



MEMORANDUM

February 12, 2019

TO: MEMBERS, PORT COMMISSION
Hon. Kimberly Brandon, President
Hon. Willie Adams, Vice President
Hon. Gail Gilman
Hon. Victor Makras
Hon. Doreen Woo Ho

FROM: Elaine Forbes
Executive Director

SUBJECT: Informational update on the San Francisco Seawall Earthquake Safety and Disaster Prevention Program (Seawall Program)

DIRECTOR'S RECOMMENDATION: No action – Informational Only

EXECUTIVE SUMMARY

This is an informational update to the Port Commission on the progress of the San Francisco Seawall Earthquake Safety and Disaster Prevention Program (Seawall Program). The last Commission update was on July 10, 2018.

Highlights during this period include:

- The \$425 million Embarcadero Seawall Earthquake Safety General Obligation Bond Measure passed on November 6, 2018 with 82.7% yes vote.
- The Port was awarded a \$5M grant for the Seawall Program from the California Natural Resources Agency, included in the California 2018-19 Budget Act.
- The United States Army Corps of Engineers (USACE) and Port commenced the San Francisco Waterfront Storm Risk Management Study General Investigation (GI) on September 5, 2018, and successfully completed the first study milestone, Alternatives Milestone Meeting, on December 3, 2018.
- USACE and the Port came to a formal decision to suspend work on the USACE CAP 103 Study and devote resources to the larger USACE General Investigation.

THIS PRINT COVERS CALENDAR ITEM NO. 13A

- Field work for the geotechnical investigation was completed on time at the end of November and lab work is now under way.
- Seawall Community Meeting #2 was held in September at the Exploratorium with over 130 people in attendance.
- The Seismic Peer Review Panel met in July, September, and twice in November to review and comment on the geotechnical investigation and the approach and methodology for earthquake hazard assessment.

BACKGROUND

In 2015, under the leadership of Mayor Lee, the Port launched the Seawall Resiliency Project (later renamed the San Francisco Seawall Earthquake Safety and Disaster Prevention Program), a major City and Port effort to improve earthquake safety and performance of the Embarcadero Seawall, provide near-term flood protection improvements, and plan for additional long-term resilience.

Phase I will develop the overall Program and construct critical improvements to reduce the risk to life safety and sustain emergency response capacity following a major earthquake. Later phases will continue to reduce seismic and flood risk along the Embarcadero Seawall by both strengthening the Seawall and implementing adaptive measures to manage sea level rise. Phase 1 is currently budgeted at \$500 million with completion targeted for the end of 2026.

The following is a brief summary of Port Commission information items and action items related to the Seawall Program since the last update on July 10, 2018.

- On August 13, 2018, the Port Commission authorized staff to enter into an Federal Cost Share Agreement with the United States Army Corps of Engineers San Francisco District for the San Francisco Waterfront Storm Risk Management Project (Resolution 18-46).
- On October 23, 2018, the Port Commission authorized staff to enter into a Grant Agreement with the California Natural Resources Agency to accept and expend up to \$5,000,000 in grant funds to support the Seawall Program (Resolution No. 18-56).

STRATEGIC OBJECTIVE

This Seawall Earthquake Safety Program supports the goals of the Port's Strategic Plan as follows:

Engagement:

By regularly engaging in meaningful public participation and incorporate community feedback into Port initiatives, and by keeping the public informed of the financial responsibilities of the Port.

Livability:

By increasing the proportion of funds spent by the Port with LBE and micro-LBEs.

Resiliency:

By leading the City's efforts to address threats from earthquakes and flood risk through research and infrastructure improvements to the Seawall and Port property.

Sustainability:

By enhancing the quality of the Bay water and habitat with the improvements, by limiting construction impacts and waste, and by sustainable design and construction best management practices.

UPDATE ON PROGRESS & NEXT STEPS

PROGRAM MANAGEMENT

Program Overview: The Seawall Program is currently budgeted at \$5 Billion with a 30 year implementation timeline. Phase 1 of the Seawall Program is budgeted at \$500M with completion targeted for the end of 2026. This initial phase will develop the overall program and construct critical improvements to reduce risk to life safety and to improve emergency response capacity following a major earthquake or flood event. Later phases will continue to reduce seismic and flood risk along the entire Seawall by both strengthening and adapting the Seawall and co-dependent infrastructure.

- The Program framework has not changed during this period, however, the successful award and commencement of a USACE General Investigation may change the scope and scale of Phase 1 by bringing in the potential for federal investment earlier into the Program than previously anticipated. This is currently being evaluated.
- Secured Program funding for Phase 1 has increased by \$430 million during this period, raising the secured funding amount to \$446 million. Details are included in the Finance and Legislative update below.

