STATE FLOOD CONTROL SUBVENTIONS PROGRAM: SOUTH SAN FRANCISCO BAY SHORELINE PROJECT – STATE COST-SHARE REPORT

SANTA CLARA VALLEY WATER DISTRICT

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INTRODUCTION

The Santa Clara Valley Water District (Valley Water), the U.S. Army Corps of Engineers (Corps), and the State Coastal Conservancy (Conservancy) are implementing plans and funding for the South San Francisco Bay Shoreline Project (Shoreline Project) to provide coastal flood protection, restore former salt evaporation ponds to tidal marsh habitat, and provide public wildlife-oriented recreation along the shoreline area in Santa Clara County (Figure 1). The Shoreline Project is being implemented in phases and the first phase of the project will construct 4 miles of levees, restore 2,900 acres of former salt evaporation ponds, and improve public access in the north San José area between the Alviso Slough/Guadalupe River and Coyote Creek (Figure 2). The Shoreline Project was originally authorized in the Water Resources Development Act of 1976. The first phase of the Shoreline Project is federally authorized in the Water Infrastructure Improvements for the Nation Act (Public Law 114-322, Section 1401, December 16, 2016). On July 5, 2018, the Corps received $177 million to design and construct the first phase of the project through the 2018 Federal Supplemental Appropriations from Disaster Relief and Recovery Fund. The two nonfederal project partners, Valley Water and Conservancy, will be required to reimburse the Corps the nonfederal cost-share ($103.76 million). The Shoreline Project is a multipurpose project with the objectives to manage flood risk along the shoreline, restore tidal wetland ecosystems, and expand public access to the bay lands and the Bay.

Senate Bill No. 881 amends the California Water Code to add Section 12749.98 authorizing Valley Water's Shoreline Project to receive funding from the State Flood Control Subventions Program which is administered by the Department of Water Resources (DWR), pursuant to California Water Code Section 12585.7. This report has been prepared to review and address DWR's requirements for the Subventions Program. Valley Water is required to prepare this Nonfederal Cost-Sharing Report to ascertain the appropriate level of the state's contribution for the Shoreline Project. The established state cost-share for the State Flood Control Subventions Program begins with a baseline of 50 percent plus the percentage increases for the multipurpose objectives, up to a maximum total of 70 percent. This report evaluates the proposed improvements to determine if they are sufficient to meet the threshold requirements for significant contributions for two of the multipurpose objectives. The multipurpose objectives include Habitat and Recreation. The State has also set a requirement that a minimum of 5 percent of the nonfederal capital costs should be spent to meet an objective. A project with less than 5 percent of the nonfederal capital costs allocated to the objective does not meet the criteria for a significant contribution and will not be eligible for an increased state cost-share.

PROJECT DESCRIPTION

The Shoreline Project's Final Integrated Interim Feasibility Study and Environmental Impact Study/Environmental Impact Report (EIS/EIR) contains specifics on the first phase of the project, recommendations for federal cost-sharing, as well as its environmental impact analysis of the project that will restore 2,900 acres of tidal wetlands, construct new San Francisco Bay Trail (Bay Trail) segments and 4 miles of coastal flood protection measures to protect the north San José area including the Alviso community. The Corps' Civil Works Review Board approved the Shoreline Project on September 11, 2015 and subsequently Valley Water certified the EIR on March 22, 2016, and the Corps issued its record of decision on the EIS on July 8, 2016. The combined EIS/EIR satisfies the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements. Also of importance, is that the Shoreline Project is being closely integrated with the South Bay Salt Ponds (SBSP) Restoration Project's planning efforts since it will be through the Shoreline Project that the SBSP Restoration Project partners expect to restore tidal marsh in the Alviso Pond Complex.

The Alviso community is currently below sea-level and at great risk for coastal flooding and rising seas. This means infrastructure is needed to protect Alviso before any tidal wetland restoration can occur. Construction of the infrastructure will provide protection to north San José from a 1-percent coastal flood event (also referred to as the "one-hundred-year flood"), as well as sea level rise (2.59 feet of projected sea level rise through Year 2067). This area is home to 5,500 residents and workers, and consists of residential, commercial, and industrial structures; an elementary school, public library, and fire station; several high-tech businesses; the Regional Wastewater Facility (RWF); and the Silicon Valley Advanced Water Purification Center. Protecting these facilities has even greater benefits for the people they serve outside of the direct impact area.

The Shoreline Project includes Ponds A9-A15 that were part of the 2003 SBSP Restoration acquisition. These ponds are now owned and managed by the U.S. Fish and Wildlife Service (USFWS) as managed pond habitat for shorebirds and waterfowl and is part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). The Refuge and its Environmental Education Center receive approximately 733,000 visitors each year; and the Refuge's adjacent New Chicago Marsh Trail receives an estimated 8,200 visits each year. At the present time, there are two Refuge trail systems in Alviso: an approximately nine-mile loop trail around Ponds A9-A15 and a three-mile loop-and-spur trail around A16 and A17. An active railroad line separates these two trail networks and there is no direct connection to the Bay Trail.

In addition, the project includes the adjacent Pond A18, currently owned by the City of San José. Pond A18 is an 850-acre managed pond connected to the Bay through two water control structures. There is currently no public access to Pond A18. Pond A18 is adjacent to the City of San José's RWF, which provides wastewater treatment for over one million people in the South Bay.

