

Bay Area Regional Shoreline Resilience Program
State Coastal Conservancy
March 2014

Lead Contact: Matt Gerhart, Deputy Program Manager, State Coastal Conservancy, mgerhart@scc.ca.gov, 510-286-0317

Partner Organizations: State Coastal Conservancy, South Bay Salt Pond Restoration Project, US Fish and Wildlife Service, California Department of Fish and Wildlife, Alameda County Flood Control and Conservation District, Union Sanitary District, East Bay Regional Park District, Santa Clara Valley Water District, City of Mountain View, City of Palo Alto, San Francisquito Creek Joint Powers Authority, Caltrans, Facebook, Marin County Public Works, Novato Sanitary District, Sonoma Land Trust, Students and Teachers Restoring a Watershed, Save the Bay, San Francisco Estuary Institute.

GRANT REQUEST: \$23,000,000-\$30,000,000

PROGRAM OVERVIEW:

The *Bay Area Regional Shoreline Resilience Program (Resilience Program)* is an **innovative and integrated suite of multi-benefit shoreline flood protection, habitat restoration, wastewater and sediment reuse projects** that will demonstrate proactive solutions to climate change in the region. The 2014 Bay Area Integrated Regional Water Management Plan (BAIRMWP) highlights climate change, and in particular sea level rise, as one of the region's key challenges, along with environmental management and use of recycled water (Sec. 1.4); the plan prioritizes sea level rise and coastal flooding as the highest priority vulnerabilities for the region to address (Sec. 16.4). The Resilience Program will address these vulnerabilities at **a regional scale** by: 1) providing tangible examples of integrated flood management, shoreline habitat restoration and creative reuse that are responsive to sea level rise, 2) building capacity among key regional actors to expand their response to climate change, and 3) building community support around a proactive response in addressing regional sea level rise resilience.

The program promotes **four of the five goals** of the BAIRMWP (Goals 1, 3, 4 and 5) and is consistent with **regional plans** such as the *Baylands Ecosystem Habitat Goals*, the *Bay Plan*, and the *SFWQCB Basin Plan*, the *Comprehensive Conservation and Management Plan*, and the *San Francisco Joint Venture Implementation Strategy*. Particular IRWM goals and objectives served include: 1.1, 1.2, 1.5, 1.6, 1.9, 1.10, 1.13, 3.1, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 5.4.

The Resilience Program will provide **tangible and measureable benefits** to the region:

- **critical flood protection** for four regions of the bay, including thousands of commercial, transportation and residential assets, through approximately 7 miles of climate resilient structural solutions,
- **restoration** of approximately 3,700 acres of baylands to a diversity of natural tidal and shallow water habitats, improving freshwater inflow and natural sediment transport processes and providing habitat for rare and endangered tidal marsh species, as well as rearing and nursery habitat for anadromous and bay fisheries,
- **appropriate transitional habitat and buffers to sea level rise** through creation of high-tide refugia, gently sloping transition-slope levees, natural flood protective structures, and living shorelines,
- **reuse of sediment and freshwater** in innovative ways, demonstrating technical capacity to scale shoreline solutions up throughout the region.



The Program responds to four of the Regional Priorities expressed in the RFP, including:

Climate Change: The Program fits all the criteria for a Shoreline Sustainability Climate Change Project. It is the outgrowth of several regional vulnerability assessments, including work by the Pacific Institute and BCDC, and directly builds on the Baylands Ecosystem Habitat Goals' recommendations regarding climate change; demonstrates an ability to reduce shoreline vulnerability to climate change, addressing potential future sea level rise and documenting metrics of benefit; demonstrates innovation in testing new resilience strategies; provides data and proof of concept for regional strategies; and includes ecosystem adaptation and re-use of sediment and wastewater.

Health of the Bay and Creeks: The Program provides direct water quality benefits to the bay, reducing pollutants and enhancing fisheries and native and endemic wildlife populations around the bay margin. It protects, restores and rehabilitates watershed and bay processes, reintroducing more natural sediment and freshwater flows, improving floodplain connectivity, and reducing shoreline (and marsh edge) erosion.

Sediment Management: The Program helps address conflicting goals with sediment management, in particular regarding re-use of dredged material in the bay; integrates habitat concerns through beneficial sediment re-use; and anticipates being able to determine the incremental costs of beneficial re-use in these settings.

Invasives Management: The Program assists with the management of invasive spartina, a species of regional concern.

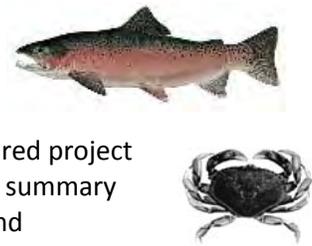
All projects are currently included in the 2014 plan (with two that would involve updates), and the Conservancy and partners are prepared to provide an equitable share of the **consulting cost of an application**. The Program is expected to provide a **significant non-state match (at least 28%)** and based on initial analysis and similar proposals in the past is expected to demonstrate at minimum a greater than 1:1, and **likely higher than 3:1, Benefit/Cost ratio**.

