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

Presented to
City Council Study Session
February 22, 2016

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

Purpose

- **Purpose – Present to the City Council the Power Point prior to the Community Meetings**
  - **CC to provide comments on each slide and staff will make changes for the Community Meetings**
  - **Community Meetings scheduled for 3/10/16, 3/24/16, and 4/7/16 Thursdays (700 PM to 830 PM)**
  - **Design in Progress, not finalized**
- **Questions**

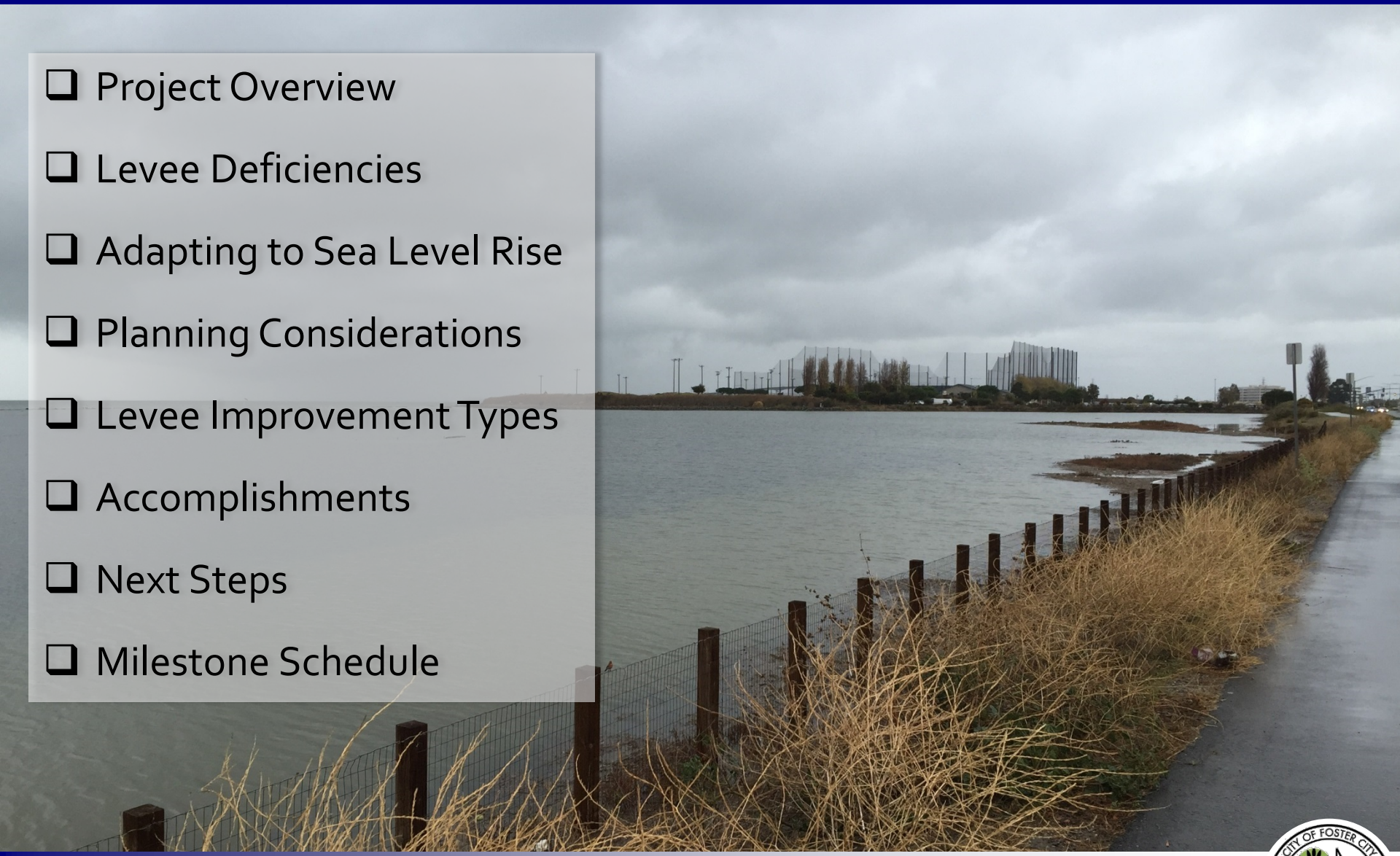
Goals for the Levee Project

- **FEMA Accreditation of the Levee**
- **Satisfaction to the majority of the public**
- **Keep the public informed during the entire process**
- **Project completion in 2020**
- **Provide recreational amenities, access to trails, etc. based on public input**
- **Keep project costs at a minimum – Most likely public funded (Assessment District)**
- **Minimize impacts during construction**

Background

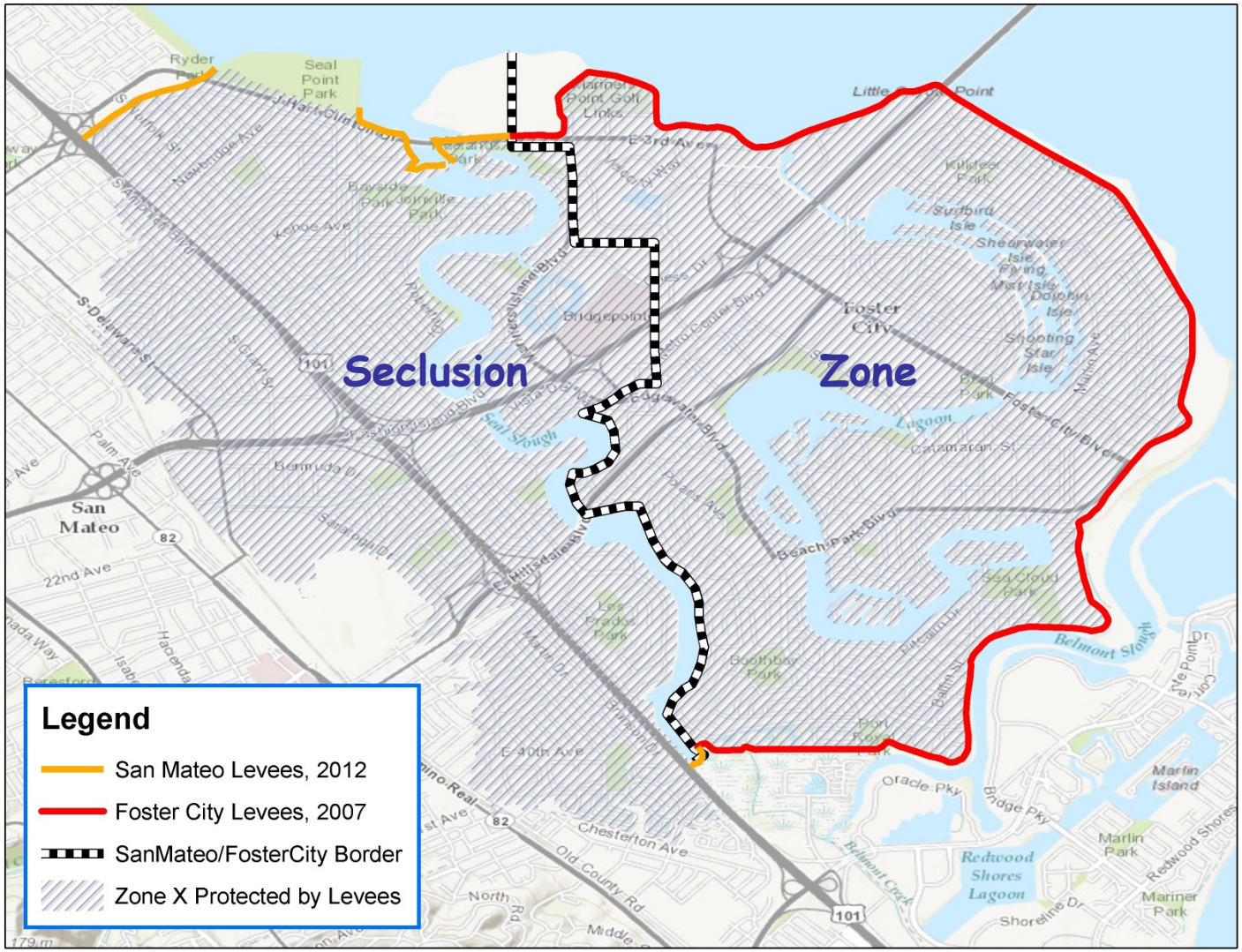
- Originally presented the project to CC at Budget Study Session on 3/23/15 – Direction from CC to proceed with Hybrid Design
- CIP for 30% Design and Environmental work was added to FY 16/17 budget
- Schaaf and Wheeler awarded contract amendment on 9/8/15
- Meeting with Regulatory agencies on 8/28/15
  - Congresswoman Jacquie Speier
  - Assemblyman Mullin
  - Senator Jerry Hill
  - 20 regulatory agencies
- Participating in CHARG and County Vulnerability Assessment Work

Topics



- ❑ Project Overview
- ❑ Levee Deficiencies
- ❑ Adapting to Sea Level Rise
- ❑ Planning Considerations
- ❑ Levee Improvement Types
- ❑ Accomplishments
- ❑ Next Steps
- ❑ Milestone Schedule

