

# RESILIENTSR37

*Integrating transportation, ecology, and sea level rise adaptation into a more resilient SR 37*



March 5, 2020 - BCDC

Image: San Pablo Bay National Wildlife Refuge, USFWS

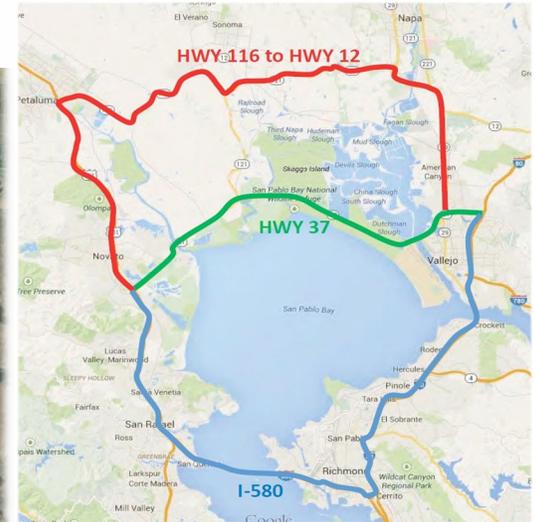
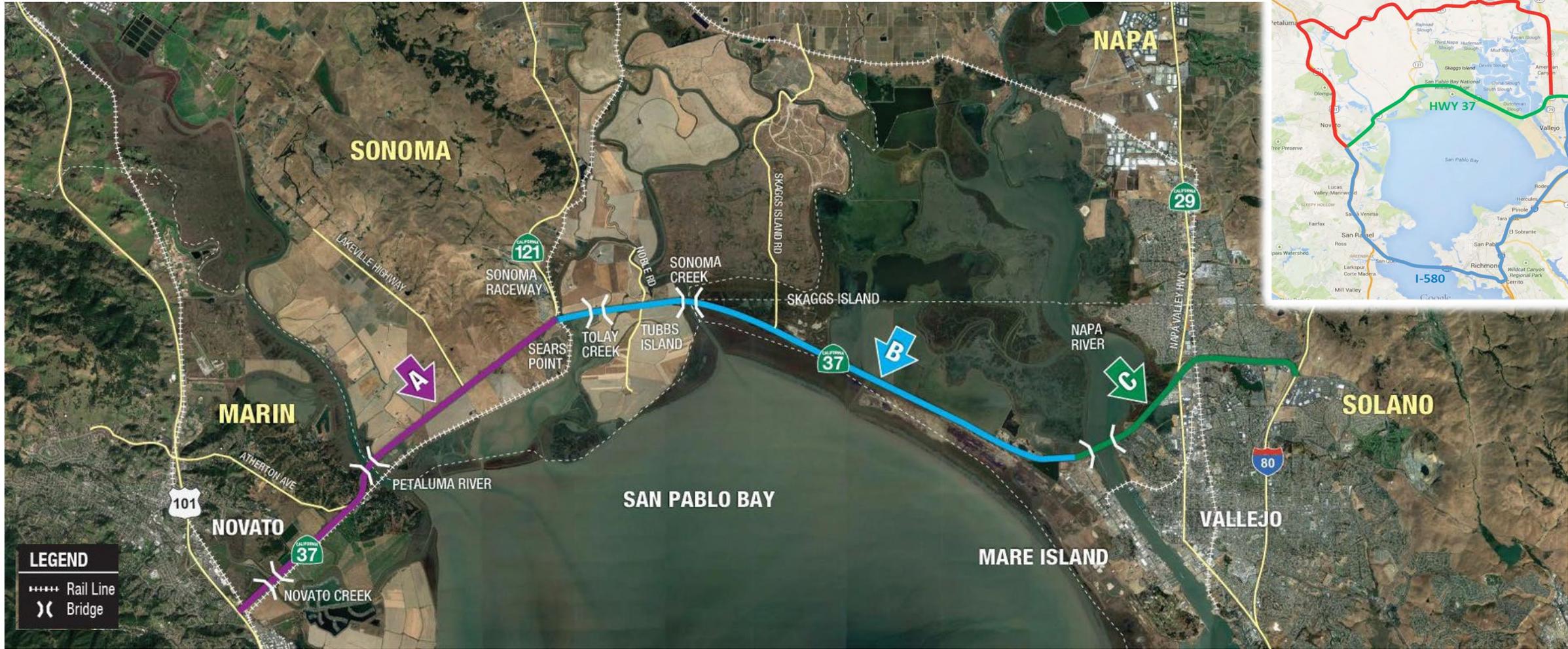