The Shoreline Project proposed infrastructure will construct an engineered levee along most of an alignment running on top of the existing berms along the eastern or southern borders of Ponds A12, A13, A16, and A18. At the location of the Union Pacific railroad line, a flood gate will be constructed. At Artesian Slough a tidal closure structure will be constructed to protect against flood water, but still accommodate outflows from the RWF.

The Shoreline Project will restore tidal marsh through phasing in restoration of Ponds A9-A15 and A18 pursuant to an adaptive management plan that has been integrated with the SBSP Restoration Project's Adaptive Management Plan. In addition, an upland transition area (ecotone) will be constructed adjacent to the flood protection levee in Ponds A12, A13 and A18 in order to provide habitat for marsh species during high tides and storms. (No ecotone habitat is proposed for Pond A16 since that pond is managed as open water for pond species, where vegetated upland transition zones are less beneficial.) The ecotone will provide an additional protective buffer for the flood protection levee and will also allow marsh habitat to migrate upslope as sea level rises.

While phasing in the restoration of the ponds, the existing nine-mile loop trail around Ponds A9-A15 will be re-routed onto remaining berms. When all ponds have been breached, the final configuration of the Ponds A9-A15 trails will be a three-mile total of out-and-back trails with spurs to viewing platforms that will allow visitors to see the evolving marshes. While the Ponds A9-A15 loop will be gradually moved inland and reduced in miles, in other project locations, additional new trails will be constructed, and trail connectivity improved (Figure 3). The maintenance road constructed on top of the flood protection levee will become a Bay Trail alignment, providing over three miles of new public access trail in Pond A18 where there is currently no access. This alignment will continue on existing levees to connect with the Coyote Creek/Bay Trail at North McCarthy Boulevard. When completed, currently disconnected visitor serving facilities, the Alviso Marina, the USFWS' Environmental Education Center and the Coyote Creek/Bay Trail, will all be joined by a continuous six-mile trail.

The Shoreline Project also proposes to continue a 1.4-mile bicycle trail parallel with State Route 237. Constructing a pedestrian/bicycle trail adjacent to State Route 237 will fulfill a request from the public to separate bicycle commuters from the wildlife viewing activities along the levee-top trail to minimize user conflicts. Furthermore, constructing additional trail miles and improving key connections will help offset some of the trail miles lost to re-configuring the Ponds A9-A15 loop trail and improve trail connections to the community of Alviso.

The Shoreline Project has received the San Francisco Bay Regional Water Quality Control Board's Water Quality Certification on December 13, 2017 and the Bay Conservation Development Commission Consistency Determination on January 18, 2018.

Other permits required for project construction include:

- Santa Clara County Permit
- Union Pacific Railroad Permit
- City of San José Permit

To summarize, the benefits of the Shoreline Project include:

- Providing tidal flood protection to a population of approximately 5,500 residents and workers in the area and to 1,140 structures as well as to key infrastructure such as the RWF.
- Creating approximately 2,900 acres of tidal marsh and ecotone habitat, which will benefit state- and federally-listed threatened and endangered species such as salt marsh harvest mouse, Ridgeway's rail, steelhead trout, and other marsh species.
- Restoring marsh at sufficient scale to restore ecological structure, function, and connectivity.
- Enhancing Bay Trail connections and creating new trails to improve access to visitor serving facilities in the area and providing safe pedestrian/bicycle crossing over an active railroad.
- Scouring local sloughs, which have been filled with sediment due to decreased tidal prism, and increasing their navigability.
- Improved water quality from increased circulation of tidal waters.

