

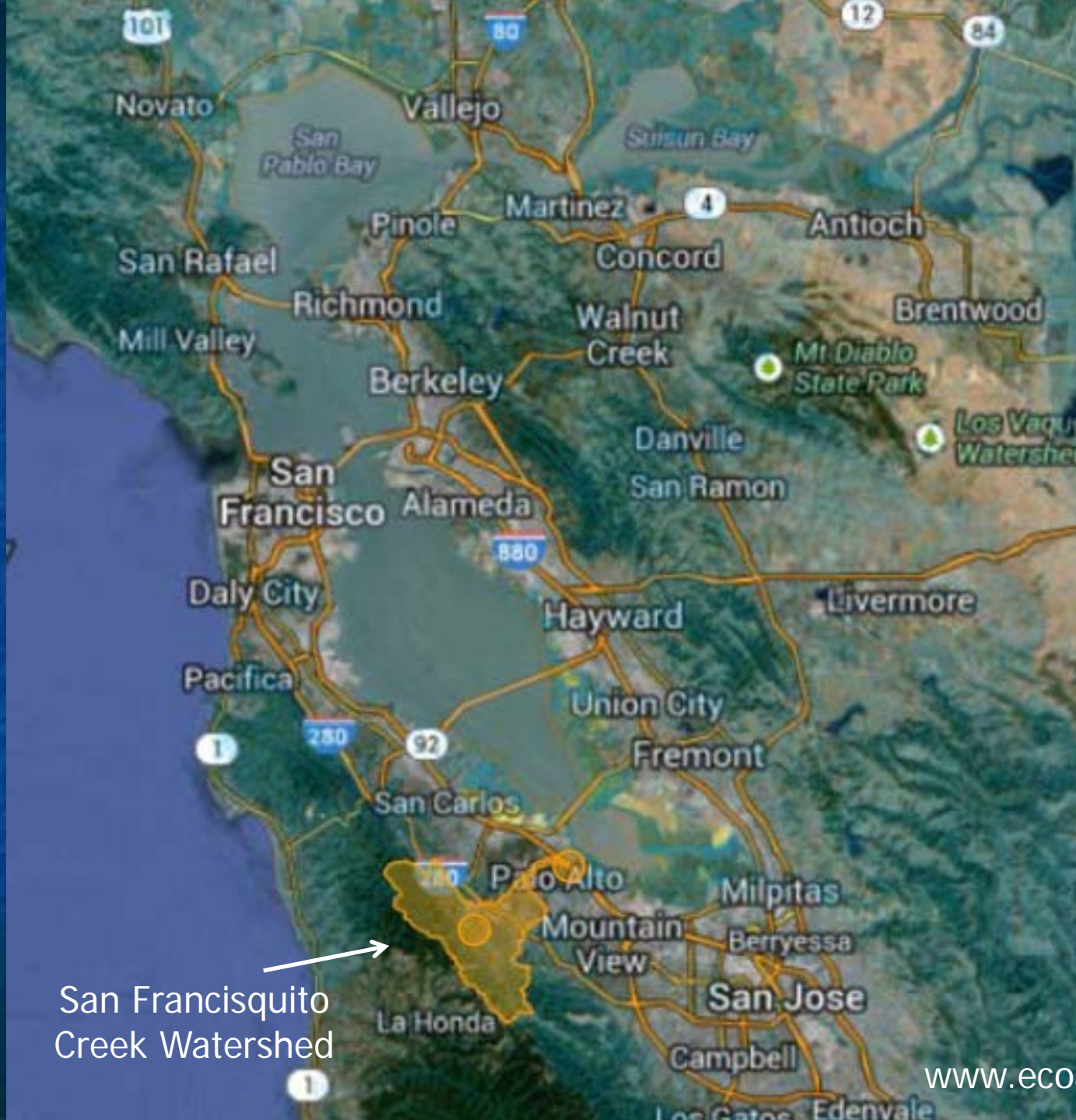
# **San Francisquito Creek Flood Reduction, Ecosystem Restoration, and Recreation Project**

August 13, 2014

By Maggie Beth and Shin-Roei Lee

# Outline

- Proposed project design
- Water Board regulatory authority
- Future permitting



San Francisquito  
Creek Watershed

# JPA's Project Purpose

- Improve channel capacity for the 100-year flood event, high tide, and sea level rise
- Increase and improve ecological habitat
- Provide for improved recreational opportunities



# San Francisquito Creek Watershed

- Watershed area:  
45 mi<sup>2</sup>
- Creeks:  
71 miles
- Land use:
  - Upper watershed:  
low density
  - Middle watershed:  
medium density
  - Lower watershed:  
higher density