Levee System Overview

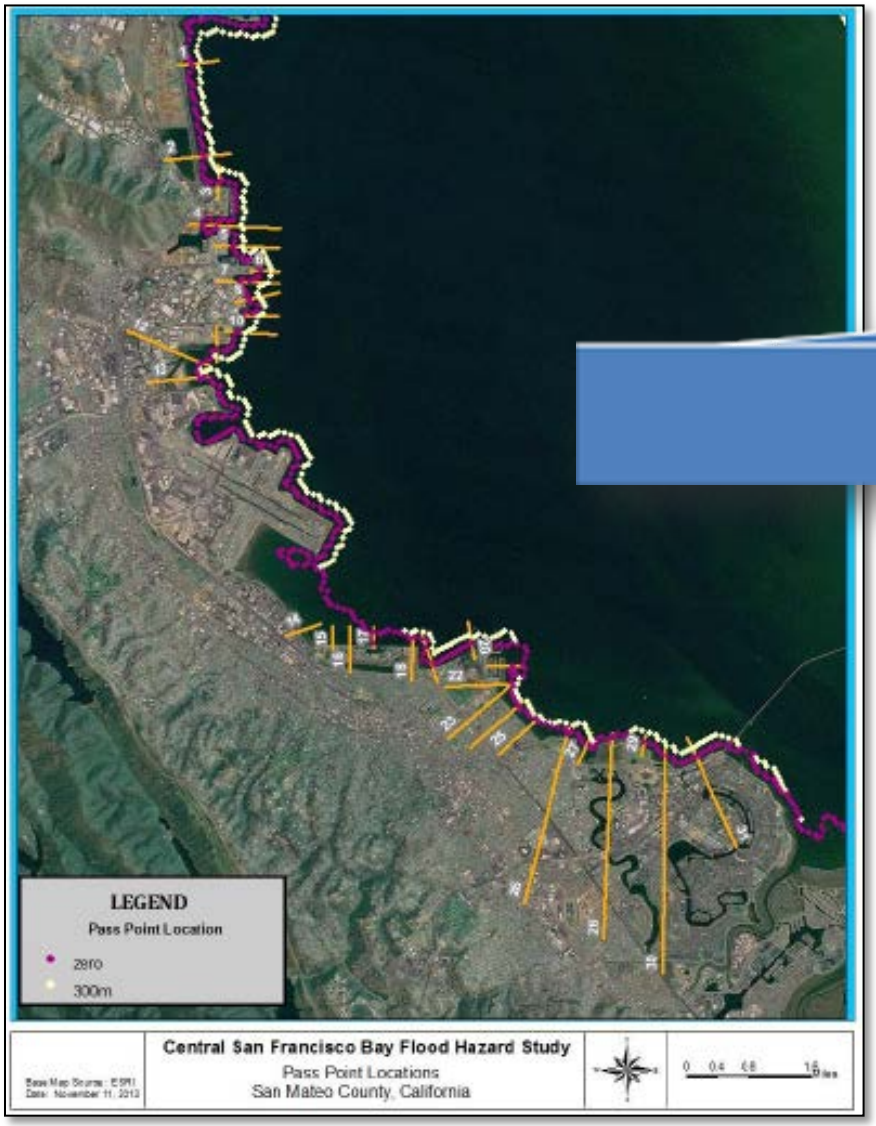

Seclusion
Zone
Legend
San Mateo Levees, 2012
Foster City Levees, 2007
SanMateo/FosterCity Border
Zone X Protected by Levees
San Mateo
Foster City
Seal Point Park
Ryder Park
Bridgepointe
Seal Slough
Belmont Slough
Beach Park Blvd
Foster City Blvd
Chesterton Ave
Oracle Pky
Redwood Shores Lagoon
Marlin Island
Marlin Park
Mariner Park
Redwood Shores
Shoreline Dr
Old County Rd
22nd Ave
E 40th Ave
E 3rd Ave
Bermuda Dr
Palm Ave
Lagoon
Catamaran St
Shearwater Isle
Dolphin Isle
Shooting Star Isle
Seal Cove
Port Royal
Belmont Creek
Bridge Pky
Shorebird Park
Sea Cloud Park
Leo Ryan Park
Boothbay Park
Erckenbrack Park
Beach Park
Kiwanis Park
Bayside Park
Leslie Park
Edgewater Isle Park
Foster City Golf Links
Little Point
Swinford Isle
Egret Park
Catamaran Park
Pilgrim Triton Park
Newbridge Ave
Kehoe Ave
Delaware St
Shorebird Park
Hillsdale Blvd
Edgewater Blvd
Metro Center Blvd
Vista Grande Dr
Island Blvd
Main Ave
Pilgrim Dr
Triton Dr
Shell Rd
Palm Ave
Hacienda Way
Isabella Ave
Borel Pl
Bal Harbour Blvd
Farallon Dr
Bermuda Dr
Sarabande Dr
Mariner Square Loop
Mariner Square Dr
Port Royal Ave
Bounty Dr
Pilgrim Way
Bridge Pky
Shoreline Dr
Redwood Shores Pkwy
Marlin Park
Mariner Park
Redwood Shores
Belmont Creek
Belmont Slough
Foster City Blvd
Beach Park Blvd
Edgewater Blvd
Metro Center Blvd
Vista Grande Dr
Island Blvd
Hillsdale Blvd
Delaware St
Shell Rd
Palm Ave

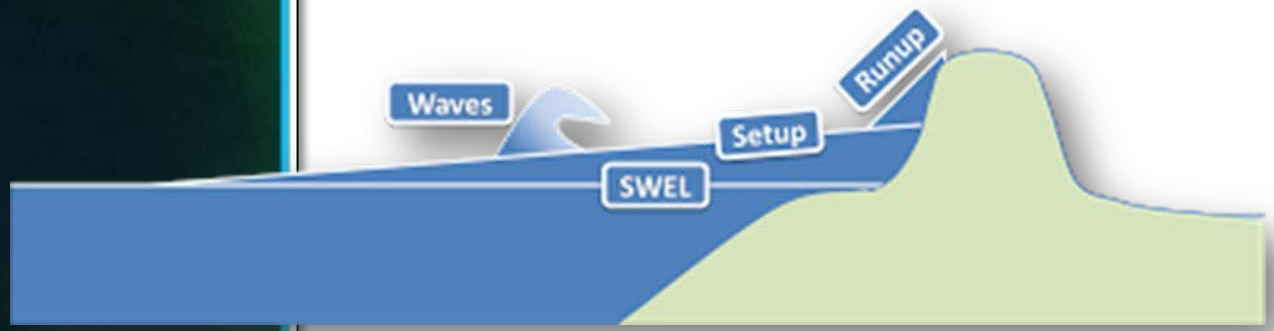
What if Seclusion Zone is Remapped?

- 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

Evaluation of Existing Levees

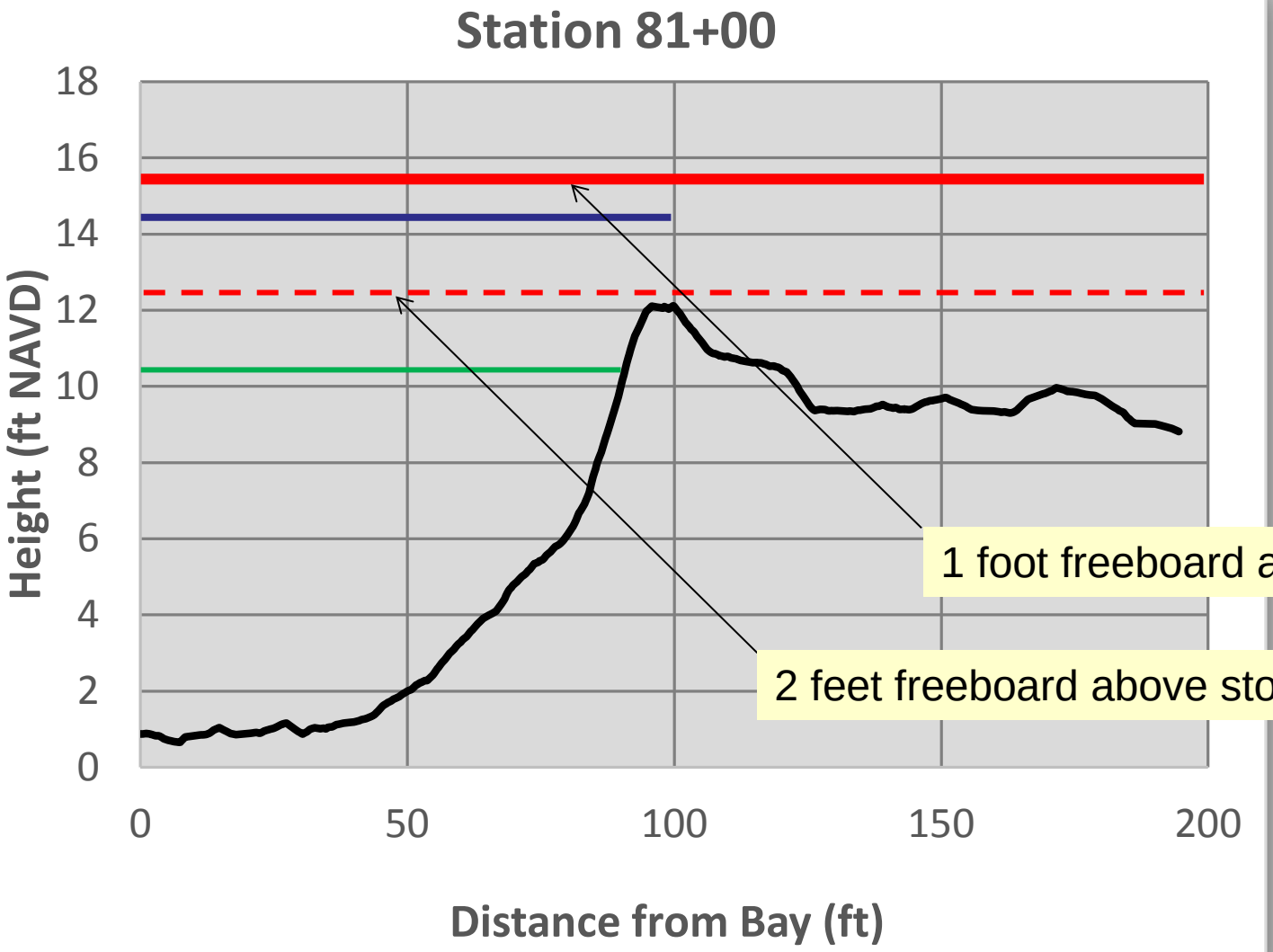




SWEL = Stillwater Elevation
(Storm Surge)

California Coastal Analysis and Mapping Project

Evaluation of Existing Levees for Freeboard

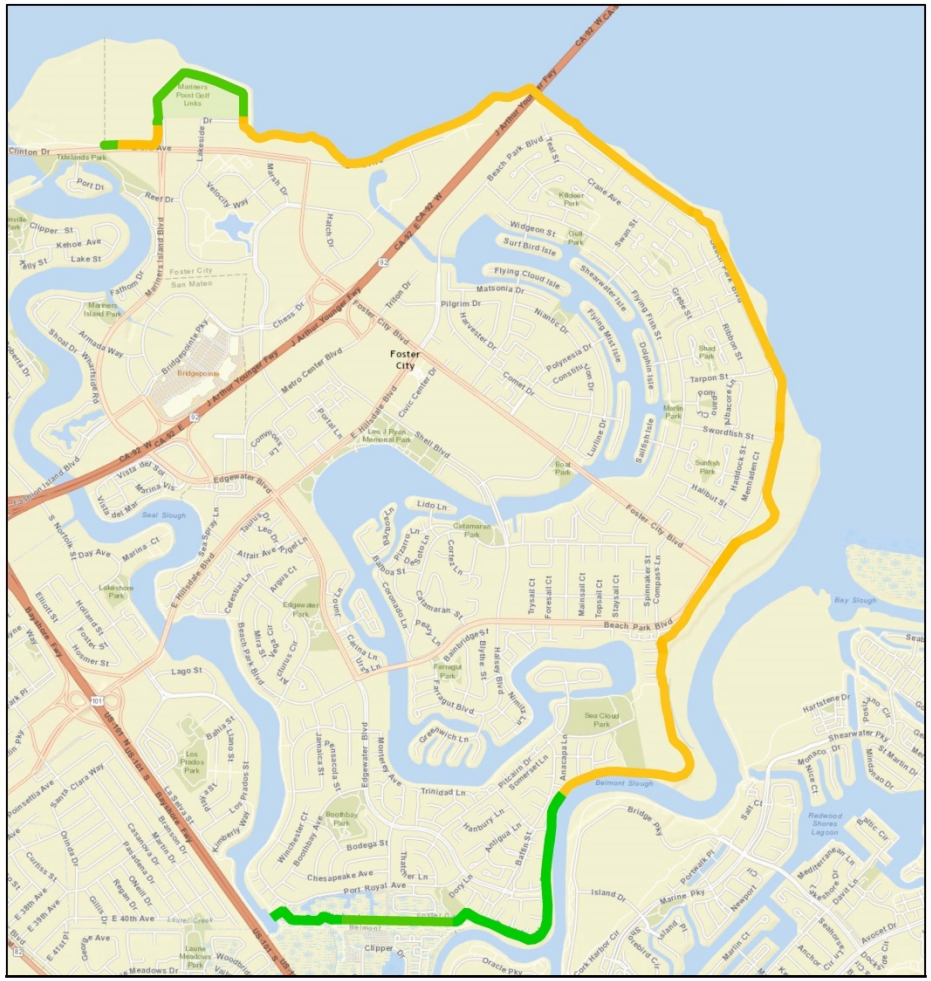


How High Are the Existing Levees?

How High Do They Need to Be?

How High Do They Need to Be?