The Program is **highly collaborative**, involving a very diverse partnership of regional flood protection, habitat restoration, wastewater agencies, and NGOs. The project includes a **comprehensive monitoring and evaluation component** to be developed in concert with regional science and regulatory entities. The Program proposes groupings of projects in **all four IRWM subregions** that integrate **three of the four IRWM functional areas** (*Watershed/Habitat, Flood Protection/Stormwater, Wastewater/Recycling*). Subregional projects are **scalable**, with numerous options for optimally configuring projects within each subregion.

PROGRAM ELEMENTS:

Administration, Monitoring and Evaluation

These functions will be performed by SCC in partnership with SFEI, and involve grant fund management, contracting, invoicing, development and management of DWR-required project monitoring and evaluation plans, reporting and data management. SFEI will seek to use summary metrics to comprehensively assess program success across the different project types and geographies while reducing the burden of compliance monitoring. Estimated at 3% of project costs.



North Bay – Novato Creek Area and Environs

The *Novato Creek Phase I Fluvial-Tidal Wetlands Restoration Project* and the *Bel Marin Keys Wetland Restoration Project* meet complementary goals of flood management and habitat restoration on lower Novato Creek in Marin County. Both the County and Conservancy are working with the Novato Sanitary District to incorporate reuse of treated wastewater into the projects. Both projects are included in the 2013 Plan, with anticipated updates.

These projects present one of the largest opportunities for restoration and community flood protection in the region, focusing on 2,850 acres of diked former tidal marsh in the Lower Novato Creek Watershed extending from Highway 101 to San Pablo Bay that support habitat for a variety of listed and endangered species including steelhead trout,

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

California clapper rail, black rail, tidewater goby, salt marsh harvest mouse and wintering waterfowl. The goal is to turn an impaired creek and subsided hay farms into a thriving mosaic of marsh and river habitats that were lost when the area was reclaimed at the turn of the 19th Century.

The County is in the design process for the project and anticipates start of construction within three to five years of funding award. The Conservancy's project was thoroughly analyzed in a 2003 Supplemental EIS –EIR and is working on permitting; construction would likewise occur within the 2016-17 timeframe.

Novato Creek Phase I would restore approximately 80-plus acres of former tidal marsh along the important freshwater /saltwater mixing gradient and would reestablish important ecological function and fluvial processes with the historic floodplain. The project would also demonstrate the viability of multi-objective benefits for both habitat enhancement and flood control by combining urban flood protection for downtown Novato with shoreline and habitat adaptation to sea level rise. This project is an important first step towards restoring over 1,000 acres of former tidal marsh reconnecting the natural watershed sediment transport process to lower Novato Creek, managing for sea level rise and restoring critical habitat.

Outcomes include: construction of 4,500 linear feet of new SLR adaptive set-back levees designed with eco-tone transition habitat; restoration of approximately 80 plus acres of tidal wetlands and floodplain in Deer island reconnected to Novato Creek; creation of complex habitat along the freshwater/saltwater salinity gradient and restoration and enhancement of seasonal wetlands; flood protection to large areas of the City of Novato; beneficial reuse of dredged sediment; relocation and consolidation of existing storm-water pumping facilities to respond to sea level rise conditions.

The Bel Marin Keys Wetland Restoration project will restore a mix of tidal and sub-tidal habitats on the 1750-acre Bel Marin Keys property, located immediately downstream from the County's proposed Phase I project. The project would integrate flood protection with reuse of treated wastewater to create a mosaic of brackish and saline marsh, as well as restore mudflat and sub-tidal habitats and seasonal wetland to benefit migratory waterfowl. The project will directly benefit dozens of fish and bird species, including several that are threatened and endangered and would enhance recreation and public access, including hiking and bird watching, non-motorized boating, fishing, waterfowl hunting. The project will include a new flood management levee which will separate tidal and non-tidal areas and protect the adjacent Bel Marin Keys residential community from flooding.

Outcomes include: 1.7-mile long "ecotone" levee; protection of 700 homes from flooding; reuse of up to 5 MGD of treated wastewater to restore brackish marsh; beneficial reuse of dredged sediment from regional dredging projects; 1450 acres of restored salt marsh, brackish marsh, mudflat and sub-tidal habitats; ¾ mile of new Bay Trail.

Grant Amount and Scalability

IRWM funding of **\$6-\$8.25 million** would support a total project cost of approximately **\$12-14 million**. The County and Conservancy have invested significant funding in planning to date and will also seek matching funds from federal grant programs and local sources. These projects can involve community-based restoration in partnership with Students and Teachers Restoring a Watershed (STRAW). While the cost to do these two projects is somewhat scalable, the lower end of the range represents a minimum level of funding level needed to ensure completion of the physical features of the two projects.

