

[Draft Waterfront Adaptation Strategies](#)

Frequently
Asked
Questions

What are Draft Adaptation Strategies?

Adaptation Strategies are different ways for the City to create a resilient, sustainable, and equitable waterfront for the next 100 years. They are a combination of construction projects and policy changes that will guide decisions about:

- Where, when, and how high to build flood defenses
- How and when to adapt key buildings and infrastructure to ensure continued operations of City services
- How to incorporate nature-based and ecological features
- And recommendations for policy changes that will reduce risk to public and private lands, preserve housing and jobs, and create recreational opportunities, waterfront access, and improved Bay habitat

There is no single approach to adaptation that will meet the needs of San Francisco along the entire waterfront. The different risks, topography, and historic development of the waterfront means that we will need to use a combination of approaches.

Who was involved in developing them?

The development of Draft Strategies reflects five-plus years of citywide community engagement that has connected with tens of thousands of San Franciscans on what a resilient, sustainable, equitable waterfront means to them. You can read more about community feedback [here](#).


A citywide survey conducted in Summer of 2022 with nearly 1,000 responses and over 3,000 comments recorded showed an openness to exploring the many types of adaptation approaches (including more transformative options) and a desire to explore where each would work best along San Francisco's shoreline. Additional feedback included the importance of preserving and expanding the connection between the city and the waterfront, and planning with a focus on the feasibility, cost, and disruption impacts of the draft strategies.

What is and isn't decided through the process of arriving at a Draft Waterfront Adaptation Plan?

The Draft Waterfront Adaptation Strategies are options to be evaluated that reduce flood and seismic risk along the waterfront. The Draft Strategies show a wide range of possibilities, with different impacts and benefits. We will choose the best ideas from all of them to create a Draft Waterfront Adaptation Plan (Tentatively Selected Plan or Draft Plan) by summer 2023.

What are engagement opportunities for the public to weigh in?

The Port is committed to robust engagement around the draft Adaptation Strategies. Draft Waterfront Adaptation Strategies are ready for public engagement now and the Port will be gathering feedback on these now through early 2023. The Port will host a range of engagement opportunities for opportunities for public



engagement on the Draft Strategies, including community meetings, walking tours, open houses, focus groups, and a digital engagement tool.

What are the costs associated with each strategy?

All of these strategies will cost tens of billions of dollars. The U.S. Army Corps of Engineers will prepare cost estimates as part of a next phase of the project. These cost estimates will help make decisions about which strategies to pursue in which areas.

How will the Embarcadero Piers be adapted to sea level rise?

The Port is in the process of studying different approaches to adapting the piers to sea level rise over time, in an effort to balance their integrity as historic resources, their economic and functional utility, and their useful lifespan. These studies will consider pier adaptation in relation to the adaptation strategies presented here, and will be the subject of future public engagement.

What is the Port's approach to equity?

Sea Level Rise impacts will have a disproportionate impact on historically marginalized neighborhoods. For example, an SF Planning Department study found that by 2050, census tracts impacted by sea level rise have 12.7% African American residents as opposed to 5.2% for the city as a whole. (That is, black residents are significantly overrepresented in areas vulnerable to mid-century sea level rise.)

The effects of climate change and sea level rise will not be felt by all people equally. Even in cases where flooding is comparable, existing social and economic conditions, as well as potential contamination burdens, will influence how severe the disruption will be across households.


The WRP is developing a Racial and Social Equity Assessment that serves as the starting point in support of the Port's 2020 Racial Equity Action Plan (REAP). An evaluation framework was developed for measuring equity outcomes in internal and external-facing equity strategies. For example, the framework seeks to ensure Draft Strategies developed create opportunities for San Francisco's Equity Priority Communities to benefit directly, both through job opportunities and post construction conditions.

What are the job opportunities that will be made available for local people?

Construction of Embarcadero Early Projects and Southern Waterfront Projects will create job opportunities for many residents with opportunities estimated to begin in 2024. Port partners are working with trade unions, their respective apprenticeship programs, the Office of Economic and Workforce Development (City Build), community-based organizations, training providers and educational institutions to connect San Francisco youth and adults with work readiness, apprenticeship, job training, and employment. There will be a range of opportunity across the 26 Building Trades as well as career opportunities in facility operations.

How will the Waterfront Resilience Program support local small businesses?

