or in any easement dedicated, granted, or reserved for flood control, storm water drainage, or water conservation purposes that will impair the use of such easement for such purposes; or
- Interfere with, impair with the use of, or cause damage to any flood control, storm water drainage, or water conservation facility, structure or right of way in a watercourse.

Permit info:

[http://portal.countyofventura.org/portal/page/portal/PUBLIC\\_WORKS/Watershed Protection District/About Us/VCWPD Divisions/Planning and Regulatory/Permits](http://portal.countyofventura.org/portal/page/portal/PUBLIC_WORKS/Watershed_Protection_District/About_Us/VCWPD_Divisions/Planning_and_Regulatory/Permits)

### **VCPD**

The **Ventura County Planning Division (VCPD)** issues Land Use Permits when a project involves a regulated land use in unincorporated Ventura County. Consultant with the Planning Division indicated that a land use permit would not be necessary, however if during future phases of this project it is determined that a Land Use Permit is required, then the VCPD will usually be the lead agency under CEQA.

A **VCPD Protected Tree Permit** is triggered when a project involves pruning, trimming, removal or disturbance:

- Within the drip line (canopy perimeter) of protected trees
- That exceeds the allowed minimums of trunk or branch circumference as well as other measures

### Protected Trees

- Heritage Tree All species
- Alder (*Alnus*) All species
- Ash (*Fraxinus*) All species
- Bay (*Umbellularia californica*) This species only
- Cottonwood (*Populus*) All species
- Elderberry (*Sambucus*) All species
- Big Cone Douglas Fir (*Pseudotsuga macrocarpa*) This species only
- White Fir (*Abies concolor*) This species only
- Juniper (*Juniperus californica*) This species only
- Maple (*Acer macrophyllum*) This species only
- Oak (*Quercus*) All species
- Pine (*Pinus*) All species
- Sycamore (*Platanus*) All species
- Walnut (*Juglans*) All species
- Historical Tree Any species

### VCPWA

Ventura County Public Works Agency **Grading Permit**: If your project involves moving earth around—especially in or near a stream or wetland—you will need to get a VCPWA Grading Permit. The Public Works Agency would utilize a grading permit process to review the proposed grading and drainage plan, including review and recommendation of specific runoff control measures and Best Management Practices. Always discuss your project with VCPWA staff to confirm Grading Permit requirements. Common triggers include:

- Excavation greater than 2 feet in depth
- Excavations that cut a slope greater than 5 feet in height and steeper than 1.5 feet horizontal to 1 foot vertical (1.5:1 or 67 percent)
- Fill that is greater than 1 foot in depth and is on slopes that are greater than 5:1, or 20 percent
- Fill that is greater than 3 feet in depth and exceeds 50 cubic yards/lot

## Chapter 4: Entitlement Process and Policy Review

Ventura County Public Works Agency Building Permit: The Public Works Agency would utilize a building permit process to review the landscaping, habitat restoration and irrigation plans.

### **VRSD**

Ventura Regional Sanitation District and the City of Oxnard manage post closure operations for the Coastal Landfill (owed by VRSD) and the Santa Clara Landfill (owned by the City of Oxnard). Segment 1 of the proposed bike path along the levy road north of the River Ridge Golf Course overlies the Santa Clara Landfill and appears to be within the Landfill property boundary line. An amendment to the existing Closure/Post-Closure Plan for Santa Clara landfill would be required for development overlying the historic landfill. The City may undertake these amendments on its own or retain the VRSD to provide this service. The California Department of Resource Recycling and Recovery and the Ventura County Resource Management Agency, Environmental Health Division, acting as the Local Enforcement Agency along with the Los Angeles Regional Water Quality Control Board (see above) have jurisdiction over this landfill as well and coordination with these agencies may be required.

## Chapter 5: Benefit Cost Analysis

A benefit-cost analysis provides an analysis of the merits of the Santa Clara River Trail project to the City of Oxnard and the regional transportation network. The cost-benefit analysis tool used in this analysis was developed by the National Academy of Sciences Transportation Research Board, *National Cooperative Highway Research Program Report 552: Guidelines for Analysis of Investments in Bicycle Facilities* (NCHRP Report 552) (2006). This tool was applied by the East Bay Regional Park District for a TIGER II grant application for which the agency was awarded approximately \$10 million<sup>1</sup> and is the standard benefit-cost analysis methodology for bicycle facilities.

This analysis places monetary value on benefits to existing cyclists, whose current levels of cycling will be increased; potential cyclists whose probability for riding will increase; and society at large, as a result of decreased driving. The model considers the following categories of benefits:

- Mobility benefits
- Health benefits
- Recreation benefits
- Reduced auto use benefits

### Methodology

Estimated numbers of existing and new bicyclists are based on the 2005-2009 American Community Survey population estimates and GIS mapping. While the methodology used by the NCHRP Report 552 considers only the benefits for bicycle commuters and adult cyclists, the benefits for pedestrians are also substantial and are likely a sizeable fraction of the benefits calculated for cyclists.

The total annual benefits are determined by summing the mobility, health, recreation, and reduced auto use benefits anticipated to result from implementation of the pathway. The monetary values of each benefit category were based on NCHRP Report 552 and summarized in Table 3.

**Table 3. Benefits Considered in the Analysis**

| Benefit    | Description   | Who Benefits  | Value   |
|------------|---|---|---|
| Mobility   | Individual preferences for different cycling environments | Existing and new cyclists                           | \$4.08/trip, with two trips per day, five days/ week and 50 weeks/ year |
| Health     | Annual per capita cost savings from physical activity     | New cyclists  | \$128   |
| Recreation | "Typical" 40 minute cycling day                           | New adult cyclists, excluding new bicycle commuters | \$10/day times 365 days   |
| Auto use   | Average 6-mile round-trip commute distance                | Commuter and other utilitarian cyclists             | \$0.13/per mile   |

<sup>1</sup> <http://www.ebparks.org/news/09102010a>

The benefit-cost ratio weighs the anticipated annual benefits of the pathway against the estimated construction and maintenance costs for the pathway. The estimated construction cost for this project is \$7.1 million. For benefit-cost analyses, construction costs incurred from 2011 to 2015 and annual maintenance and operating costs over 30 years are adjusted to net present value (NPV). Annual benefits (2011 dollars) were calculated based on high estimates, best estimates and low estimates for the number of bicycle commuters that would use the Santa Clara River Trail, following the NCHRP Report 552 methodology for both 5 percent and 2.5 percent discount rates.

### Existing Count Data

This analysis is informed by count data on trails in areas with similar climate and number of rideable days per year. This analysis assumes that walking and bicycling use on the Santa Clara River Trail will be similar to that of the Ballona Creek Path, which is a river path connecting to the beach at Marina del Rey, a popular recreation destination. The Los Angeles River Path is a regional trail system similar to the eventual nature of the Santa Clara River Trail.

Count data are available from the Los Angeles County Bicycle Coalition’s 2009 Bicycle and Pedestrian Count and from counts conducted as part of the Culver City Bicycle and Pedestrian Master Plan (Draft 2010). Counts are shown in Table 4.

**Table 4. Comparison of Pedestrian and Bicycle Counts on Similar Trails**

| Location                              | Morning Peak |      |       | Afternoon Peak |      |       | Weekend Midday |      |       |
|---------------------------------------|--------------|------|-------|----------------|------|-------|----------------|------|-------|
|                                       | Ped          | Bike | Ratio | Ped            | Bike | Ratio | Ped            | Bike | Ratio |
| L.A. Bike Count                       |              |      |       |                |      |       |                |      |       |
| Orange Line multi-use path            |              |      |       |                |      |       |                |      |       |
| Reseda & Orange Line                  | 1244         | 104  | 12.0  | N/A            | N/A  | N/A   | N/A            | N/A  | N/A   |
| Woodman & Orange Line                 | 195          | 83   | 2.3   | 133            | 49   | 2.7   | 68             | 77   | 0.9   |
| LA River at Baum Bridge               | 48           | 110  | 0.4   | 46             | 164  | 0.3   | 11             | 95   | 0.1   |
| Ballona Creek                         | N/A          | N/A  | N/A   | 181            | 353  | 0.5   | 421            | 1251 | 0.3   |
| Culver City Bicycle & Pedestrian Plan |              |      |       |                |      |       |                |      |       |
| Ballona Creel at Overland             | 34           | 63   | 0.5   | 31             | 94   | 0.3   | 81             | 285  | 0.3   |
| Ballona Creek Duquesne                | 36           | 51   | 0.7   | N/A            | N/A  | N/A   | 7              | 107  | 0.1   |

One of the purposes of this data is to determine the typical ratio of pedestrian to bicyclists, as the NCHRP Report 552 methodology considers only the increase in bicyclists on the trail. Assuming that the ratio of pedestrians to bicyclists will remain constant provides an estimate of future pedestrian use of the trail. Table 4 shows a significantly different ratio of pedestrians to bicyclists on the Orange Line multi-use path on other, non-transit-corridor trails. The ratios from the L.A. River Trail at Baum Bridge and along Ballona Creek are similar (ranging from 0.03 to 0.01). The average of those is used in this analysis.

## Projected Existing and New Bicyclists and Pedestrians

Table 5 shows the estimated number of commuting and adult cyclists within 1 mile of the proposed trail under existing conditions and Table 6 shows the estimated number of new cyclists resulting from the pathway within that same area. Under existing conditions, the “best estimate” projection of bicycle commuters and daily adult cyclists is 93 cyclists. With the pathway, the “best estimate” for bicycle commuters and daily adult cyclists is 286 cyclists, an increase of 2.08 times above current levels. Using the methodology identified above, a “best estimate” of the number of new pedestrians attributed to the pathway is 64 pedestrians.

**Table 5: Daily Bicycle Commuters and Daily Adult Cyclists Under Existing Conditions**

| Category  |               | Assumption    |              |  |
|---|---------------|---------------|--------------|--|
| Population within approximately one mile (1,600 meters) of the pathway alignment <sup>1</sup> |               | 34,447        |              |  |
| Percentage of Commuters   |               | 46.79%        |              |  |
| Percentage of Adults  |               | 76.32%        |              |  |
| Category  | High Estimate | Best Estimate | Low Estimate |  |
| Bicycle Commuters <sup>2</sup>  | 108           | 93            | 78           |  |
| Daily Adult Cycling Percentages <sup>3</sup>  | 2.62%         | 1.09%         | 0.48%        |  |
| Daily Adult Cyclists <sup>4</sup>   | 686           | 286           | 126          |  |

Notes:

<sup>1</sup> Population based on the 2005-2009 American Community Survey population estimates by Census tract.

<sup>2</sup> Calculated as the product of population and the commuting cyclist's percentage of population.

<sup>3</sup> Calculated using the equations on Page 38 of the NCHRP Report 552:

- High estimate is 0.6% plus 3 times the high estimate bicycle commute percentage.
- Best estimate is 0.4% plus 1.2 times the best estimate bicycle commute percentage.
- Low Estimate is the low estimate bicycle commute rate.

<sup>4</sup> Daily Adult Cyclists are calculated as the product of the population, percentage of adults and daily adult cycling percentages.

**Table 6: New Daily Bicycle Commuters, Daily Adult Cyclists, and Daily Pedestrians Attributed to the Pathway**

| Category  | High Estimate | Best Estimate | Low Estimate |
|---|---------------|---------------|--------------|
| New Bicycle Commuters within 1 mile <sup>1</sup>    | 93            | 80            | 67           |
| New Daily Adult Cyclists within 1 mile <sup>1</sup> | 1,324         | 318           | 49           |
| Pedestrians within 1 mile <sup>2</sup>              | 265           | 64            | 10           |

Notes:

<sup>1</sup> Per Page 39 of the NCHRP Report 522, the numbers of new bicycle commuters and new daily adult cyclists are estimated to be 1.93, 1.11 and 0.39 times the current values for distances of 400 meters, 800 meters, and 1,600 meters from the pathway, respectively. The sum is presented here. These values are in addition to the existing bicycle commuters.

<sup>2</sup> Counts on similar trails indicate pedestrians are 20% of bicycle use.

## Findings

The last row in Table 7 shows the total annual benefits for both bicyclists and pedestrians. The “best estimate” annual benefits are more than \$1.8 million. This estimate represents the sum of the estimated mobility, health, recreational, and reduced auto use benefits.

**Table 7: Benefit-Cost Analysis; Total Annual Benefits for Pedestrian and Bicyclists**

| Category  | High Estimate | Best Estimate | Low Estimate |
|---|---------------|---------------|--------------|
| Mobility Benefits: Bicycle Only   | \$411,337     | \$352,928     | \$294,519    |
| Health Benefits: Bicycle Only   | \$181,414     | \$50,921      | \$28,444     |
| Recreation Benefits: Bicycle Only   | \$4,832,772   | \$1,160,015   | \$179,647    |
| Reduced Auto Use Benefits: Bicycle Only   | \$18,184      | \$15,601      | \$13,019     |
| Total Annual Benefit: Bicycle Only  | \$5,443,706   | \$1,579,465   | \$515,629    |
| Total Annual Benefits: Bicycle and Pedestrian<br>Assumes a ratio of 0.02 pedestrians as bicyclists. | \$6,532,447   | \$1,895,358   | \$618,755    |

In calculating the benefit-cost ratio of a project in which benefits and costs are expected to be distributed over several years, it is important to consider the change in value of money over time. This is commonly done by calculating the net present value (NPV) of a project over the lifetime of that project. If the NPV is positive, then a project will produce benefits over its lifetime. If the NPV is negative, then a project will cost more than the benefits it produces over its lifetime.

