South San Francisco Bay Shoreline Study

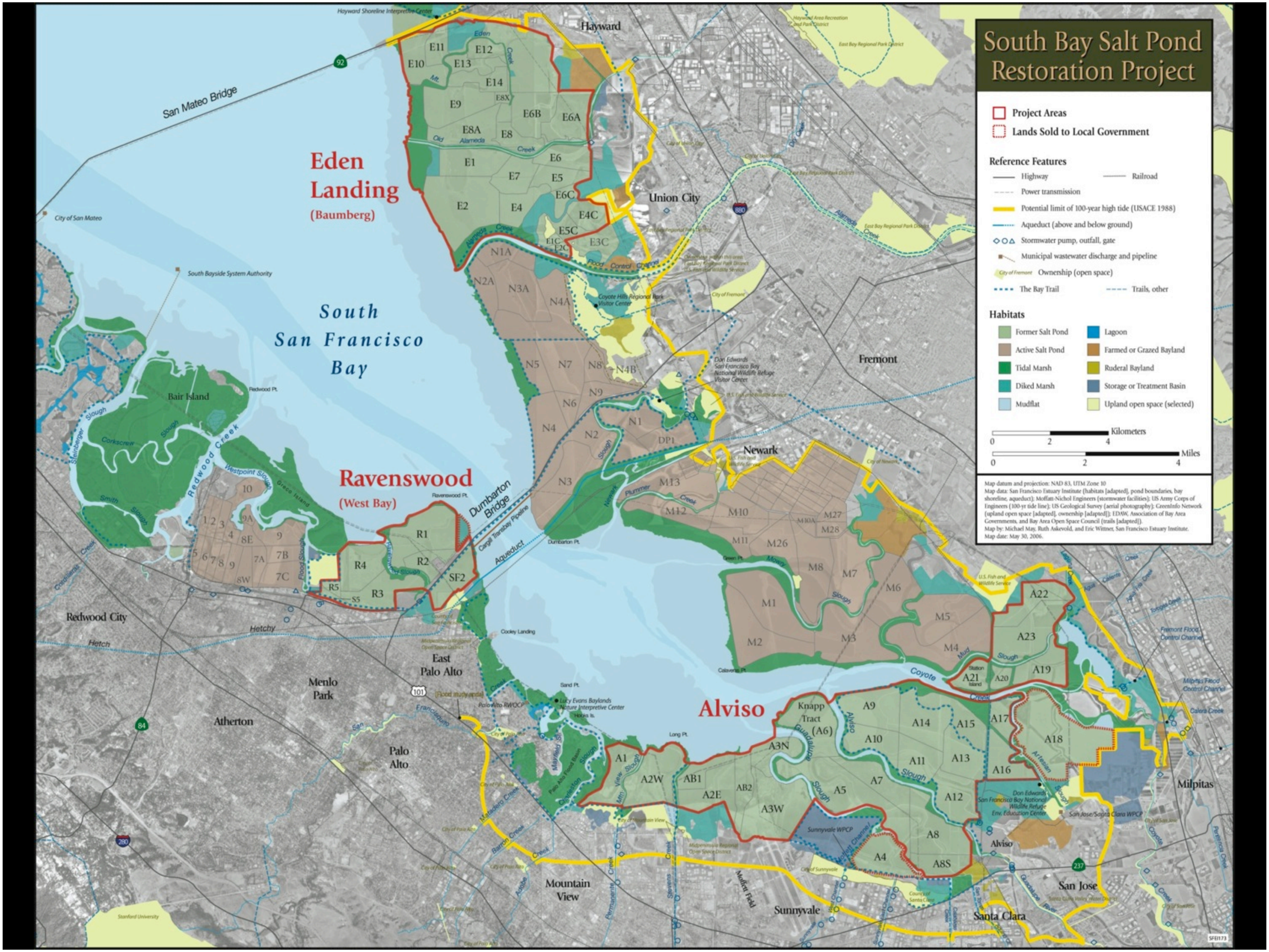
Presentation to SFBCDC Commissioners

September 17, 2015

US Army Corps of Engineers.