Levee Deficiencies

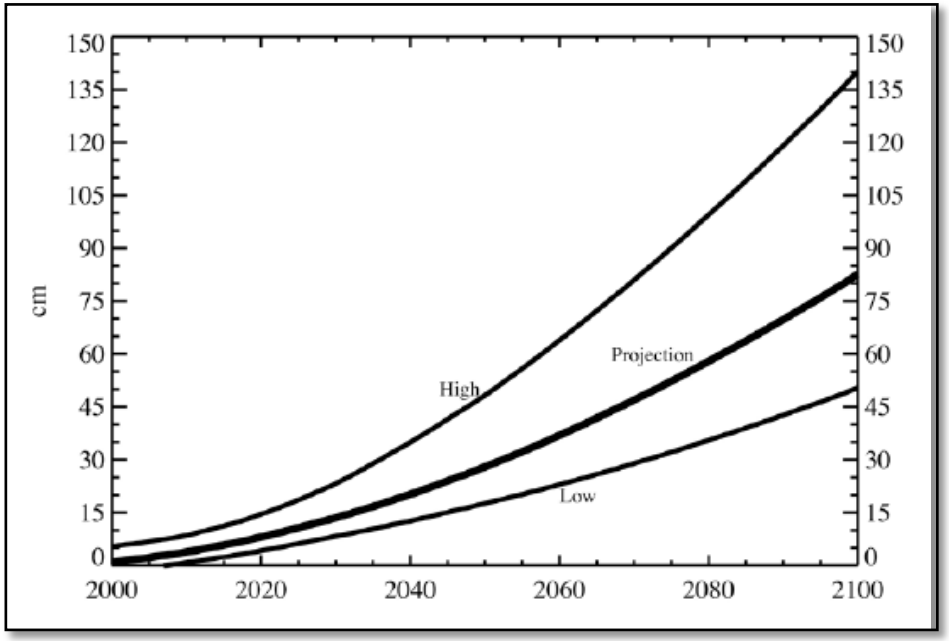


Freeboard Deficiencies

- No Deficiency
- Freeboard Deficient
- Stillwater Overtopping

Other Deficiencies

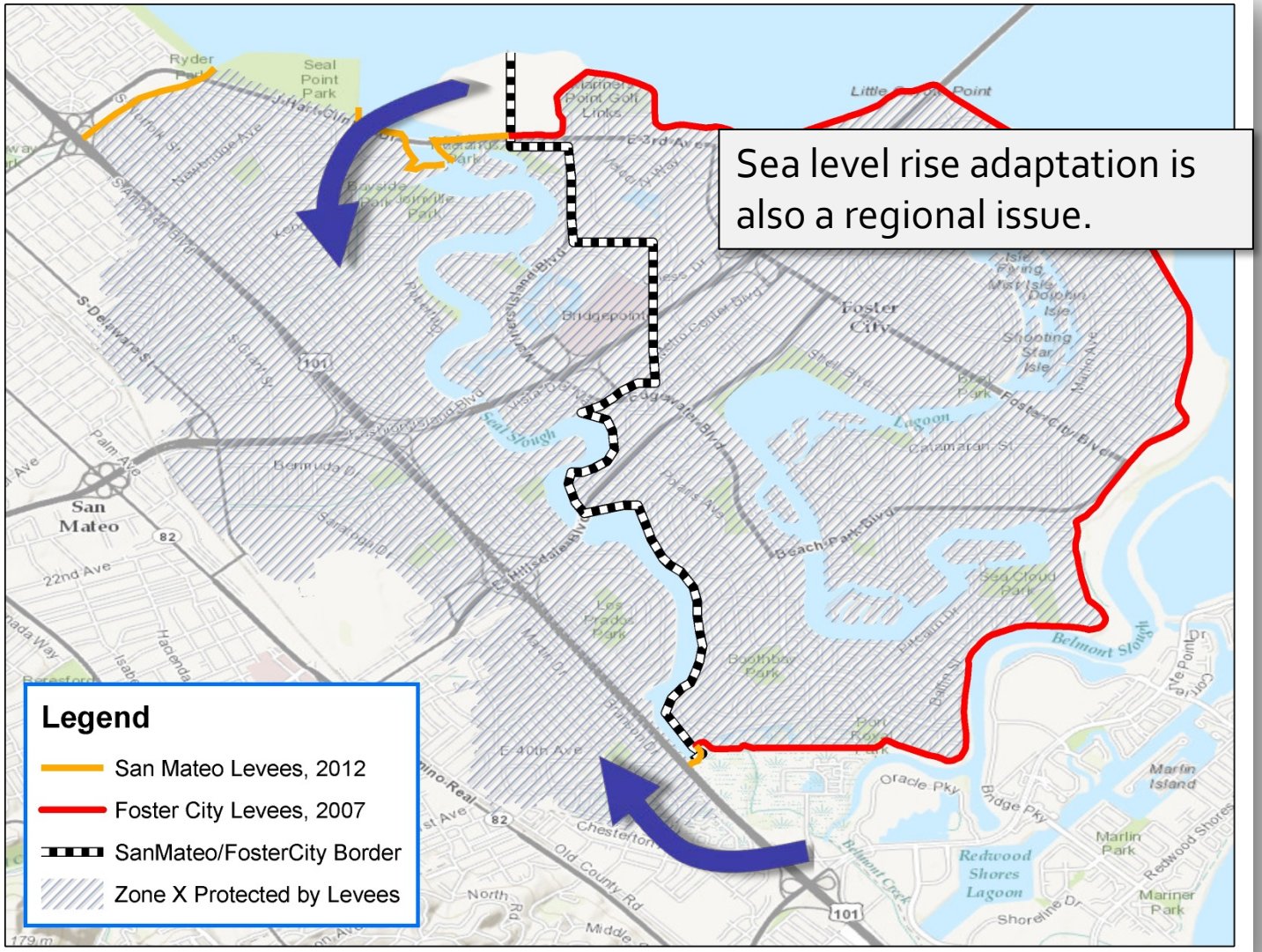
Adapting to Sea Level Rise



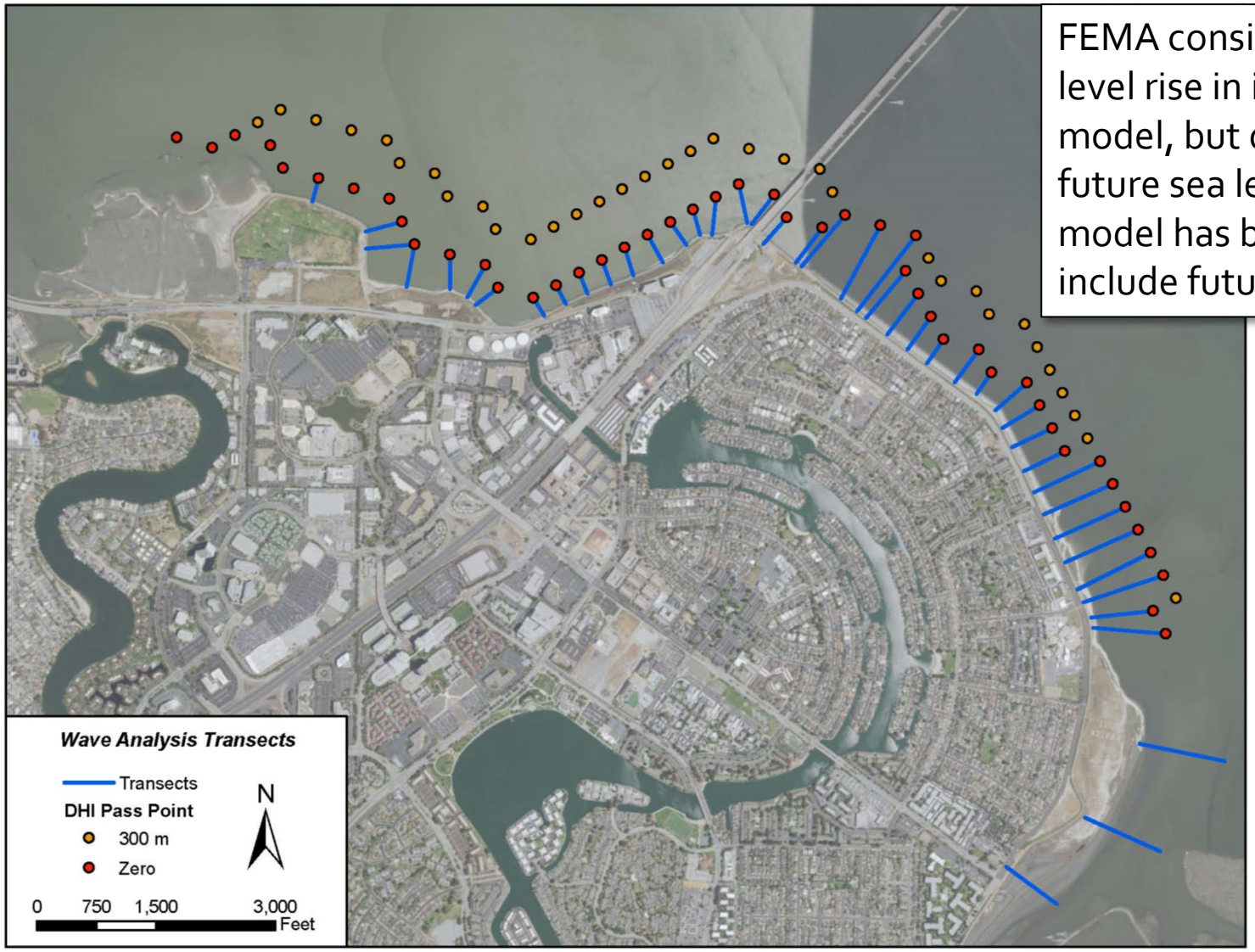
Adaptively raising levees for future sea level rise is a policy decision.

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 to Sea Level Rise



Adapting to Sea Level Rise



FEMA considers historic sea level rise in its wave hindcast model, but does not consider future sea level rise. FEMA model has been modified to include future SLR scenarios.

Planning Considerations

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

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

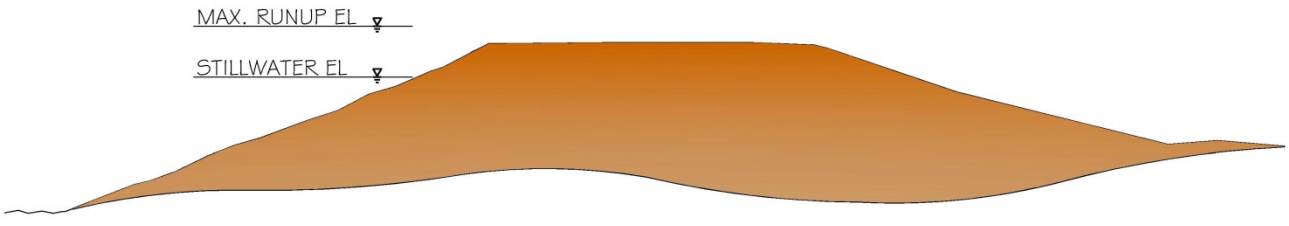
❖ **Project authorization cannot be obtained without:**

- ✓ 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)

