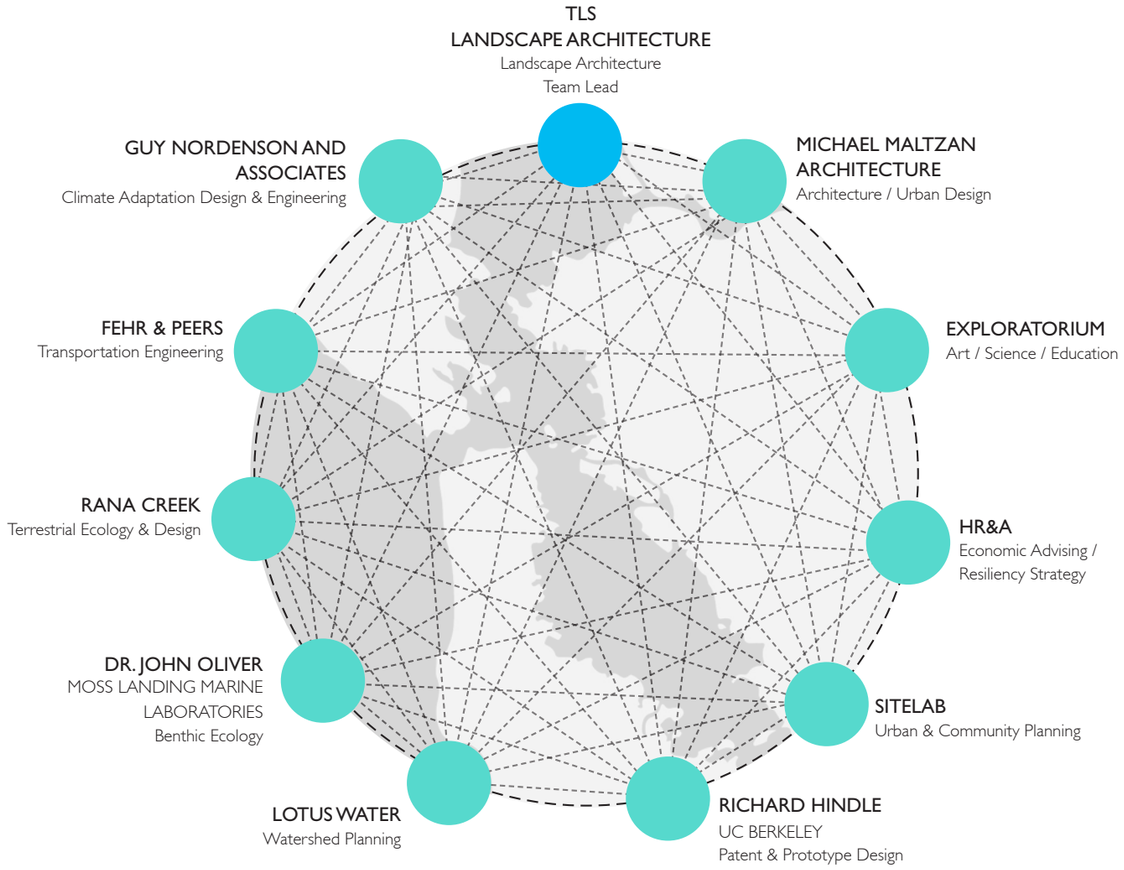
RESILIENT BY DESIGN

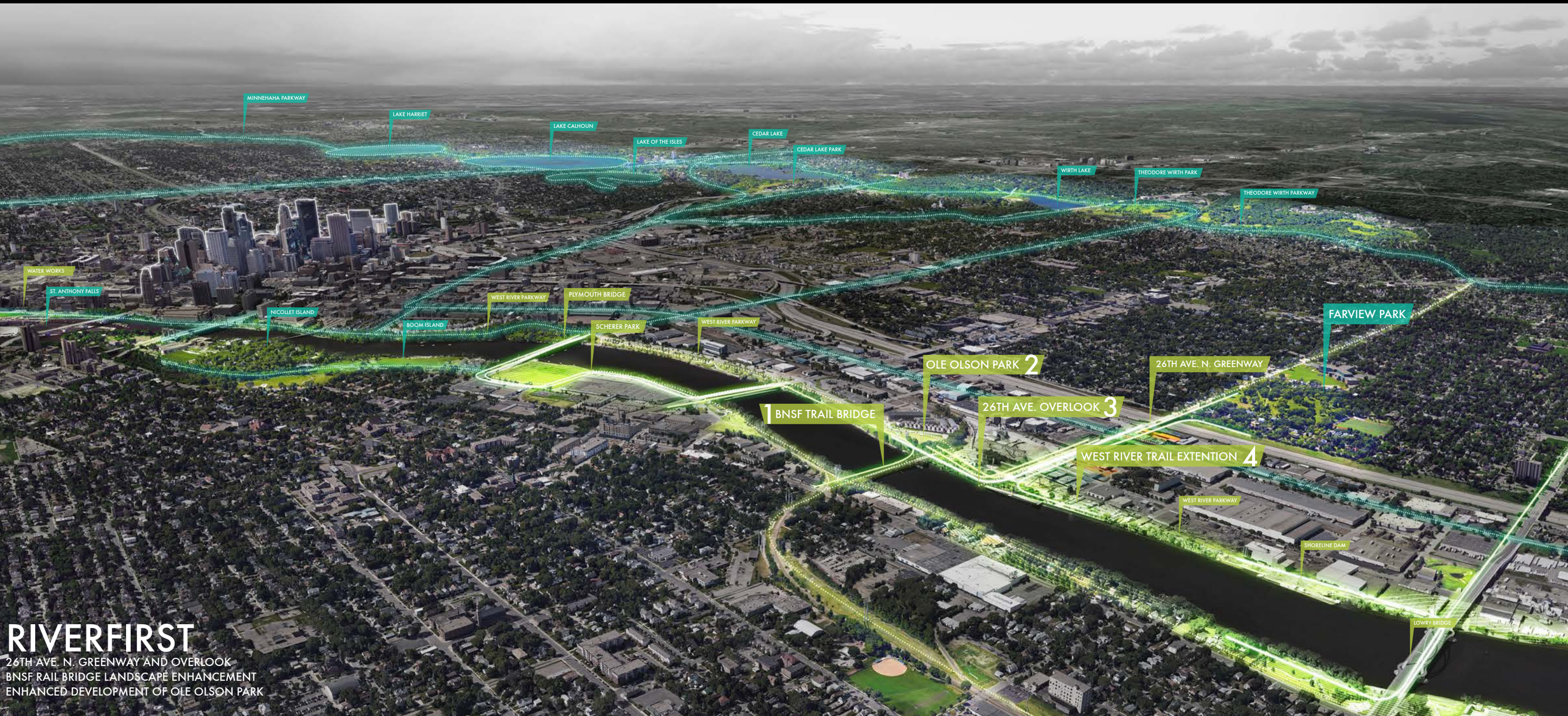
BAY AREA CHALLENGE

A collaborative design challenge committed to developing creative, community-driven solutions for building a more resilient future for the Bay Area.

COMMON GROUND
THE TEAM



TLS
LANDSCAPE ARCHITECTURE



RIVERFIRST

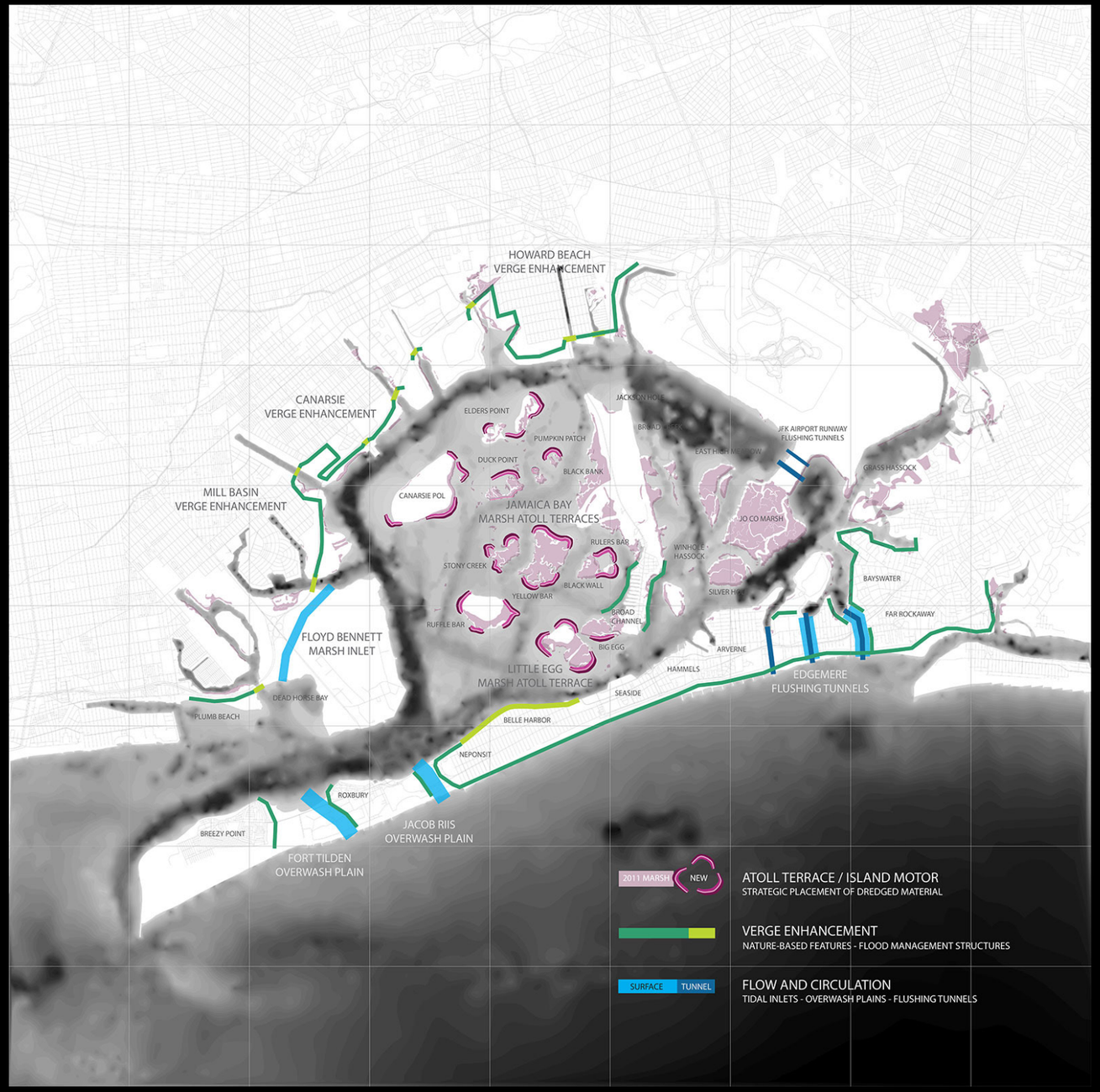
26TH AVE. N. GREENWAY AND OVERLOOK
BNSF RAIL BRIDGE LANDSCAPE ENHANCEMENT
ENHANCED DEVELOPMENT OF OLE OLSON PARK