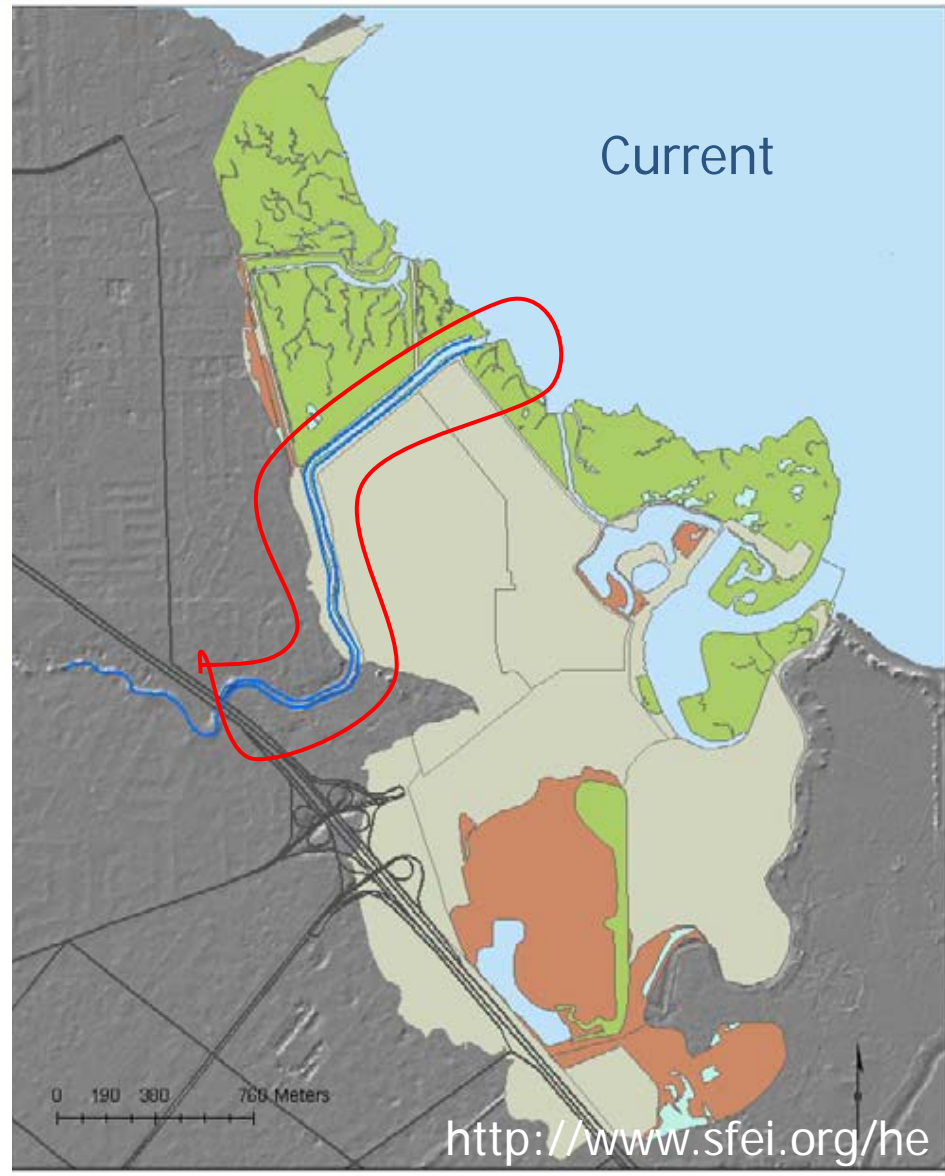
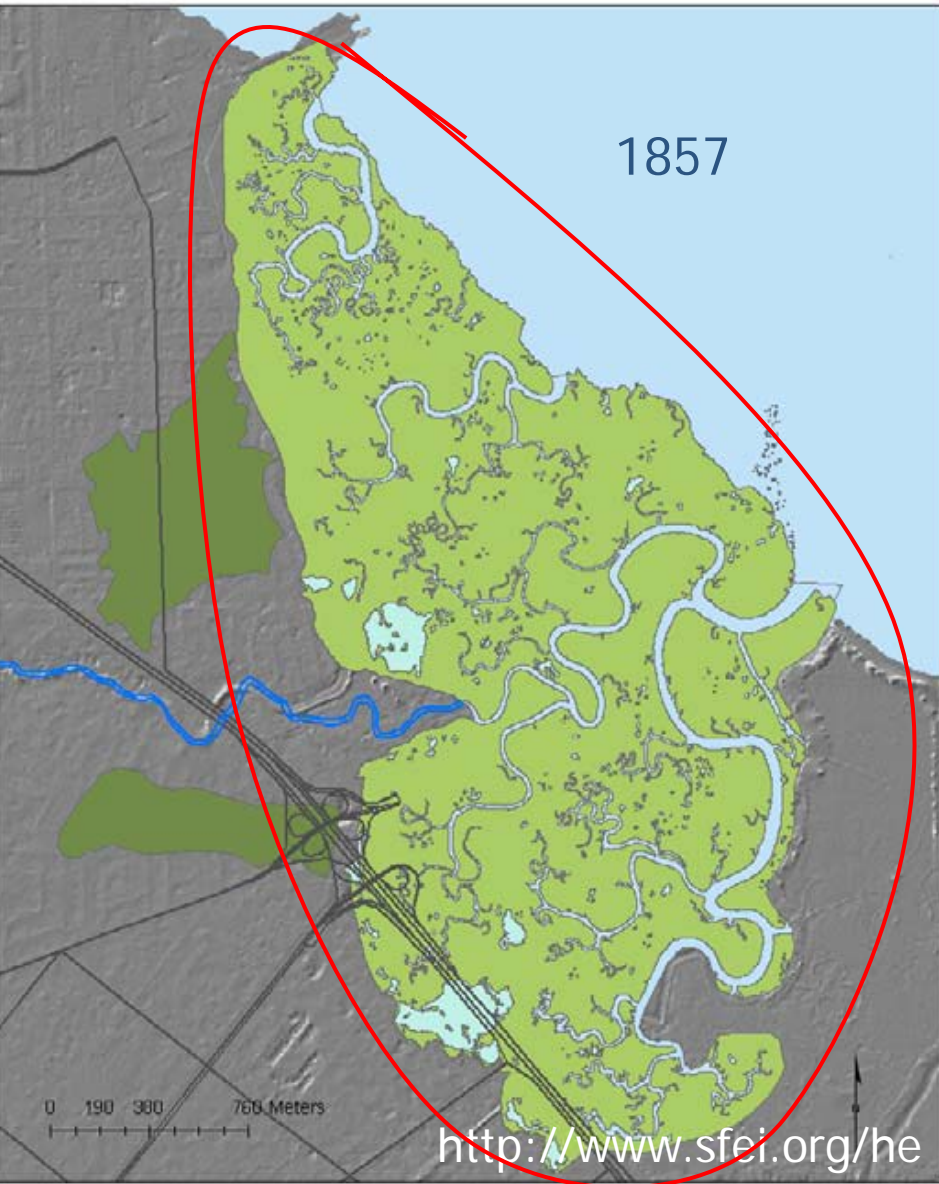