Coastal Conservancy

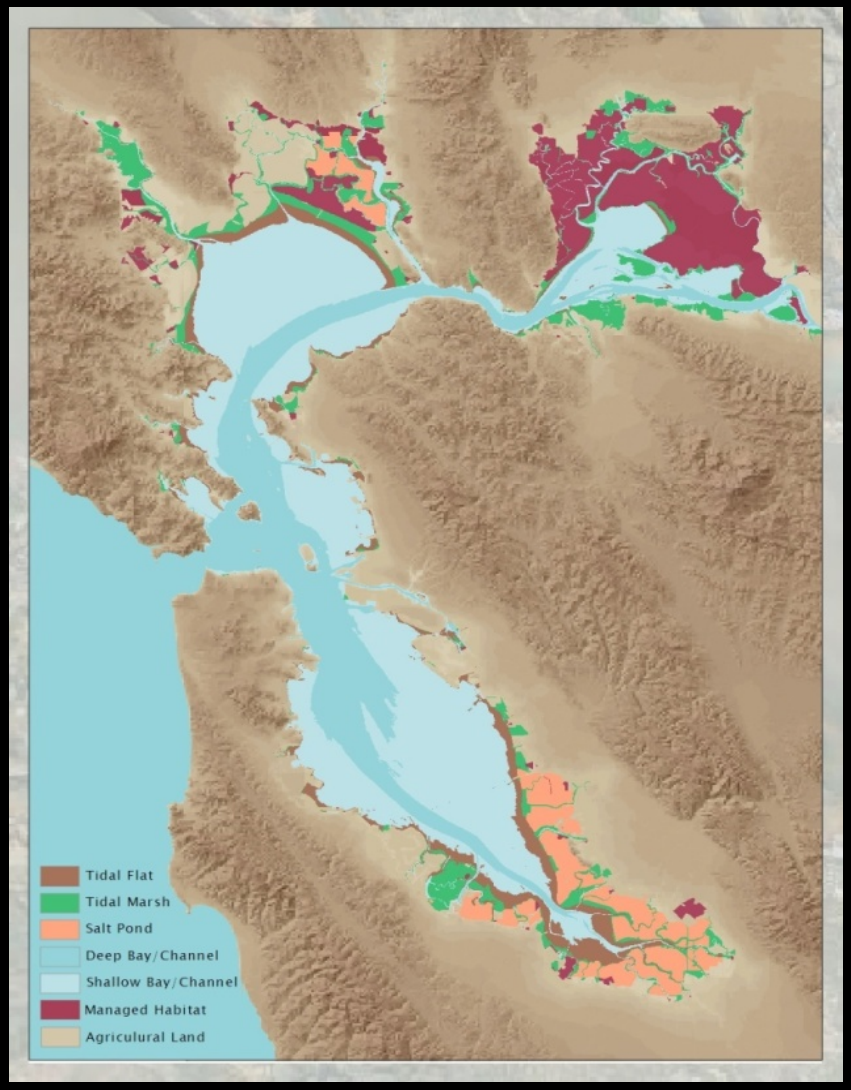
Santa Clara Valley Water District



South Bay Salt Pond Restoration Project
Project Areas
Lands Sold to Local Government
Reference Features
Highway
Railroad
Power transmission
Potential limit of 100-year high tide (USACE 1988)
Aqueduct (above and below ground)
Stormwater pump, outfall, gate
Municipal wastewater discharge and pipeline
City of Fremont
Ownership (open space)
The Bay Trail
Trails, other
Habitats
Former Salt Pond
Lagoon
Active Salt Pond
Farmed or Grazed Bayland
Tidal Marsh
Ruderal Bayland
Diked Marsh
Storage or Treatment Basin
Mudflat
Upland open space (selected)
Kilometers
0
2
4
Miles
0
2
4
Map datum and projection: NAD 83, UTM Zone 10
Map data: San Francisco Estuary Institute (habitats [adapted], pond boundaries, bay shoreline, aqueduct); Moffatt-Nichol Engineers (stormwater facilities); US Army Corps of Engineers (100-yr tide line); US Geological Survey (aerial photography); GreenInfo Network (upland open space [adapted], ownership [adapted]); EDAW, Association of Bay Area Governments, and Bay Area Open Space Council (trails [adapted]).
Map by: Michael May, Ruth Askevold, and Eric Wittner, San Francisco Estuary Institute.
Map date: May 30, 2006.
Eden Landing
(Baumberg)
Ravenswood
(West Bay)
Alviso
South San Francisco Bay
San Mateo Bridge
Dumbarton Bridge
Cargill Transbay Pipeline
Aqueduct
Hayward Shoreline Interpretive Center
City of San Mateo
South Bayside System Authority
Hayward
Union City
Fremont
Newark
Redwood City
Menlo Park
Atherton
East Palo Alto
Palo Alto
Mountain View
Sunnyvale
Santa Clara
San Jose
Milpitas
Alviso
Bair Island
Redwood Pt.
Ravenswood Pt.
Dumbarton Pt.
Cooley Landing
Sand Pt.
Long Pt.
Green Pt.
Calaveras Pt.
Coyote Hills Regional Park Visitor Center
Don Edwards San Francisco Bay National Wildlife Refuge Visitor Center
Lucy Evans Baylands Nature Interpretive Center
Don Edwards San Francisco Bay National Wildlife Refuge Env. Education Center
Palo Alto RWQCP
Sunnyvale WPCP
San Jose/Santa Clara WPCP
Stanford University
Moffett Field
Hayward Area Recreation and Park District
East Bay Regional Park District
U.S. Fish and Wildlife Service
Midpeninsula Regional Open Space District
County of Santa Clara
Santa Clara Valley Water District
Eden Creek
Mt. Eden Creek
Old Alameda Creek
Alameda Creek
Flood Control Channel
Plummer Creek
Newark Slough
Mowry Slough
Mud Slough
Coyote Creek
Alviso Slough
Guadalupe Slough
Guadalupe River
Artesian Slough
Stevens Creek
Permanente Creek
Adobe Creek
Barron Creek
Matadero Creek
San Francisquito Creek
Redwood Creek
Westpoint Slough
Corkscrew Slough
Steinberger Slough
Smith Slough
Greco Island
Flood Slough
Ravenswood Slough
Cordilleras Creek
Hetch Hetchy
Mayfield Slough
Charleston Slough
Palo Alto Flood Basin
Mtn. View Slough
Moffett Channel
Calera Creek
Fremont Flood Control Channel
Milpitas Flood Control Channel
Penitencia Creek
Laguna Creek
Agua Caliente
Dry Creek
Station Island
Hooks Is.
Knapp Tract (A6)
E1 E2 E4 E5 E6 E6A E6B E6C E7 E8 E8A E8X E9 E10 E11 E12 E13 E14 E1C E2C E3C E4C E5C
N1 N1A N2 N2A N3 N3A N4 N4A N4B N5 N6 N7 N8 N9 DP1
M1 M2 M3 M4 M5 M6 M7 M8 M10 M10A M11 M12 M13 M26 M27 M28
R1 R2 R3 R4 R5 S5 SF2
1 2 3 4 5 6 7 8 9 7A 7B 7C 8E 8W 9A 10
A1 A2W A2E A3N A3W A4 A5 A7 A8 A8S A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 AB1 AB2
92
84
101
880
280
237
SFEI173

Tidal Flat
Tidal Marsh
Salt Pond
Deep Bay/Channel
Shallow Bay/Channel

~1850

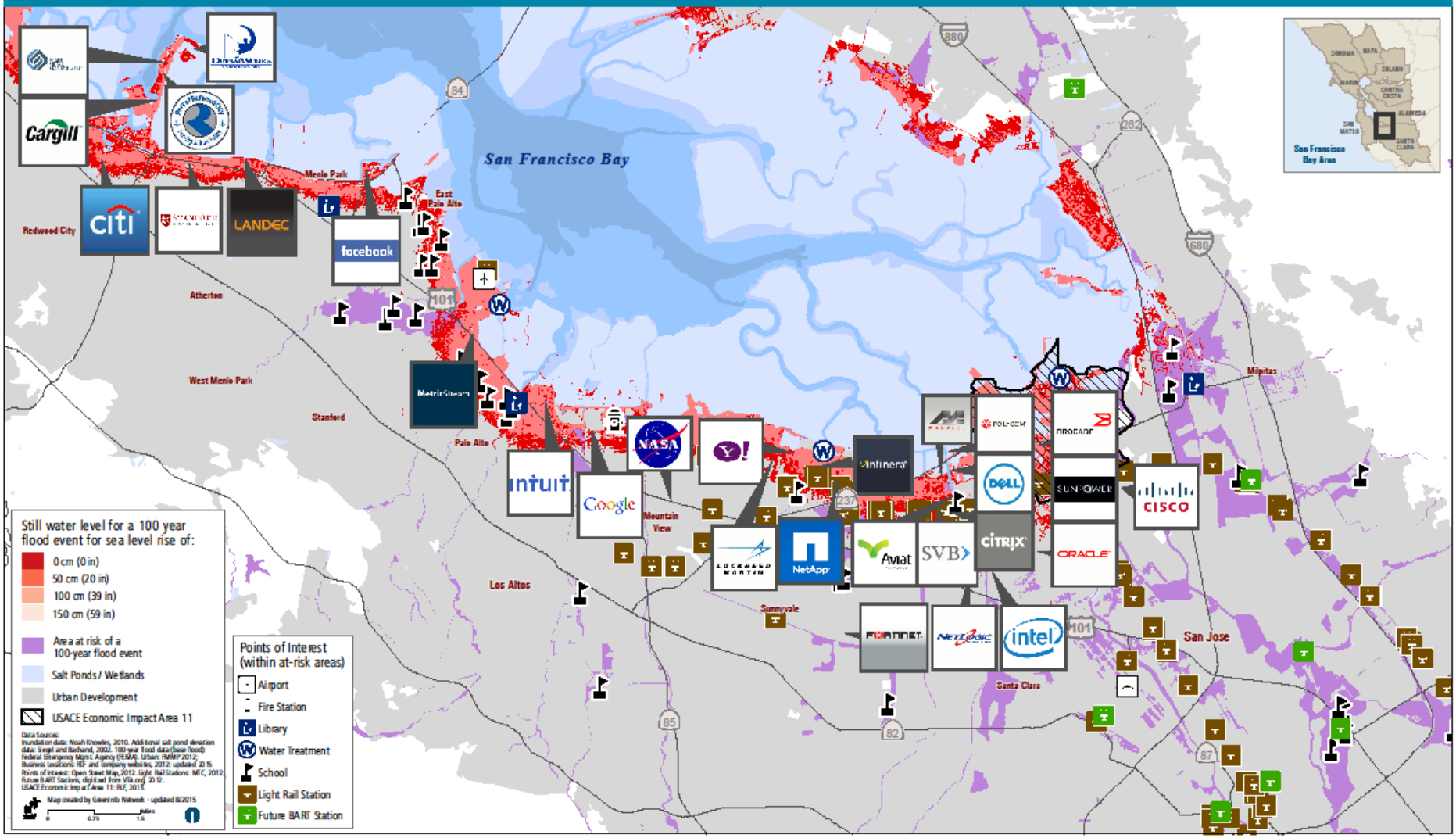

Tidal Flat
Tidal Marsh
Salt Pond
Deep Bay/Channel
Shallow Bay/Channel
Managed Habitat
Agriculural Land

