

COASTAL CONSERVANCY

Staff Recommendation
November 30, 2023

SOUTHERN EMBARCADERO RESILIENCE AND ENHANCEMENT PROJECT

Project No. 23-057-01
Project Manager: Erica Johnson

RECOMMENDED ACTION: Authorization to disburse up to \$7,800,000 to the Port of San Francisco for the Southern Embarcadero Resilience and Enhancement Project, consisting of developing plans and engineering designs to adapt shoreline infrastructure to sea level rise, improve public access amenities, and include green-gray infrastructure opportunities, for a 0.6-mile stretch of the southern Embarcadero waterfront in San Francisco.

LOCATION: The Embarcadero waterfront between Harrison and Townsend Streets, City and County of San Francisco

EXHIBITS

- Exhibit 1: [Project Location Maps](#)
- Exhibit 2: [3.5 Feet Sea Level Rise Map](#)
- Exhibit 3: [Waterfront Infrastructure Example Diagram](#)
- Exhibit 4: [Project Letters](#)

RESOLUTION AND FINDINGS

Staff recommends that the State Coastal Conservancy adopt the following resolution and findings.

Resolution:

The State Coastal Conservancy hereby authorizes a grant of an amount not to exceed seven million and eight hundred thousand dollars (\$7,800,000) to the Port of San Francisco (“the grantee”) to develop plans and engineering designs to adapt shoreline infrastructure to sea level rise, improve public access amenities, and include green-gray infrastructure opportunities, for a 0.6-mile stretch of the southern Embarcadero waterfront in San Francisco.

Prior to commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Conservancy (Executive Officer) the following:

1. A detailed work program, schedule, and budget.

2. Names and qualifications of any contractors to be retained in carrying out the project.

Findings:

Based on the accompanying staff recommendation and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with Chapter 3 of Division 21 of the Public Resources Code, regarding the Climate Ready Program.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria.

STAFF RECOMMENDATION

PROJECT SUMMARY:

Staff recommends the Conservancy authorize a \$7,800,000 grant to the Port of San Francisco (the Port) to develop plans and engineering designs to adapt shoreline infrastructure to sea level rise, improve public access amenities, and include green-gray infrastructure opportunities for a 0.6-mile stretch of southern Embarcadero waterfront (Exhibit 1).

Since 2018, the Port, in partnership with the U.S. Army Corps of Engineers (USACE) and departments within the City and County of San Francisco, has implemented studies, pilot projects, and community outreach to prepare their 7.5-mile waterfront for seismic and flood hazards. In 2018, the Port launched the Waterfront Resilience Program, a waterfront wide outreach effort to inform communities about the flood and seismic risks identified in the Port's Multi-Hazard Risk Assessment. The assessment and outreach were summarized in the 2020 Multi-Hazard Risk Assessment Northern Waterfront and Embarcadero Seawall Summary Report (MHRA Report). Since then, the Waterfront Resilience Program developed seven Waterfront Adaptation Strategies, which are the preferred approaches for the Port to create a resilient and equitable waterfront. The Port also partnered with USACE on the San Francisco Coastal Flood Study (Flood Study), a \$16,000,000 cost-shared study of the Port's entire jurisdiction. The ongoing Flood Study will develop a high-level plan that considers flood risks and the associated economic, environmental, and social effects.

The proposed project will advance and add to these efforts by preparing site specific plans and engineering designs that consider green-gray infrastructure opportunities (habitat enhancements incorporated into traditional infrastructure) and improvements to public access amenities. To plan for green-gray infrastructure opportunities, the Port partnered with the Smithsonian Environmental Research Center to pilot a two-year living seawall study at three locations along the Embarcadero Seawall. The Port has estimated that the designs from the proposed project could create about one acre of wildlife habitat on the new Embarcadero Seawall using techniques and lessons learned from the pilot study.

