

FOSTER CITY LEVEE PROTECTION PLANNING AND IMPROVEMENTS PROJECT (CIP 301-657)

Presented to
Foster City Community



Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS



- Project Overview
- Why are we doing the Levee Project?
- FAQ Sheet
- What is Seclusion Mapping?
- Levee Improvement Types
- How high do we need to go?
- Wall Treatments
- Status and Next Steps



- ❑ Levee is Foster City's Most Important Asset
 - ❑ protects city from flooding
 - ❑ access to recreational amenity
- ❑ **FEMA Accreditation**
- ❑ Planning Considerations
 - ❑ Available Space
 - ❑ Environmental Impact and Avoidance
 - ❑ Views and Aesthetics
 - ❑ Construction Impacts
 - ❑ Adaptation to Future Sea Level Rise
 - ❑ Cost and Schedule



“STORY IN A NUTSHELL”

- Foster City's Levee system is primarily designed for flood protection but also serves as a main link in the Bay trail that is used for many recreational purposes.
- FEMA re-studied the hazards in San Francisco Bay in 2014 and will be producing new maps in 2016.
- The 2016 flood mapping projections indicate that approximately 85% of Foster City's levee protection system do not meet FEMA standards for levee accreditation.
- If levee elevations remain unchanged, Foster City will be declared as a high-risk Special Flood Hazard Area (SFHA).
- If the City is determined to be within a high-risk Special Flood Hazard area, all property owners with federally backed loans will be required to purchase annual flood insurance.
- The 2016 maps will show Foster City and San Mateo City inside a “Levee Secluded Area.” Flood hazard determinations and the applicable flood insurance purchase requirements and building requirement will not change from what was in the current map. FEMA will re-study the levees and update the maps based on a new analysis. During this time, mandatory flood insurance will not be required.

What is a levee and how does it work?

A levee is an embankment or a raised ridge designed for flood protection. In Foster City, the levee is the raised trail surrounding the outer perimeter of the City, which separates the City from the Bay. The Foster City levee system also provides recreational uses for the community. Residents enjoy walking, running, biking and skating on the levee pathway.

Why does Foster City need to improve its levee system and why now? What would happen if we did nothing?

Foster City maintains the levee along the Bayfront, surrounding the majority of the outer perimeter of the City. Foster City's Levee system is primarily designed for flood protection. The Federal Emergency Management Agency (FEMA) had previously certified (accredited) Foster City's levee in 2007 as providing protection from the 1-percent annual chance (base) flood. This means that most land within Foster City is classified as Zone X, where mandatory flood insurance is not required. FEMA has recently conducted a coastal flood hazard study which has determined that roughly 85% of Foster City's levee system does not meet FEMA requirements. Therefore, the levee will not retain accreditation status when the Flood Insurance Rate Map is updated in mid-2016. Unless changes are made to the levee system, the entire city will be placed in a flood zone designation that will require that property owners with Federally-backed loans obtain flood insurance and owners selling property in Foster City will be required to disclose the flood zone designation as part of the sale. The estimated cost for flood insurance is several thousand dollars per year per property.

What has been done so far? What is seclusion mapping?

In order to regain accreditation of the levee, the City is currently working on a Levee Improvement Project. In the FY 2015-16 Capital Improvement budget, the City Council approved an initial funding of \$1 million for the Levee Protection Planning and Improvements Project. Included in this project will be the incorporation of design parameters to address future sea level rise. The City has been working closely with FEMA so that the 2016 maps will show Foster City inside a levee seclusion zone, which means that flood insurance will not be mandatory until FEMA remaps the levees.

What project alternatives are being considered?

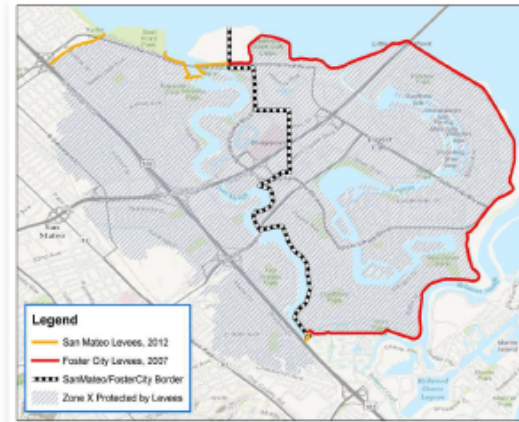
The project alternatives include construction of flood walls, raising the earthen levee, or a combination of the two alternatives.

How much will the project cost?

The estimated project cost is up to \$75 million dollars.

