

# San Francisco Bay Conservation and Development Commission

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**TO:** Engineering Criteria Review Board Members

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**SUBJECT: Applying Sea Level Rise Science to San Francisco Bay Fill Projects and Consideration of Levee and Floodwall Safety**  
(For Engineering Criteria Review Board consideration August 21, 2024)

## Project Summary

### Project Representative

Jenn Hyman, Senior Engineer

### Topic Background - Applying Sea Level Rise Science to San Francisco Bay Fill Projects

In June 2024, the Ocean Protection Council published the State of California Sea Level Rise Guidance: 2024 Science & Policy Update. BCDP policies require that major projects in the Bay be designed to take sea level rise, land settlement and waves into account. BCDP staff will present the latest sea level rise science to the ECRB and generate a discussion of what may constitute the “best available science” for design applications.

### Topic Background - Consideration of Levee and Floodwall Safety

Coastal flood control structures generally fall into two types: floodwalls and levees. Levees and floodwalls are being proposed around the Bay that will be expected to contain water as much as 5 feet higher than today at the year 2100 and could be part of a large coastal flood control system. The safety of a flood control system is only as good as its weakest element. The safety of levees and floodwalls during the later part of their lifespan when water levels are highest is therefore critically important for all segments. Floodwall and levee safety will depend on the quality of the construction, inspections, and maintenance of the floodwalls and levees.

The ECRB is charged with reviewing the design criteria of proposed Bay fill for major flood control projects to confirm the safety of the proposed fill and structures thereon. The ECRB may also examine and require submittals on construction and maintenance. Therefore, staff request input from the ECRB on requirements that can maximize project safety during the full life of a floodwall or levee. Staff will present floodwall and levee safety requirements from FEMA and USACE and also present lessons learned from Hurricane Katrina.

## Board Questions

Staff has the following specific questions for the Board’s consideration of applying sea level rise science to San Francisco Bay fill project design:



1. Which approach to selecting sea level rise projections for the Bay is appropriate?
2. Which approaches to taking vertical land motion into account are appropriate?
3. Which sources of extreme tidal datums are appropriate? Do they adequately account for storm surge?
4. How should wind-waves be taken into account?

Staff has the following specific questions for the Board's consideration of levee and floodwall safety:

1. Should the ECRB provide extra scrutiny of the safety of levees and floodwalls in certain projects: i.e. above a certain height, above a certain height of water retained above the internal grade, no compliance with USACE standards, or high criticality of the resource protected?
2. What construction submittals for floodwalls and levees are important to review and have in BCDC files?
3. Should BCDC require an approved maintenance plan or reporting on long-term maintenance?
4. Due to anticipated material corrosion, increase frequency of storms, and rising sea levels, should BCDC have a permit condition requiring future condition assessments and an updated stability study? If so at what frequency?
5. Should a failure scenario(s) be modeled to better understand safety? What scenarios should applicants model?