# San Francisquito Creek

## Beneficial Uses

- Cold Freshwater Habitat
- Fish Migration
- Fish Spawning
- Warm Freshwater Habitat
- Wildlife Habitat
- Water Contact Recreation
- Noncontact Water Recreation
- Agricultural Supply
- Municipal and Domestic Supply
- Preservation of Rare and Endangered Species

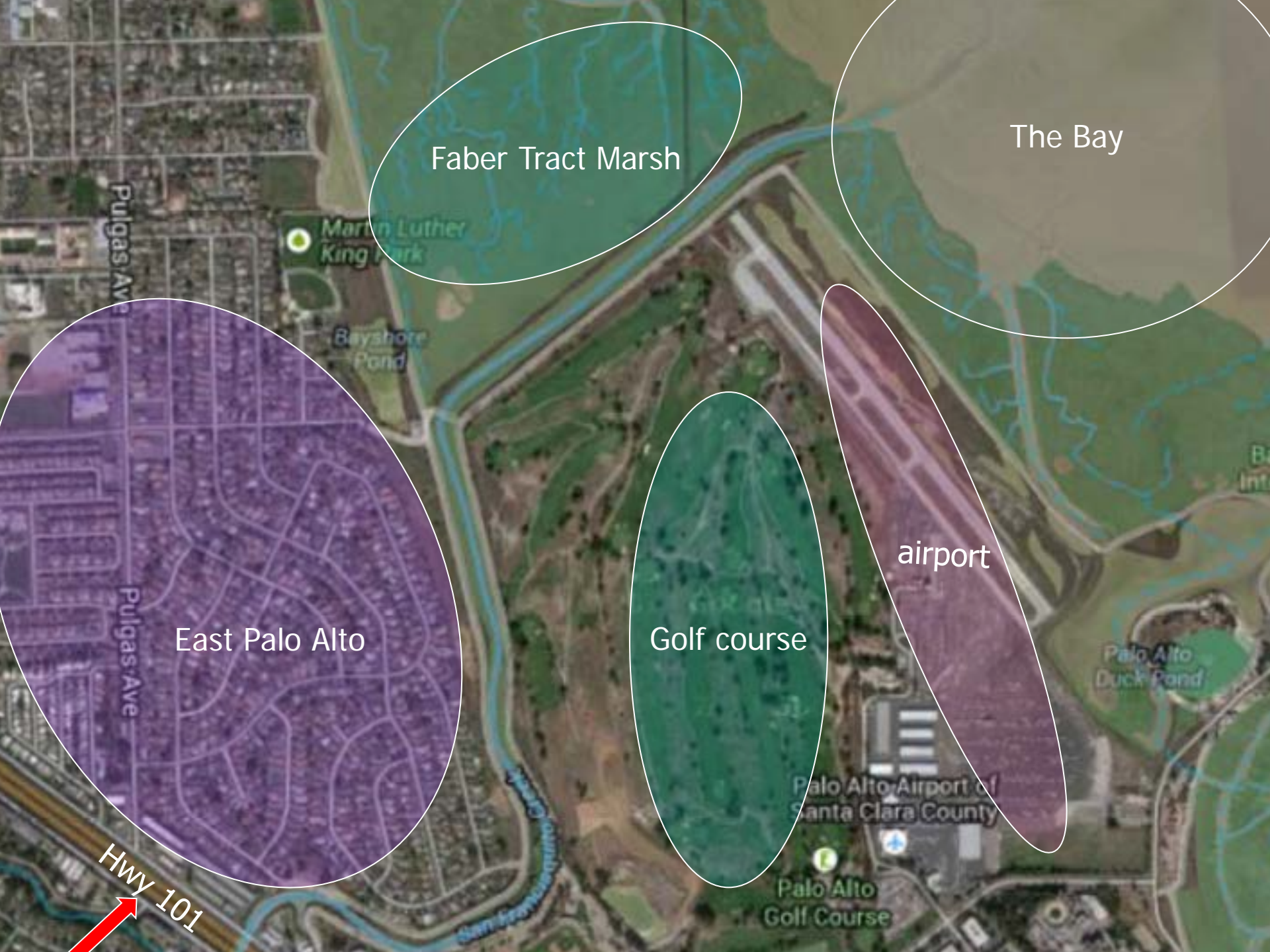
# Historic and Existing Creek Alignment





# Project Permitting History

- 3/13: received initial application
- 3/13: issued incomplete application letter
- 10/13 & 1/14: received supplemental application information
- 2/14: issued denial without prejudice letter
- 7/14: received new application



