A Collaborative Process to Develop Solutions for Tidal Road Flooding in China Camp State Park

Project Location

Northern San Francisco Bay,
San Rafael, California

Project Duration

September 1, 2018 to August 31, 2019

Project Lead

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Project Type

Catalyst – Targeted investment for advancing collaborative science

Project Partners

- California Department of Parks and Recreation
- Marin County Board of Supervisors
- Marin County Department of Public Works
- Center for Collaborative Policy
- San Francisco Bay National Estuarine Research Reserve

Overview

Rising seas and coastal flooding are threatening low-lying roads, homes, and other coastal infrastructure around the country. Coastal communities are struggling to come together and find creative solutions for dealing with transportation infrastructure that is repeatedly damaged or impassable due to storms and tidal flooding. This project addresses one specific example of this complex problem—a shoreline road that bisects the San Francisco Bay National Estuarine Research Reserve's China Camp State Park. The shoreline section of North San Pedro Road is an important transportation corridor, serving as the only entry point to a popular state park, an alternate route for commuters during heavy traffic, and a critical evacuation route for local communities. However, the road crosses the landmark historic tidal marsh at China Camp and routinely floods, and its undersized culverts restrict tidal influence in the interior marshes, limiting their ability to adapt naturally to sea level rise.

Until recently, plans for short-term repairs to the road were stalemated by questions of cost, responsibility, environmental concern, and other factors. However, a workshop hosted by the reserve in December 2017 jumpstarted discussions about mapping a path forward for short-term repairs and long-term fixes, and the parties agreed on the need for a multi-stakeholder engaged collaborative process to generate a range of adaptation solutions and identify steps needed to select and implement an option.

This project brings together key stakeholders and decision makers to initiate adaptation planning from the bottom-up. The project approach involves a mix of targeted data collection, technical analyses and syntheses, and well planned and facilitated stakeholder meetings to identify, evaluate, and compare road reconfiguration options. The project will pave the way for implementing an adaptation solution at China Camp and potentially serve as a model for other communities facing similar problems nationwide.

Anticipated Benefits

- Improved understanding of the extent to which sea level rise is influencing the area and North San Pedro Road.
- Improved understanding of how the existing shoreline road affects the natural environment.
- Clearly defined range of adaptation solutions and an understanding of the pros and cons of each solution.
- A strategy to move forward on planning and ultimately implementing an adaptation solution for the shoreline portion of North San Pedro Road.
- Enhanced collaboration and communication among key stakeholders and improved understanding of each stakeholder group's needs and concerns.

Project Approach

Data Collection and Synthesis

From fall 2018 through summer 2019, the project team is collecting water level data for the tidally constricted marshes, using pressure transducers, to help evaluate road reconfiguration options. This data will allow the project team to characterize the hydrologic impairments—a critical data gap for developing adaptation options—and inform their understanding of the environmental setting and existing site conditions. The project team will also synthesize existing data as the foundation for stakeholder understanding of the broader setting and the potential issues that adaptation solutions will face.

Stakeholder Engagement

Concurrently, the project team will host a series of three end user and stakeholder meetings to guide identifying and evaluating adaptation options and determine what steps follow completion of the one-year catalyst grant effort, the results of which the project team will compile into two reports.

The first meeting will focus on how the setting and site conditions provide opportunities and constraints for any modifications to the existing shoreline road. Drawing upon end users' and stakeholders' knowledge and information from similar local, regional, and national efforts, the team will solicit end users' and stakeholders' "values" and begin drafting goals, objectives, and feasibility considerations. The project team will solicit broad public input through a public talk and two walks to see the impacts of the highest high tides of the year ("king tides") on the road. At the second stakeholder meeting, the group will review public input, adopt goals and objectives, and brainstorm specific options to deal with the road flooding. Following the second meeting, the project team and technical staff from the reserve, state parks, and county will conduct a qualitative, comparative evaluation of the options and circulate a draft for review to the end users and stakeholders.

At the final meeting, the group will refine and adopt the options evaluation and discuss and create a road map for how to advance the development and selection of adaptation alternatives, environmental review, permitting, construction, and ongoing public engagement.

Targeted End Users and Anticipated Products

Key end users include California State Parks (which owns China Camp State Park) and Marin County (which manages the road). Each of these end users is represented on the project team. The collaboration meetings and work between the meetings engage several community stakeholder groups, as well as the regulatory and resource agencies that will have to approve any adaptation option. Specific products from this project include the following:

- Three meetings that engage end users and stakeholders, as wells as several public engagement events;
- Detailed data about water levels around North San Pedro Road;
- A "Road Reconfiguration Options and Evaluation Report," which will outline the reconfiguration options and qualitatively compare the costs, environmental constraints, and other feasibility considerations associated with each option; and
- A "Strategy for Moving Forward Report," which will detail a strategy for next steps, including roles and responsibilities of participating entities, a timeline, funding needs and sources, and remaining information gaps to advance adaptation option selection, planning, permitting, and construction.

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at coast.noaa.gov/nerrs or graham.umich.edu/water/nerrs.