The NPV is calculated as the sum of the present values (PVs) of the benefits and costs for each year of the project. To calculate the PV for a given year, one sums the benefits and costs for that year and discounts it

back to the first year of the project using a discount rate. The discount rate can be defined a variety of ways. For this benefit-cost analysis, it is defined as the opportunity cost of the initial investment, or the interest rate that the capital needed for the project could return if invested in an alternative venture.<sup>2</sup> This benefit-cost analysis also uses a low and a high discount rate to account for the uncertainty in the actual discount rate. A lower discount rate makes it more likely that a project will see a positive net benefit.

Table 8 shows the NPV benefit-cost results over the 30-year lifetime of the pathway. The benefit-cost ratio is determined by dividing the estimated benefits of the pathway in dollars by the estimated costs in dollars. A benefit-cost ratio higher than one means the project has more benefits than costs over its lifetime. A benefit-cost ratio of one means benefits and costs are equal. A benefit-cost ratio less than one means the project costs outweigh the benefits.

For the 5 percent and 2.5 percent real discount rates, the best estimate benefit-cost ratios are 7.77 and 10.62, respectively. Thus, the environmental, economic, public health, and social benefits the community would experience as a result of the pathway exceed the cost of the pathway by three to four times. The “low” estimates are extremely conservative and greatly underestimate the actual benefits. In this case the benefit-cost ratios for the 5 percent and 2.5 percent discount rates are 2.54 and 3.47, respectively. Under this scenario, the cost of constructing and maintaining the pathway would be very close to the benefits. Using the “high” estimates, the benefit-cost ratios for the 5 percent and 2.5 percent discount rates are 26.77 and 36.62, respectively.

**Table 8: Net Present Value Benefit-Cost Results**

| Benefit-Cost Analysis                   | Net Present Value of Benefits | Net Present Value of Construction and Maintenance Costs | Benefit-Cost Ratio |
|---|-------------------------------|---|--------------------|
| <b>Benefits with 5% discount rate</b>   |                               |   |                    |
| High Estimate                           | \$185,559,894                 | \$6,932,211   | 26.77              |
| Best Estimate                           | \$53,839,319                  | \$6,932,211   | 7.77               |
| Low Estimate                            | \$17,576,281                  | \$6,932,211   | 2.54               |
| <b>Benefits with 2.5% discount rate</b> |                               |   |                    |
| High Estimate                           | \$274,760,363                 | \$7,503,761   | 36.62              |
| Best Estimate                           | \$79,720,410                  | \$7,503,761   | 10.62              |
| Low Estimate                            | \$26,025,372                  | \$7,503,761   | 3.47               |

The project costs shown in Table 8 include the NPV of annual maintenance and operating costs, as required for benefit-cost analysis. Total project costs are higher for the 2.5 percent discount rate case

<sup>2</sup> To give an example of discounting, given a discount rate of 7 percent, \$5,000 in benefits received ten years from now has the same value as \$2,542 in benefits received now. In other words, if one was to invest \$2,542 now with interest rates at 7 percent, in ten years, that money would be worth \$5,000.

## Chapter 5: Benefit Cost Analysis

than for the 5 percent discount case because the lower discount rate results in less discounting of construction costs and annual maintenance costs in later years.

The above benefit-cost results are based on conservative, lower-bound type data inputs and assumptions and there are additional categories of benefits which have not been considered in the above analysis because of the difficulty in quantifying them. Additional benefits include increased economic vitality of communities, increased property values, improved quality of life, and more social equity. The actual benefit-cost ratios are likely substantially higher than those shown above in Table 8 because:

- The census data on bicycle commuters probably substantially underestimate the actual percentages of bicycle commuters. In Oxnard, a substantial number of bicycle commuters commute to Metro Link or Gold Coast Transit stations. These bicycle commuters are probably counted under “transit” rather than “bicycle.”
- Because of Oxnard’s very dry temperate climate, with relatively few rainy days, cycling is a year-round activity and the percentages of adult cyclists are likely underestimated by the NCHRP’s national estimates, which include many areas with severe winters and/or many more rainy days.

## Chapter 6: Summary of Design Guidelines, Maintenance Schedules and Best Practices

### Design Guidelines

This section presents recommended design guidelines for the Santa Clara River Trail. Guidelines have been established for the typical trail cross section, surfacing options, access controls, trail amenities and signs. Trail design guidelines refer to the characteristics of a trail to provide varying levels of access, user experience, maintenance requirements, and costs. In order to select the appropriate trail guidelines, a number of factors should be considered. These include:

- Corridor location and environmentally sensitive areas
- Anticipated trail traffic volumes and seasonal demands
- Trail user types
- Drainage needs
- Maintenance needs
- Maintenance costs and schedules

Additionally, a trail theme creates a cohesive and memorable trail, while establishing a distinctive identity or “sense of place.” A unifying theme serves to inform subsequent design elements from site furnishings to interpretive information. A trail specific logo may also be developed to compliment the name.

### Multi-Use Path Cross Section

#### Horizontal and Vertical Clearances

The recommended width for the SCRT is a 12' paved trail with 2' graded earth shoulders as shown in Figure 4. This cross section meets the minimum City of Oxnard Class I Multi-use path design standard. An 8' vertical clearance free from vegetation is required by the Ventura County Watershed Protection District along areas of levee and flood protection.

Recommended designs are based on the City's existing standards and the pending Bicycle and Pedestrian Facilities Master Plan (Planning and Zoning Permit No. 09-700-1) for design and construction, the *California Department of Transportation (Caltrans) Highway Design Manual, Chapter 1000 Bikeway Planning and Design*, and the *City of Oxnard Bicycle and Pedestrian Master Plan*.

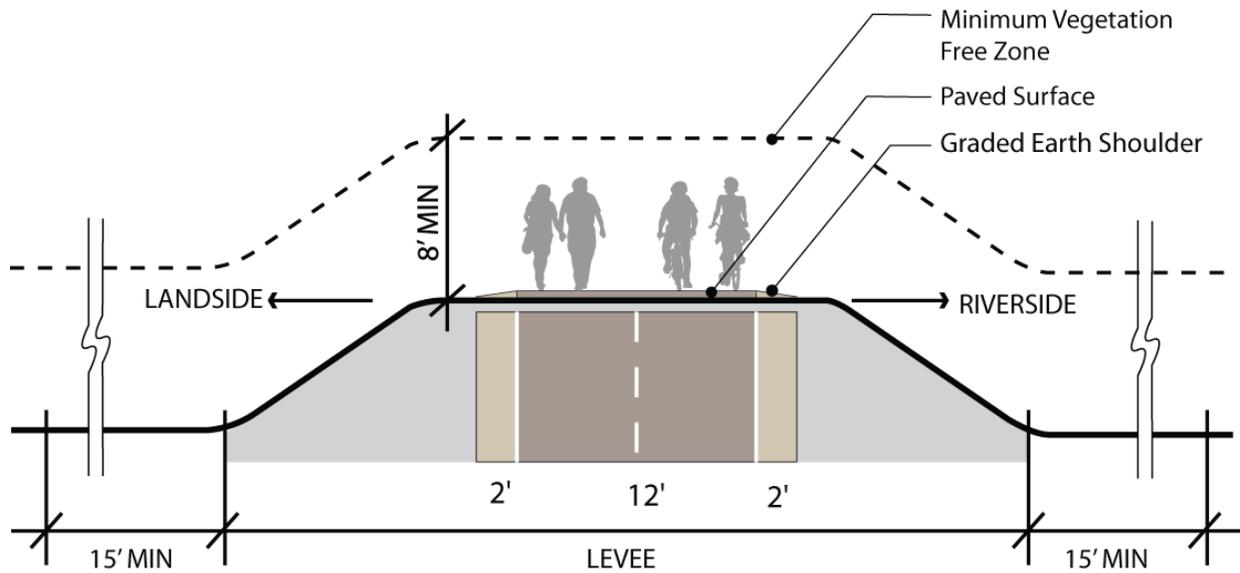


Figure 4. Typical SCRT Cross Section

### Surfacing Options

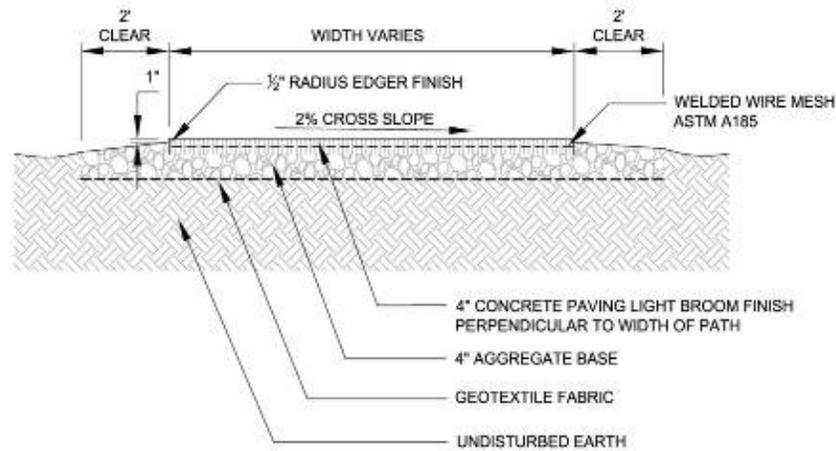
There are many options related to trail surfacing. This choice determines the types of users who can enjoy the trail, as well as construction cost, maintenance cost, and other factors. Standard surfacing materials for a paved path are concrete or asphalt. Permeable options are also available to minimize drainage issues in sensitive areas. Cost estimates per linear foot of each surface option are provided in the following section, while the final section of the memorandum discusses trade-offs and factors that affect surface material choice.

### Concrete

The use of concrete surfacing for paths has proven to be the most suitable for long-term use (Figure 5). Using modern construction practices, concrete provides a smooth ride with low maintenance costs that is suitable for all users. Runners may prefer to use the softer surface along the sides of the trail. Concrete paths cost more to build than asphalt paths, yet they do not become brittle, cracked and rough with age, or deformed by roots and weeds as with asphalt. They last approximately 30 years, and must be periodically inspected for uplift and settlement, and repaired as needed. Figure 6 shows a typical section of a concrete trail.



Figure 5. Concrete Trail Surface



NOTES:  
 1) TRAIL SECTION CONTINGENT ON GEOTECH REPORT  
 2) PLACE SAW CUT CONTROL JOINTS AS SEEN ON PLAN

Figure 6. Concrete Trail Cross-Section<sup>3</sup>

### Use of Recycled Concrete Aggregate (RCA)

RCA is granular material manufactured by removing, crushing, and processing hydraulic-cement concrete pavement for reuse with a hydraulic cementing medium to produce fresh paving concrete. Except for removing steel, impurities, and contaminants, this process is identical to the process used to produce aggregate from virgin stone materials. Adding RCA to concrete pavement may reduce costs, depending on availability of RCA vs. virgin stone materials.<sup>4</sup>

### Fly Ash

Fly ash is a fine, glass-like powder recovered from gases created by coal-fired electric power generation. U.S. power plants produce millions of tons of fly ash annually, which is usually dumped in landfills. Fly ash is an inexpensive replacement for Portland cement used in concrete, while it improves strength, segregation, and ease of pumping of the concrete. The techniques for working with this type of concrete are standard for the industry and will not impact the budget of a job.

### Use of Pervious Concrete

Pervious concrete allows rain to seep through the surface and percolate into the soil reducing run-off. The water is never trapped as it is on normal concrete paving. The use of pervious pavement systems attenuates the peak discharge of storm water into drainage systems. Pervious concrete lasts for approximately 15 years and requires a sweep and pressure wash four times per year to maintain percolation.

<sup>3</sup> Note: The “clear” shoulders shown on the cross-section should be kept empty of buildings or fences; however, low-lying vegetation or bioswale plantings are encouraged in these areas. Depth of subbase should be determined by a soil analysis.

<sup>4</sup> Additional information available at: <http://www.fhwa.dot.gov/pavement/t504037.cfm>

## Asphalt

Asphalt is the most common surface treatment for multi-use paths. The material composition and construction methods used can significantly affect the longevity of the pathway. Thicker asphalt sections and a well-prepared subgrade will reduce deformation over time and reduce long-term maintenance costs. Asphalt is suitable for a wide variety of trail users and is less jarring on people’s joints than concrete. Figure 7 shows a typical section of an asphalt trail.

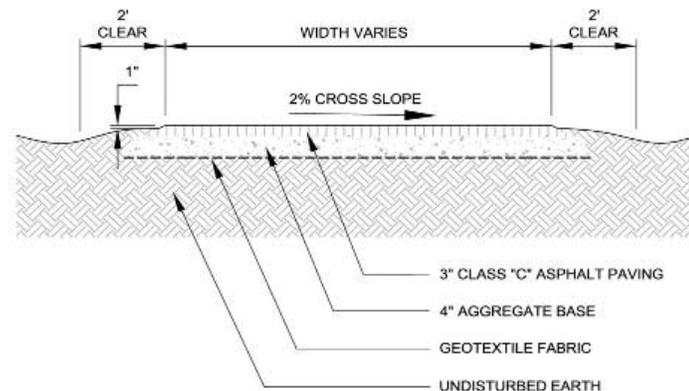


Figure 7. Asphalt Trail Cross-Section

The edges of asphalt often crumble over time, and the material is prone to cracking, doming, heaving, and settling. To improve the lifespan of the trail, provide an adequate pavement structural section to support the maintenance vehicles that will be using the trail.