SITELAB URBAN STUDIO
URBAN DESIGN

EXPLORATORIUM
ART / SCIENCE / EDUCATION

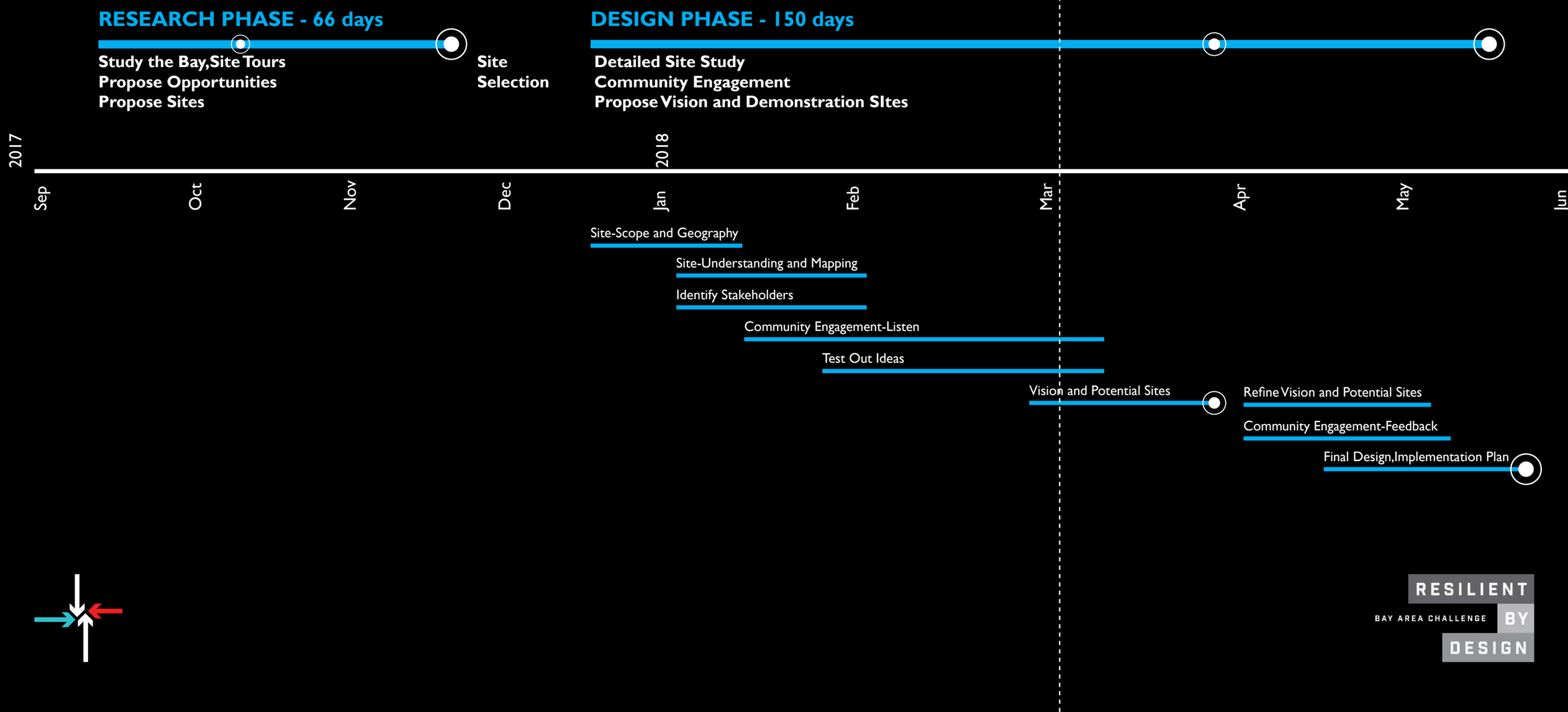
RANA CREEK
ENVIRONMENTAL DESIGN

GUY NORDENSON
CLIMATE RESILIENCE
STRUCTURAL ENGINEERING



MICHAEL MALTZAN
ARCHITECTURE

COMMON GROUND
PROCESS/TIMELINE



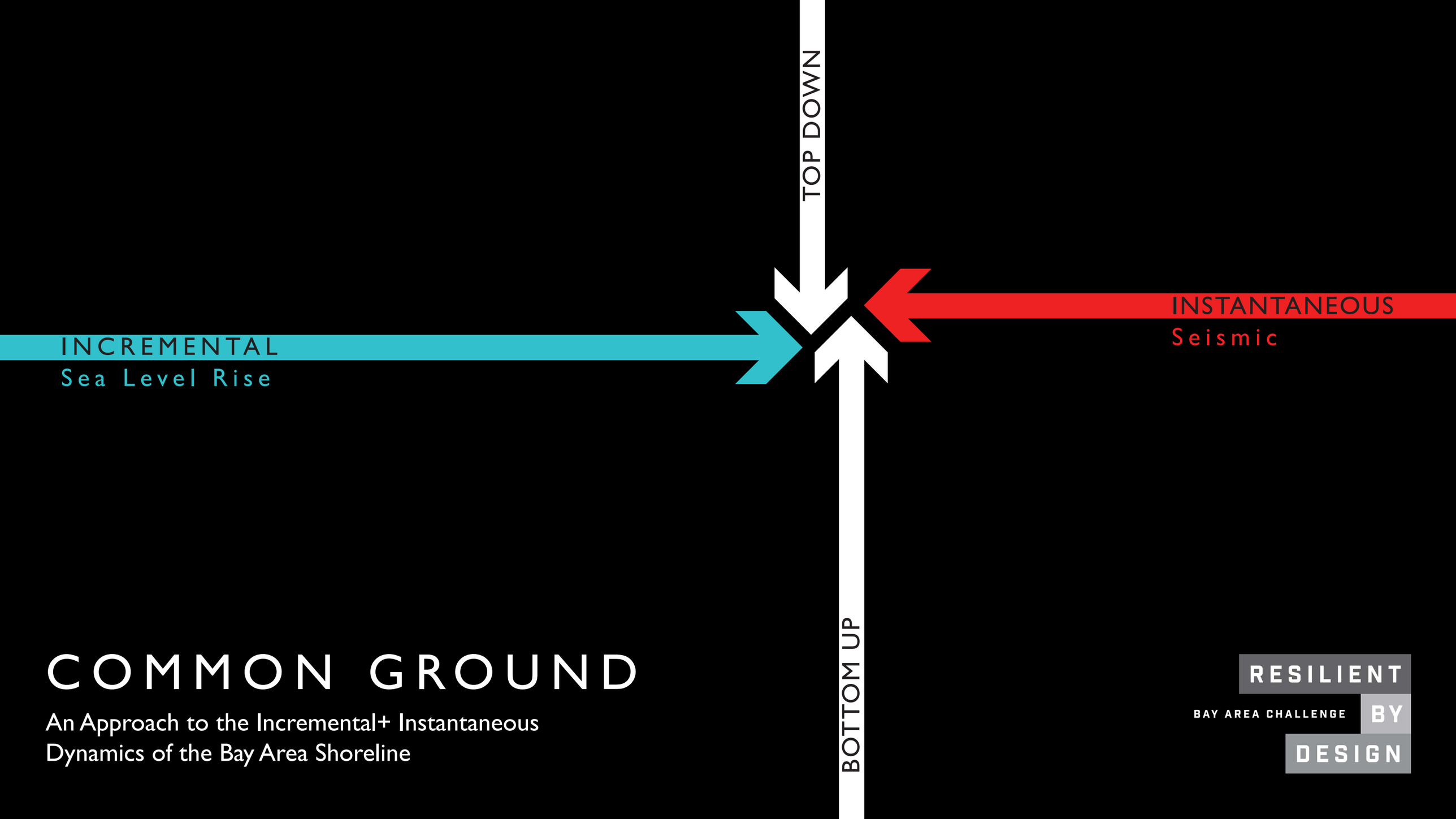
RESILIENT BAY AREA CHALLENGE BY DESIGN

REBUILD BY DESIGN NYC

OMA

SCAPE

