Outstanding Local Streets and Roads Project Awards
2018 Nomination Supporting Documentation

City of Santa Cruz Branciforte Creek Bicycle/Pedestrian Bridge and Multi-Use Trail Project

Location: From the existing Riverwalk path under the Soquel Avenue Bridge and over Branciforte Creek to San Lorenzo Park, Santa Cruz

Date of Completion: September 2017

City or County Responsible for Project: City of Santa Cruz

Design Consultant: TRC Solutions

Contractor: Graniterock

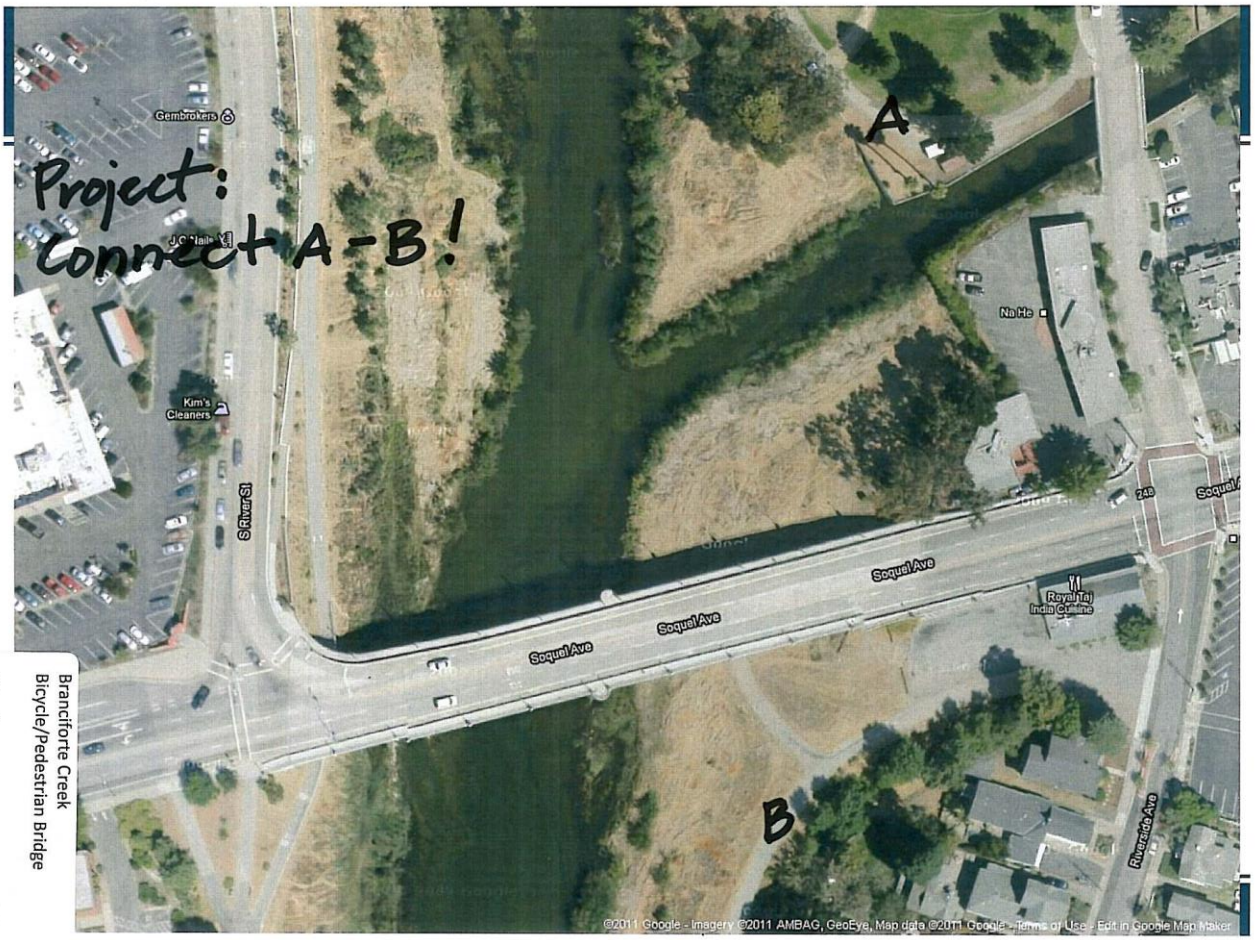
Project Context

The Branciforte Creek Bicycle/Pedestrian Bridge and Multi-Use Trail Project was conceived in the 1987 City of Santa Cruz San Lorenzo River Design Concept Plan. In June 2003, the City adopted the San Lorenzo Urban River Plan which recognizes the San Lorenzo Riverwalk as an important alternative transportation corridor. It detailed the planned construction of a pedestrian/bicycle bridge to connect the existing Riverwalk path under the Soquel Avenue Bridge and over Branciforte Creek to San Lorenzo Park.