South San Francisco Bay Shoreline Project

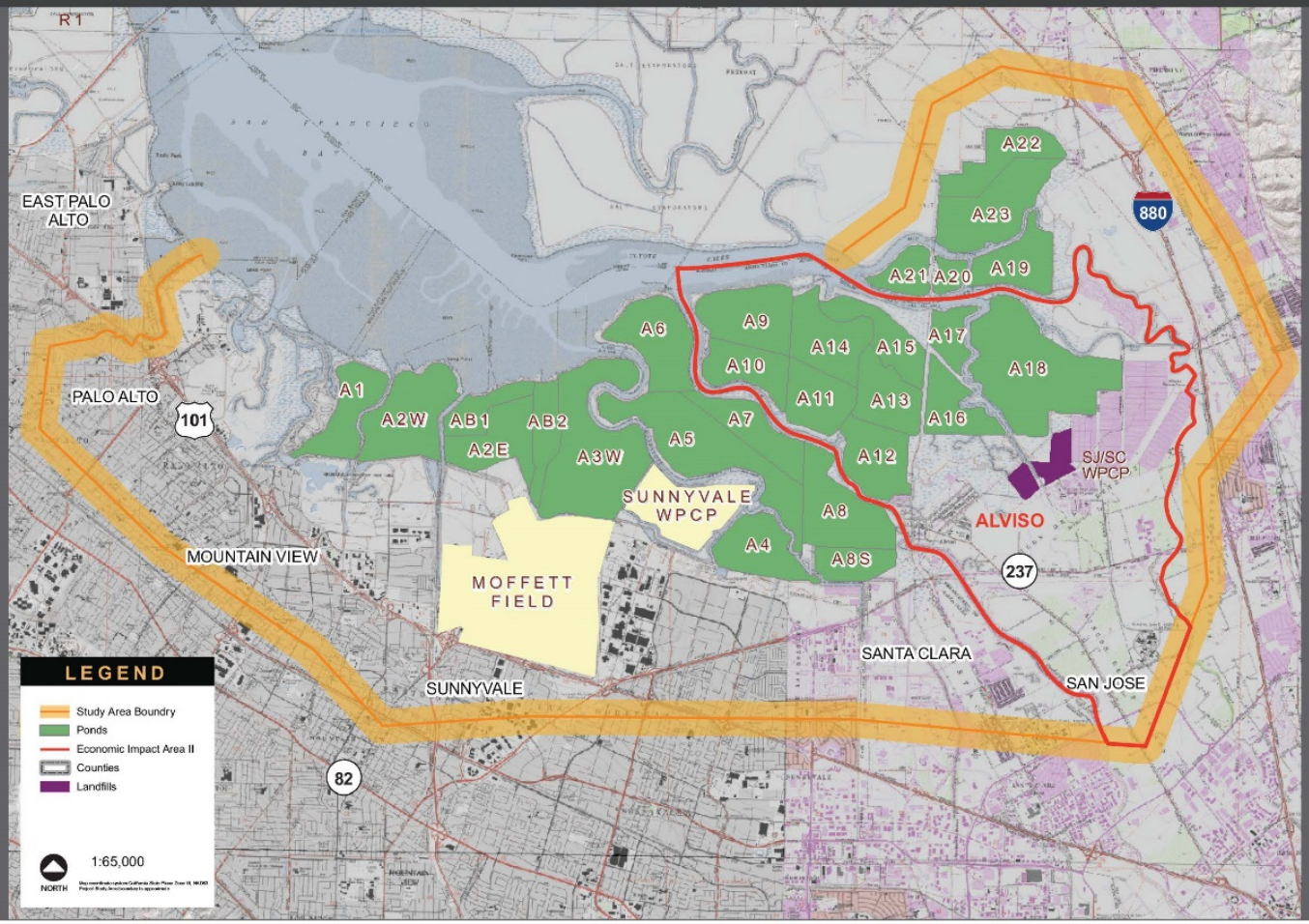
Santa Clara County

Figure 1

US Army Corps of Engineers.

Coastal Conservancy

Santa Clara Valley Water District



South San Francisco Bay Shoreline Project

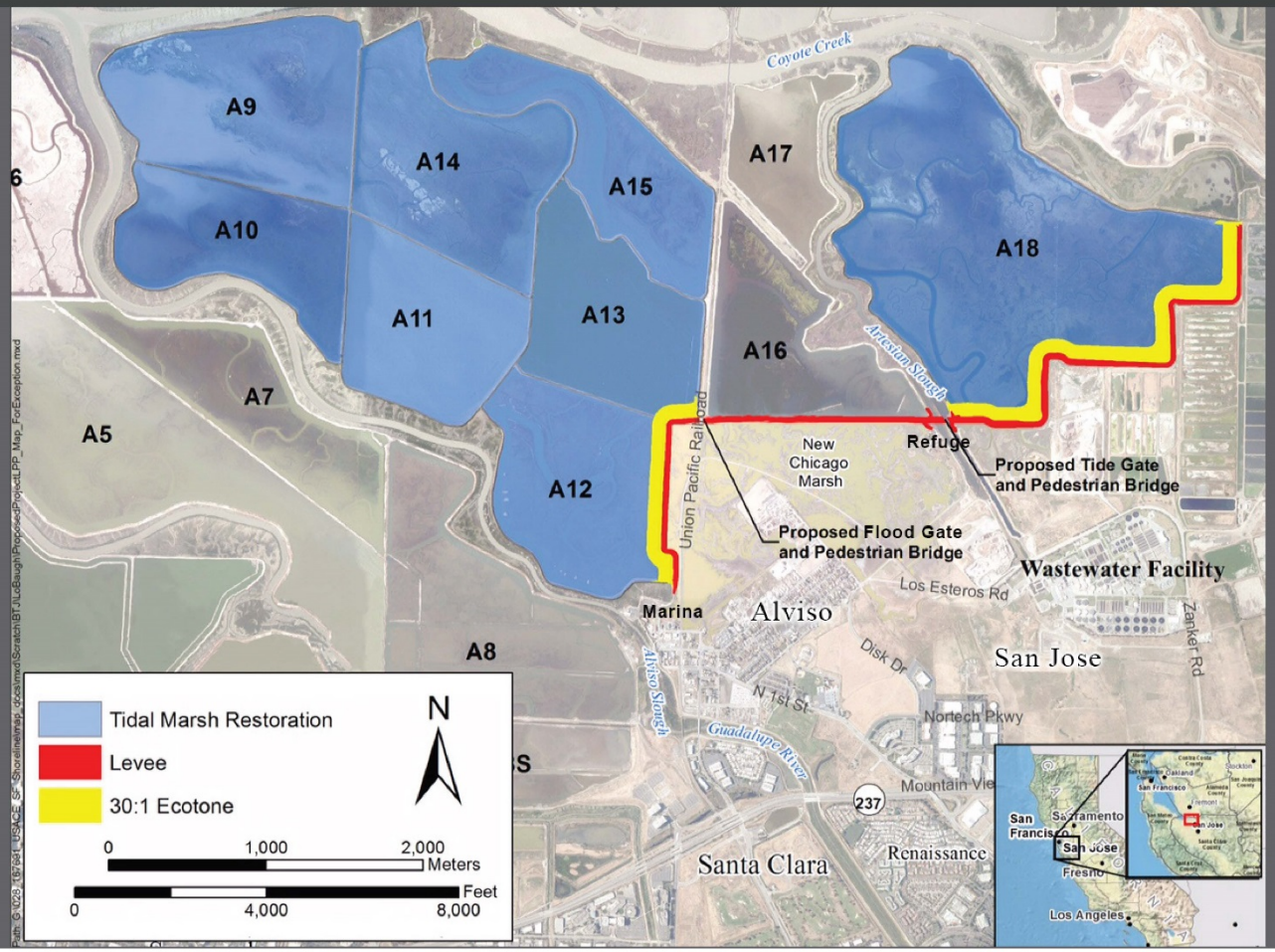
First Phase, North San Jose Area

Figure 2

US Army Corps of Engineers.