BIG



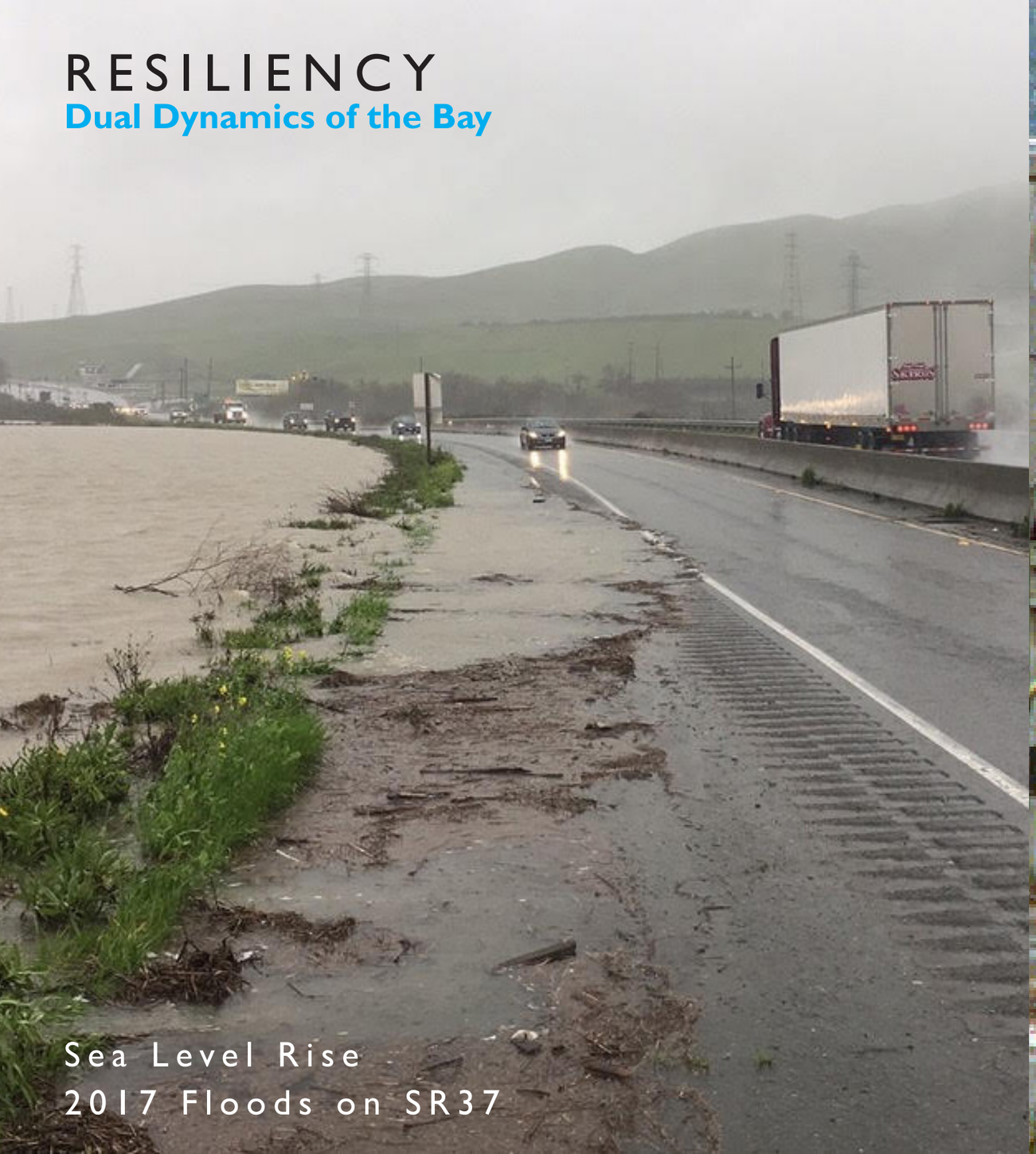
COMMON GROUND

An Approach to the Incremental+ Instantaneous Dynamics of the Bay Area Shoreline

RESILIENT BY DESIGN
BAY AREA CHALLENGE

RESILIENCY

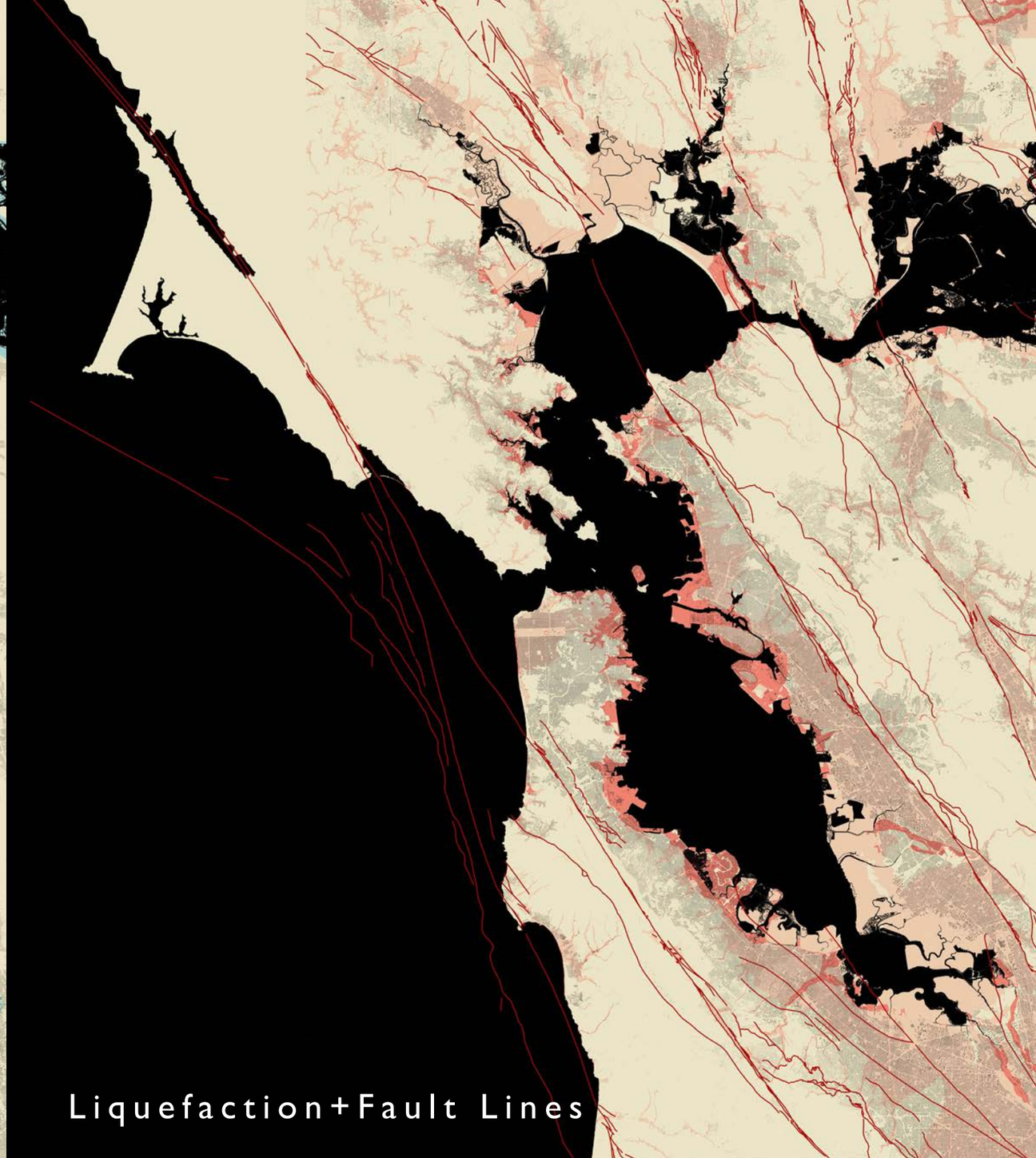
Dual Dynamics of the Bay



Sea Level Rise
2017 Floods on SR37

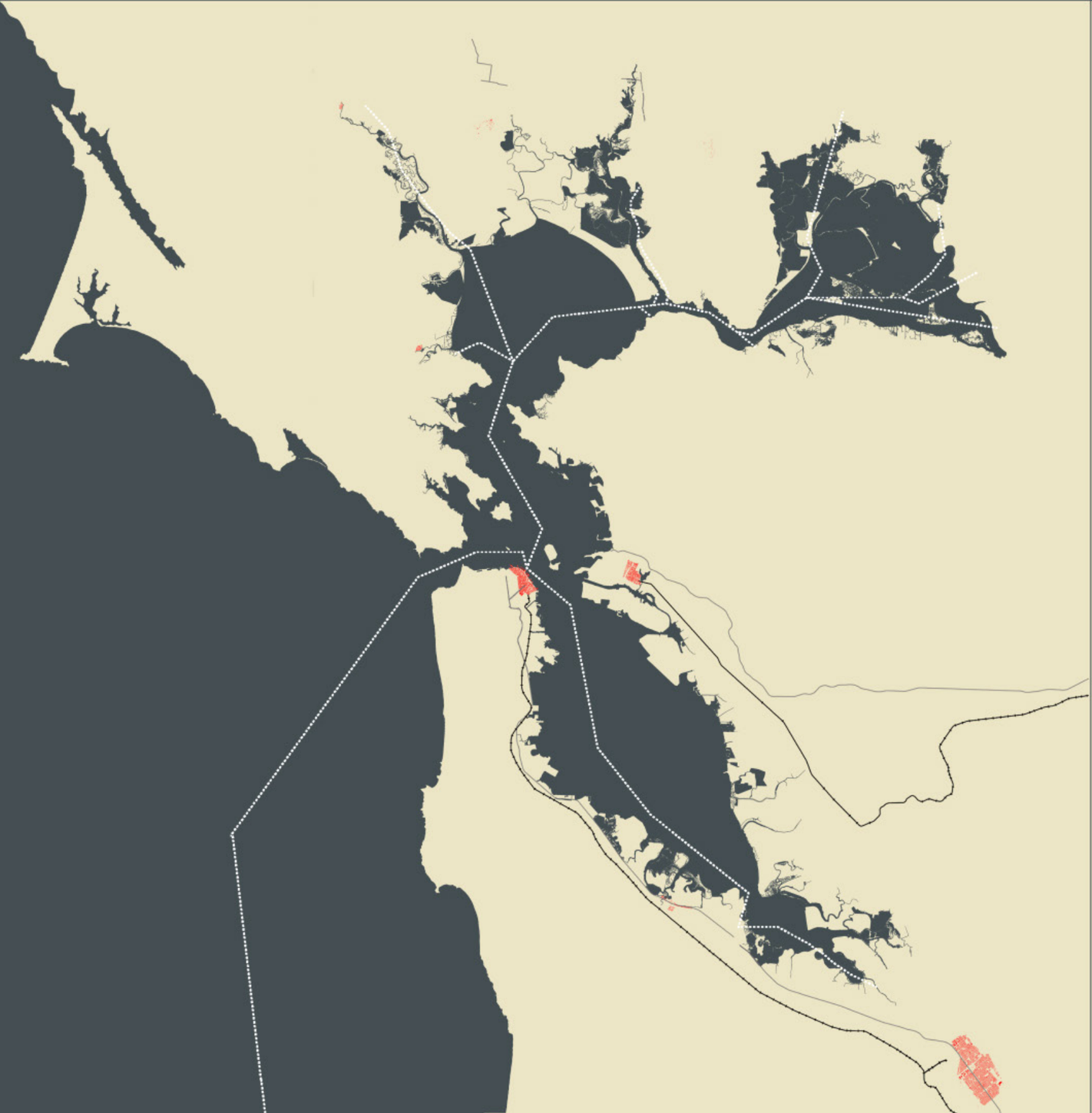
Liquefaction
1989 Loma Preita Earthquake