Other improvements in accordance with the Urban River Plan included replacement and enhancement of the 5-mile Riverwalk bike/pedestrian pathway with two San Lorenzo River Parkway Projects completed in 2004 and 2016. New paving, LED lighting, path striping, fitness center, seating and drought tolerant plantings all contribute to the Riverwalk as a Santa Cruz signature—an important active transportation corridor running north/south through the center of town providing scenic and recreational value.

Riverwalk provides the community with an alternative commute route connecting employment, retail, schools and recreational areas with neighborhoods. The connection is designated part of Safe Routes to School network and serves the Harvey West neighborhood, Beach/Boardwalk area, downtown, County Government Center and Metro Bus Center. Interconnections exist with cross-town bike lanes, sidewalks and other paths. Both UC Santa Cruz and Santa Cruz City School District students regularly use the pathway.

Until now, there was a gap in the Riverwalk. For years, cyclists and pedestrians had to leave the levee pathway system and use City streets in order to cross Branciforte Creek. Thanks to a California State Active Transportation Program grant, the Branciforte Creek Bicycle/Pedestrian Bridge and Multi-Use Trail Project has finally eliminated this gap completing a fully separate pathway for pedestrians and cyclists traveling on the Riverwalk that keeps them safe from motor vehicle traffic.



II. 3. Branciforte Creek Bicycle/Pedestrian Bridge

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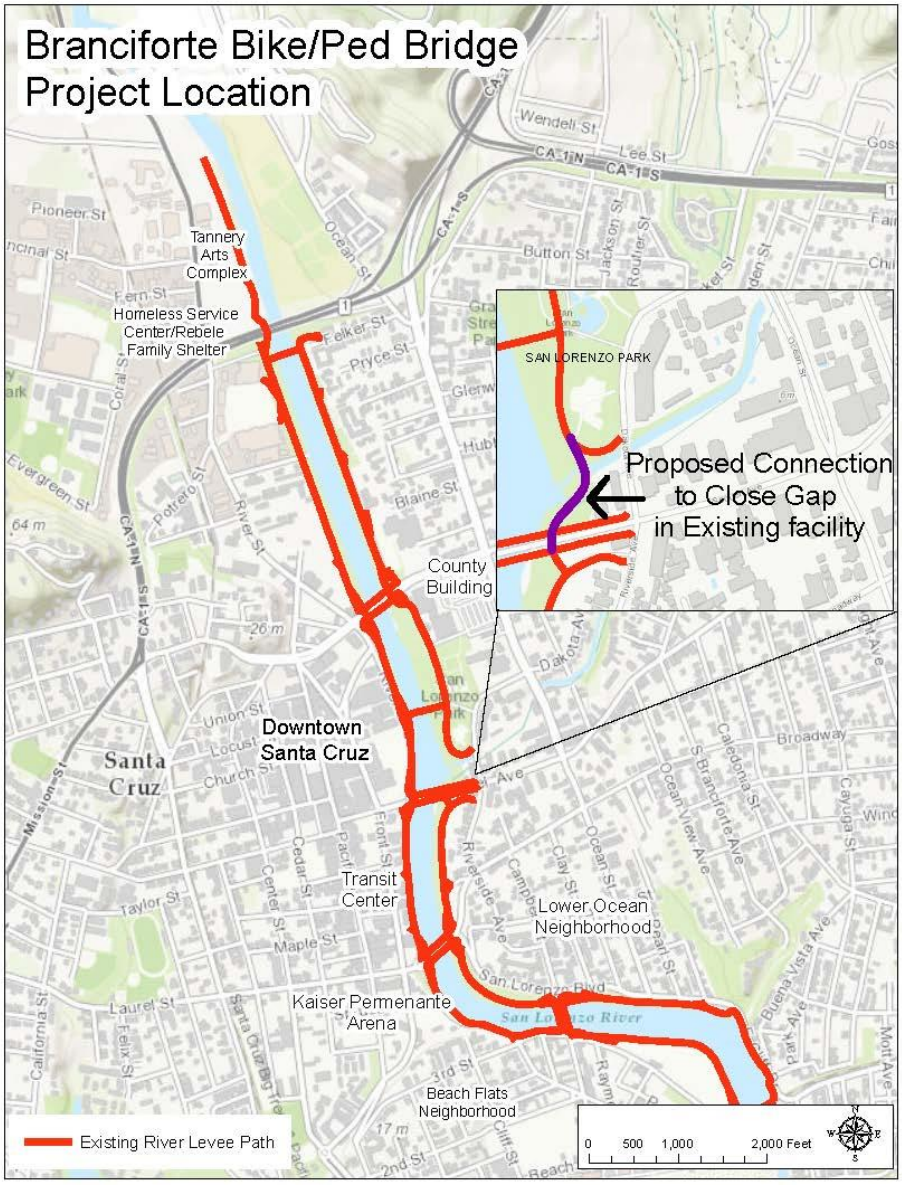


The two key features of the project were the construction of a new bike/pedestrian bridge across Branciforte Creek and the completion of the levee trail system along the middle and eastern reach of the San Lorenzo River. The bridge crosses Branciforte Creek from San Lorenzo Park and is 126 feet in length. The paved multi-use trail connects to the levee trail south of the Soquel Avenue Bridge. The trail connection goes under the Soquel Avenue Bridge and adjacent to the bridge abutment, as the trail does at the City's other San Lorenzo River bridges.