Based on observations and analysis of similar existing asphalt paths, the pavement surfacing will need an overlay or extensive replacement and renovation every 15 to 20 years. However, this extensive replacement could be mitigated and the expense reduced with preventative maintenance measures such as chip-sealing every five to eight years. Chip seal is not recommended for use near the river due to the potential for excess oil to be washed off the surface. Deteriorated sections are easier to remove and replace than concrete.

### Use of Recycled Materials in Asphalt<sup>5</sup>

Asphalt typically used for a paved trail can be composed of recycled materials that otherwise would end up in a landfill in-lieu of new base material. This reuse of materials reduces hauling-related energy consumption and construction waste management. These materials include:

- Glassphalt: A mixture of traditional asphalt and recycled glass. The glass is used to replace some of the sand that would otherwise be found in asphalt. Glassphalt can be installed using the same equipment and procedures as conventional asphalt.
- Reclaimed Asphalt Pavement (RAP): RAP can be used as an aggregate in the hot recycling of asphalt paving mixtures. RAP is routinely accepted in asphalt paving mixtures as an aggregate substitute and as a portion of the binder in nearly all 50 states. Substitution rates of 10 to 50 percent or more, depending on state specifications, are normally introduced in pavements, and

<sup>5</sup> Bondurant, Julie and Thompson, Laura. (2009). *Trail Planning in California Communities*.

recently developed technology has even made it possible to recycle 90 to 100 percent RAP in hot mix. <http://www.fhwa.dot.gov/pavement/recycling/rap/index.cfm>

- Rubberized Asphalt Concrete (RAC): Also known as asphalt rubber hot mix, uses crumb rubber from scrap tires. Below is a list of the benefits of rubberized asphalt according to the Rubberized Asphalt Concrete Technology Center,<sup>6</sup> RAC:
  1. Can save as much as \$22,000 per mile of trail (or one lane of roadway) over conventional asphalt when resurfacing with a two-inch-thick layer
  2. Is highly skid-resistant, quieter, and resists shoving and rutting when a gap-graded mix is used
  3. Provides excellent, long-lasting color contrast for striping and marking
  4. Resists reflective cracking
  5. Uses approximately 2,000 waste tires per trail mile (or one lane of roadway) for a two-inch resurfacing project

### Use of Pervious Asphalt

Similar in appearance to traditional asphalt, pervious asphalt allows rain to seep through the surface, reducing run-off. Trails that are along bodies of water or that may have flooding problems should consider using this surface. Regions that receive a lot of rain, and a small amount of snow in the winter are good places for pervious-surface asphalt. It is less successful in regions that receive a lot of snow and ice during the winter months as the asphalt tends to crack, similar to normal pavement.



Figure 8. Asphalt Trail Surface



Figure 9. Permeable Asphalt Trail Surface

### Path Surfacing Options Analysis

The surfacing material of a path contributes to the overall feel of the trail and can affect which users can comfortably utilize the trail. Whether or not a trail is paved can encourage or deter neighborhood support for the trail, if they consider a paved trail to be an invitation for outsiders to pass through their community, or if they have safety or aesthetic concerns about an unpaved trail. The selection of trail

<sup>6</sup> Source: [www.rubberizedasphalt.org/index.htm](http://www.rubberizedasphalt.org/index.htm)

surface treatments should take into consideration that some patterns and joints may cause vibrations that are uncomfortable for wheelchair users. It is also desirable that the surface be stable, firm and slip resistant.

In arriving at a recommended trail surface, several key criteria should be considered, including:

- **Initial Capital Cost** – Trail surface costs vary dramatically and dollars to build trails are scarce. Construction costs include excavation, subbase preparation, aggregate base placement, and application of the selected trail surface.
- **Maintenance and Long Term Durability** – The anticipated life of a trail surface can vary from a single year (bark surface in a moist climate) to 25+ years (concrete). In addition, each trail surface has varying maintenance needs that will require regular to sporadic inspections and follow-up depending on the material selected. Some surface repairs can be made with volunteer effort such as on a bark surface trail, while other such as a concrete surface will require skilled craftsmen to perform the repair.
- **Life Cycle Cost** – An economic life cycle cost analysis evaluates the costs over time for the surface alternatives. Asphalt pavement was shown to have the lowest life cycle cost over concrete, permeable concrete and permeable asphalt.
- **Existing Soil and Environmental Conditions** – Soil conditions are predetermined and play a critical role in surfacing selection. In addition, when considering the use of a permeable concrete or asphalt surface, the success rate of these surfaces is directly correlated to the permeability of the soil and climatic conditions. The lower the permeability and moisture, the greater risk of failure.
- **Anticipated Use/Functionality** – Who are the anticipated users of the trail? Will the trail surface need to accommodate equestrians, wheelchairs, maintenance vehicles, bicycles, etc.? Does the trail provide critical access to a popular destination for many users or is it a local access route to a community park? Multiple use trails attempt to meet the needs of all anticipated trail users. This may not be feasible with a single trail surface. Considering the shoulder area as a usable surface, it is possible to provide enough width to accommodate use by those preferring a softer material. Each surface also has varying degrees of roughness and therefore accommodates varying users. In-line skates, for example, cannot be used on a chip seal surface or most permeable concrete surfaces due to the coarseness of the finished surface.
- **Funding Source** – The funding source for the trail may dictate the trail surface characteristics. If the trail has federal funds and is being administered through Caltrans, funding agency will need to review and approve the selected trail surface.
- **Aesthetics** – Each trail surface has varying aesthetic characteristics that should fit with the overall design concept desired for the project and for the neighborhood in which the trail is located.

Table 9 provides an analysis of path surfacing options. The ranking of each surface option is as follows:

**Table 9. Alternatives Analysis for Trail Surface Options**

○ - Option does not meet criteria

◐ - Option has neutral or moderate positive impact to criteria

● - Best solution to satisfy criteria

| Alternative        | Safety | User Experience | Cost | Maintenance | Life Cycle Cost | Improves Drainage | Durability | Texture | Year-Round Use | ADA Accessible |
|--------------------|--------|-----------------|------|-------------|-----------------|-------------------|------------|---------|----------------|----------------|
| Concrete           | ●      | ◐               | ◐    | ●           | ●               | ○                 | ●          | ◐       | ●              | ●              |
| Permeable Concrete | ●      | ◐               | ○    | ◐           | ◐               | ●                 | ◐          | ◐       | ●              | ●              |
| Asphalt            | ●      | ●               | ◐    | ◐           | ◐               | ○                 | ◐          | ◐       | ●              | ●              |
| Permeable Asphalt  | ●      | ◐               | ○    | ○           | ◐               | ●                 | ◐          | ◐       | ●              | ●              |

## Trail Design Features

In addition to trail surface material, there are many other design elements that range from essential to the development of the trail, to amenities that benefit trail users and minimize trail impacts. This section addresses those features.

### Access Control

#### Bollards

Bollards are an effective way of keeping motor vehicle traffic off of trails (Figure 10). They are relatively inexpensive and should be installed to be removed or should be flexible to allow passage of maintenance or emergency vehicles. Solid bollards that are secured to the base with a lock should use combination locks only. A single bollard located in the center of a trail entrance can be enough to keep cars out while multiple closely spaced bollards or bollards with a chain in between may be used to separate a path from a parallel roadway.

Minimize the use of bollards to avoid creating obstacles for bicyclists. Bollards, particularly solid bollards, have caused serious injury to bicyclists. Instead, design the path entry and use signage to alert drivers that motor vehicles are prohibited. Bollards also are used to slow down cyclists approaching a street crossing.

Flexible bollards and posts are designed to give way on impact and can be used instead of steel or solid posts (see Figure 11). These bollards are typically made of plastic that is bolted to the roadway and bend and return to their original position when hit. They are intended to deter access, but allow vehicles through in an emergency.

Bollards typically are installed using one of two methods:

- 1) The bollard is set into concrete footing in the ground (see Figure 11).
- 2) The bollard is attached to the surface by mechanical means (bolting the bollards or using epoxy glue and bolts (see Figure 12).

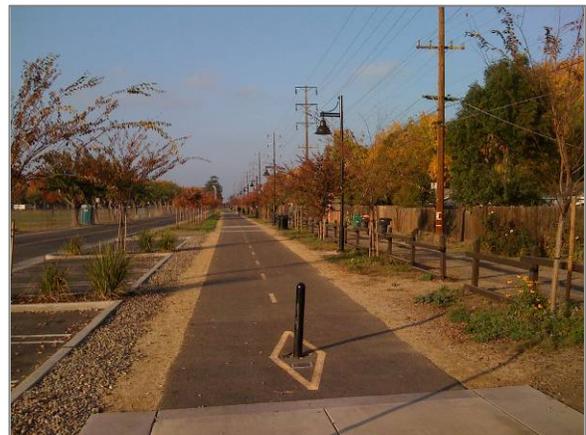


Figure 10. Bollards are used at road crossings to keep motor vehicle traffic off trails.

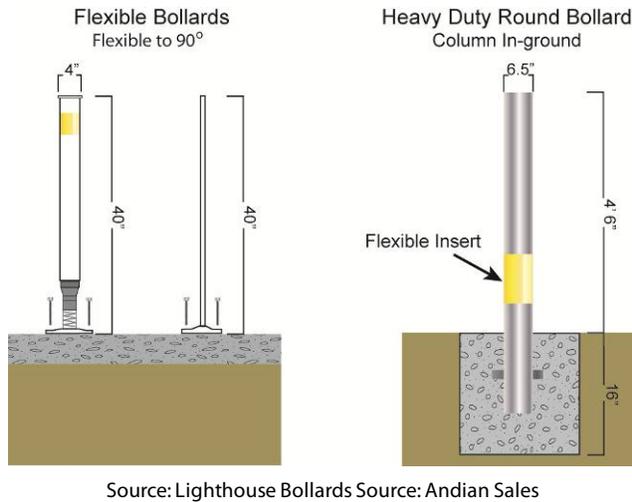


Figure 11. Flexible Bollards

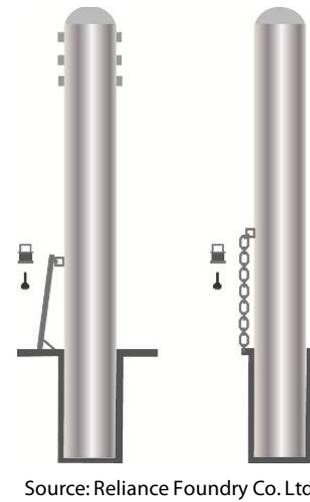


Figure 12. Removable Bollards

Where removable bollards are used, the top of the mount point should be flush with the path’s surface so as not to create a hazard. At the time of this publication, flexible bollards that do not leave an anchored mounting device on the path or roadway surface when removed are not commercially available.

All posts shall be permanently reflectorized for nighttime visibility and painted a bright color for improved daytime visibility. Figure 13 shows a recommended pavement striping pattern to reduce the risk of user collisions with the bollard.

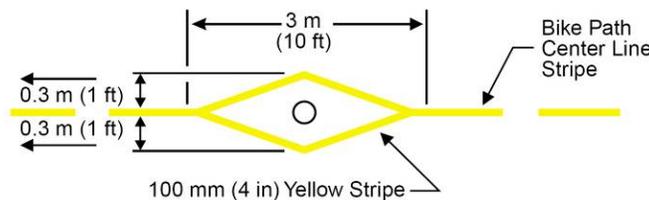


Figure 13. Bollard Striping

When more than one post is used, an odd number of posts at 5-foot spacing is desirable. Wider spacing can allow entry by adult tricycles, wheelchair users and bicycles with trailers.

### Fencing & Access Gates

Fencing can serve multiple purposes along trail facilities, including access control, channeling of trail users, and elimination of liability concerns. The fencing should allow for good natural surveillance and not obstruct the ability to visually monitor the activities taking place on the trail.

Access gates should be designed to allow maintenance vehicle and emergency access when appropriate; click-to-enter or combination locks are acceptable options.

Several types of fencing and gates will be important along the Santa Clara River Trail. Black powder-coated chain link fencing is effective in keeping path users within the trail right-of-way and is low cost and low maintenance solution. The powder coat finish helps the fence blend into the landscape and provides a more attractive appearance. Aluminum picket fence is often used as vandal-resistant fence because it is difficult to cut and scale. Picket fences allow good visual access to the trail and should be used in areas where it is important to keep “eyes on the trail” is important. Decorative fencing can add visual interest to a trail and could be used at gateway entrances or adjacent to neighborhoods. Secure access gates are needed at access points to adjacent private properties and in areas deemed necessary by the Ventura Regional Sanitation District and River Ridge Golf Course operation.

### **Protection for Sumps and Gas Monitoring Stations**

Sumps and methane monitoring stations are located at regular intervals along the stream bank protection behind the golf course. Encasing the stations in a secure enclosure provides protection for them. A tan color is recommended to blend with the colors of the levee.



Figure 14. Enclosure for sump or gas monitoring well

### **Context Sensitive Design Elements**

The colors, forms and materials used in the various site amenities recommended in this plan reflect several specific elements of the region, including: the unique landscape of the naturalized Santa Clara River system, the mountains in the distance and the connection to the Pacific Ocean.

The use of angles and colors that blend with the surroundings and elements such as stone and steel reflect the natural character of the ocean, river and mountain formations throughout the Santa Clara River Trail corridor. This architectural theme should be carried throughout the trail corridor as a way to tie the trail together from one unique end to the other.