# SR 37 Policy Committee

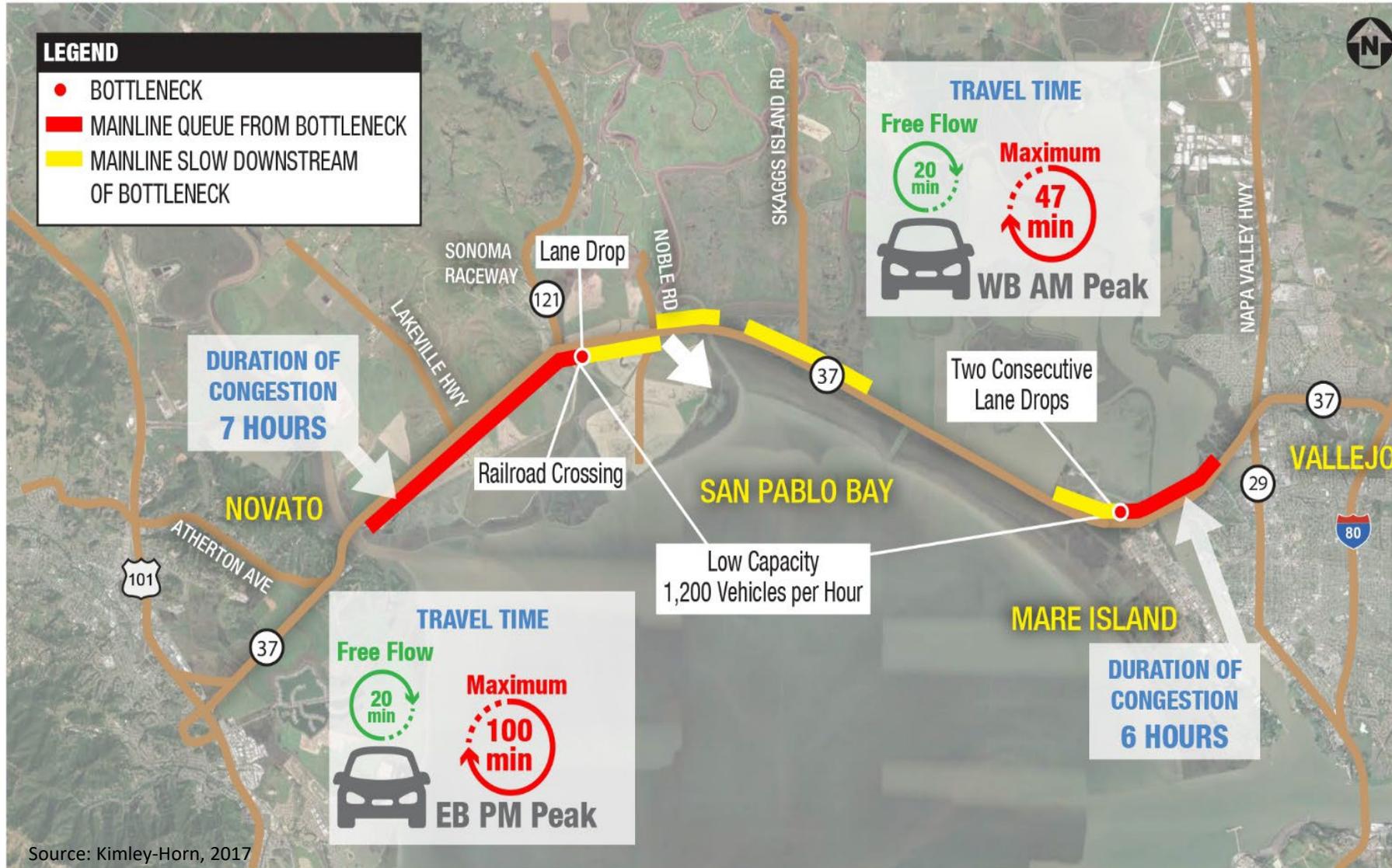
- ▶ Comprised of elected officials from 4 North Bay Counties:
  - ▶ David Rabbitt, Sonoma County Board of Supervisors; Jake Mackenzie, MTC Commissioner; **Susan Gorin, Sonoma County Board of Supervisors**
  - ▶ Alfredo Pedroza, MTC Commissioner; Bella Ramos, Napa County Board of Supervisors; Leon Garcia, Mayor of American Canyon
  - ▶ Damon Connolly, MTC Commissioner; Judy Arnold, Marin County Board of Supervisors; Stephanie Moulton-Peters, Councilmember, City of Mill Valley
  - ▶ Bob Sampayan, Mayor of the City of Vallejo; **Jim Spering, MTC Commissioner**; Erin Hannigan, Solano County Board of Supervisors
- ▶ Public Forum for Public Outreach/Input