Coastal Conservancy

Santa Clara Valley Water District



South San Francisco Bay Shoreline Project

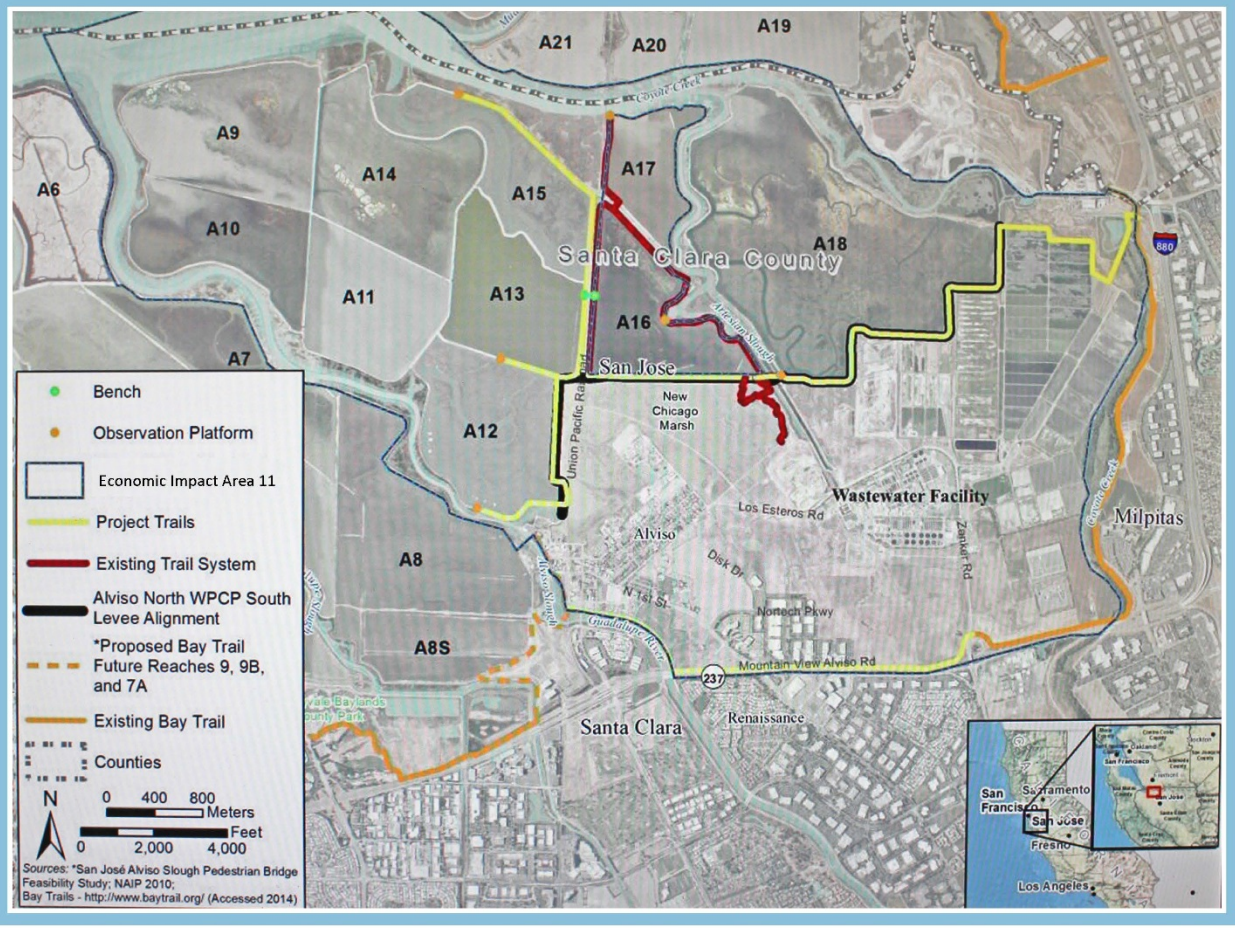
First Phase, Post-Project Recreation

Figure 3

US Army Corps of Engineers.

Coastal Conservancy

Santa Clara Valley Water District



CONTRIBUTATIONS FOR MULTIPURPOSE OBJECTIVES

HABITAT OBJECTIVE:

(A) A narrative description of the elements of the project that contribute to the Habitat Objective and the types of habitat that are created, protected or enhanced by this project;

The Shoreline Project contributes to the restoration of two habitats within the project: upland transition zone habitat (also referred to as ecotone, Figure 4) and tidal marsh.