Today the Embarcadero already experiences regular overtopping during king tides and storm surges. In addition, recently completed flood modeling indicates that Embarcadero will begin to

experience costly damages and hazards due to coastal flooding and earthquakes during the period 2030-2040. Consequences of coastal flooding include disruption to key disaster response facilities, such as staging areas for fire trucks and emergency responders, docks for launching rescue boats, and designated open space for people to assemble during earthquakes. Other key facilities that will be disrupted include drinking water and sewage utilities, electrical equipment, and transportation (roadways, Bay Area Rapid Transit trains, and San Francisco Municipal Transportation Authority light rail). Further compounding this flood risk is seismic risk. The MHRA Report also cited weak soil behind and underneath the Embarcadero Seawall, putting the waterfront infrastructure at very high risk of damage from earthquakes, which may include loss of buildings, loss of recreation areas, and flooding.

The culmination of studies and stakeholder engagement has helped the Port determine the area expected to be inundated under the Ocean Protection Council's likely chance 66% probability) Year 2110 sea level rise scenario plus a 1-in-100 chance (1% probability) annual weather event (Exhibit 2). To reduce flood risk, the Port intends to raise structures by 5.5 feet above the current average elevation of 10' NAVD 88. This includes two feet of freeboard from the current stillwater level (12' NAVD 88) and an additional 3.5 feet for projected sea level rise (15.5' NAVD 88) (Exhibit 3). The current elevations of waterfront structures vary from site to site, and so the height to which structures will be raised will be further refined with the designs developed in this project. Using the Waterfront Adaptation Strategies, the Port also identified that the Promenade and Marginal Wharf are key areas to reconstruct to prepare for sea level rise. The Marginal Wharf is a structure that is supported by piles and runs parallel to the shoreline between the seawall and piers; a portion of this structure is underneath the Promenade (Exhibit 3). With this information, the Port has already developed conceptual alternatives for the Marginal Wharf and the Embarcadero Seawall. The proposed project will build on these concepts to develop plans and up to 60% engineering designs. In addition to sea level rise adaptation, the Port will also develop plans and engineering designs to improve public access in the project area. The project includes the following:

Task 1 - Embarcadero Promenade Public Amenities Plan and Conceptual Design: The Port will leverage outreach efforts from the Waterfront Resilience Program and develop a Technical Advisory Committee and a public outreach strategy. The proposed project will include between 10-20 meetings to seek input from stakeholders and communities on what they would like to see along the Promenade. Some examples from the Port's Resilient Waterfront Program include improved safety by creating a cycle-only track, increased visibility of the water from the Promenade, additional waterfront access points, and an interpretive program. The Port will work with a consultant to develop a minimum of two alternative conceptual (10%) designs with cost estimates, then a preferred alternative will be selected by the stakeholders and communities. The preferred alternative concept and plan will be incorporated into engineering designs of the Marginal Wharf, Embarcadero Seawall, and Promenade in Task 3 below.

Task 2 - Pier 30/32 Demolition Plan and Design: The proposed project will conduct surveys and analysis for the demolition of Piers 30/32 and its Marginal Wharf, which equates to about 13 acres. The Port will develop a 30% demolition design and plan which will include a list of specifications to be used for a future contract, information to secure necessary

permits, demolition schedule, and a cost estimate. The demolition of the pier area is anticipated to result in a net removal of six acres of bay fill (piles and pier deck), returning those acres to open bay habitat.

Task 3 - Marginal Wharf, Seawall, Promenade Design: The Port will hire a consultant to conduct surveys and analysis necessary for developing schematic plans and 60% engineering designs for the Marginal Wharf area, which will include public amenities identified in the Embarcadero Promenade Public Amenities Plan and Conceptual Design (Task 1) for the preferred alternative. The Marginal Wharf will be raised up to 5.5 feet above the existing grade. The Embarcadero Seawall will be replaced with a new vertical seawall and riprap that is three to five feet above the existing height of the seawall. There is potential for up to one acre of living seawall habitat depending on tidal elevations. The Promenade will either be raised to match the height of the Marginal Wharf and seawall, or there will be steps up from the Promenade to the Marginal Wharf to account for the change in height. The design will also take into consideration the prevention of inland flooding (stormwater and groundwater) and the accommodation of stormwater systems.