The Waterfront Resilience Program will create professional services as well as construction opportunities for local businesses. Services include design and engineering (civil, electrical, and mechanical) support and project management, and in construction areas such as roadway work, signage, fencing, site clean-up and waste management, excavation, hauling and disposal, concrete work, demolition, carpentry, and trucking. The Port is committed to supporting local businesses which boost new employment opportunities and serve our communities.



What is the City doing to address sea level rise in areas outside of the Port's jurisdiction?

While the Port's jurisdiction encompasses 7.5 miles of shoreline from Heron's Head Park to Fisherman's Wharf, the City of San Francisco is working on advancing resilience planning and developing projects across the City's entire shoreline:

- Approved development projects such as the Candlestick Point/Hunters Point Shipyard and the India Basin mixed-use development incorporate sea level rise adaptation.
- In Candlestick Point/Hunters Point Shipyard, the approved development plans incorporate sea level rise adaptation.
- Other public projects such as the Ocean Beach Climate Change Adaptation Project (led by SFPUC) and 900 Innes/India Basin Shoreline Park (led by RPD) are also adapting portions of the City's shoreline to sea level rise and other climate hazards.

What is being done in the Southern Waterfront about flooding and contamination containment?

A recent San Francisco Civil Grand Jury report investigated the impact of sea level rise and ground water levels in Hunter's Point Shipyard. The City has been aware of issues related to the clean-up of the former base as a condition for development for several decades. The City is carefully considering the recommendations from the report, including looking at the entire future hydrological cycle, Bay/sea level rise and coastal flooding, future extreme precipitation, and groundwater rise. This includes seeking funding for additional studies such as analysis of known contaminated sites and the potential for rising groundwater to mobilize contaminants.


Why is the "retreat" approach (over-time moving some buildings and infrastructure out of the highest risk areas) suggested in the Southern Waterfront but not along the Embarcadero?

The geographic conditions of the Southern Waterfront, primarily the presence of creeks, requires that we manage the combined stormwater and coastal flood water differently than along the Embarcadero waterfront. Unlike Downtown, the low-lying filled areas around Islais Creek / Bayview and Mission Creek / Mission Bay are the first to flood, are more susceptible to settlement, are seismically unstable, and contain contaminants that may migrate when flooded. The Embarcadero has a higher density of buildings and infrastructure and is built right up to the waterfront edge. Additionally, very large, buried infrastructure, like rail lines and sewer infrastructure, is located in the Embarcadero, which would be very costly to relocate. Managed "retreat" over many decades in the southern waterfront gives us time to gradually adapt the shorelines and align with the natural watersheds to enable a more natural, passive (e.g. fewer pumps and walls) and resilient approach to flood risk.

How can buildings and infrastructure be adapted to allow water in (called "accommodation")?

"Accommodation" of water could mean many different things. Some examples are floodproofing or elevating buildings or raising the ground floor of buildings. Sensitive equipment can be located on roofs instead of basements. Floodwalls can be added to the perimeter of properties or buildings. Backups can be created for infrastructure and services (power, sewer, transportation) that will be periodically affected by flooding. Early warning and communication systems can be used to alert people to flooding. Deployable barriers can be implemented as storms, waves, or high tides approach.

If buildings are adequately adapted, they would not require displacement. Because they would be in a designated flood zone, they would likely be required to carry flood insurance, and may have access and other



building challenges. Surrounding infrastructure such as roads and utilities would also have to be adapted to serve the buildings.

How will the Port address concerns about bay fill and bay ecology?

Bay Area policies about filling the Bay date from the mid-20th century when the Bay was being filled rapidly to make new land, without regard to the environmental consequences. Since 1965, stringent policies limit filling the Bay to protect this important environment. The Port has convened a Resource and Regulatory Agency Working Group to gain input and understand regulatory constraints and opportunities.

Today, sea level rise presents new challenges as rising water levels expand the Bay and create flood risk. It may be necessary or preferable to do some bay fill in limited areas to address that risk. It remains to be seen how policies governing these activities may shift in this new context.

With respect to the Bay's ecology, the Port is developing principles for engineering with nature, and has convened an Engineering with Nature Working Group made up of local, regional, national, and international experts. Nature-based features will be incorporated into the Draft Waterfront Adaptation Plan wherever possible.