The following list illustrates the key elements that will make the Santa Clara River Trail an integral part of the Oxnard community:

## Gateways

### Entry Features

Gateways are the main entrance points that welcome users to the Santa Clara River Trail. Entry features such as a gateway arch or sign wall help to establish the trail as a unique and memorable place. The entry features shown in Figure 15 are made out of corten steel. The steel is treated to rust, then the process is stopped and a wax or oil finish is applied, making the surface very difficult to deface and easy to repair (simply sand and let rust naturally).



Figure 15. Corten steel gateway options are appropriate for the natural environment and are difficult to vandalize.

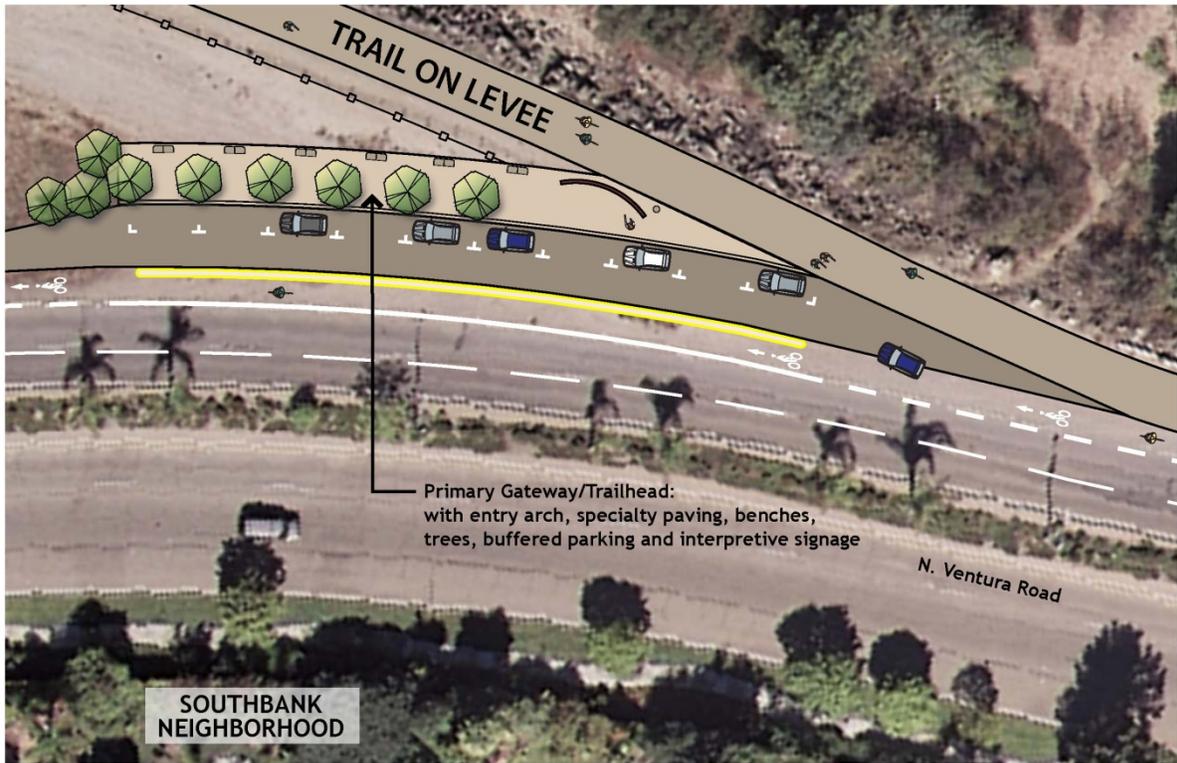


Figure 16. Ventura Trailhead



Figure 17. Windrow Park Trailhead

**Lighting**

Lighting improves the safety of the trail or path user by increasing visibility during non-daylight hours. Lighting fixtures should be installed at the gateway entrances near benches, bicycle racks, and roadway and trail crossings. Depending on the location, average maintained horizontal illumination levels of 5 lux to 22 lux (.5 to 2 foot candle) should be considered American Association of State Highway and Transportation Officials (AASHTO). Where special security problems exist, higher illumination levels may be considered.

Light standards (poles) should be installed to meet the recommended horizontal and vertical clearances from trail users. In addition to full height light standards, bollards also provide an effective mounting location for pathway lighting. Their low height and frequent locations reduce light pollution by keeping the illumination source close to the trail surface. There are many types of lighting bollards available. Solar powered bollards lit by LEDs can last about 20 times longer than incandescent bulbs and provide pathway lighting for over 100,000 hours. Watt stopper or similar technology is another option for reducing energy consumption from lighting.



Figure 18. Light post with vandal resistant luminary.

**Site Furnishings**

**Litter Receptacles and Pet Waste Bag Dispensers**

Trash receptacles and dog waste clean-up bag dispensers with biodegradable bags help keep the trail clean, although the ability to follow up with removal is critical. To minimize enticing varmints along the trail corridor, the Santa Clara River Trail could adopt a “leave only footprints” policy along the trail corridor. Litter receptacles are recommended only at gateways and staging areas. A wildlife proof lid is required for litter receptacles.



Figure 19. Trash Receptacle must have a wildlife proof lid

**Benches**

Providing benches at key rest areas and viewpoints supports use of the trail by people of all ages, and provides an opportunity for memorial donations or service projects. A metal slatted bench with a middle seat divider is recommended for durability and to minimize large surface areas for graffiti.



Figure 20. Bench

### **Bicycle Parking**

In some locations along the trail system, it may be appropriate to provide bicycle parking. Bicycle racks permit the locking of the bicycle frame and at least one wheel to the rack and support the bicycle in a stable position without damage to wheels, frame or components. Racks should be placed outside of the clear right-of-way, particularly at trailheads or trail start- or end-points.



Figure 21. Bicycle Rack

### **Drinking Fountains**

Drinking Fountains provide water for people (and pets), particularly at trailheads and other desirable destinations.

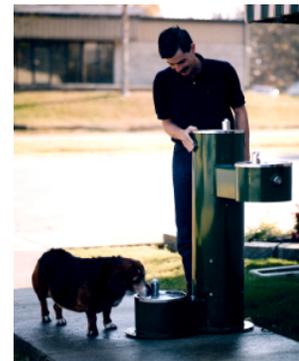


Figure 22. Drinking Fountain

**Signing**

Signs along the Santa Clara River Trail system can indicate to pedestrians and bicyclists their direction of travel, location of destinations, etiquette of how to use the trail, and regulatory and warning information. Guide and information signs indicate information for route selection, for locating off-road facilities, or for identifying geographical features or points of interest.

Signing style and imagery should be consistent throughout the trail to provide the trail user with a sense of continuity, orientation, and safety. Signs can impart a unique theme so path users know which path they are following and where it goes. The theme can be conveyed in a variety of ways: engraved stone, medallions, bollards, and mile markers. However, the trail should not be over signed; where possible, incorporate signage into trailside vertical elements such as bollards.

**Table 10: Sign Type and Location**

| Type of Sign                 | Sign Type        | Location/Frequency  |
|------------------------------|------------------|---|
| Mileage markers              | Inlaid Medallion | Every ¼ mile, starting from the Pacific Ocean, and to nearest roadway         |
| Directional signs            | Blade            | Where the trail crosses major roadways  |
| Trail Etiquette signs        | Blade            | At gateways   |
| Interpretive signs           | Wayside kiosk    | At gateways   |
| Regulatory and warning signs | Blade            | According to the CA MUTCD guidelines  |
| Wayfinding signs             | ID sign w/blade  | In neighborhoods and major roadways, within ¼ - ½ mile of trail access points |

**Mileage Markers**

Mileage markers provide wayfinding information and act as a reference for maintenance crews or police officers, who track activity on the trail. Mileage call-outs should be placed at quarter-mile increments and typically begin at a trailhead or at the city line. The Santa Clara River Trail is unique in that it will be a 25 mile-long regional trail connecting the mouth of the Santa Clara River at the Pacific Ocean to the Sespe Creek confluence. Even though this plan does not include the direct connection to the ocean, it is recommended that the Pacific Ocean is used as the starting place for measuring the mileage and that markers are used from N. Victoria Avenue to Central Avenue.

Some communities recommend not installing the mile marker sign until all of the gaps are completed.<sup>7</sup> However, it is preferable to mark the trail continuously and infill appropriate markers when the gaps are closed.

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<sup>7</sup> Jordan River Trail, UT. [http://www.recreation.sco.org/planning/PDFdocs/5\\_Trail\\_Standards.pdf](http://www.recreation.sco.org/planning/PDFdocs/5_Trail_Standards.pdf)



Figure 23. Inlaid bronze medallion.



Figure 24.

Mojave Riverwalk mile markings stamped in concrete with cast iron trail medallion inset.

### Directional Signs

Directional signs are used on the trail and provide orientation to the trail user and emphasize trail continuity. At a minimum, street names should be called out at all trail intersections with roadways. Directional signage should identify key destinations along the trail route and include schools, parks, municipal centres, trails, and other points of interest.

### Wayfinding Signs

Wayfinding signs are used in nearby neighbourhoods and roadways to provide guidance to the community trying to access the trail. At a minimum, wayfinding signs should be placed  $\frac{1}{4}$  -  $\frac{1}{2}$  mile from nearest trail access points. Wayfinding signs should identify access points by landmark or nearest intersection.

### Trail Etiquette Signs

Establishing goals and policies sets a common framework for understanding trail rules and regulations. Rights and responsibilities of trail usage should be stated at gateways. Once rules and regulations are established, the trail managing agency has a means of enforcement. Local ordinances may be adopted to help enforce trail policies. Penalties such as fines or community service may be imposed in response to non-compliance.

### Interpretive Signs

Interpretive signage provides enrichment to the trail user experience, focuses attention on the unique attributes of the local community, and provides educational opportunities. Educating trail users can help foster trail stewardship by providing a venue to explain the “why” behind some trail rules. For example, providing information about the fragile riparian habitat and species it supports helps trail users understand why they should stay on the trail and out of the riverbed.

Interpretive signs should only be located at key locations near gateway entrances and high use areas. The Santa Clara River corridor is ripe with opportunities for ecological, cultural and historical interpretation.



Figure 25. Etiquette sign from the Fanno Creek Trail.

Educational opportunities like interpretive signage are also goals of the SCREMP. Possible subjects for interpretation include the following:

**Segment 1:** Santa Clara River hydrology, riparian habitat and related species, bird migration along the Santa Clara River corridor, re-use of a closed landfill, and methane gas collection.

**Segment 2:** History of flood control along the Santa Clara River, history of the Union Pacific Railroad, Ventura Freeway and the Wagon Wheel areas.

**Segment 3:** Santa Clara River watershed and hydrology, history of the quarry, and history of the Tataviam Native Americans.

**Segment 4:** Santa Clara River hydrology and history and future of fish in the river

### Regulatory and Warning Signing

Regulatory signs indicate to trail and road users the traffic regulations which apply at a specific time or place. Warning signs indicate in advance conditions on or adjacent to a road or trail that will normally require caution and may require a reduction in vehicle speed.

The *Manual on Uniform Traffic Control Devices* (MUTCD) requires yield lines and “Yield Here to Pedestrians” signs at all uncontrolled crossings of a multi-lane roadway. The MUTCD includes a trail crossing sign), which may be used where both bicyclists and pedestrians might be crossing the roadway, such as at an intersection with a shared-use path.

Intersection Warning (MUTCD W2-1 through W2-5) signs may be used on a roadway, street, or shared-use path in advance of an intersection to indicate the presence of an intersection and the possibility of turning or entering traffic. A trail-sized stop sign (MUTCD RI-1) should be placed on a pathway about 5 feet before the intersection.

Maintenance vehicles for the Watershed Protection District, the golf course and the land fills will also utilize the trail for access and maintenance. Signs will be required warning trail users that maintenances vehicle traffic is likely.



Figure 26. Required signing at all uncontrolled trail crossings of multi-lane roadways.

## Safety and Maintenance Recommendations

### Trail Safety

Trail safety is a major concern of both trail users and those whose property is adjacent to the trail. Creating a safe trail environment goes beyond design and law enforcement, and should involve the entire community. The most effective and most visible deterrent to illegal activity on the Santa Clara River Trail will be the presence of legitimate trail users. Getting as many “eyes on the corridor” as possible is a key deterrent to undesirable activity in the Santa Clara River corridor. There are several components to accomplishing this, as outlined below.

#### Provide Good Access to the Trail

Access ranges from providing conveniently located trailheads along the trail, to encouraging the construction of sidewalks to accommodate access from private developments adjacent to the trail. Access points should be inviting and signed so as to welcome the public onto the trail.

#### Good Visibility from Adjacent Neighbors

Neighbors adjacent to the trail can potentially provide 24-hour surveillance of the trail and can become an ally to the City’s police department. Though some screening and setback of the trail may be needed for privacy of adjacent neighbors, complete blocking of the trail from neighborhood view should be discouraged. This eliminates the potential of neighbors’ “eyes on the trail,” and could result in a “tunnel effect” for trail users.

#### Police Call Box

Police call boxes should be provided in the longer segments of the trail that have few public access points. The call boxes should be solar powered to minimize energy consumption.

#### Surveillance Cameras/ CCTV Conduit

CCTV conduit should be installed in sensitive areas. This would allow the option of installing surveillance cameras if/when problems arise.

#### High Level of Maintenance

A well maintained trail sends a message that the community cares about the public space. This message alone will discourage undesirable activity along the trail.