Alternative projects in the subregion that could be integrated if desired include the *Richardson Bay Engineered Bay Beach Shoreline Demonstration* project to recreate coarse grain self-adjusting beach structures protecting marsh and shoreline amenities (highly scalable at \$500K to \$2.2 million) or the final phase of the *Sears Point Wetland Restoration Project*, including 955 acres of tidal marsh and 800 acres of seasonal wetlands along with rail corridor flood protection (\$1-3 million). More information on these is available upon request.

East Bay – Eden Landing/Hayward Marsh Complex

The Eden Landing portion of the South Bay Salt Pond Restoration (SBSPR) project and the Hayward Marsh Restoration Project are both included in the 2013 Bay Area IRWM Plan, and address 4 of the 5 plan goals including promoting environmental sustainability, protecting and improving watershed health and function, improving regional flood protection to withstand storm and sea level rise projections, and rehabilitating significant wildlife resources. These

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

two projects collectively provide significant regional benefits by demonstrating innovative flood protection measures that utilize restored wetlands, as well as beneficial reuse of treated wastewater and dredged material.

For the SBSPR portion of this project, large-scale tidal wetland restoration (over 2,000 acres) will be implemented in conjunction with an innovative approach to providing flood protection for thousands of homes and businesses from tidal flooding. A “land mass” feature (a FEMA-compliant berm constructed atop the existing outboard levees) would function more like a natural barrier island than a constructed levee. The large area of restored wetlands would then be used to dampen the incoming tides, allowing the existing inner levees within the ponds to be subject to much lower water levels and wave heights. This will save money, provide multiple layers of tidal flood protection, and will result in vastly improved habitat values. This would also allow for expedited completion of the project, facilitate new connections between the Alameda Creek anadromous fishery and the bay, and improve alignments of the Bay Trail spine.

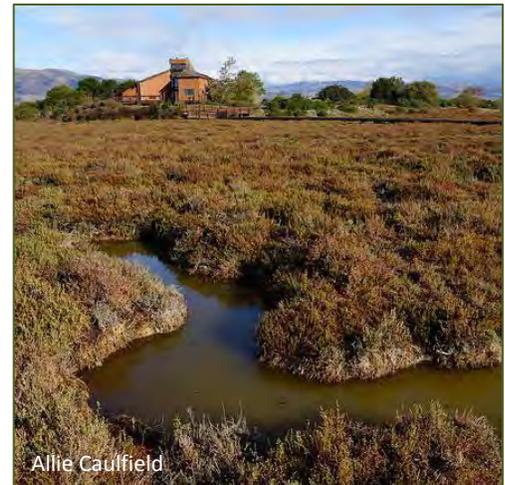
For the Hayward Marsh portion of this project, rehabilitation of the capacity and functions of the bayside ponds would result in the rehabilitation of wetlands that reduce the ammonia load in San Francisco Bay, improve habitat for critical species such as the California Least Tern, improve the resiliency of the local shoreline, the wastewater distribution system, and flood control features to assist with sea level rise.

The project is proceeding on an aggressive schedule. The SBSPR Project in Eden Landing is beginning preparation of an EIS/R in the spring of 2014. Permitting is estimated to be complete by winter 2015, with construction beginning in 2016 or 2017. Meanwhile, it is expected that the Hayward Marsh Rehabilitation Project will be ready for construction in the 2015-2016 timeframe. At the present time, a Hayward Marsh Rehabilitation Options Study is being conducted to identify a selected detailed approach for the project. This process is expected to be completed later in 2014.

Grant Amount and Scalability

IRWM funding of **\$6.2-\$8.3 million** would support a total project cost of approximately **\$40 million**. Both projects would be supported by significant local matching funds, with the Eden Landing project additionally leveraging other state and federal funds. These projects can involve community-based restoration in partnership with Save the Bay. Each project individually will have a range of scalability depending on final design although they cannot both be supported at below the low range requested here.

Alternative projects in the subregion that could be integrated if desired include East Bay Regional Park District’s *Albany Beach* and *Bay Point Restoration and Public Access* projects (\$500K-\$1.2 million and \$500K-\$1.1 million, respectively). Both are in later stages of design and have significant non-state matching funds available. More information on these is available upon request.



Peninsula – SAFER Bay and Ravenswood Restoration

The San Francisquito Creek Joint Powers Authority’s Strategy to Advance Flood protection, Ecosystems and Recreation Along the Bay (SAFER Bay) project and the Ravenswood complex of the South Bay Salt Pond Restoration project in Menlo Park propose providing critical flood risk management infrastructure and facilitating large-scale tidal marsh restoration. The SAFER Bay project is not in the current BAIRWM plan and it would be a new submittal. However, it is coupled with the South Bay Salt Pond Restoration (SBSPR) Project, which is included in the 2013 Bay Area IRWM Plan, and could be integrated through an update. These projects address several plan goals including promoting environmental sustainability, protecting and improving watershed health and function, improving regional flood management to withstand 100-year sea level rise projections, and rehabilitating significant wildlife resources.

