



SUSTAINABILITY & RESILIENCE DEPARTMENT

ENERGY & CLIMATE DIVISION

30-YEAR WATERFRONT ADAPTATION PLAN

Harbor Commission

November 21, 2024

Outline

1. Adaptation & Resilience Program
2. Project Overview
3. Work Program
4. Questions

ADAPTATION & RESILIENCE PROGRAM

Background & Other Projects

Climate Adaptation & Resilience Program

Sea-Level Rise
Adaptation
Implementation
Projects

Other Climate
Hazards: River
Flooding,
Groundwater,
Rainfall, Heat,
Wildfire

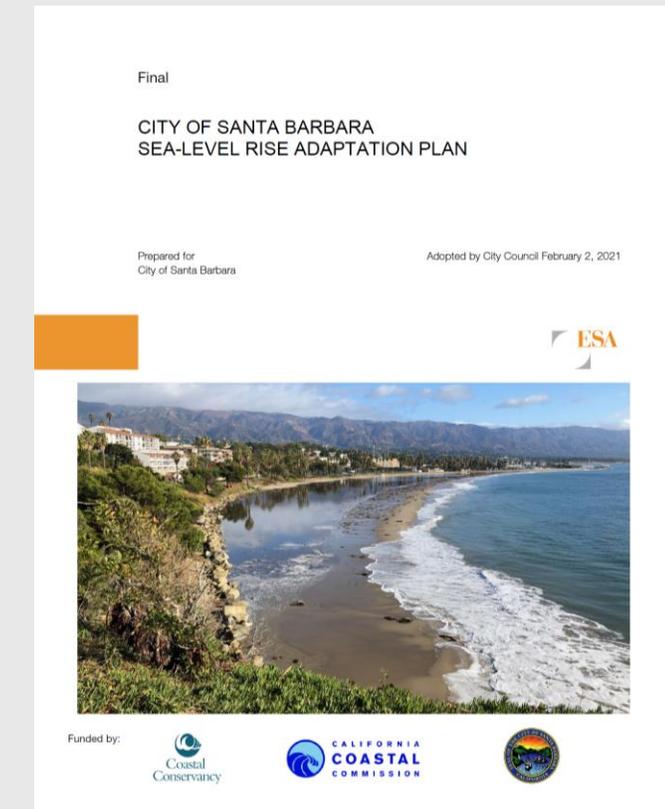
Hazard Mitigation
Planning and
FEMA Funding

Community
Resilience: Hubs
and Programs

Interdepartmental Assistance

Community Outreach Campaign

- Guiding principles for adaptation
- Phased planning based on monitoring and trigger-based actions
- Specific near-term (ten-year) actions
- Decision structure for mid- and long-term
- Relies on Shoreline Monitoring Program
- Highest priority implementation underway (>\$5 million in grant funds)



Active Projects

- Regional Coastal Adaptation Monitoring Program
- Wastewater & Water Systems Climate Adaptation Plan
- Airport Climate Adaptation Plan
- Stormwater Modeling
- 30-Year Waterfront Adaptation Plan