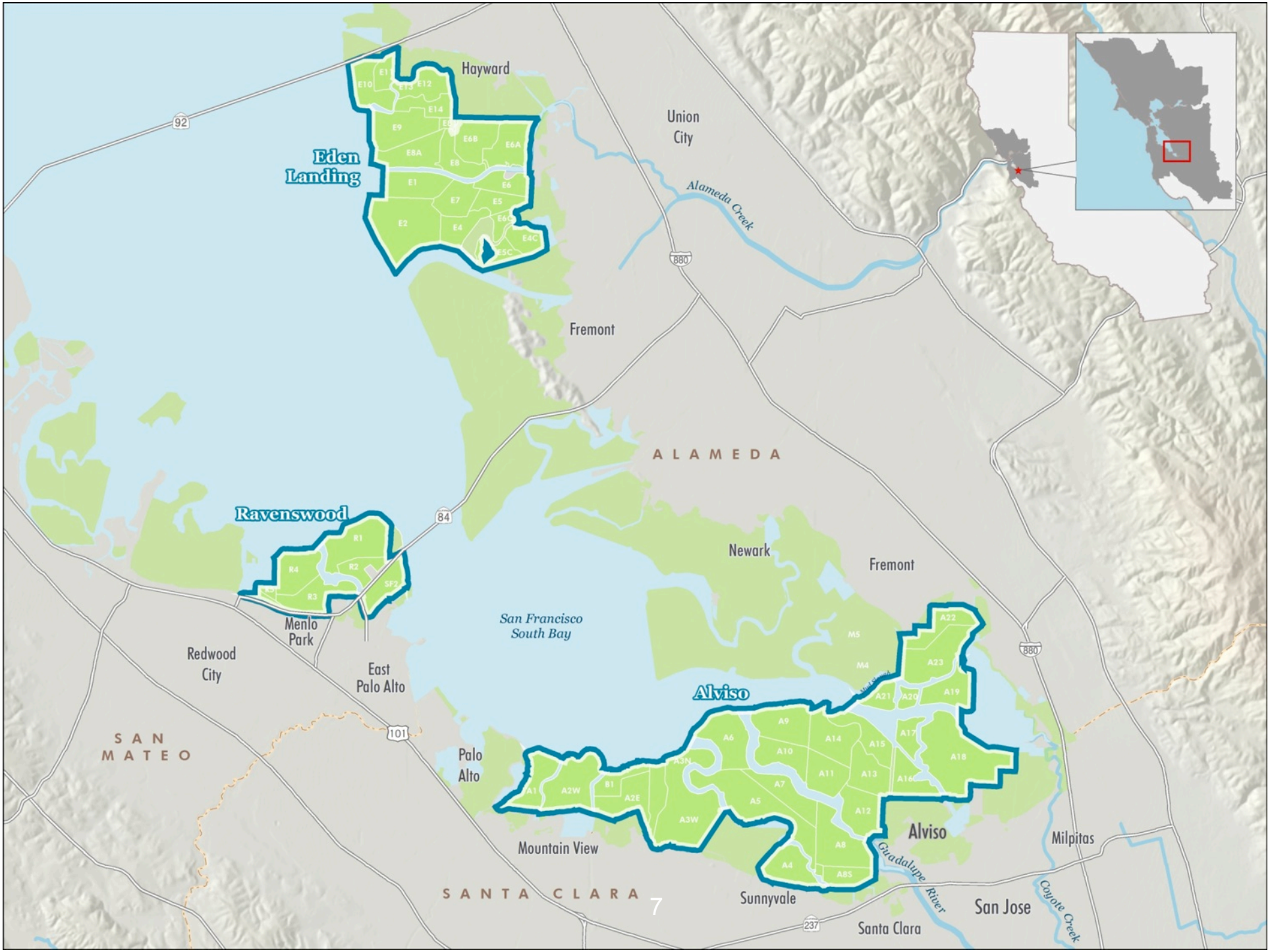
~2000

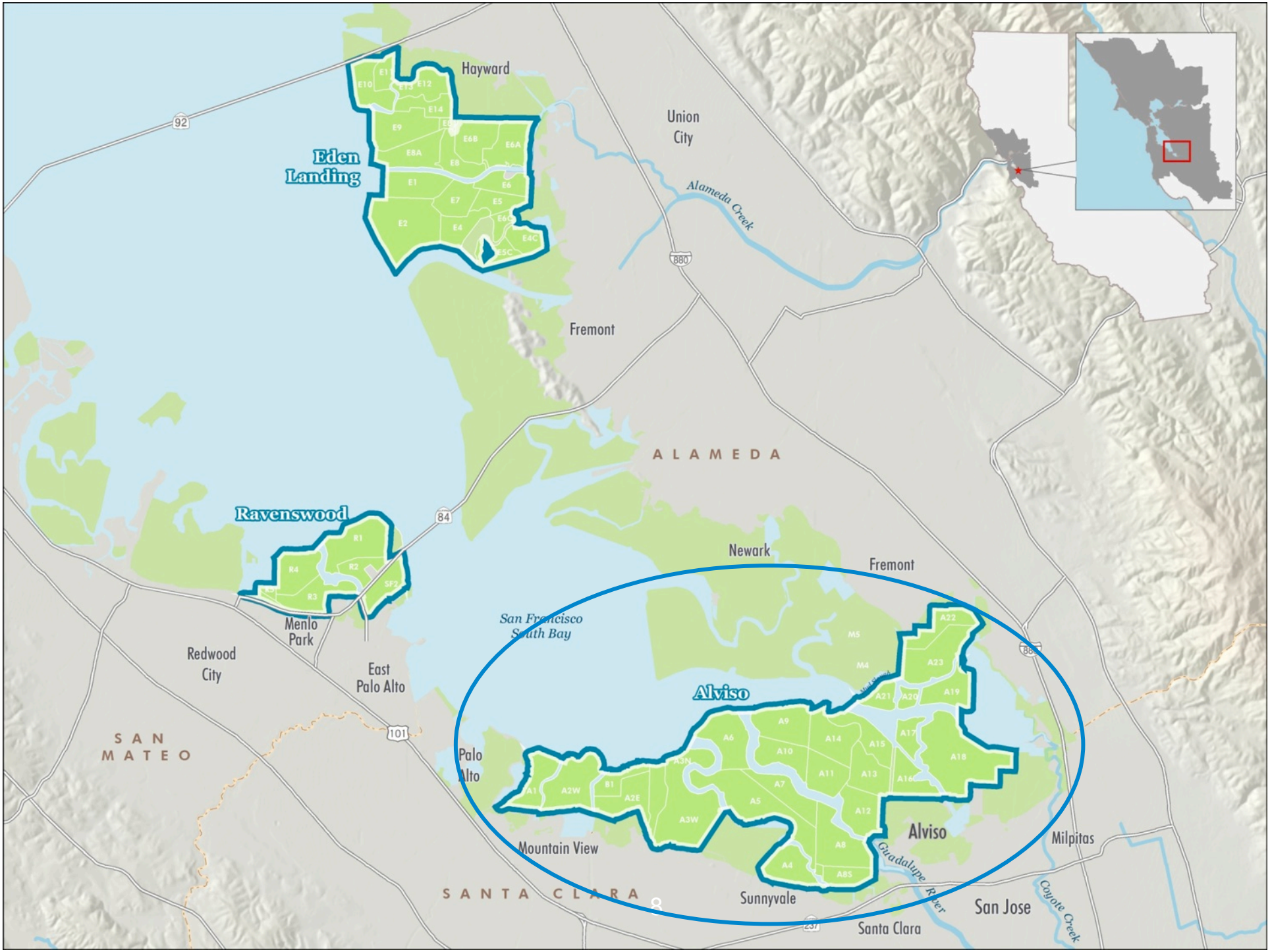
Alviso, 1983

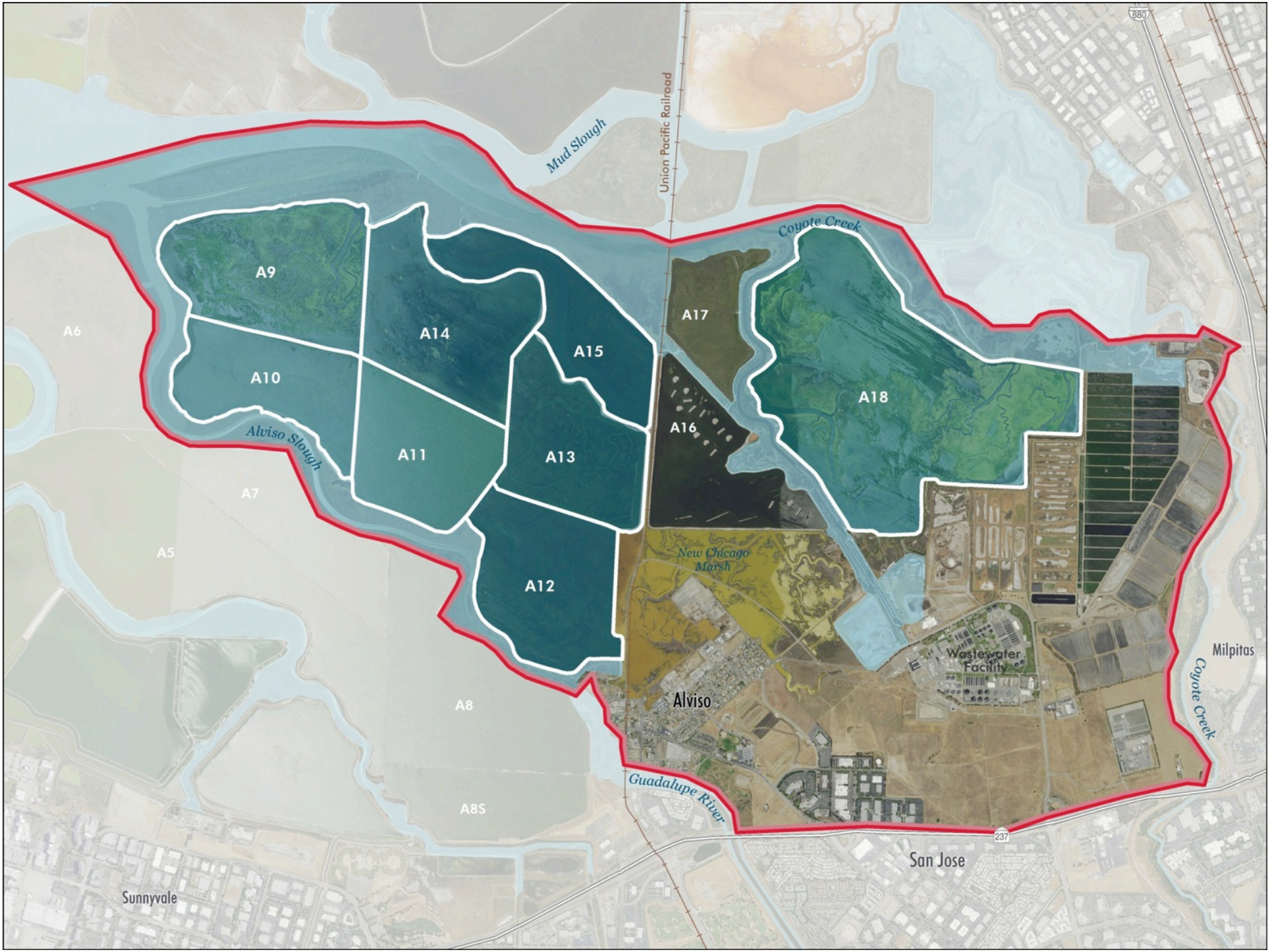
Flood Risk and Sea Level Rise – South Bay

Economic Impact, San Francisco Bay Area




Eden Landing
Hayward
Union City
Alameda Creek
Fremont
ALAMEDA
Ravenswood
Menlo Park
Redwood City
East Palo Alto
San Francisco South Bay
Newark
Fremont
Alviso
Palo Alto
SAN MATEO
Mountain View
SANTA CLARA
Sunnyvale
Alviso
Milpitas
Guadalupe River
Coyote Creek
San Jose
Santa Clara
92
84
101
880
237

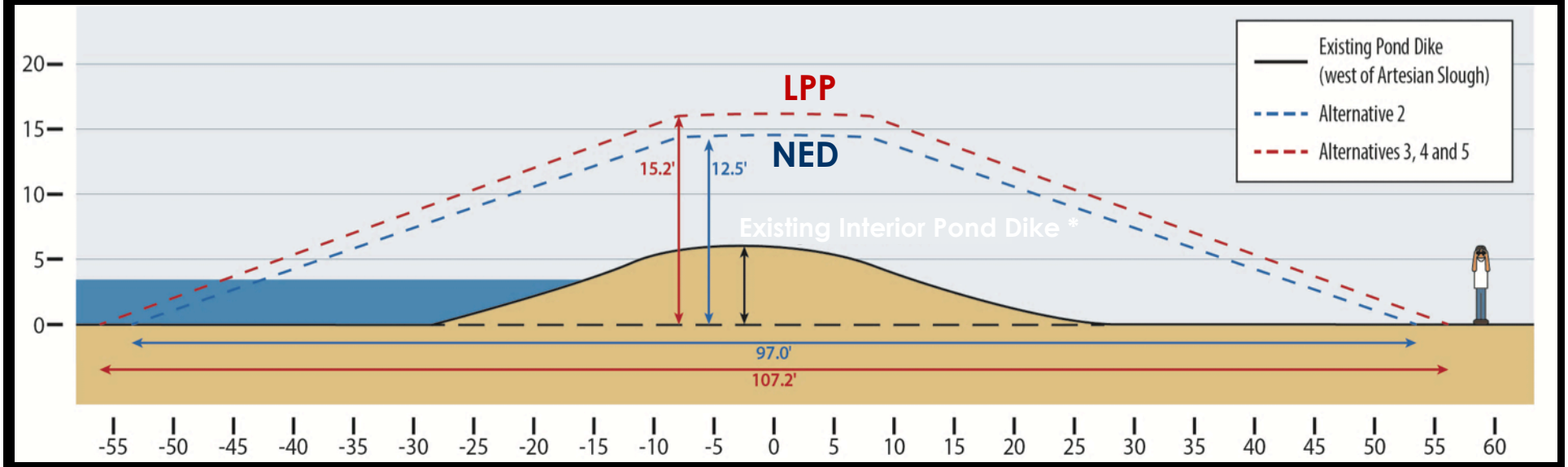

Eden Landing
Hayward
Union City
Alameda Creek
Fremont
ALAMEDA
Ravenswood
Menlo Park
Redwood City
East Palo Alto
San Francisco South Bay
Newark
Fremont
Alviso
Palo Alto
Mountain View
SAN MATEO
SANTA CLARA
Sunnyvale
Alviso
Guadalupe River
Milpitas
Coyote Creek
San Jose
Santa Clara
92
880
84
101
237


Mud Slough
Union Pacific Railroad
Coyote Creek
A9
A14
A15
A17
A6
A10
A18
A16
Alviso Slough
A11
A13
A7
A5
New Chicago Marsh
A12
Wastewater Facility
Milpitas
Coyote Creek
Alviso
A8
Guadalupe River
A8S
San Jose
Sunnyvale

Levee Alignments

WPCP
South
Alviso North
Alviso Railroad Spur
Alviso South
Grand Blvd
Los Esteros Rd
Spreckles Ave
State St
Wabash St
© 2014 Google
Google earth
1993
Imagery Date: 6/9/2014 37°26'30.26" N 121°57'38.86" W elev 4 ft eye alt 9980 ft

Alternatives 2 and 3
WPCP
South
Alviso North
Los Esteros Rd
State St
Wabash St
Essex St
Disk Dr
© 2014 Google
Google earth
1993
Imagery Date: 6/9/2014 37°26'30.78" N 121°57'40.30" W elev 4 ft eye alt 9980 ft