The Shoreline Project will create upland transition zone habitat (also referred to as ecotone). Currently in San Francisco Bay, wetland-upland transition zones have largely disappeared from tidal marshes. These features mimic the natural landform that once existed around the perimeter of San Francisco Bay and provide the functions of a distinct habitat that is now largely absent along southern San Francisco Bay. These habitat areas serve as high-tide refugia for state- and federally-listed threatened and endangered species, such as Ridgway's rail, black rail, and salt marsh harvest mouse, and provides habitat for a unique suite of plant species. Adding this feature on the Bay side of the levees will benefit the recovery of protected wetland species and help restore ecological functions.

In the first Shoreline Project phase, approximately 91.52 acres of ecotone will be created along the bayward sides of Ponds A12, A13, and A18. The ecotone will be constructed with an average 30:1 horizontal to vertical slope. The ecotone will gradually slope about 345 feet on the bayward side of the levee footprints at these locations. These large ecotones also serve to buffer the adjacent flood protection levees from wave damage during large storms and storm surges and allows inland migration of restored marshes in response to sea level change. Vegetation in the ecotone will be herbaceous, low non-woody and semi-woody plants, and possibly shallow-rooted shrubs.

The Shoreline Project will restore tidal marsh. The San Francisco Bay has lost 90 percent of its tidal marsh due to conversion of bay land to salt production, agriculture and development. The coastal levee will allow the opportunity to reconnect the former salt ponds to bay waters to regain some of the ecological structure, function and connectivity that has been lost. The restored habitat will benefit the recovery of protected wetland species and help restore ecological functions as well as decrease water turbidity, improve water quality and improve the physical health of the Bay overall.

The first Shoreline Project phase will restore approximately 2,900 acres of tidal marsh in Ponds A9-A15 and A18 (Figure 5). Tidal marsh in these ponds will be restored in phases through an adaptive management process consistent with the SBSP Restoration Project's restoration approach. The ponds will be broken up into smaller subsets and tidal restoration will be phased in over a fifteen-year period. In between restoration phases, the restored area will be monitored

in a manner integrated with the SBSP Restoration Project's monitoring and adaptive management processes. This will allow the project teams for both the Shoreline Project and the SBSP Restoration Project to jointly assess the changes to the larger South Bay landscape and to slow down, or even halt, pond conversion on either project if negative or undesired impacts emerge.

Lastly, the first Shoreline Project phase will create 1.23 acres of waters of the U.S.

(B) The method of calculating the percentage of the estimated nonfederal capital costs that contributes to the Habitat Objective.

The Habitat (ecosystem restoration) cost was estimated by the Corps to be $75,997,000. The total Corps estimate for the Habitat is shown in the table below. The nonfederal cost-share of this is $58.2 million.

Locally Preferred Plan
For Habitat (Ecosystem Restoration (ER))
Total Project First Cost by Project Purpose (October 2015 Price Levels)

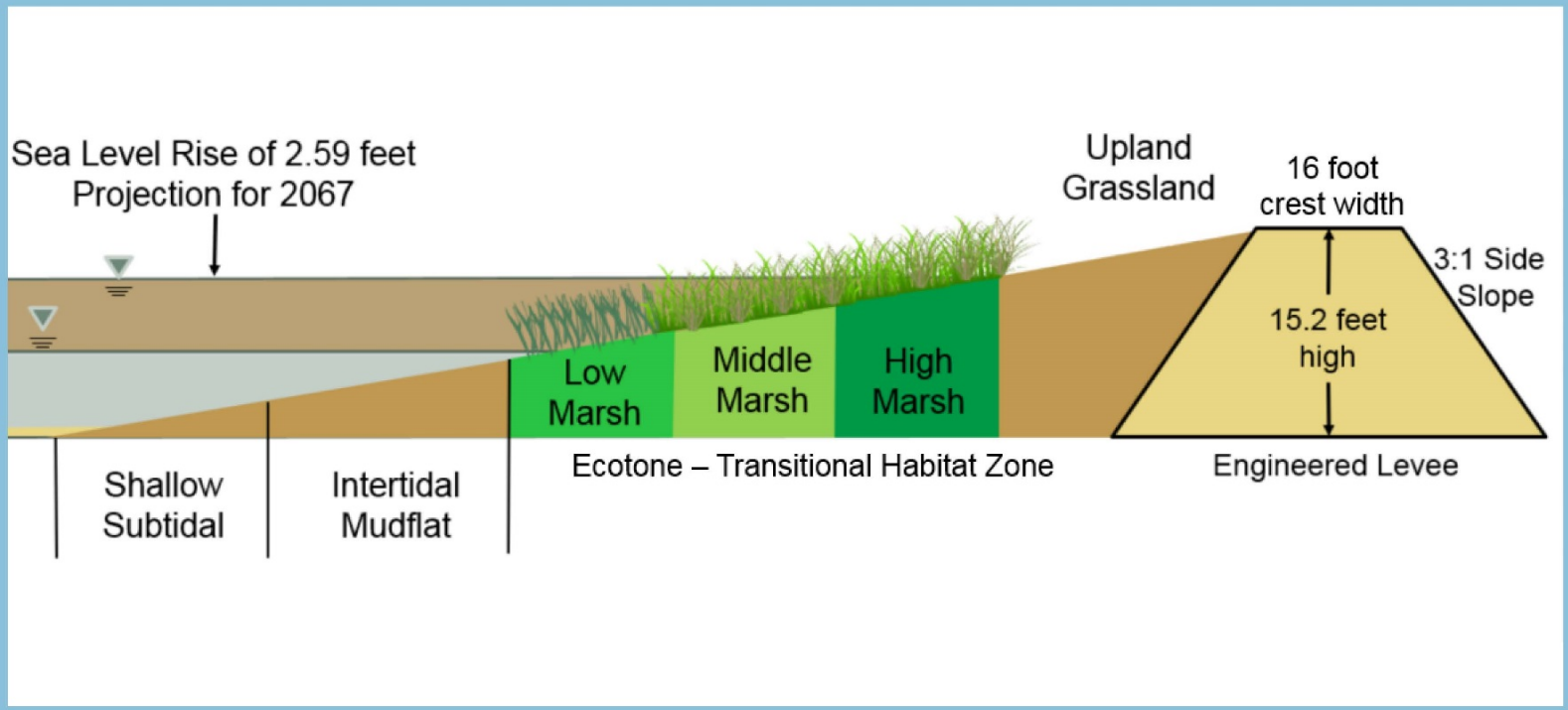
Cost Elements	ER
LERRDs	$11,354,000
FRM Features	$0
Ecosystem Restoration (Habitat) Features	$41,705,000
Recreation Features	$0
Preconstruction Engineering and Design	$10,071,000
Construction Management	$4,866,000
Monitoring	$1,688,000
Adaptive Management	$6,313,000
Total Project First Cost	**$75,997,000**