Faber Tract Marsh

The Bay

East Palo Alto

Golf course

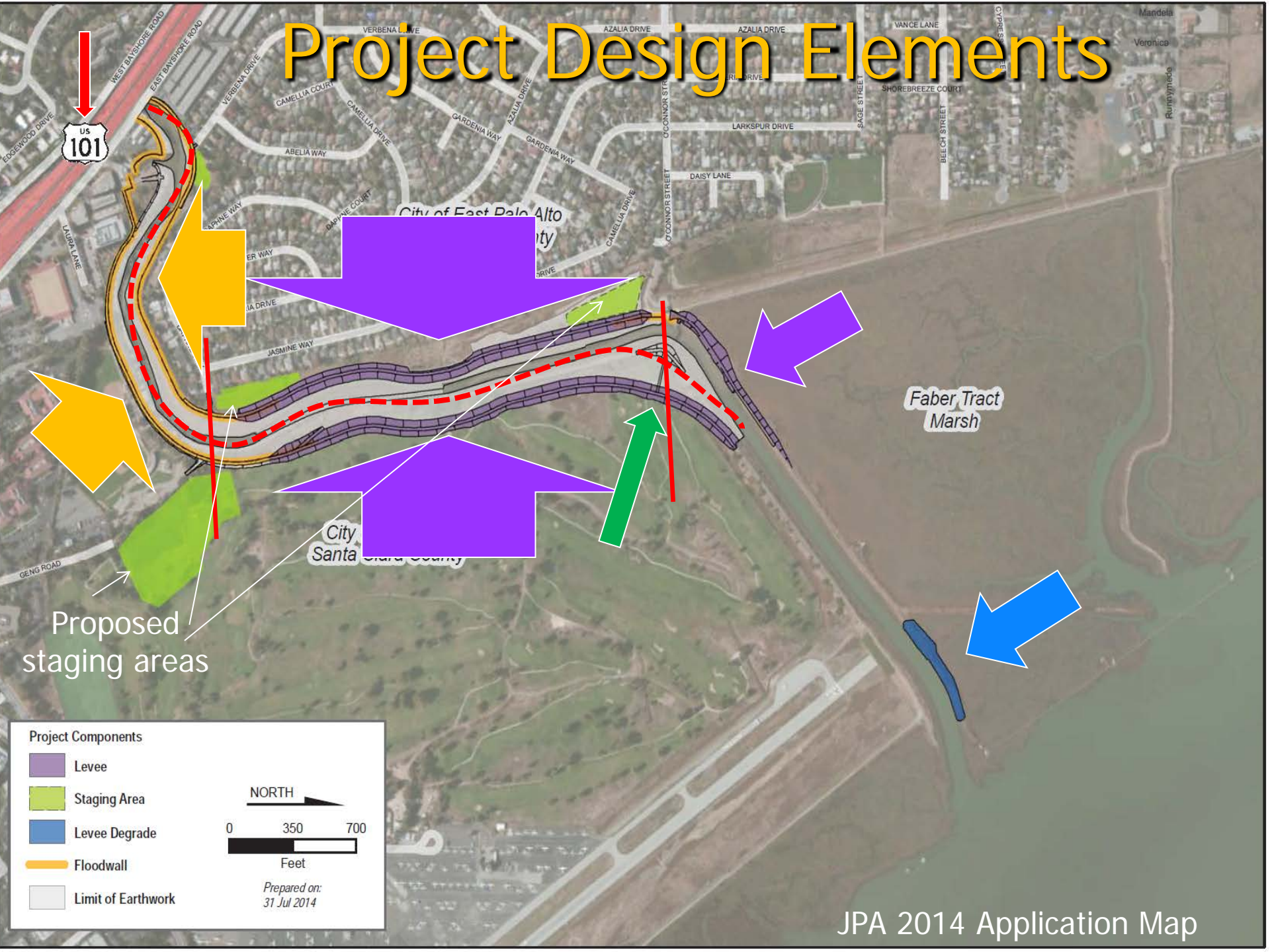
airport

HWY 101

# Project Design Elements

- Sediment excavation and earthwork
- Levee modification and relocation
- Floodwall construction
- Rock slope protection
- Friendship Bridge extension
- Road and trail construction
- Tidal marsh enhancement

# Project Design Elements



Proposed staging areas

**Project Components**

- Levee
- Staging Area
- Levee Degrade
- Floodwall
- Limit of Earthwork

NORTH

0 350 700  
Feet

Prepared on:  
31 Jul 2014

# Project Impacts

~12.0 acres of impacts

Habitat Type	Permanent (acres)	Temporary (acres)	Total (acres)
Tidal marsh	6.06	1.53	7.59
Freshwater pond and marsh	1.46	0	1.46
Tidal/Bay water	0.8	1.61	2.41
Riparian	0.5	0	0.5
<b>Total</b>	<b>8.82</b>	<b>3.14</b>	<b>11.96</b>

# Proposed Mitigation

- Plant approximately 13.6 acres of tidal marsh vegetation on both sides of the creek.
- Plant a 10-foot wide vegetated shrub band along all rock slope protection areas.

# Water Board Regulatory Framework and Legal Authority

- Regulates dredge and/or fill projects
  - Federal Clean Water Act
  - California Water Code
- Determines least environmentally damaging practicable alternative (LEDPA)
- Determines compliance with State water quality standards

# In Summary

- Project Purpose and Design
  - Improve channel, improve ecological habitat, and provide recreational use
  - Remove sediment, install floodwalls, modify levees, install rock slope protection, extend Friendship Bridge, maintenance roads, recreational trail, and plant tidal marsh habitat.
- Received new application 7/14 with design modifications
  - Raise Faber Tract levee
  - Lower Bay levee



# In Summary, cont.

- Water Board regulatory authority
  - Regulates dredge and/or fill projects
  - Determines LEDPA
  - Determines compliance with water quality standards