Levee Improvements

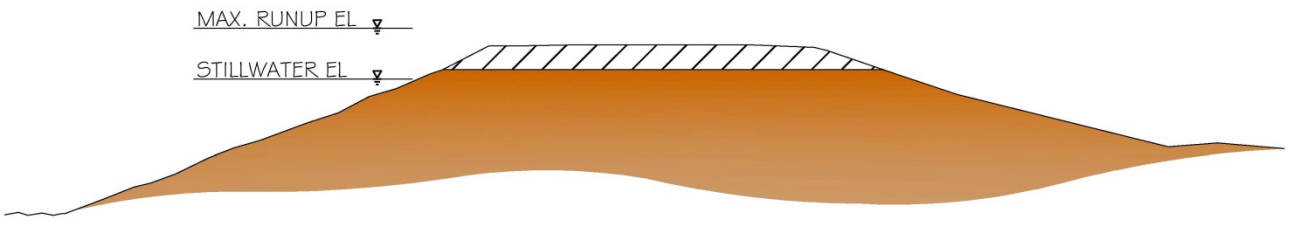
Levee Improvement Types

Raise Earthen Levee



Levee Improvement Types

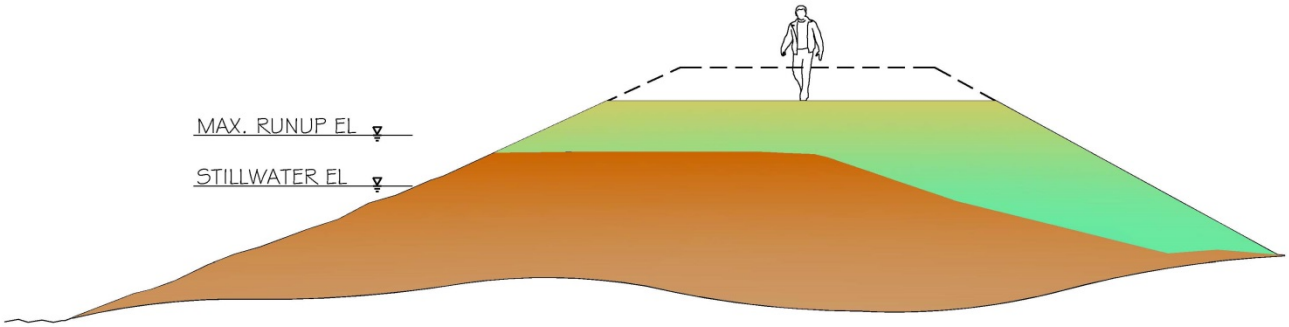
Raise Earthen Levee



Top foot of soil (plus or minus) is removed.

Levee Improvement Types

Raise Earthen Levee



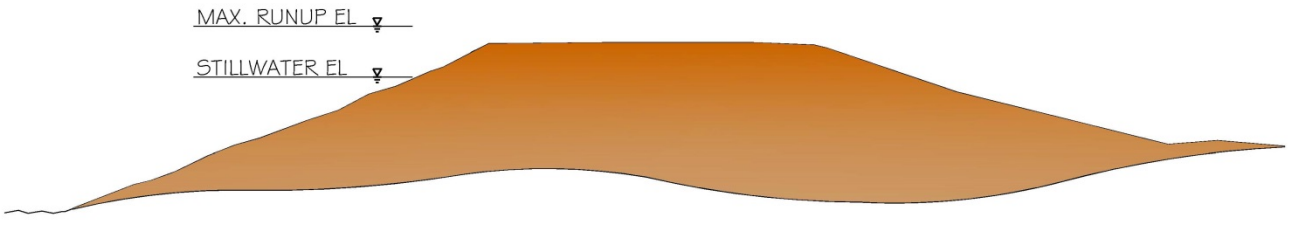
Build base needed for ultimate levee elevation now.

Top of improved levee set to meet FEMA requirements plus allowance for settlement and target sea level rise impact.

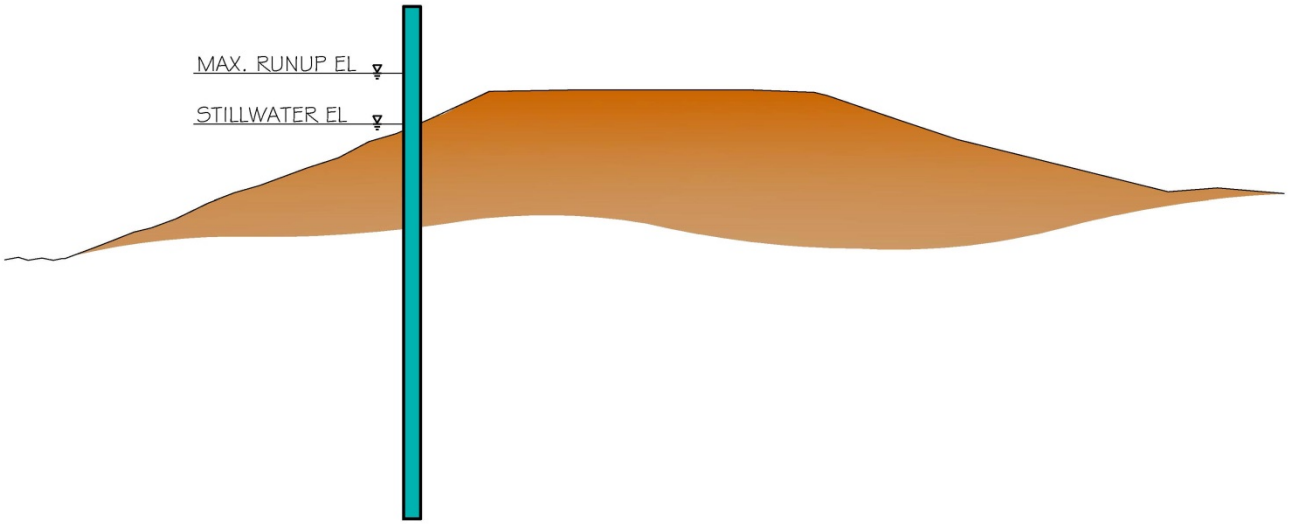
Where is a Raised Earthen Levee Viable?

Levee Improvement Types

Conventional Flood Walls



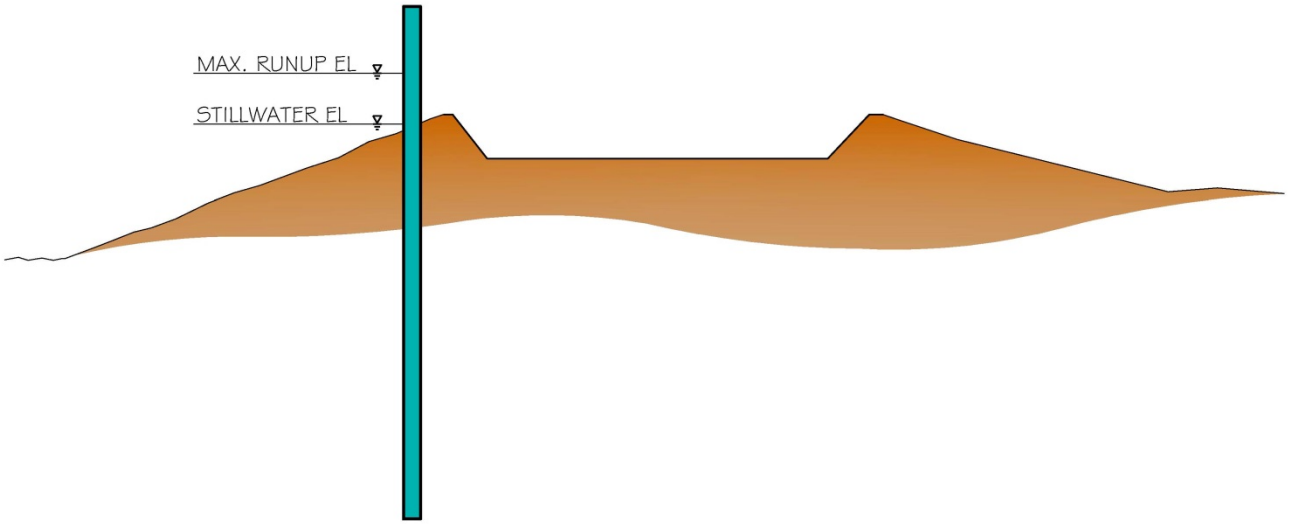
Conventional Flood Walls



Provide temporary flood protection during construction.

Levee Improvement Types

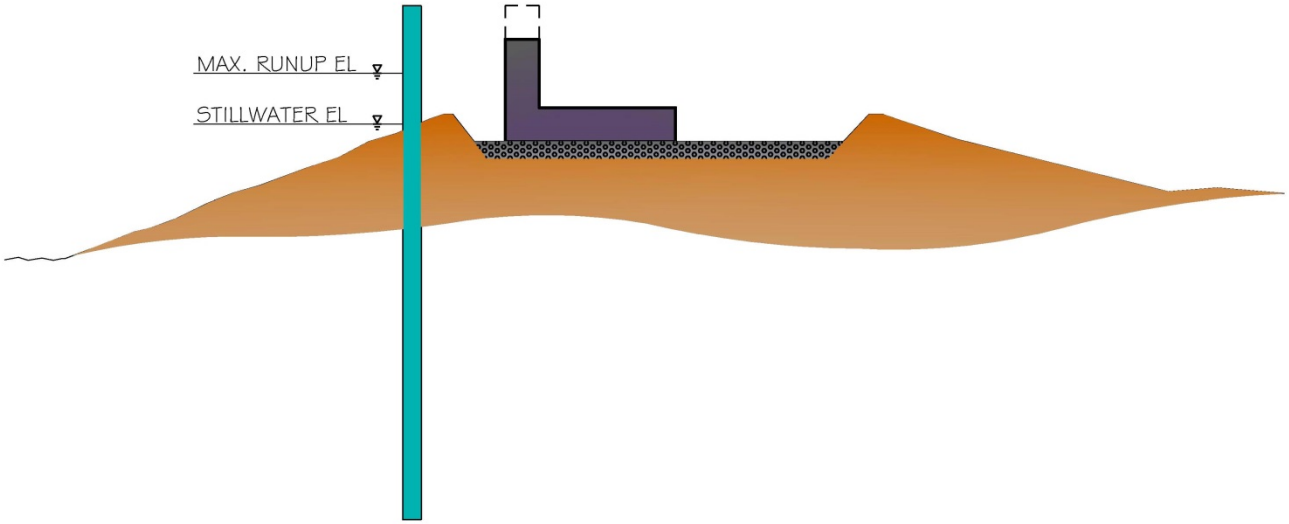
Conventional Flood Walls



Excavate existing levee for flood wall foundation.

Levee Improvement Types

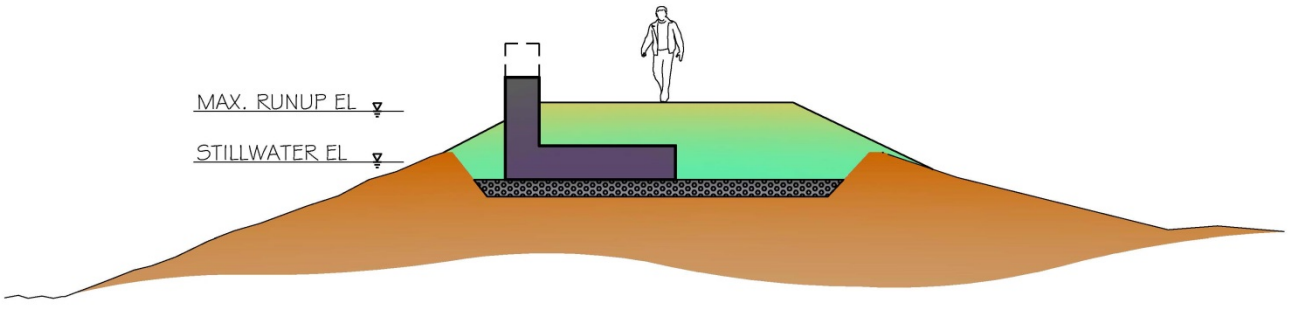
Conventional Flood Walls



Construct flood wall with base sufficient for ultimate height.

