

State Route 37 Transportation and Sea Level Rise Corridor Improvement Plan

Policy Committee: September 25, 2017



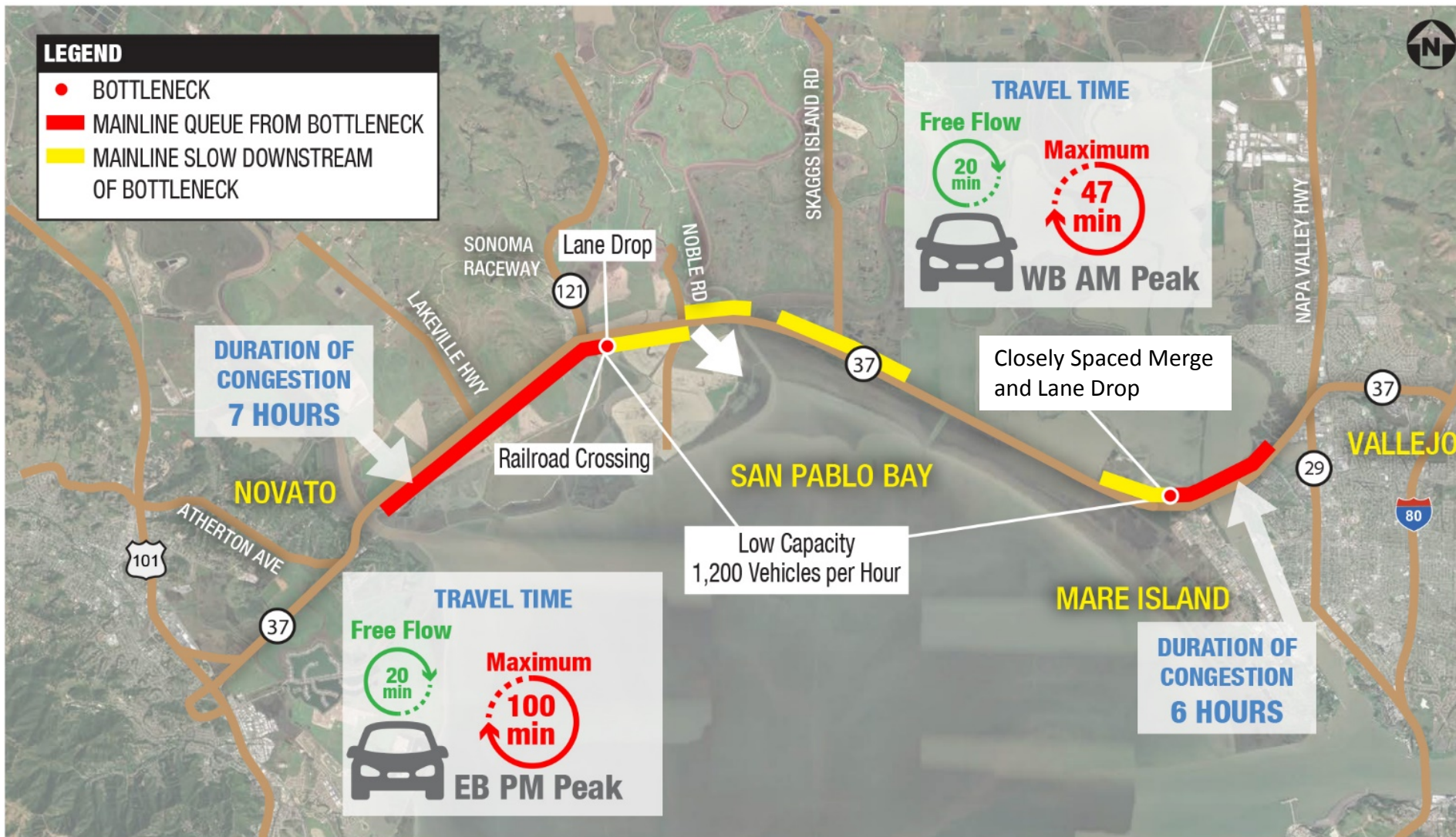
With Support From:



The SR 37 Corridor



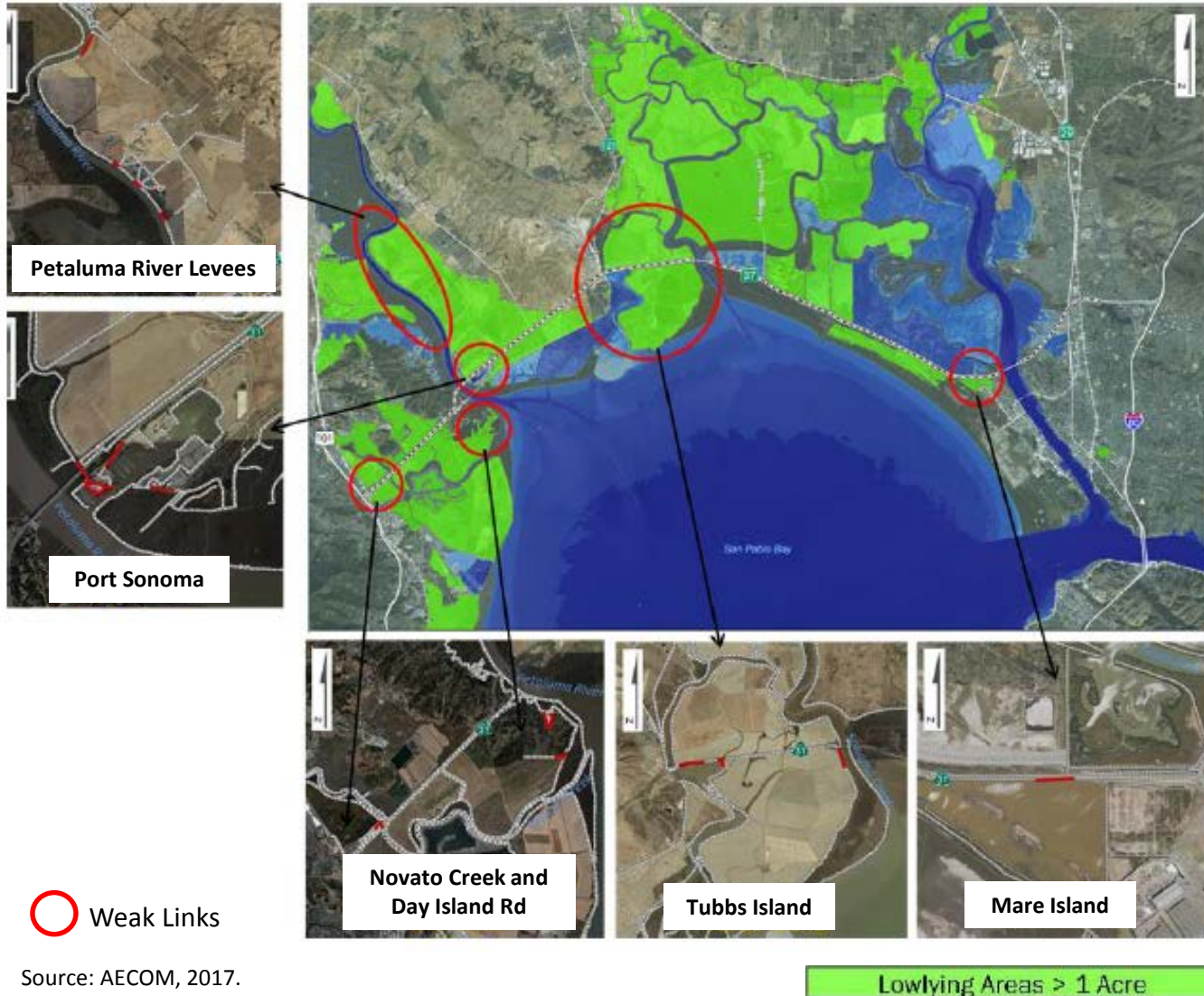
100 Minutes to Travel Back Home Every Day



Source: Kimley-Horn, 2017.