Sea Level Rise


Liquefaction+Fault Lines

EARLY SETTLEMENT

WATERFRONT
WATER TRANSIT



INDUSTRIALIZATION

RECLAMATION ALONG BAY WATERS
RAILROADS

POST WWII

CROSS BAY & INLAND
BRIDGES AND ROAD

TODAY

EXTENDED AUTO COMMUTING
WATERFRONT REDEVELOPMENT

GROW THE BAY?
INCREASED WATER TRANSIT?

SAN PABLO BAY

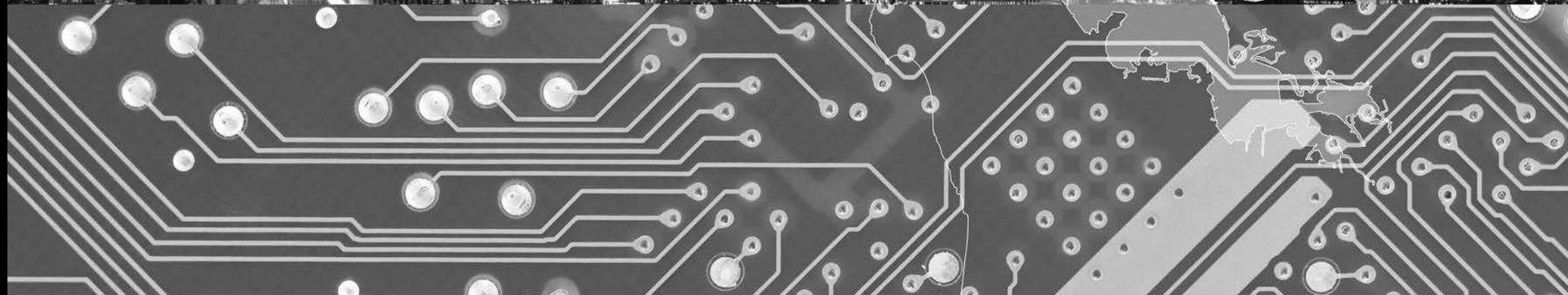
Agricultural Valleys

San Pablo Bay

San Francisco Bay

South Bay

IDENTITY ?



SAN PABLO BAY - THE WORKING ESTUARY

The Petaluma Heritage Mural in Petaluma, California by Steve Della Maggiora

SAN PABLO BAY

CALIFORNIA

From a Trigonometrical Survey

under the direction of A.D.BACHE Superintendent of the

SURVEY OF THE COAST OF THE UNITED STATES

Triangulation by R.D.CUTTS G.A.FAIRFIELD G.DAVIDSON Assists. and A.F.RODGERS Sub-Assist.

Topography by R.D.CUTTS Asst. & A.F.RODGERS Sub-Asst.

Hydrography by the Party under the command of

Commander JAMES ALDEN U.S.N. Assist.

Scale $\frac{1}{50000}$

1863

Verified

J.E. Hilgard

Assist. Coast Survey

In charge of Office.

Statute Miles

Nautical Miles

The Triangulation was executed in		1851 '52 '57 '58 & '59
The Topography	do. in	1852 '53 '54 '55 & '56
The Hydrography	do. in	1856

SAILING DIRECTIONS

TO ENTER SAN PABLO BAY FROM SAN FRANCISCO BAY

The channel connecting the Bays of San Francisco and San Pablo is clear but in beating, a vessel of heavy draught must avoid the Invincible and Whiting Rocks. A narrow passage between the Brothers and San Pablo Point is generally used by small craft and river steamers, as it shortens the distance. Passing half a mile to the Westward of Red Rock (see chart of San Francisco) Steer N. N.W. (N.7°W.) until San Pablo Point bears E.¼ N. (E.11°S.) then N.N.E.¾E. (N.46°E.) for five miles, when Pinole Point will bear S. by E.¼E. (South) distant one mile, thence N.E.¾E. (N.66°E.) to entrance of the Straits of Karquines. The channel through San Pablo Bay is wide and deep, but the lead should be used particularly when beating. Shoal Flats make well out between all the headlands on the Southern shore, forming an abrupt bank on that side of the channel, whilst on the North side the Soundings decrease very gradually.

IF BOUND INTO MARE ISLAND STRAITS

When up with the Island haul gradually in till the Floating Dock is open past the Magazine Wharf, then stand directly up the Strait, keeping the Western shore aboard, so as to avoid Commission Rock, where the channel is only 230 yards wide.

No sailing directions are required for the Straits of Karquines; the shores being for the most part bold and the water deep.

Latitude of Mare Island S.E. Station					38° 04′ 34″.5
Longitude of	*do.*	*West from Greenwich Obsy. in arc*			122 15 16.8
Longitude of	*do.*	*do.*	*do.*	*do. in time*	8h 8m 57s.1
Variation of the Magnetic Needle in Dec. 1860					15° 45′ E.

Present annual increase 0′.8

SOUNDINGS

The Soundings are expressed in feet to 18 feet or within the dotted surfaces beyond them in fathoms, and show the depth at the mean of the lowest low water of each 24 hours the plane of reference. The dotted surfaces beyond low water mark represent the bottom within the respective depths of 6, 12, and 18 feet. The characteristic soundings only are given on the map; they are selected from the numerous soundings taken in the survey, so as to represent the figure of the bottom.

ABBREVIATIONS

used in the bottoms of this Map

Materials in Capitals	Other qualities those small letters
M. for Mud	*hrd. for hard*
S. " Sand	*sft. " soft*
Sh. " Shells	*stk. " sticky*
C. " Clay	

Note. The principal materials and their qualities are represented by larger letters than the subsidiary.

• Signifies Sunk Rock.

TIDES

	Mare I.		Benicia	
Corrected Establishment	XIIIh XLm		XIVh Xm	
Mean Rise and Fall of Tides	3.8 ft.		3.5 ft.	
Mean do. of Spring Tides	5.2 "		5.1 "	
Mean do. of Neap Tides	3.1 "		3.7 "	
Mean Duration of Rise (Reckoning from the middle of one	6h 03m		6h 26m	
Mean do. of Fall (stand to the middle of the next	6 07		5 59	
	H.W.	L.W.	H.W.	L.W.
Difference in Establishment of A.M. and P.M. tides of same day, Average	1h 27m	0h 30m	1h 29m	0h 34m
When the Moon's declination is greatest	2 22	0 50	2 26	0 43
Difference in height of A.M. and P.M. tides of same day, Average	1.2 ft.	2.7 ft.	0.9 ft.	2.2 ft.
When the Moon's declination is greatest	1.5 "	3.6 "	1.2 "	3.9 "
Difference in height of highest high and lowest low tide of same day, Average	6.7 ft.		6.0 ft.	
When the Moon's declination is greatest	7.3 "		7.0 "	