How will the project be funded?

Staff is exploring the formation of an Assessment District to fund the Levee Protection Planning and Improvements Project. An Assessment District is a financing mechanism under state law that allows counties and special districts to designate specific areas as Assessment Districts. With the approval of a majority of the landowners within the specified area, these Districts are enabled to collect special assessments to finance the improvements constructed or acquired by the District. Assessment Districts help each property owner pay a fair share of the costs of such improvements over a period of years at reasonable interest rates and insures that the cost will be spread to all properties that receive direct and special benefit by the improvements constructed.



2015 FEMA Flood Map

How will the residents or businesses of Foster City be impacted by the project? Will it block views?

Will the public still be able to use the levee pedway trail for recreation when the project is complete?

The raising of the levee may have an impact on views of the Bay from properties that face the Bay as the levee will be higher by 2-5 feet in places. The City is planning to reinstall the levee pedway within the scope of the project and widening if possible so that the recreational uses are maintained or improved. The major impact will be that, instead of having to pay thousands per year for flood insurance, properties will be able to pay a few hundred per year for a definitive time to raise the levees and take properties out of the flood zone and maintain property values.

What is the timeline for the project?

Based on an aggressive schedule, the anticipated project completion is mid-2020.

What is the City's strategy to engage and educate the public about this project?

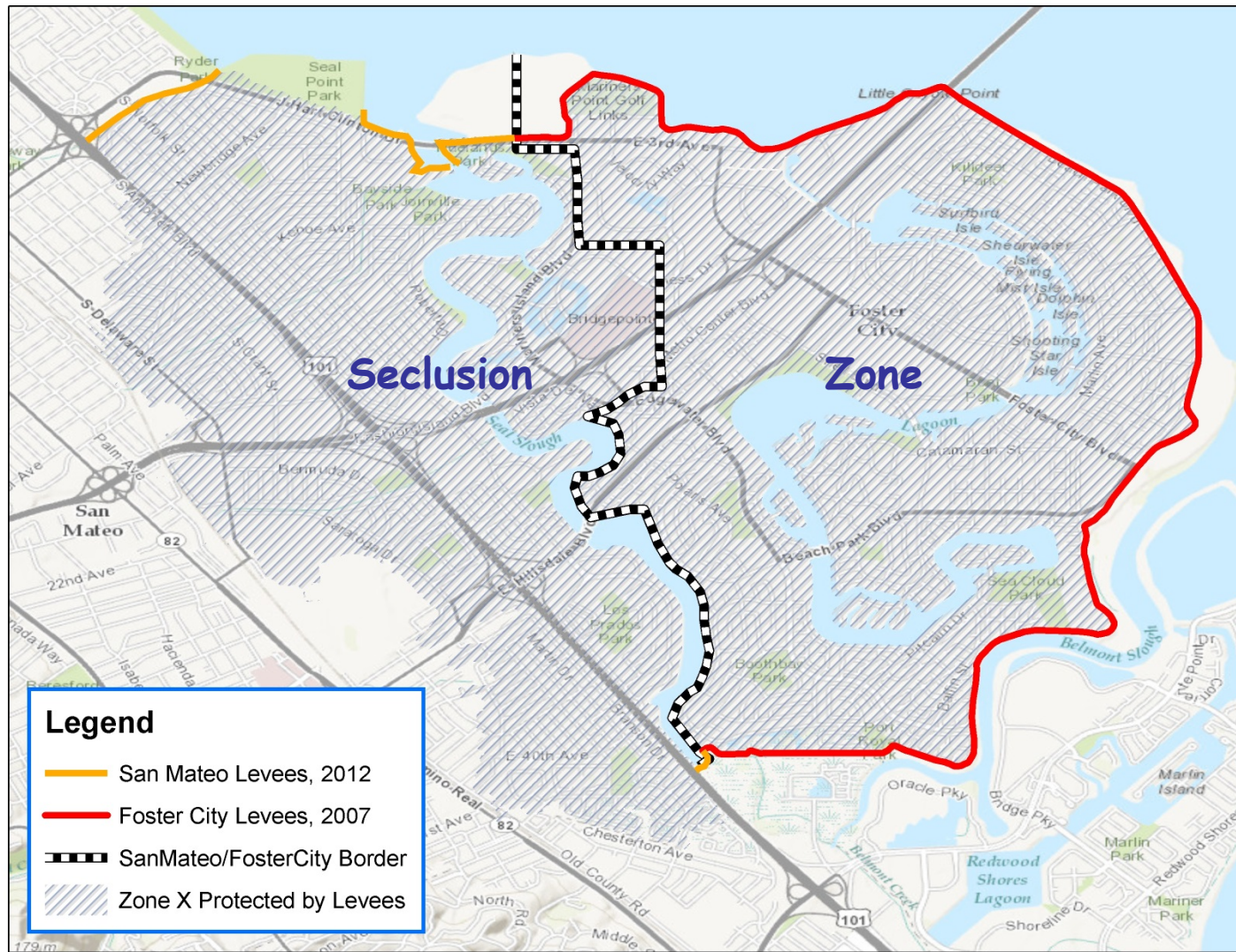
The City's Director of Communications will lead the public engagement effort utilizing community meetings, social media, and direct mailers, plus any other means to educate the public.