- **6 Hours** of Congestion During Weekday AM Commute (Westbound)
- **7 Hours** of Congestion During Weekday PM Commute (Eastbound)
- **Weekend** Congestion Throughout Most of the Day
- **No Transit** Services

Parts of SR 37 Already Flood During Heavy Storms

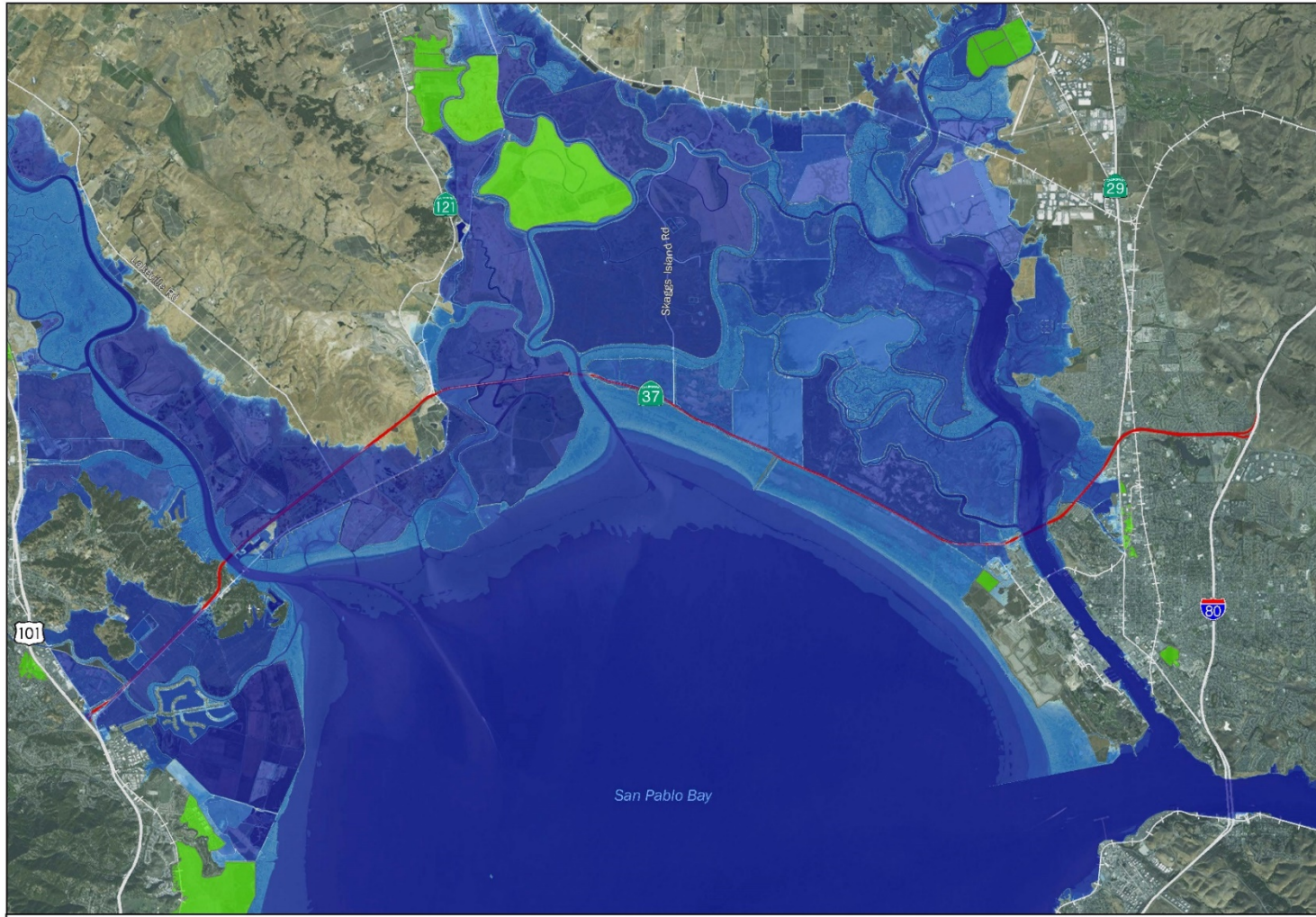


- Weak Links Are Most Vulnerable to Short Term Flooding and Eventual SLR

Recent Floods in Spring, 2017



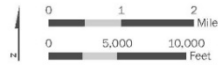
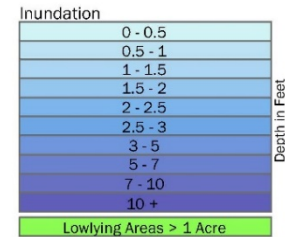
Majority of SR 37 Will Be Inundated by 2050 Conditions with Sea Level Rise & Storm Surges



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



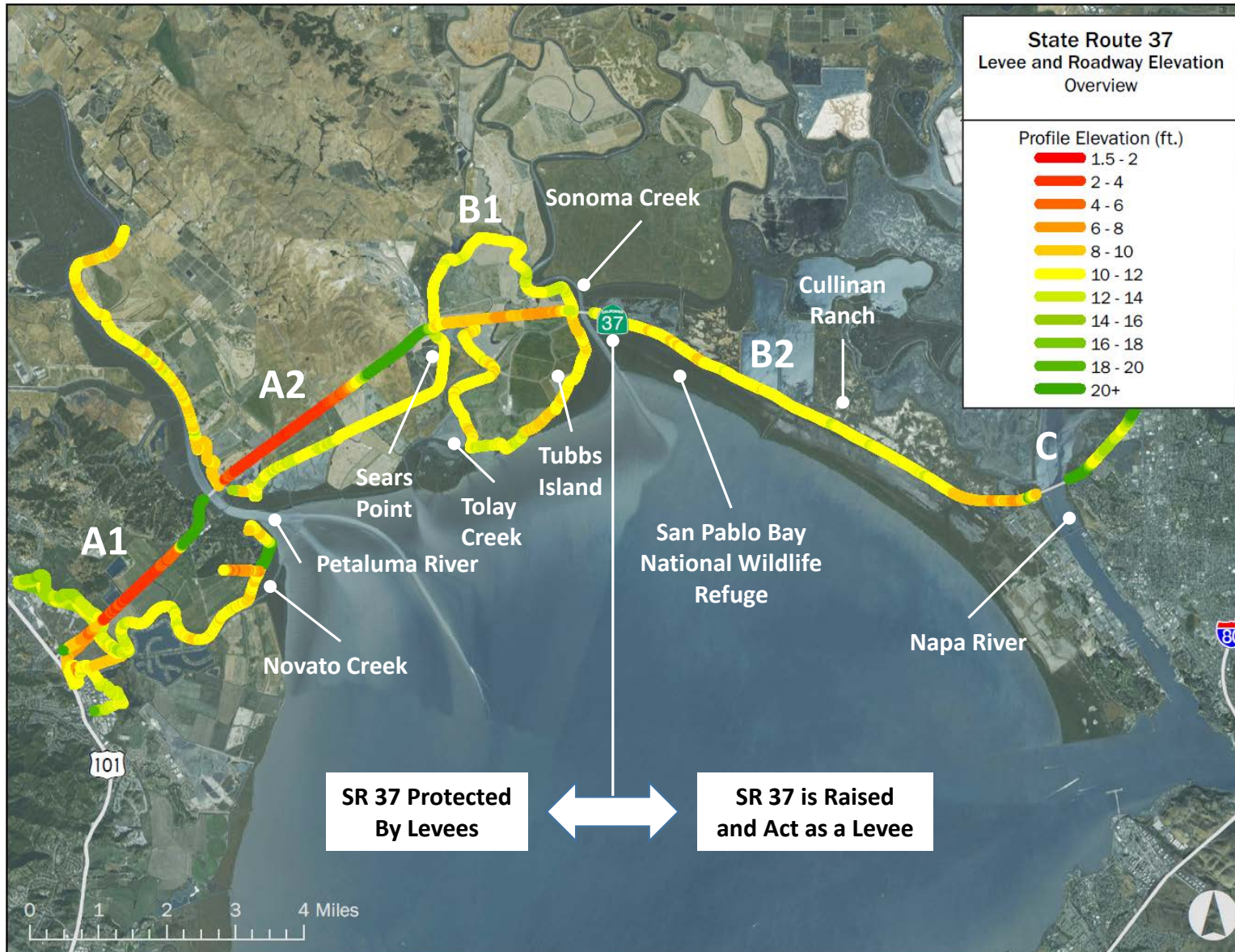
Report: NAD 1983 California II; North America Datum 1983 Date: 8/21/2013



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 protection 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).