30-YEAR WATERFRONT ADAPTATION PLAN

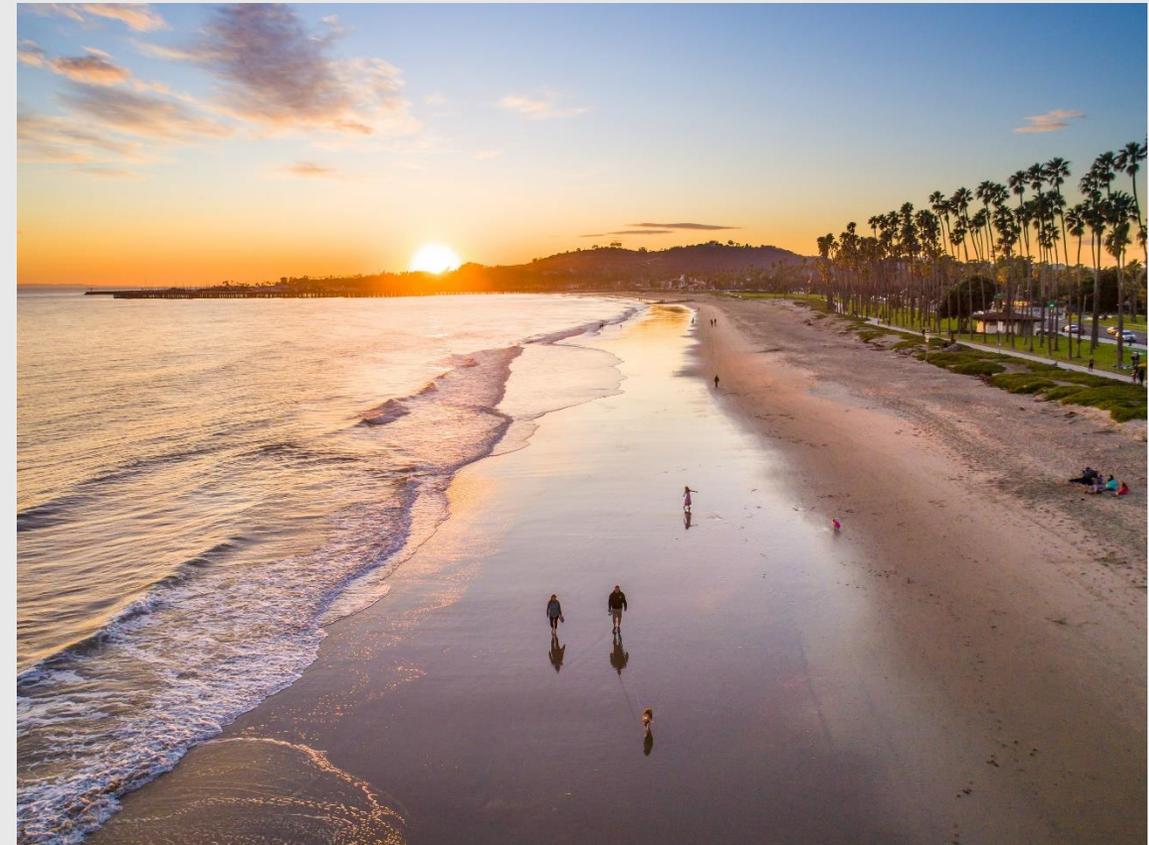
Project Overview

Overall Plan Vision

Develop a practical plan that prepares the Santa Barbara waterfront for increased storm surges, erosion, and flooding by providing solutions that preserve and enhance recreation, commerce, beach access, habitat, and critical infrastructure for the near term and future generations

Project Scope: The Waterfront Area

- Leadbetter to Clarke Estate
- Central to SB identity
- Cherished coastal resources
- Publicly owned and managed



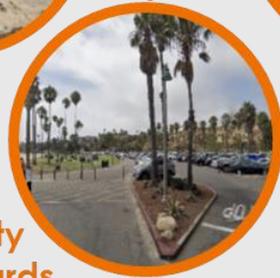
Project Need

- Hazard impacts during storm events today
- SLR will magnify impacts
- 2021 Adaptation Plan high priority
- Required for permitting
- Funding benefit