# HIGHWAY 37: REGIONALLY SIGNIFICANT 21-MILE EAST-WEST CORRIDOR

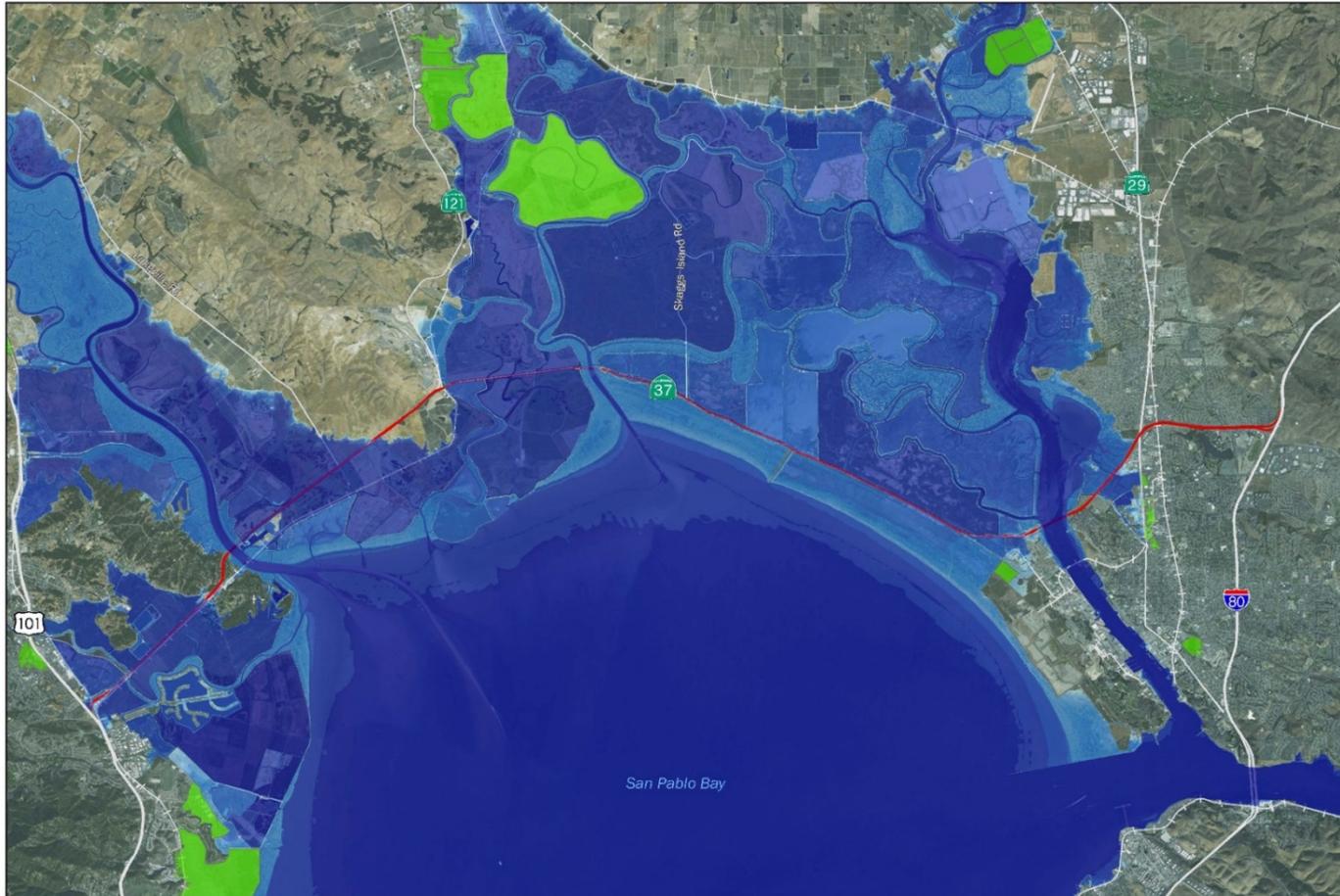


# 100 MINUTES TO TRAVEL HOME EVERY DAY



- **6 Hours** of Congestion During Weekday AM Commute (27 min. westbound delay)
- **7 Hours** of Congestion During Weekday PM Commute (80 min. eastbound delay)
- **Weekend** Congestion Throughout Most of the Day
- **No Transit** Services

# 30 YEARS FROM TODAY SEA LEVEL RISE WILL INUNDATE SR 37



**California State Route 37**  
Inundation Mapping  
MHHW + 36" SEA LEVEL RISE

**12" SLR + 5-yr Storm Surge**  
**6" SLR + 10-yr Storm Surge**  
**0" SLR + 25-yr Storm Surge**



Project: SR 37 California E North American Dec 11 1993 Date: 6/21/2015



Disclaimer: The inundation maps and the associated analyses are intended as planning level tools to illustrate the potential for inundation and coastal flooding under a variety of future sea level rise and storm surge scenarios. The maps depict possible future inundation that could occur if nothing is done to adapt or prepare for sea level rise over the next century. The maps do not represent the exact location or depth of flooding. The maps relied on a 5-ft digital elevation model created from LIDAR data collected in 2010. Although care was taken to capture all relevant topographic features and coastal structures that may impact coastal inundation, it is possible that structures narrower than the 5-ft horizontal map scale may not be fully represented. In addition, inundation and flooding of bridges along the SR 37 alignment was not evaluated. The maps are based on model outputs and do not account for all of the complex and dynamic San Francisco Bay processes or future conditions such as erosion, subsidence, future construction or shoreline protector upgrades, or other changes to San Francisco Bay or the region that may occur in response to sea level rise. For more context about the maps and analyses, including a description of the data and methods used, please see project documentation for the State Route 37 Integrated Traffic, Infrastructure and Sea Level Rise Analysis Study (UC Davis Road Ecology Center and Caltrans District 4).