# In Summary, cont.

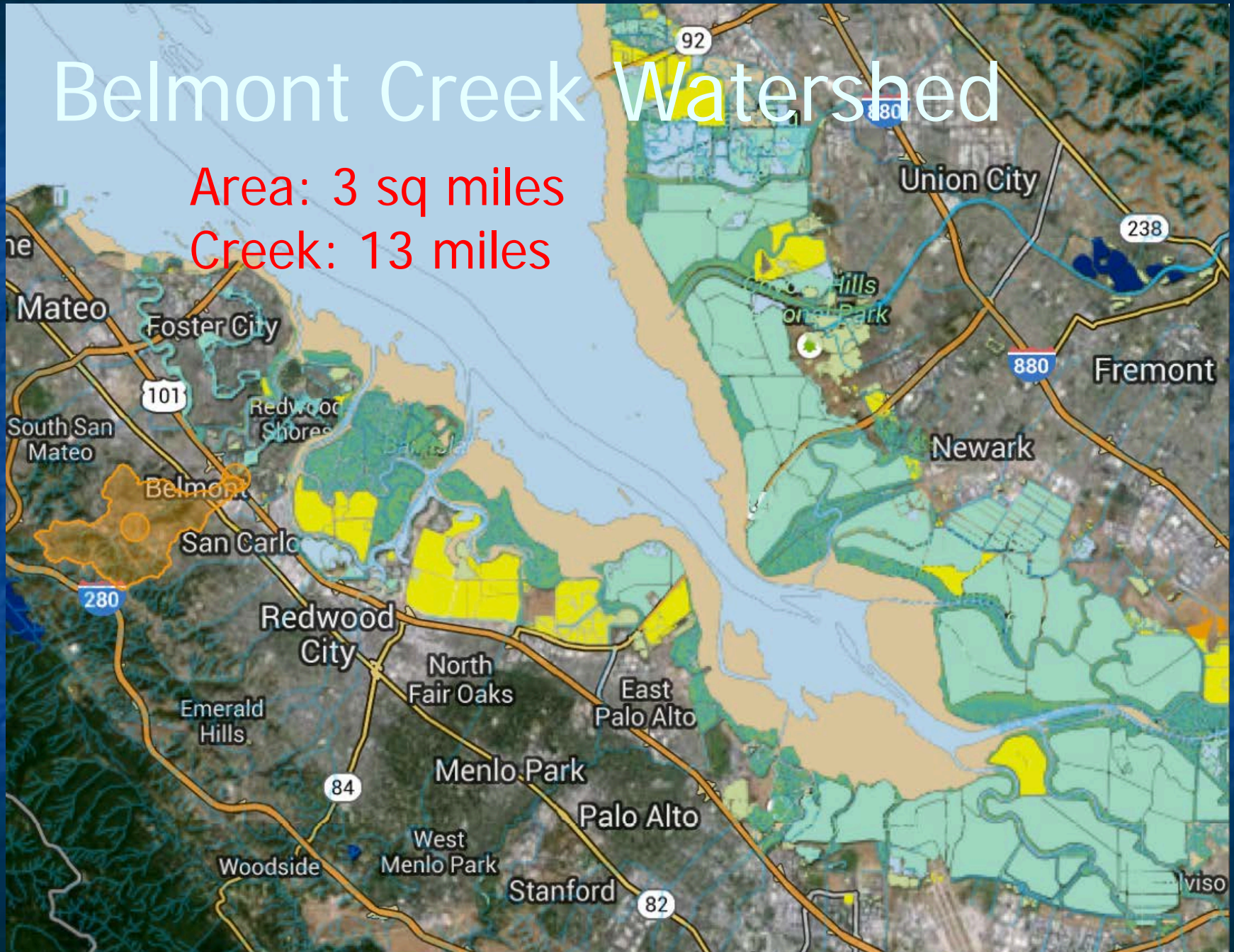
- Water Board's next steps on 7/14 application
  - Evaluate application to determine LEDPA and mitigation adequacy
  - Receive public comments
  - Coordinate with the U.S. Army Corps of Engineers and other regulatory agencies.
  - Prepare certification consistent with the above

