



March 26, 2024

U.S. Army Corps of Engineers
Tulsa District ATTN: RPEC-SFWS
2488 E 81st St., Tulsa, OK 74137

Re: Comment Letter on the Draft San Francisco Waterfront Coastal Flood Study

Dear U.S. Army Corps of Engineers and the City & County of San Francisco,

Thank you for the opportunity to provide feedback on the Draft San Francisco Waterfront Coastal Flood Study (Draft Flood Study). We commend the Port and the USACE on the community engagement efforts that informed this Draft Flood Study and on the continued commitment to community engagement and outreach as part of the public comment process.

The U.S. Army Corps of Engineers and the Port of San Francisco's commitments and proposed adaptation strategies, as part of the Draft Flood Study, will lead the way for regional and statewide efforts on sea level rise adaptation over the next 50 to 100 years. For this reason, the selected plan must be innovative and holistic while remaining realistic and cost-effective. We are pleased to see that the Tentatively Selected Plan (TSP) addresses sea level rise (SLR), inland flood risk, and earthquake risk and that the Draft Flood Study acknowledges additional risks posed by contaminated sites and groundwater rise. In the updated Flood Study, TSP, and future waterfront planning, we encourage you to incorporate our recommendations outlined below.

1. **In the TSP Initial Actions, we recommend elevating Bay and Creek shorelines along Reaches 3 and 4 to defend against 3.5 feet of SLR.** The TSP Initial Actions include elevating the shoreline to defend against 1.5 feet of SLR along Reach 3 (Mission Creek/Mission Bay) and 4 (Islais Creek/Bayview), elevating the shoreline to defend against 3.5 feet of SLR along Reach 2 (The Embarcadero), and floodproofing buildings along Reach 1 (Fisherman's Wharf). According to the [Ocean Protection Council 2024 Draft SLR Guidance](#), San Francisco could experience between 1.1 and 2 feet of sea level rise by 2060 under "Intermediate" to "High" sea level rise projections and 3.1 feet to 6.5 feet by 2100.¹ With construction proposed from 2030-2040, completed shoreline elevation projects defending against 1.5 feet of SLR will only be functional for about 15 years before further construction may be required. Furthermore, the proposed construction start year of 2030 and the planned 10-year construction period (2030 to 2040) are unrealistic timelines for initial adaptation actions. Realistic timelines for project implementation may mean that shoreline elevation efforts defending against 1.5 feet are functional for less than a decade before further work is required. Defending against 3.5 feet of SLR across Reaches 3 and 4

¹ "DRAFT: State of California Sea Level Rise Guidance: 2024 Science and Policy Update." 2024. Page 94. California Ocean Protection Council.
https://opc.ca.gov/wp-content/uploads/2024/01/SLR-Guidance-DRAFT-Jan-2024-508.pdf?utm_medium=email&utm_source=govdelivery.

could protect the city until about 2100. By building higher initially, the TSP could save money and reduce disruptions to businesses and residents over the next 70 years (a referenced refinement opportunity for the TSP, page 92). The TSP budget already includes “subsequent actions” to raise the shoreline along Reach 3 and 4 to defend against 3.5 feet of SLR.

2. **The TSP should include initial and subsequent actions for addressing groundwater rise and protecting water quality where stormwater/groundwater pumping is required.**

We are glad to see that groundwater rise was considered in the Draft Flood Study through a groundwater assessment (Appendix B), however, there are no specific actions outlined in the TSP to address groundwater rise risks. As sea levels rise, stormwater and groundwater pumping will become increasingly necessary to avoid inland flooding. We recommend that updated or expanded groundwater and stormwater pumping systems are designed to limit the release of untreated overflows into the Bay. Stormwater remains a significant source of Bay pollution, and cities must comply with the Clean Water Act to eliminate contaminants. San Francisco’s combined sewer system output is largely treated to regulatory compliance standards, but if not expanded to manage future flood risks, polluted outflows are likely to be more common.