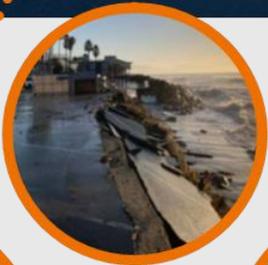




Bank Erosion



Safety Hazards



Edge Collapse



Flooding



Shoaling & Sedimentation



Structures Damage



Flooding & Erosion



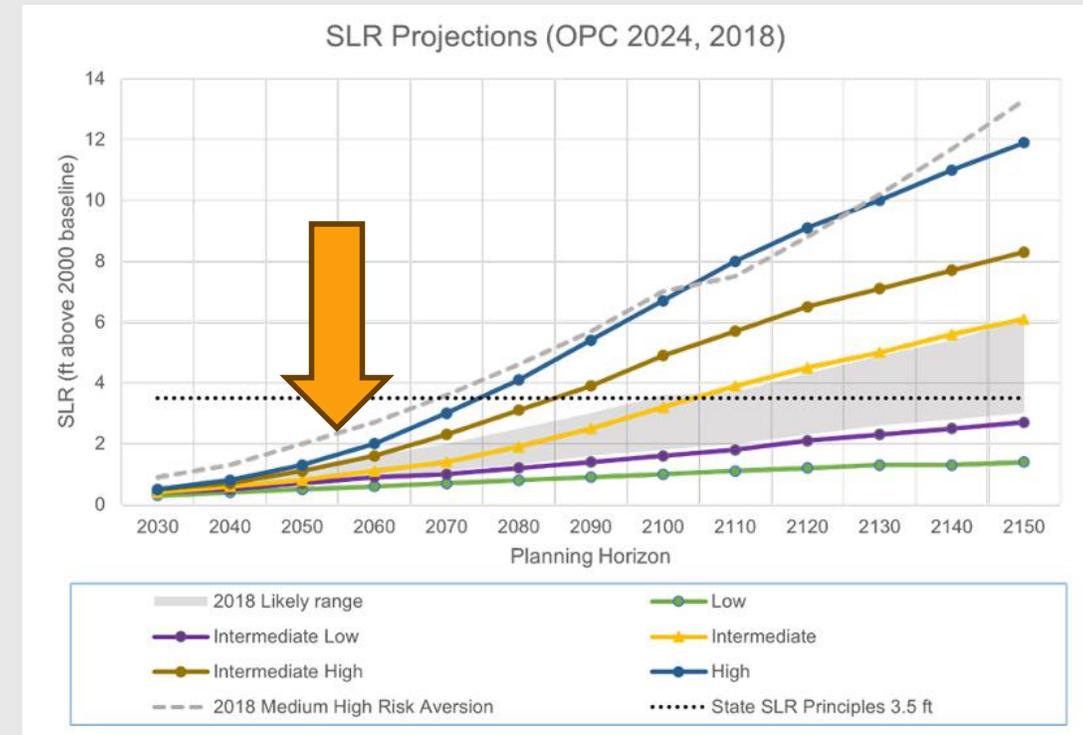
Exposure & overtopping



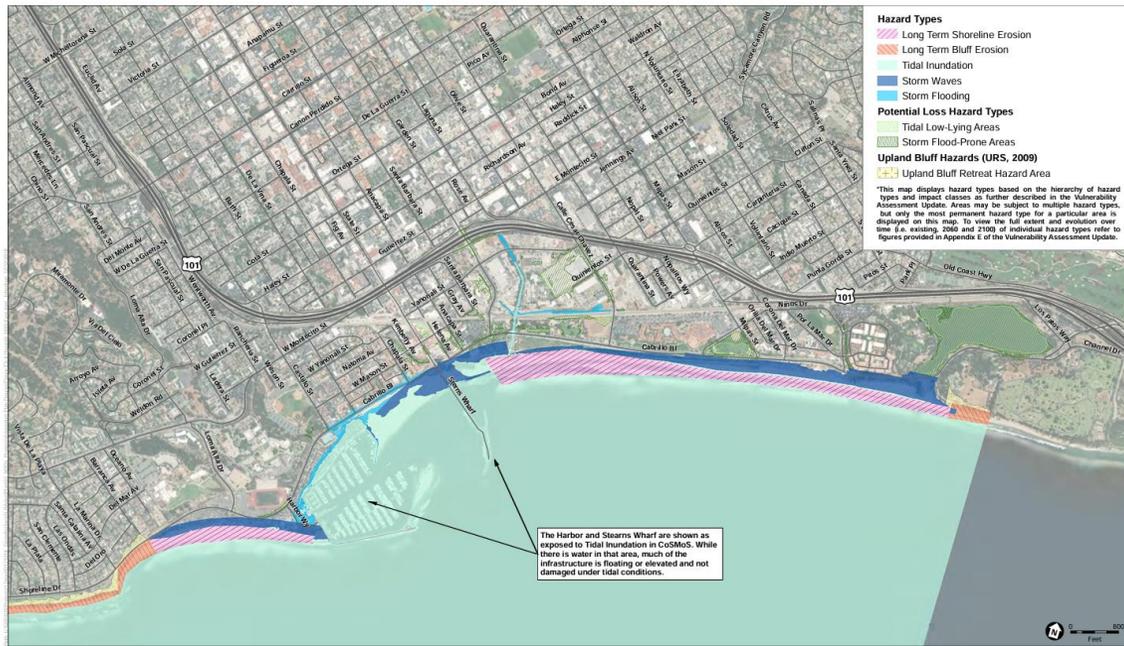
Preserving Recreation & Access

Why 30 years?

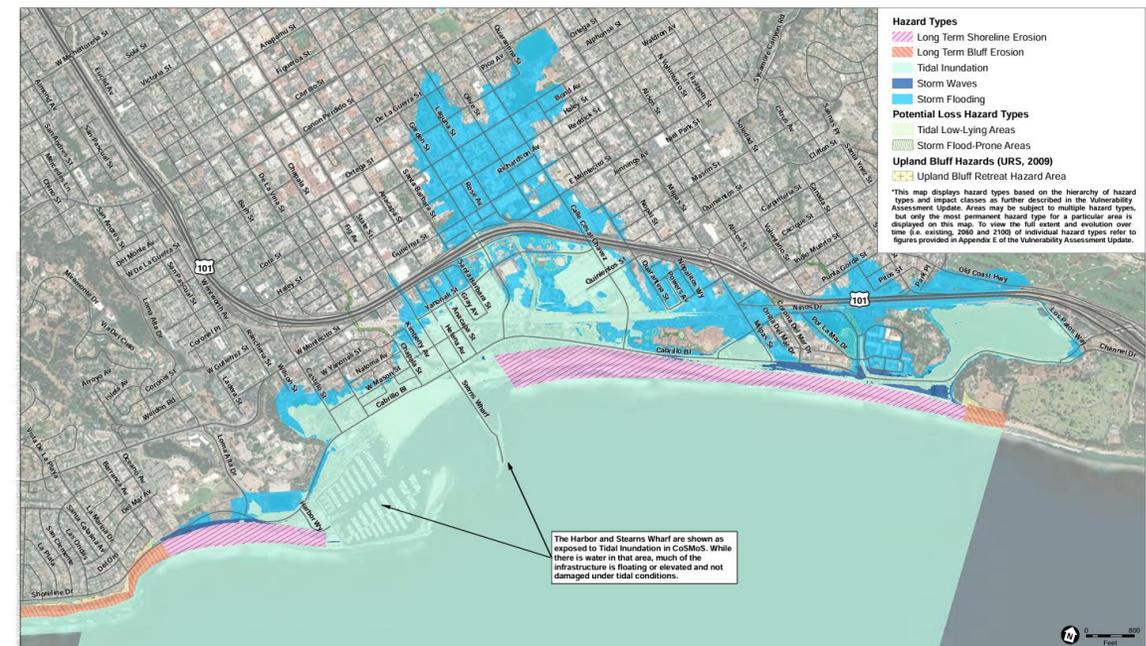
- SLR projections are more certain
- Broad range of adaptation options
- Doesn't require large-scale flood control measures