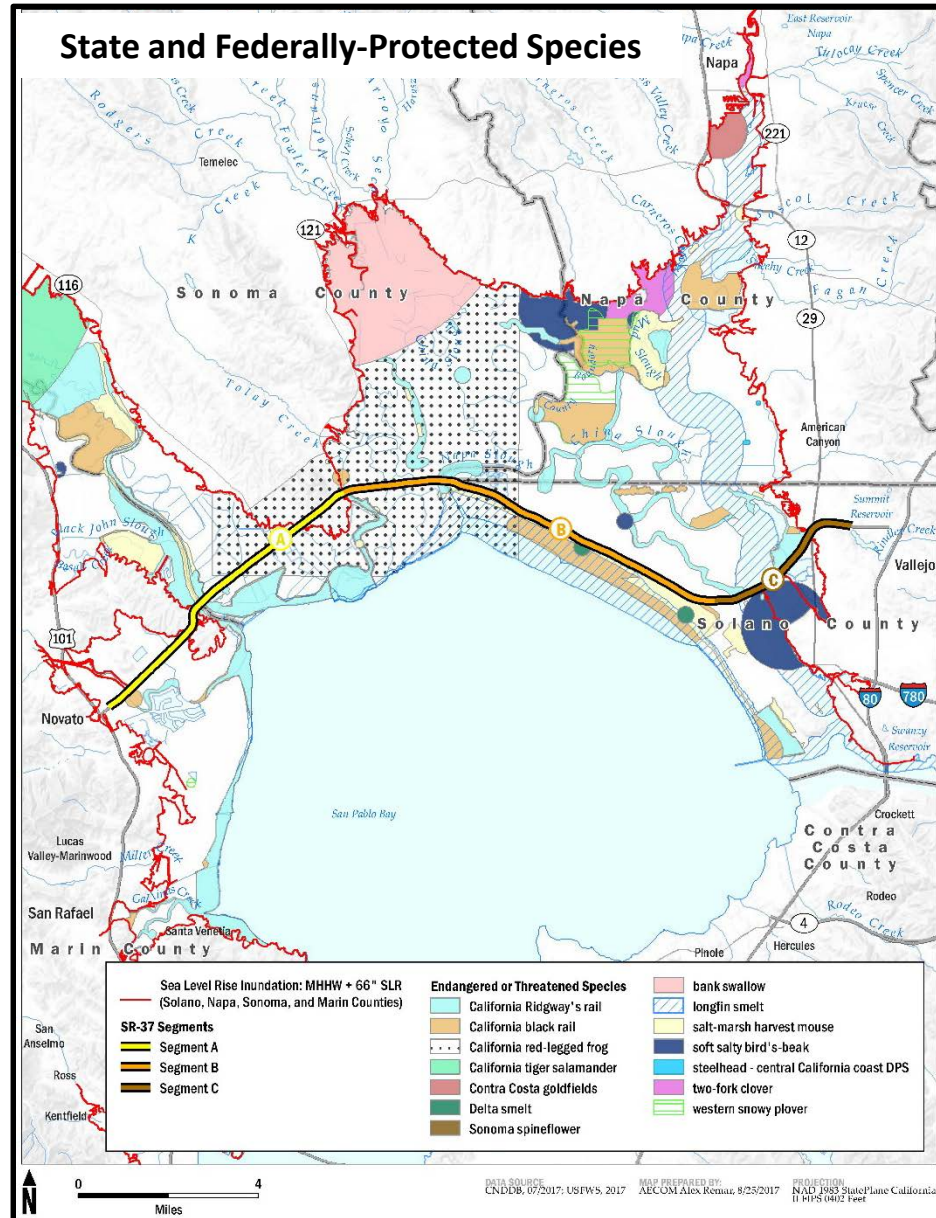
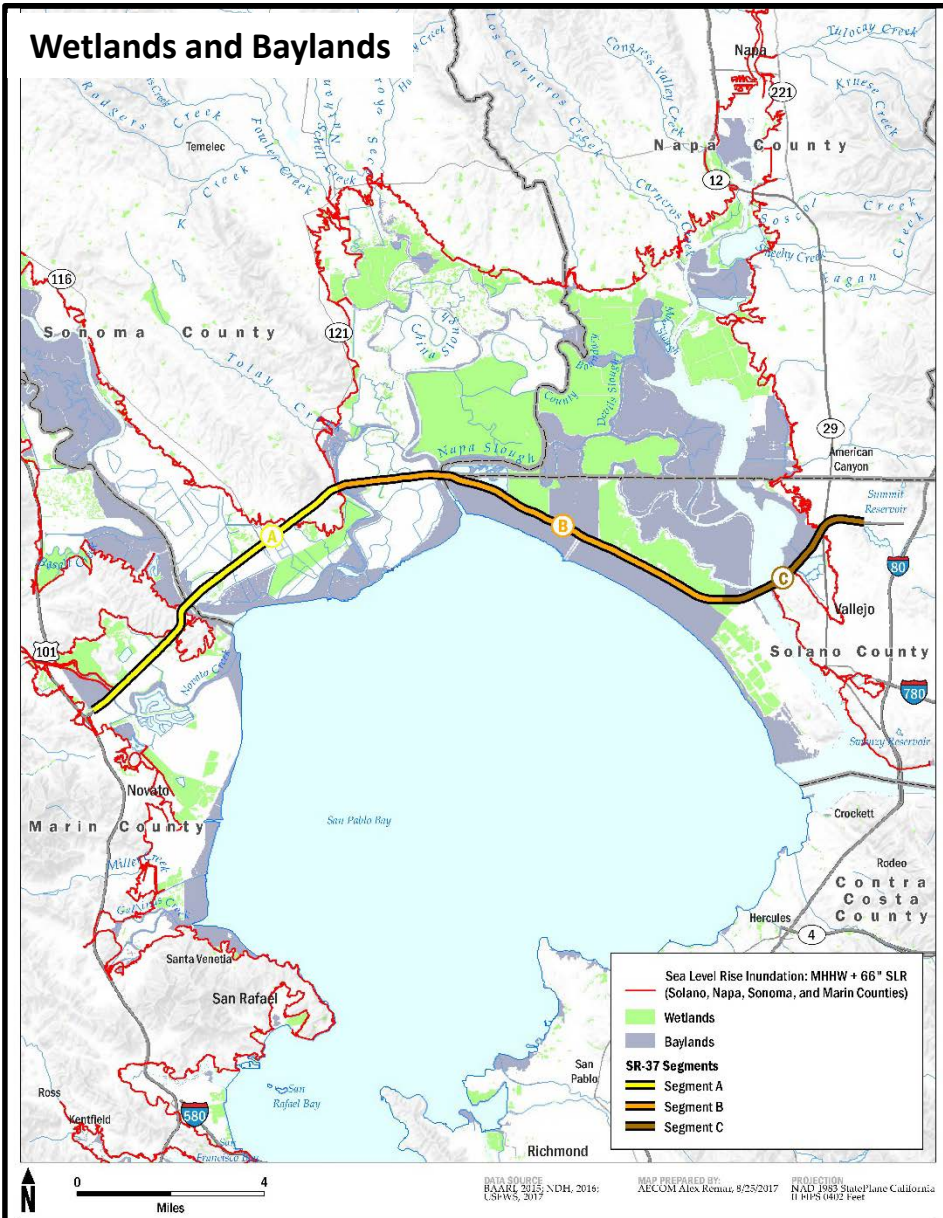
- Year 2100 Sea Level Rise Scenario
- Permanent Inundation Expected by 2050: Segment A and Segment B from SR 121 to Sonoma Creek
- SR 37 Closure Would Divert Traffic to Other Already Congested Routes: I-80, US 101, I-580, SR 12, SR 121, etc.
- State and Federal-Protected Species Lose Habitat

Many of the Adjacent Levees Protecting SR 37 Are Privately Owned



- Private Levees Not Constructed Specifically for Protecting SR 37
 - Ancillary Benefit for SR 37
 - Challenges with Maintaining and Upgrading Private Levees
- A Number of Low Elevation Hotspots Along Corridor

SR 37 Rich with Wetlands, Baylands, and State and Federally-Protected Species



- Wetlands and Baylands
- State and Federally-Protected Species:
 - Salt Marsh Harvest Mouse
 - CA Ridgeway's Rail
 - CA Black Rail
 - Steelhead
 - Green Sturgeon
 - Longfin Smelt
 - CA Red Legged Frog

Environmental Resilience and Transportation Strategies for SR 37

Not an Option



Retreat

Available Capacity on
Alt. Roadways
Rail Alternative
w/o SR 37
Ferry Alternative
w/o SR 37

Focus on Protecting and Accommodating



Protect

Maintain Existing Roadway
- Near-Term Operational Improv.
Flood Protection
- Levee Improv.
- Building Seawall
- Marshland Restoration

Accommodate

Raised Roadway (SLR Adaptation)
- Improve Capacity on Segment B
Integrated Transportation and Ecosystem Design
Advanced Mitigation Planning Process-Ready