Future Permitting  
based on  
Stakeholder-based  
Watershed Approach

# Belmont Creek Watershed

Area: 3 sq miles

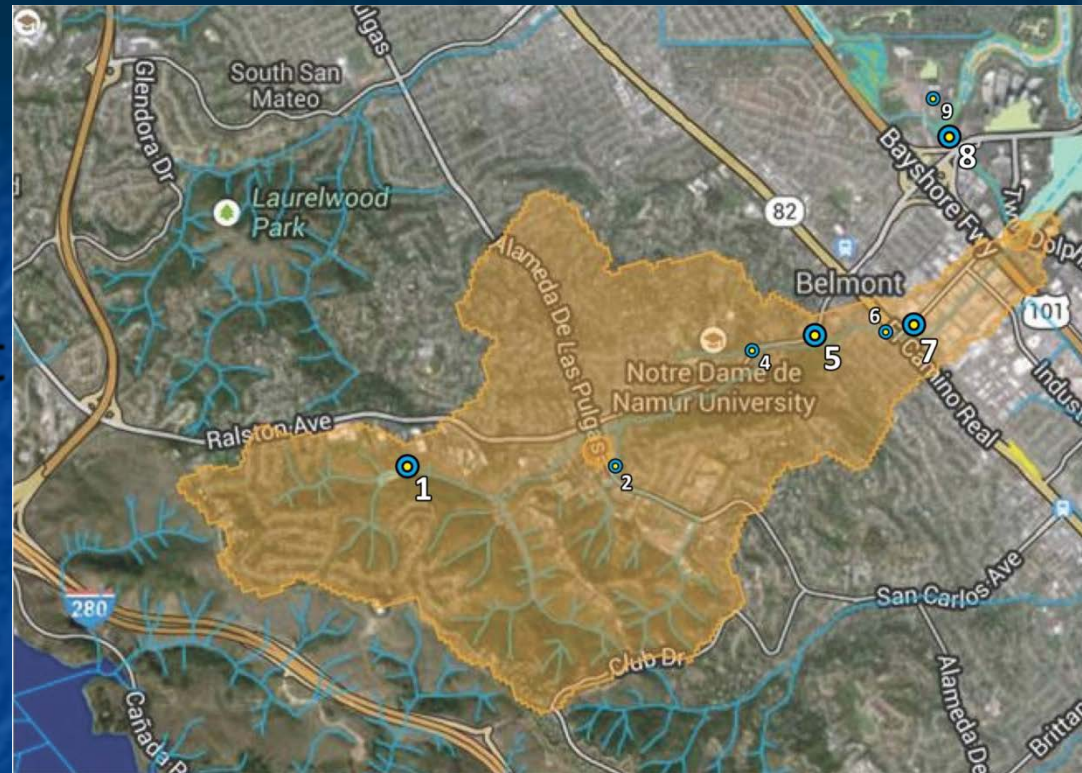
Creek: 13 miles



# Belmont Creek Watershed



1. Dam modification
2. Detention Basins
3. Low Impact Development
4. Creek daylighting
5. Creek Restoration
6. New Culvert with green street
7. Floodwalls
8. Tide gate and pump (small)
9. Tide gate and pump (large)



[www.EcoAtlas.org](http://www.EcoAtlas.org)

# Summary

Alternatives	Cost	Implementation Complexity	Flood Advantage	Environmental	Regulatory Acceptance	Votes (See Below for Voters)
Alternative 1: Operations and Design Water Dog Lake/Dam	\$5,200,000	Complex	3	2	5	7 <sup>1,2,4,5,6,7,8</sup>
Alternative 2: Upstream Basins at Carlmont Drive, Village Drive, and Carlmont High School Baseball Field Off Club Drive	\$2,000,000	Complex	4	1	3	1 <sup>3</sup>
Alternative 3: Low Impact Development Measures	Varies	Moderate	1	5	5	0
Alternative 4: Creek Daylighting Through Silverado Senior Living Facility With Bypass	\$2,000,000	Complex	1	5	5	1 <sup>5</sup>
Alternative 5: Floodplain Restoration at Twin Pines Park with Offline Basin for Temporary Storage	\$2,000,000	Complex	3	4	5	7 <sup>1,2,3,4,5,6,7</sup>
Alternative 6: Parallel Overflow Pipes from Old County Road down to Harbor Blvd and/or Quarry Rd. with Culvert Improvements to Industrial Road and Highway 101	\$5,600,000	Moderate to Complex	4	2	2	4 <sup>4,5,6,8</sup>
Alternative 7: New Cross Culvert at Old County Rd. & Channel Improvement with Short Flood Walls on Lower Belmont Creek and Culvert Improvements to Industrial Road and Highway 101	\$5,500,000	Moderate	4	2	3	5 <sup>1,2,3,7,8</sup>
Alternative 8: Tide gate and Pump at Shoreway Road/Marine Parkway	\$2,000,000	Moderate	4	1	1	6 <sup>1,4,5,6,7,8</sup>
Alternative 9: Tide gates and Pump near Oracle Bridge	\$8,000,000	Moderate	5	1	1	2 <sup>2,3</sup>

Scale:	Voters:	
1 - Low	(1) Water Board	(6) City of San Carlos
2 - Low to Moderate	(2) Redwood City	(7) Novartis
3 - Moderate	(3) Caltrain	(8) Caltrans
4 - Moderate to High	(4) City of Belmont	
5 - High	(5) San Mateo County	

## Alternatives Selected for Modeling

Alternative 1: Operations and Design at Water Dog Lake/Dam

Alternative 5: Floodplain Restoration at Twin Pines Park with Offline Basin for Temporary Storage

Alternative 7: New Cross Culvert at Old County Road and Channel Improvement with Short Flood Walls on Lower Belmont Creek and Culvert Improvements to Industrial Road and Highway 101

Alternative 8: Tide gate and Pump at Shoreway Road/Marine Parkway

# Benefits with Watershed Approach with Stakeholder Process

Implement multi-objective projects that achieve:

- ☑ Flood Protection
- ☑ Water Quality Protection – e.g., regional LID
- ☑ Habitat Restoration
- ☑ Grant and Permit Applications