Civic Edge Communications Consultant Contract: This is a contract for public relations, communications, media services, and related professional services for the Seawall Program.

- Contractor performance continues to be very good.
- There are no modifications or significant changes to report this quarter.

CH2M / Arcadis Planning, Engineering, and Environmental Support Consultant Contract: This is a contract for planning, engineering, and environmental services for the Seawall Program.

- Contractor performance continues to be good.
- Geotechnical work has been advanced from the Preliminary Design Phase into the Planning Phase.

Executive Steering Committee (ESC): The ESC meets quarterly to review progress of the Program and facilitate coordination among City Departments. Meetings were held in September and in December of 2018. The next meeting is planned for April 2019.

USACE CAP 103: The CAP 103 Project is a USACE led and Port sponsored effort to complete a feasibility study for a potential Federal project to improve flood protection along a portion of the Seawall from Pier 7 to Pier 22-1/2. Work on the CAP 103 Project was suspended this period due to the start of the larger USACE General Investigation. Work products will be used to inform the General Investigation.

USACE San Francisco Waterfront Storm Risk Management Study (Flood Study): Work commenced this period on the USACE General Investigation (GI). A GI has been a key strategy to bring federal funding for the Seawall Program and the Port is extremely appreciative to have been selected for a New Start in June of 2018. The Port Commission authorized staff to enter into the study agreement with USACE at its meeting on August 24, 2018. The agreement was executed on September 5, 2018, starting the three-year clock for the study process. USACE and the Port formed a Project Team, commenced the Flood Study, and successfully achieved the first major milestone (the Alternatives Milestone Meeting) on December 3rd, right on schedule. USACE will provide an overview of the Alternatives Milestone Presentation as part of this update, a copy is included as Attachment A. As an indication of the importance of the Flood Study to USACE, the Chief of Engineers, Lieutenant General (LTG) Todd Semonite, and the Assistant Secretary of the Army for Civil Works (ASA/CW), Mr. R.D. James, visited the Port and met with the study team and the Port's Executive Director.

PLANNING AND ENGINEERING

- *Existing Conditions Database and GIS:* CH2M/Arcadis continued to develop the Program database and GIS repository of existing and new data. Completion is expected in the spring of 2019.
- *Geotechnical Investigation:* CH2M/Arcadis and their sub-consultant, Fugro, completed field work for the geotechnical investigation on time at the end of November 2018. Over 100 locations were explored using a mix of techniques ranging from specialized sonic borings to simple and inexpensive CPT probes. The investigation techniques were refined using a pilot program, and final locations and mix of techniques were selected through consultation with the Seismic Peer Review Panel. Borings went as deep as 300 feet, through fill, bay mud, and into the underlying rock. Lab work is underway and preliminary results are expected in late

January. This work is extremely important for advancing the earthquake assessment, developing and estimating cost of alternatives, selecting the overall program, and advancing preliminary design of initial projects. This investment in subsurface information will also be useful for other Port and City efforts beyond the Seawall Program.

- *Bathymetric Survey and Laser Scanning:* Bathymetry is a term for a topographic survey of the Bay floor and this information is needed for both the detailed earthquake assessment and for adding wave components to the flood hazard assessment. Last quarter, the team completed field survey work for the entire Seawall area and began the process of interpreting data and developing survey maps. The maps are now complete and are being used by CH2M/Arcadis to advance analysis. The information is also being used by the Port Maritime Division for navigation and berthing.
- *Coordination with Owners/Operators of Co-dependent Infrastructure and Assets:* Good progress has been made to identify and characterize co-dependent infrastructure and assets in the Seawall zone of influence. The team is now advancing the methodology for assessing earthquake and flood damages and consequences of those assets and systems. We continue to receive good cooperation from agencies including SFPUC Wastewater Enterprise, SFPUC Water Enterprise, SFPUC Power Enterprise, SFMTA, SFPW, BART, PG&E, and AT&T, WETA and Golden Gate Ferry.
- *Multi-Hazard Risk Assessment (MHRA):* The MHRA is the major effort to characterize earthquake and flood risks associated with the Seawall and measure the economic, societal, and environmental consequences of those risks. The MHRA includes advanced earthquake and flood risk assessments beyond the prior screening level studies and will measure consequences of estimated earthquake and flood damages in categories of importance for decision making. Work this period includes:
 - Advancing the overall methodology and toolkit including:
 - Refining the Strengthen, Adapt, and Envision framework for assisting with decision making as risks change over time;
 - Refining the risk metrics to be used in decision making;
 - Advancing development of a GIS based tool to help visualize risk metrics.
 - Advancing the earthquake assessment including:
 - Beginning the generation of site specific earthquake ground motions;
 - Refining the number and location of seawall sections to be used in detailed soil/structure analysis;
 - Advancing and refining the structural modeling techniques that will be used to create custom fragility curves of piers, wharves, and other unique Port structure types;
 - Meeting with the Seismic Peer Review Panel and modifying approaches based on peer review comments.