The SAFER Bay project will provide tidal flood protection to communities in East Palo Alto and Menlo Park as well as private businesses, public lands, and facilities of the State that are currently in the FEMA 100-year floodplain, with the objective of integrating measures to protect these communities against tidal surges and the impacts of projected

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

Sea Level Rise. The project is being planned in conjunction with watershed management projects along San Francisquito Creek, the largest watercourse in the project area, which are being implemented to keep within the channel fluvial flows and tides with sea level rise, while adding new habitat and recreational opportunities.

Habitat protection and restoration are primary objectives of the SAFER Bay project, both through direct design elements (such as horizontal levees and increased transitional ecotone habitat) intended to provide immediate restoration benefits, and by providing flood protection elements that enable future restoration envisioned by the SBSPR Project, which could not be implemented without measures to ensure that breaching outboard levees in Ponds R1, R2, R3 and R4 do not increase tidal flood risk to the community.

The physical benefits of the portion of the SAFER Bay project proposed for this grant application include approximately one mile of 100-year flood protection from Bay tides with accommodation for sea level rise, and up to 590 acres of restored tidal wetlands in Ponds R1 and R2. Work here was studied by the Army Corps of Engineers as part of an ongoing feasibility study of San Francisquito Creek and nearby shoreline areas. In late 2011, the Corps calculated a favorable preliminary BCR for the shoreline area benefitted by the SAFER Bay project, and for the full grant application a BCR will be based on any data gathered since the Corps analysis and in conformance with the DWR PSP.

Resilience features include: upland fill material that may be used to create upland transition zones (UTZs), relatively gently sloping upland habitat with a slope ratio up to 30:1 (horizontal:vertical), which would serve as a transition zone between the ecosystems of the restored wetlands and the adjacent upland infrastructure including a PG&E substation and State Route 84. Public access enhancements may include upgrades to the Bay Trail, including potentially closing a gap in the Bay Trail spine south of State Route 84.

The project is able to proceed in a timely fashion. The project is currently in feasibility phase for the next 4-5 months, then will begin design and EIR, which is anticipated to conclude in the summer of 2016 at which time permitting will begin. Construction is anticipated in 2017-2018.

Grant Amount and Scalability

IRWM funding of **\$4-\$5.25 million** would support a total project cost of approximately **\$10 million**. The project will be supported by significant private matching funds, as well as other local and state funding. The project can be scaled at various levels of transitional habitat and restoration depending on final design considerations. The project can involve community-based restoration in partnership with Save the Bay. No alternative projects are currently proposed for this subregion.

South Bay - Mountain View Shoreline

The South Bay Salt Pond Restoration project in Mountain View includes large-scale tidal marsh restoration, while providing critical flood risk management infrastructure for adjacent residences and businesses by implementing a significant phase of the SBSPR Project. The Project is included in the 2013 Bay Area IRWM Plan, and addresses several plan goals including promoting environmental sustainability, protecting and improving watershed health and function, improving regional flood management to withstand 100-year sea level rise projections, and rehabilitating significant wildlife resources.



The project area consists of a cluster of former salt ponds (Pond A1, Pond A2W, Charleston Slough), the levees surrounding each pond, some of the fringe marsh outside of the pond and slough levees, Permanente Creek, and Mt. View Slough. The project is highly collaborative and includes the City of Mountain View, the City of Palo Alto, the US Fish and Wildlife Service, the Santa Clara Valley Water District, and the State Coastal Conservancy. The project will restore an estimate of over 800 acres of tidal marsh habitat and provide an estimated 1.5 miles of shoreline protection, helping prevent flooding to the shoreline communities of Mountain View and Palo Alto comprising several thousand businesses and homes. Enhanced tidal/fluvial connections will help alleviate upstream flooding, increase natural sediment delivery to the marshes, improve local water quality, and provide fisheries habitat on a known salmonid stream.

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

Restoration activities include breaches of levees at various locations, creation of wildlife habitat features, and other levee alterations to improve the overall ecological conditions of Pond A1, Pond A2W, and Charleston Slough. Resilience features include: upland fill material that may be used to create upland transition zones (UTZs), relatively gently sloping upland habitat with a slope ratio up to 30:1 (horizontal:vertical), which would serve as a transition zone between the ecosystems of the ponds and the uplands at the top of pond levees as well as provide resiliency to sea level rise by providing wetland migration accommodation space and reducing wave run-up impacts for adjacent levees.

Viewing platforms, interpretative platforms, and trails would be established to improve recreation and public access to the pond cluster. The SBSPR Project describes the goal for this pond cluster to transition to tidal marsh, maintain or improve flood protection, and improve recreation and public access.

The project is able to proceed in a timely fashion. SBSPR Project is planning to release a Draft EIS/R in the late summer of 2014 proposing tidal restoration to Ponds A1 and A2W (710 acres). Permitting is estimated to occur be complete by March 2015 with construction beginning in 2016.

Grant Amount and Scalability

IRWM funding of **\$6.1-\$7.25 million** would support a total project cost of approximately **\$32 million**, which would be highly leveraged by significant local, federal and other state match funding. These projects can involve community-based restoration in partnership with Save the Bay. This project will have a minimum scope to achieve full flood protection but is scalable in design of its transitional habitat and restoration components. No alternative projects are currently proposed for this subregion.