The Branciforte Creek Bicycle/Pedestrian Bridge and Multi-Use Trail Project was completed in September 2017. It has greatly increased use of the Riverwalk by creating a continuous, convenient, safe and comfortable facility for cyclists and pedestrians. It also serves educational and environmental purposes as it brings the public closer to and within the natural environment. The project is helping to increase walking, biking and safety in Santa Cruz while serving a wide spectrum of active transportation users.

The Santa Cruz community has expressed tremendous support for, and appreciation of, this project. The grant application contains letters of support from Bike Santa Cruz County, Gault Elementary School, Santa Cruz County Traffic Safety Coalition and Mission Pedestrian. The local weekly newspaper made an unsolicited offer to publish the following ad free of charge to help make sure that everyone knew that the bridge and trail had opened.

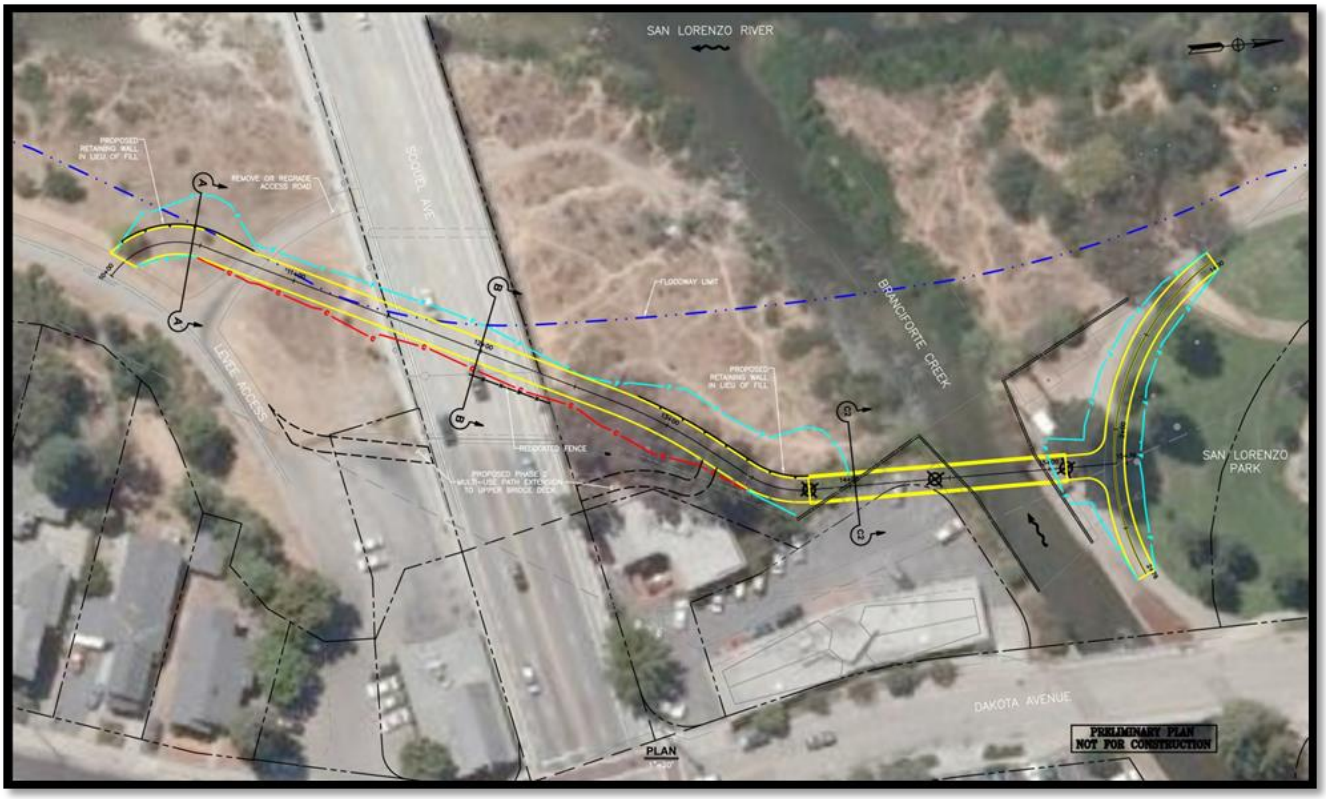
The project also supports the City's new Go Santa Cruz initiative which includes the City's ongoing work to expand active transportation facilities and reduce greenhouse gas emissions. It is also part of the City's 2020 Climate Action Plan aimed at reducing greenhouse gases by 30% over a 10-year period.