South San Francisco Bay Shoreline Project

Levee & Ecotone Cross-Section

Figure 4

US Army Corps of Engineers. Coastal Conservancy Santa Clara Valley Water District



South San Francisco Bay Shoreline Project

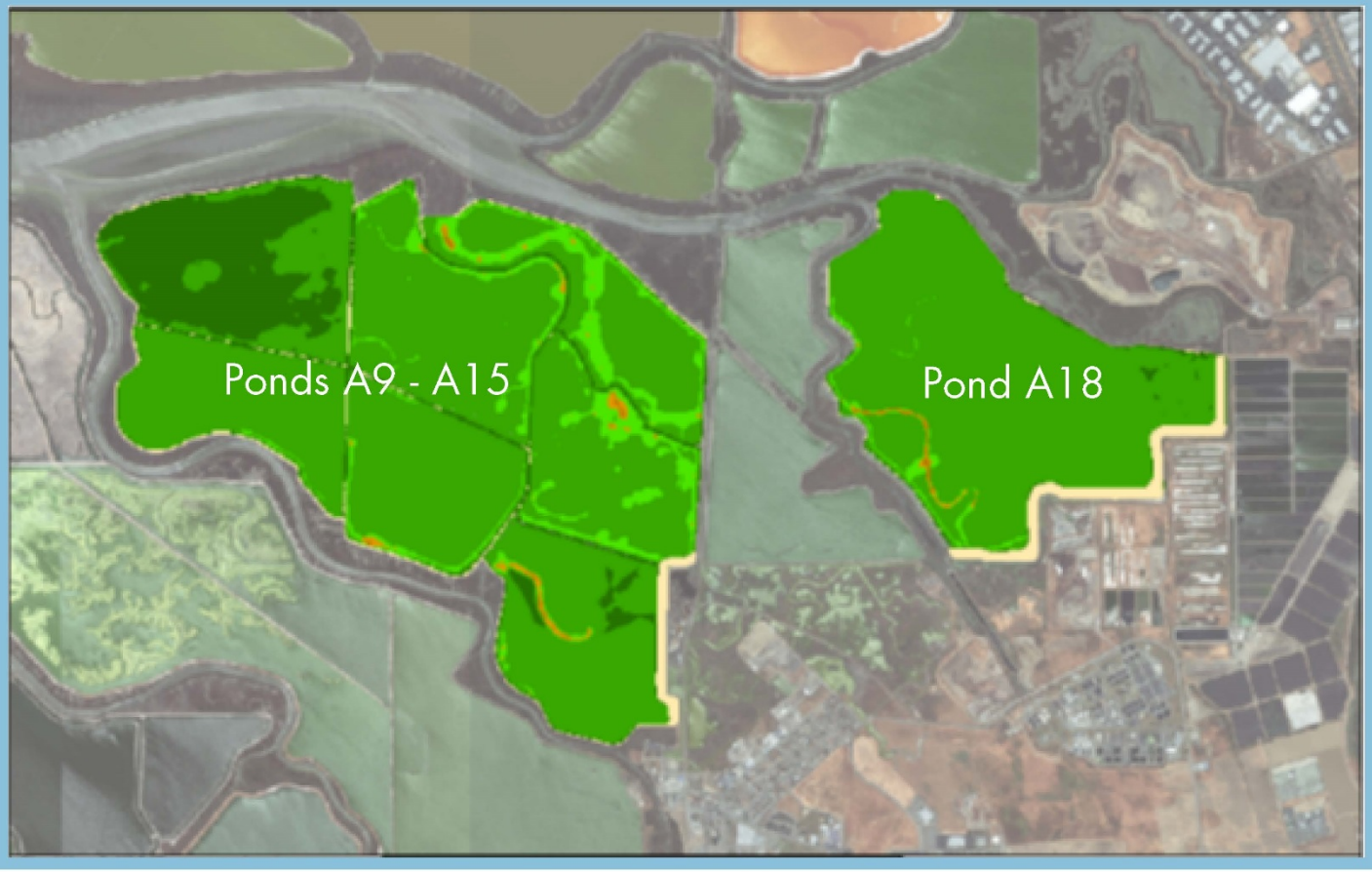
First Phase, Post-Project Restored Tidal Marsh

Figure 5

US Army Corps of Engineers.