Levee Improvement Types

Conventional Flood Walls

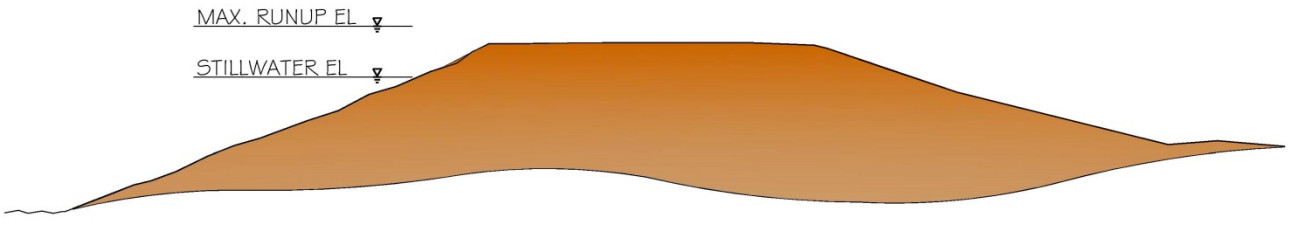


Place fill for Bay Trail to avoid excessively high flood wall.

San Mateo Bridge Abutment

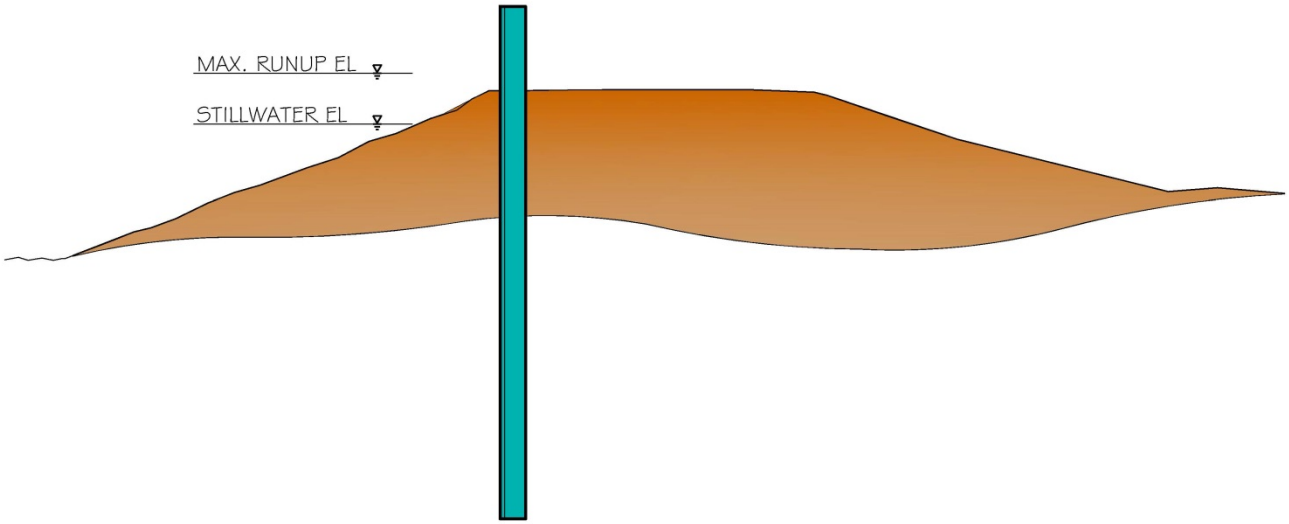
Levee Improvement Types

Hybrid Design



Levee Improvement Types

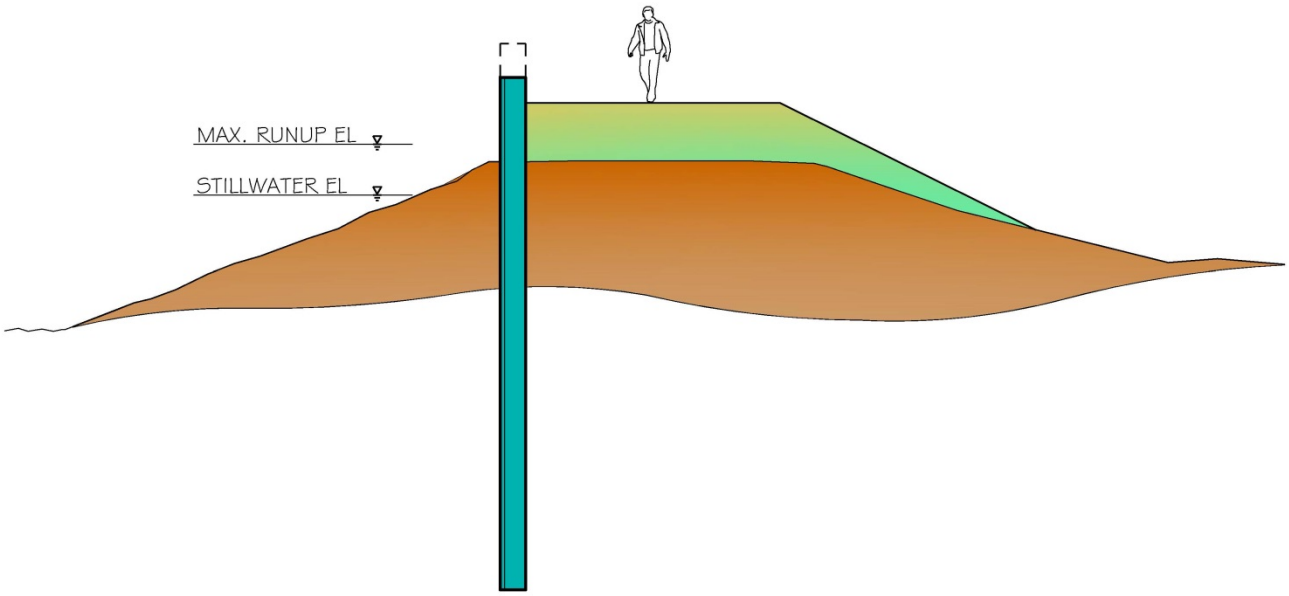
Hybrid Design



Provide permanent flood protection during construction.

Levee Improvement Types

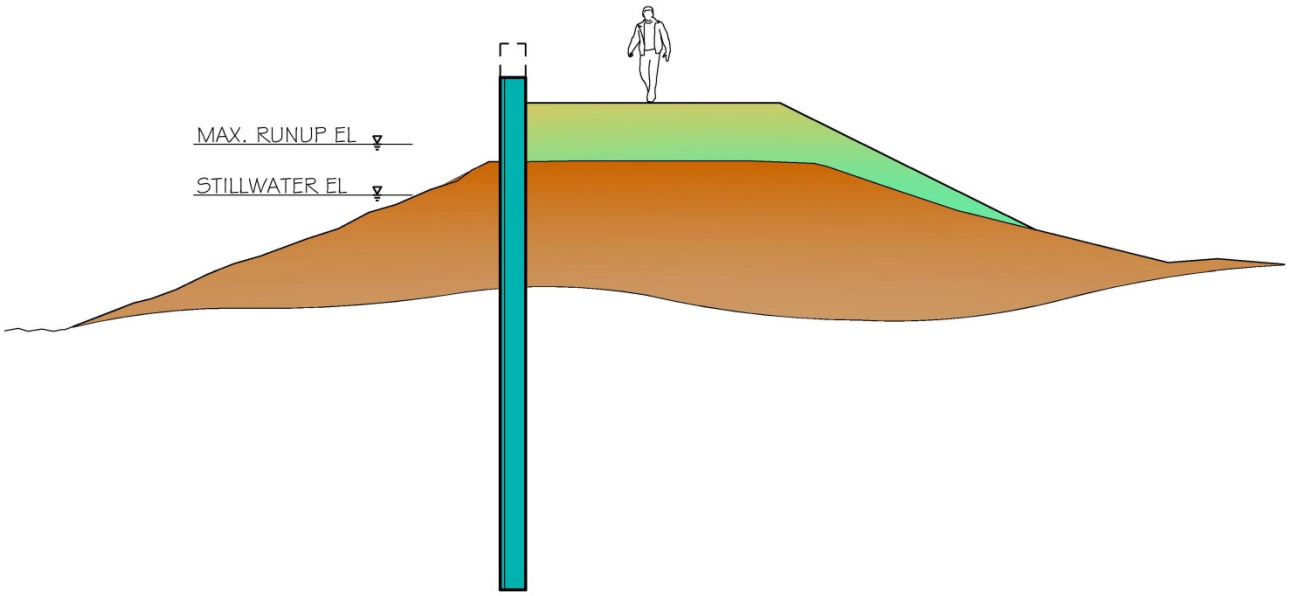
Hybrid Design



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

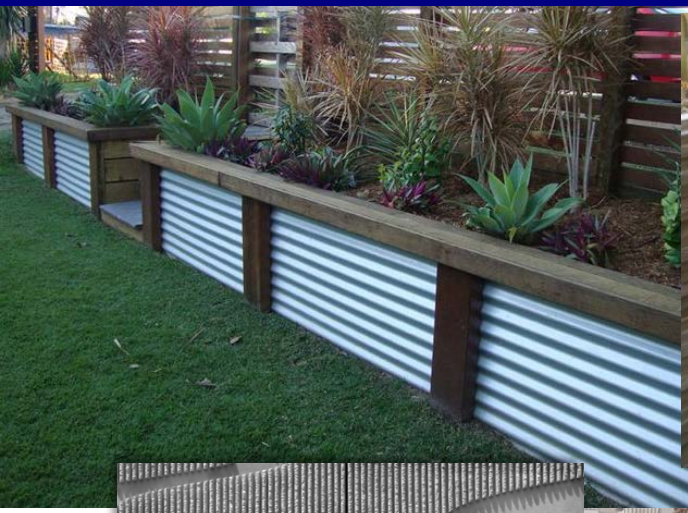
Hybrid Design

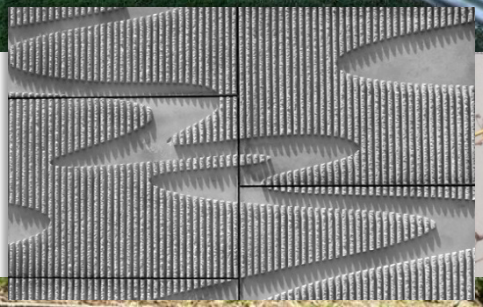
Recommended for at least 5 miles of the 8-mile system based on available data.

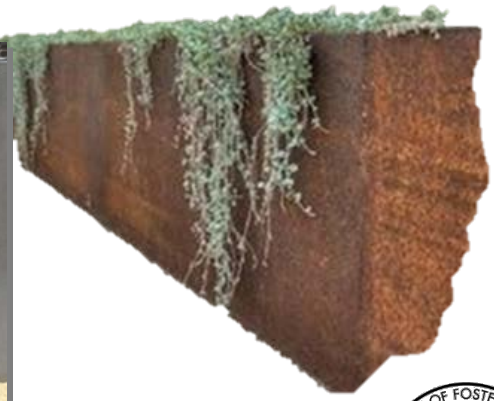


Place fill for Bay Trail to avoid excessively high flood wall.