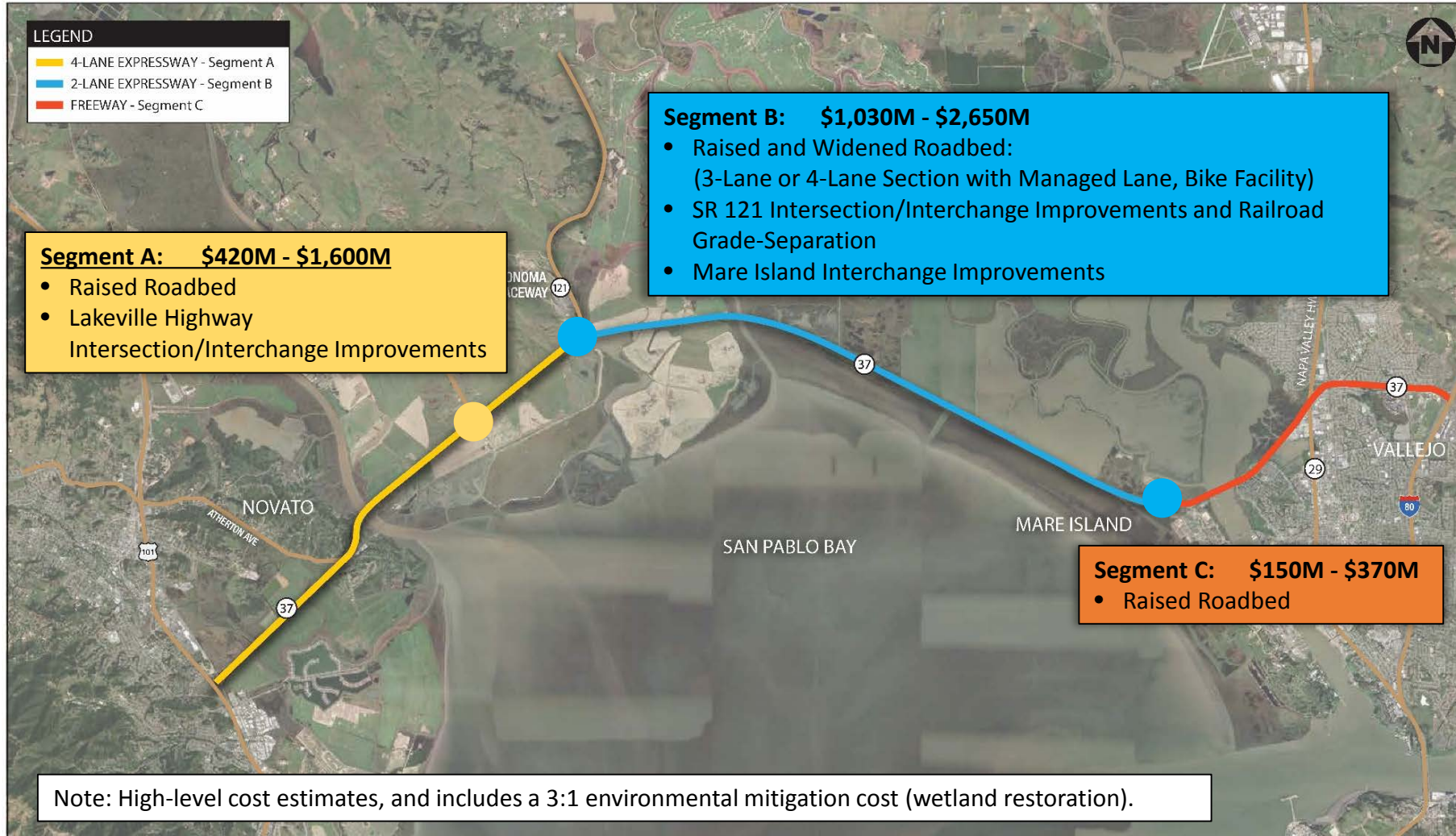
A Corridor Vision for SR 37

- **A Raised Roadbed That Provides Resiliency to Long Term Sea Level Rise Threat through Year 2100**
 - Design for 66" SLR + 100-Year Storm
 - New Elevation: 17' - 20' (NAVD 88)
- **Ecological Enhancement**
 - Wetland Hydrological Connectivity
 - Living Levees that Provides Habitat Opportunities
- **Improve Capacity in Segment B**
 - New Managed Lane(s)
- **Multimodal and Local Access Improvements**
 - Improve Bay Trail/Bike Access, Provide Transit Service
 - Intersection and Interchange Improvements at SR 121, Mare Island, and Lakeville Highway



The SR 37 Project

- Total Project Cost (Entire Corridor): \$1,600M – \$4,620M
- Project Delivery: Between 10 – 30 Years



Segment B is the Priority Segment

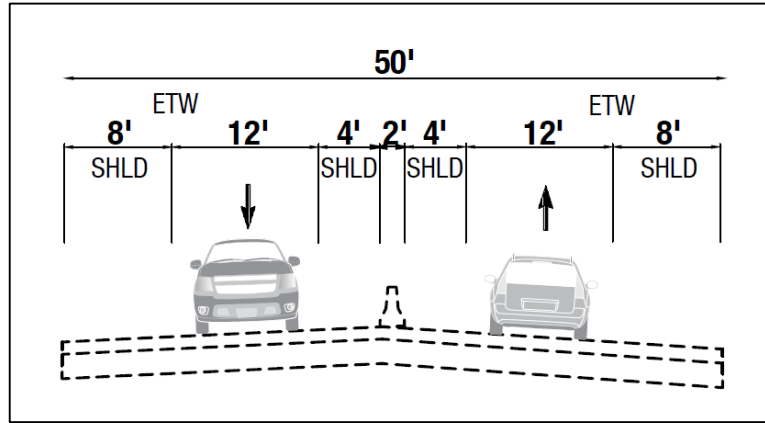


Segment Risk Rating	Segment A	Segment B	Segment C
Effect on Existing Traffic Congestion	1	3	1
Effects on Environmental Resources	2	3	1
Impacts Due to Sea Level Rise	3	3	1
Economic Impact on Commuters	3	3	3
Economic Impact on Goods Movement	2	3	3
Impacts to Recreational Activities	2	3	2
Length of Segment Impacted/Capital Improvement Cost	3	3	1
Composite Risk Rating	2	3	2

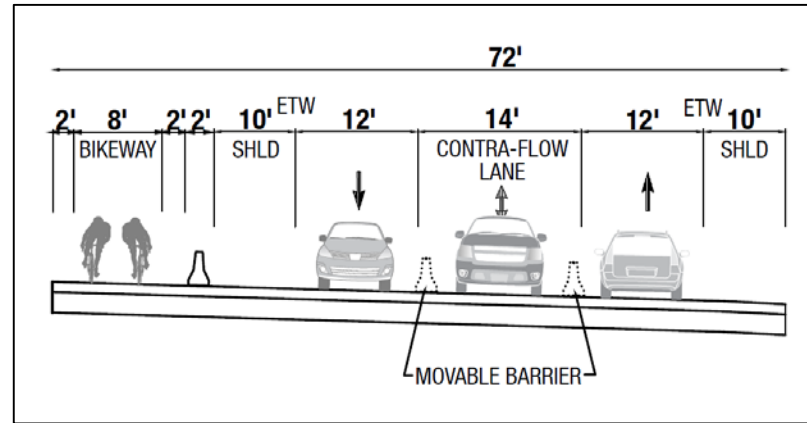
Note: Risk ratings were assigned as follows: 1.0 - 1.4 (low), 1.5 - 2.4 (moderate), and a 2.5 - 3.0 (high)

Segment B Design Considerations – Cross Section

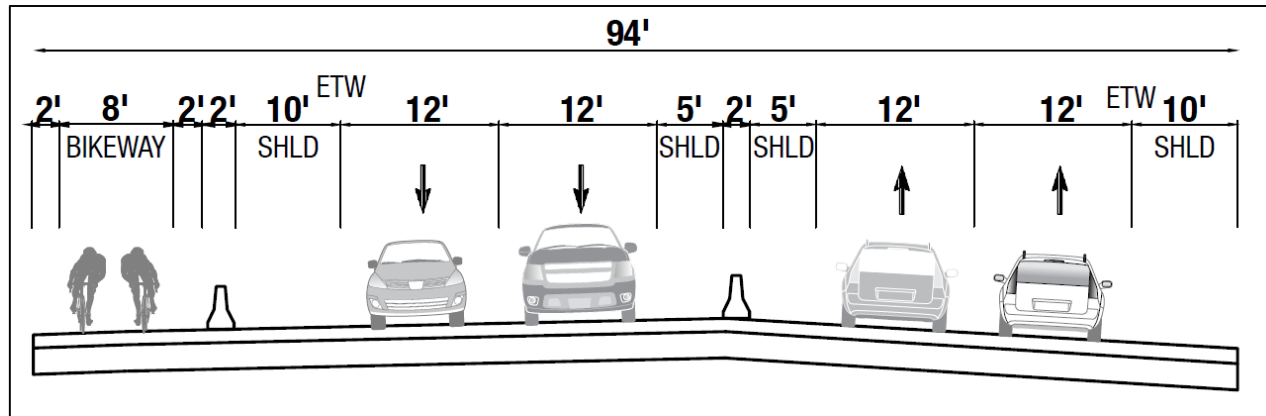
- Deliver Between 7 - 10 Years
- Construction Cost Range: \$1,030M – \$2,650M