Coastal Conservancy

Santa Clara Valley Water District



RECREATION OBJECTIVE:

(A) A narrative description of the elements of the project that contribute to the Recreation objective;

The first phase of the Shoreline Project includes a maintenance road along the crest of the flood protection levee, which will be made available for pedestrian traffic under the management of the USFWS Refuge (for segments on Refuge property) or a local entity (for Pond A18). At Artesian Slough, a pedestrian crossing is proposed over the tide gate structure to connect all levee segments. At the eastern terminus of the levee, the trail will connect to a designated route generally following existing roads and levees and connect with the existing bridge at McCarthy Boulevard. The existing pedestrian walkway on the bridge will take recreationists to the Coyote Creek Trail (which is also the Bay Trail in this area) that runs along the east bank of the creek. To cross the active railroad, a 380-foot-long pedestrian bridge is proposed with Americans with Disabilities Act-compliant approaches on either side. The location of the railroad bridge will be near the northeast corner of Pond A12 and southwest corner of Pond A16.

The tidal wetland restoration proposed by the project will impact the nine-mile loop trail around Ponds A9-A15. As the ponds are breached, the trail will move closer to the proposed levee, with the final alignment being an out-and-back trail with spurs to overlook platforms. Changes to the Alviso Loop Trail configuration will minimize the adverse impacts of human/wildlife interactions to ensure compatibility with wildlife and habitat created as a result of restoration while maintaining public access to the shoreline.

Overall, former salt pond berm breaches for ecosystem restoration will result in a reduction of about 7.4 miles of trails; however, with the addition of trail along Pond A18 (additional 3.3 miles) and a proposed trail parallel with State Route 237 (1.6 miles), the net loss will be about 2.2 miles. The new trail just north of State Route 237 will create a paved multi-use trail that provides connection at a current gap in the multi-use network between its current terminus at Zanker Road to the community of Alviso. In addition, the new trails will connect to the regional trail network and link the visitor serving facilities in the region. Finally, viewing platforms, interpretive signs, and benches will be installed along existing and new trails in the study area.

The recreational enhancements will improve the community's access to the regional trail network, outdoor recreation, wildlife viewing and educational opportunities.

(B) The method used to calculate the accessible and inaccessible areas of project works, and the method of determining any areas withdrawn from public access because such access would constitute a threat to public safety or habitat, or would constitute a trespass on private property;

As noted above, the tidal wetland restoration proposed by the project will impact the nine-mile loop trail around Ponds A9-A15 because as the ponds are breached, the trail will move closer to the levee. Maintaining the Alviso Slough Trail in its current configuration would require

maintaining the existing salt pond berms in place and bridging all proposed breaches. While technically feasible, surrounding the marsh with trails would have substantial impacts to sensitive tidal marsh species. Furthermore, maintaining the existing berms for trails would preclude their use as borrow sites and would not allow the project to create high-tide islands or pickleweed marsh on the former pond berms, an action that would enhance wildlife habitat. For these reasons, bridging the breaches was not retained for further analysis and the project proposes that, for the most part, the trails that will be retained will be concentrated on one side of the Alviso Loop Trail to minimize the adverse impacts of human/wildlife interactions.

The method of determining the miles of trails was from the USFWS Refuge and Bay Trail mapping sources.

(C) The method of calculating the percentage of the estimated nonfederal capital costs that contributes to the Recreation objective.

The Recreation cost was estimated by the Corps to be $6,315,000. The total Corps estimate for the Recreation is shown in the table below. Recreational improvements are cost-shared 50-50 between the Corps and nonfederal sponsors. Therefore, the nonfederal cost-share of this is $3.16 million.

Locally Preferred Plan

For Recreation

Total Project First Cost by Project Purpose (October 2015 Price Levels)

Cost Elements	Recreation
LERRDs	$0
FRM Features	$0
Ecosystem Restoration (Habitat) Features	$0
Recreation Features	$4,848,000
Preconstruction Engineering and Design	$978,000
Construction Management	$489,000
Monitoring	$0
Adaptive Management	$0
Total Project First Cost	**$6,315,000**

ESTIMATED COSTS

The federal and two nonfederal responsibilities for construction, maintenance, and operation of the Shoreline Project with federal sponsorship by the Corps are based on the Water Resources Development Act of 1976 and other applicable administrative policies. Cost-sharing for this construction project will be in concurrence with the current Corps policy. The policy states the nonfederal sponsor shall: provide all lands, easements, rights-of-way and dredged material disposal areas; provide relocations of bridges and roadways; provide alteration of utilities which do not pass under or through the project structures; and maintain and operate the project after construction.

(1) Total capital cost;

(2) The nonfederal share of the total capital cost;

According to the Corps' cost-sharing requirements, the two nonfederal sponsors, Valley Water and the Conservancy, will provide funding for 35 percent of the construction costs for the flood protection levee and tidal wetland restoration, with the remaining 65 percent provided by the Corps. Recreational improvements are cost-shared 50-50. The nonfederal sponsors are responsible for 100 percent of the costs identified in the Shoreline Project as being part of the Locally Preferred Plan (LPP), which are those elements of the project desired by the nonfederal sponsors but not deemed eligible for cost-sharing under the Corps' guidance. LPP elements of the Shoreline Project include the upland transition zone (ecotone) and raising the levee 3 feet higher to improve long-term levee performance with sea level rise. Total project costs, including the LPP elements, are estimated to be $174,000,000[1], with the nonfederal sponsors' share estimated to be $103,760,000.