REMARKS

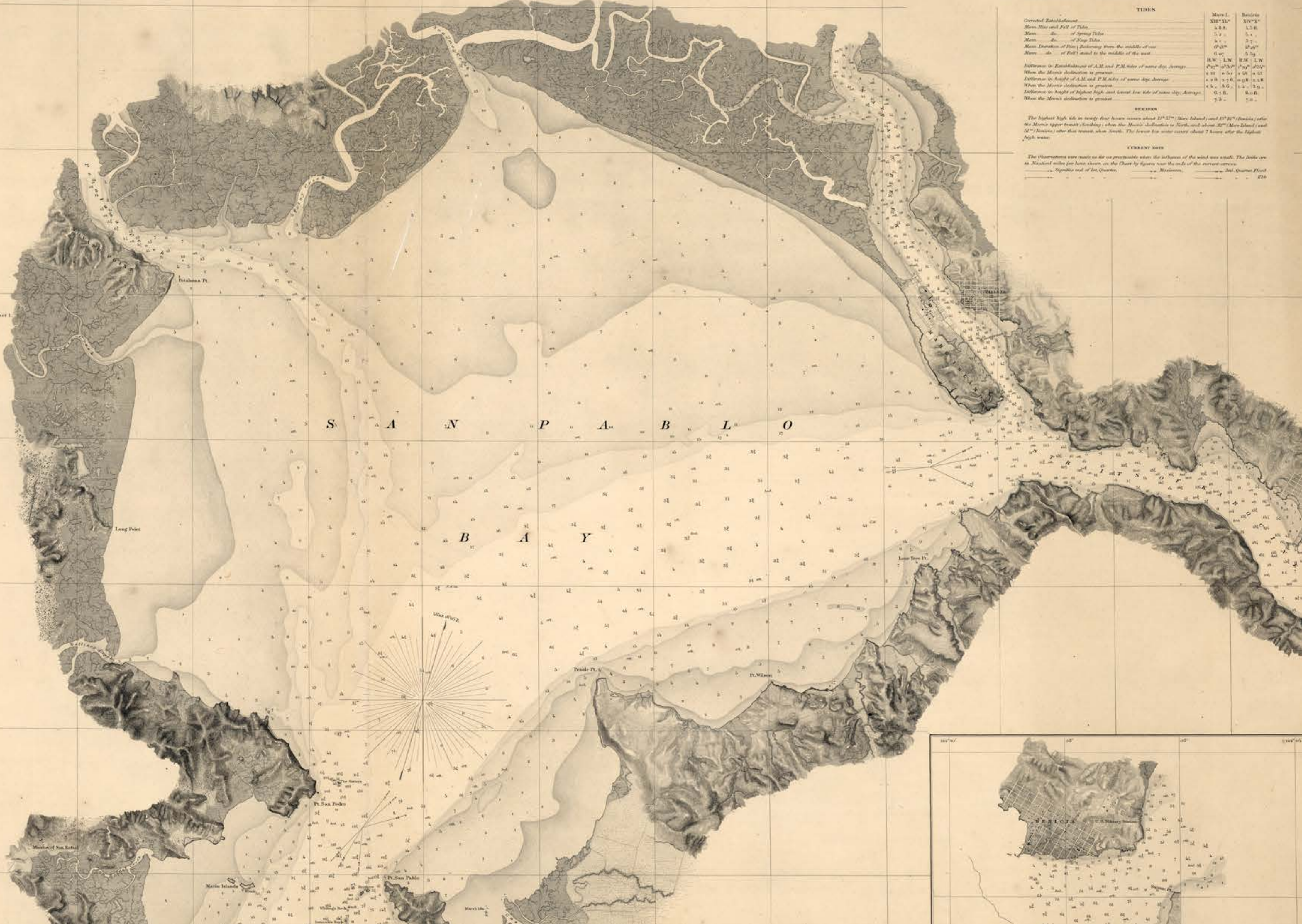
The highest high tide in twenty four hours occurs about 11h 37m (Mare Island) and 13h 16m (Benicia) after the Moon's upper transit (Southing) when the Moon's declination is North, and about 32m (Mare Island) and 51m (Benicia) after that transit, when South. The lowest low water occurs about 7 hours after the highest high water.

CURRENT NOTE

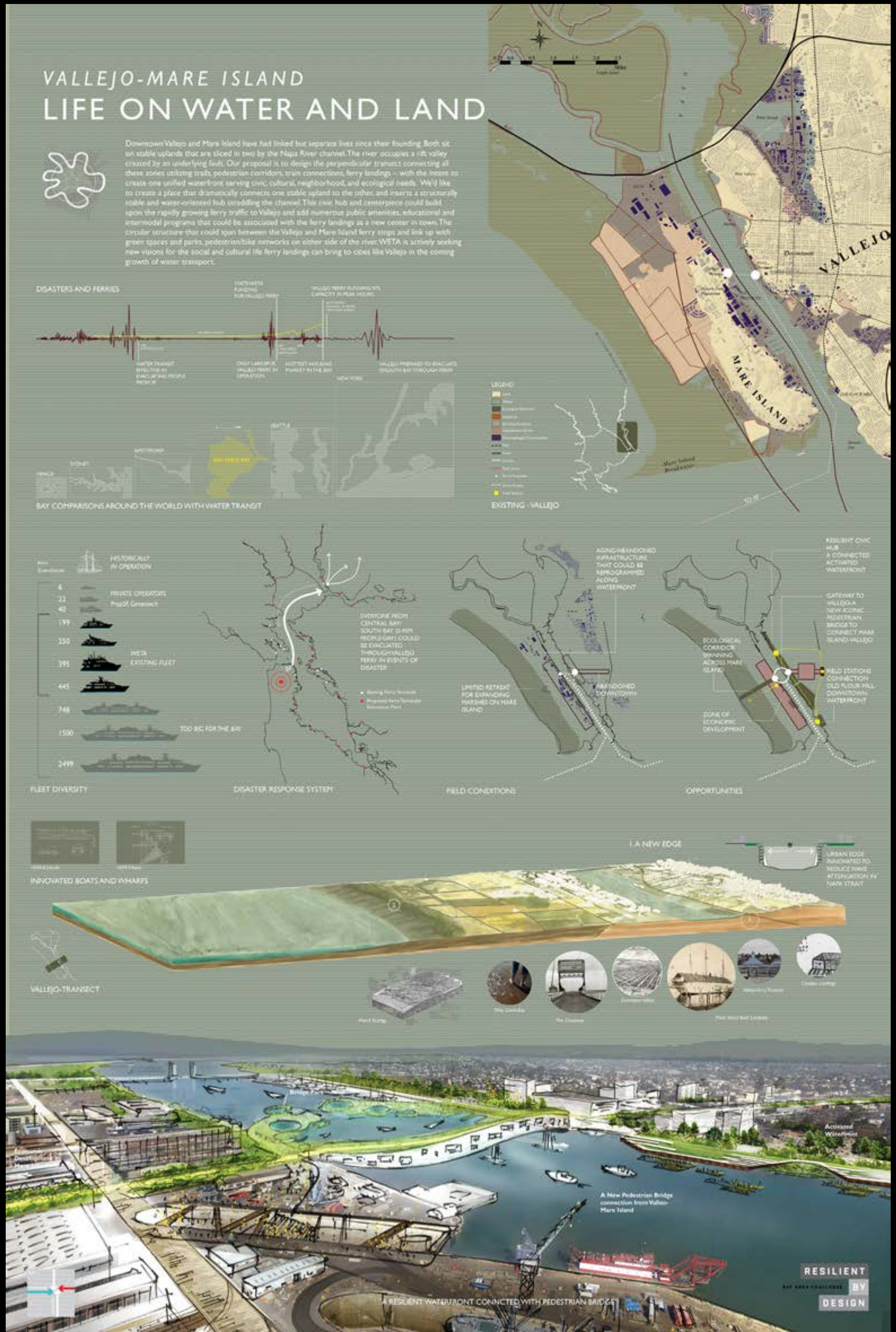
The Observations were made as far as practicable when the influence of the wind was small. The Drifts are in Nautical miles per hour shown on the Chart by figures near the ends of the current arrows.