SUMMARY OF BENEFITS

Program Benefits by Project	North Bay		East Bay		Peninsula	South Bay
	Novato	BMK	Eden	Hayward	Ravenswood	Mt. View
Flood Protection	✓	✓	✓	✓	✓	✓
Habitat Restoration	✓	✓	✓	✓	✓	✓
Future SLR	✓	✓	✓	✓	✓	✓
Water Quality	✓	✓	✓	✓	✓	✓
Sediment Reuse	✓	✓	✓	✓	✓	✓
Freshwater Reuse	✓	✓		✓		

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

BUDGET

Preliminary Budget	Total Project Cost	Grant ask (high)	Grant ask (low)	Estimated Non-State Match*
Administration, Monitoring, Evaluation (~3%)	\$1,000,000	\$950,000	\$700,000	\$50,000
Project 1: North Bay	\$14,000,000	\$8,250,000	\$6,000,000	\$4,400,000
Project 2: East Bay	\$40,000,000	\$8,300,000	\$6,200,000	\$12,500,000
Project 3: Peninsula	\$10,000,000	\$5,250,000	\$4,000,000	\$2,500,000
Project 4: South Bay	\$32,000,000	\$7,250,000	\$6,100,000	\$8,000,000
TOTALS	\$97,000,000	\$30,000,000	\$23,000,000	\$27,450,000

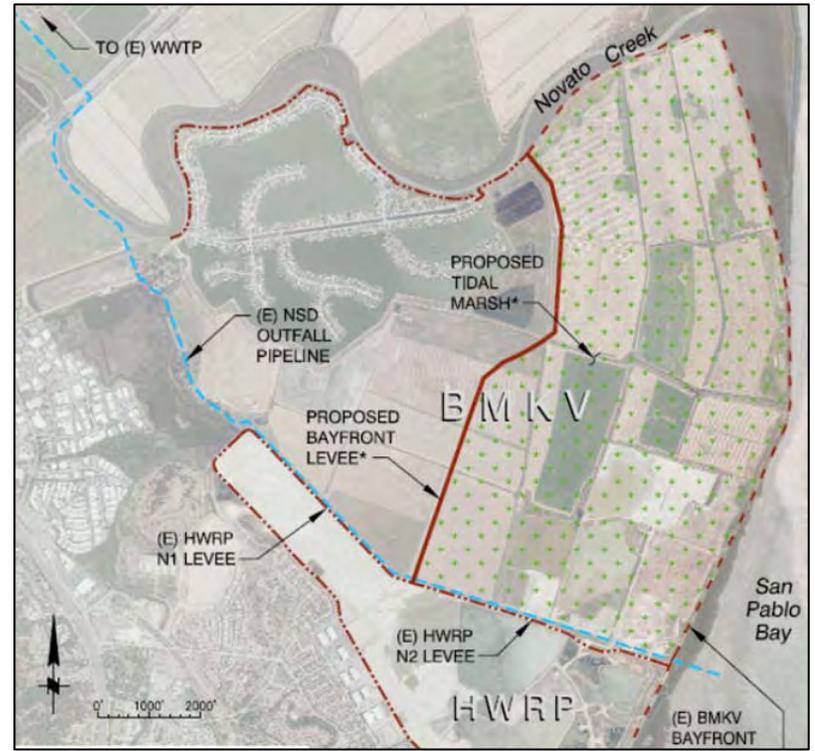
*Estimated conservatively, projects may have higher non-state and/or other state contributions.

TIMELINE

Preliminary Timeline	Complete/2014				2015				2016				2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Administration, M&E																								
Project 1: North Bay																								
Project 2: East Bay																								
Project 3: Peninsula																								
Project 4: South Bay																								