To have a resilient, healthy watershed, and vibrant communities



*Questions?*

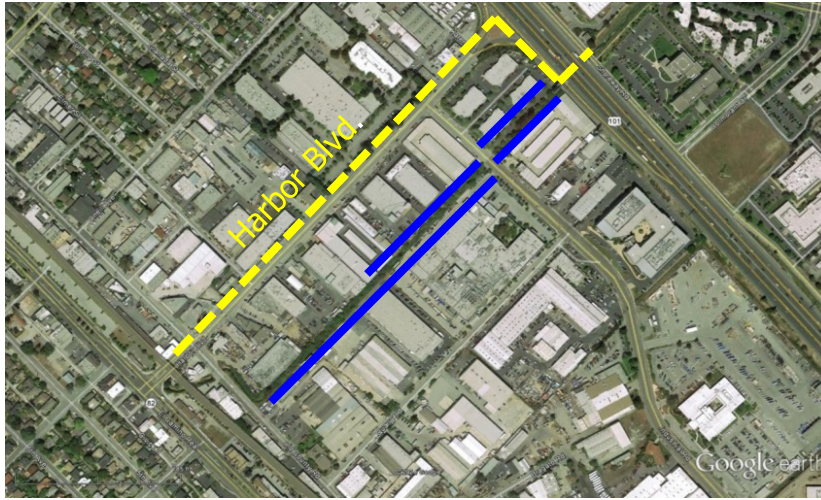
# Extra Belmont info



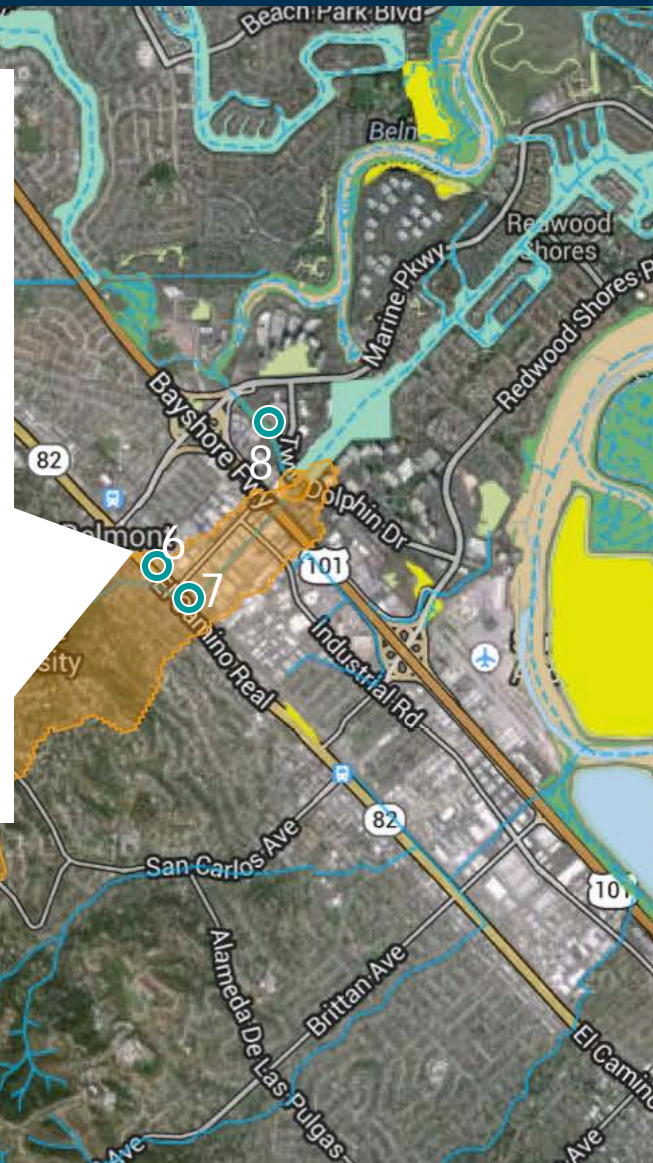
1. Water Dog Lake



5. Twin Pines Park



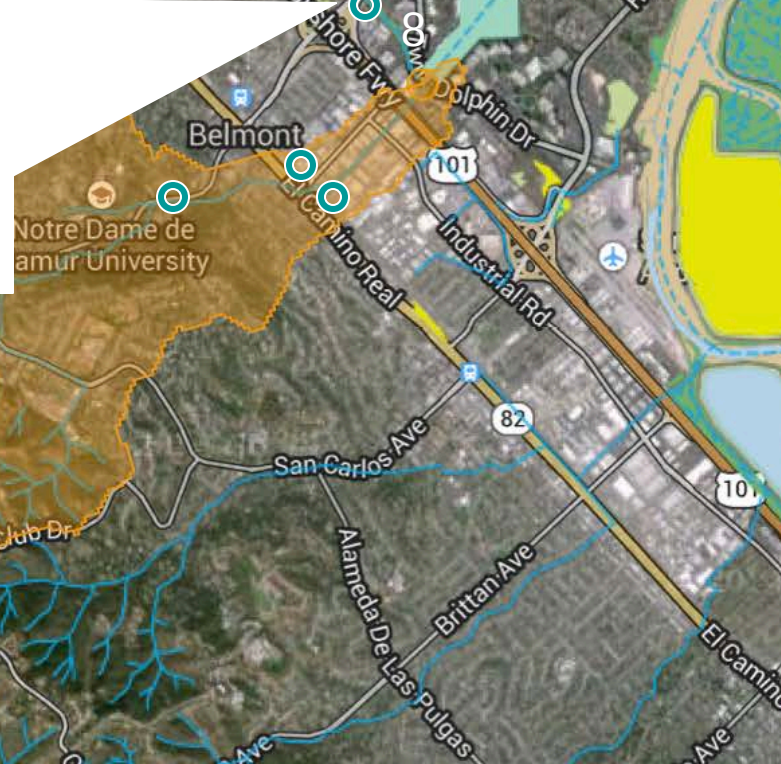
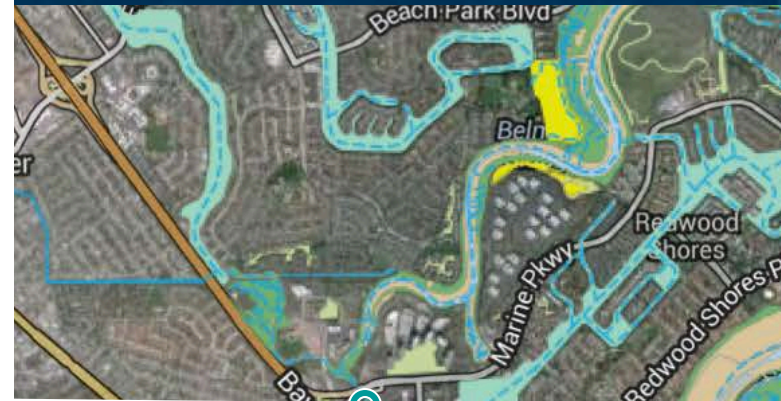
- 6. New Culvert under Harbor Blvd & green street
- 7. Floodwalls along creek



## 8. Tide Gate and Pump at Marine Pkwy



Marine Pkwy



# Flooding and Sedimentation



# Extra S.F. Crk Info

# Proposed Flood Protection

- 100-year flood event: 9,400 ft<sup>3</sup>/second
- Average water depth between floodwalls: 14-15 feet
- Average water depth between levees : 11.5 feet
- Velocity: 6-11 feet/second