Existing Segment B



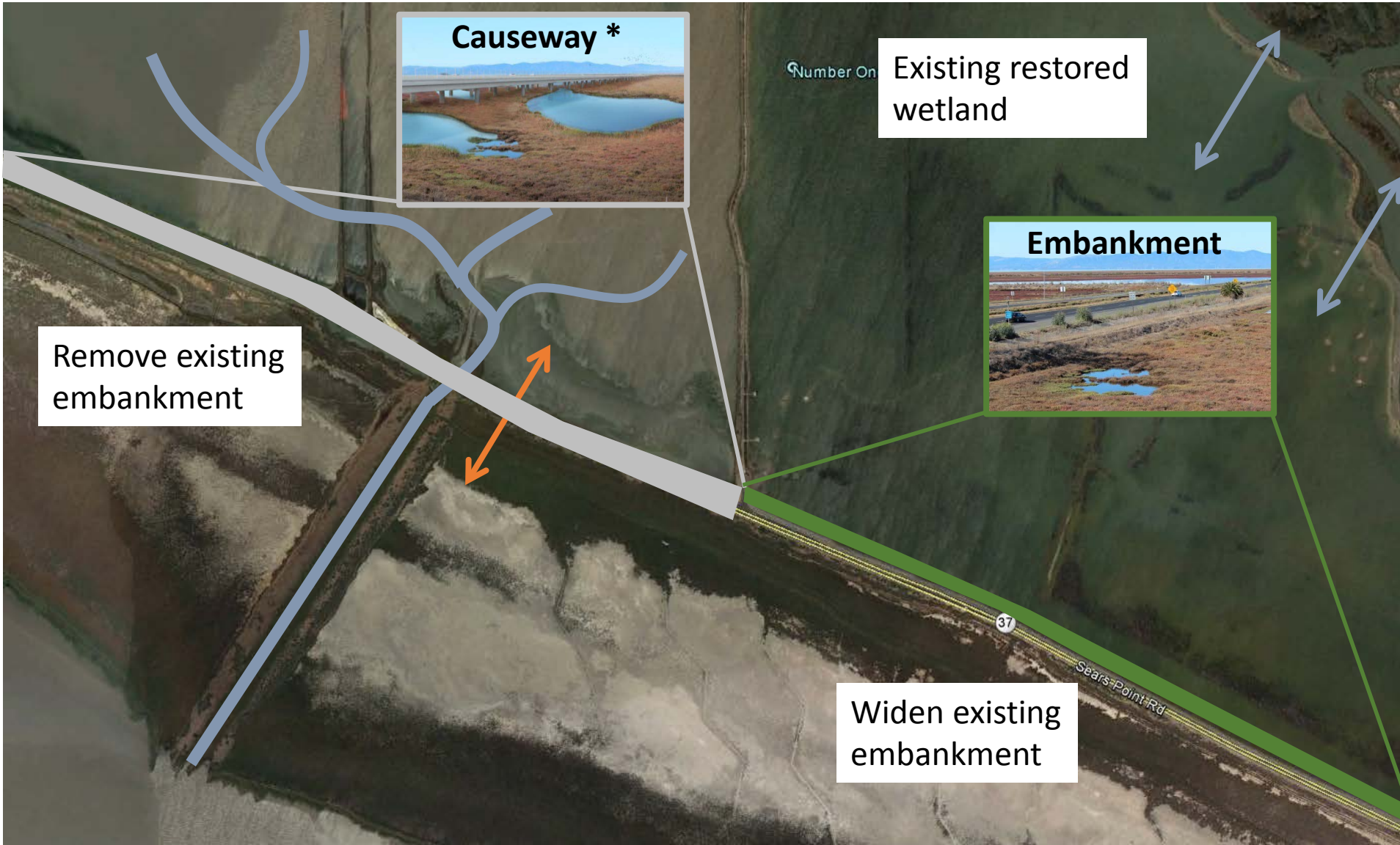
3-Lane Segment B – Contra-Flow Lane
with Movable Barriers



4-Lane Segment B

- New Lane(s) be HOV/Managed Lanes
- Bay Trail/Bike Facility Options
- Footprint Consideration: Environmental, Future CV/AV Impacts on Roadbed Use and Lane Widths

Priority Segment B Design Considerations – Raised Roadbed



Hybrid project design

The causeway would create wetland restoration opportunities, by reconnecting the hydrologic and ecological landscape, and reconfigure tidal exchange.

The levee/embankment would provide an option as a living levee, improve access to public viewing areas.

* Box culvert is also an option.

Note that this is an illustrative restoration scenario, not a proposed plan.

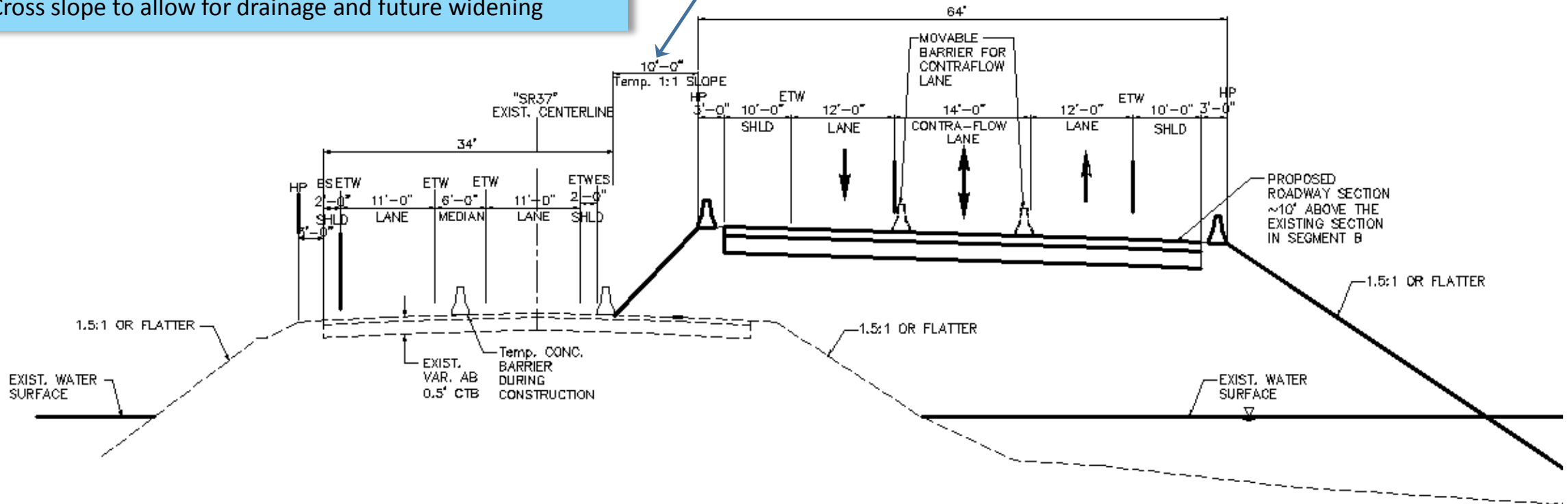
Construction Staging Consideration

Example: 3 Lanes Contra-Flow Lane With Movable Barrier

Segment B

- Embankment Option Shown; Other Options
 - Causeway
 - Box Culvert
 - Hybrid Section with Net Zero Environmental Impact
- Bike Lane Options
- Cross slope to allow for drainage and future widening

Most Conservative Assumption Shown
(Range: 2' – 10')



Integrated Ecosystem Design

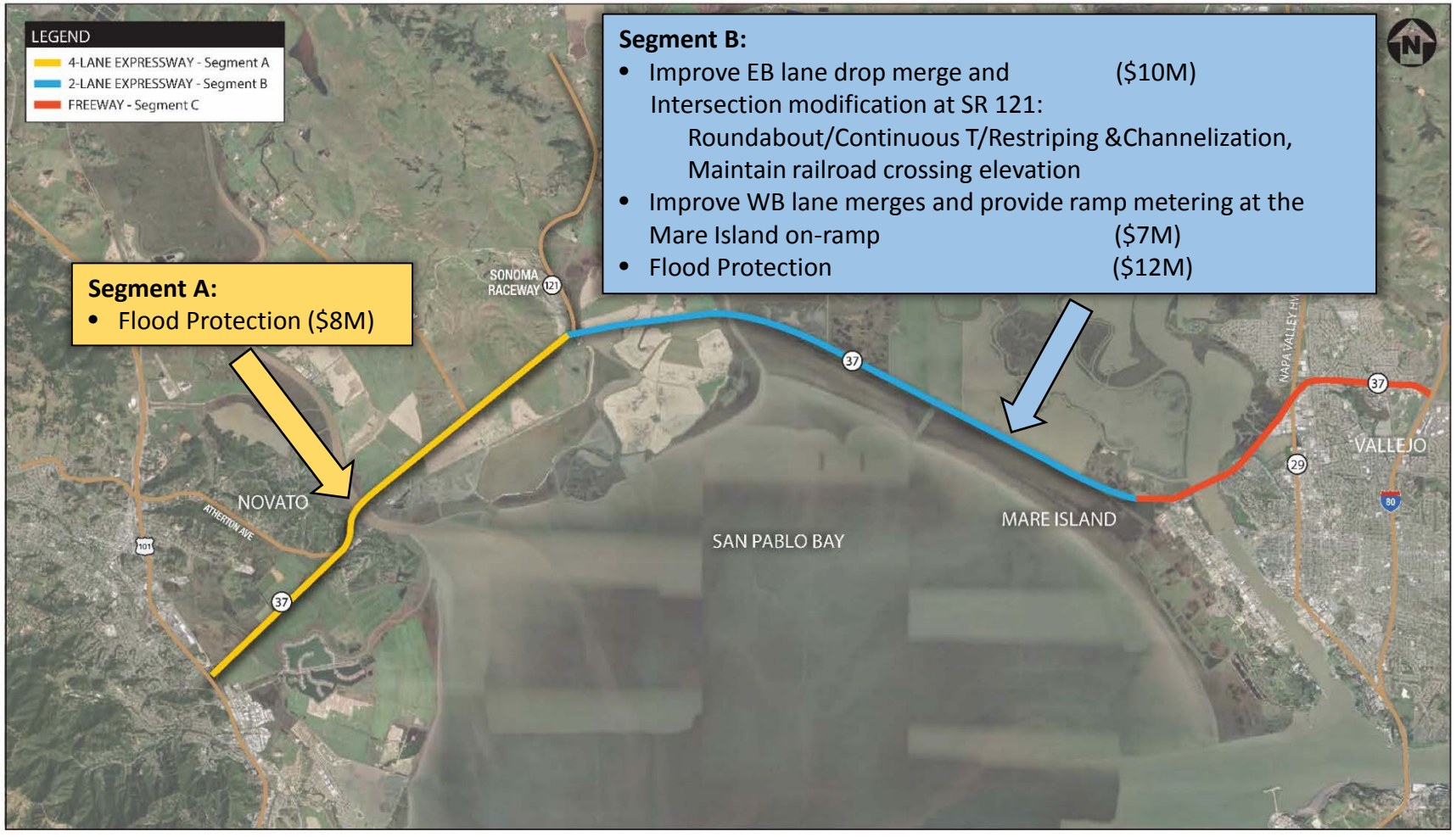
Net-Zero Wetland Loss and Mitigation Integration