2000

2050

2100

2100+



# 2019 FLOODING



Levee Breach



[Note: Area under photo with text for

Westbound SR 37 Looking West



Overtopped Levee



SR 37 Looking East

**RESILIENTSR37**



# ACRES OF WETLANDS AND BAYLANDS & STATE AND FEDERALLY PROTECTED SPECIES

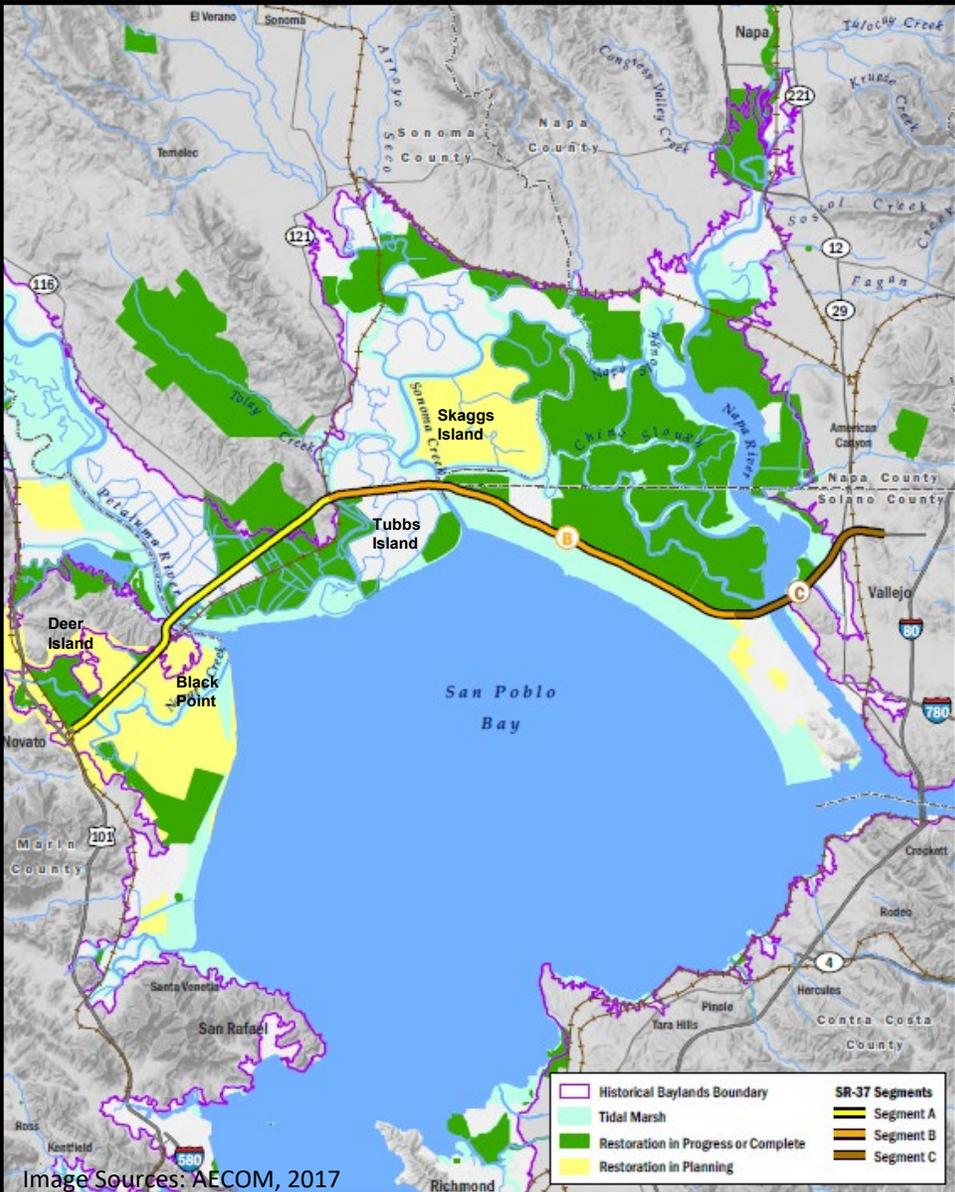
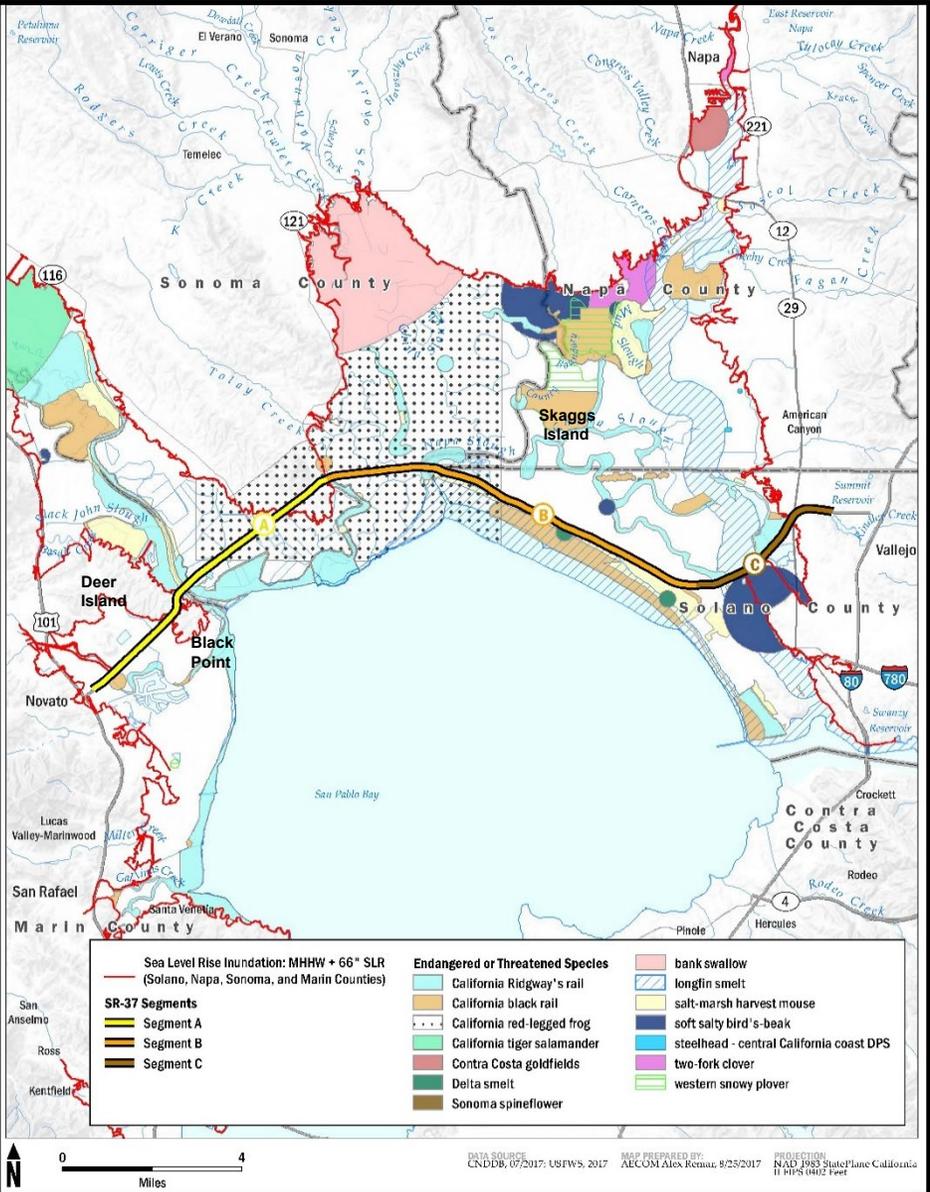