Projected Coastal Hazard Exposure



Hazards with 2.5' of SLR (±2060)

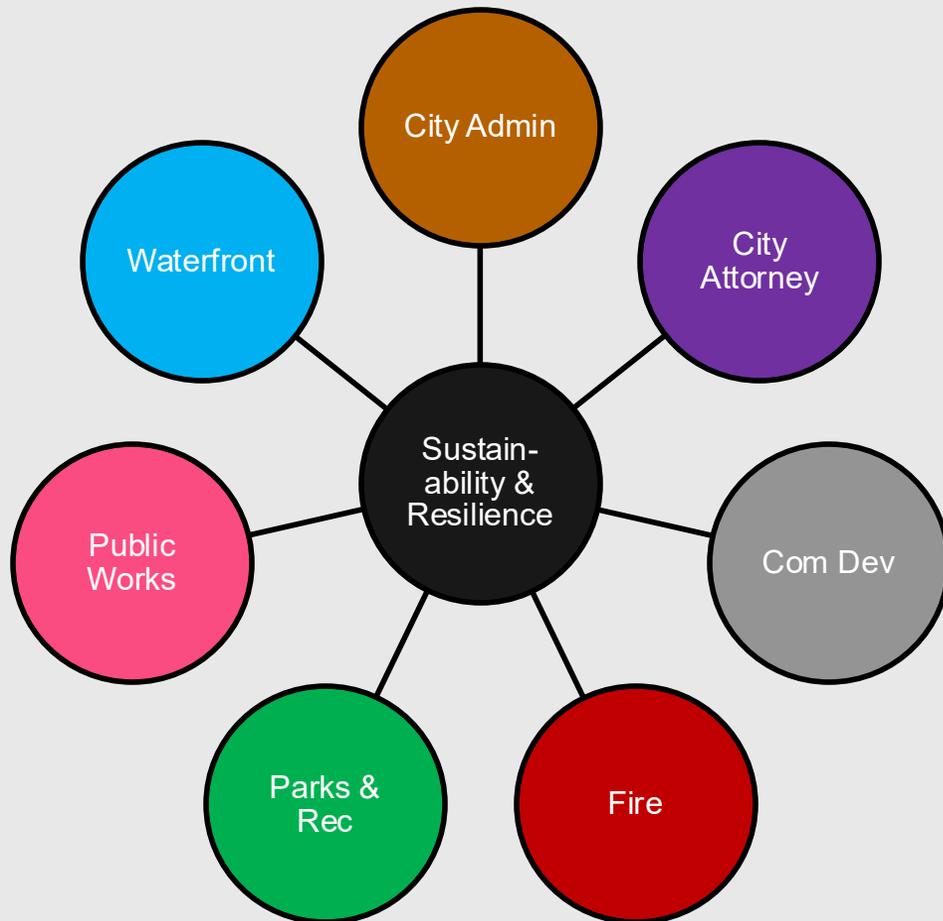


Hazards with 6.6' of SLR (±2100)

Source: 2021 SLR Adaptation Plan and Vulnerability Assessment

WORK PROGRAM

Staff Team



Consultant Team



Key Project Elements

- Refined Vulnerability Assessment
- Harbor breakwater & groins high-level analysis
- Adaptation Strategy & Implementation Plan
- Conceptual Designs for Beachway & Harbor Commercial Area
- Bilingual community engagement