- Collaborate with On-Going Restoration Efforts
- Advanced Mitigation Planning Process Ready
- Hybrid Project Design: Embankment/Causeway/Box Culvert
- Large-scale offsite or onsite restoration

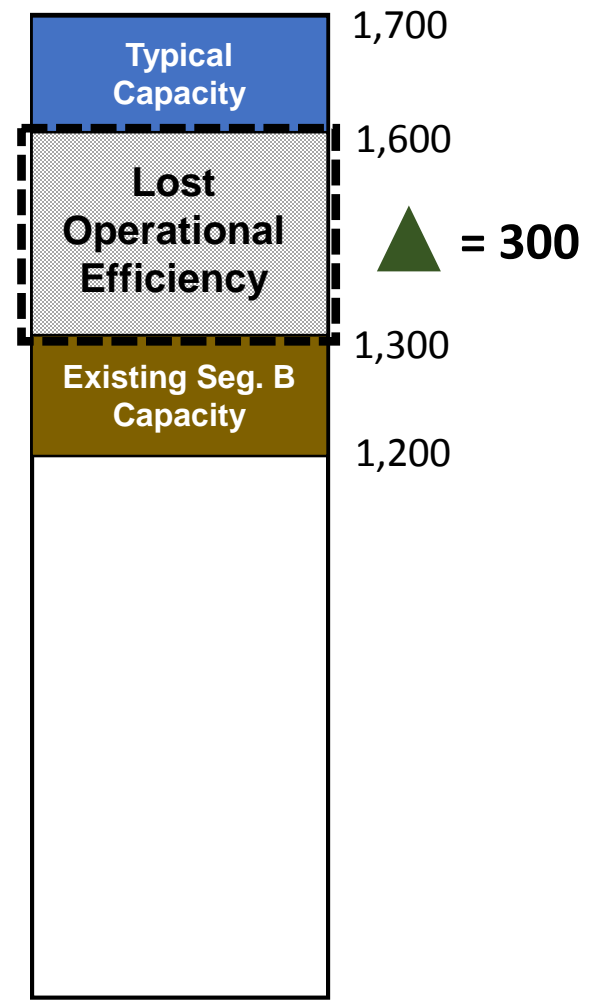


Near-Term, Low-Cost, High-Impact Operational Improvements And Flood Protection Improvements

A \$43M Improvement Package Delivered Between 1 to 5 Years



2-Lane Rural Highway



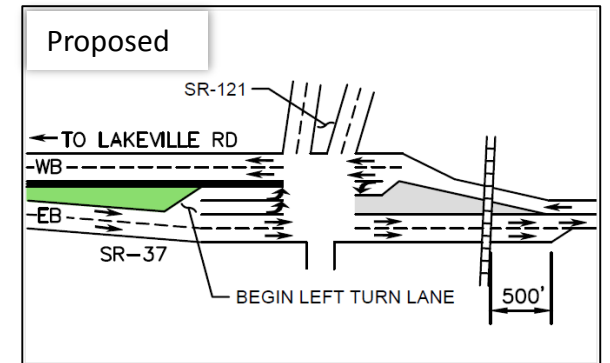
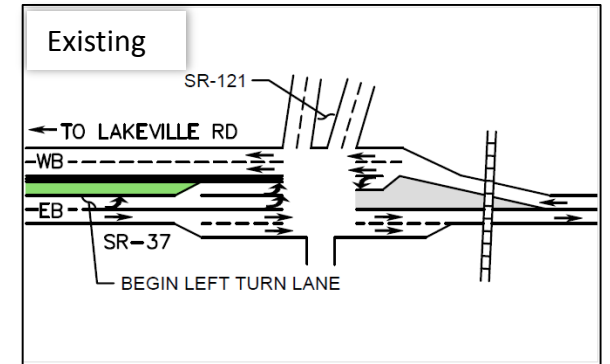
Note: High-level cost estimates, subject to further refinement.

Vehicles Per Hour

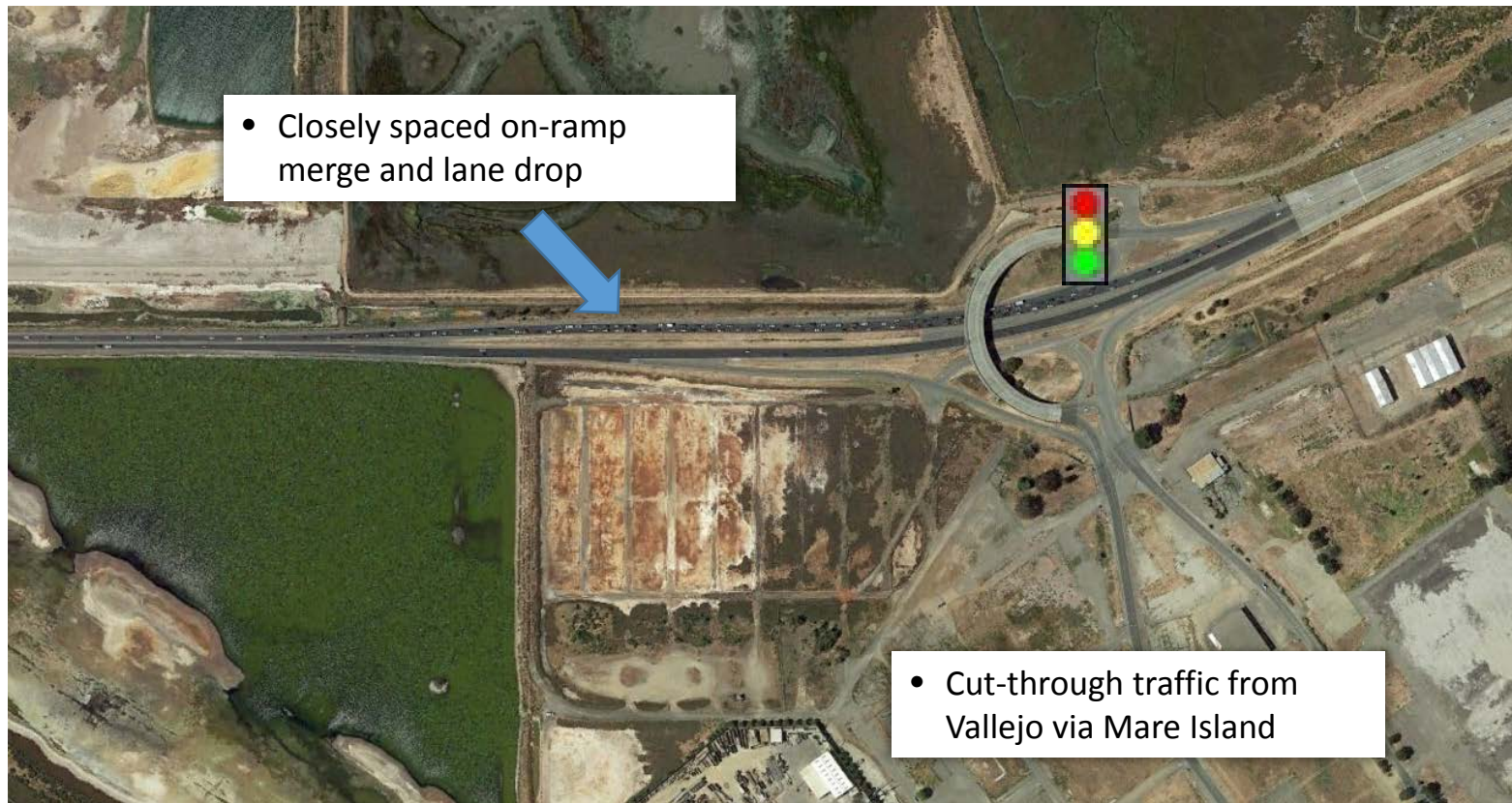
Near-Term Operational Improvements at SR 121