#### Programmed Events

Community events along the Santa Clara River Trail will help increase public awareness and thereby attract more people to use the trail. Various civic organizations can help organize public events along the trail which will increase support for the trail. Events might include a day-long trail clean-up or a series of short interpretive walks led by long-time residents or a naturalist.

## **Community Projects**

The support generated by the Santa Clara River Trail could be further capitalized by involving neighbors and friends of the trail in a community project. Ideas for community projects include volunteer planting events, art projects, and interpretive research projects. These community projects are the strongest means of creating a sense of ownership along the trail, and are perhaps the strongest single deterrent to undesirable activity along the trail.

## **Adopt-a-Trail Program**

Nearby businesses, community institutions, and residential neighbors often see the benefit of their involvement in the trail development and maintenance. Businesses and developers may view the trail as an integral piece of their site planning and be willing to take on some level of responsibility for the trail. Creation of an adopt-a-trail program should be explored to capitalize on this opportunity and foster civic pride.

## **Design Elements that Improve Trail Safety**

Below are common trail safety concerns and ways in which thoughtful design treatments can prevent safety problems along the Santa Clara River Trail:

### **Litter and Dumping**

- Post trail rules encouraging “pack it in, pack it out” etiquette.
- Place garbage receptacles at trailheads.
- Provide good visual access to the trail.
- Manage vegetation within the right-of-way to allow good visual surveillance of the trail from adjacent properties and from roadway/trail intersections.
- Encourage local residents to report incidents as soon as they occur.
- Remove illegal dumping as soon as possible.
- Encourage use of yard debris recycling service.

### **Trespassing**

- Clearly distinguish public trail right-of-way from private property through the use of low vegetative buffers and good fencing.
- Post trail rules that encourage respect for private property.

### **Crime**

- Manage vegetation so that corridor can be visually surveyed from adjacent streets and residences.
- Select shrubs that grow below three feet in height and trees with canopies that begin to branch out greater than six feet in height.
- Place lights strategically and as necessary.

## Chapter 6: Design Guidelines, Maintenance Schedules and Best Practices

- Place benches and other trail amenities at locations with good visual surveillance and high activity.
- Provide mileage markers at quarter-mile increments and clear directional signage for orientation.
- Create a “Trail Watch Program” involving local residents.
- Provide proactive law enforcement.
- Design the trail so that police vehicles can access the entire corridor.

### **Intersection Safety**

- Require all trail users to stop at public roadway intersections through posting of stop signs.
- Provide crosswalk striping and trail crossing warning signs for vehicle drivers. Put Santa Clara River Trail logo on warning signs.
- Manage vegetation at intersections to allow visual access at crossings.

### **Vandalism**

- Select benches, bollards, signage, and other site amenities that are durable, low maintenance, and vandal resistant.
- Remove or replace vandalized items in rapid manner.
- Keep a photo record of all vandalism and turn over to local law enforcement.
- Encourage local residents to report vandalism.
- Create a “Trail Watch Program” and maintain good surveillance of the corridor.
- Involve neighbors in trail projects to build a sense of ownership.
- Place amenities (benches, etc.) in well used and highly visible areas.

### **Trail Watch Program**

A trail watch program would provide an opportunity for local residents to become actively involved in crime prevention along the trail. Similar to Neighborhood Watch programs, residents are brought together to get to know their neighbors, and are educated on how to recognize and report suspicious activity.

### **Safety Inspections**

Regular inspection of the trail and associated amenities is a key factor to trail safety. Periodic visual inspections should be conducted by City of Oxnard personnel. These inspections can help identify and correct problems before they become an issue. A fallen tree or limb, for example, can be readily removed from the trail or coned off to divert trail users away from the hazard until such time as maintenance crews can remove the hazard. A written record of inspections is recommended. This will help create a database of information that can assist the city in several ways. Written records can reveal safety trends and use patterns that can assist the city with prioritizing maintenance dollars. Written records also can

help protect the city from potential liability, providing documentation of diligent maintenance practices targeted towards protection of the public. A typical inspection record should include:

- Inspection reports noting any hazards that have been found along the trail, along with remedial action. This should note basic items such as debris found on the trail, wash outs, or other trail obstructions.
- Monthly inspections of the entire trail should be conducted. These inspections should document the condition of the trail, and notes should be made of any potential hazards on the trail (cracks, erosion, overhead vegetation, etc.). Corrective actions should be integrated into the next 30-day work plan.
- Quarterly visual and operational inspections should be made of all of the trail amenities such as benches, signage, drinking fountains, bike racks, etc. Recommended corrective actions should be made and be integrated into a three-month maintenance work plan. The city should set up a resident response system so that problems with the trail can be systematically recorded if maintenance crews are unable to visit the trail daily.

### **Trail Closure**

The Santa Clara River Trail should be closed if any heavy equipment is expected to use the trail during flooding events, or when any maintenance or construction activities are occurring that could be injurious to the general public. The Cities of Oxnard and Ventura and the County of Ventura should take appropriate measures to notify the public of closure of the trail and arrange detours where appropriate.

### **Corridor Maintenance**

A high level of trail maintenance is critical to the overall success and safety of the Santa Clara River Trail. It includes such activities as pavement stabilization, landscape maintenance, facility upkeep, sign replacement, fencing, shoulder plant trimming, litter removal, painting, and pest control. However, the effects of a good maintenance program are not limited to the physical and biological features of the trail:

- A high standard of maintenance is an effective way of helping advertise and promote the trail as a regional and state recreational resource;
- The psychological effects of good maintenance can be an effective deterrent to vandalism, litter, and encroachments;
- Good maintenance is necessary to preserve positive public relations between the adjacent land owners and government;
- Good maintenance can help make enforcement of regulations on the trail more efficient. Local clubs and interest groups will take pride in “their” trail and will be more apt to assist in protection of the Corridor.
- A proactive maintenance policy will help improve safety along the trail.

A successful maintenance program requires continuity and, often, a high level of citizen involvement. Regular, routine maintenance on a year-round basis will not only improve trail safety, but will also

prolong the life of the trail. Maintenance activities required for safe trail operations should always receive top priority. The following should be part of the maintenance checklist:

### **Vegetation**

In general, visibility between plantings at trailside should be maintained so as to avoid creating the feeling of an enclosed space.

This will also give trail users good, clear views of their surroundings, which enhances the aesthetic experience of trail users. Understory vegetation along the trail corridor shall not be allowed to grow higher than 36 inches. Tree species selection and placement should be made to minimize vegetative litter on the trail and root uplifting of pavement. Tree branching should be pruned up to a minimum of six feet.

### **Surfacing**

Concrete is the recommended surface material for the Santa Clara River Trail. Concrete was chosen for its low-maintenance characteristics and its ability to weather annual flood events. When properly cared for, concrete will last indefinitely.

The trail surface should be kept free of debris, especially broken glass and other sharp objects, loose gravel, leaves, and stray branches. Trail surfaces should be swept periodically.

### **Pest and Vegetation Management**

Some basic measures should be taken to protect the trail investment. This includes a bi-annual shoulder plant trimming along both sides of the trail to prevent invasion of plants into the pavement area. Recommended time of year for shoulder plant trimming is in fall and in spring.

All run-off will lead to the Santa Clara River and ultimately the Pacific Ocean. Use of chemical sprays for vegetation control should be avoided. Wherever possible, vegetation control should be accomplished by mechanical means or hand labor. Use of chemical sprays should be limited to use only on those plants that are harmful to the public such as poison oak. Effort should be made to eradicate invasive species found along Santa Clara River. Volunteer removal via hand labor is recommended.

Vertical clearance along the trail should be periodically checked and any overhanging branches over the trail should be pruned to a minimum vertical clearance of 10 feet.

### **Litter and Illegal Dumping**

Staff or volunteer efforts should remove litter along the trail. Litter receptacles should be placed at access points such as trailheads. Litter should be picked up once a week and after any special events held on the trail.

Alternatively, the trail corridor could be signed “pack it in, pack it out.” This technique has been met with mixed results, but if maintenance funds are not available to meet trash removal needs, it is best to remove trash receptacles.

Illegal dumping should be controlled by vehicle barriers, regulatory signage, and fines as much as possible. When it does occur, it must be removed as soon as possible in order to prevent further dumping. Neighborhood volunteers, friends groups, alternative community service crews, and inmate labor should be used in addition to maintenance staff.

**Signage**

Signage will be replaced along the trail on an as-needed basis. A monthly check on the status of signage should be performed with follow-up as necessary.

**Flooding**

Portions of the trail are subject to flooding due to its location in the 100-year floodplain. Debris accumulated on the trail surface should be removed after each recession of water. In addition, debris should be periodically removed from the waterway under bridge structures.

**Maintenance recommendations and schedule**

**Table 11: Maintenance recommendations for the Santa Clara River Trail**

| Item   | Anticipated Frequency                                |
|--|--|
| Inspections  | Quarterly  |
| Sign replacement / repair                                | 1-3 years  |
| Site furnishings; replace damaged components             | As needed  |
| Pavement marking replacement                             | 3-7 years  |
| Planted tree, shrub trimming / fertilization             | 5 months - 1 year                                    |
| Pavement joint repair                                    | 8-12 years   |
| Pavement sweeping  | Monthly  |
| Shoulder plant trimming (weeds, trees, branches)         | Bi-annual - Fall / Spring                            |
| Trash disposal   | As needed, once a week                               |
| Graffiti removal   | Immediately, As reported                             |
| Litter pick up   | Weekly during high use; twice monthly during low use |
| Fencing repair   | As needed  |
| Pruning to maintain vertical clearance                   | 1-4 years  |
| Remove fallen trees                                      | As needed  |
| Weed control   | Late Spring / mid-Summer                             |
| Maintain emergency telephones                            | 1 year   |
| Irrigate / water introduced plants                       | As needed, twice a week                              |
| Major damage response (fallen trees, washouts, flooding) | As needed  |

## Chapter 6: Design Guidelines, Maintenance Schedules and Best Practices

Typical maintenance vehicles for the trail will be light pick-up trucks and occasionally heavy dump trucks, semi trucks and tractors. A mechanical sweeper is recommended to keep the trail clear of loose gravel and other debris. Care should be taken when operating heavier equipment on the trail to warn trail users and to avoid breaking the edge of the trail surface.

### **Maintenance Costs**

The total estimated annual maintenance for the Santa Clara River Trail is approximately \$36,500, based on the estimated length of just under 5 miles. This maintenance cost is based on an industry standard of \$7,500 per mile of concrete bike path annually, based on similar trails in the state.

Maintenance costs cover labor, supplies, and amortized equipment costs for weekly trash removal, monthly sweeping. Repair patrols include cleaning and patching (if necessary) the concrete trail, repairs to crossings, trash removal, landscaping, underbrush and weed abatement (performed once in the late spring and again in mid-summer). These costs can be greatly reduced if volunteer crews are used or a local organization assumes some of the responsibilities.

## Chapter 7: Summary of Project Implementation Plan

### Project Implementation Plan

#### Phasing

The primary purpose for a trail phasing plan is to ensure a logical sequence of implementation that provides a high degree of success as each phase is built, thereby building momentum for each future phase of the project. Success is directly correlated with a substantial level of use, strong public and political support, and proven effective management of the trail as each phase is implemented.

Grant amounts are unknown, but grants for other multi-use trail projects similar to the Santa Clara River Trail (SCRT) in California have typically been in the \$1 million to \$3 million range. Phasing recommendations target levels of funding within this range.

Success of the first built phase is critical to securing future funding. The first phase must be well received by the public and become a model for all other future phases.

Figure 2 is the Phasing Diagram that illustrates the trail segments to be completed by phase and a brief description of each follows:

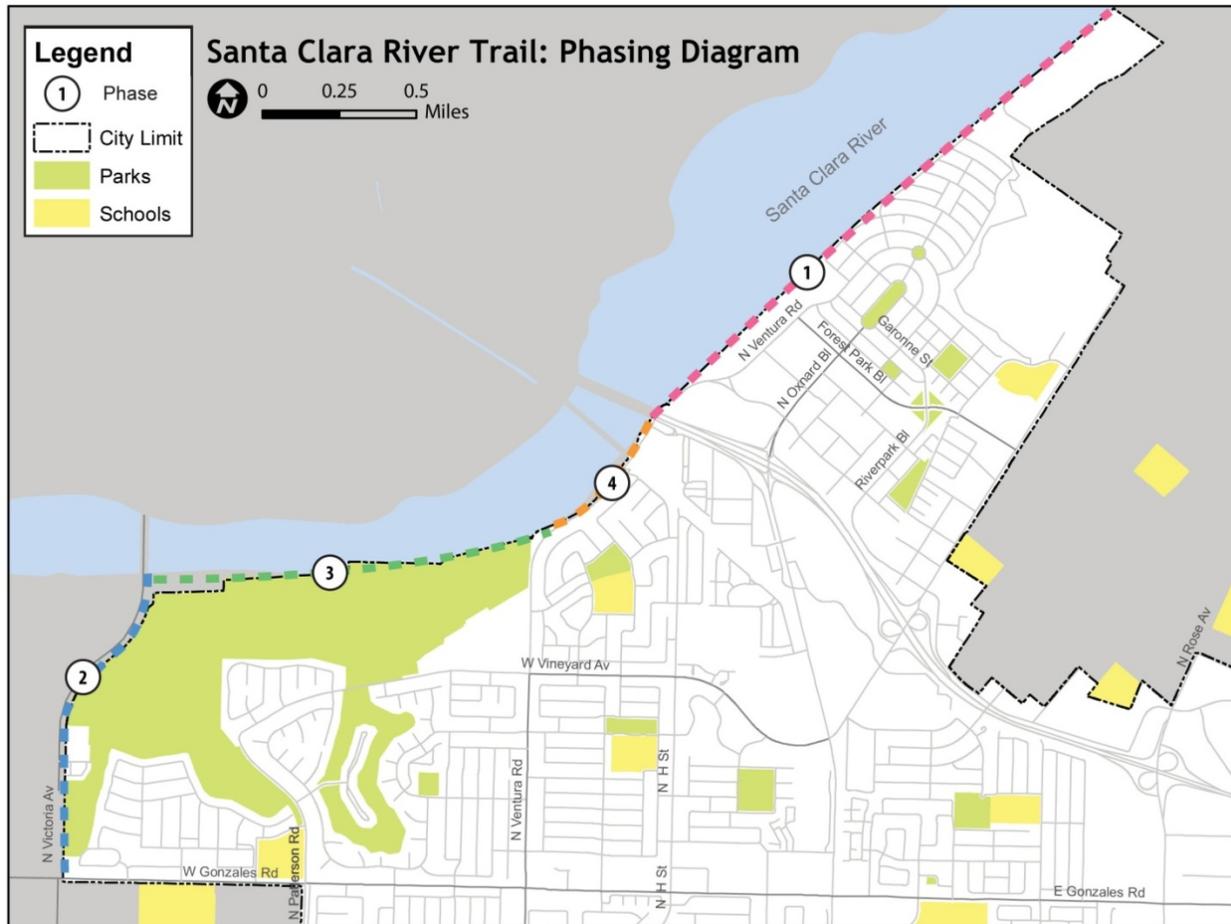


Figure 27. Phasing Diagram

**Phase 1: 1 – 5 years**

Phase 1 represents approximately 2 miles of trail atop the levee from the east end of Highway 101 to Central Avenue (Segment 3). Phase 1 provides the most connectivity for alternative transportation and directly links schools, parks, and residential neighborhoods with future shopping and transit. Phase 1 also sets the tone for future phases and highlights the community connection to the Santa Clara River, an important natural resource.

