

An aerial photograph showing a large area of flooding. A multi-lane road, likely State Route 37, runs through the center of the image, partially submerged. To the right, a highway with several lanes is also visible, with some vehicles. The surrounding landscape is a mix of green fields and brown, muddy water. In the background, there are hills and some buildings. The overall scene depicts a significant flood event.

**State Route 37 Policy Committee
February 2, 2017 Agenda Item 5**

SR 37 Road Closures and Recent Flood Occurrence

**Dan McElhinney, P.E.
Caltrans District 4 Bay Area**

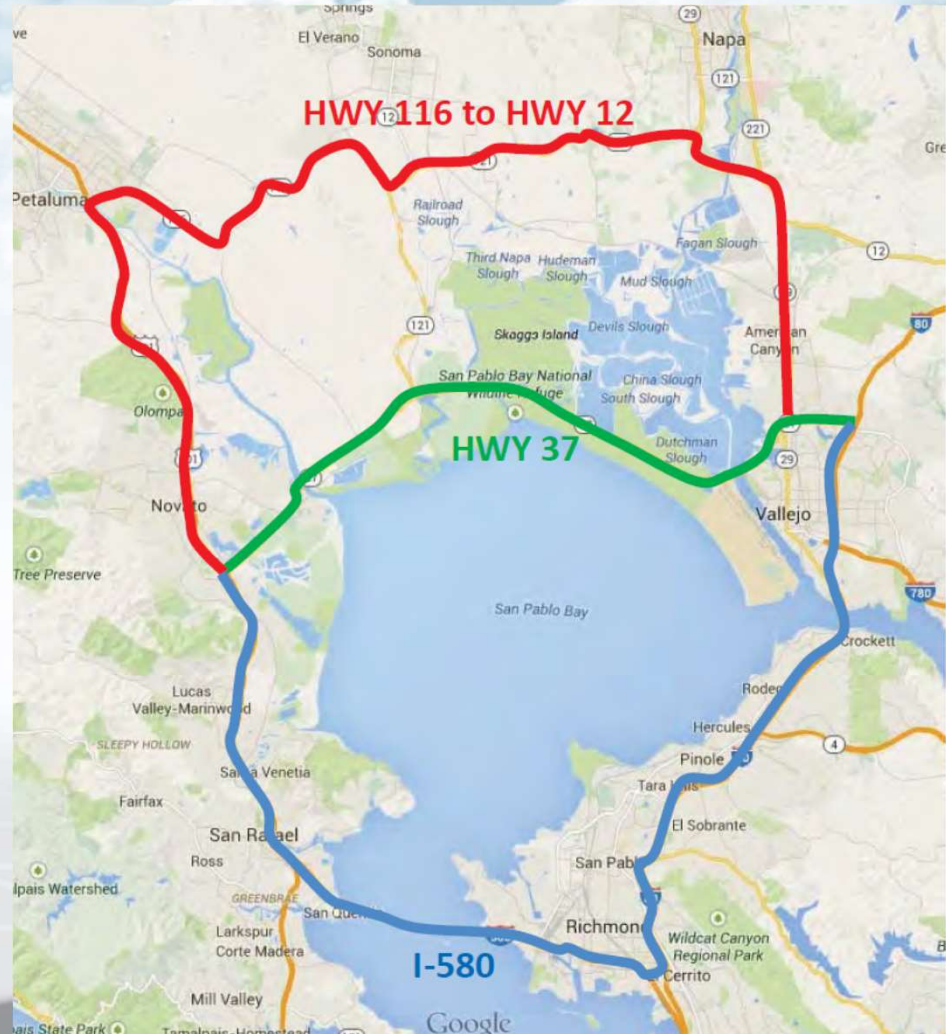
State Route 37 Corridor Segments

- Segment A – freeway/expressway between SR 101 and SR 121 - (4-lanes)
- Segment B – freeway/expressway between SR 121 and Mare Island (highest immediate risk of seal level rise) – (2-lanes and 4-lanes segments)
- Segment C – freeway between Mare Island and Interstate 80 - (4-lanes)