Key	
Ongoing	
Concept/CEQA	
Design/Permitting	
Construction	

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

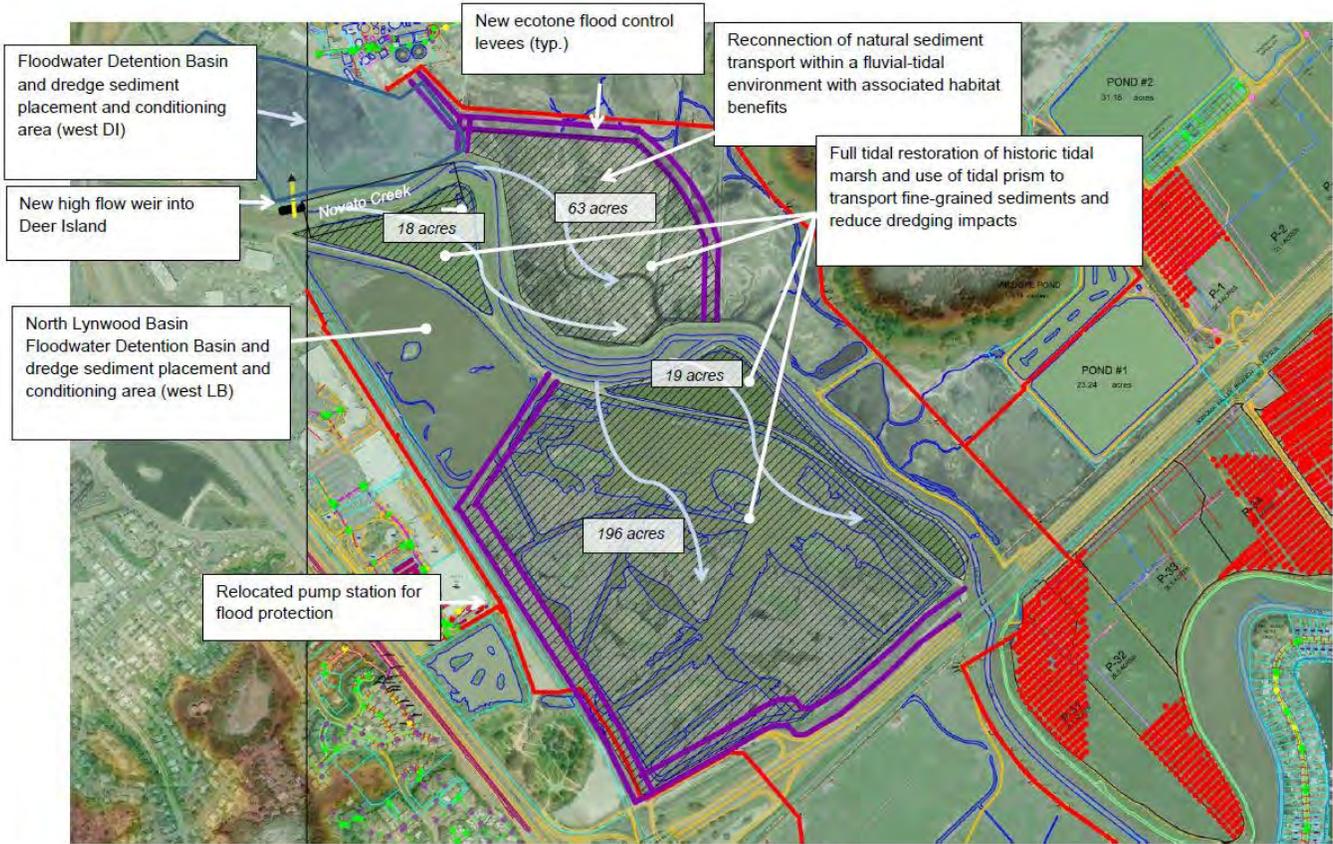


Bel Marin Keys Wetland Restoration

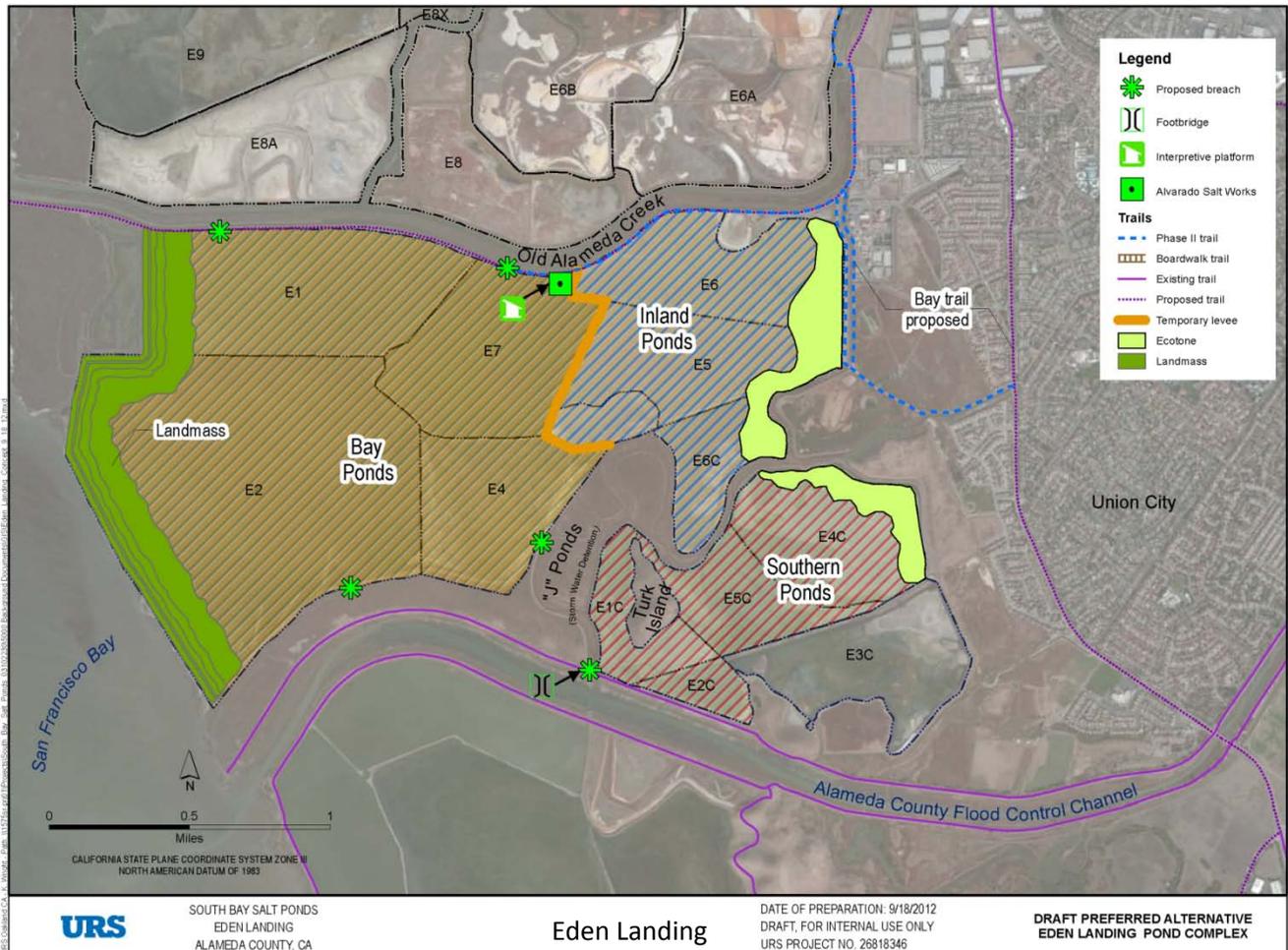


Hayward Marsh

BAY AREA REGIONAL SHORELINE RESILIENCE PROGRAM

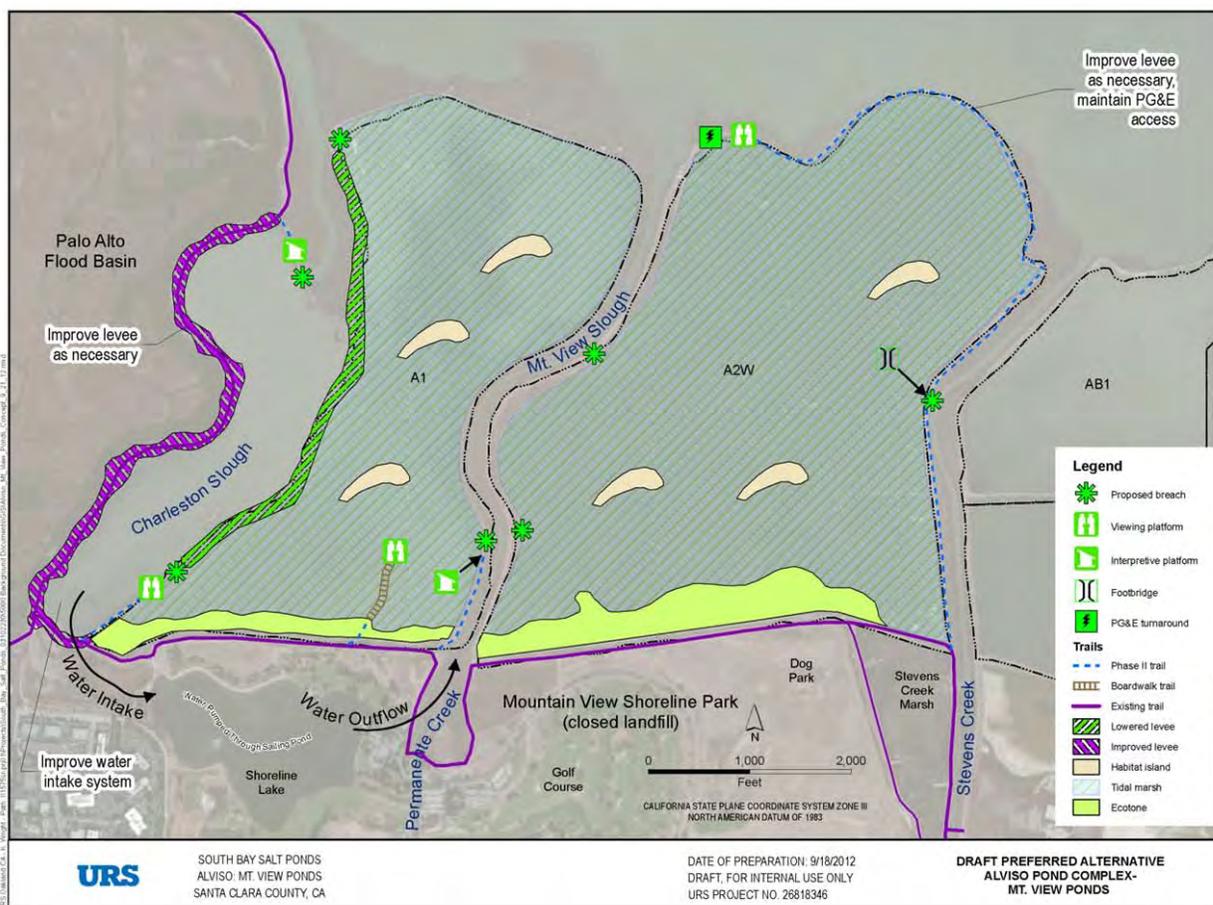


Novato Creek





Ravenswood Complex



Mountain View Shoreline

Potential IRWMP Shoreline Resilience Project Components

Project	Lead	Resilience aspects	Total Project (high)	Total Project (low)	Grant Ask	Min ask	Non-state Match avail now	Add'l NS match expected by 12/2014	Notes
Hayward Marsh	EBRPD-USD	Improve future function/self maintenance of marsh	\$10,000,000	\$10,000,000	\$5,000,000	see below	expect 50%		May go with BACWA proposal can draw ties between that and this
Eden Landing	Alameda County Flood (DU?)	Land mass concept, reuse of sediment and wastewater to accelerate marsh development	\$30,000,000	\$20,000,000	\$15,000,000	\$5,000,000	25%		
Ravenswood area	SFJPA	Transition zone levees, protecting critical infrastructure, marsh restoration buffer	\$10,000,000	\$7,000,000	\$5,250,000	\$4,000,000	500K		Safer Bay project levee, R1/R2 protection, may not be able to do wetland restoration at this time
Mountain View shoreline	FWS, SCVWD	Community flood protection, wetlands restoration	\$32,000,000	\$26,000,000	\$10,000,000	\$3,000,000	25%		Charleston slough levee
Bel Marin Keys	SCC	Transition zone levees, seasonal marsh, wastewater reuse, community flood protection, subtidal habitat	\$7,500,000	\$6,000,000	\$4,500,000	\$4,000,000		\$2,000,000	Partners: NSD, Marin County, Ducks Unlim. - just the levee with brackish and related habitat improvements