**Phase 2: 1 – 5 years**

Phase 2 is the 1.25 mile spur trail segment that runs along the east side of N. Victoria Avenue from the levee to W. Gonzales Road, where a proposed bike lane could provide a connection to the Pacific Ocean (Segment 4). Ideally, Phase 2 would occur simultaneously with Phase 3, but as it is in an underserved neighborhood with poor pedestrian facilities, construction is desirable any time after Phase 1, depending on availability of funding.

**Phase 3: 5-10 years**

Phase 3 is the approximately 1.25 mile trail segment follows the existing maintenance road on top of the stream bank protection from N. Victoria Avenue to the Ventura County Watershed Protection District

(VCWPD) gates at N. Ventura Road approximately 2,000 feet west of Highway 101 (Segment 1). Phase 3 is the most isolated and should be built simultaneously with Phases 1, 2 or 4 or when they are complete to provide natural surveillance on the trail and minimize vandalism.

**Phase 4: Pending SCR-3 Levee System Public Safety Project**

Phase 4 is the approximately .5 mile trail segment from the VCWPD access gate at N. Ventura Road to the east side of Highway 101 (Segment 2). Phase 4 could occur simultaneously with the VCWPD SCR-3 Levee System Public Safety project or at any time thereafter, depending on availability of funding. Special attention will need to be paid to rerouting trail users during construction of the levee and trail projects to ensure their safe passage between SCRT segments 1 and 3.

**Cost Estimates**

The construction costs for the Santa Clara River Trail will depend on a number of factors, most specifically, the final alignment and design of the trail segments. Preliminary estimates for construction are based on unit costs and estimates needed for grading and paving a 12-foot-wide concrete trail and the recommended trail amenities. The total estimated cost for the preferred alignment of the Santa Clara River Trail is just over \$7.1 million in 2011 dollars.

The costs for Santa Clara River Trail (see Tables 13 through 16) do not include the potential landfill post closure amendment, or easement or property acquisition costs for trail development.

**Table 12: Concept Estimates Total**

|  |                        |
|--|------------------------|
| Concept Estimate Santa Clara River Trail Segment 1 | \$ 2,692,970.00        |
| Concept Estimate Santa Clara River Trail Segment 2 | \$ 903,714.00          |
| Concept Estimate Santa Clara River Trail Segment 3 | \$ 1,920,870.00        |
| Concept Estimate Santa Clara River Trail Segment 4 | \$ 1,610,105.00        |
| <b>TOTAL</b>                                       | <b>\$ 7,127,659.00</b> |

**Table 13: Concept Estimate, Segment 1**

| <b>Concept Estimate Santa Clara River Trail Segment 1</b>  |   |                           |             |                  |                      |
|--|---|---------------------------|-------------|------------------|----------------------|
| From Approximately 1/4 mile Westerly of Victoria Avenue Easterly to Junction with North Ventura Road |   |                           |             |                  |                      |
| Concrete Pavement Over Aggregate Base  |   |                           |             |                  |                      |
| <b>Bid Item</b>  | <b>Description</b>  | <b>Estimated Quantity</b> | <b>Unit</b> | <b>Unit Cost</b> | <b>Extended Cost</b> |
| 1  | Mobilization and Site Requirements                                    | 1                         | LS          |                  | \$ 70,000.00         |
| 2  | Implement SWPP/WQMP   | 1                         | LS          |                  | \$ 14,000.00         |
| 3  | Dust Control  | 1                         | LS          |                  | \$ 7,000.00          |
| 4  | Erosion Control - MS4 permit  | 1                         | LS          |                  | \$ 14,000.00         |
| 5  | Clearing and Grubbing   | 3.9                       | Acre        | \$500.00         | \$ 1,950.00          |
| 6  | Tree Removal  | 0                         | LS          |                  | \$ -                 |
| 7  | Tree Trimming   | 0                         | LS          |                  | \$ -                 |
| 8  | Protect Gas Monitoring Wells/Adjust Risers and Valves to Finish Grade | 1                         | LS          | \$5,000.00       | \$ 5,000.00          |
| 9  | Rough Grading - Include Surveying                                     | 126000                    | SF          | \$0.65           | \$ 81,900.00         |
| 10   | Subgrade Preparation  | 126000                    | SF          | \$0.30           | \$ 37,800.00         |
| 11   | Construct Portland Cement Concrete Pavement Over Aggregate Base       | 126000                    | SF          | \$8.25           | \$ 1,039,500.00      |
| 12   | Decorative Concrete Pavers (N. Ventura Road Gateway)                  | 1                         | LS          | \$35,000.00      | \$ 35,000.00         |
| 13   | Fine Grade Shoulder   | 42000                     | SF          | \$0.50           | \$ 21,000.00         |
| 14   | Construct 2' Wide Concrete Traffic Barrier                            | 1                         | LS          | \$17,000.00      | \$ 17,000.00         |
| 15   | Construct Curb and Gutter   | 450                       | LF          | \$25.00          | \$ 11,250.00         |
| 16   | Provide and Install Mile Marker/Trail Medallions                      | 6                         | EA          | \$300.00         | \$ 1,800.00          |
| 17   | Pavement Markings and Striping  | 1                         | LS          | \$15,400.00      | \$ 15,400.00         |
| 18   | Provide and Install Bollards  | 4                         | EA          | \$1,500.00       | \$ 6,000.00          |
| 19   | Construct Bench Slab  | 4                         | EA          | \$500.00         | \$ 2,000.00          |
| 20   | Construct 4-foot Split-Rail Fence                                     | 0                         | LF          | \$15.00          | \$ -                 |
| 21   | Construct 6-foot High Chain Link Fence                                | 9500                      | LF          | \$35.00          | \$ 332,500.00        |
| 22   | Construct 4-foot High Ornamental Metal Fence                          | 0                         | LF          | \$65.00          | \$ -                 |
| 23   | Construct Double Drive Gate   | 8                         | EA          | \$6,200.00       | \$ 49,600.00         |
| 24   | Tree Replacement/Planting   | 0                         | LS          | \$5,000.00       | \$ -                 |

|   |   |      |    |             |                 |
|---|---|------|----|-------------|-----------------|
| 25  | Miscellaneous Minor Drainage Structures (field inlets, culvert Headwall, etc) | 1    | LS | \$25,000.00 | \$ 25,000.00    |
| 26  | Slough Walls/Low Retaining walls  | 0    | LF | \$75.00     | \$ -            |
| 27  | Channel Crossing - Pedestrian/Bicycle Bridge                                  | 0    | LS | \$0.00      | \$ -            |
| 28  | Provide and Install Benches   | 4    | EA | \$2,500.00  | \$ 10,000.00    |
| 29  | Landscape and Irrigation Improvements   | 1    | LS | \$10,000.00 | \$ 10,000.00    |
| 30  | Provide and Install Directional, Etiquette, Regulatory and Warning Signs      | 9    | EA | \$250.00    | \$ 2,250.00     |
| 31  | Provide and Install Wayfinding Signs  | 4    | EA | \$750.00    | \$ 3,000.00     |
| 32  | Provide and Install Interpretive Signs  | 2    | EA | \$5,000.00  | \$ 10,000.00    |
| 33  | Construct Entry Monument Structure  | 1    | LS | \$25,000.00 | \$ 25,000.00    |
| 34  | Provide and Install Trash Receptacles   | 2    | EA | \$1,800.00  | \$ 3,600.00     |
| 35  | Provide and Install Lighting  | 2    | EA | \$5,000.00  | \$ 10,000.00    |
| 36  | Provide and Install Bike Racks  | 4    | EA | \$1,500.00  | \$ 6,000.00     |
| 37  | Provide and Install Drinking Fountain   | 1    | EA | \$5,000.00  | \$ 5,000.00     |
| 38  | Provide and Install Conduit for Surveillance Cameras                          | 1700 | LF | \$25.00     | \$ 42,500.00    |
| 39  | Provide and Install Camera and Video Surveillance System                      | 1    | EA | \$2,500.00  | \$ 2,500.00     |
| 40  | Provide and Install Police Call Box   | 1    | EA | \$6,000.00  | \$ 6,000.00     |
| Sub-Total =   |   |      |    |             | \$ 1,923,550.00 |
| 20% Design, Engineering, Environmental and Permitting = |   |      |    |             | \$ 384,710.00   |
| 20% Contingency =                                       |   |      |    |             | \$ 384,710.00   |
| <b>\$ 2,692,970.00</b>                                  |   |      |    |             |                 |

**Table 14: Concept Estimate, Segment 2**

| <b>Concept Estimate Santa Clara River Trail Segment 2</b>  |   |                           |             |                  |                      |
|--|---|---------------------------|-------------|------------------|----------------------|
| From Easterly End of Segment 1 Junction with Ventura Road Easterly to Approximately 750 Feet East of Highway 101 |   |                           |             |                  |                      |
| Concrete Pavement Over Aggregate Base  |   |                           |             |                  |                      |
| <b>Bid Item</b>  | <b>Description</b>  | <b>Estimated Quantity</b> | <b>Unit</b> | <b>Unit Cost</b> | <b>Extended Cost</b> |
| 1  | Mobilization and Site Requirements                                    | 1                         | LS          | \$26,000.00      | \$ 26,000.00         |
| 2  | Implement SWPP/WQMP   | 1                         | LS          | \$5,200.00       | \$ 5,200.00          |
| 3  | Dust Control  | 1                         | LS          | \$2,600.00       | \$ 2,600.00          |
| 4  | Erosion Control - MS4 permit  | 1                         | LS          | \$5,000.00       | \$ 5,000.00          |
| 5  | Clearing and Grubbing   | 1.5                       | Acre        | \$500.00         | \$ 750.00            |
| 6  | Tree Removal  | 0                         | LS          |                  | \$ -                 |
| 7  | Tree Trimming   | 1                         | LS          | \$15,000.00      | \$ 15,000.00         |
| 8  | Protect Gas Monitoring Wells/Adjust Risers and Valves to Finish Grade | 0                         | LS          | \$0.00           | \$ -                 |
| 9  | Rough Grading - Include Surveying                                     | 46800                     | SF          | \$0.65           | \$ 30,420.00         |
| 10   | Subgrade Preparation  | 46800                     | SF          | \$0.30           | \$ 14,040.00         |
| 11   | Construct Portland Cement Concrete Pavement Over Aggregate Base       | 46800                     | SF          | \$8.25           | \$ 386,100.00        |
| 12   | Decorative Concrete Pavers  | 0                         | LS          | \$0.00           | \$ -                 |
| 13   | Fine Grade Shoulder   | 12800                     | SF          | \$0.50           | \$ 6,400.00          |
| 14   | Construct 2' Wide Concrete Traffic Barrier                            | 0                         | LS          | \$0.00           | \$ -                 |
| 15   | Construct Curb and Gutter   | 2700                      | LF          | \$25.00          | \$ 67,500.00         |
| 16   | Provide and Install Mile Marker/Trail Medallions                      | 3                         | EA          | \$300.00         | \$ 900.00            |
| 17   | Pavement Markings and Striping  | 1                         | LS          | \$6,000.00       | \$ 6,000.00          |
| 18   | Provide and Install Bollards  | 4                         | EA          | \$1,500.00       | \$ 6,000.00          |
| 19   | Construct Bench Slab  | 0                         | EA          | \$500.00         | \$ -                 |
| 20   | Construct 4-foot Split-Rail Fence                                     | 0                         | LF          | \$15.00          | \$ -                 |
| 21   | Construct 6-foot High Chain Link Fence                                | 0                         | LF          | \$35.00          | \$ -                 |
| 22   | Construct 4-foot High Ornamental Metal Fence                          | 550                       | LF          | \$65.00          | \$ 35,750.00         |
| 23   | Construct Double Drive Gate   | 0                         | EA          | \$6,200.00       | \$ -                 |
| 24   | Tree Replacement/Planting   | 0                         | LS          | \$5,000.00       | \$ -                 |