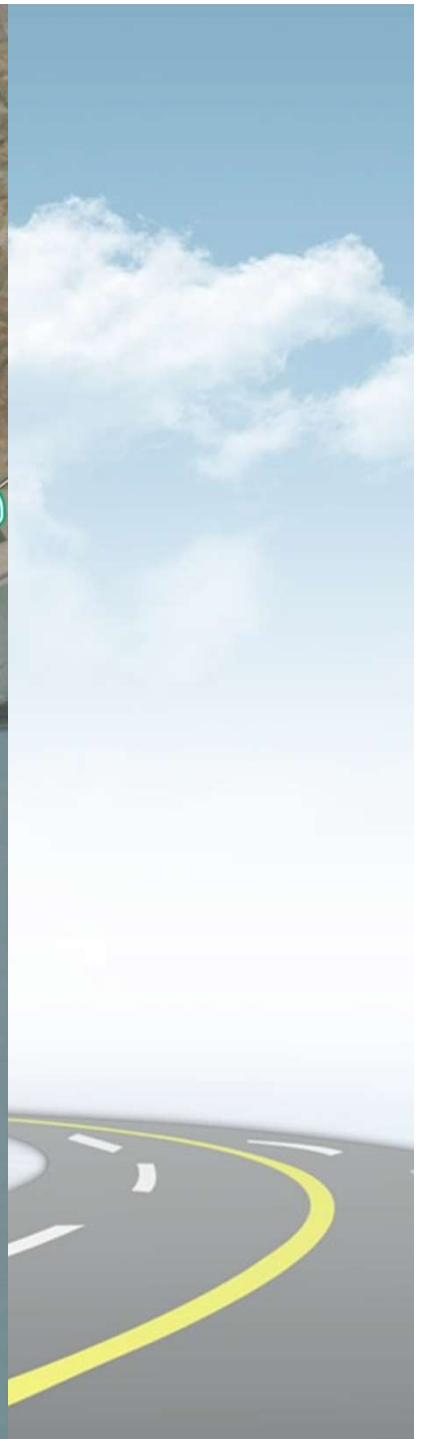
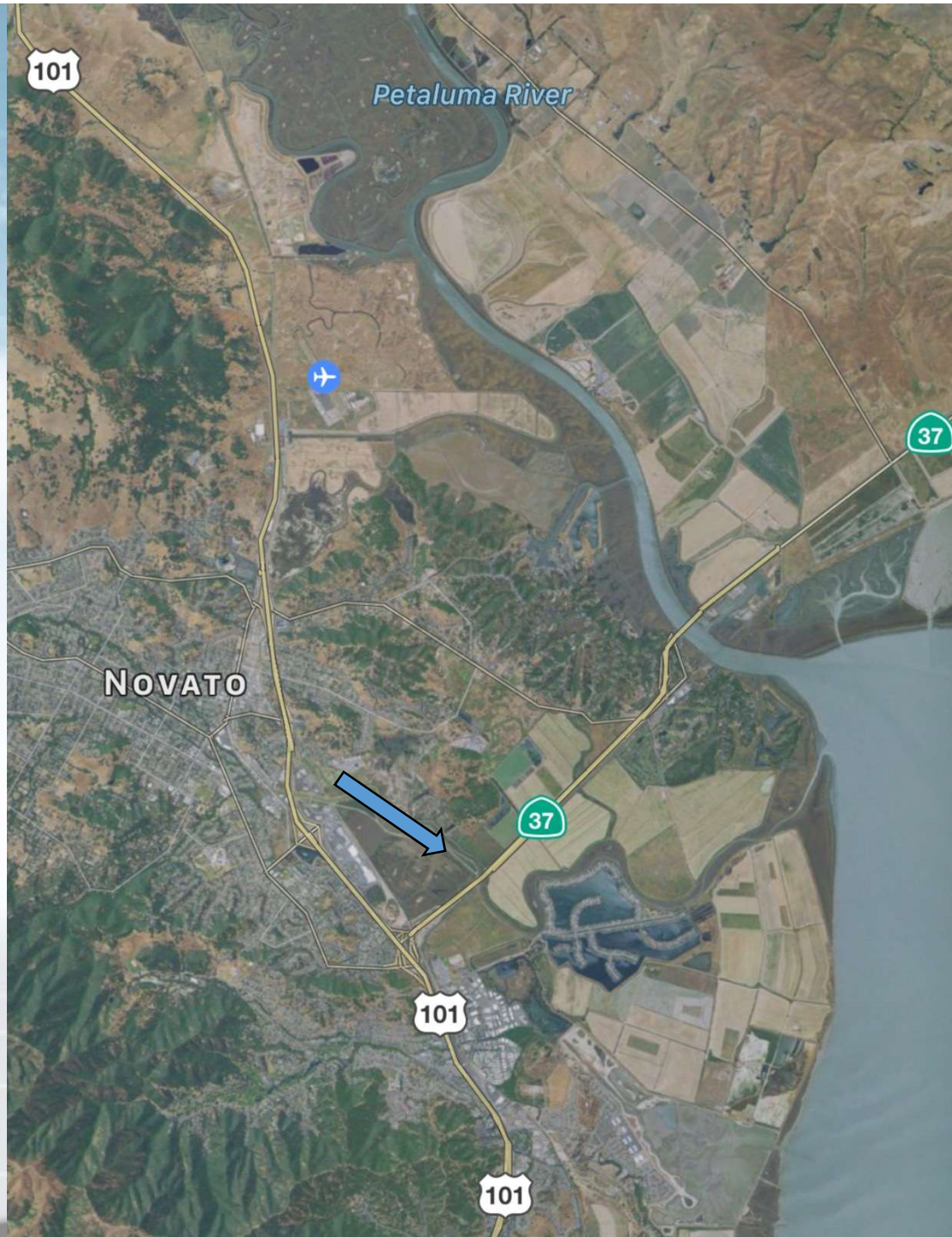