3. **Provide clear justification for the need for bay fill and minimize the use of bay fill when possible.**

The TSP includes the use of eight acres of bay fill to support seawall construction, with significant bay fill planned for Reach 2 to protect existing transit infrastructure (page ES-14). The use of bay fill is also mentioned in Independent Measure 2A, Robust Coastal Defense of Ferry Buildings and Agricultural Building, and Measure 2B, Course Beach at Rincon Park. The Draft Flood Study acknowledges that the use of bay fill can result in habitat loss (page ES-11) and has an uncertain impact on coastal hydrology (Table 4-3). For any use of bay fill that is pursued, we would like to see a thorough and compelling evaluation of the impacts and justification for why bay fill is preferable to non-bay fill alternatives.

4. **Continue USACE and the City’s commitment to implementing nature-based solutions where feasible along the waterfront, especially along Reaches 3 and 4.**

As the Draft Study notes, nature-based solutions (NBS) and green infrastructure, such as green stormwater infrastructure, living seawalls, berms, creek enhancements, and restored wetlands, can improve local water quality, minimize flooding, increase shoreline resiliency, mitigate urban heat, create habitat, and improve air quality (Appendix I. Engineering with Nature). We commend the Draft Flood Study’s commitment to NBS. As the plan develops, we recommend continued consideration and integration of multi-benefit NBS, especially solutions that address overlapping community vulnerabilities (e.g. exposure to flooding and pollution), in the design and planning of waterfront improvements in Reach 3 and 4. In the long term, when a “retreat” strategy is implemented or required, we recommend that land

be restored to wetlands where possible.

- Regarding the Flood Study and future SF waterfront planning: Protect residents and the Bay ecosystem from contaminants mobilized by coastal flood inundation of shoreline contaminated sites by presenting a clear strategy for 1.) partnering with community-based organizations, 2.) prioritizing sites for research and mitigation, and 3.) funding necessary actions.** The Draft Flood Study identifies 61 sites with hazardous substances that are already impacting soil and groundwater within the project's footprint. Sixteen of these sites will be impacted by construction activities and an additional 34 Leaking Underground Storage Tank Sites may require special management (page 27). We commend the City's intention to explore options to address contaminated sites in the project area and learn more about human and ecosystem health risks, and mitigation options (page 185). However, we would like to see total project costs reflect the need for additional studies and management of contamination within the project area. We would also like to see a list of available funding sources that the City will pursue to address contaminated sites. USACE and the Port should work with community leaders to identify high-priority sites for mitigation action. Contaminants of concern found on these sites (Appendix D-1-6: Hazardous, Toxic, and Radioactive Waste, map on pages 7-14) include arsenic, asbestos, volatile organic compounds (TCE, PCE, etc.), and polychlorinated biphenyls (PCBs). Exposure to these contaminants could negatively impact the health of the San Francisco Bay and residents living and working near these sites in the event of flood inundation by stormwater, groundwater, or seawater. A 2023 report by Dr. Kristina Hill highlights the pathway for VOCs to be mobilized by groundwater and enter homes through sewer pipes.² Contaminated site cleanup activities have not previously incorporated sea level and groundwater rise risks. To address this, DTSC released [draft Sea Level Rise Guidance](#) on contaminated site cleanup.³ At the time of this letter's submission, DTSC's guidance has not yet been finalized.

Thank you for your consideration of our comments and for your work putting together this exhaustive Draft Flood Study. Should you have any questions, please do not hesitate to reach out to the below representatives from SPUR, Save the Bay, and Greenbelt Alliance.

Sincerely,

Sarah Atkinson
Hazard Resilience Sr. Policy Manager

² Hill, Kristina, Daniella Hirschfeld, Caroline Stanhope Lindquist, Forest Cook, and Scott Warner. 2023. "Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure." Preprint. Preprints. doi:10.22541/essoar.168500245.55690018/v1.
Roghani, Mohammadyousef, Ying Li, Nader Rezaei, Ariel Robinson, Elham Shirazi, and Kelly G. Pennell. 2021. "Modeling Fate and Transport of Volatile Organic Compounds (VOCs) Inside Sewer Systems." *Groundwater Monitoring & Remediation* 41 (2): 112–21. doi:10.1111/gwmmr.12449.

³ "Draft Sea Level Rise Guidance to DTSC Project Managers for Cleanup Activities." 2023. Department of Toxic Substances Control.
<https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/02/DTSC-SLR-GUIDANCE-February-2023.pdf>.



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