



Sea Level Rise Development Standards in Burlingame



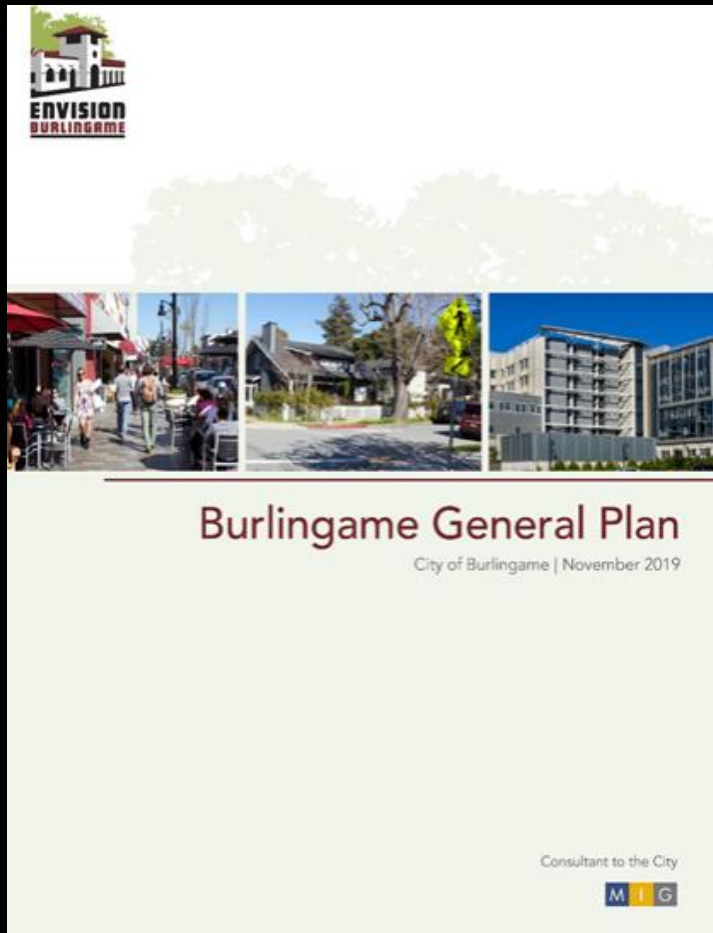
21 Directors Meeting
December 15, 2022

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Burlingame General Plan Update