Potential Wall Treatments

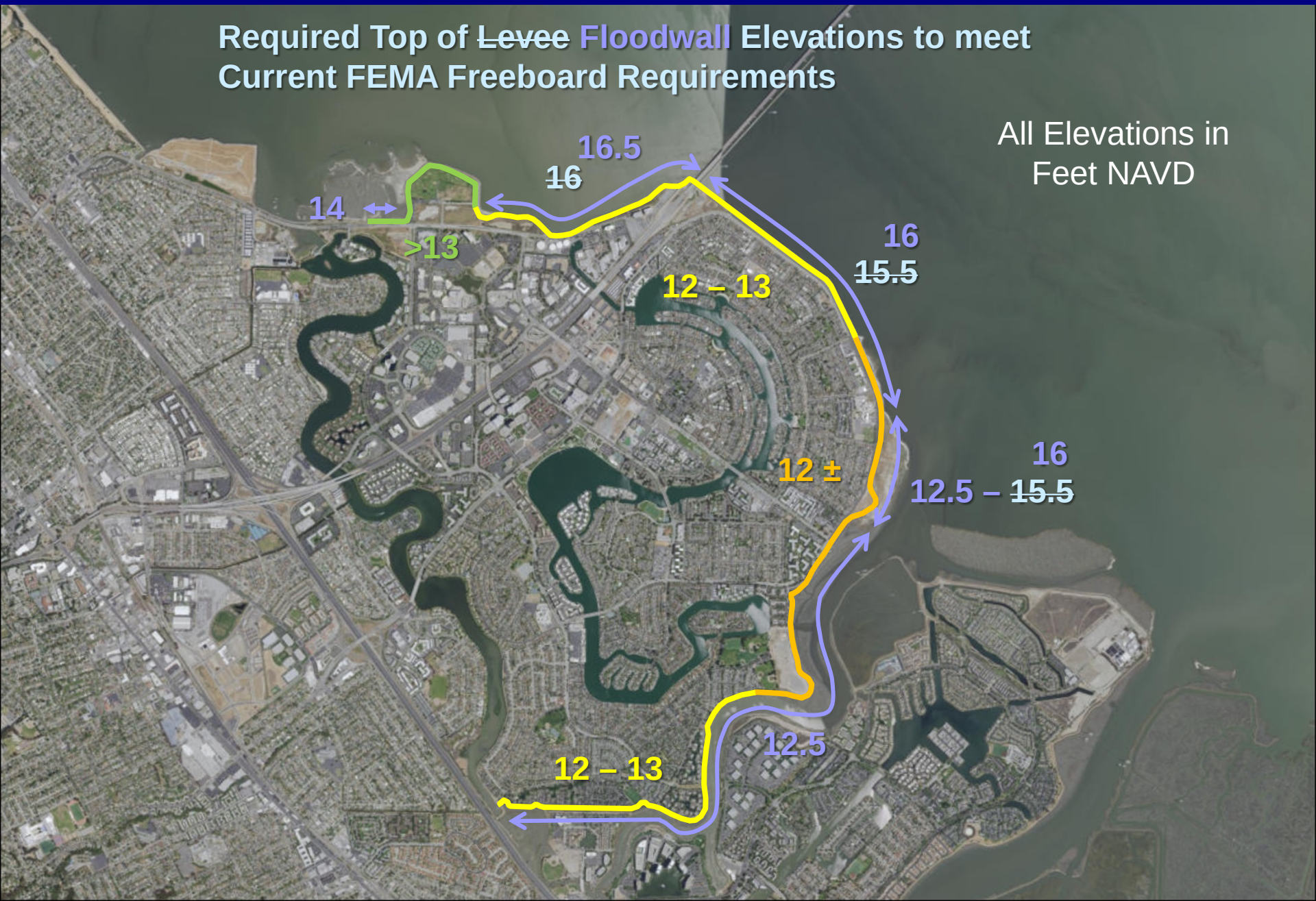




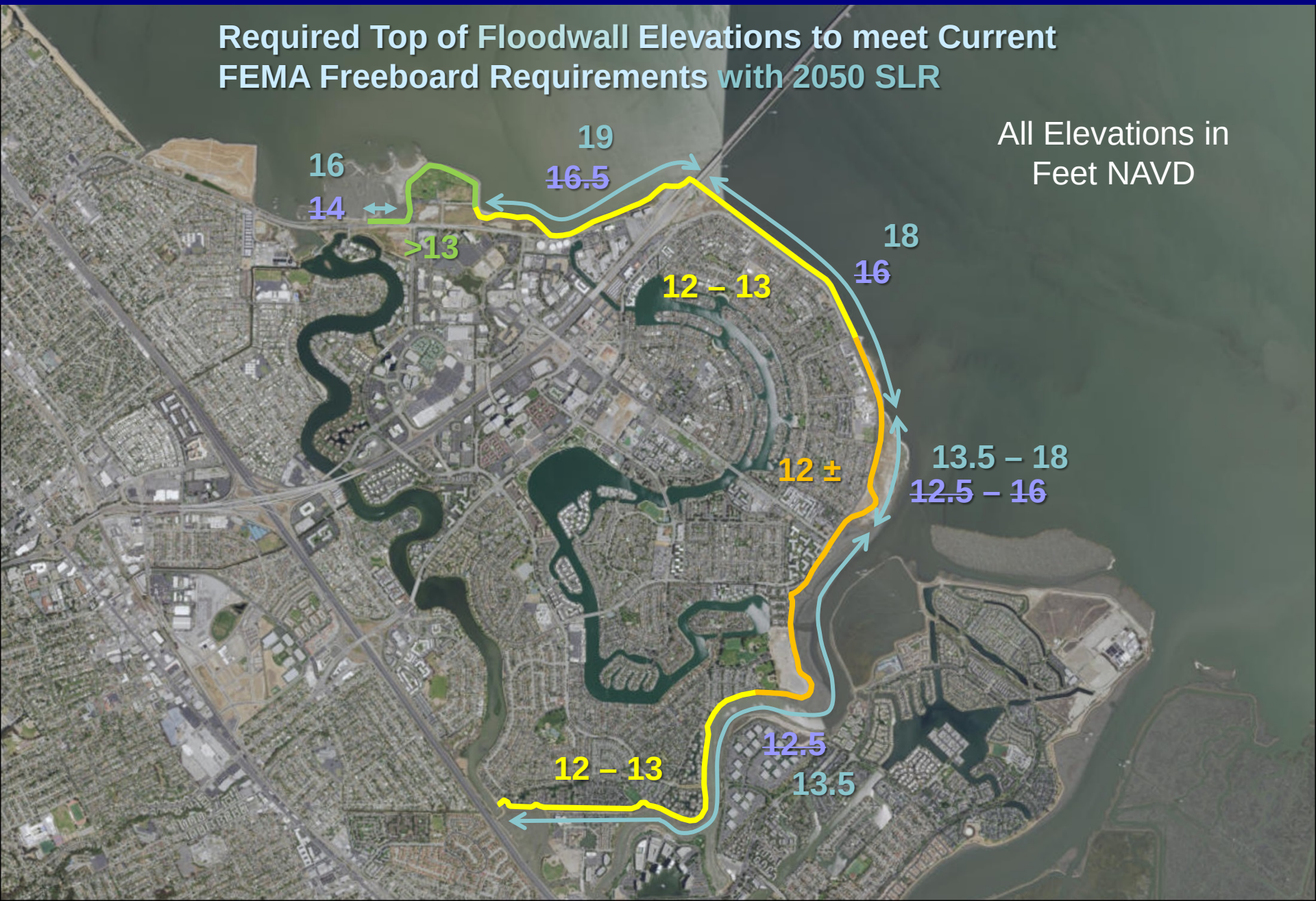


Adapting Hybrid Design to Sea Level Rise

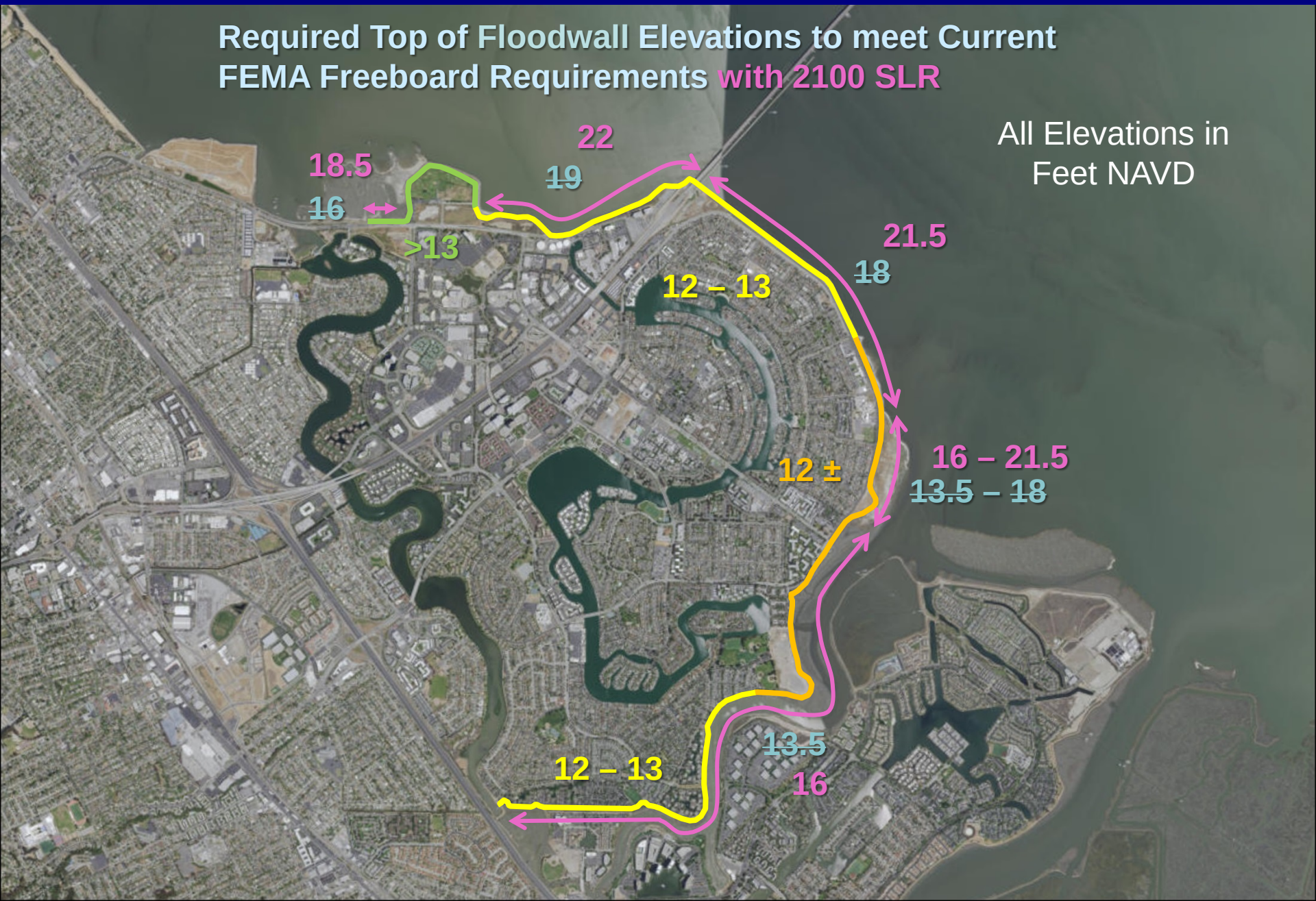
Adapting Hybrid Design to Sea Level Rise