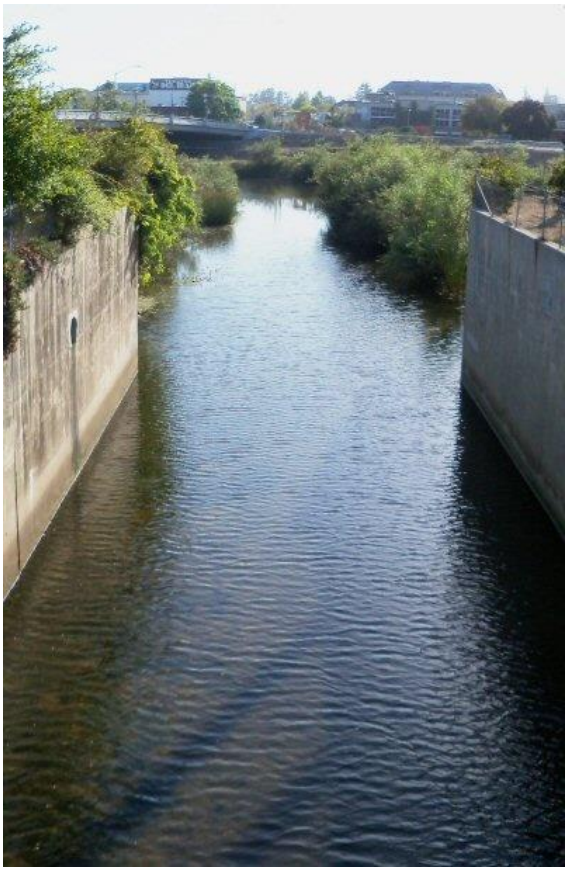
The project was in the City's approved Active Transportation Plan and Capital Improvement Program. The new bridge is primarily used for bicycle and pedestrian use, but was also constructed to accommodate emergency response and maintenance vehicles.

An extensive public process was completed in 2011 through the City's Transportation and Public Works Commission and three-person ad hoc committee to help select the alignment and final concept design.

On December 14, 2011, committee members, staff and design consultant TRC Solutions met to consider the conceptual alignments developed by the consultant including the pros and cons for each one. Environmental and flood flow information developed by other consultants was also considered. The committee and staff concurred that "Alignment #2" was preferred out of three total options.

This alignment kept the proposed bridge and path essentially behind the end walls of the Branciforte Creek channel and therefore as far from the San Lorenzo River channel as feasible, with horizontal curves that are user-friendly and a minimized bridge length. This alignment also minimized the development of any areas which might prove to be attractive nuisances, such as beneath the bridge approaches where people could shelter. Alignment was approved by the Transportation and Public Works Commission on January 23, 2012.

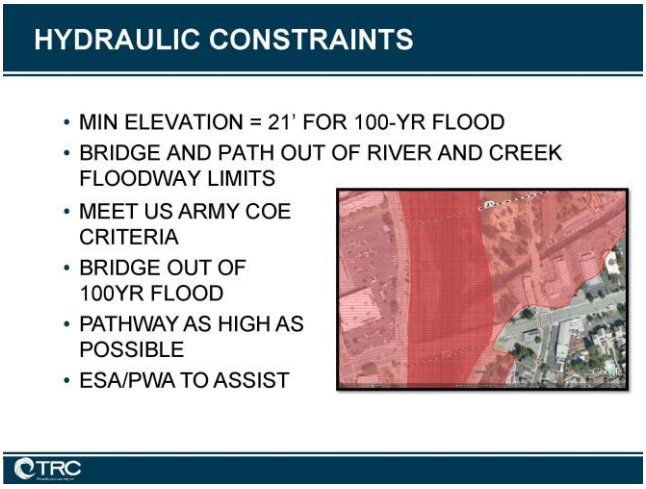

SAN LORENZO RIVER
SEABRIGHT AVE.
PROPOSED RETAINING WALL IN LIEU OF FILL
REMOVE OR REGRADE ACCESS ROAD
FLOODWAY LIMIT
BRANCIFORTE CREEK
LEVEE ACCESS
PROPOSED RETAINING WALL IN LIEU OF FILL
RELOCATED FENCE
SAN LORENZO PARK
DAKOTA AVENUE
PRELIMINARY PLAN NOT FOR CONSTRUCTION
PLAN