The Shoreline Project costs as shown below represent the project costs and the cost apportionment between the federal and nonfederal sponsors, respectively. This information was obtained from the Shoreline Project Cost Engineering Report prepared by the Corps and their consultant, HDR, in October 2015.

Locally Preferred Plan

Total Project First Cost by Project Sponsor (October 2015 Price Levels)

Cost Elements	Corps	Nonfederal	Total
Flood Risk Management	$49.3 M	$42.4 M	$91.7 M
Ecosystem Restoration (Habitat)	$17.8 M	$58.2 M	$76.0 M
Recreation	$3.16 M	$3.16 M	$6.32 M
Total Project First Cost	**$70.26 M**	**$103.76 M**	**$174.02**

[1] This 2015 estimate includes design, construction, land acquisition, and adaptive management and monitoring but does not include operations and maintenance. These costs may change.

Additionally, the table below breaks down the project costs by purpose.

Locally Preferred Plan

Total Project First Cost by Project Purpose (October 2015 Price Levels)

Cost Elements	Combined Plan	FRM Only*	ER Only*	Recreation
LERRDs	$13,269,000	$1,915,000	$11,354,000	$0
FRM Features	$68,847,000	$68,847,000	$0	$0
Ecosystem Restoration (Habitat) Features	$41,705,000	$0	$41,705,000	$0
Recreation Features	$4,848,000	$0	$0	$4,848,000
Preconstruction Engineering and Design	$24,998,000	$13,949,000	$10,071,000	$978,000
Construction Management	$12,332,000	$6,977,000	$4,866,000	$489,000
Monitoring	$1,688,000	$0	$1,688,000	$0
Adaptive Management	$6,313,000	$0	$6,313,000	$0
Total Project First Cost	**$174,000,000**	**$91,688,000**	**$75,997,000**	**$6,315,000**

*Flood Risk Management (FRM) and Ecosystem Restoration (ER)

(3) The nonfederal capital costs of fish, wildlife, and recreation mitigation;

(4) The nonfederal planning and engineering costs;

(5) The total annual value of the benefit of providing flood protection; and

(6) The annual benefit and cost of the project allocable to flood management

The table below shows the Total Annual Benefits and Total Annual Costs.

ECONOMIC SUMMARY October 2014 Price Levels, 3 3/8% Discount Rate ($1,000s)						
	NED/NER Plan			Locally-Preferred Plan		
NED ACCOUNT - FLOOD RISK MANAGEMENT						
USACE SLC Scenario	**Low**	**Intermediate**	**High**	**Low**	**Intermediate**	**High**
Annual Benefits	$18,914	$23,551	$40,443	$18,932	$23,573	$42,137
Average Annual Cost	$3,808			$4,485		
Net Annual FRM Benefits	$15,106	$19,743	$36,635	$14,447	$19,088	$37,652
Benefit to Cost Ratio	4.97	6.18	10.62	4.22	5.26	9.40
EQ ACCOUNT - ECOSYSTEM RESTORATION (HABITAT)						
Average Annual Cost	$1,388			$3,628		
NED Loss (Recreation)	$212			$212		
Total Annual NED Costs	$1,600			$3,840		
Average Annual Habitat Units	48,508			48,308		
Annual Cost per Habitat Unit	$0.033			$0.079		
NED ACCOUNT - RECREATION						
Average Annual Cost	$263			$263		
Annual Recreation Benefits	$291			$291		
Net Annual Recreation Benefits	$28			$28		
Recreation B/C Ratio	1.11			1.11		

COST-SHARING ANALYSIS

Cost-sharing for a project subject to Water Code Sections 12582.7, 12585.7, and 12585.9, has a minimum recommended state cost-share baseline of 50 percent plus the percentage can be increased for satisfying the multipurpose objectives, up to a maximum total of 70 percent of the local sponsor's estimated share of the capital cost of the project towards each of the five multipurpose objectives.

For the Habitat, or Recreation objectives a maximum of 20 percent can be added to the baseline if there is significant contribution when the percent of the nonfederal capital costs spent for meeting the objective is at least 20 percent. The nonfederal capital costs contributed to each of these objectives is significant. The increase in habitat area in the project results from acquiring additional right-of-way.

Cost-sharing Analysis

Objective	Acres	Objective Cost[1]	% of Nonfederal Capital costs[2]
Habitat	2,900[2]	$58.2 M	56.1%
Recreation	N/A	$3.16 M	3.0%

1-Total nonfederal sponsors cost-share of each Objective.

2-Total nonfederal sponsors cost-share is $ 103.76 million.

CONCLUSION

The Shoreline Project will make a significant contribution towards the Habitat Objective. Summarizing the criteria met to achieve maximum state cost-sharing of 70 percent, this report has demonstrated that the project is eligible for an additional 20 percent to the baseline for 20 percent contribution to Habitat. Although this report provides justification for the recommended increase in Habitat totaling an additional 20 percent, the recommended state cost-share is a baseline 50 percent plus the recommended percentage increases for the multipurpose objectives, up to a maximum total of 70 percent.

This report recommends the Santa Clara Valley Water District receive authorization for the state cost-sharing baseline of 50 percent plus recommended percentage increases of 20 percent to total the maximum 70 percent state cost-share for the Shoreline Project.