Santa Clara River Trail Plan

|   |   |   |    |             |                   |
|---|---|---|----|-------------|-------------------|
| 25  | Miscellaneous Minor Drainage Structures (field inlets, culvert Headwall, etc) | 1 | LS | \$10,000.00 | \$ 10,000.00      |
| 26  | Slough Walls/Low Retaining walls  | 0 | LF | \$75.00     | \$ -              |
| 27  | Channel Crossing - Pedestrian/Bicycle Bridge                                  | 0 | LS | \$0.00      | \$ -              |
| 28  | Provide and Install Benches   | 0 | EA | \$2,500.00  | \$ -              |
| 29  | Landscape and Irrigation Improvements   | 1 | LS | \$20,000.00 | \$ 20,000.00      |
| 30  | Provide and Install Directional, Etiquette, Regulatory and Warning Signs      | 8 | EA | \$250.00    | \$ 2,000.00       |
| 31  | Provide and Install Wayfinding Signs  | 3 | EA | \$750.00    | \$ 2,250.00       |
| 32  | Provide and Install Interpretive Signs  | 0 | EA | \$5,000.00  | \$ -              |
| 33  | Construct Entry Monument Structure  | 0 | EA | \$0.00      | \$ -              |
| 34  | Provide and Install Trash Receptacles   | 2 | EA | \$1,800.00  | \$ 3,600.00       |
| 35  | Provide and Install Lighting  | 0 | EA | \$5,000.00  | \$ -              |
| 36  | Provide and Install Bike Racks  | 0 | EA | \$1,500.00  | \$ -              |
| 37  | Provide and Install Drinking Fountain   | 0 | EA | \$5,000.00  | \$ -              |
| 38  | Provide and Install Conduit for Surveillance Cameras                          | 0 | LF | \$25.00     | \$ -              |
| 39  | Provide and Install Camera and Video Surveillance System                      | 0 | EA | \$2,500.00  | \$ -              |
| 40  | Provide and Install Police Call Box   | 0 | EA | \$6,000.00  | \$ -              |
| Sub-Total =   |   |   |    |             | \$ 645,510.00     |
| 20% Design, Engineering, Environmental and Permitting = |   |   |    |             | \$ 129,102.00     |
| 20% Contingency =                                       |   |   |    |             | \$ 129,102.00     |
| <b>\$</b>   |   |   |    |             | <b>903,714.00</b> |

**Table 15: Concept Estimate, Segment 3**

| <b>Concept Estimate Santa Clara River Trail Segment 3</b>  |   |                           |             |                  |                      |
|--|---|---------------------------|-------------|------------------|----------------------|
| From End of Segment 2 750-feet Easterly of Highway 100 Running Easterly Along the Santa Clara River Levee Road Approximately 2-miles to Central Avenue |   |                           |             |                  |                      |
| Concrete Pavement Over Aggregate Base  |   |                           |             |                  |                      |
| <b>Bid Item</b>  | <b>Description</b>  | <b>Estimated Quantity</b> | <b>Unit</b> | <b>Unit Cost</b> | <b>Extended Cost</b> |
| 1  | Mobilization and Site Requirements                                    | 1                         | LS          | \$60,000.00      | \$ 60,000.00         |
| 2  | Implement SWPP/WQMP   | 1                         | LS          | \$12,000.00      | \$ 12,000.00         |
| 3  | Dust Control  | 1                         | LS          | \$6,000.00       | \$ 6,000.00          |
| 4  | Erosion Control - MS4 permit  | 1                         | LS          | \$13,000.00      | \$ 13,000.00         |
| 5  | Clearing and Grubbing   | 3.9                       | Acre        | \$500.00         | \$ 1,950.00          |
| 6  | Tree Removal  | 0                         | LS          | \$0.00           | \$ -                 |
| 7  | Tree Trimming   | 0                         | LS          | \$0.00           | \$ -                 |
| 8  | Protect Gas Monitoring Wells/Adjust Risers and Valves to Finish Grade | 0                         | LS          | \$0.00           | \$ -                 |
| 9  | Rough Grading - Include Surveying                                     | 127000                    | SF          | \$0.65           | \$ 82,550.00         |
| 10   | Subgrade Preparation  | 127000                    | SF          | \$0.30           | \$ 38,100.00         |
| 11   | Construct Portland Cement Concrete Pavement Over Aggregate Base       | 127000                    | SF          | \$8.25           | \$ 1,047,750.00      |
| 12   | Decorative Concrete Pavers (Windrow Park Gateway)                     | 1                         | LS          | \$10,000.00      | \$ 10,000.00         |
| 13   | Fine Grade Shoulder   | 42400                     | SF          | \$0.50           | \$ 21,200.00         |
| 14   | Construct 2' Wide Concrete Traffic Barrier                            | 0                         | LS          | \$0.00           | \$ -                 |
| 15   | Construct Curb and Gutter   | 0                         | LF          | \$25.00          | \$ -                 |
| 16   | Provide and Install Mile Marker/Trail Medallions                      | 8                         | EA          | \$300.00         | \$ 2,400.00          |
| 17   | Pavement Markings and Striping  | 1                         | LS          | \$16,000.00      | \$ 16,000.00         |
| 18   | Provide and Install Bollards  | 4                         | EA          | \$1,500.00       | \$ 6,000.00          |
| 19   | Construct Bench Slab  | 4                         | EA          | \$500.00         | \$ 2,000.00          |
| 20   | Construct 4-foot Split-Rail Fence                                     | 0                         | LF          | \$15.00          | \$ -                 |
| 21   | Construct 6-foot High Chain Link Fence                                | 0                         | LF          | \$35.00          | \$ -                 |
| 22   | Construct 4-foot High Ornamental Metal Fence                          | 0                         | LF          | \$65.00          | \$ -                 |
| 23   | Construct Double Drive Gate   | 0                         | EA          | \$6,200.00       | \$ -                 |

Santa Clara River Trail Plan

|   |   |     |    |             |                        |
|---|---|-----|----|-------------|------------------------|
| 24  | Tree Replacement/Planting   | 0   | LF | \$5,000.00  | \$ -                   |
| 25  | Miscellaneous Minor Drainage Structures (field inlets, culvert Headwall, etc) | 1   | LS | \$10,000.00 | \$ 10,000.00           |
| 26  | Slough Walls/Low Retaining walls  | 0   | LF | \$75.00     | \$ -                   |
| 27  | Channel Crossing - Pedestrian/Bicycle Bridge -                                | 1   | LS | \$0.00      | \$ -                   |
| 28  | Provide and Install Benches   | 4   | EA | \$2,500.00  | \$ 10,000.00           |
| 29  | Landscape and Irrigation Improvements   | 0   | LS | \$0.00      | \$ -                   |
| 30  | Provide and Install Directional, Etiquette, Regulatory and Warning Signs      | 8   | EA | \$250.00    | \$ 2,000.00            |
| 31  | Provide and Install Wayfinding Signs  | 7   | EA | \$750.00    | \$ 5,250.00            |
| 32  | Provide and Install Interpretive Signs  | 2   | EA | \$5,000.00  | \$ 10,000.00           |
| 33  | Construct Entry Monument Structure  | 0   | LS | \$0.00      | \$ -                   |
| 34  | Provide and Install Trash Receptacles   | 2   | EA | \$1,800.00  | \$ 3,600.00            |
| 35  | Provide and Install Lighting  | 0   | EA | \$5,000.00  | \$ -                   |
| 36  | Provide and Install Bike Racks  | 4   | EA | \$1,500.00  | \$ 6,000.00            |
| 37  | Provide and Install Drinking Fountain   | 0   | EA | \$5,000.00  | \$ -                   |
| 38  | Provide and Install Conduit for Surveillance Cameras                          | 150 | LF | \$25.00     | \$ 3,750.00            |
| 39  | Provide and Install Camera and Video Surveillance System                      | 1   | EA | \$2,500.00  | \$ 2,500.00            |
| 40  | Provide and Install Police Call Box   | 0   | EA | \$6,000.00  | \$ -                   |
| Sub-Total =   |   |     |    |             | \$ 1,372,050.00        |
| 20% Design, Engineering, Environmental and Permitting = |   |     |    |             | \$ 274,410.00          |
| 20% Contingency =                                       |   |     |    |             | \$ 274,410.00          |
|   |   |     |    |             | <b>\$ 1,920,870.00</b> |

**Table 16: Concept Estimate, Segment 4**

| <b>Concept Estimate Santa Clara River Trail Segment 4</b>            |   |                           |             |                  |                      |
|--|---|---------------------------|-------------|------------------|----------------------|
| <b>Along Victoria Avenue from Gonzales Road to Santa Clara River</b> |   |                           |             |                  |                      |
| <b>Concrete Pavement Over Aggregate Base</b>                         |   |                           |             |                  |                      |
| <b>Bid Item</b>  | <b>Description</b>  | <b>Estimated Quantity</b> | <b>Unit</b> | <b>Unit Cost</b> | <b>Extended Cost</b> |
| 1  | Mobilization and Site Requirements                                    | 1                         | LS          | \$51,000.00      | \$ 51,000.00         |
| 2  | Implement SWPP/WQMP   | 1                         | LS          | \$10,000.00      | \$ 10,000.00         |
| 3  | Dust Control  | 1                         | LS          | \$5,000.00       | \$ 5,000.00          |
| 4  | Erosion Control - MS4 permit  | 1                         | LS          | \$10,000.00      | \$ 10,000.00         |
| 5  | Clearing and Grubbing   | 2                         | Acre        | \$500.00         | \$ 1,000.00          |
| 6  | Tree Removal  | 1                         | LS          | \$75,000.00      | \$ 75,000.00         |
| 7  | Tree Trimming   | 1                         | LS          | \$30,000.00      | \$ 30,000.00         |
| 8  | Protect Gas Monitoring Wells/Adjust Risers and Valves to Finish Grade | 0                         | LS          | \$0.00           | \$ -                 |
| 9  | Rough Grading - Include Surveying                                     | 66000                     | SF          | \$0.65           | \$ 42,900.00         |
| 10   | Subgrade Preparation  | 66000                     | SF          | \$0.30           | \$ 19,800.00         |
| 11   | Construct Portland Cement Concrete Pavement Over Aggregate Base       | 66000                     | SF          | \$8.25           | \$ 544,500.00        |
| 12   | Decorative Concrete Pavers  | 0                         | LS          | \$0.00           | \$ -                 |
| 13   | Fine Grade Shoulder   | 22000                     | SF          | \$0.50           | \$ 11,000.00         |
| 14   | Construct 2' Wide Concrete Traffic Barrier                            | 1                         | LS          | \$91,000.00      | \$ 91,000.00         |
| 15   | Construct Curb and Gutter   | 0                         | LF          | \$25.00          | \$ -                 |
| 16   | Provide and Install Mile Marker/Trail Medallions                      | 0                         | EA          | \$300.00         | \$ -                 |
| 17   | Pavement Markings and Striping  | 1                         | LS          | \$8,300.00       | \$ 8,300.00          |
| 18   | Provide and Install Bollards  | 8                         | EA          | \$1,500.00       | \$ 12,000.00         |
| 19   | Construct Bench Slab  | 0                         | EA          | \$500.00         | \$ -                 |
| 20   | Construct 4-foot Split-Rail Fence                                     | 2665                      | LF          | \$15.00          | \$ 39,975.00         |
| 21   | Construct 6-foot High Chain Link Fence (Split face rail)              | 0                         | LF          | \$35.00          | \$ -                 |
| 22   | Construct 4-foot High Ornamental Metal Fence                          | 0                         | LF          | \$65.00          | \$ -                 |
| 23   | Construct Double Drive Gate   | 0                         | EA          | \$6,200.00       | \$ -                 |
| 24   | Tree Replacement/Planting   | 1                         | LS          | \$10,000.00      | \$ 10,000.00         |

Santa Clara River Trail Plan

|   |   |      |    |             |                 |
|---|---|------|----|-------------|-----------------|
| 25  | Miscellaneous Minor Drainage Structures (field inlets, culvert Headwall, etc) | 1    | LS | \$20,000.00 | \$ 20,000.00    |
| 26  | Slough Walls/Low Retaining walls  | 1000 | LF | \$100.00    | \$ 100,000.00   |
| 27  | Channel Crossing - Pedestrian/Bicycle Bridge - Grade transition               | 1    | LS | \$50,000.00 | \$ 50,000.00    |
| 28  | Provide and Install Benches   | 0    | EA | \$2,500.00  | \$ -            |
| 29  | Landscape and Irrigation Improvements   | 1    | LS | \$2,500.00  | \$ 2,500.00     |
| 30  | Provide and Install Directional, Etiquette, Regulatory and Warning Signs      | 4    | EA | \$250.00    | \$ 1,000.00     |
| 31  | Provide and Install Wayfinding Signs  | 2    | EA | \$750.00    | \$ 1,500.00     |
| 32  | Provide and Install Interpretive Signs  | 0    | EA | \$5,000.00  | \$ -            |
| 33  | Construct Entry Monument Structure  | 1    | LS | \$10,000.00 | \$ 10,000.00    |
| 34  | Provide and Install Trash Receptacles   | 2    | EA | \$1,800.00  | \$ 3,600.00     |
| 35  | Provide and Install Lighting  | 0    | EA | \$5,000.00  | \$ -            |
| 36  | Provide and Install Bike Racks  | 0    | EA | \$1,500.00  | \$ -            |
| 37  | Provide and Install Drinking Fountain   | 0    | EA | \$5,000.00  | \$ -            |
| 38  | Provide and Install Conduit for Surveillance Cameras                          | 0    | LF | \$25.00     | \$ -            |
| 39  | Provide and Install Camera and Video Surveillance System                      | 0    | EA | \$2,500.00  | \$ -            |
| 40  | Provide and Install Police Call Box   | 0    | EA | \$6,000.00  | \$ -            |
| Sub-Total =   |   |      |    |             | \$ 1,150,075.00 |
| 20% Design, Engineering, Environmental and Permitting = |   |      |    |             | \$ 230,015.00   |
| 20% Contingency =                                       |   |      |    |             | \$ 230,015.00   |
| <b>\$ 1,610,105.00</b>                                  |   |      |    |             |                 |

## Funding Sources

Multi-use paths are generally funded through a combination of local, state and federal sources. Many funding programs require a minimum local match (e.g., 80% federal funds, 20% local). In some instances communities have successfully leveraged grant money from private foundations or state programs as a match for other funding sources. In-kind technical support is also available from federal and state agencies, such as the National Park Service Rivers, Trails, and Conservation Assistance. The following list is an overview of the major funding programs. Staff should refer to current guidelines provided by the granting agency when pursuing any funding opportunity.