Signifies end of 1st. Quarter. — Maximum. — 3rd. Quarter Flood

Ebb

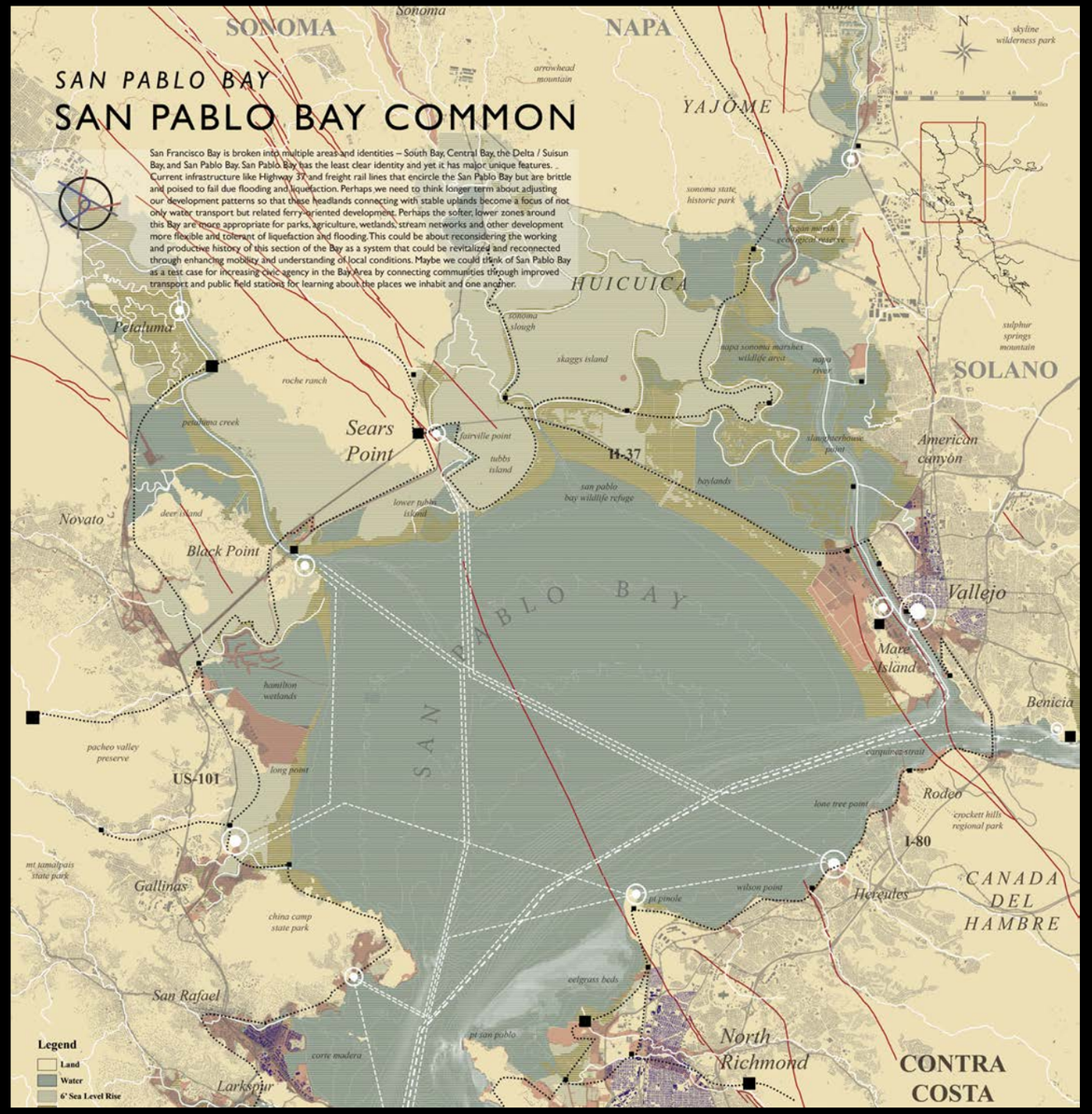


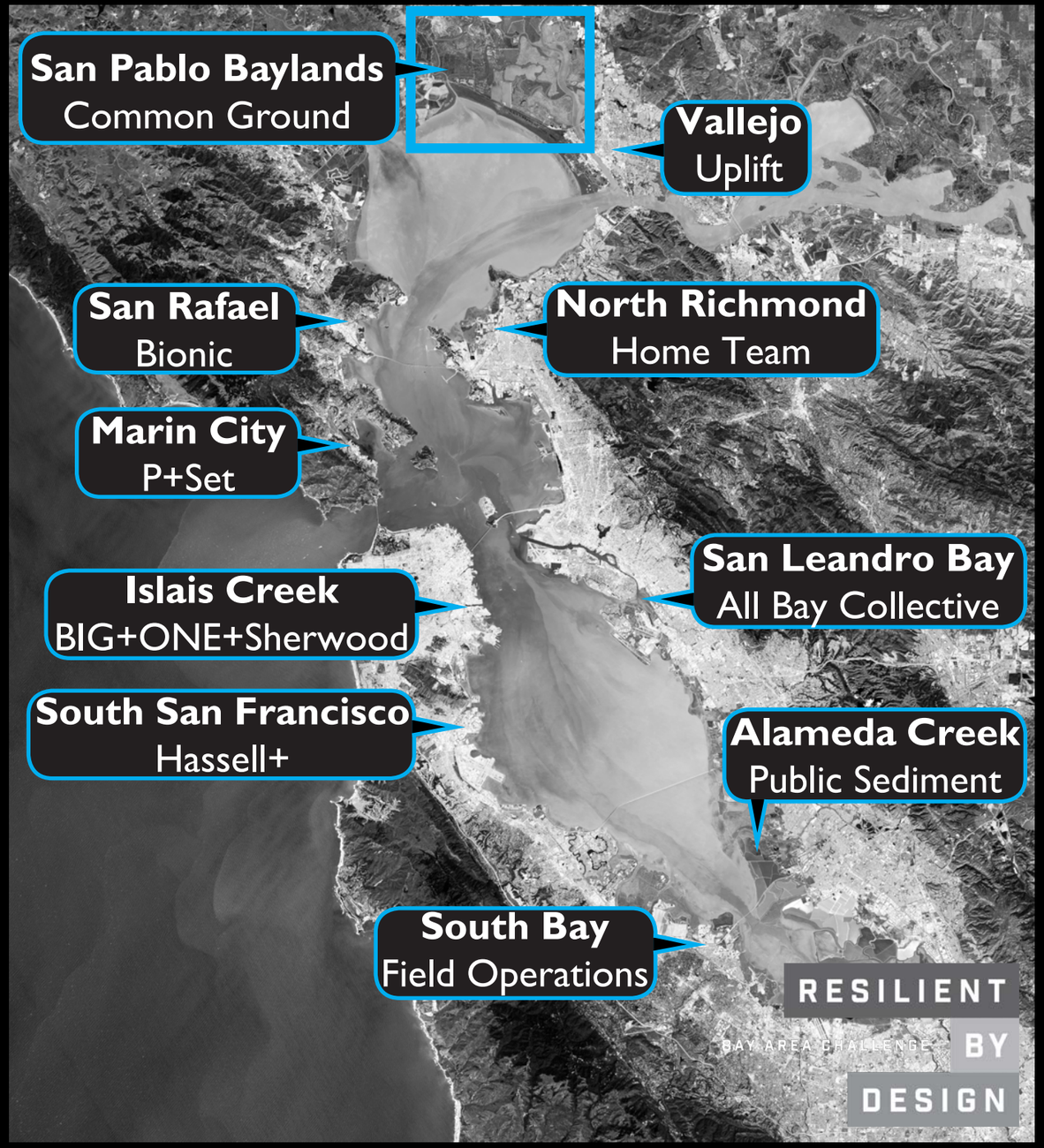
COMMON GROUND
PROPOSED SITES



10 SELECTED SITES

RESILIENT BY DESIGN
BAY AREA CHALLENGE





COMMON GROUND

San Pablo Baylands

COMMON GROUND

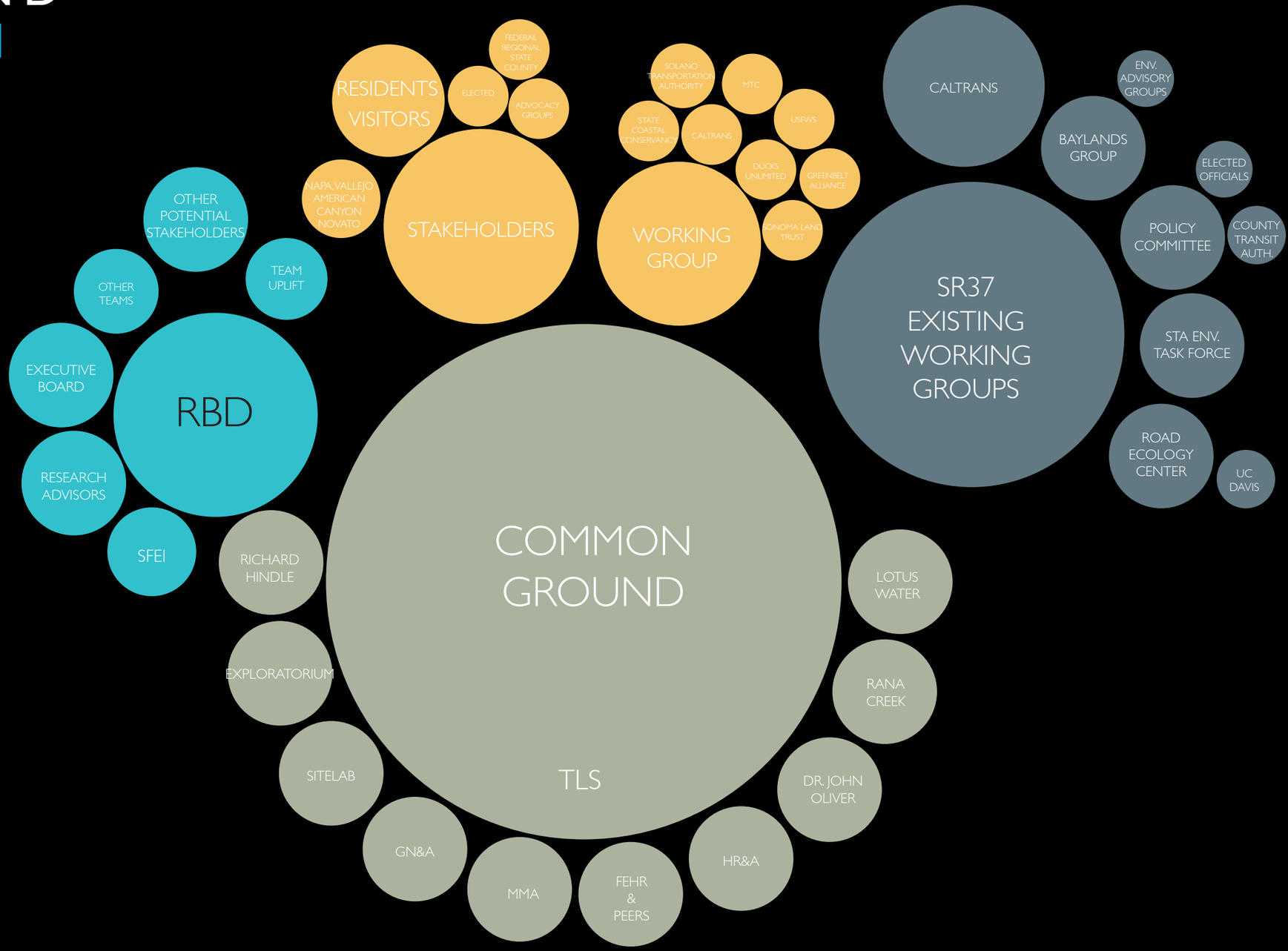
Site

COMMON GROUND
6’ SLR (2100)

COMMON GROUND+RBD
WORKING GROUP

Adding Value to Existing Efforts

COMMON GROUND
COLLABORATION



COMMON GROUND
GOALS for RESILIENCY

LISTEN

Understand and incorporate the goals of stakeholders and local communities.

BUILD

Build from the efforts of other working groups.

SUPPORT

Support the ongoing process to redesign SR37 and restore marshlands.

ENVISION

Provide a vision for the future that addresses sea level rise and offers positive outcomes for nearby communities, wildlife, and transportation.

COMMON GROUND
OUTREACH

FLYWAY FESTIVAL

MARE ISLAND
FEB 10th & 11th


San Pablo Bay
Suisun Bay
San Francisco Bay
Pacific Ocean
Mare Island
Hercules
San Rafael
Corte Madera
Richmond
El Cerrito
Concord
Lafayette
Berkeley
Sausalito
Emeryville
Oakland
San Ramon
Alameda
San Francisco
San Leandro
WHERE A
PLEASE M
LIVE


WHAT PARTS OF THE BAY
HAVE YOU VISITED?
PLEASE MARK WITH A
Rail
Highway/Major Roads
Bay Trail
County Boundary
1"=24,000'

COMMON GROUND
OUTREACH

WHAT NAME would you use to identify this region?

¿QUÉ NOMBRE usaría para identificar esté región?

Industry & Marsh

HAVE YOU VISITED the marshes around Highway 37? Why?

¿HA VISITADO los pantanos del Highway 37? ¿Por qué?

not properly... don't know the right spots to check out!