30-Year Adaptation Plan

Actionable

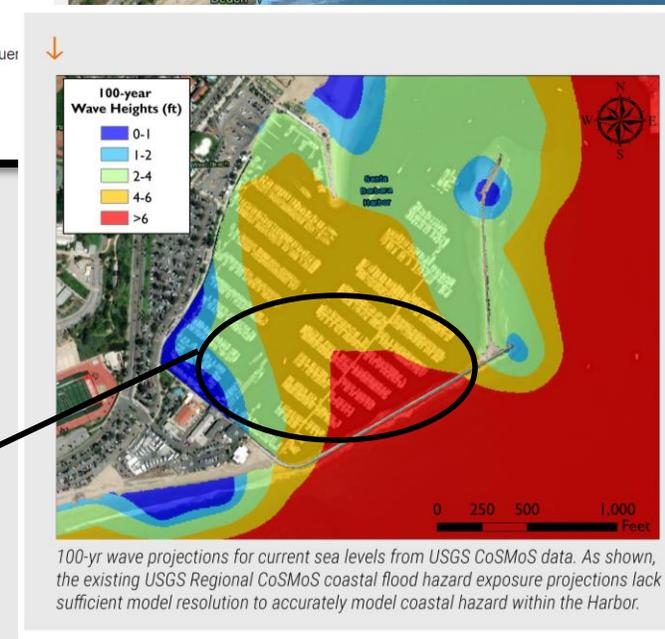
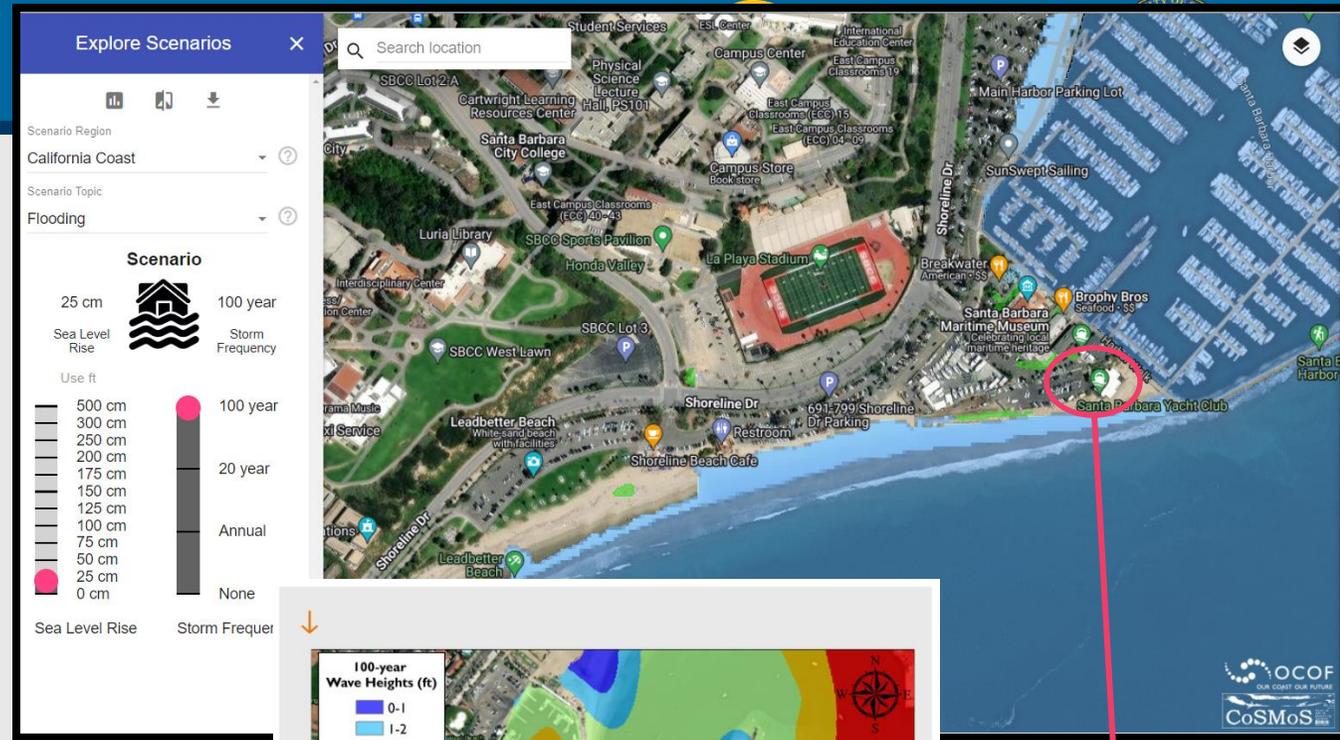
Adoptable