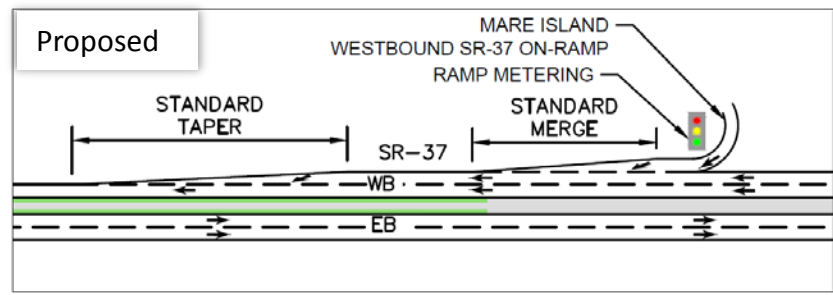
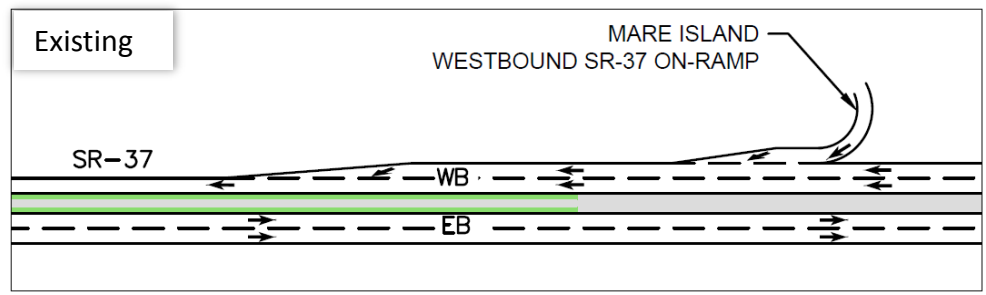
- Extend 2 Eastbound Lanes East of Railroad Crossing
- SR 121 Intersection Improvements
- Increase Existing Throughput



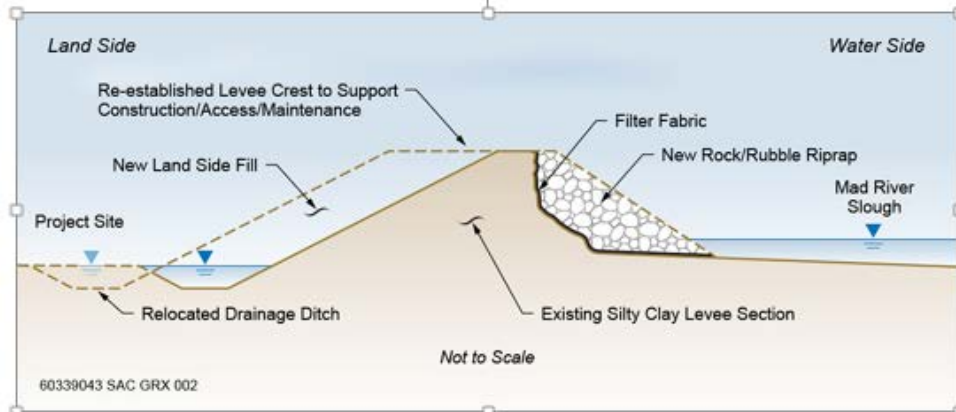
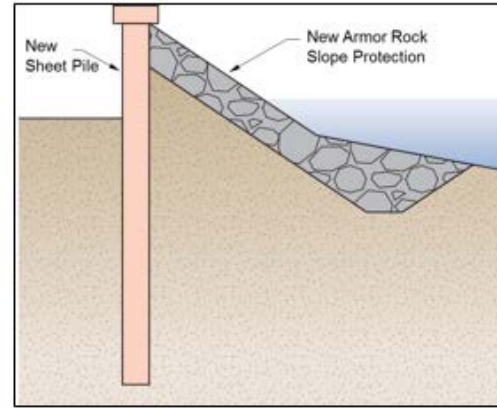
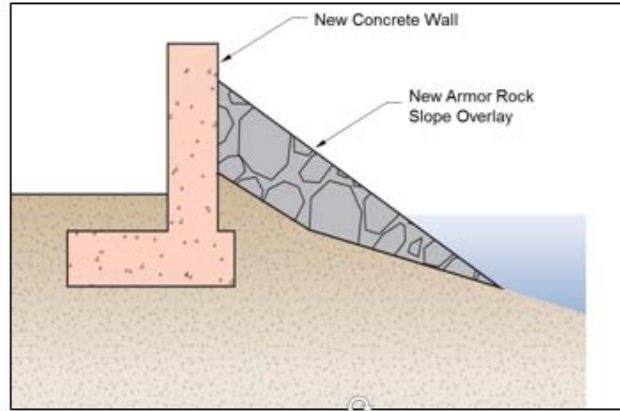
Near-Term Operational Improvements – WB at Mare Island



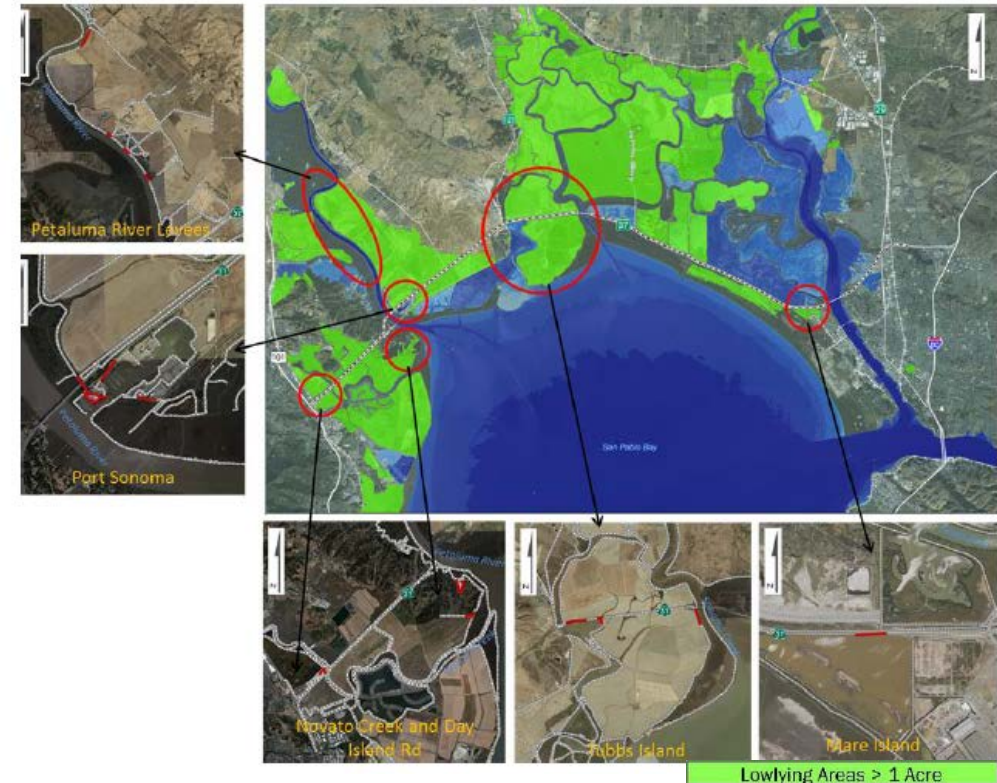
- Metering Westbound on-ramp
- Improve on-ramp and lane drop merges
- Increase Existing Throughput