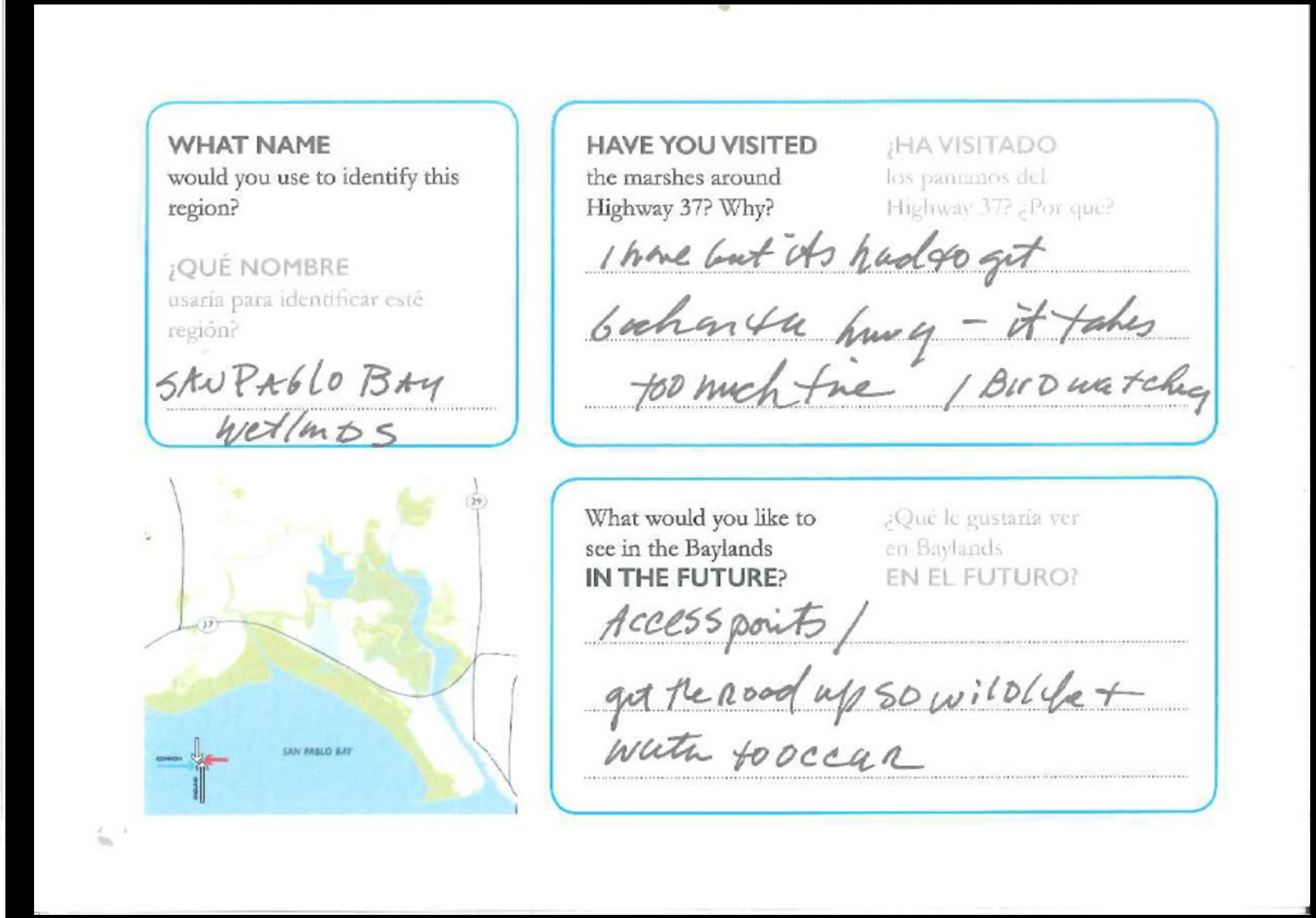
What would you like to see in the Baylands **IN THE FUTURE?**

¿Qué le gustaría ver en Baylands **EN EL FUTURO?**

trails

bird sanctuaries

educational markers, signs, museums



WHAT NAME would you use to identify this region?

¿QUÉ NOMBRE usaría para identificar esté región?

SAN PABLO BAY wetlands

HAVE YOU VISITED the marshes around Highway 37? Why?

¿HA VISITADO los pantanos del Highway 37? ¿Por qué?

I have but its hard to get [illegible] hwy - it takes too much time / Bird watching

What would you like to see in the Baylands **IN THE FUTURE?**

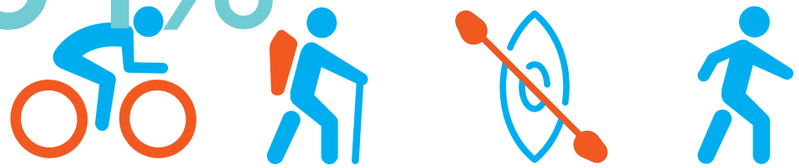
¿Qué le gustaría ver en Baylands **EN EL FUTURO?**

Access points /

get the road up so wildlife + water to occean

the majority of you were:

64% **PRO-RECREATION**



63% **PRO-ACCESS**

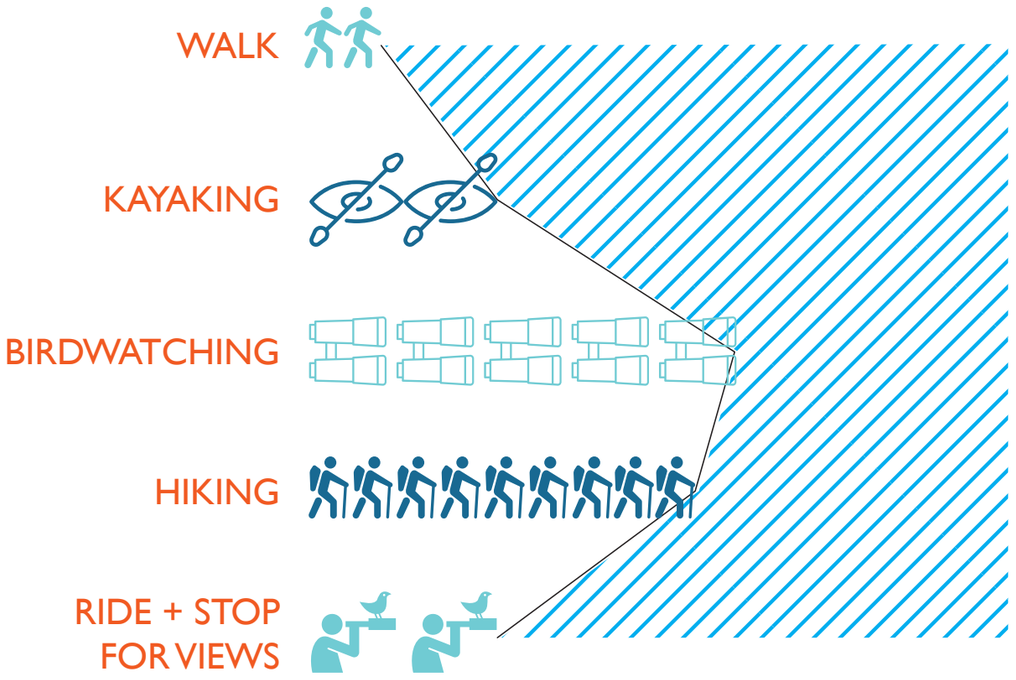
we asked you what name you use to

IDENTIFY THIS REGION

- SEARS POINT
- SONOMA-NAPA MARSHES
- NORTH BAY
- NAPA ESTUARY
- SAN PABLO BAY
- NORTH BAY WETLANDS

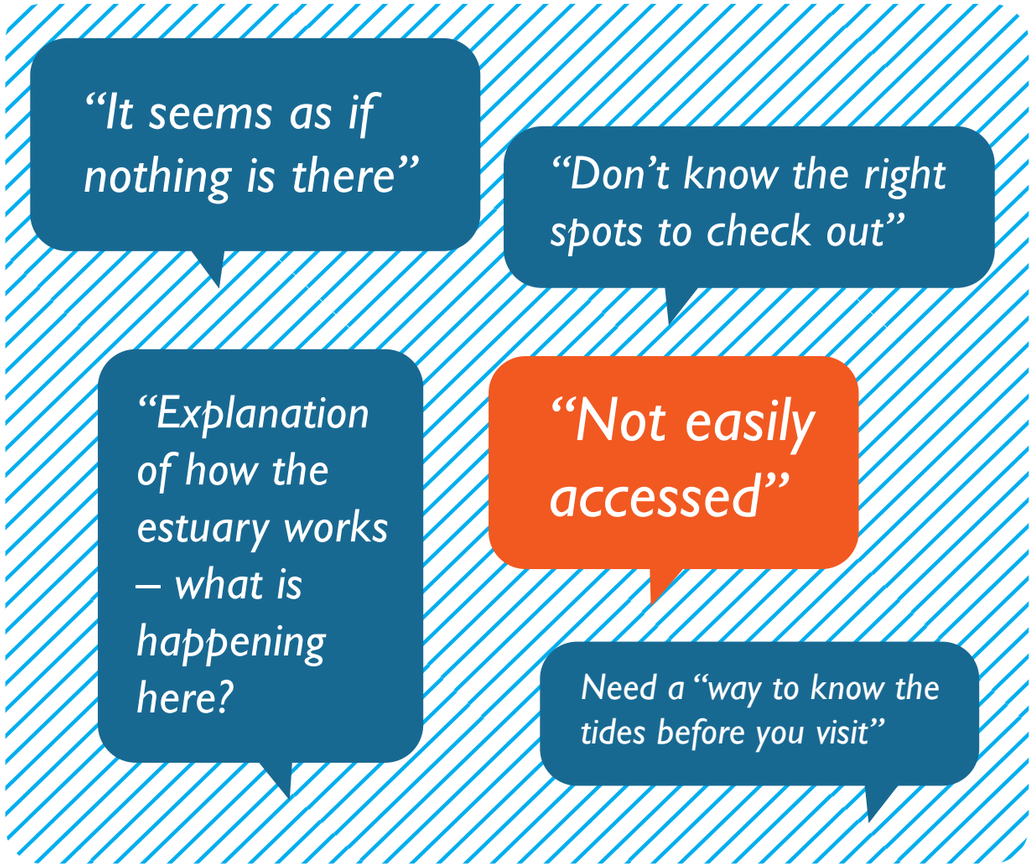
why you visit the

MARSHES AROUND HIGHWAY 37



WHY YOU HAVEN'T VISITED

the marshes around Highway 37...