Permittable

Inspirational

Refine Model & Assess Vulnerability

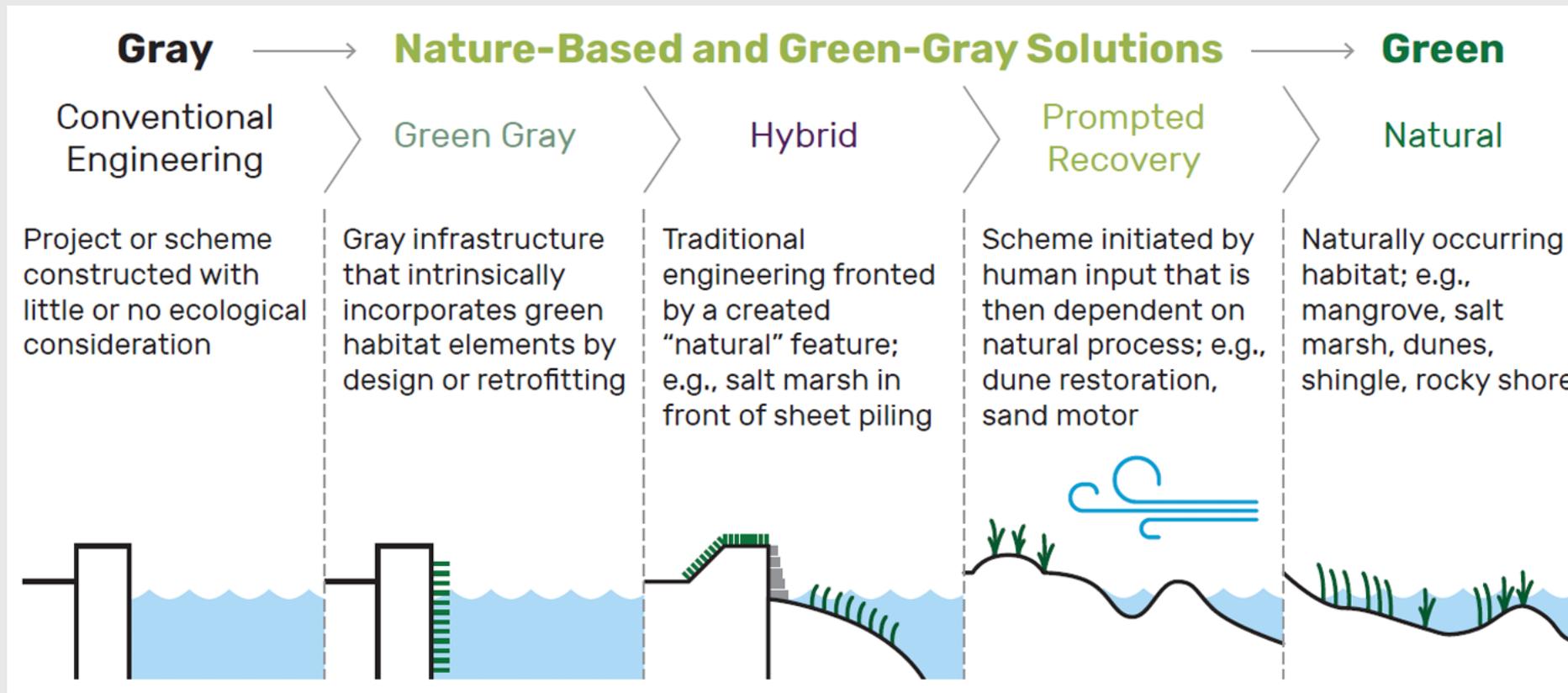
- Improve model resolution
- Address known issues
- Incorporate updated data
- Sediment movement



Breakwater not well-resolved in CoSMoS wave models

Yacht club not in 100-year flood zone?

Adaptation Spectrum of Options



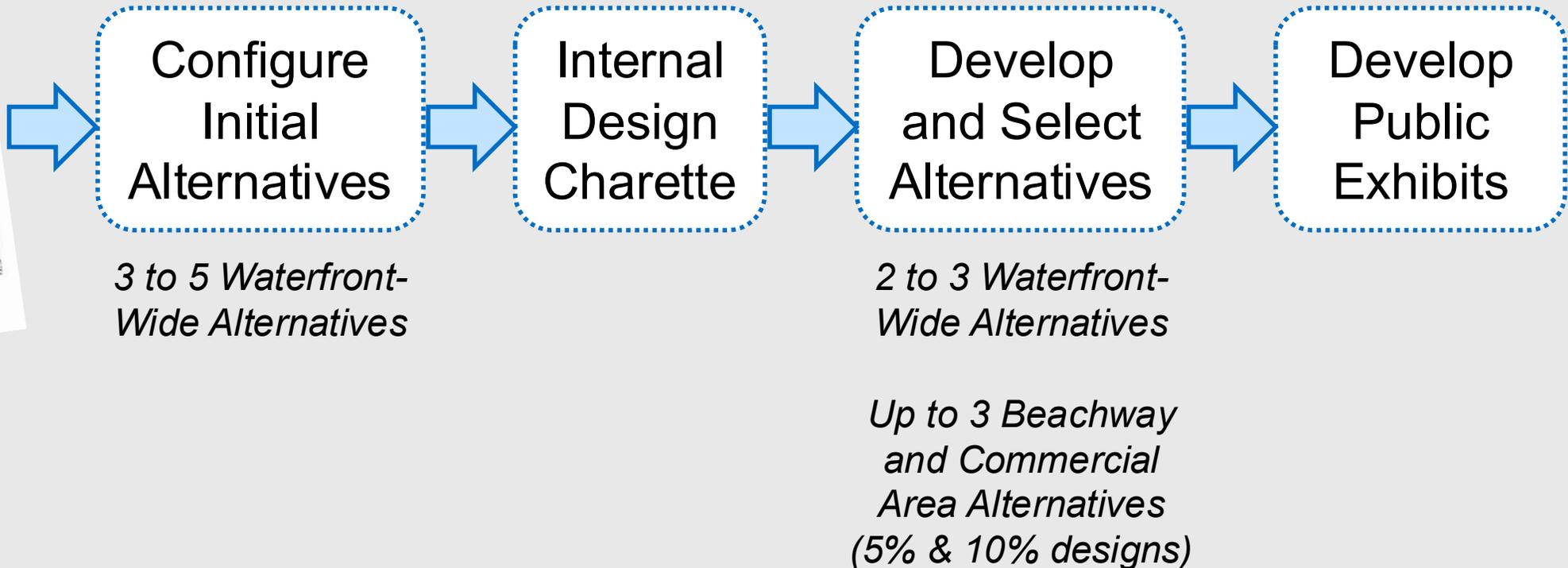
Source: USACE and Port of San Francisco; USACE International Guidelines on Natural and Nature-Based Features for Flood Risk Management