Image Sources: AECOM, 2017



- State and Federally-Protected Species:
  - Salt Marsh Harvest Mouse
  - CA Ridgway's Rail
  - CA Black Rail
  - San Pablo Song Sparrow
  - Red Legged Frog
  - Green Sturgeon
  - Longfin Smelt
  - Steelhead
  - Chinook Salmon

# 9 SPECIAL-STATUS SPECIES, PACIFIC FLYWAY AND MANY ACRES OF WETLANDS AND BAYLANDS



Image Sources: Various 2018

**RESILIENTSR37**



# BICYCLE AND PEDESTRIAN ACCESS



# OUR VISION → MULTI-MODAL AND MULTI-BENEFIT PROJECTS



Sea Level Rise



Ecological Restoration & Conservation



Multimodal Corridor



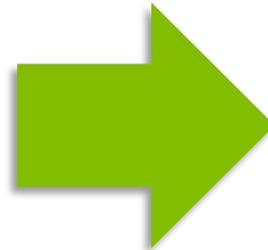
Access to Baylands



Equity

**RESILIENTSR37**

# BREAK THE PROJECT DELIVERY PARADIGM



Inter-Agency Consultation



Interim and Ultimate Fixes



**Highway 37**  
Improvement Plan

**EXPECT DELAYS**

**DETOUR**  




Early Outreach



Integrate,  
Don't Mitigate

**RESILIENTSR37**

# SEGMENT B ULTIMATE SLR ADAPTATION PROJECT — ALTERNATIVES ASSESSMENT SUMMARY

Alternatives	1. Current Alignment Hybrid Existing	2. Current Alignment Causeway	3. Northern Alignment	4. Southern Alignment 1 (Shoreline)	5. Southern Alignment 2 (San Pablo Bay)
<b>Key Takeaways</b>	<ul style="list-style-type: none"> <li>• Lowest travel times for Segment B, no increase in daily VMT</li> <li>• Less right of way (ROW) acquisition</li> <li>• Similar GHG emissions compared to existing</li> <li>• Hybrid results in greater biological resources and hydrology impacts</li> <li>• Minimizes impacts to existing land uses</li> <li>• Favored by focus groups</li> </ul>	<ul style="list-style-type: none"> <li>• Longest travel times, increase in daily VMT</li> <li>• Highest ROW acquisition</li> <li>• Avoids coastal areas, but transects more habitats</li> <li>• Potential impacts to cultural resources</li> <li>• Potential to induce growth</li> <li>• Decreases public access</li> <li>• Disliked by focus