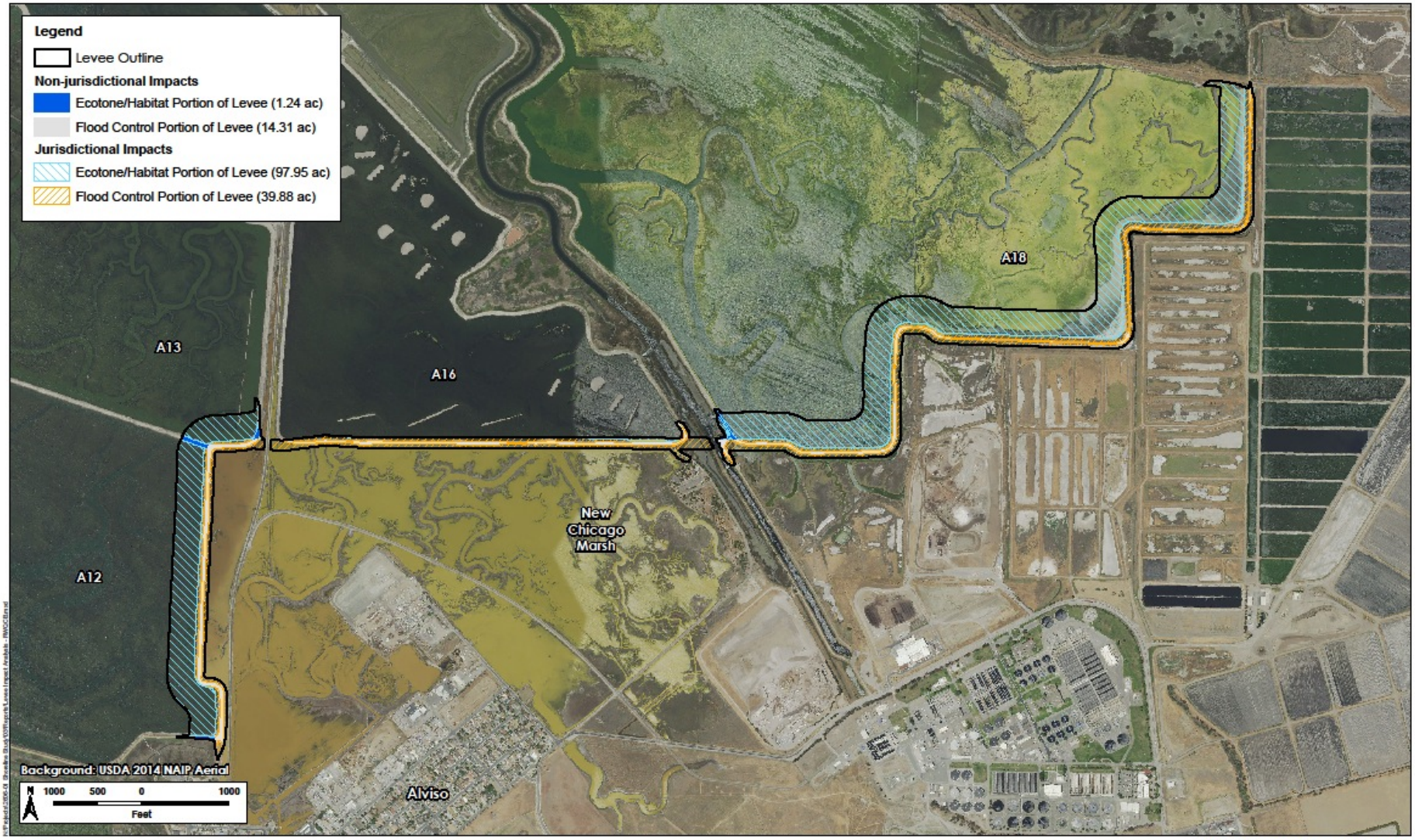

Existing Pond Dike
(west of Artesian Slough)
Alternative 2
Alternatives 3, 4 and 5
LPP
NED
15.2'
12.5'
Existing Interior Pond Dike *
97.0'
107.2'
20
15
10
5
0
-55
-50
-45
-40
-35
-30
-25
-20
-15
-10
-5
0
5
10
15
20
25
30
35
40
45
50
55
60

Reach from the Alviso Marina to the Artesian Slough

Reach from the Artesian Slough to the Coyote Bypass

Environmental Restoration

A9
A14
A15
A17
A18
A10
A11
A13
A16
A12
N 1st St
© 2014 Google
Google earth
1993
Imagery Date: 6/9/2014 37°26'58.06" N 121°58'38.59" W elev 4 ft eye alt 18766 ft