### Federal Funding Sources

The primary federal source of surface transportation funding, including bicycle facilities, is SAFETEA-LU, the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*.

Administration of SAFETEA-LU funding occurs through the State (Caltrans and the State Resources Agency) and through regional planning agencies. Most, but not all, of these funding programs focus on utilitarian transportation versus recreation, with an emphasis on reducing auto trips and providing intermodal connections. Most SAFETEA-LU programs require a local match of 10 percent. Specific funding programs under SAFETEA-LU that could be applicable for SCRT include, but are not limited to: Congestion Mitigation and Air Quality (CMAQ), Recreational Trails Program, Safe Routes to School Program (SRTS), Transportation, the Community and System Preservation Program (TCSP), and the Transportation Enhancements (TE) Program. These and other Federally-funded programs are described below.

To be eligible for Federal transportation funds, States are required to develop a State Transportation Improvement Program (STIP) and update it at least every four years. A STIP is a multi-year capital improvement program of transportation projects that coordinates transportation-related capital improvements planned by metropolitan planning organizations and the state.

To be included in the STIP, projects must be identified either in the Interregional Transportation Improvement Plan (ITIP), which is prepared by Caltrans, or in the Regional Transportation Improvement Plan (RTIP). Bicycle projects are eligible for inclusion. Caltrans updates the STIP every two years and the City should apply to Ventura County Transportation Commission (VCTC) to have the SCRT included in the ITIP or RTIP and then the STIP.

### Congestion Mitigation and Air Quality (CMAQ)

The Congestion Mitigation and Air Quality (CMAQ) funds are allocated by the Ventura County Transportation Commission (VCTC) for transportation projects that aim to reduce transportation related emissions and that are likely to contribute to the attainment of a national ambient air quality standard, and congestion mitigation. Grants are awarded on a competitive basis. These funds are available for pedestrian and bicycle paths and other projects that serve to reduce congestion and improve air quality. The funds can be used either for construction of bicycle transportation facilities and pedestrian walkways or for non-construction projects related to safe bicycle and pedestrian use (maps, brochures, etc.). The projects must be tied to a plan adopted by the State of California and VCTC.

### **Recreational Trails Program**

The Recreational Trails Program funds development and maintenance of recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. These funds are available for paved or unpaved trails, and can be used for the purchase and lease of trail construction and maintenance equipment, acquisition or easements of property, State administrative costs related to this program, and operation of educational programs to promote safety and environmental protection related to trails.

### **Land & Water Conservation Fund (LWCF)**

The LWCF program provides matching grants to State and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program aims to create and maintain a nationwide legacy of high quality recreation areas and facilities, and to stimulate non-federal investments in the protection and maintenance of recreation resources. Run through the National Park Service, the fund is administered by the California Department of Parks and Recreation and has been reauthorized until 2015.

### **Safe Routes to School Infrastructure Projects**

Safe Routes to School (SRTS) aims to encourage children in grades Kindergarten through Eighth (K-8) to walk and bike to school. Eligible projects include trails, crossings, side walks, and other connections, and must be within two miles of a school. Caltrans administers funding for Safe Routes to School projects through two separate programs: the state-legislated Program (SR2S) and the federally-legislated Program (SRTS). The SRTS Program is funded in cycles; Cycle 2 provided \$46 million for FY 08/09 and 09/10, while the Cycle 3 made \$42 million available and applications were due July 2011.

Infrastructure projects are engineering projects or capital improvements that improve safety and the ability of students to walk and bicycle to school. They typically involve the planning, design, and construction of facilities within a two-mile radius of a grade school or middle school. The maximum funding cap for an infrastructure project is \$1 million. California Department of Transportation (Caltrans) does not set minimum caps. The project cost estimate may include eligible direct and indirect costs. Direct costs include the cost of construction and materials. Indirect costs may include salaried employees or staff time allotted to the project.

Infrastructure projects should directly support increased safety and convenience for K-8 children to walk and bicycle to school, including children with disabilities. Eligible project for SCRT include:

- Bicycle projects such as new multi-use trail paths.
- Pedestrian improvements projects such as new pedestrian over and under crossings, roundabouts, bulb-outs, speed bumps, raised intersections, median refuges, narrowed traffic lanes, lane reductions, full or half-street closures, and other speed reduction techniques.
- Traffic control devices such as new or upgraded traffic signals, crosswalks, pavement markings, traffic signs, traffic stripes, in-roadway crosswalk lights, flashing beacons, bicycle-sensitive signal actuation devices, pedestrian countdown signals, vehicle speed feedback signs, and pedestrian activated upgrades.

### **Transportation, Community, and System Preservation Program (TCSP)**

Implementation grants under the TCSP Program provide financial resources to States, metropolitan planning organizations, local governments and tribal governments to enact activities that address transportation efficiency, while meeting community preservation and environmental goals. Policy and program examples include spending policies that direct funds to high-growth regions; urban growth boundaries to guide metropolitan expansion; and “green corridor” programs that provide access to highway corridors in areas targeted for efficient and compact development.

### **Transportation Enhancements (TE)**

Potential Transportation Enhancement projects are approved by the VCTC and submitted to the California Transportation Commission (CTC) for inclusion in the State Transportation Improvement Program (STIP). This program is funded by a set-aside of Surface Transportation Program (STP) funds. Ten percent of STP funds are designated for Transportation Enhancement Activities (TEAs), which include “provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists,” and the “preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails.” (23 USC Section 190 (a) (35)). The reauthorization of the Federal transportation bill will determine funding availability for 2012 and later.

TE funding can be used to build projects that enhance bicycle and pedestrian safety, and to build bicycle and pedestrian facilities. Facility development can include both development of new facilities as well as modifications of existing facilities. Bicycle facilities must be transportation-oriented (not solely for recreational purposes), can be located within or outside of the highway rights-of-way and could include riding or walking surfaces and related amenities. Eligible projects under the safety category include non-construction safety-related activities, such as safety and educational activities. Projects must be accessible to the general public or targeted to a broad segment of the general public.

### **Potential Federal Sources**

#### **Partnership for Sustainable Communities**

Though not a formal agency, the Partnership for Sustainable Communities is a joint project of the US Environmental Protection Agency (EPA), the Department of Housing and Urban Development (HUD), and the US Department of Transportation (USDOT). One goal of the project is to expand transportation options that improve air quality and public health, which has already resulted in several new grant opportunities, including Transportation Investment Generating Economic Recovery (TIGER I, TIGER II) grants. Oxnard should track Partnership communications and be prepared to respond proactively to announcements of new grant programs.

## State of California Funding Sources

This section discusses potential funding sources from State agencies and organizations.

### Bicycle Transportation Account-State

The State of California Bicycle Transportation Account (BTA) is an annual statewide discretionary program that funds bicycle projects through the Caltrans Bicycle Facilities Unit. Available as grants to local jurisdictions, the program emphasizes projects that benefit bicycling for commuting purposes. Out of \$7.2 million available statewide, the maximum amount available for individual projects is \$1.2 million.

The local match is a minimum of 10% of the total project cost.

BTA projects intend to improve safety and convenience for bicycle commuters. For the SCRT this can include:

- New bike ways serving major transportation corridors
- New bike ways removing travel barriers to potential bicycle commuters
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel
- Improvement and maintenance of bike ways

Eligible project activities include:

- Project planning
- Preliminary engineering
- Final design
- Right-of-way acquisition
- Construction and/or rehabilitation

### Environmental Enhancement and Mitigation Program (EEMP)

EEMP funds support projects that offset environmental impacts of modified or new public transportation facilities. These projects can include highway landscaping and urban forestry projects, roadside recreation projects, and projects to acquire or enhance resource lands. EEMP grant funding could support funding for enhancements along the SCRT such as restoration and tree planting along Victoria Avenue.

### California Coastal Conservancy

To achieve its goals, the Coastal Conservancy may award grants to public agencies and nonprofit organizations that qualify under Section 501(c)(3) of the United States Internal Revenue Code and whose purposes are consistent with Division 21 of the California Public Resources Code (commencing with section 31000). The Coastal Conservancy funds projects that improve public access to and along the coast, natural resource protection and restoration in the coastal zone or affecting coastal areas, restoration of coastal urban waterfronts, protection of coastal agricultural land, and resolution of land use conflicts.<sup>8</sup> The Coastal Conservancy has shown strong support for the Santa Clara River Parkway, in which the SCRT is a key segment.

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<sup>8</sup> <http://scc.ca.gov/category/grants/>

### **State Safe Routes to School Program (SR2S)**

California Safe Routes to School Program expires December 21, 2012, requires a 10 percent local match, is eligible to cities and counties, and targets children in grades K-12. The fund is primarily for construction, but applicants may use up to 10 percent of the program funds for education, encouragement, enforcement and evaluation activities. Cycle 9 provided \$24.25 million for FY 10/11.

### **Regional and Local Funding Sources**

This section discusses potential funding sources from local agencies and organizations.

#### **Municipal Bonds**

Municipalities have access to the commercial financial markets via bonds. Use of this funding mechanism is dependent upon strong community support in order to pass the required bond referendum. This is frequently used to obtain the required local matching funds.

#### **Adopt-A-Trail Programs**

These programs are often administered by a local trail commission or non-profit and are used to fund new construction, renovation, trail brochures, informational kiosks and other amenities. These programs can also be extended to include sponsorship of trail segments for maintenance needs.

#### **Design Arts Program**

The National Endowment for the Arts provides grants to states and local agencies, individuals and nonprofit organizations for projects that incorporate urban design, historic preservation, planning, architecture, landscape architecture and other community improvement activities, including greenway development. Grants to organizations and agencies must be matched by a 50% local contribution. Agencies can receive up to \$50,000.

#### **Donations and In-Kind Matches**

Other potential funding sources include donations of cash from private foundations and philanthropic organizations. Donations of property or construction materials and labor can be another valuable source of funding. The value of these resources is magnified when they are used as a local match for the Federal funding programs described above. The Federal Highway Administration (FHWA) has in the past approved “innovative financing plans” that include donation or in-kind labor performed by the trail proponent or community organization. It should be noted that the approval of an innovative financing plan is done on a case-by-case basis by FHWA, in light of community circumstances, and is not guaranteed.

#### **TDA Article 3 (SB 821)**

Transportation Development Act (TDA) Article III funds are a percentage of the state sales tax given annually to local jurisdictions for bicycle and pedestrian projects. Funds may be used for engineering expenses leading to construction, right-of-way acquisition, construction and reconstruction, retrofitting

existing facilities, route improvements, and bicycle support facilities. A jurisdiction may apply for funding to develop or update bicycle plans not more than once every five years.

### **Air Pollution Buy Down Fees**

Another potential local source of funding is air pollution buy down fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. As an alternative to paying impact fees, a developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements that will encourage residents to bicycle rather than drive.

The City may assess impact fees for new development if a developer does not install improvements that reduce air pollution. The fees are assessed because the City requires transportation demand management (TDM) for new development. The impact fees are placed in the city's air pollution buy down fund, which is the City's off-site TDM fund recommended by the *Air Quality Assessment Guidelines* from the Ventura County Air Pollution Control District. The collected impact fees are allocated by the city council for projects to reduce single-occupancy vehicle trips and air pollution. Eligible projects include bicycle and pedestrian planning, bicycle lane striping, sidewalks, bike and pedestrian path acquisition and construction, and bicycle signage. Funds should not be used for traffic improvements that do not principally benefit pedestrians, transit riders, and bicyclists. The *Guidelines* recommend the fees be spent or committed to a mitigation project within five years of receipt. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

### **Mello-Roos Community Facilities Act**

The Mello-Roos Community Facilities Act was created to compensate for the loss of funds created by the passing of Proposition 13. When financing for public services or improvements is needed, a Mello-Roos Community Facilities District (CFD) can be established to fund such necessities through a special tax on property owners in the area. Bicycle paths and bicycle lanes can be funded as part of a local assessment or benefit district. Defining the boundaries of the benefit district may be difficult unless the facility is part of a larger parks and recreation or public infrastructure program with broad community benefits and support.