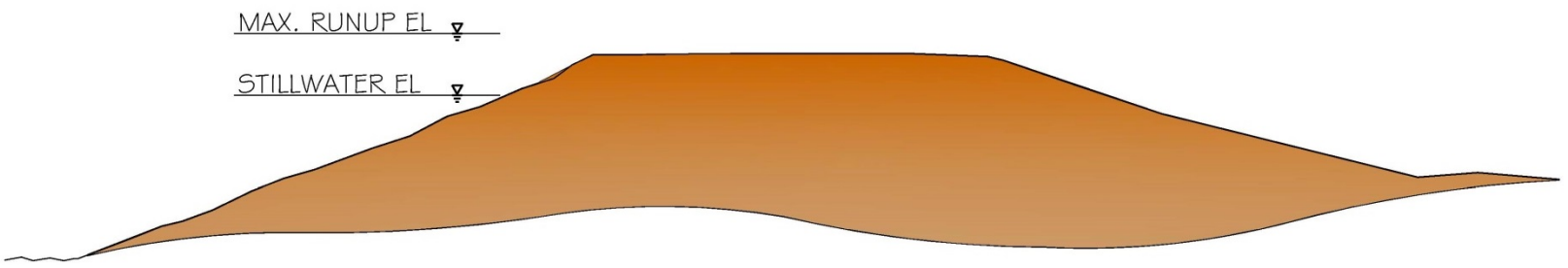
Adapting Hybrid Design to Sea Level Rise



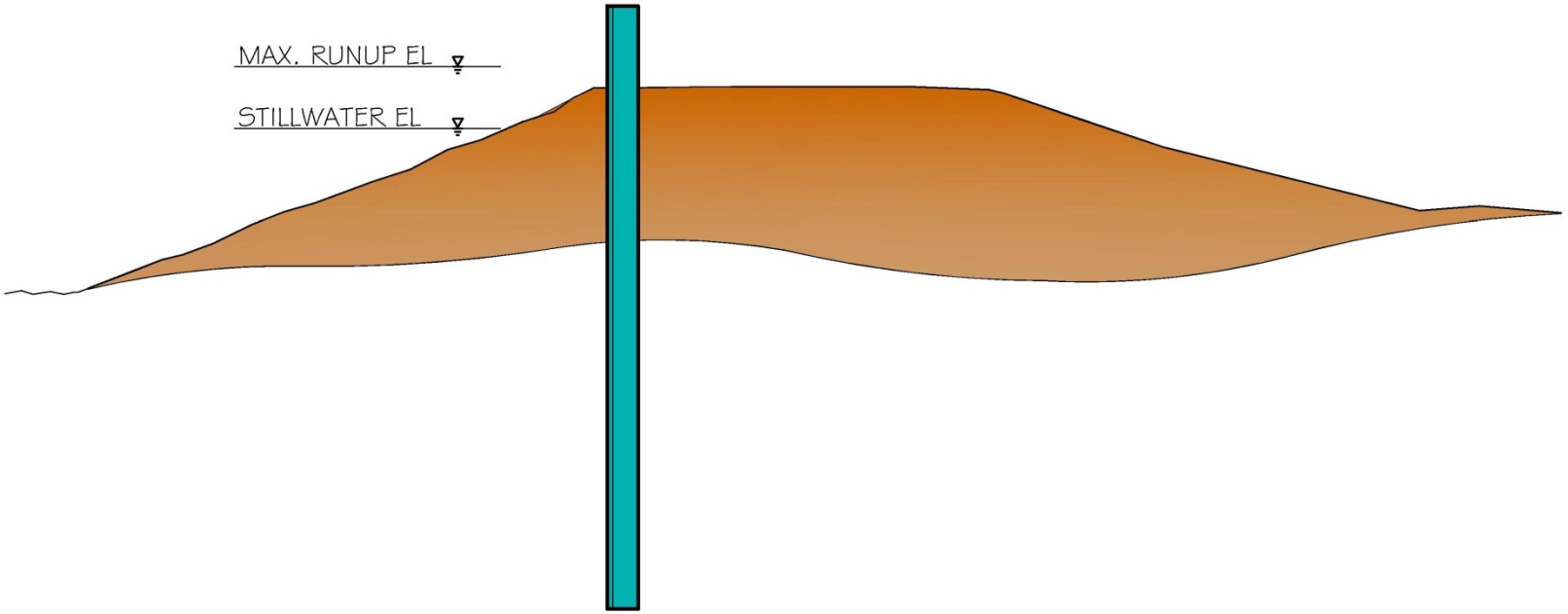
Adapting Hybrid Design to Sea Level Rise



Adapting Hybrid Design to Sea Level Rise

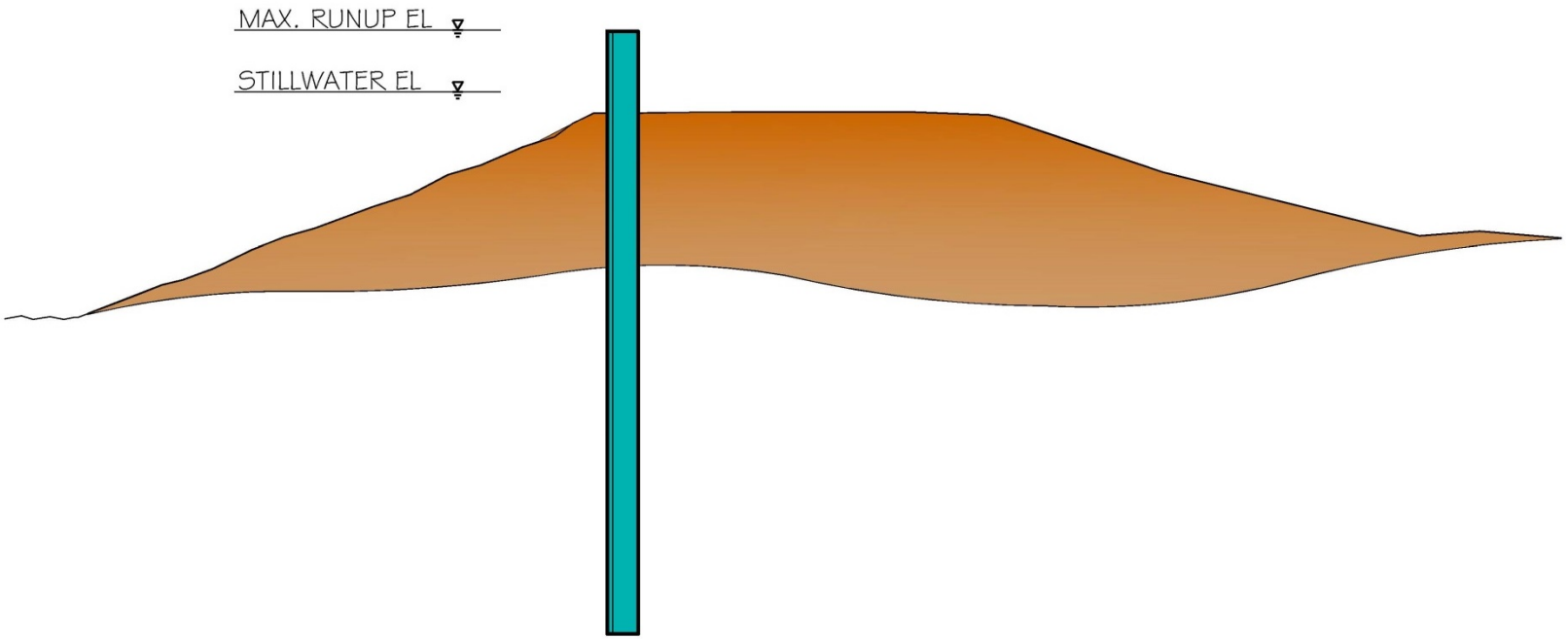


Initial Construction



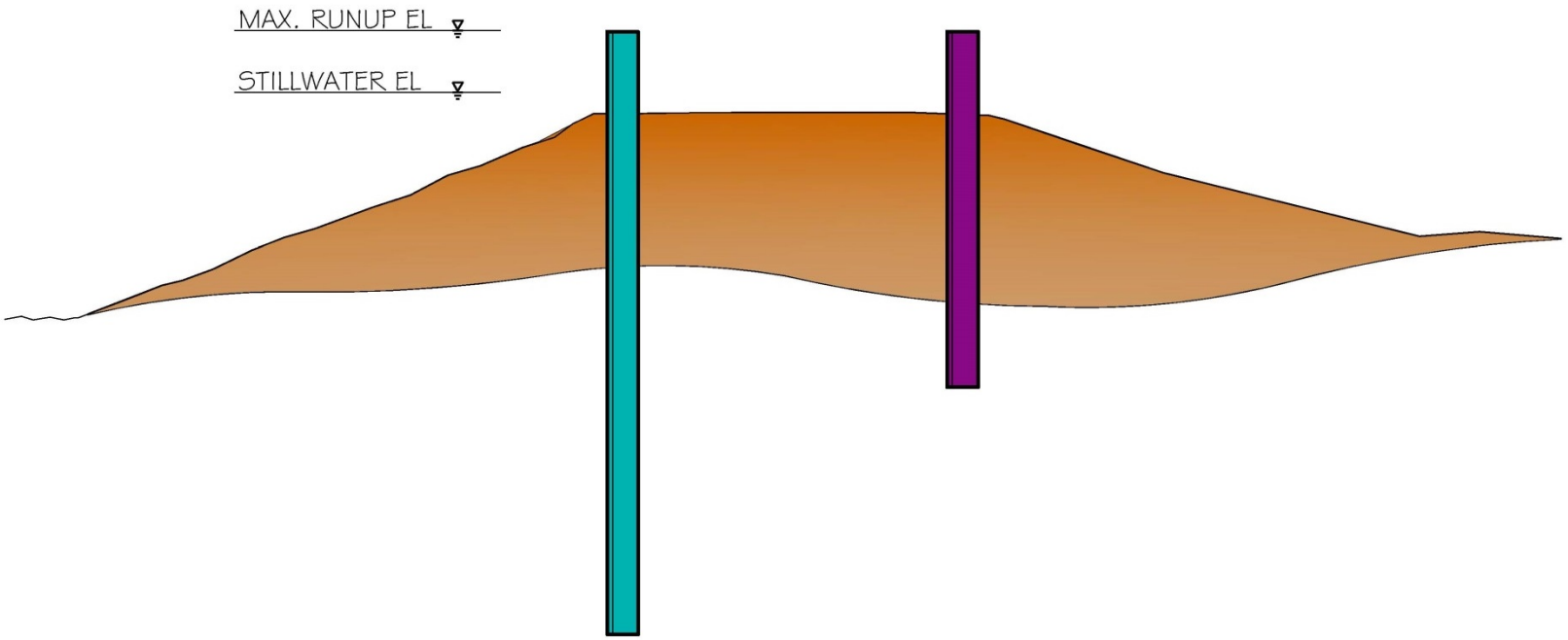
Future Sea Level Rise

Initial levee system will no longer meet freeboard requirements.