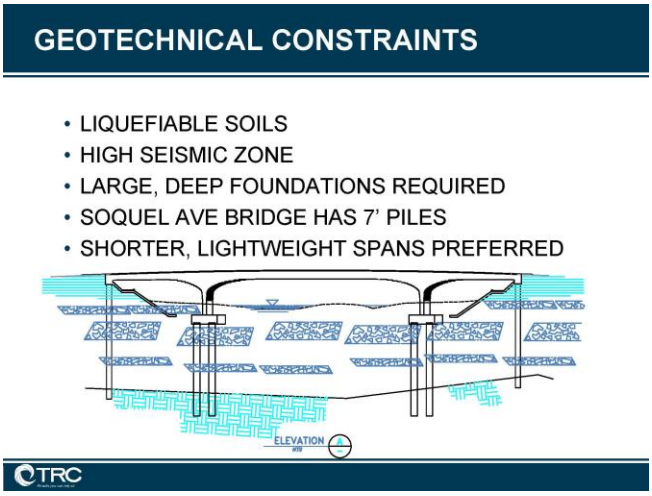


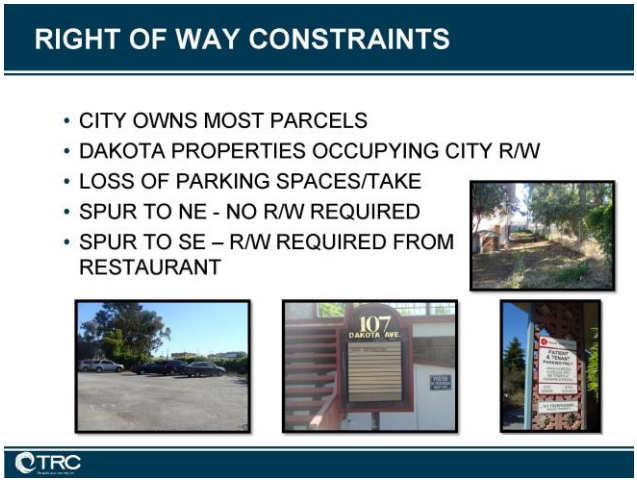
Project Design and Regulatory Challenges

Branciforte Creek, between the concrete channel walls, is approximately 50 feet wide. The bridge spans about 120 feet so as not to put undo pressure on the channel walls. The bridge elevation of 23 feet accommodates flood flows and debris. The elevation of the bottom of the structure was determined by the City's current hydrologist, ESA-PWA, based on past modeling. The bridge and trail are subject to significant liquefaction forces during a seismic event and therefore deep foundations were required for the bridge. The design also considered social issues common to this area. Required permits included a General Waste Discharge Permit from the State Water Resources Control Board, Streambed Alternation Permit from the California Department of Fish and Wildlife, and authorization from the U.S. Army Corps of Engineers.

Preliminary engineering work included bridge type selection studies, pathway alignment studies, hydraulic studies, a geotechnical investigation, and environmental studies.







Project Construction Description

The project included installation of two 84-inch CIDH (cast in drilled hole) piles drilled to a depth of 123-feet, formation of the bridge abutments, connection and placement of a two-piece, 126-foot long, prefabricated corten steel bridge, and construction of a 12-foot wide, ADA compliant, asphalt concrete multi-use trail with decomposed granite shoulders. The bridge included recessed low-level lighting. Decorative overhead lighting was added to the trail. Hydroseeding and willow cutting and plantings were performed adjacent to the trail; they will fill-in over the first year.

The project was funded with a $1.8 million California State Active Transportation Program grant and $400,000 in local Gas Tax funds.

Construction Schedule, Management, and Control Techniques Used

In order to make the project more appealing to state grant reviewers, from 2011 to 2015 the City spent over $500,000 of local dollars and funds through the Santa Cruz County Regional Transportation Commission to complete the design and environmental review to have a shovel-ready project. After being awarded the $1.8M California State Active Transportation grant in February 2016 for construction and receiving authorization from the City Council on Aug. 23, 2016, the project was advertised in fall 2016. A Notice to Proceed was issued on March 23, 2017. In order to comply with regulatory agencies, construction started in April 2017 and was scheduled to be completed in November 2017. With good weather, a faster than anticipated foundation operation and prefabricated bridge delivery, substantial project completion occurred in early September. By late September the bridge and multi-use trail was officially open for public use, nearly two months ahead of schedule.

The project site was located at the south end of San Lorenzo Park, a City owned recreational area, and connected to the existing levee trail, just south of the Soquel Avenue Bridge. A permanent and temporary construction easement was obtained from the adjacent property allowing the contractor to stage materials and more easily construct and place the bridge. As part of the easement agreement, this parking lot was later reconstructed following the placement of the bridge.

The local noise ordinance was adhered to with construction occurring primarily on weekdays between 7 a.m. and 6 p.m. No noise complaints were ever received. Work was permitted later in the evening and on weekends, in accordance with City noise ordinance regulations, in order to complete critical components including crane placement of rebar cages and bridge.

Parking impacts were mitigated by providing temporary parking permits to three affected businesses.

Prior to construction it was very important to secure the construction site and install best management practices including fiber rolls and fencing. The construction site was located in the San Lorenzo River and Branciforte Creek confluence area and adjacent to businesses and a popular children's playground and park. As much construction work as possible and all the staging was conducted above the river at top of the bank to limit any construction materials or contaminants from entering the water ways.