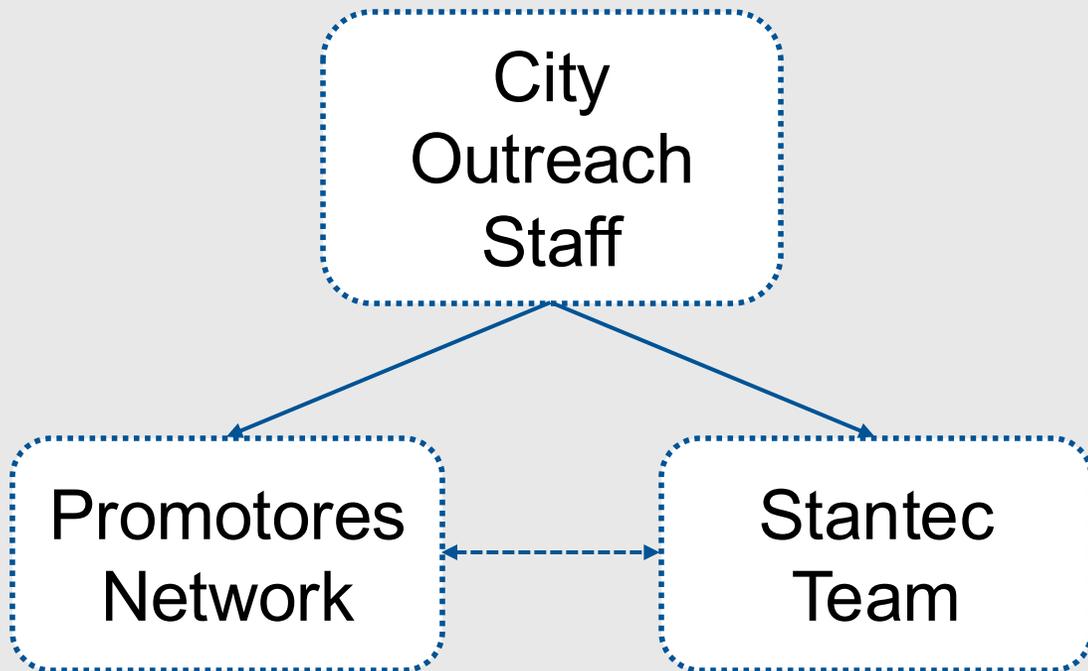
Develop & Select Adaptation Alternatives



Starting with the
2021 Adaptation
Plan



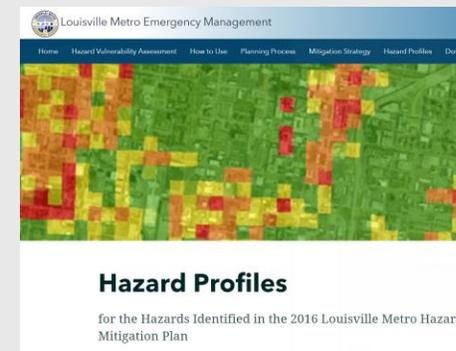
Community Engagement



- Initial tasks:
 - Goals and objectives
 - Target audiences
 - Informational interviews
 - Phasing and timing
 - Engagement plan