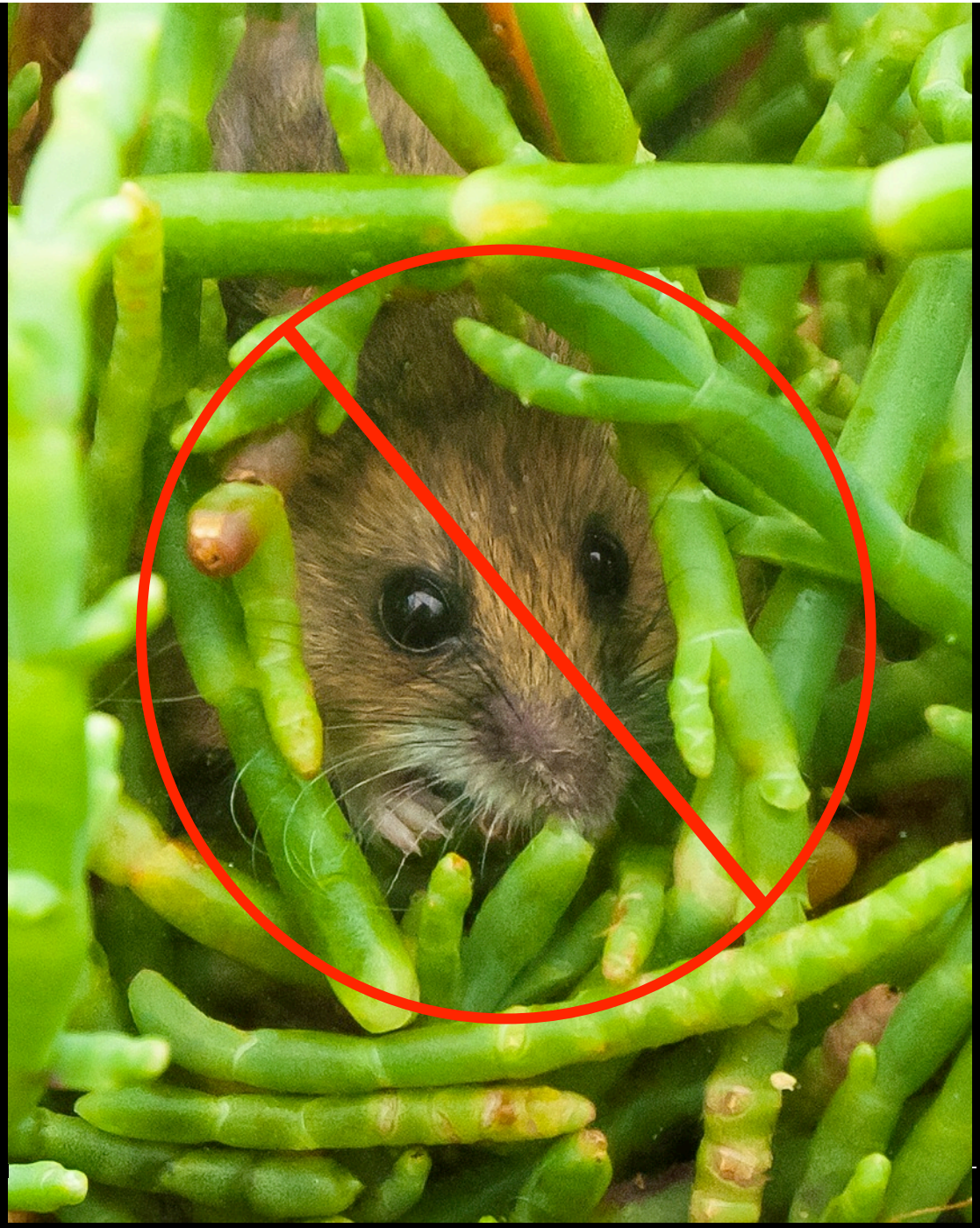


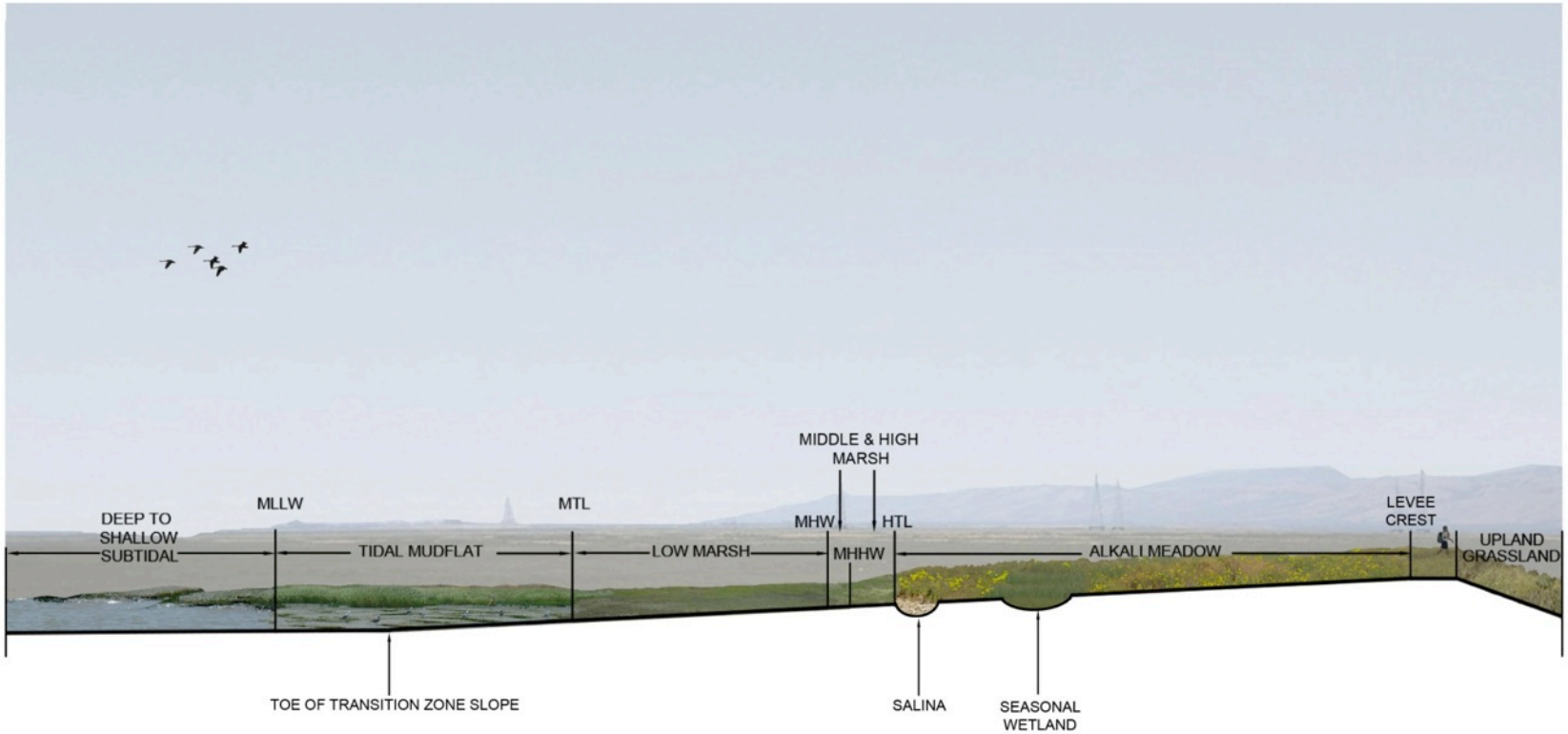
H. T. HARVEY & ASSOCIATES
Ecological Consultants

RWQCB Levee Impact Analysis

USACE Shoreline Project (2606-03)
June 2015

Photo credit:
Judy Irving





H.T. HARVEY & ASSOCIATES
Ecological Consultants

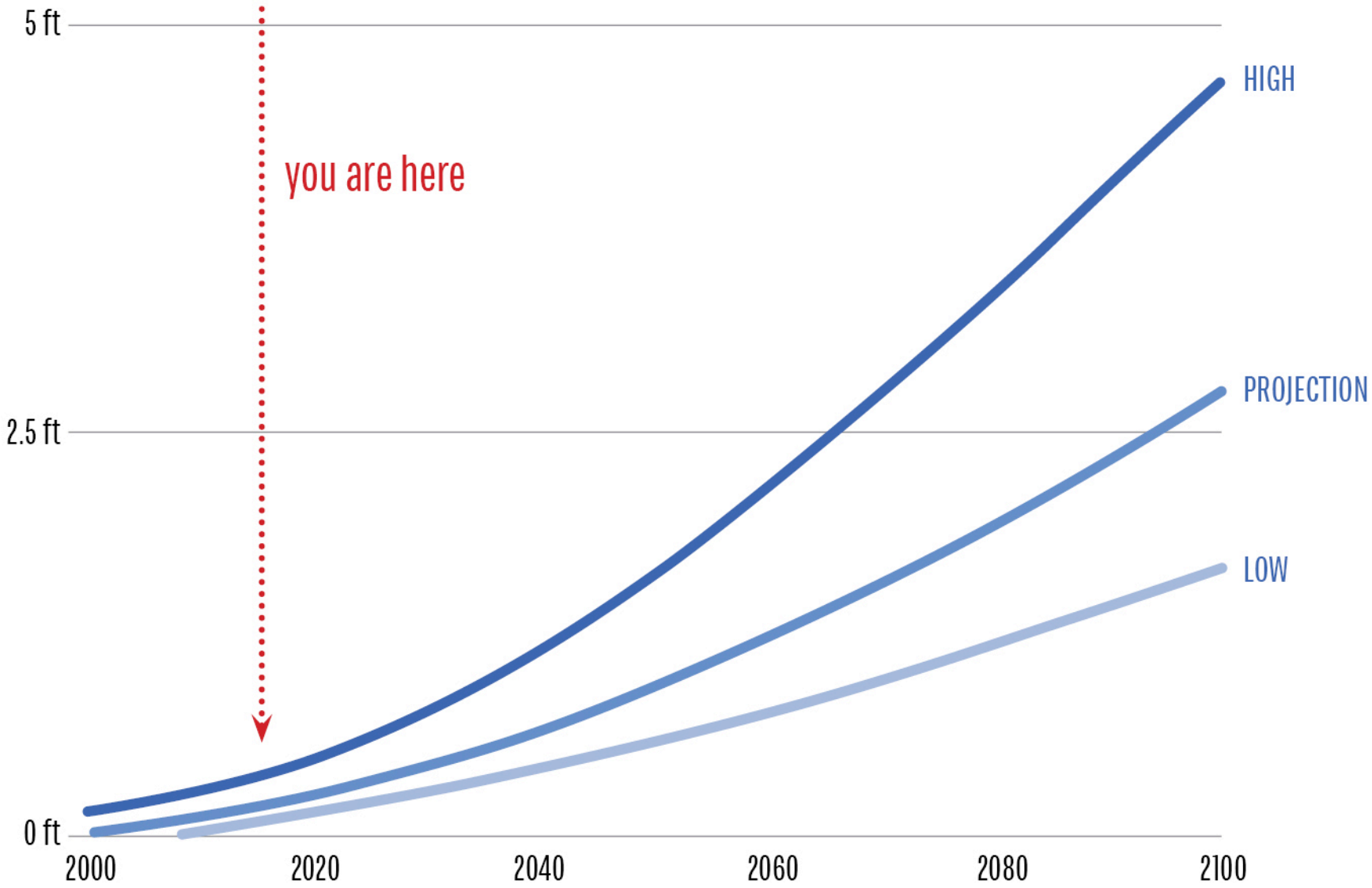
SHORELINE STUDY TRANSITION ZONE—TYPICAL CROSS-SECTION OF HABITAT ZONATION

CORPS SHORELINE STUDY (2606-03)