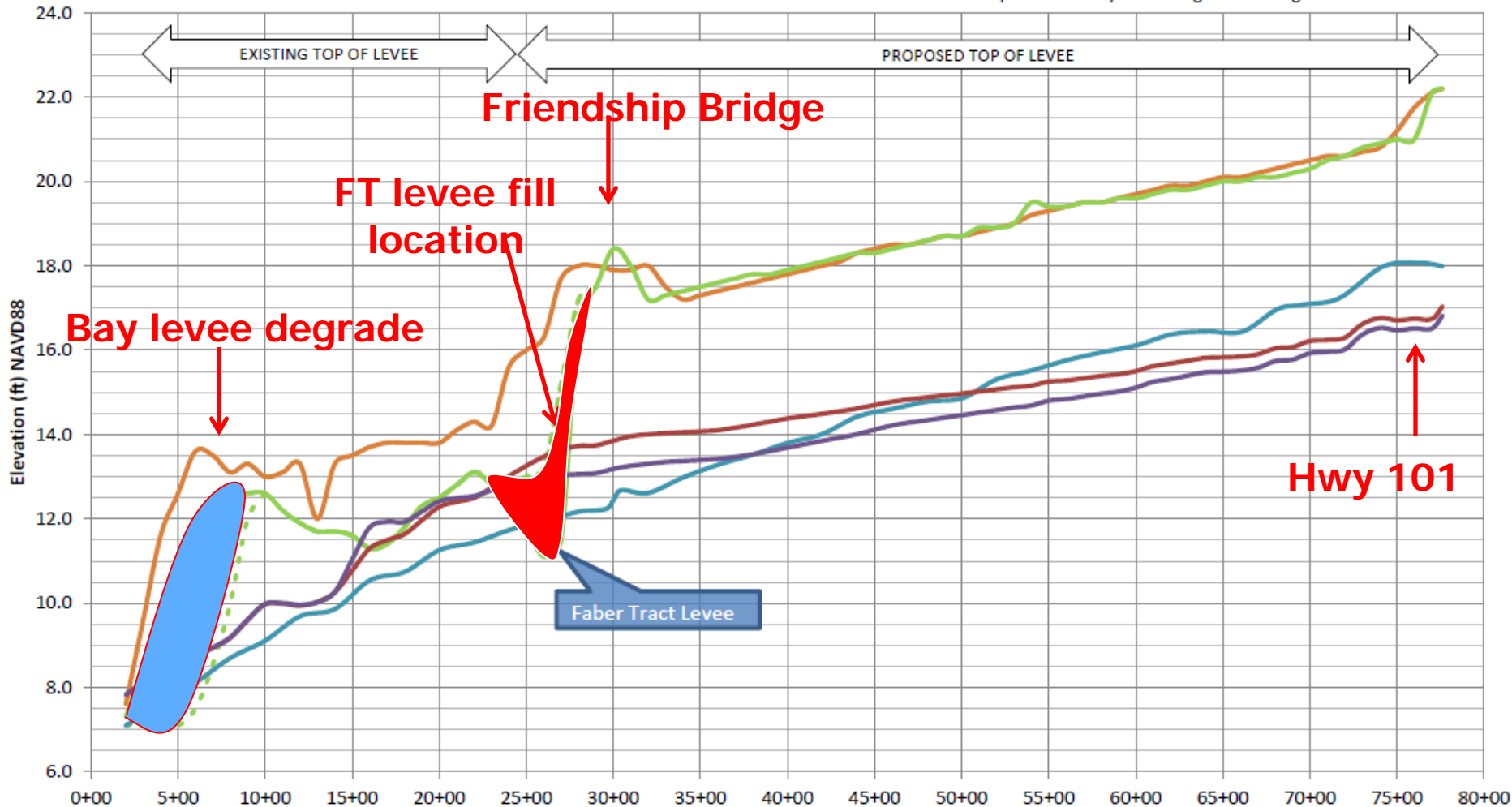
# San Francisco Creek

## Existing versus Proposed Project Alternatives

### 7400 cfs at 7.1' Tidal Event (MHHW)

**Flows into Faber Tract**  
 Existing Conditions = 155 cfs  
 FT Levee Raise Optimized + Bay Levee Degraded = 85 cfs  
 FT Levee Raise Optimized + Bay Levee Degraded + Larger Setback = 105 cfs

**Flows into Neighborhoods**  
 Existing Conditions = 2205 cfs  
 FT Levee Raise Optimized + Bay Levee Degraded = 0 cfs  
 FT Levee Raise Optimized + Bay Levee Degraded + Larger Setback = 0 cfs



- Palo Alto Top of Levee
- East Palo Alto Top of Levee
- - - Proposed Changes to Top of Levee
- Water Surface Elevation for Existing Conditions
- Water Surface Elevation when FT Levee Raise Optimized + SF Bay Levee Degraded
- Water Surface Elevation when FT Levee Raise Optimized + SF Bay Levee Degraded + Larger Setback

# Project Information for Applications

- Description of watershed and evaluation of local influences on the creek
- Hydrology information for various intervals up to the 100-year flood event
- Evaluation of sediment discharge balance of the watershed and project
- Anadromous fish habitat and migration plan
- Channel configuration that conveys flood flows

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# Project Information for Applications Cont.

- Stability of levees
- Detailed description with dimensions for all Project elements for each segment of the project (e.g. longitudinal profiles and cross-sections)
- Impact to waters of State by habitat type in linear feet, acres, and cubic yards
- Mitigation and monitoring plan
- Maintenance plan
- Urban stormwater runoff plan