groups</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts similar to Hybrid Existing and Causeway Existing</li> <li>• Impacts primarily offshore habitats</li> <li>• Decreases public access</li> <li>• Disliked by focus groups</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest travel times for entire corridor</li> <li>• Results in induced demand</li> <li>• High right of way acquisition</li> <li>• Impacts offshore habitats</li> <li>• Potential land use conflicts</li> <li>• Decreases public access</li> <li>• Mixed results from focus groups</li> </ul>	
<b>ROW Acquisition (acres)</b>	163	113	428	147	264
<b>Total Cost (2018\$)</b>	\$2.4B	\$2.9B	\$3.3B	\$2.9B	\$3.3B



# INTERIM FLOOD PROTECTION IMPROVEMENTS: US 101 — SR 121

Roadway & Bank Protection



Drainage Improvement



Raising Pavement Elevation



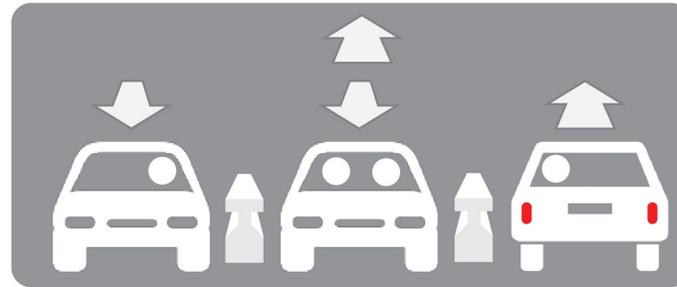
# INTERIM CONGESTION RELIEF PROJECT: SR 121 TO MARE ISLAND



Existing 2-Lane Segment B

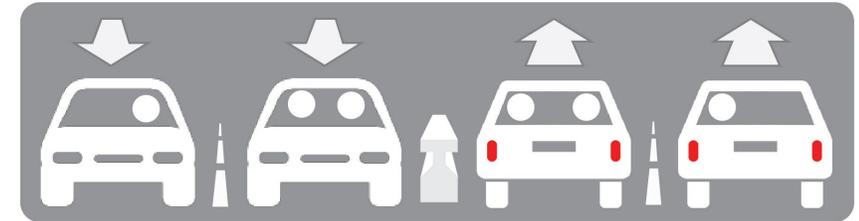


Option 1: 3-Lane Contra-Flow with Moveable Median Barriers



Golden Gate Bridge Example

Option 2: 4-Lane Highway  
(requires mitigation for bike access)



Richmond-San Rafael Bridge Example

Cost Range: \$100M to \$150M



# RECONNECT HYDROLOGY AND ECOLOGY THROUGH A FORWARD-LOOKING HIGHWAY DESIGN





# RESILIENT SR 37 PROGRAM — PHASED IMPLEMENTATION

CONCURRENT PROJECT DEVELOPMENT. DELIVER EARLY COMMUNITY BENEFITS.



*Environmental - Design - Construction*

- Flood Protection Project (US 101 — SR 121)
- Congestion Relief Project (SR 121 — Mare Island)
- Early Ecological Enhancements
- Transit With Emerging Technology

## Early Benefits



Transition

- SR 37 Corridor SLR Adaptation Project (I-80 — US 101)
- Advanced Mitigation Implementation Plan
- Bike/Pedestrian/Public Access
- Transit With Tomorrow's Technology

## RESILIENTSR37



Today

2025

2040

2050

RESILIENTSR37



# Questions?

**RESILIENTSR37**