Adopted 2019



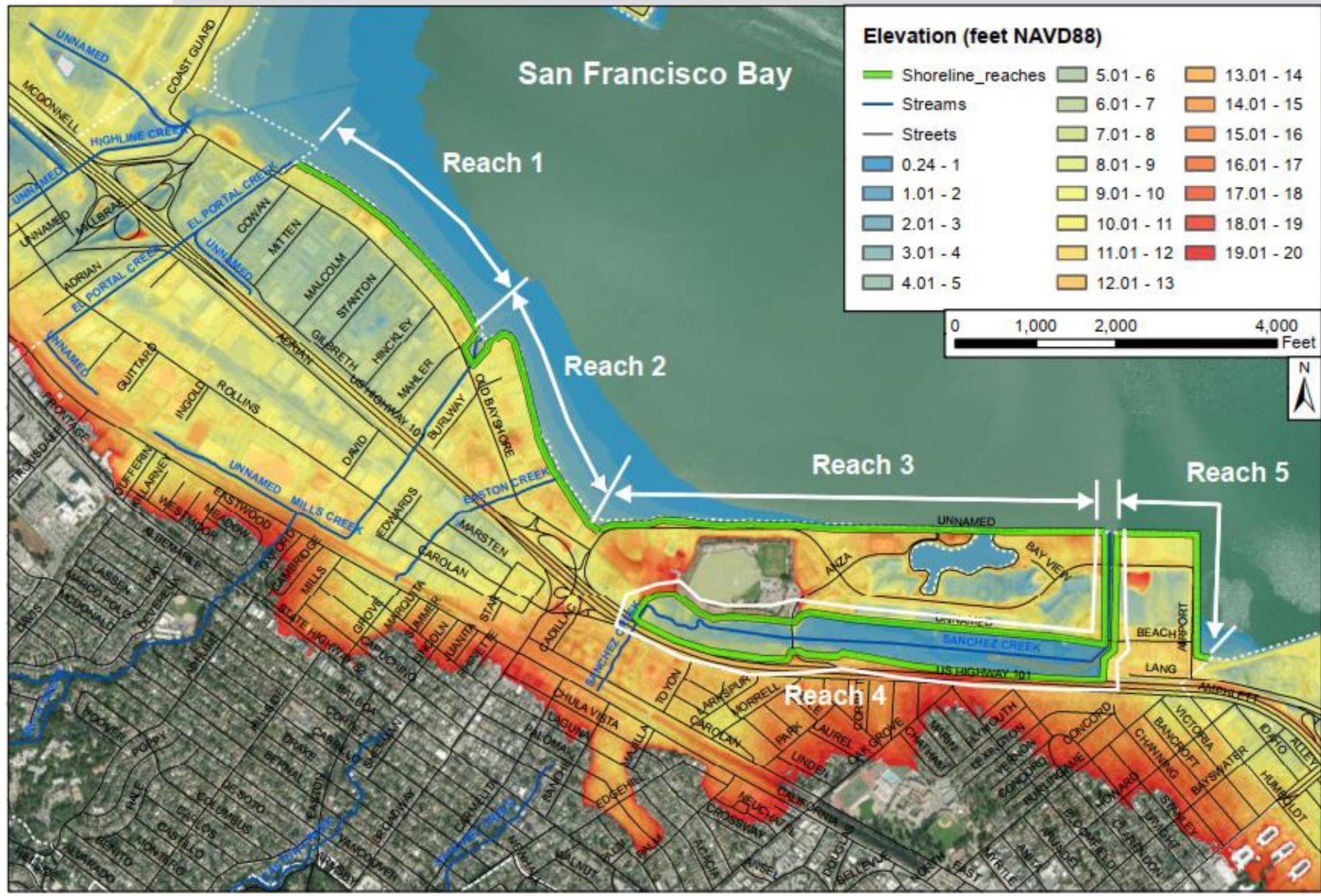
IV. COMMUNITY CHARACTER

Sea Level Rise Approaches that communities typically consider: Protect, Accommodate, Retreat, Hybrid, and/or Adaptation. In Burlingame there may be limitations on some approaches, given current and future land uses along the shoreline, and the engineered nature of the land and shoreline.