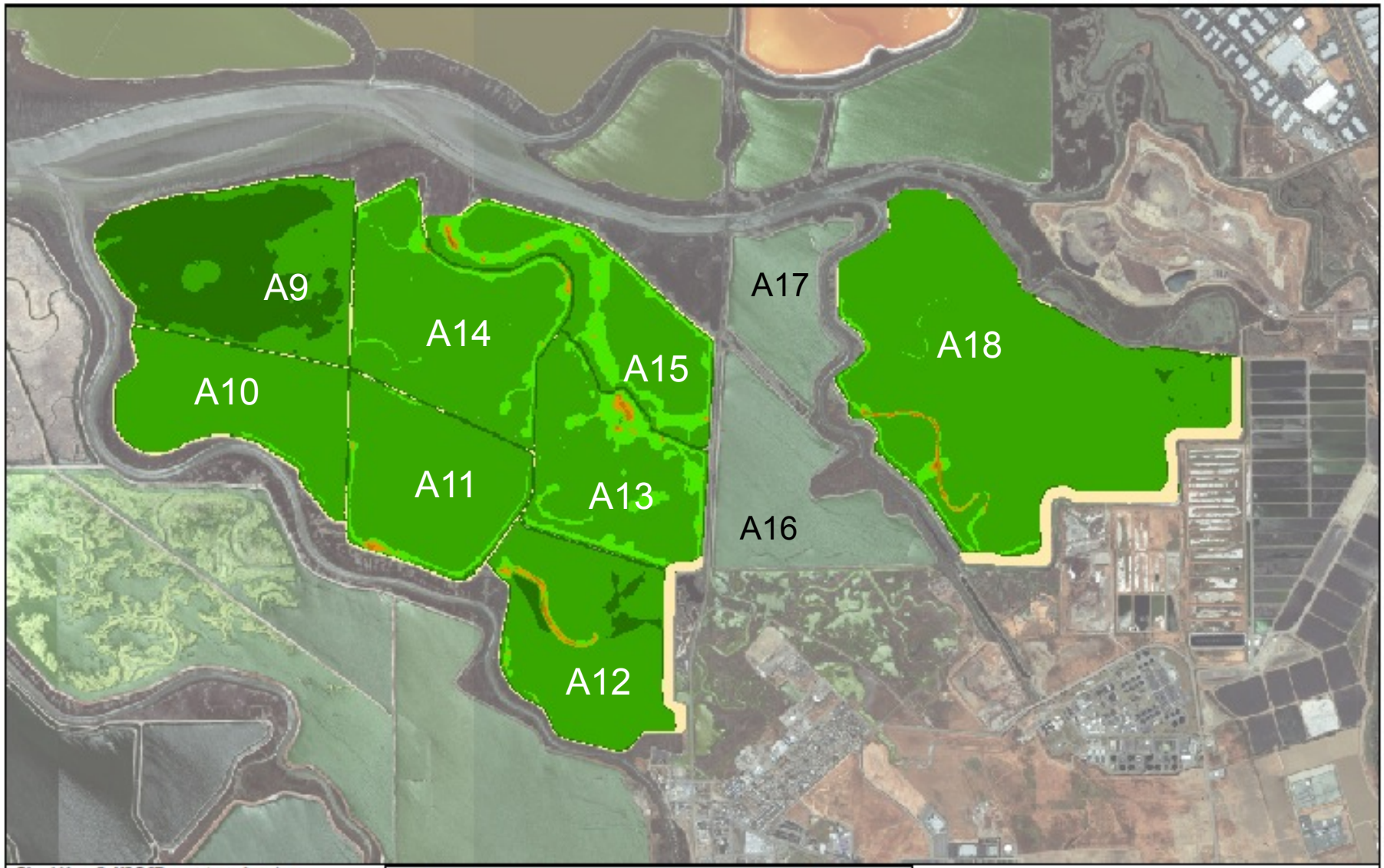
JUNE 2015

SEA LEVEL *rise* FOR CALIFORNIA

Courtesy NRC 2012



A9
A14
A15
A10
A11
A13
A17
A18
(856 ac.)
A16
A12
(310 ac.)
N 1st St
© 2014 Google
Google earth
1993
Imagery Date: 6/9/2014 37°26'58.06" N 121°58'38.59" W elev 4 ft eye alt 18766 ft



C0 = 200 mg/L, NRC-III, organics = 1 mm/yr
Start A12 in 2017, A9-11 in 2022, A18 in 2027, and A13-15 in 2030. Fill 1:30

N

0 1,000 2,000 4,000 6,000 Feet

- Deep Subtidal
- Shallow Subtidal A
- Shallow Subtidal B
- Intertidal Mudflat low
- Intertidal Mudflat mid low
- Intertidal Mudflat mid high
- Intertidal Mudflat high
- Cordgrass Dominated low
- Cordgrass Dominated high
- Pickleweed Dominated
- Upland

figure 15

Shoreline Study Alternatives

2067 Marsh Elevations with Prelim Alt 2 Transitional - Upland Fill Footprint

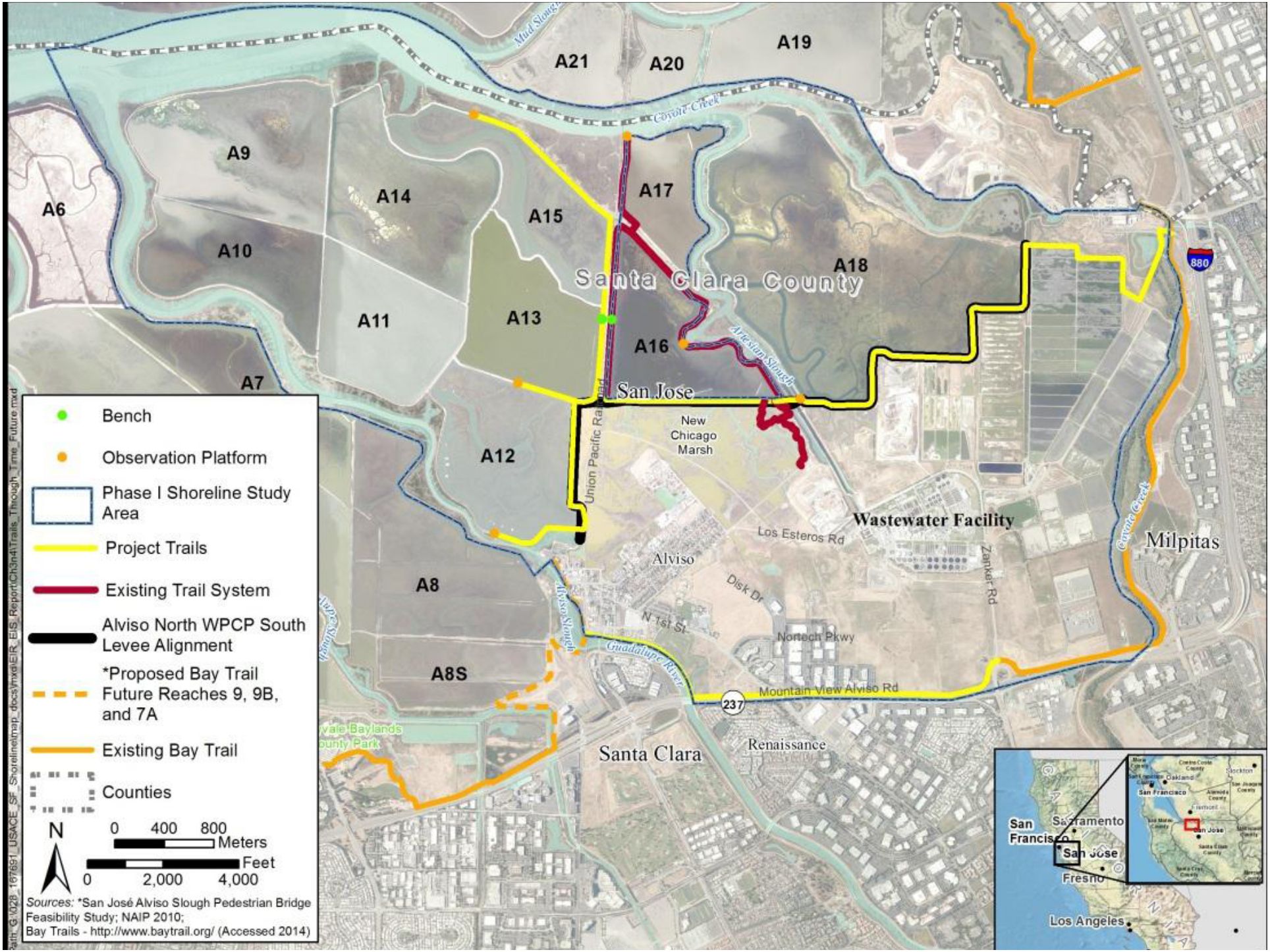
Proj. # 211259

ESA PWA

J:\211259 Shoreline\Maps\ForMark\Fig15.mxd

Recreation

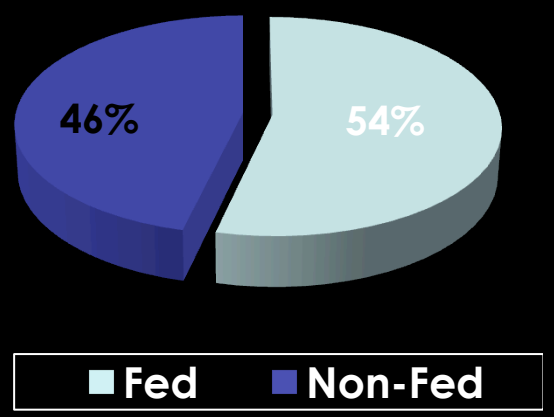
Coyote Creek
Mud Slough
Coyote Creek
Artesian Slough
1.4 mi
0.5 mi
1.8 mi
0.1 mi
Trail Connection
Conexión de los senderos
1.5 mi
0.9 mi
5.6 mi
Environmental Education Center
(see Detail Map/ ve Mapa del Area)
Alviso Slough Trail
Alviso Slough
Mallard Slough Trail 0.9
1.2 mi
Guadalupe Slough
Los Esteros Rd.
Zanker Rd.
Alviso Marina
Grand Blvd.
To Hwys 237 and 880
Gold St.
N 1st St.
237
Caribbean Dr.
N
W
E
S
0
0.25
0.5
1
Miles/Millas