- Advancing the flood risk assessment including:
 - Meeting with USACE to determine acceptable techniques for modeling waves and wave damages;
 - Working with the City Sea Level Rise Committee on the approach to incorporate the recently updated CA state guidance for sea level rise.
- Economic Assessment
 - Advancing the methodology to assess direct, indirect, and induced damages from both earthquake and flood events;
 - Refining the inventory of structures and assets in the hazard zone including coordinating with the Citywide SLR effort and coordinating with USACE economics team leading the GI effort;
 - Updating the replacement cost of Port structures and buildings, particularly the historic pier and wharf structures.
- Land Use Planning and Regulatory Assessment
 - Advanced the overall assessment methodology;
 - Formed a Resource Agency Working Group (RAWG) consisting of agencies that will likely have permit and/or regulatory authority over projects and held the first regular meeting on October 3, 2018, to provide an overview and begin the dialog on agency concerns and considerations.
 - Continued to coordinate with the Port's Waterfront Land Use Plan Update.
- Urban Design Assessment
 - Advanced the overall assessment methodology;
 - Completed a public life survey and draft report.
- Disaster Response and Recovery Assessment
 - Completed the asset database;
 - Advanced the assessment methodology.
- Environmental Conditions and Opportunities Assessment
 - Advanced the overall assessment approach and methodology.

STAKEHOLDER AND COMMUNITY ENGAGEMENT

- *Seawall Community Meetings:* Port staff hosted Community Meeting #2 in September at the Exploratorium with over 130 people in attendance. Building on Community Meeting #1 in June, this meeting included presentations on the Seawall Program, the flood and seismic hazards, and the assets and services along the waterfront. After the presentations, attendees broke out into ten staffed tables and participated in an interactive mapping game where they were asked three questions: What do you love most about the waterfront? What assets are most important to the City? If disaster strikes, what is of most concern?

Port staff hosted Community Meeting #3 on January 31st at SPUR. Building on Community Meeting #2, this meeting included an overview of prior meetings, introduction of the Port's work with USACE on the Flood Study of the Port's

waterfront, a presentation on draft goals for the Strengthen, Adapt and Envision phases of the Seawall Program and an exercise to elicit public feedback on those goals by having people apply the goals at tables where the focus was either Strengthening the Seawall to protect life safety and emergency response or Adapting to protect and preserve the existing waterfront or Envisioning a new waterfront that will be resilient to water levels beyond 2100. More than 90 people attended.

There are three more Embarcadero Seawall Community meetings that will be held in 2019 and will build upon input on the goals from the second meeting and begin to explore criteria and alternative development.

Additionally, Port staff will begin engagement in two other geographies – Islais Creek and Mission Creek – to support the USACE Flood Study. The first meeting focused on Islais Creek will be held in early March and will introduce the Flood Study and ask participants for their input on community priorities and concerns. The first meeting focused on Mission Creek will also happen later in March.

- *Community Presentation Roadshows:* Port staff continued to provide roadshow presentations at neighborhood and community group meetings across the city, bringing the total to over 100 presentations for the year, including 12 in-language presentations in Chinese, Spanish, and Filipino. Roadshow presentations will continue through 2019.
- *Seawall Walking Tours:* Port staff continued to host Seawall Walking Tours, bringing the annual total to ten public Seawall Walking Tours and one bike tour in partnership with the Bicycle Coalition. Many of the tours were “sold out.” The Tours include a Sea Level Rise visualization at Pier 14 where markers indicate various levels of Sea Level Rise through the end of the century. Seawall Walking Tours are planned in 2019.
- *Community Event Outreach:* The Seawall Program continued to be present at community events across the city, for a total of 65 events in 2018 where team members engaged over 13,000 people in conversation. All events includes multilingual outreach and printed material in English, Chinese, Vietnamese, Filipino, and Spanish. Community outreach included successful collaborations with the California Academy of Sciences, the Exploratorium, Sunday Streets, Neighborfest, and other strategic partnerships. Many of these successful collaborations will continue in 2019.
- *Online Engagement:* Port staff continued to provide Seawall-related social media on Facebook, Twitter, Instagram, and Snapchat, for a total of approximately 1 million online impressions in the year. The Program website (sfseawall.com) continues to host up-to-date Program information. Over the past year, the website has received over 27,000 views from more than 15,000 visitors. Port staff sent issue #9 of the

eNewsletter to a listserv of nearly 3,000 people. Seawall website updates, social media, and eNewsletters will continue in 2019.