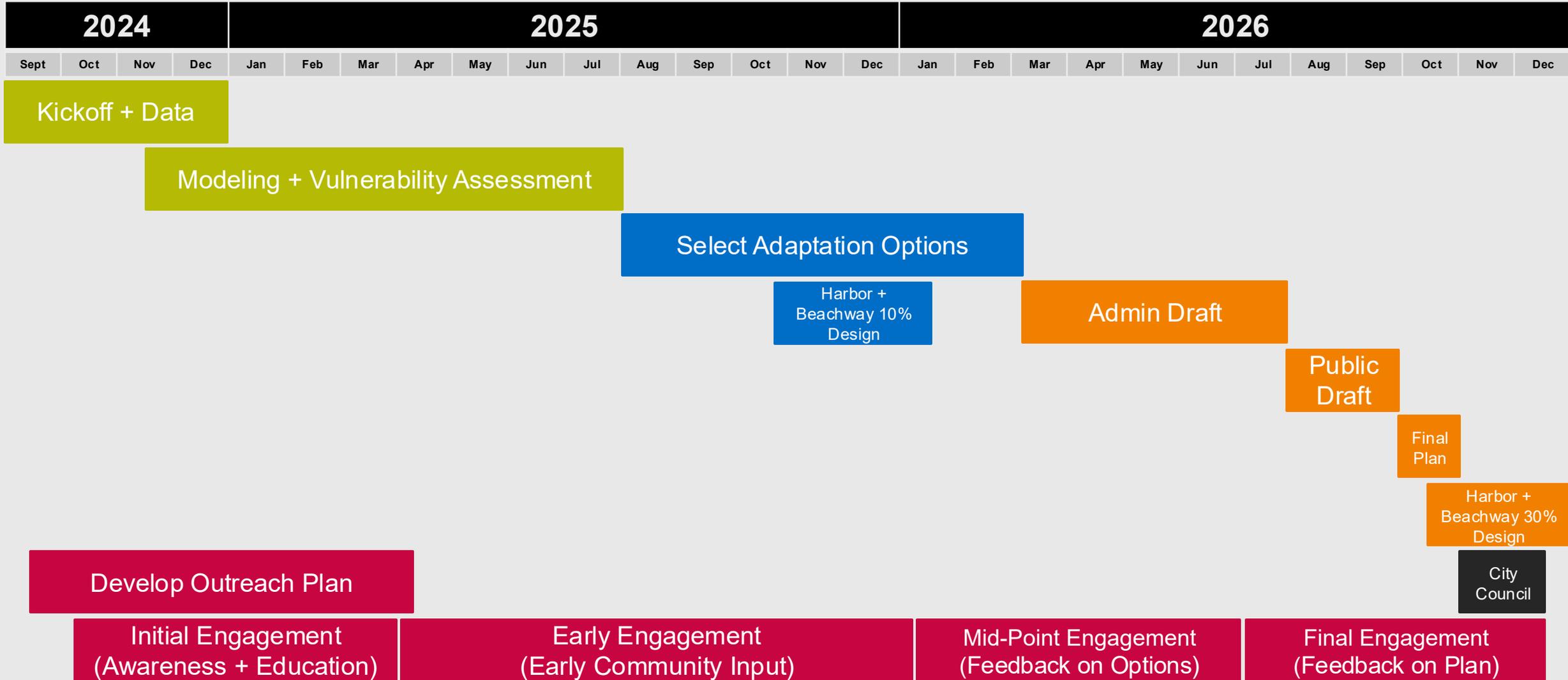
Engagement Approaches

- Meet people where they are
- Pop-up interviews
- Open houses
- Handouts & posters
- Digital maps & renderings
- Community survey
- Community meetings
- Road show



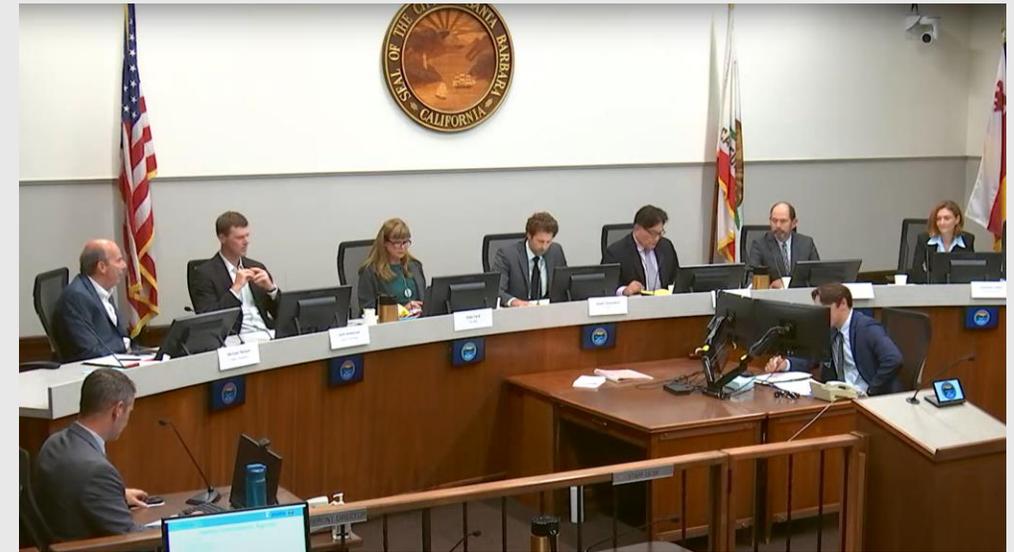
Example Bionic Rendering for Malibu

Schedule Overview



Commission's Roles

- Review major deliverables
- Help guide adaptation strategy development
- Support community engagement
- Make a recommendation to Council on the final plan



QUESTIONS?