Albany Neck	EBRPD	Retrofitting ripraped shoreline with more natural profile, incorporation of subtidal living shorelines concepts	\$9,500,000	\$9,500,000	\$2,000,000	\$2,000,000	\$4,400,000		
Novato Creek	Marin County	Restoration of habitat for a variety of T&E species at the critical fluvial/tidal interface zone of Novato Creek that is adaptable as bay tide levels rise. Demonstration of intergration of flood control with habitat benefits as well as showing adaptation approaches to SLR and restoration of natural sediment processes from the watershed to the bay. Providing flood protection benefits to large areas of the City of Novato that currently flood and will be exposed to flooding under SLR projections.	\$10,000,000	\$6,000,000	\$8,500,000	\$5,000,000	\$1,200,000	\$1,200,000	Deer Island
Marin Engineered Gravel Beaches for Shoreline Erosion	Marin County	Demonstration projects for the use of engineered bay beaches as a natural analogue for an alternative to "hard" engineering, provide self adjusting natural resilient shoreline with habitat benefits. Significant regional and larger benefits as demonstration project as shoreline erosion increases under a rising bay tide level. Very scalable.	\$2,200,000	\$500,000	\$2,000,000	\$500,000	\$350,000	\$250,000	
STRAW	Point Blue	Transition zone design, planting	\$6,000,000	\$600,000	\$6,000,000	\$600,000	Y	Y	Can work w/ other partners on Novato/BMK/Sears Point - match values dependent on scope, but we will be able to meet the 25% minimum