Construction Phase 1

The first phase of the project involved drilling of 123-feet holes for two 84" CIDH piles and construction of the bridge abutments. Construction of the pile rebar cages happened concurrently to speed up the pile timeline. Some of that time was lost as the first drilled hole collapsed on itself during placement of the rebar cage. The hole and rebar cage were abandoned and a new hole was drilled two diameter lengths away, as directed by the geotechnical design engineer. The additional construction costs were covered by the contractor. Loss of time was less than two weeks and was easily made up during the course of the project.

Construction Phase 2

The second phase involved using a crane to hold the two-piece prefabricated steel bridge together so it could be bolted, then picked up and placed on the bridge abutments. Deck rebar was installed and a 4-inch concrete deck was poured. Recessed lighting was included in the railing.

Construction Phase 3

The third phase of the project was the construction of the multi-use trail, storm drain system, and decorative trail lighting. More time was saved during trail construction because much of it happened concurrently with the foundation and bridge work. Rough grading of the trail, installation of all SD pipe and conduit, and pouring of the lighting foundations were all completed before the bridge was even set. By late August the bridge and path were functional but with lights, striping and signage yet to be installed. Trash and recycling receptacles were installed. Tree plantings, hydroseeding, and willow cuttings and plantings were also performed towards the end of the project.

Safety performance including number of lost-time injuries per 1,000 man-hours worked and overall safety program employed during the construction phase.

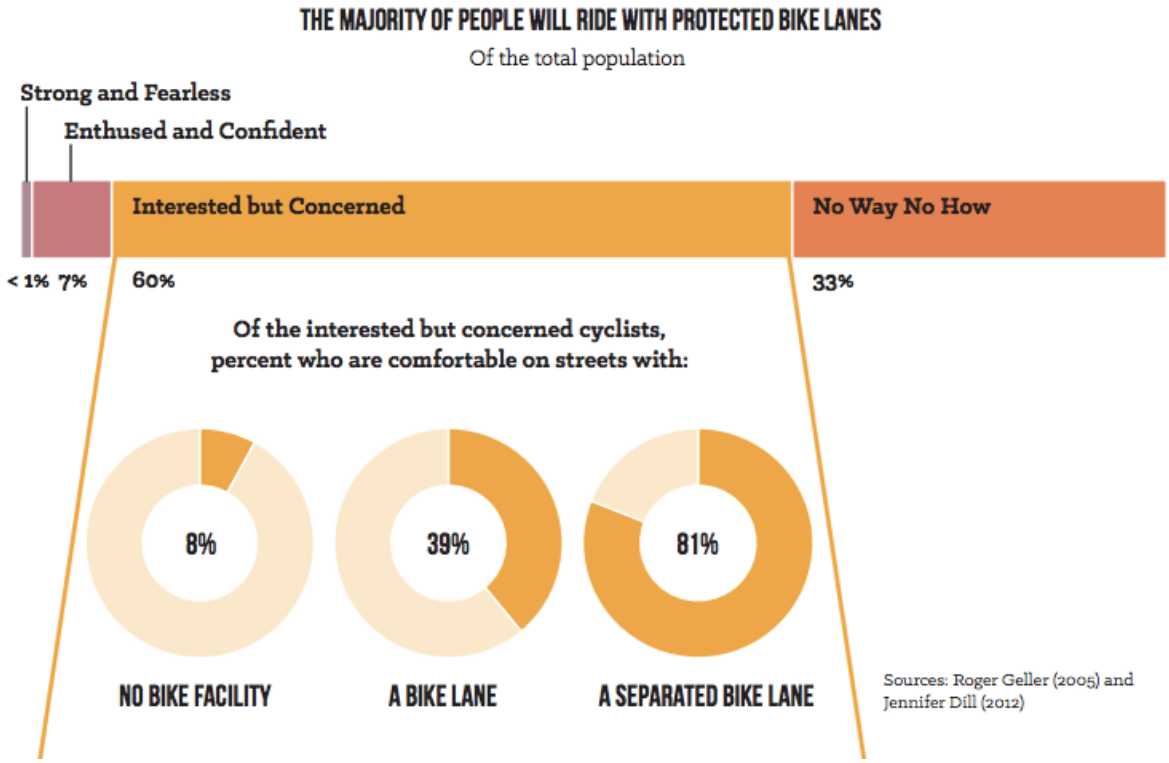
The project was completed without construction related injuries to the contractor or the public. The contractor cleaned up daily and maintained a neat and orderly worksite throughout the duration of the project.

The bridge and the San Lorenzo River levee trail were designed to be ADA compliant with bridge running slopes less than 5%, trail running slopes less than 8.25% and cross slopes less than 2%. Concrete landing pads were constructed to allow users to rest or change directions on a level surface.