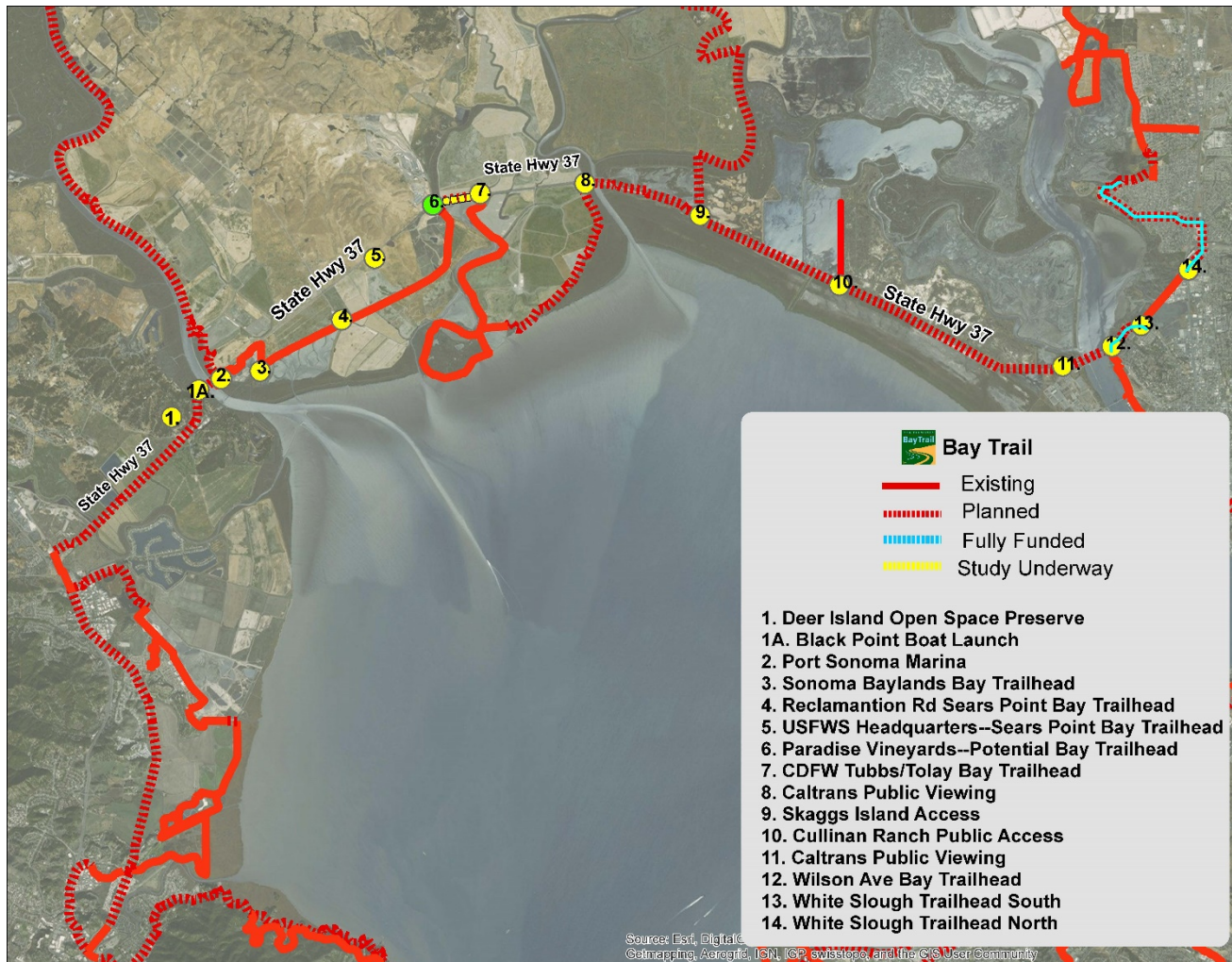
Near-Term Improvements: Shoreline/Flood Protection Strategies



- Raising Levee Crest with Fill
- Install Sheet Pile Wall in Levee
- Install Flood Barrier
- Raising a Small Section of Roadway at Low Spots



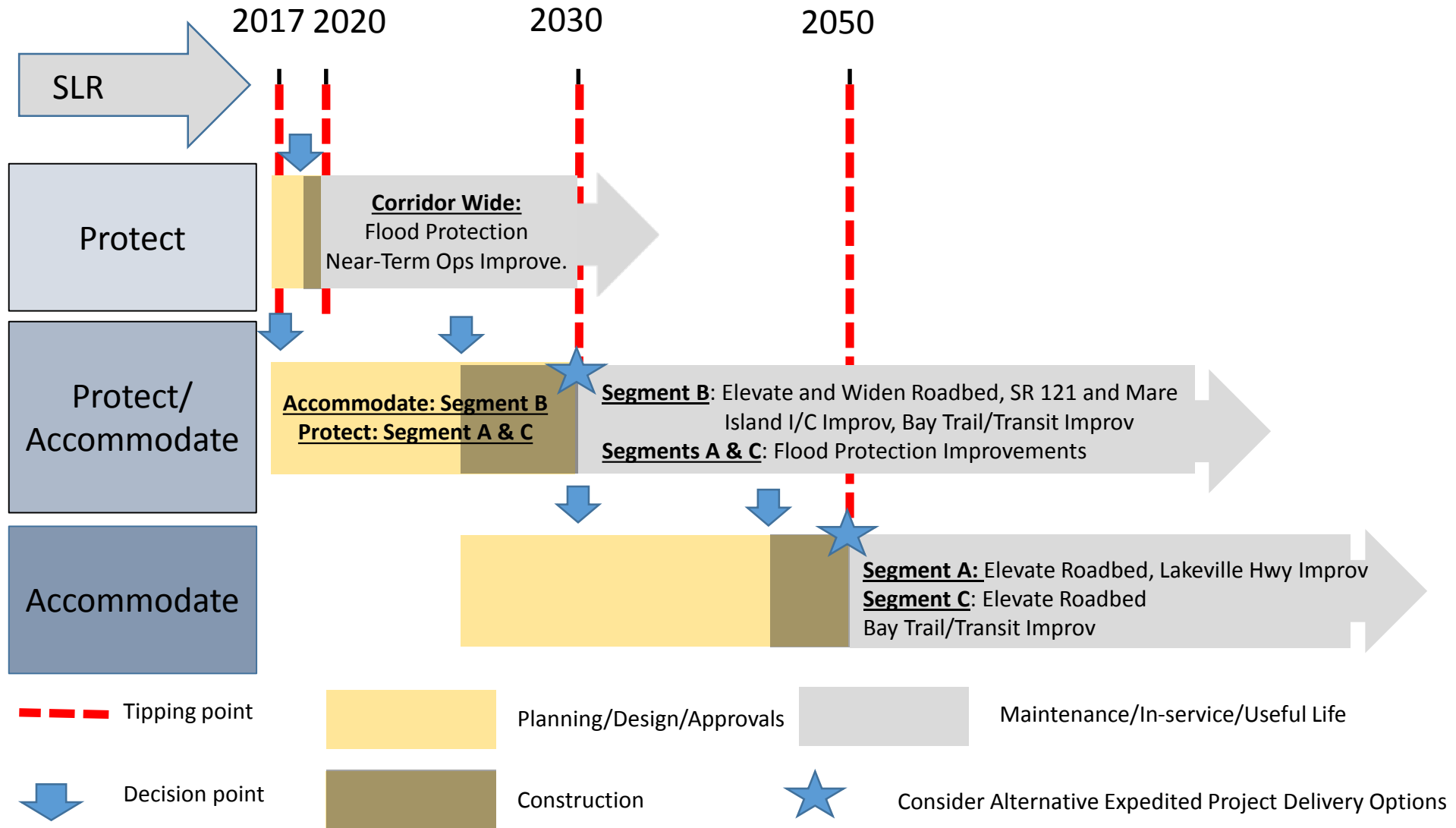
Multimodal Corridor: Bay Trail and Transit Services



- Bay Trail/Bike Facility Options
 - Existing and Planned
 - Potential Improvements
- Potential Transit Markets
 - Fairfield, Vallejo, Novato, San Rafael
- Match Transit Options with Needs/Demand
- Rideshare and Vanpool Options
- Park and Ride:
 - SR 37 at Fairgrounds in Vallejo (STA is currently leading the planning work)

Source: Bay Trail Project, 2017

Implementation Timeline



Next Steps – Focus on Priority Segment B

- Develop Preliminary Design for Segment B:
 - 3-Lane and 4-Lane Options
 - Hybrid Roadbed Design Option: Causeway/Box Culvert/Levee
 - Interchange Improvements at Mare Island and SR 121
 - Bay Trail/Bike Facility options
 - Refine Cost Estimates
- Near-Term Operational Improvements at SR 121 and at Mare Island
- Conduct Traffic Analysis for the Corridor
- Develop Shoreline/Flood Protection Strategies (Near-Term)
- Evaluate Transit Options for the Corridor
- Environmental Community Outreach & Public Outreach
- Complete Phase II/Design Alternative Assessment by Spring, 2018

Stay Engaged!



STATE ROUTE 37 IMPROVEMENT PLAN Upcoming Outreach Activities

As the planning process for State Route 37 moves forward, we anticipate hosting and conducting a number of different outreach activities to keep the public informed and provide opportunities for input. To ensure broad participation, outreach activities will provide opportunities for people to participate in-person, via the internet and by telephone. The outreach activities and opportunities for public participation proposed for the next year include:



Open Houses

September 20th, 27th, 28th, and October 2nd



Focus Groups



Online Survey



Community Workshops



Telephone Town Hall

Stay Engaged!

Learn more at:

scta.ca.gov/highway37 | tam.ca.gov | sta.ca.gov | nvta.ca.gov | facebook.com/route37