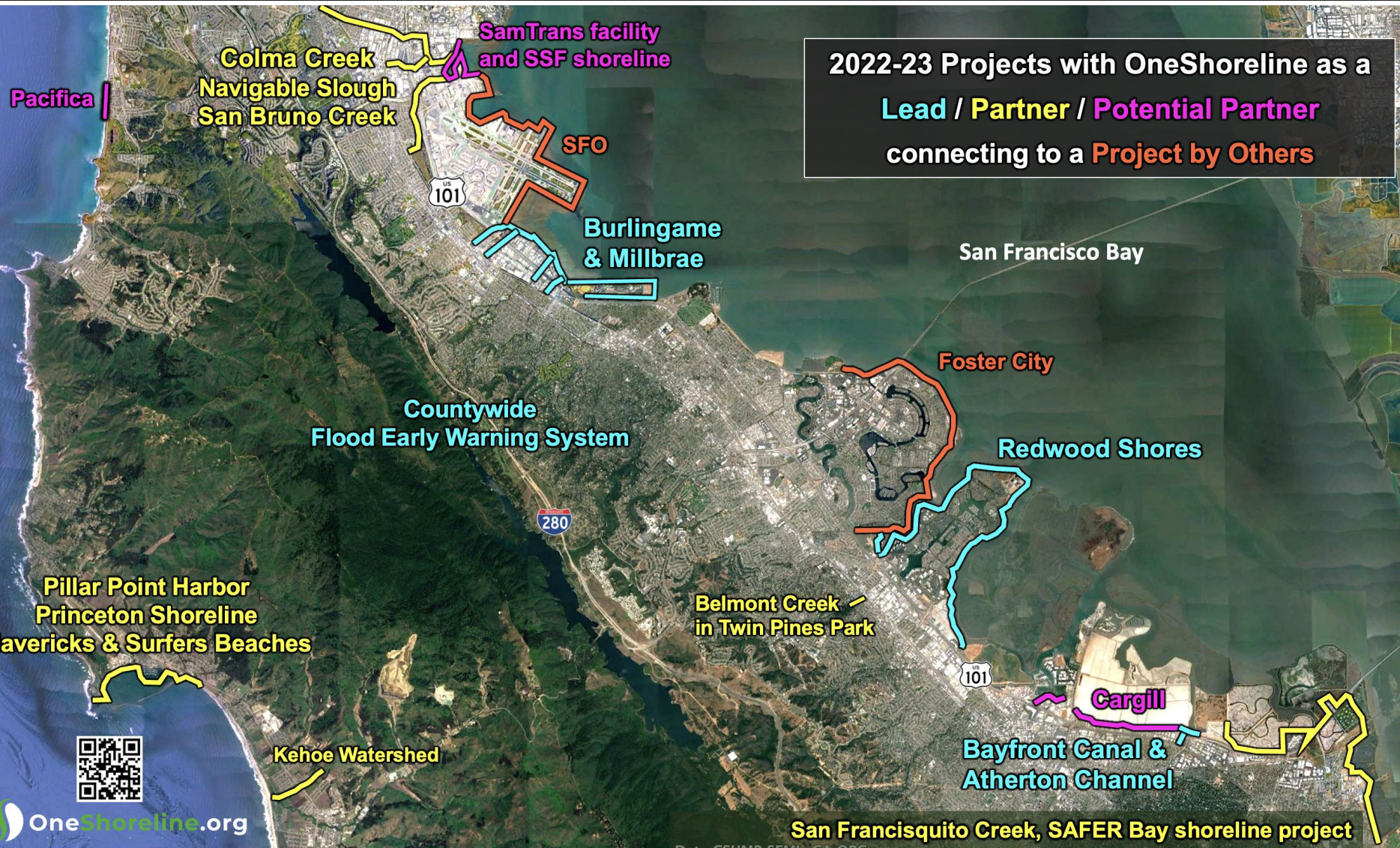
FOUR WAYS TO GUARD AGAINST SEA LEVEL RISE

- 1. RETREAT FROM SHORELINE**
The simplest response, abandoning land that is at risk, is also the rarest. Communities encourage and protect coastal properties "so they can get tax revenue to pay for services and even adaptation strategies," said Jessica Gramis, a sea level policy expert at Georgetown University Law Center in Washington. The best and cheapest time to adopt this strategy is after a disaster — not rebuilding after floods in some areas. But planning for these decisions should be made prior to such disasters.
- 2. FLOOD-PROOF STRUCTURES**
Engineers typically do this by raising occupied floors above flood level or trucking in dirt to raise the land before starting to build. A 2014 study of the Gulf Coast by researchers at The Nature Conservancy and academic researchers concluded that elevating structures was among the least cost-effective solutions, ranking behind seawalls, natural barriers and simple sandbags. But it is the most popular solution around San Francisco Bay.
- 3. BUILD LEVEES**
Dirt, rock and concrete can be effective barriers. Most of the urban parts of the bay and the Sacramento-San Joaquin River Delta are already protected by a patchwork of levees. San Mateo and Santa Clara counties are both studying what it will cost to make their levees stronger. But levees, and their more compact cousins seawalls, are expensive and can fail. Officials at the Port of San Francisco say \$5 billion in retrofits is needed along the four-mile Embarcadero to keep some 700 acres of high-value property above the water line through 2100.
- 4. RESTORE NATURE**
Natural habitats such as marshes, sandbars and creek beds absorb the energy of storms, mitigating risk from sea level rise. Past development has tended to erase or bury these features, but recent restoration projects are changing that. A 2013 study by the Bay Institute, a San Francisco-based nonprofit group, showed that restoring a 200-foot-wide strip of marsh around the bay would cut the cost of protection in half — mainly by allowing engineers to build smaller, less expensive levees. A rising bay will eventually put many marshes at risk of inundation, though some shoreline ecosystems are designed to grow vertically as seas rise.