SR 37 Alternative Routes Between I-80 and U.S.101

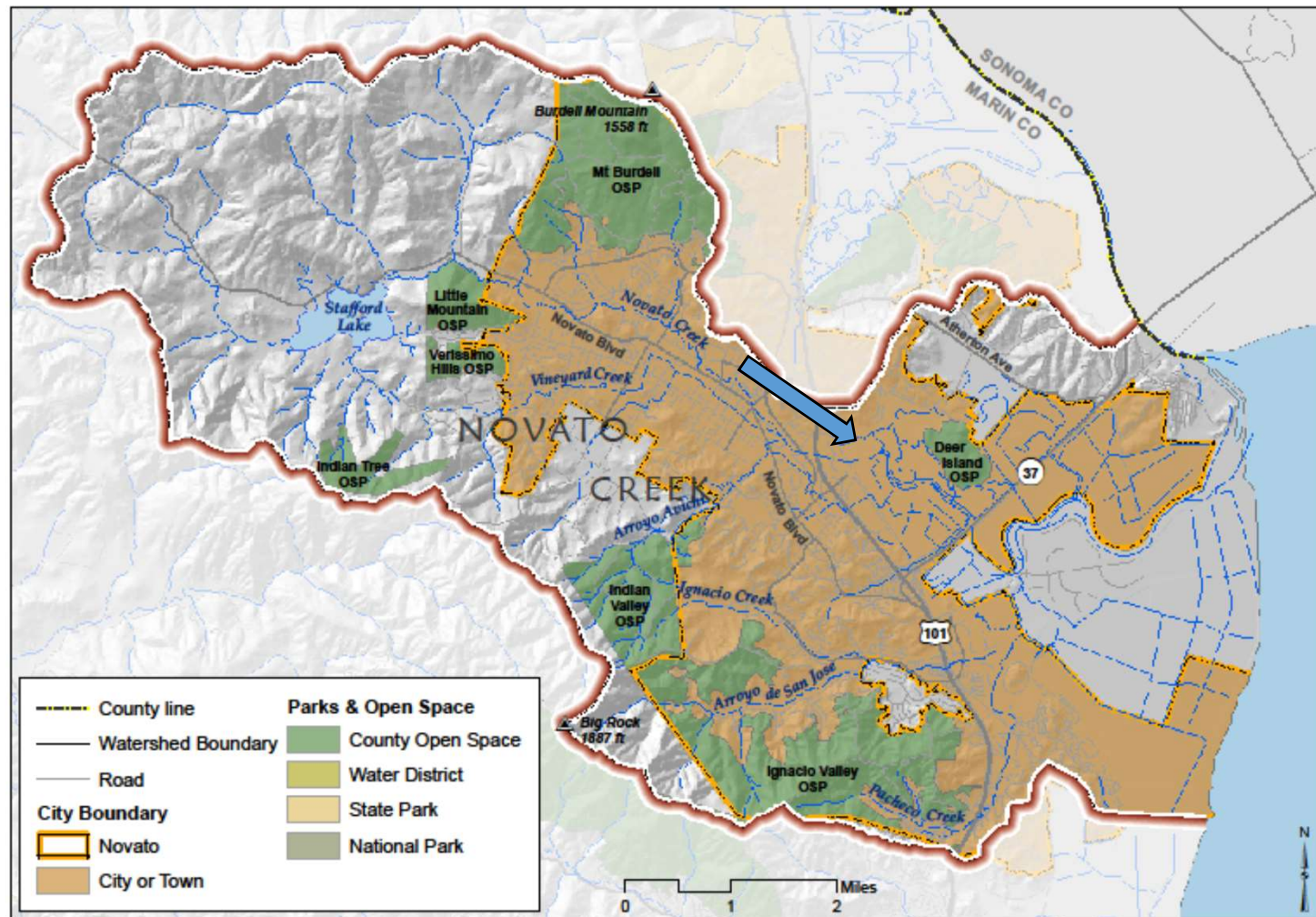
- Northern Route (Hwy 12 to Hwy 116)- 44 miles
- Southern Route (Richmond Bridge – I-580)- 43 miles
- In Napa, SR 37 Closure causes severe congestion impacts to SR 29/SR 12
- At Novato Creek closure, the Atherton detour adds 15-30+ minutes, 5+ miles



City of
Novato and
SR 37/101
Area with
Novato Creek
Blue Flow
Arrow Shown
1 of 5



City of
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2 of 5



Novato Creek Watershed

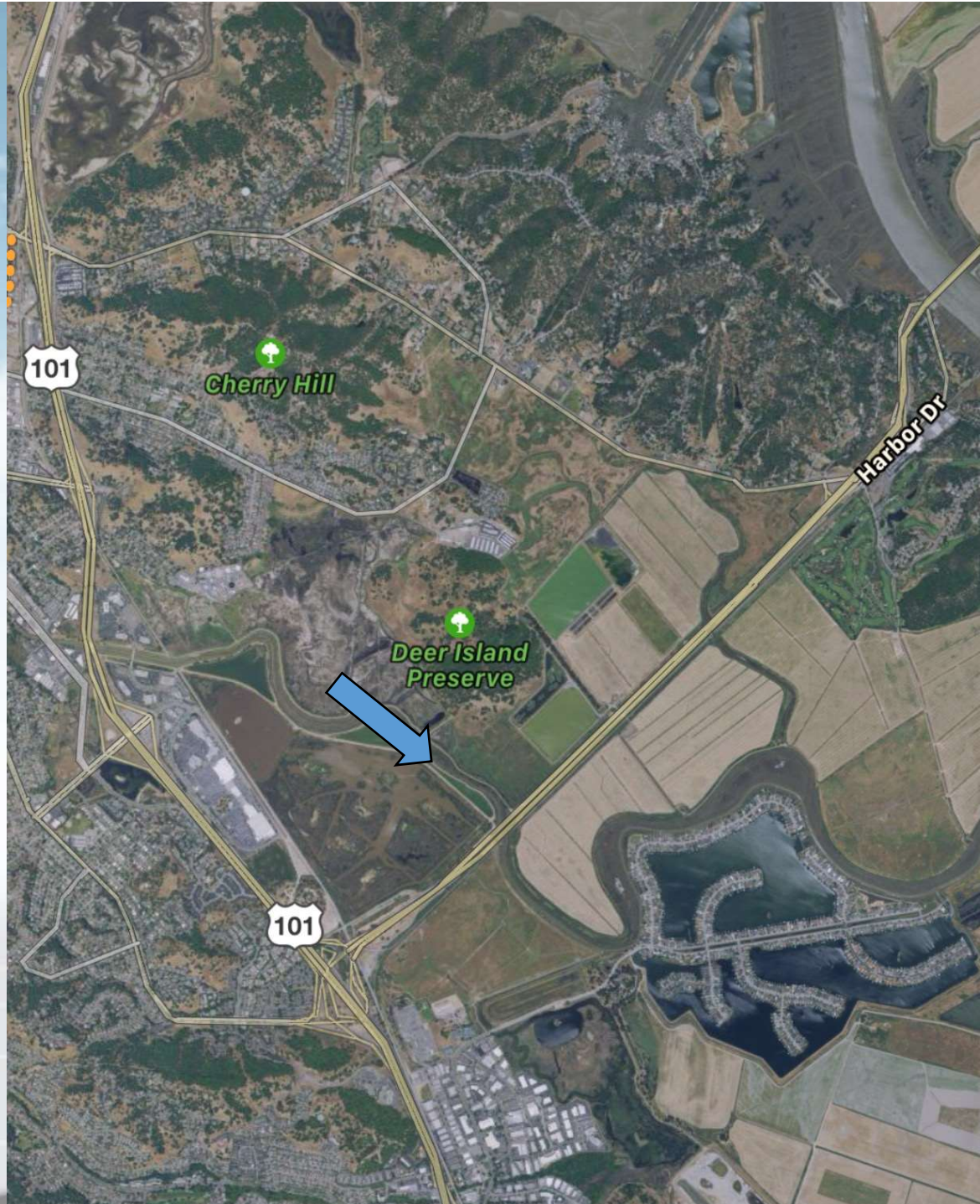
Map for general purposes only; not for site-specific planning purposes.

County of Marin
Department of Public Works
www.marinwatersheds.org

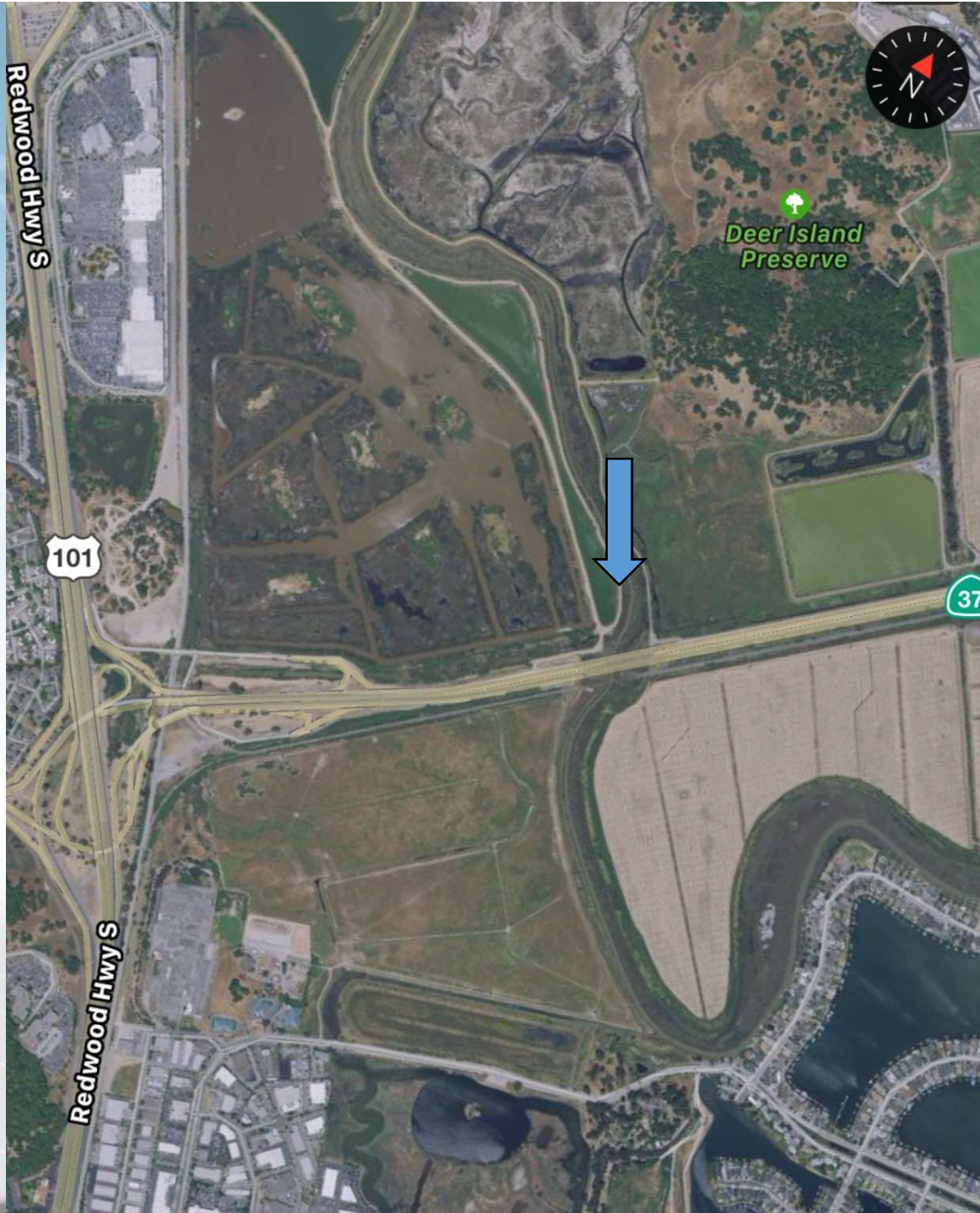


NOVATO CREEK WATERSHED – Novato Creek flows eastward from Stafford Lake through the City of Novato and into San Pablo Bay near the mouth of the Petaluma River.

City of
Novato and
SR 37/101
Area with
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Blue Flow
Arrow Shown
3 of 5



City of
Novato and
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Arrow Shown
4 of 5



Marin County and SR 37/101
Area with Novato Creek
Blue Flow Arrow Shown (5 of 5)



Traffic Update

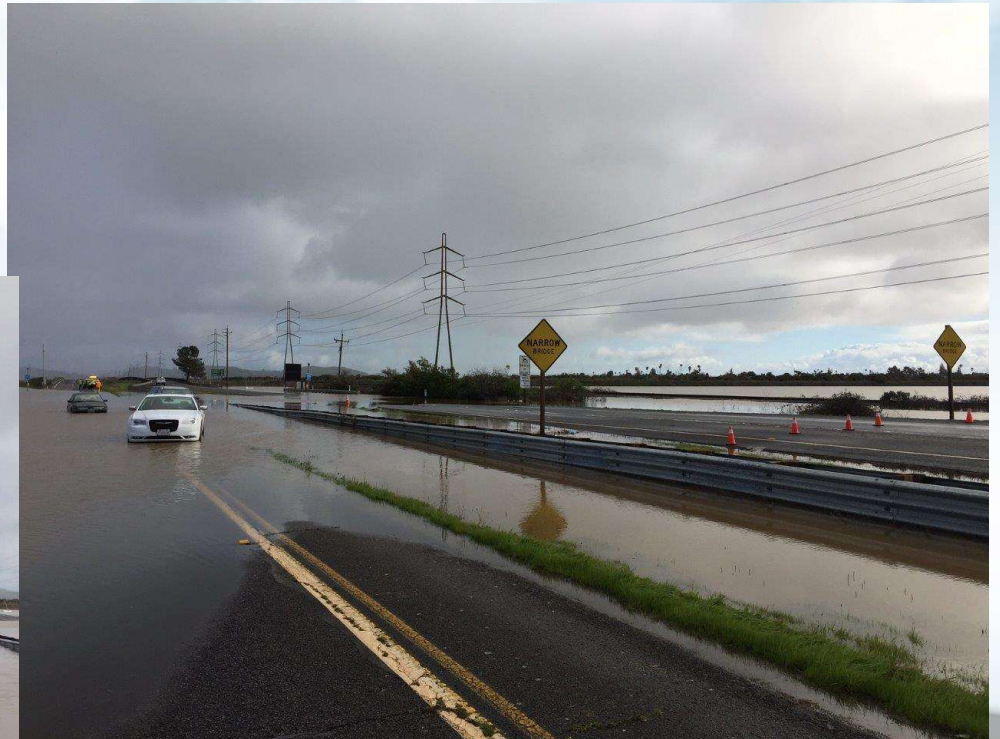
SR 37 from U.S. 101 East past the Petaluma Bridge is a 4-lane Median Divided Freeway:

- 41,000 Vehicles Average Daily Traffic on SR 37 near 101
- 1600 or more Trucks Average Daily (4%)
- 3900 Vehicles Peak Hour Average Daily

SR 37 Looking West January 2017



SR 37 Looking East January 2017



SR 37 Looking West from Westbound Lanes of Novato Creek Bridge January 2017



Storms and Tides of January 2017

Heavy Rainfall -

Beginning January 3 until January 22 with 13 days rain 0.5 inches to 2.2 inches.

Large Storms -

January 8 combined with nearly 8-foot King Tides showed impacts Novato watershed causing backwater, river levee overtopping, and basin overfilling – roadway flooding.

King Tides -

combined during this time with continuous rain over a long duration and saturation.

Field storage -

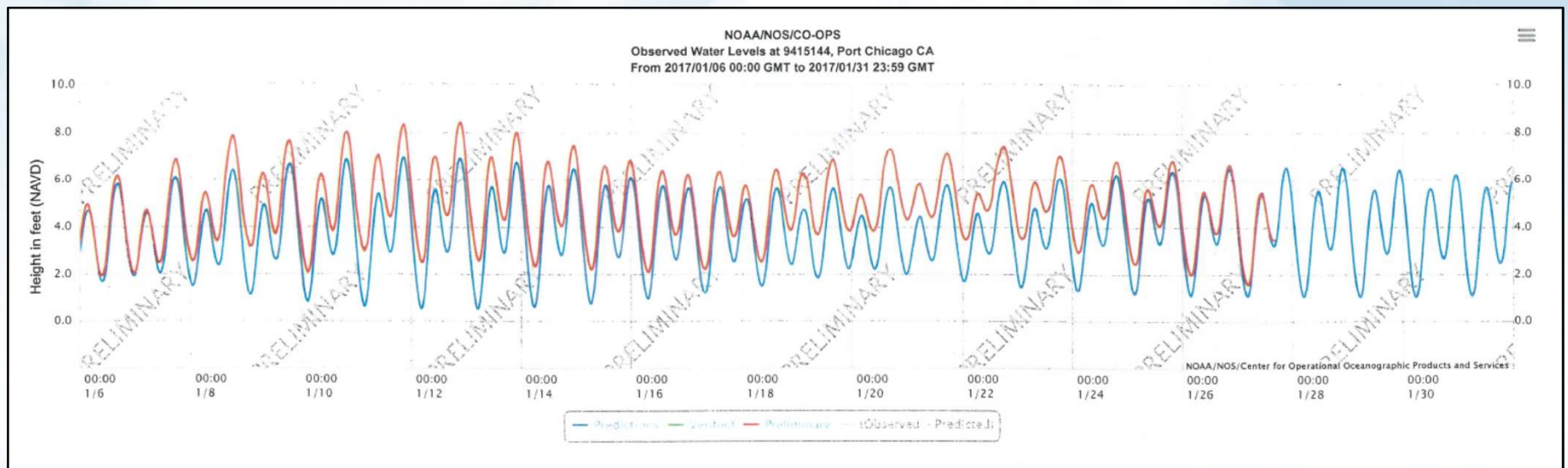
is lost with long duration storms so freeway adjacent storage basins become full.

“Super” King Tides -

were 1.5 feet higher than predicted (Super King Tides) resulting in roadway flooding.

SR 37 Closures – Jan 8 (1 day), Jan 18 (4 days), and Jan 22 (7 days) – total 13 days