Task 4 - Resilience, Cultural and Natural Resources Interpretive Program: The Port will establish a Stakeholder Advisory Team that will include local historians, representatives of tribes, environmentalists, and community members to guide the content of the program. They will propose and outline specific themes and refine the outline based on community and stakeholder feedback. A contractor will develop engineering designs for the selected medium of interpretation and storytelling (e.g., signs, art installation, kiosk, embedded digital elements) along the Promenade.

Site Description:

The Embarcadero is a waterfront and roadway in the northeastern shoreline of San Francisco. The waterfront was established in the early 1900s with the construction of the three-mile Embarcadero Seawall. The Seawall was constructed by digging a trench in the bay mud, filling the trench with rock and rubble, and embedding a vertical wall. Behind the wall, the tidal marshlands were filled in. The Seawall has acted as a retaining structure for bay fill and protection from coastal flooding during storm surges. The Seawall enabled other Port infrastructure to be built (wharves, piers, docks) as well as buildings, a promenade, and utilities to be established above or behind the Seawall. As a result, the Embarcadero waterfront became a world-class deepwater port that has enabled the City and County of San Francisco to prosper and the waterfront to develop into a major hub for the maritime industry, tourism, history, culture, and recreation. Today, the Embarcadero is home to many piers, a ferry hub, a National Historic District, restaurants, and businesses all supported by the 3-mile Embarcadero Seawall, marginal wharves, and pile supported piers. It is estimated that the waterfront is visited by 24 million people a year and the Seawall protects \$100 billion of assets and economic activity. However, in the 2016 National Trust for Historic Preservation's List of 11 Most Endangered Historic Places, the San Francisco Embarcadero Historic District was listed due to a vulnerability analysis of the seawall to seismic activity.

The project area is a 0.6-mile Embarcadero waterfront section, along the southern portion of the Embarcadero, between Harrison Street and Townsend Street. The project area includes the

Promenade, the Marginal Wharf that supports part of the Promenade and piers, Piers 30/32, and the parking and passenger loading lanes along the Embarcadero roadway. This section is the first of multiple sections of the Embarcadero waterfront that will require site specific plans and designs. Each section may require a different Waterfront Adaptation Strategy depending on the conditions and current elevations of the waterfront infrastructure and the severity of seismic and flood risk.

Grant Applicant Qualifications:

The Port is the landowner of the project site, manages 7.5 miles of waterfront in San Francisco, and is charged with managing its property consistent with the public trust. Over the last 15 years the Port has managed and implemented a variety of planning, design, land use entitlement, and capital projects. Projects have ranged from nature-based adaptation (Heron’s Head Park Shoreline Stabilization) to major mixed use development projects (Mission Rock and Pier 70). The Port has successfully managed and delivered large-scale projects such as the James Herman Cruise Terminal and Plaza (\$115 million), Downtown Ferry Terminal Phase 1 (\$20 million), Hyde Street Harbor (\$7 million), and Crane Cove Park (\$28 million).

Related to the proposed project, the Port has led waterfront hazard assessments and multiple programs to equitably engage the public in designing a resilient waterfront. For more information, see the “Project Description” section above.

CONSISTENCY WITH CONSERVANCY’S PROJECT SELECTION CRITERIA:

The proposed project is consistent with the Conservancy’s Project Selection Criteria, last updated on September 23, 2021, in the following respects:

Selection Criteria

1. Extent to which the project helps the Conservancy accomplish the objectives in the Strategic Plan.

See the “Consistency with Conservancy’s Strategic Plan” section below.

2. Project is a good investment of state resources.

The project is part of the Port’s crucial work to create a more resilient waterfront and prevent loss of infrastructure, businesses, livelihoods, and leisure activities for the public. The project leverages previous flood and seismic studies, community engagement, and \$16,000,000 of funding for the Flood Study, noted in the “Project Description” section above. The Flood Study will allow the Port to pursue Federal dollars to use for implementation that will address sea level rise risk along their 7.5-mile waterfront. In addition, the Port has identified two development partners seeking to invest in the future, implementation phase of Piers 38 and 40 (Pacific Waterfront Partners) and Piers 30/32 (Strads-TCC).

The project advances the San Francisco Port Waterfront Plan (April 2023). The waterfront plan governs the use, design, and improvements of the 7.5 miles of piers and shoreline properties managed and operated by the Port and will be included in the San Francisco

General Plan Update that is currently underway. The proposed project advances the plan's goals to coordinate with the Embarcadero Seawall Program to build understanding and support for innovations to adapt to climate change, preserving the history and character of the Embarcadero and public access improvements.

The proposed project will build upon the public engagement efforts of the ongoing Waterfront Resilience Program. More information can be found in the "Project Description" above and "Project planned with meaningful community engagement and broad community support" below.

3. Project includes a serious effort to engage tribes. Examples of tribal engagement include good faith, documented efforts to work with tribes traditionally and culturally affiliated to the project area.

The Port has established working relationships with representatives of the Ohlone Tribes and tribal organizations who have interests in San Francisco. Tribes and tribal organizations were consulted during the recent updates to the Port's Waterfront Plan in April of 2023, the Islais Creek Public Access Improvement Project (funded by the Conservancy) for art and design elements, and via the Mission Rock and Pier 70 multi-use development projects. The Port has initiated conversations with the Ohlone Tribes about the development of a trail network and interpretation program along the entire San Francisco Waterfront, of which the proposed project would include a segment.

4. Project benefits will be sustainable or resilient over the project lifespan.

The project will develop plans and engineering designs that prepare the shoreline for approximately 3.5 feet of sea level rise predicted by the Ocean Protection Council plus an additional two feet of freeboard. This will equate to about 5.5 feet of elevation to prepare for the 66% chance scenario of sea level rise projected in year 2110.

The design will assist the Port and interested developers (see "Project is a good investment of state resources section" above) in fundraising and securing funds for an implementation phase. The Port will maintain the improvements for the foreseeable future as a part of the Port's regular operations and maintenance budget.

5. Project delivers multiple benefits and significant positive impact.

In addition to adapting the shoreline for sea level rise, the proposed project will also include public access improvements and green-gray infrastructure that will provide habitat enhancement opportunities. See "Project Description" above for more information.

6. Project planned with meaningful community engagement and broad community support.

In 2018, the Port launched The Waterfront Resilience Program, a waterfront-wide outreach effort that encompassed three geographies: the three-mile Embarcadero Seawall, Mission Creek and Mission Bay, and Islais Creek and Bayview. The program engaged thousands of people including individual community members, businesses and merchants, and non-profit groups to educate them about the hazards and risks of flooding and earthquakes to the Embarcadero Seawall and the infrastructure supported by it. The program also included two

projects, the Embarcadero Seawall Program, and the Flood Study which has helped the Port to collect data, receive community input, and fundraise for site specific planning.

During the community engagement process, the Port hosted 150 community workshops and walking tours, tabled at public events, and provided opportunities online for the public to provide comments. The proposed project will work with the Waterfront Resilience Program to continue engagement and get stakeholder and community feedback on the Embarcadero Promenade Public Amenities Plan and Conceptual Design and the Resilience, Cultural and Natural Resources Interpretive Program (Task 1 and Task 4 respectively in the “Project Description” section above).

PROJECT FINANCING

Coastal Conservancy	\$7,800,000
San Francisco Port	\$1,150,000
Project Total	\$8,950,000

Conservancy funding is anticipated to come from a Fiscal Year 2022/23 appropriation from the Greenhouse Gas Reduction Fund (GGRF) to the Conservancy for urgent sea level rise adaptation and coastal resilience needs (Budget Act of 2022, as amended by the Budget Act of 2023, SB 101, Chapter 12, Statutes of 2023). The Greenhouse Gas Reduction Fund Investment Plan and Communities Revitalization Act (Health and Safety Code (HSC) Sections 39710 – 39723) requires that GGRF funds be used to (1) facilitate the achievement of reductions of GHG emissions consistent with the Global Warming Solutions Act of 2006 (HSC Sections 38500 *et seq*), and (2) to the extent feasible, achieve other co-benefits, such as maximizing economic, environmental and public health benefits and directing investment to disadvantaged communities (HSC 39712(b)). The Global Warming Solutions Act of 2006 sets forth certain GGRF funding priorities (HSC Section 38590.1).