- *Media Engagement:* There have been approximately 100 stories to date that include the Seawall. Port staff partnered with City partners to write and place three op-eds, including an op-ed for Labor Day written by Vice President of the Port Commission and President of ILWU Willie Adams and Executive Director of the San Francisco Labor Council Rudy Gonzalez. Targeted media outreach and press events will continue in 2019.
- *Innovative Outreach:* A key component of the overall Community Engagement Strategy continues to be engaging a multi-generational, cross-section of residents who are less likely to be engaged through traditional outreach and engagement channels. Strategies include social media, collaboration with mapping apps, maker's partnerships, art installations, and collaboration with science museums. Work this past quarter included:
 - "Makers" Partnerships: The Port collaborated with Black Hammer Brewing for a Seawall's Sea Puppy Beer and with Ritual Coffee Roaster on a Seawall Stroll espresso blend. These "makers" partnerships were featured in the Chronicle and other local outlets.
 - Twitter Chats: The Port coordinated two "chats" with major transportation agencies including BART, Muni, and Ferry providers as well as Port tenants including AT&T Park, the Exploratorium, and Fisherman's Wharf. Combined, the two chats had over 30K impressions on the Port's account alone.
 - Earthquake and Flood Simulation Video: Port staff managed the creation of a video that simulates the seismic and flood risks to the waterfront. The video received over 30,000 impressions in less than a month.
 - Messenger Videos: The Port staff created eight Seawall messenger videos with key leaders, including Port Director Elaine Forbes, Port Commission President Kimberly Brandon and Commissioner Doreen Woo Ho. Videos have been shared by the Mayor, key City Departments, San Francisco small businesses, and local press.

Unique, fun, and innovative Seawall outreach will continue in 2019.

LEGISLATIVE AND FINANCE

- *General Obligation Bond Measure:* This is the primary local funding strategy. On November 6, 2018, San Francisco voters overwhelmingly passed Local Measure A, the \$425M Embarcadero Seawall Earthquake Safety Bond Measure. The final vote count was 82.7% yes, well above the 2/3 required to pass. Staff is targeting the first bond sale to be completed on or before June of 2019.
- *Infrastructure Finance District (IFD) Tax Increment:* Port IFD continues to be a promising local funding strategy for the Program. Port IFD can capture tax

increment from improved facilities within approved sub-project areas. The Teatro ZinZanni project will be the first local sub-project area dedicated to the Seawall. Timing and amount of potential funding is being currently being evaluated.

- *Community Facilities District (CFD):* The Seawall Finance Working Group met this period to refresh this previously recommended local funding concept and a decision was made to advance development of this strategy.
- *State Assembly Bill 2578, Infrastructure Financing Districts, City and County of San Francisco:* As previously reported, this bill would allow the Port to capture the State's share of tax increment for Seawall Improvements. AB 2578 was adopted unanimously by the California Assembly in May 2018; however, it was stopped on suspense in the Senate. Staff is planning to meet with the Seawall Finance Working Group and the Controller to evaluate options for State funding for the Seawall Program.
- *State Budget Request:* The Port requested \$50M for the Seawall in the 2018 State Budget. The Governor responded with a \$5 million appropriation through the CA Natural Resources Agency. The Port Commission authorized staff to enter into the grant agreement its meeting on October 23, 2018 (Resolution No. 18-56). Staff is currently analyzing the viability of a 2019 budget request.
- *State Cap & Trade:* Staff is developing a strategy to pursue programing of these funds specifically for adaptation projects.
- *USACE San Francisco Waterfront Storm Risk Management Study (Flood Study):* The award of a New Start in June of 2018 was a big success for the Program. The Port has been pursuing a USACE GI since 2012 and it was the primary federal funding strategy recommended by the Finance Working Group. The award of a New Start in June represents a big success; however, this is only for the Study phase. Staff is currently working on strategies to include seismic benefits as part of any project, as well as strategies for the next steps, authorization of projects and appropriating funds for design and construction.

The next information update to the Port Commission on the Seawall Earthquake Safety Program is tentatively scheduled for April 10, 2019.

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For: Elaine Forbes,
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Attachment A: USACE Flood Study Alternatives Milestone Presentation