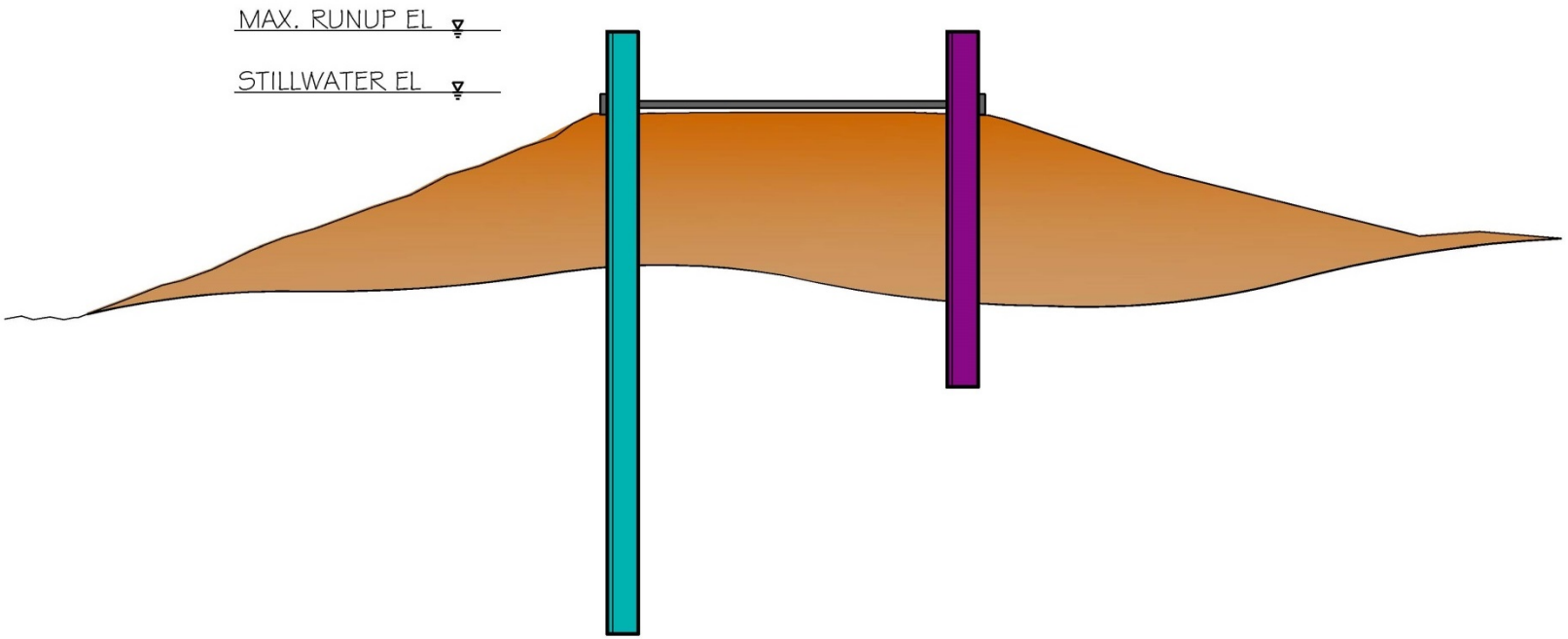
Future Construction

Where available space limited, install secondary wall.



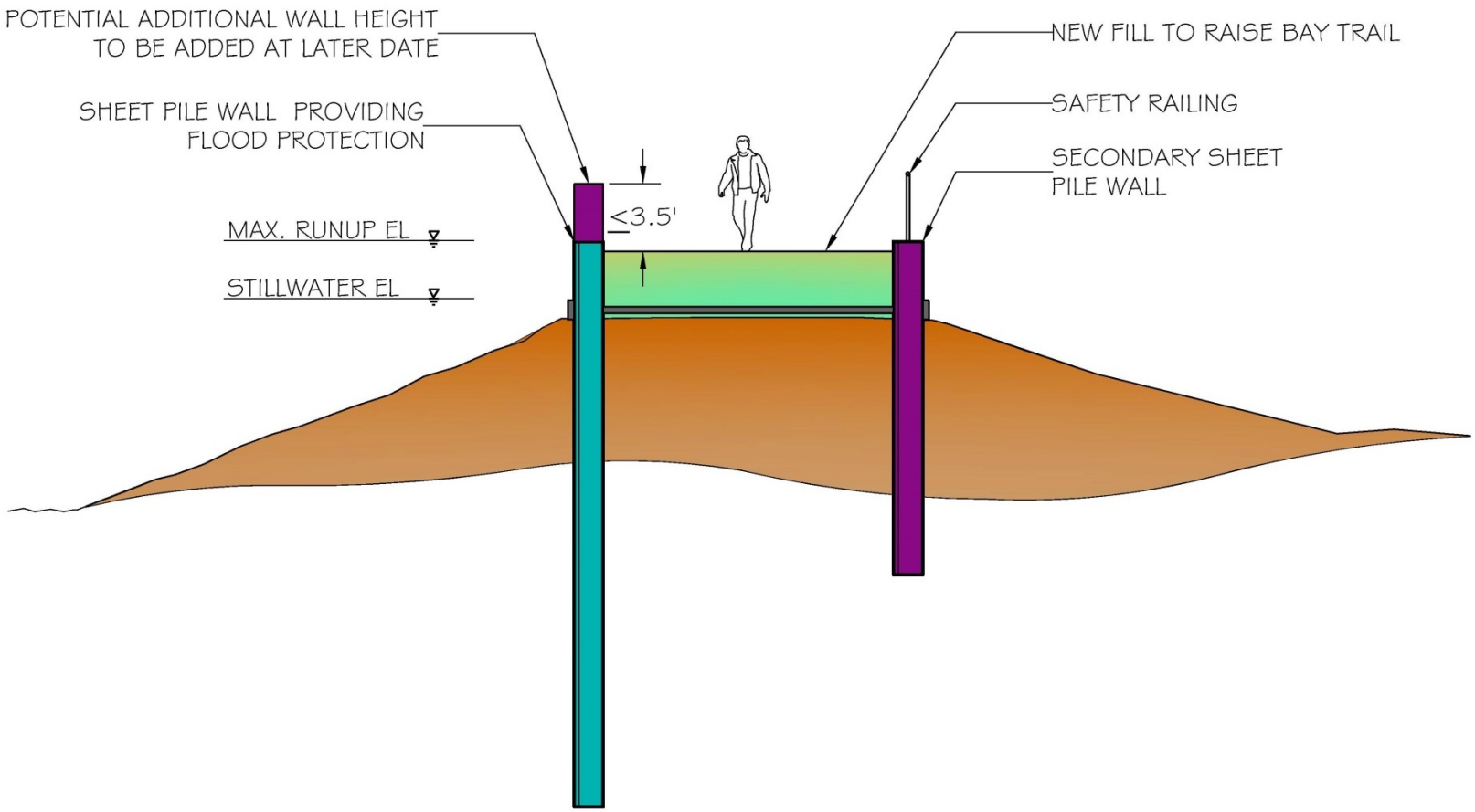
Future Construction

Where available space limited, install secondary wall and tieback.



Adapting Hybrid Design to Sea Level Rise

Ultimate Construction



Adapting Hybrid Design to Sea Level Rise

Accomplishments

- 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

Foster City Levee EIR Update

- 30-day public comment period – January 6 through February 4, 2016
- Scope of EIR:
  - Aesthetics
  - Air Quality
  - Biological Resources
  - Geology and Soils
  - Greenhouse Gas Emissions
  - Hazards and Hazardous Materials
  - Hydrology and Water Quality
  - Land Use and Planning
  - Recreation
  - Noise and Vibration
  - Traffic and Transportation

Prepare Admin Draft EIR (Spring 2016)

45-day Public Review of Draft EIR (Summer 2016)

Public Hearings on Draft EIR (Summer/Fall 2016)

Financing

- SCI to conduct public outreach and survey
  - Assessment, CFD, or GO Bond
  - Phone, mail, or computer survey
- Based on public input
  - Further Analysis to be performed
  - Path determined for recommendation to City Council (Spring to Summer 2016)

Levee Improvement Project Outreach

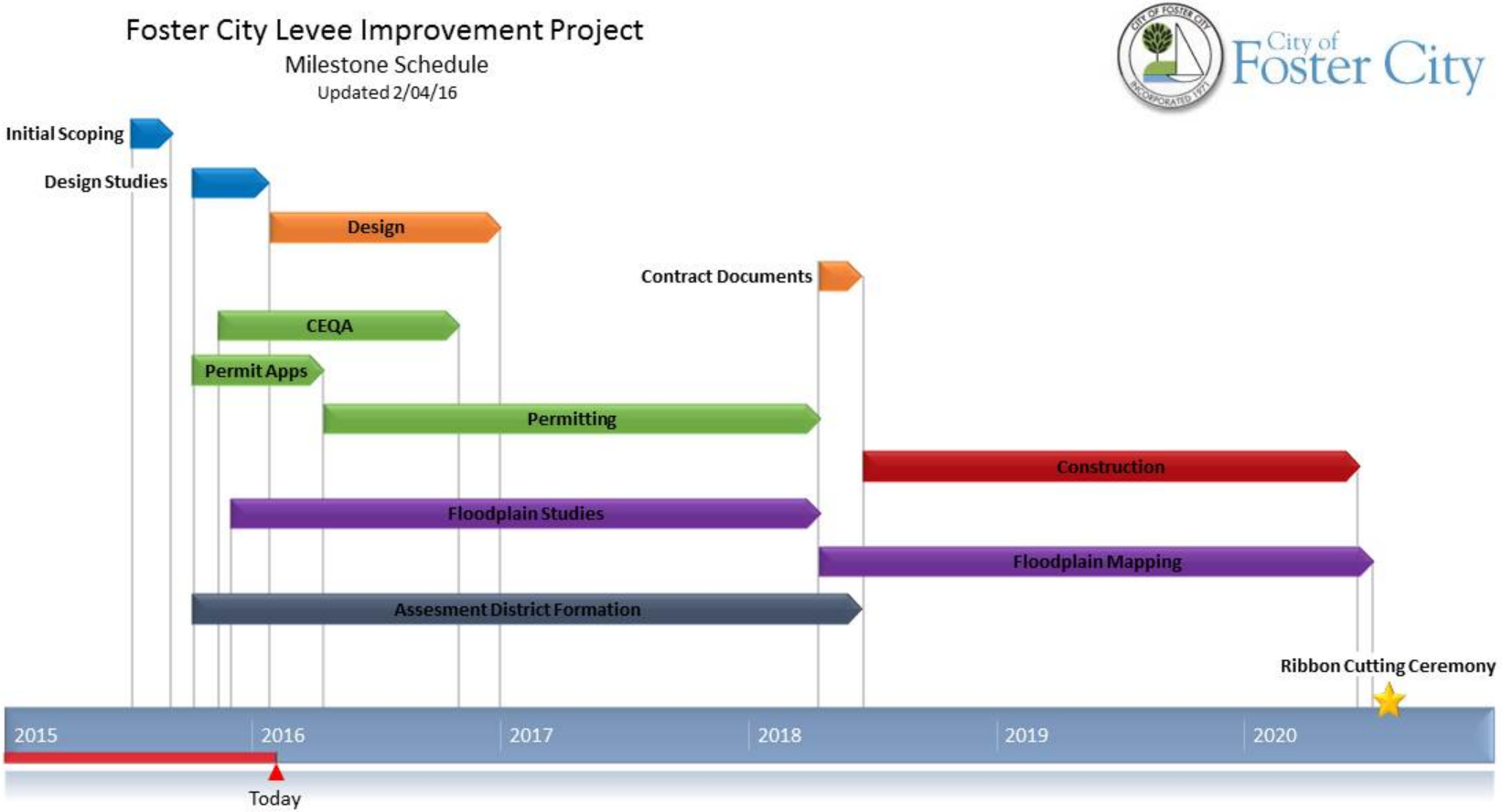
Media Tool Kit

- Informational Meetings to Stakeholders (Business Leaders, HOA, Regulatory Agencies, Government Leaders, Environmental Organizations, Property Owners, Media, Schools)
- Events Calendar
- Direct Mail/E-mail
- News Agencies (FC Islander, SM Daily, SF Examiner, SF Chronicle)
- Newsletters (FC Current, Business E-news, Recology newsletter)
- Online Resources (FC Forum, Eventbrite, Yelp, City Website)
- Print Material Posting
- Site Tours
- Social Media (Facebook, Twitter, Nextdoor, Instagram)
- Television/Broadcasting Resources (FCTV, Marquee)

Next Steps

- ❑ 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

Milestone Schedule



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

Presented to
City Council Study Session
February 4, 2016

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS