State Route 37 Integrated Traffic, Infrastructure and Sea Level Rise Analysis: Final Report

Road Ecology Center
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http://hwy37.ucdavis.edu

Task 5 Memo: Stakeholder Involvement to Improve Sustainability

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Executive Summary

In order to improve the inclusion of a broad array of opinions in planning for State Route 37 (SR 37), an extensive stakeholder process was carried out. Participation was continued from Phase I of the SR 37 project with many of the same organizations attending meetings. Large, quarterly stakeholder meetings were combined with more focused meetings and web-based sharing of information to make sure that everyone from the public to regulatory agencies had a chance to offer their opinions. Five stakeholder meetings were held throughout Phase II, as well as 6 focused meetings. Information about potential sea level rise and potentially inundated marsh and highway areas was shared at the first two meetings. Later meetings focused more on the constructed scenarios that could allow the highway to escape the impacts of sea level rise and minimize impacts to the surrounding environment.

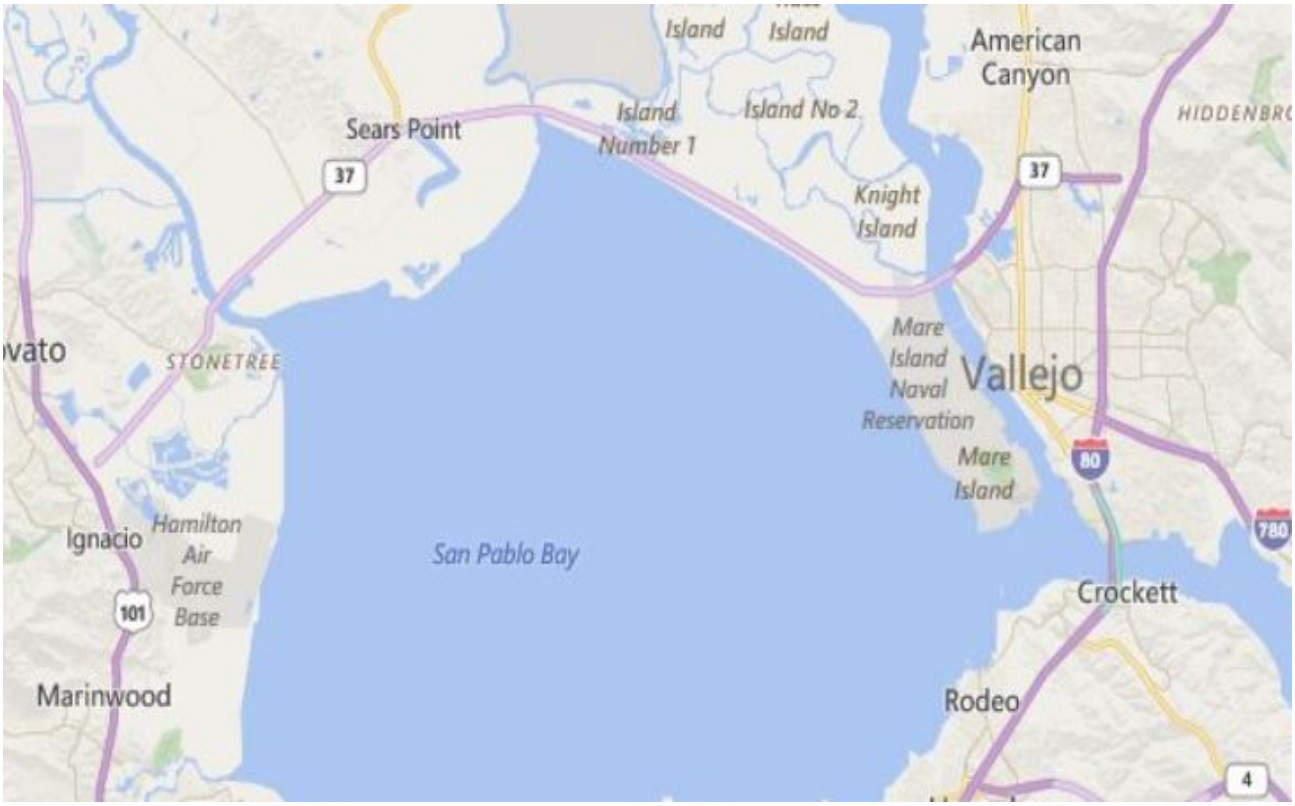

Figure 1. State Route 37

Goals of Stakeholder Process

Transportation planning in shoreline environments like the Bay Area is very complex, especially when there are unknown impacts and uncertain funding sources. These impacts include future sea-level rise, population growth, land-use change, and commuter demands (Thorne et al., 2015). Five large stakeholder meetings and several focus groups were convened over a period of 16 months in several locations along the corridor and focused on two primary goals:

1. Maintain and improve transportation corridor benefits (mobility and safety, environment, and public access to surrounding areas) and develop long-term solutions for the corridor.
2. Determine how to support large-scale restoration of tidal and other marshes to benefit native species, ecological processes, and decrease the severity of storms and tidal action on coastal infrastructure.

Recruitment and Participation of Stakeholders

To develop the most effective strategies to address these multiple issues, both recruiting and engaging a diverse group of stakeholders allowed for a strong and well-informed decision making process. As explained in one study examining projects with public-private partnerships, those engaging stakeholders were associated with satisfactory outcomes versus unsatisfactory outcomes for projects that did not engage stakeholders (Verwei, 2014).

In the first phase of this project, The Highway 37 Stewardship Study, participating partners were asked to generate a contact list of names and organizations to participate in the stakeholder process. The partners included: Caltrans, District 4; UC Davis Road Ecology Center; Sonoma Ecology Center; Sonoma Land Trust; Southern Sonoma County Resource Conservation District and Napa County Resource Conservation District. Over 180 names were identified as leaders in planning, transportation and conservation in both urban and rural communities, in addition to private landowners and non-government organizations.

In July of 2014, UC Davis staff created a Highway 37 listserve from the existing contact list. An initial email was sent out to the listserve notifying them of the upcoming stakeholder process for the new phase of the project, and to confirm their continued interest and participation. They were also asked to recommend colleagues they believed could contribute their expertise at the meetings or, suggest a replacement for themselves. The result was a contact list that currently includes 254 stakeholders representing 105 organizations. Figure 2 shows the number of attendees at all five stakeholder meetings, illustrating a gradual decline in participation with exception of the last meeting. The decline was attributed to one of several reasons: participants not signing-in, relying on the posted minutes and presentations on the Highway 37 website and staff turnover.

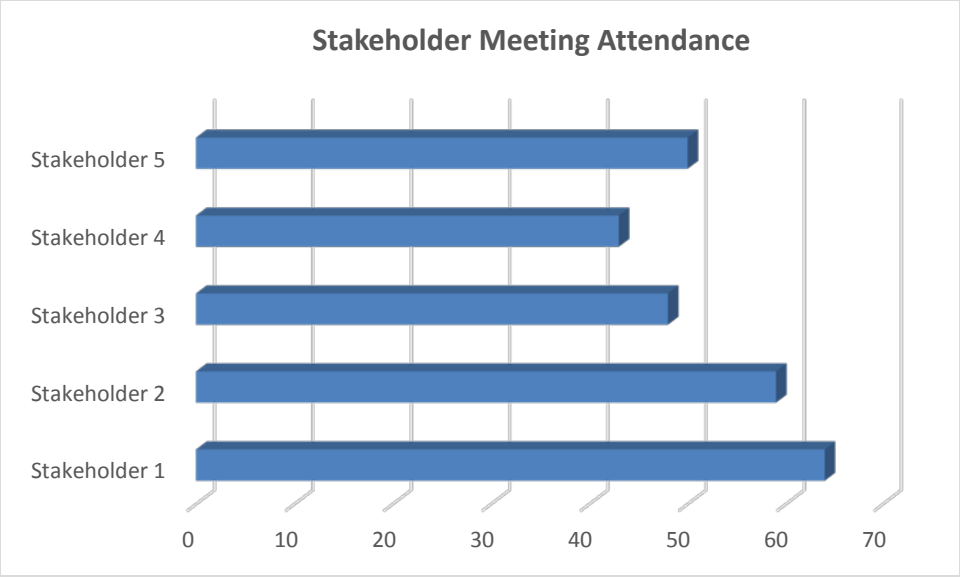

Figure 2. Stakeholder Meeting Attendance

Local government represented the majority of participants, followed closely by state government (Figure 3). The NGOs represented both environmental and community advocacy groups, followed by private business and landowners. The federal government was the least represented group with both regulatory and public landowner participants.

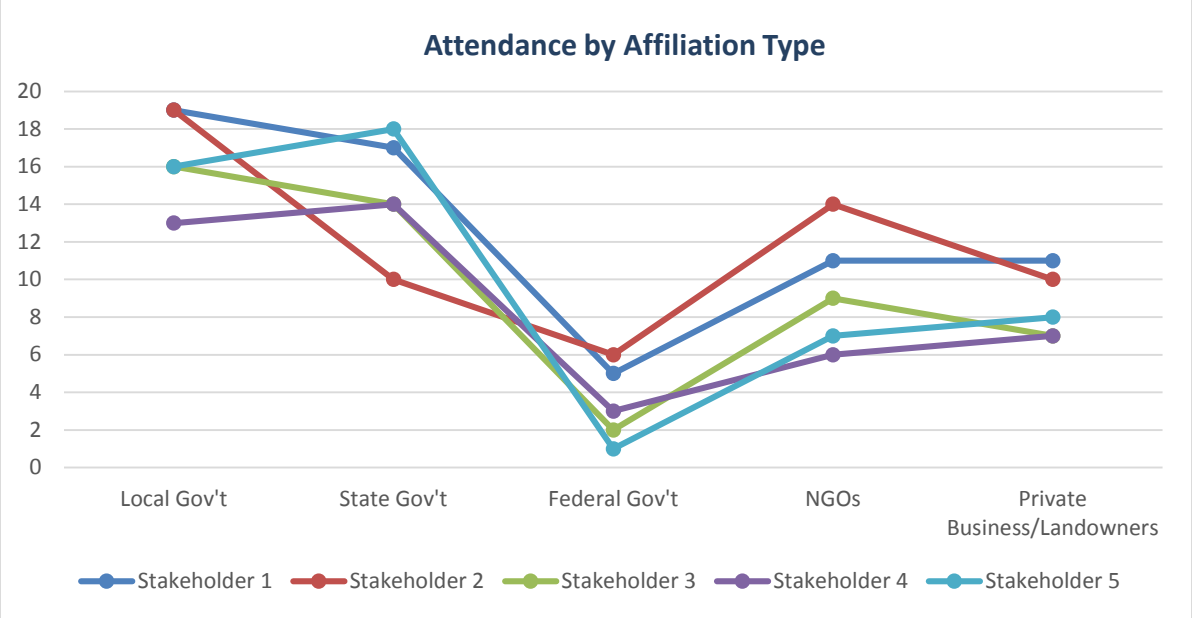

Figure 3. Participation by Affiliation

Large Stakeholder Meetings

Stakeholder Meeting 1

On September 3, 2014, the kick-off meeting for the State Route 37 Integrated Traffic, Infrastructure and Sea Level Rise Analysis was held at the Norman C. King South Vallejo Community Center in Vallejo, California. This location was chosen for its central accessibility for the majority of stakeholders. Fraser Shilling, UC Davis, began the discussion by giving an overview of Phase I, the Highway 37 Stewardship Project. That study was conducted by the UC Davis Road Ecology Center, Caltrans and the Transportation Research Board in 2011-2012. He then outlined the tasks for this phase of the study.

Table 1. Phase II Tasks

Task 1. Inundation assessment of transportation system and associated lands	Map areas near Hwy 37 at risk of inundation from seal level rise within transportation planning frame.
Task 2. Vulnerability and Risk Assessment for existing transportation system	▪ Focus on where failures could be if levees and berms fail, 30-40 year window before different spots will fail. ▪ Model will find low spots – find pour point (places where water will pour through when sea level gets high enough).
Task 3. Engineering Concept Design; Engineering Cost Estimation; 3D Visualization	▪ Focus on getting Hwy off floodplain ▪ What's in there, bike lane, rail alignment? ▪ SLR more of focus.
Task 4. Environmental and Community Benefits	▪ What do the scenarios provide in terms of benefits to community, economy, environment, and sustainable transportation?
Task 5. Stakeholder Engagement	▪ Make sure no one feels left out of the process ▪ Hold quarterly meetings with stakeholders and smaller focus group meetings
Task 6. Project Reporting and Website	▪ Tasks reporting and presentation to sponsor ▪ Project website to support stakeholder and future project development ▪ Completed technical paper to be presented at 2016 TRB Conference

After the presentation by UC Davis, staff opened up the discussion to all participants. Several attendees expressed concern that the commuters had not been included in the survey taken in Phase I (just businesses and homeowners were surveyed) and that the existing habitats and wildlife had been given more attention than the commuters, economic objectives, or the health and well-being of the folks directly impacted by the highway.

Staff explained that the cost of the survey was not built into the study and that the first phase of this study relied on existing studies. However, Phase II would address both environmental and economic benefits and costs. A discussion followed with suggestions to capture commuter data through the DMV and use GPS and cell phone data. It was also suggested to incorporate strategic plans others have already done for commuters like the two community colleges in the region and to include more data from Sonoma-Marin Area Rail Transit (SMART).

The next topic of concern related to the corridor options. Participants wanted confirmation that rail and transit would remain on the table, a protected Class 1 bike lane be included in the scenarios and that the need for more data on commuters and the economic value of the marsh itself be recognized.

Timeframes and funding were also discussed at length. Some suggested that a private toll road would be more expedient than going through the Caltrans Project Initiation Document (PID) process and beyond, possibly taking up to 20 years for completion. Caltrans has stated that they have little to no funding for the project and would have to rely heavily on the Congestion Management Agencies (CMAs). Several participants suggested a private/public funding partnership or even a roadway that could generate economic benefits. The outcome of the discussion was that the necessity for the project is not only urgent but must have its visibility elevated beyond just local elected officials.

Stakeholder Meeting 2

The next larger stakeholder meeting was held in January 2015, again in Vallejo, California. The purpose was to learn about potential inundation in the North Bay due to SLR and discuss specific planning steps and requirements to adapt to future changes. From a Caltrans perspective, the objectives were to a) get a better understanding of the highway's vulnerability to flooding and inundation and when that might occur; b) get a better idea of the alternatives and what would maximize the benefits to transportation and to the adjacent lands and communities; and c) get a high level cost estimate of some of the improvement options.

AECOM, the engineering firm contracted to do the modeling for potential inundation under different sea level conditions, presented their preliminary risk /vulnerability assessments. By using inundation mapping to communicate sea level rise on a local level, stakeholders were less likely to discount the impacts of climate change and become more engaged in the process (Retchless, 2014).

This resulted in a robust discussion about the data used to generate the models and how the process could be improved. Stakeholders were able to suggest other studies that were currently underway that could work in tandem with this study's design scenarios. These included working with other counties and organizations with up-to-date studies for restoration projects. Participants were also very familiar with on-the-ground elevations and conditions, and recent levee building and breaches that directly affected the modeling in this study and offered to share those findings with the team.

Stakeholder Meeting 3

Due to positive feedback on accessibility, the third stakeholder meeting was convened again in Vallejo, California in April 2015. AECOM presented the inundation mapping revisions as a direct result of stakeholder input and review since the previous stakeholder meeting. AECOM then presented the draft Concept Design and Cost Estimates. Stakeholders were interested in where the fill for a berm/embankment would come from, was there a bedrock study done, and how wide ROW is along the alignment. Participants also weighed in on adding right-of-way and mitigation costs to the cost estimates for each scenario and adding a review process for each concept. Finally, participants discussed what is it going to look like, cost and what we would all get out of it.

Stakeholder Meeting 4

The venue for the 4th stakeholder meeting was changed to the Marin Humane Society in Novato, California and was held on August 21st 2015. AECOM presented the SR37 Sea Level Rise Adaptation Engineering Concept Design and Cost Estimates. The conceptual design costs were based on published Caltrans Cost Data Information. The meeting concluded with UC Davis presenting various constraints including:

- Funding
- Presence of Endangered Species Habitat
- Sea Level Rise
- Benefits of Different Structure Types
- Existing Corridor Access and Transit Possibilities

Stakeholder Meeting 5

The fifth and final stakeholder meeting was held on February 3rd, 2016 in Vallejo, California. Attendance was greater than for the previous stakeholder meeting with more representatives from local and state government and fewer from federal government agencies. Participation from private business, private landowners and NGOs remained about the same as the two prior meetings.

Caltrans District 4 Director and Caltrans Headquarters Chief of Transportation Planning, thanked all of the participants for their valuable input throughout the stakeholder process. Fraser Shilling, UC Davis followed with a complete project overview, what the project did not include, the adaptive structural scenarios, the Highway 37 website at http://hwy37.ucdavis.edu and briefly discussed a new study, Sea Level Rise Monitoring.

Justin Vandever, AECOM took the participants through the inundation modeling and risk assessment for the corridor and the marshes, and later presented the adaptive designs and cost estimates. Participants wanted to know what the inundation was based on i.e. breaching or overtopping of the levees, and what the LIDAR data showed versus the actual on-the-ground conditions. Vandever also explained that environmental impacts of the project would not be evaluated in detail until an alternative was selected. The adaptive designs included three conceptual alternatives with the proposed design section and hydraulic design criteria.

- Alt. 1 –Roadway elevated on levee/embankment
- Alt. 2 –Roadway elevated on concrete beam/box girder bridge causeway
- Alt. 3 –Roadway elevated on concrete slab bridge causeway

The presentation concluded with a discussion of the cost estimate comparison for each of the three reaches of the corridor and how maintenance, real SLR and mitigation costs could significantly add to the costs. The mixed design option - alternate berm/embankment and causeway sections was discussed by stakeholders because of cost savings.

Focused Stakeholder Meetings

Private Toll Road

There is private interest in developing a toll-funded structure along the SR 37 alignment. UC Davis was contacted by these interests and participated in a conference call (August, 2014) with the bridge contractor and their San Francisco-based law firm, as well as their consultants: ICF International, Jerry Meral (Natural Heritage Foundation) and The Bay Institute. The discussion revolved around the information available from the first phase of the project, potential new information and modeling from the Phase II (current) of the project, and the possible structures that would constitute the private/privately-operated facility. This private-interest group had previously met with Caltrans HQ, District 4, and other organizations and businesses in the North Bay region.

Congestion Management Agency Focus Group Meetings

The second focused group meeting was with the Congestion Management Agencies (CMA), held at the Baylands Center in Petaluma, California on Thursday, November 13, 2014. Participants included management from Caltrans, District 4; UC Davis; Solano Transportation Authority (STA), Transportation Authority of Marin (TAM); Napa County Transportation Planning Agency (NCTPA), Sonoma County Transportation Authority (SCTA) and the Metropolitan Transportation Commission (MTC).

The purpose for convening this group for a focused discussion was to:

- Understand study scope and limitations,
- Discuss data needs and availability to complete planning for State Route 37 improvements,
- Discuss planning steps and phasing for studies and planning documents necessary for State Route 37 improvements, and
- To raise any concerns about State Route 37 improvement planning.

The bulk of the discussion centered on a LIDAR map flown in 2011 by USGS to assess coastal elevations nation-wide. Both participants from SCTA and MTC noted that the 30-40 year timeframe given in this study (see Table 1. Task 2.) was very optimistic and that a king tide would add urgency to the problem. The lack of dedicated funding was identified as a critical issue and that everyone should consider a tolling component as a likelihood. Participants from MTC and SCTA suggested using cell data from an Origin and Destination (O&D) study using big data, available at the end of December 2015. TAM added that economic data like freight and how much money passes through the corridor should be considered. MTC agreed and that it

should be studied for Hwy 37 and Hwy 12 combined and cited the Bay Area Freight Mobility Study as a good data source. A review of urban freight models concluded it is essential all stakeholders and their influence be included (Anand et al., 2015).

The remainder of the discussion focused on the Project Study Report (PSR). Caltrans explained that the project would have to be on a county priority list, and that funding would have to be identified for the Project Initiation Document (PID) reimbursement and then outlined what was needed for the PSR to move forward:

- Develop Purpose Statement – problem
- Develop alternatives
- Environmental Process

The big question remained – who would pay for it? SCTA said that private funding may be an option and that wouldn't require a PSR and the time the two years that would take. Should an El Nino, king tide or earthquake occur, Caltrans would be on the hook to do emergency repair. Caltrans was asked to clarify if in order to prepare a PSR it has to be in the Regional Transportation Plan (RTP) – is it policy or law?

Marsh Restoration Focus Group Meetings

The Marsh Restoration Group was the third focused group meeting. This was also held at the Baylands Center in Petaluma on Thursday, January 22nd, 2015. Participants in this group included the UC Davis team, Caltrans D4, USFWS, Sonoma Land Trust, The Bay Institute, CCC, Environmental Science Associates, Ducks Unlimited and a local landowner.

The purpose of convening this group of experts was to contribute to the SR 37 planning and implementation discussion on several key issues associated with the marsh restoration including:

- Berm and Levee Maintenance
- Land Ownership along SR37 affected by Sea Level Rise
- Modifications to SR37

The discussion focused on inserting breaks into the levees and the resulting impacts to the marshes, future landownership and how that would affect potential activities along the corridor, and how ongoing modifications such as repaving sections of Hwy 37 in response to parts of it sinking could interact with marsh restoration activities.

Multi-modal Meeting

This meeting was held April 9, 2015 at the Baylands Center, Petaluma, CA and was attended by staff representing Golden Gate Transit, SMART, SCTA, TAM, NCTPA, STA, Caltrans and UC Davis. This meeting was convened to gather expertise from participants regarding:

1. Previous efforts, if any, to introduce transit in the corridor;
2. Transit options and to endorse multi-modal concept as a solid consideration for the project; and
3. Barriers and Opportunities associated with including multi-modal option in both planning and implementation.

The group identified freight as being included in the non-commute data and peak periods were biased toward commuters. Mobile device data would be useful to study travel patterns of cell carriers and it was noted Sonoma County should be included in the next study. Transit options included BART, HOT/HOV Lanes and Bus/Rail. The barriers and opportunities discussed were Priority Conservation Areas, Bus Rapid Transit (BRT) and SMART.

Public Access Group

A key component to planning for a raised SR 37 structure through the San Pablo Bay marshes and other environments is access to existing and proposed trails and restored/protected areas. Access in this case includes mode of travel, primarily for pedestrian or bicycle travel, connections to existing roadways and parking lots, and adaptation of access to changing sea levels and shoreline position. The group met on May 19th, 2015 at the Sonoma Land Trust's Baylands Center and included members of trail-recreation, bicycle-travel, marsh restoration, Caltrans and the UC Davis team. The goal for pedestrian and bicycle travel on and associated with SR 37 is that any new structures include a combined pedestrian and bicycle Class 1 path and that this path could be topped with solar panels to provide shade. The addition of solar panels could offset the GHG emission increase likely with the planned expansion to 4 travel lanes and concomitant increase in vehicular travel. In the conceptual designs included in Task 3 of this project, a Class 1 path was included for the entire length of the project and for all 3 variants on the raised structures. Concern was expressed that access from and to SR 37 for recreation and human-powered travel is via connectors for which there is currently no plan for elevation. Bay Trail planners were curious as to how the existing and future abandoned SR 37 roadbed could function as a trail. There was broad agreement that the existing landscape was likely to change significantly with SLR and that assumptions about access and recreation would have to be adapted. Suggestions for mitigation this change were to retain an adaptive series of access sites and to emphasize water-trails as a form of access through the new landscape.

SR 37 Policy Committee

During this project, CMAs formed a group and agreed to meet regularly as several bodies, including an Executive Committee and a Policy Committee. UCD lead Shilling met with the Policy Committee on March 3, 2016 to present the findings from the entire project and to discuss next steps. The CMA Committees are seeking additional state and other funding to plan environmental assessments and other necessary studies (e.g., economic analysis of project alternatives, transit feasibility, and geological conditions along alignment). It is too early to determine what the effect of this group will be. In addition, although it's not clear how private the committee meetings are or will be, this "stakeholder by invitation" process so far differs from the previous stakeholder processes and may not be intended to replace inclusion of stakeholders in general.

Overall Findings and Conclusions of Process

This project contributes directly to highway and environmental designs and planning documents (i.e., Project Initiation Document) for State Route 37 and associated lands that are highly vulnerable to sea level rise (SLR) effects. This advance can serve as a state-pilot for rapid and smart planning response to near-term risks from SLR and storminess. In doing so, the project will serve as an example for the triple crown of environmental protection, transportation system resilience, and stakeholder involvement. Specifically, the project will provide up-to-date risk maps for inundation for the highway and surrounding marshes, describe the costs and benefits of different options for highway adaptation, and provide diagrams of model solutions for adaptation. These outputs and products will help Caltrans, local transportation agencies and others to plan for highway and marsh adaptation in response to SLR.

Throughout this process, stakeholders were invited to participate in large stakeholder quarterly meetings, smaller focus group meetings and to share their ideas, information and expertise with lead staff and the Hwy 37 List serve community. The federal government has long recommended that public involvement in transportation planning start in the early stages to avoid construction delays, reduce construction costs and strengthen trust (Zhong et al., 2007). Stakeholders play a key role in formulating adaptive scenarios along with policy makers and regional transportation agencies (D. Goldstein, 2015) as this process exemplified. With input from participants, alternatives were suggested, adapted and improved. Inundation modelling and public access maps and were revised and updated using the best available data and information provided by the stakeholders. Stakeholders agreed that ground-truthing the data would be necessary before moving forward.

In concluding this phase of the study, a majority of stakeholders were left with concerns over timelines and funding. All agreed a sense of urgency needs to be conveyed to state and local legislators to raise not only awareness but the funding to move forward with implementation. Transportation planning for the Hwy 37 corridor must incorporate SLR and protection of the marsh while enhancing the safety and efficiency for all who rely on this roadway for commuting, moving freight, biking and recreation.

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