The trail runs parallel to Ocean Street, a multi-lane arterial roadway dissecting north/south in the center of the City. By constructing the bridge over Branciforte Creek and connecting the trail to the existing path south of the Soquel Avenue Bridge, the Riverwalk trail system now effectively acts as an alternate route to Ocean Street. Re-routing cyclists and pedestrians away from Ocean Street vehicular traffic onto this fully separated pathway was designed to increase walking and ridership and reduce the number and severity of pedestrian and bicycle collisions.

By offering complete separation from vehicle traffic, multi-use trails like the Riverwalk offer even greater safety and ridership benefits as illustrated below.

Illustration Courtesy of People for Bikes



Environmental Considerations Including Steps Taken to Preserve and Protect the Environment, Endangered Species, etc. During the Construction Phase

An Initial Study/Mitigated Negative Declaration was performed and CEQA was approved in December 2013. Other regulatory approvals included a General Waste Discharge Permit from the California State Water Resources Control Board, Streambed Alternation Permit from the California Department of Fish and Wildlife, and authorization from the U.S. Army Corps of Engineers.

Coordination with the U.S. Army Corps of Engineers (COE) was required to assure compatibility between this project and the adjoining COE floodwalls over which the structure passes.

Mitigation measures prescribed by regulatory agencies included 1:1 tree replacement, hyrdoseeding of the impacted area, cutting and planting of willow along the creek and river confluence area, and conducting a pre-construction nesting bird survey by a qualified biologist.

Project construction included removal of eight to ten non-native trees along the path alignment which could have resulted in disturbance to nesting birds if present during construction. In the course of construction, one nesting hummingbird was encountered which required cessation from work for two weeks.

Community Relations - a Summary of Efforts by the City, Consultant Team, and Contractor to Protect Public Lives and Property, Minimize Public Inconvenience, and Improve Relations

Two public meetings were conducted to present design alternatives with the Public Works and Transportation Commission. Appropriate exhibits were prepared for each meeting that included computer models, renderings, and a PowerPoint presentation. Public input was also solicited and provided to the City for use in selecting the preferred alternative which was presented to the Urban River Task Force and City Council. There were three City Council presentations in total.

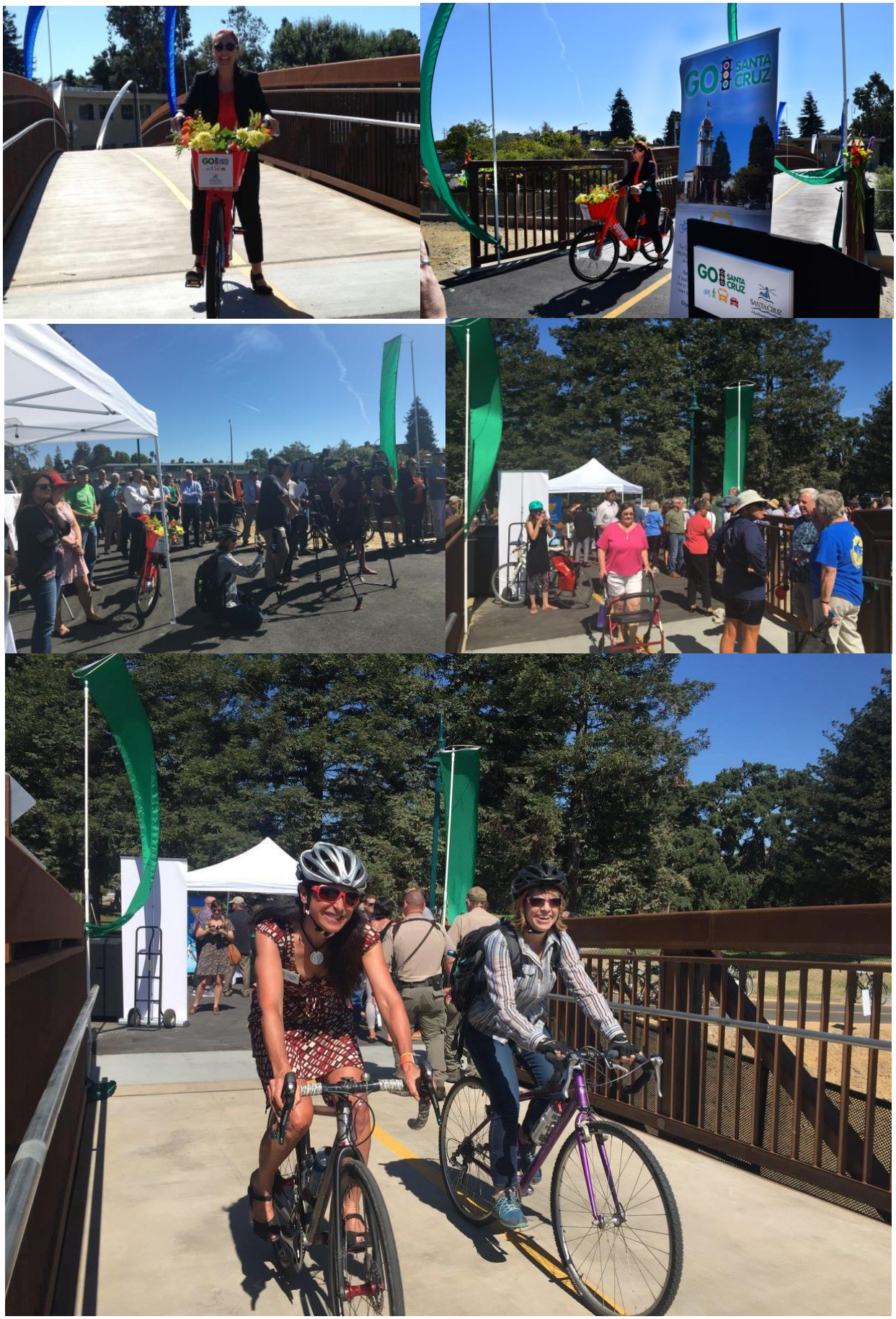
Community relations began prior to construction with displays at community forum neighborhood events on 6.1.16, 12.7.16 and 5.4.17 and promotion of such. Project Manager Nathan Nguyen and Public Works Assistant Director/City Engineer Chris Schneiter displayed project plans and spoke with community members one-on-one and in town hall group discussions where residents' questions were answered. Attendance at the three events totaled about 400.