Source: Walked Bird and Emily Underwood, San Francisco Public Press



OneShoreline



OneShoreline





OneShoreline

OneShoreline, cities and SFO:

- Establish common objectives & assumptions
- Share technical information
- Share environmental mitigations
- Share costs
- Utilize public & private lands to meet common objectives

OneShoreline's protection objective:

FEMA 100-year + 6' SLR which equals 10' above today's high tide

San Francisco
International Airport



Zoning Ordinance Update

New public and private infrastructure and development:

- Should be **set back from shorelines and creeks** to accommodate protection infrastructure, including nature-based protection and waterfront public trails
- Should be planned to incorporate **protection infrastructure** – variations can be made as long as the protection, ecosystem, and trail objectives can be met
- Should **plan for and build protection infrastructure now**, rather than be retrofit for it later
- Should be **elevated above current FEMA floodplain**

Zoning Ordinance Update

Section 25.12.050 – Public Access, Flood and Sea Level Rise Performance Guidelines

Bayfront Commercial District

- Bay Access
- Creek Access
- Flood Protection & Sea Level Rise Resilience

Bay Access

- 100-foot “shoreline band”
- Public access based on BCDC public access guidelines
- Bay Trail connections and improvements
- Maintenance and access in perpetuity



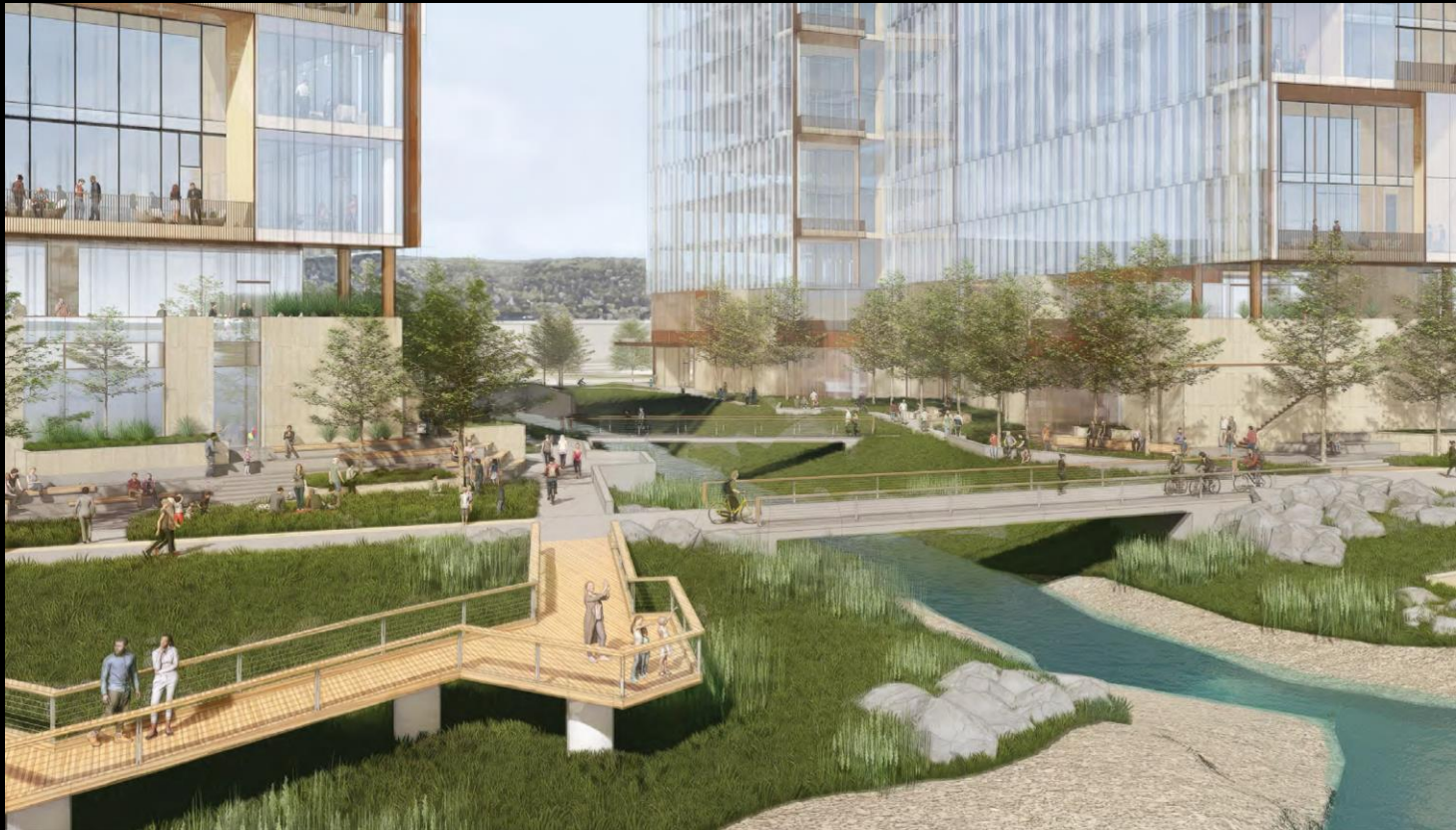
Creek Access

- 35-foot buffer zones
- Public access trail on top of bank



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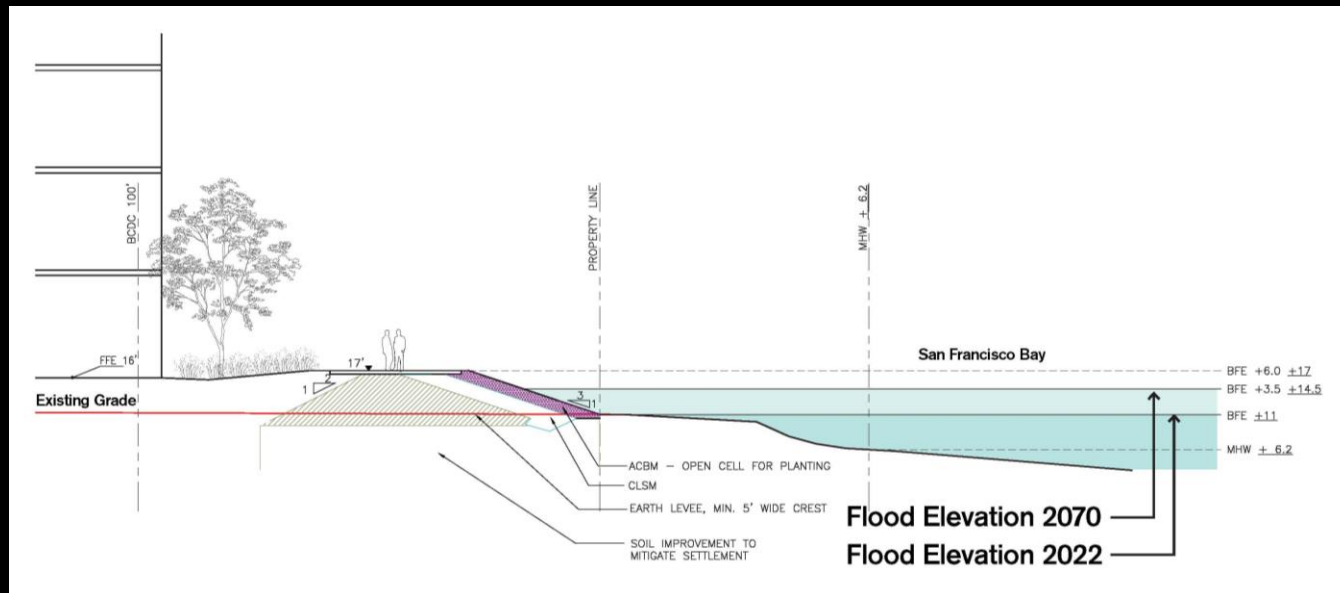


Flood Protection and Sea Level Rise Resilience



Flood Protection and Sea Level Rise Resilience

- New construction on waterfront properties should include shoreline infrastructure with trail to protect against future water levels
- Minimum first floor elevations of new buildings are 3 feet above FEMA's base flood elevation at the building site (currently floor elevation would be 13 feet)



Design Principles for the Bayfront Commercial District

- View corridors
- Bay Trail
- Public access
- Pedestrian amenities
- Ground floor transparency
- Building articulation
- Streetscape design
- Parking locations and design
- Bird-friendly design



What building long-term resilience looks like:

The shoreline of Burlingame has brought together three key ingredients to enable progress:

- Regulations and guidelines for long-term adaptation planning
- Opportunities for major new developments along the water to contribute to adaptation solutions
- A regional project to analyze and guide those solutions



Thank You

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