Questions or More Information >>>

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Fostering Our Community

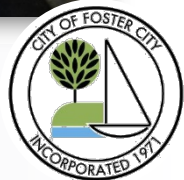
What is Seclusion Mapping?



- ❑ Property Placed in Special Flood Hazard Area
 - ❑ 9,000 parcels in Foster City
 - ❑ 8,000 parcels in San Mateo
- ❑ Those with federally backed mortgages, and other at the discretion of their lender, would be required to carry flood insurance.
 - ❑ Premiums could be thousands of dollars per year.
- ❑ Substantial property improvements are prohibited in high-risk flood areas without elevating above base flood elevation, which would be as much as 5 feet deep in some locations.



Typical Levees in Foster City



How High Do They Need to Be?

Required Top of Levee Elevations to meet Current FEMA Freeboard Requirements

All Elevations in Feet NAVD



14

16

>13

12 - 13

15.5

12 ±

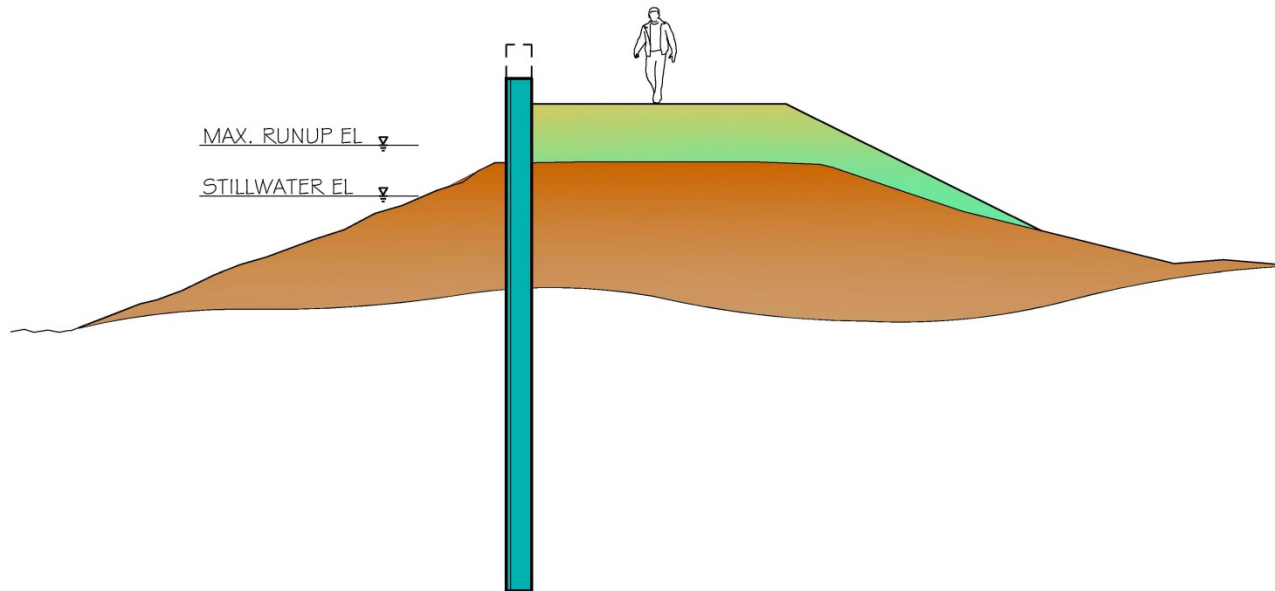
12.5 - 15.5

12.5

12 - 13

Hybrid Design

Recommended for at least 5 miles of the 8-mile system based on available data.



Place fill for Bay Trail to avoid excessively high flood wall.