Community relations efforts continued with a photo display that was created and placed at the construction site explaining the project and timeline.

Media releases and social media posts started prior to breaking ground on March 27. These steady media messages achieved significant placements in print and on television throughout the course of the project. (See Appendix 1 media placement page with links.)

An outreach highlight embraced by the community was an onsite construction tour offered during National Public Works Week in May. The poster advertising the event featured a photo of the project's construction site with play on an illustration from a bestselling children's book. The noontime workday event attracted dozens of City residents of all ages providing the community an opportunity for direct dialogue with both the project engineer and the supervising contractor.

The ribbon-cutting on 9.28.17 included great fanfare. It was hosted by City Mayor Cynthia Chase who arrived crossing the bridge on bicycle to applause from the crowd of about 100 community members. The mayor spoke of how the project will help to increase walking and biking in Santa Cruz supporting the goals of the City's new Go Santa Cruz initiative which also officially kicked off at the event. Santa Cruz is a national leader in reducing single-occupant car trips by supporting and promoting other means of travel. The project which falls under the new Go Santa Cruz umbrella builds on this success. The ceremony included three keynote speakers: Santa Cruz County Regional Transportation Commission Executive Director George Dondero, former City of Santa Cruz Mayor Bruce Van Allen and City of Santa Cruz Assistant Public Works Director/City Engineer Chris Schneiter.


GO SANTA CRUZ

Unusual Accomplishments under Adverse Conditions, Including But Not Limited To, Adverse Weather, Soil, or Site Conditions, or Other Occurrences Over Which There Was No Control

Design challenges included integrating the new bridge into a complex urban setting and multi-modal transportation infrastructure, prevention of graffiti "tagging," and budgetary constraints. Complicating the effort, on-site soils were very susceptible to liquefaction.

Additional Considerations Such as Innovations in Technology and/or Management Applications During the Project

The project embraced a collaborative team effort that included project managers on both the contractor's and City's sides. The City's Public Works Engineering Division also collaborated with the Public Works Operations Division as well as the Police Department, the Fire Department and the Parks and Recreation Department. The latter was especially helpful in determining the type and location of trees to remove and replant upon site visit with the City Arborist.

The positive impact of the Branciforte Creek Bicycle/Pedestrian Bridge and Multi-Use Trail Project on the City's bicyclist modality may well help Santa Cruz move from its current Gold Bicycle Friendly Community designation to a Platinum rating before long.

In 2016 the League of American Bicyclists awarded the City of Santa Cruz a Bicycle Friendly Community Gold Award based on the City's strong commitment to bicycling evidenced by arterial streets with bike lanes, ratio of bicycle to road network mileage, bicycle advocacy group activity and development of an active transportation plan. Santa Cruz is one of only four cities in California recognized with the Bicycle Friendly Community Gold Award. The highest ranking awarded to date is Platinum, held by Davis in California and just four other cities nationwide.

Appendix 1

Media Placements

KION 9/29/17 Ribbon Cutting

KSBW 9/28/17 Ribbon Cutting

KSBW 9/1/17 Soft open

Santa Cruz Sentinel 8.31.17 Missing Portion Of Santa Cruz Pedestrian, Bicycle Riverwalk Path Filled

KION 8/30.17 Soft open

KSBW 8/30/17 Bridge placement

KION 6/29/17 Bridge placement

KSBW 4/28/17 Community Safety

Santa Cruz Waves 12/11/17