Sears Point	Sonoma Land Trust, Ducks Unlim	Gently sloped habitat/flood protection levee providing tidal marsh-upland transition and high tide refuge for wildlife, design elements for accelerated tidal marsh development, rapid levee raising capability, flood protection for Hwy 37 and railroad	\$18,000,000	\$15,000,000	\$3,000,000	\$1,000,000	25% of project proposal		Project may have already covered partial or full match from previous Prop 84 grant
Project Eval and Monitoring	SFEP/SFEI	Project science review, evaluation and monitoring							Could add in Walnut Creek, provide science review/monitoring tie-in
Admin	SCC	Grant administration	\$350,000	\$200,000	\$350,000	\$200,000	n/a	n/a	Assuming 50K per project for 4-7 sub-projects.

TOTALS **\$135,550,000** **\$100,800,000** **\$61,600,000** **\$25,300,000** **\$21,350,000** **\$3,450,000**

Project Match Needed **\$25,200,000**

GUIDANCE
Total project (high) and (low) - Try to bookend the total project costs, with the "low" including whatever down-scope is possible to keep the project feasible with still a good level of benefits.
Ask - What you would ask for if you submitted a standalone proposal for the higher total project cost.
Min Ask - Least you'd be willing to get from an IRWM grant and still keep (lower total) project feasible, and have it worth your while to be included in a package.
Non-state match now - Assume at least a few years of back-dateable non-state expenditures will be eligible (previous grants went back to 2008 but that may be revised). Certain types of state expenditures may be eligible as match but other state grant dollars received are not.
Non-state match expected - Level of additional NS match that can be expected (i.e. at least applied for if not awarded) by time of grant submission in early 2015.