The California Air Resources Board (“CARB”) has adopted guidelines that establish program goals that agencies must achieve with their GGRF funds. Consistent with the CARB 2018 Funding Guidelines, the proposed project will help the Conservancy meet its GGRF program goals because the project will:

- Maximize economic, environmental, and public health co-benefits to the State; and
- Leverage funds to provide multiple benefits and to maximize benefits.

The proposed project will meet these objectives by planning to remove bay fill (pier pilings and pier) and return approximately six acres of open water habitat to the bay. The project will also create multiple benefits and contribute to public health by planning to enhance public access by improving cyclist and pedestrian safety and developing an interpretive program. Lastly, the proposed project is also consistent with this funding source because it will prepare plans and designs necessary to protect communities from sea level rise.

The Port will contribute \$1,150,000 of private capital funds and General Obligation Bond funding to complete the proposed project. The Port anticipates contributing \$550,000 of staff time as in-kind match to support the work being completed by hired consultants.

The other sources of funding and in-kind contributions described above are estimates. The Conservancy does not typically require matching funds or in-kind services, nor does it require documentation of expenditures from other funders or of in-kind services. Typical grant conditions require grantees to provide any funds needed to complete a project.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

The proposed authorization is consistent with Chapter 3 of Division 21 of the Public Resources Code, Section 31113, regarding the Climate Ready Program:

Consistent with Section 31113, Subsections (a) and (b), the proposed project takes place within the Conservancy's jurisdiction and addresses potential impacts of sea level rise on the southern Embarcadero waterfront. The proposed project will produce plans and engineering designs that will prepare the area for year 2110 likely sea level rise projected by the Ocean Protection Council

Consistent with Section 31113, Subsection (c), the proposed project will reduce hazards to harbors and ports by planning the redevelopment of the Embarcadero seawall, Piers 30/32, and the marginal wharf to reduce coastal flood and seismic risk. These designs will also include improvements to public access.

Consistent with Section 31113, Subsection (d), the proposed project will incorporate environmental benefits by designing for the removal of approximately six acres of bay fill and using materials that will provide approximately one acre of living seawall habitat on the Embarcadero Seawall. The proposed project is a multibenefit project because it will prepare the waterfront for flood and seismic risk, improve public access, and provide environmental benefits.

CONSISTENCY WITH CONSERVANCY'S [2023-2027 STRATEGIC PLAN](#):

Consistent with **Goal 1.3 Support meaningful engagement by systemically excluded communities**, the proposed project will continue a robust community engagement process with the support of the Port's Waterfront Resilience Program's community and stakeholder network to engage the public in designing public access improvements along the southern Embarcadero.

Consistent with **Goal 2.6 Support multi-benefit coastal resilience projects that revitalize waterfronts**, the proposed project will prepare the southern Embarcadero for climate impacts while improving public amenities and wildlife habitat.

Consistent with **Goal 3.2 Restore or enhance habitats**, the proposed project will design for the removal of 6 acres of Bay fill and incorporation of about 1 acre of wildlife habitat on the Embarcadero Seawall.

Consistent with **Goal 4.1 Sea level rise adaptation**, the proposed project will prepare the southern Embarcadero for sea level rise.

CEQA COMPLIANCE:

The proposed project is categorically exempt from CEQA under 14 Cal. Code Regulation Section 15306 for information collection because it consists of basic data collection and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource. The proposed project is a part of a study leading to an action which a public agency has not yet approved, adopted, or funded. The project is also statutorily exempt under 14 Cal. Code Regulation Section 15262 in that the proposed project will result plans and designs for future actions that have not yet been approved, adopted, or funded.

Upon approval of the project, Conservancy staff will file a Notice of Exemption.