COMMON GROUND
OUR FOCUS

IDENTITY

Strengthen the identity of the San Pablo Bay Region to encourage better understanding of the baylands as a major ecological and educational resource.

ADAPTATION

Provide new strategies for adaption of the San Pablo Baylands in response to sea level rise.

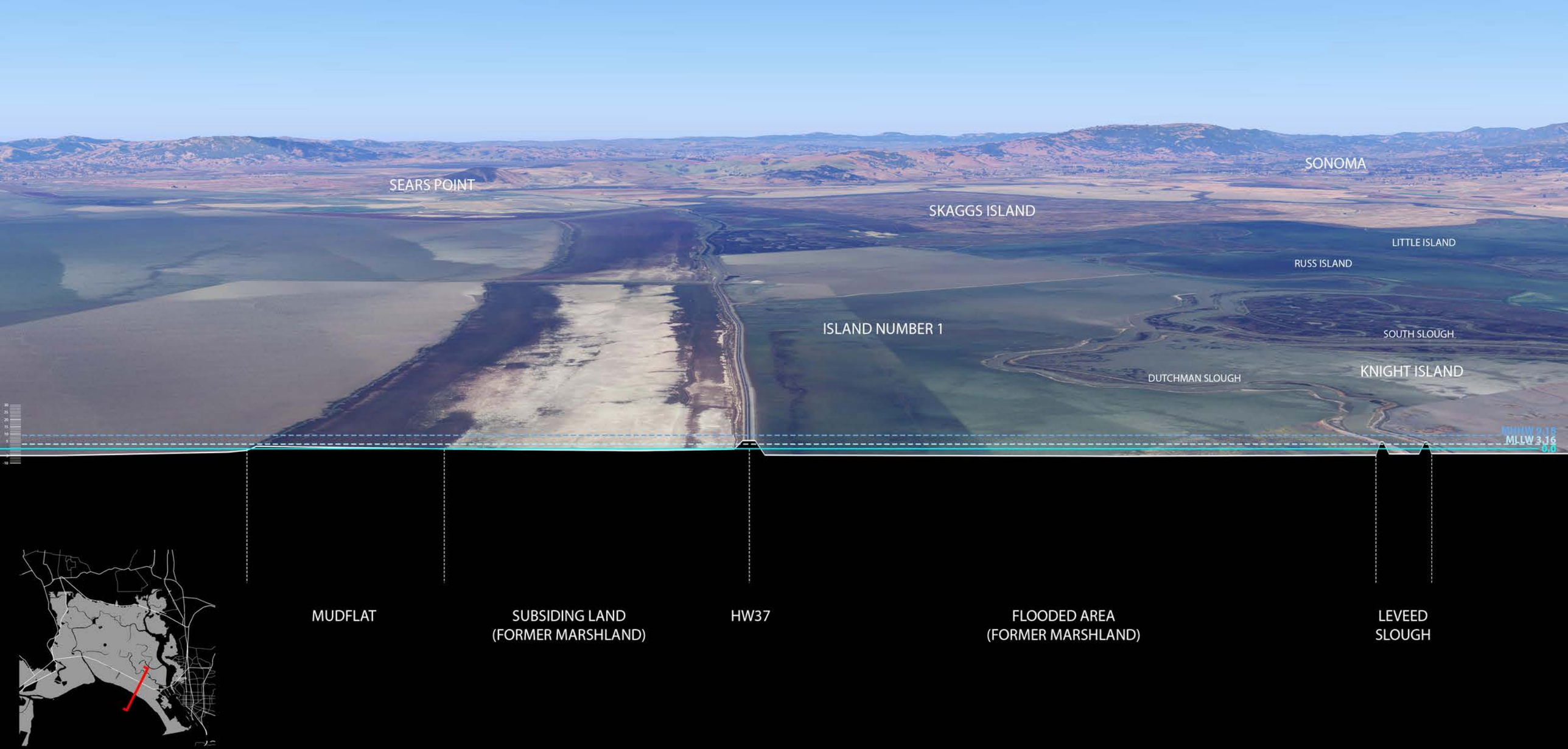
MOBILITY

Deliver long-term inter-modal connections around and across the San Pablo Baylands.

ACCESS

Provide more equitable access to the communities of San Pablo Bay, with particular attention given to programs for disadvantaged communities to broaden the constituency for these baylands.

SITE
EXISTING CONDITIONS



MUDFLAT

SUBSIDING LAND
(FORMER MARSHLAND)

HW37

FLOODED AREA
(FORMER MARSHLAND)

LEVEED
SLOUGH

SITE ANALYSIS
SEDIMENT SOURCES

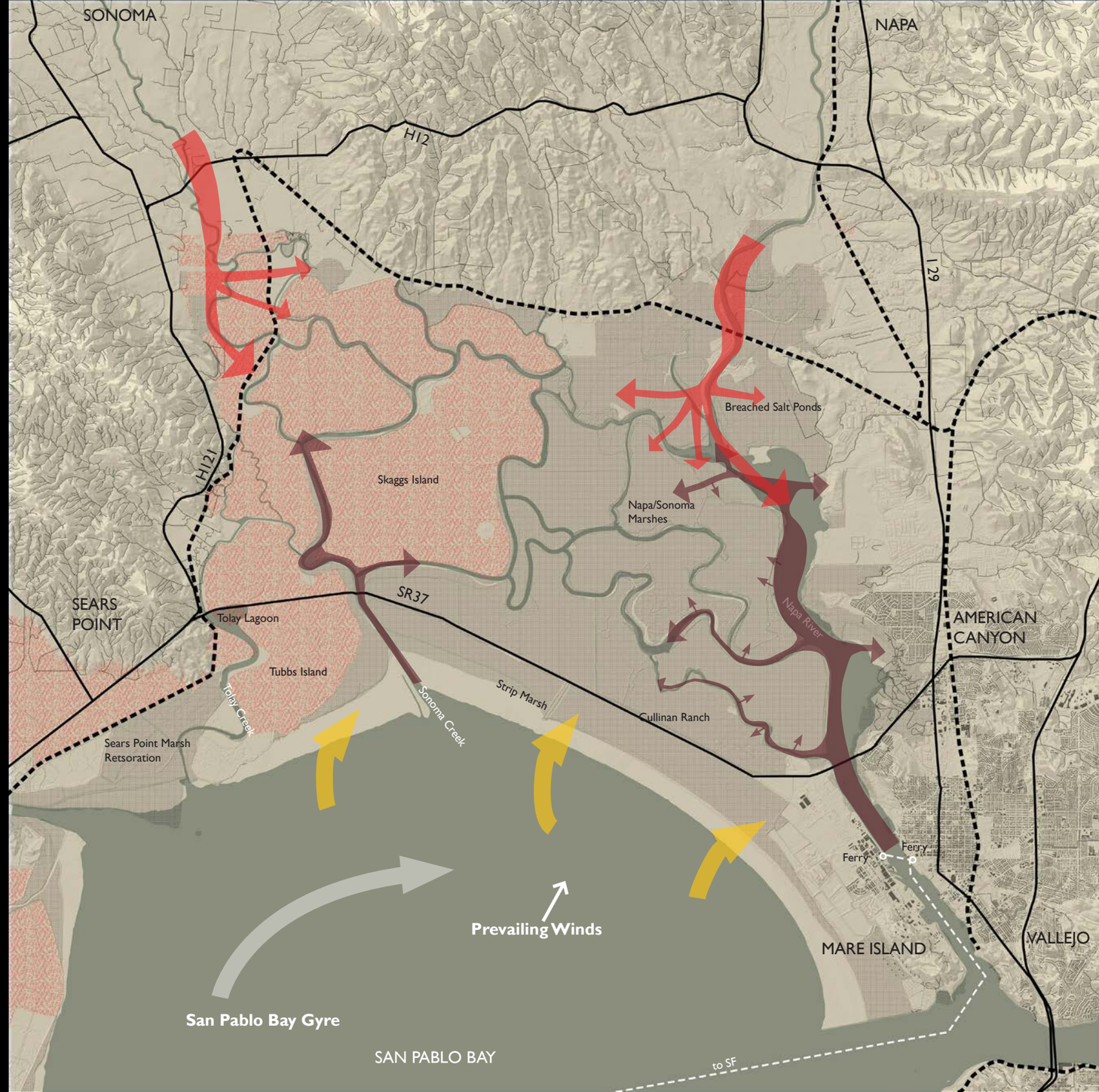
RIVER/CREEK (from north)
Sonoma Creek and Napa River account for 1/3 of total sediment entering the bay

TIDAL (from sides)
Sloughs, Tolay Creek, Sonoma Creek, Napa River

WAVE (from south)
From waves from San Pablo Bay
This has led to strip marsh accretion of 20'-30'/year over the last 150 years but is predicted to slow with sea level rise.

Diked land parcels subsided up to 7' below current sea level

Restored/in process of restoration wetlands protected by strip marsh berm



SITE
SAN PABLO BAYLANDS

STRATEGIES

- **ELEVATION CAPITAL**
- **SR 37 CAUSEWAY**
- **TERRAFORMING**
- **LOOPS & GATEWAYS**

OPPORTUNITIES

- **SCENIC SR37**
- **NATURAL & CULTIVATED ADAPTION**
- **INCREASE ACCESS AND LEGIBILITY**

IDENTITY

SAN PABLO BAY WILDLIFE REFUGE ?

SCENIC CORRIDOR ?

REGIONAL PARK ? STATE PARK ?

BAYLANDS NATIONAL SEASHORE?