King Tide January 2017



— Actual
— Predicted

Flooding in February with rainfall likely to occur

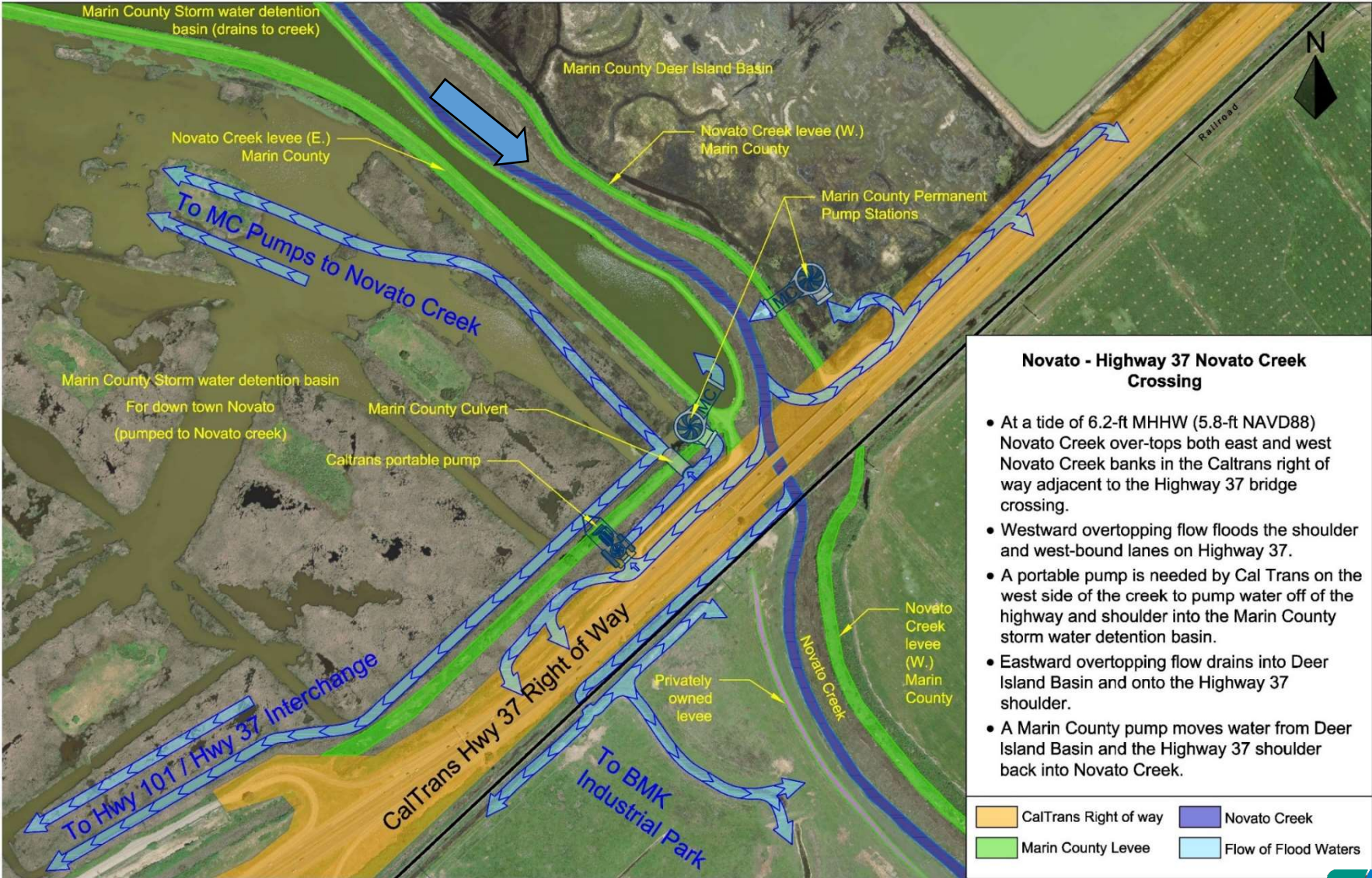
SR 37 Looking North Aerial at Freeway, Basins, and Novato Creek Bridges January 2017



2017

- Photo Looking West at SR 37
- Significant long duration rainfall
- King tides up to 8 ft elevation resulting in overtopping levees
- **Caltrans** Maintenance in teamwork with Marin Public Works and adjacent land owners pump clear the freeway south to north basin to open





Interim Measures

- Marin County - completed “Novato Creek Hydraulic Study – Analysis of Alternatives” in March 2016 identifying short term, intermediate and long term strategies.
- Interim SR 37 strategies to keep open this Novato Creek area freeway segment may include:
 - Review paving options with asphalt the low roadway profile and adding a south side shoulder safety barrier from the Novato Creek Bridge westward about 1200 feet to help address south side water elevations and assist Maintenance pumping activity if needed.
 - Possibly update two cross road culvert pipe sizes and consider manual tide gates on culverts to help Maintenance to seal the culverts, versus back flowing and flooding WB lanes, assisting the pumping activity as needed.
 - Consider culvert updates from the roadway median extending to WB shoulder to keep roadway dry longer and improve pumping water that does back flow into the drainage system.
 - Scope and estimates are to be defined and project delivery options evaluated.
- Long term strategies:
 - Team with TAM, STA, NVTA, and SCTA executive directors and local agencies to evaluate possible project initiation and project development efforts for this critical SR 37 corridor.
 - Options for the Novato Creek portion of SR 37 may include an elevated structure or elevated roadway embankments from 101 to past the Petaluma River that may need to raise the roadway to elevation 13 (NAVD 88 datum) for current sea level rise projections, similar to Segment B options.

SR 37 Looking North Aerial at Freeway, Basins, and Novato Creek Bridges January 2017



Thank you.

Questions?