Potential Wall Treatments



Regulatory Authorizations

CEQA Process

- ✓ EIR
- ✓ Notice of Determination

Required State Environmental Regulatory Authorizations:

- **San Francisco Regional Water Quality Control Board: (RWQCB):** 401 Water Quality Certification and Porter Cologne Act Waste Discharge Permit
- **San Francisco Bay Development and Conservation (BCDC):** Development Permit
- **California Department of Fish and Wildlife (CDFW):** Lake and Streambed Alteration Agreement
- **State Lands Commission (SLC):** Development Permit

❖ **Project authorization cannot be obtained without:**

- ✓ A determination from the lead agency that the project complies with CEQA
- ✓ Allowing for adequate public access
- ✓ Selecting the Least Environmentally Damaging Practicable Alternative
- ✓ Providing adequate mitigation for unavoidable impacts

Required Federal Environmental Regulatory Authorization:

- **US Army Corps of Engineers:** Clean Water Act Section 404 and Section 10 Rivers and Harbors Act Permits
- ❖ **Project authorization cannot be obtained without:**
 - ✓ Selecting the Least Environmentally Damaging Practicable Alternative
 - ✓ Providing adequate mitigation for unavoidable impacts
 - ✓ 401 Water Quality Certification from RWQCB
 - ✓ Compliance with the Coastal Zone Management Act (BCDC)
 - ✓ Endangered Species Act Section 7 Biological Opinion from the US Fish and Wildlife Service
 - ✓ Endangered Species Act Section 7 Biological Opinion from NOAA Fisheries
 - ✓ Compliance with Magnuson-Steven Fisheries Management and Conservation Act
 - ✓ Compliance with Section 106 of the National Historic Preservation Act (SHPO)



- Basis of Design**
- Surveying**
 - Ground surveys complete
 - Aerial survey has been delayed (SFO and weather)
- Geotechnical Investigation**
 - Preliminary work complete
 - Subsurface borings underway
- Environmental Analyses**
 - CEQA underway
 - Biological Assessment and Jurisdictional Wetland Delineation complete

- Public Outreach and Communication
- Select Design Strategy for Sea Level Rise Adaptation
- Geotechnical Analyses
- Environmental Permits
- Design Development
- Construction Documents
- Finance Options
- Quarterly Update in May/June 2016

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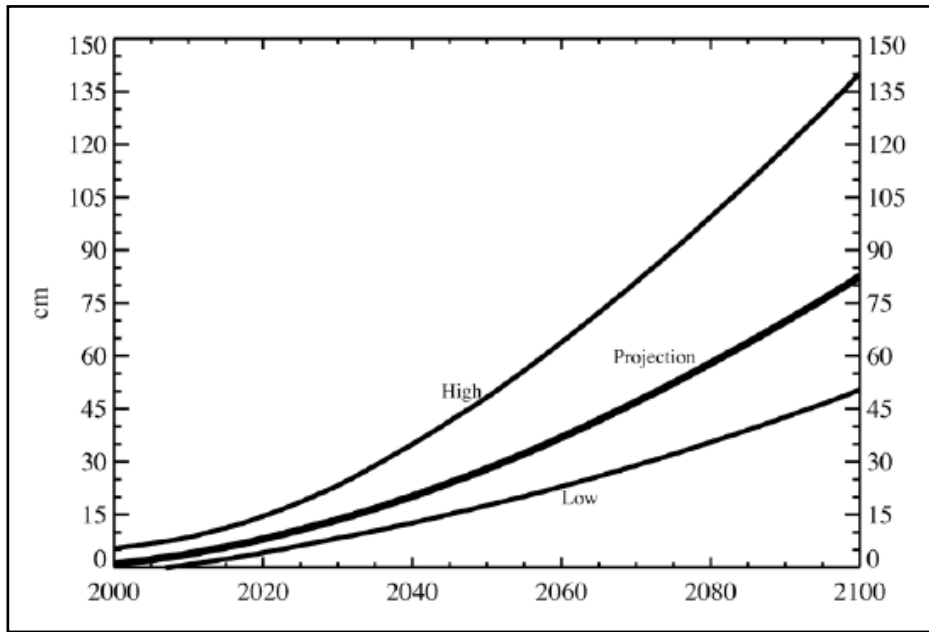
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Adapting to Sea Level Rise



Adaptively raising levees for future sea level rise is a policy decision.

Time Period	Projection (inches)	Range (inches)	Adopted (inches)
2000 – 2030	6±2	2 to 12	---
2000 – 2050	11±4	5 to 24	15
2000 – 2100	36±10	17 to 66	46



Adapting Hybrid Design to Sea Level Rise

Ultimate Construction