A6
A7
A8
A8S
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
A19
A20
A21
Santa Clara County
San Jose
New Chicago Marsh
Wastewater Facility
Milpitas
Alviso
Santa Clara
Renaissance
Los Esteros Rd
Disk Dr
N 1st St
Nortech Pkwy
Mountain View Alviso Rd
Zanker Rd
Union Pacific Railroad
Coyote Creek
Artesian Slough
Alviso Slough
Guadalupe River
Mud Slough
880
237
Bench
Observation Platform
Phase I Shoreline Study Area
Project Trails
Existing Trail System
Alviso North WPCP South Levee Alignment
*Proposed Bay Trail Future Reaches 9, 9B, and 7A
Existing Bay Trail
Counties
N
0 400 800 Meters
0 2,000 4,000 Feet
Sources: *San José Alviso Slough Pedestrian Bridge Feasibility Study; NAIP 2010; Bay Trails - http://www.baytrail.org/ (Accessed 2014)
San Francisco
Sacramento
San Jose
Fresno
Los Angeles

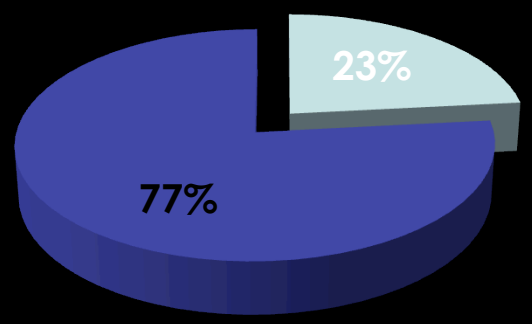
Project Costs

PURPOSE	FLOOD RISK MANAGEMENT	ECOSYSTEM RESTORATION	RECREATION	TOTAL
Federal Share	$49.3 M	$17.8 M	$3.16 M	$70.3 M
Non-Federal	$42.4 M	$58.2 M	$3.16 M	$103.8 M
	$91.7 M	$76.0 M	$6.32 M	**$174 M**

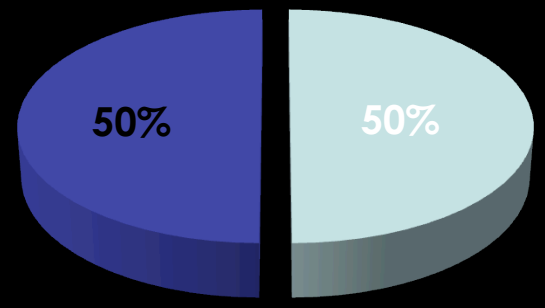
Flood Risk Management



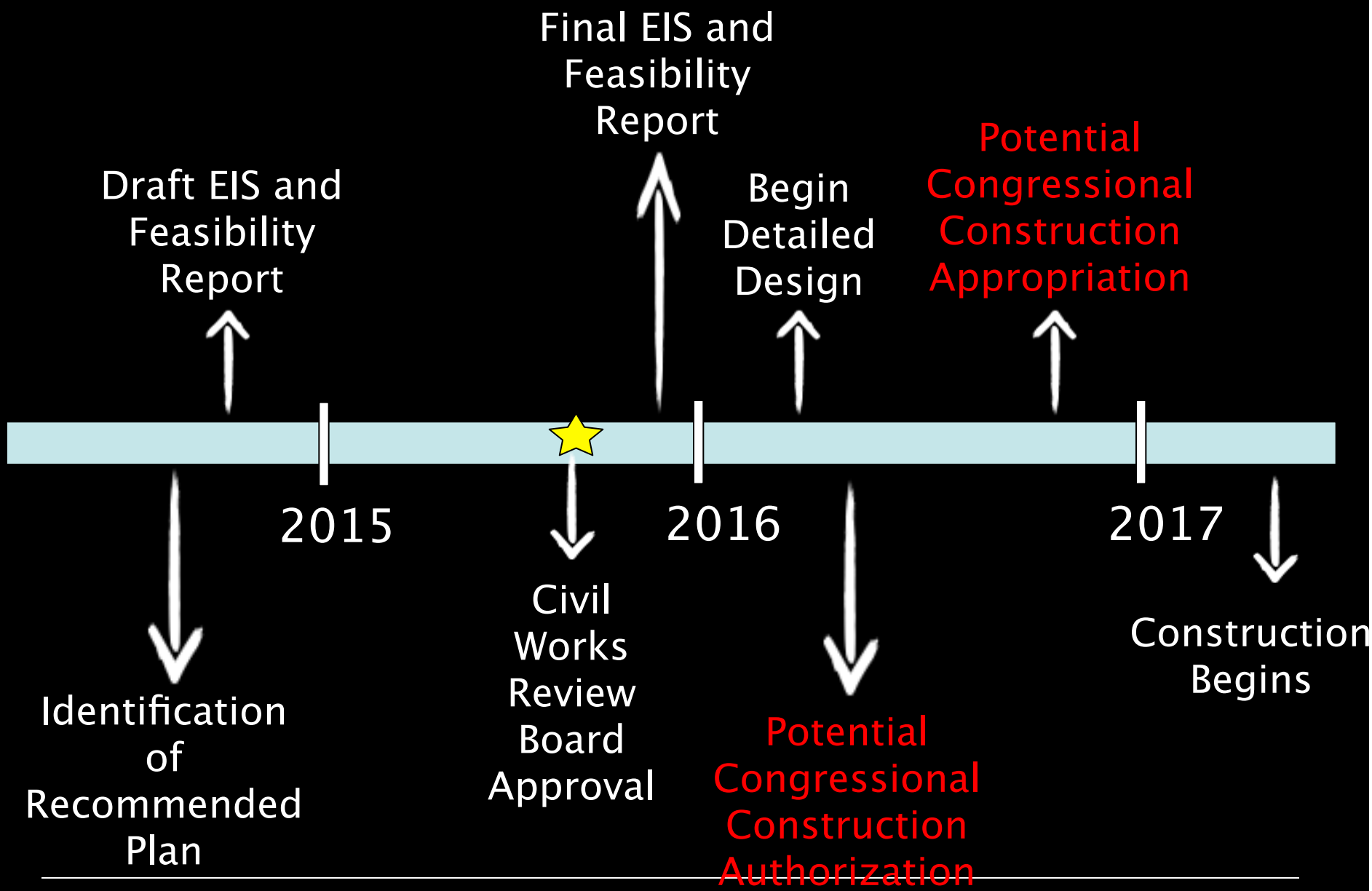
Ecosystem



Recreation



Shoreline Study Timeline



Contacts

Caleb Conn, U.S. Army Corps of Engineers

- (415) 503-6849
- caleb.b.conn@usace.army.mil

Rechelle Blank, Santa Clara Valley Water District

- (408) 630-2632
- rblank@valleywater.org

Brenda Buxton, State Coastal Conservancy

- (510) 286-0753
- bbuxton@scc.ca.gov

TABLE 1: FILL IMPACTS

(Impact numbers include all fill, in addition to fill of waters).

Feature	*Impact (ac.)*
Alt. 3 (Locally Preferred Plan) Ecotone	96.88
Alt. 3 (Locally Preferred Plan) Levee	68
TOTAL	***164.9***
Alt. 2 Bench	15.35
Alt. 2 Flood Projection Levee	68
TOTAL	***83.4***

From Table 4.7-3 in FR/EIS/R

TABLE 2: JURISDICTIONAL WATERS IMPACT AREAS

Habitat Type	*Impact (ac.)*
Freshwater marsh	1.1
Brackish marsh	0.3
Tidal salt marsh	1.7
Muted/non-tidal marsh[1]	10.0
TOTAL VEGETATED WETLAND	**13.1**
Seasonal wetland	3.7
Mudflat	0.6
TOTAL UNVEGETATED WETLAND	**4.3**
Ponds[2]	110.8
Open Water	9.4
TOTAL OPEN WATER	**120.2**
TOTAL JURISDICTIONAL	***137.6***

TABLE 2: INITIAL WETLAND RESTORATION AREAS

Habitat Type	*Restoration Areas by Location*		
	Ecotone and FRM Levee	*Lowered Levees*	*Total*
Freshwater marsh	0	0	0
Tidal brackish & salt marsh	32.2	18.4	50.6
Muted/non-tidal marsh	4.1	0	4.1
TOTAL VEGETATED WETLAND	36.3	18.4	**54.7**