Sea-Level Rise Planning: Why Now?

- Sea-level rise expected to accelerate.
- Increased erosion and flood events like those seen in previous El Niño's
- General Plan and Coastal Plan direct preparation of a sea-level rise plan.
- Sea-level rise analysis required for coastal and other permitting.
Previous SLR Work

- 2011 General Plan Update
- 2012 Griggs/Russell Vulnerability Assessment
- 2013 Climate Action Plan
- 2015 S.B. County/ESA Coastal Resiliency Model
- 2015 UCSB Bren Vulnerability Assessment
- 2015 Goleta Slough Area SLR Plan
- 2017 Hazard Mitigation Plan Update
- 2018 U.S.G.S. CoSMoS 3.0 model
- 2019 Updated Coastal Land Use Plan:
Sea-Level Rise Planning Process

- City Staff Interdepartmental Team
- Consultants (*ESA and AECOM*)
- SLR Adaptation Plan Subcommittee
- Consultations with Coastal Commission (CCC), County, and other agencies
- Meetings with public stakeholders
- Website ([www.SantaBarbaraca.gov/SLR](http://www.SantaBarbaraca.gov/SLR))
Plan Components

• **Vulnerability Assessment (2018)**
  - Diagnoses the problem
  - What would happen if no action taken

• **Adaptation Plan (2020)**
  - Provides framework for future planning
  - Includes guiding principles for prioritization of actions
  - Analyzes adaptation options (protect, accommodate, retreat)
  - Considers economic and fiscal impacts
Adaptation Planning Approach

• Sea-Level Rise Adaptation Plan
  - Phased approach: monitoring of conditions and trigger-based actions
  - Recommends specific near-term (ten-year) actions
  - Proposes structure for decision making in mid- and long-term

• Five-year Implementation Plan
  - Further prioritizes near-term actions and Identifies costs, funding, timelines, and required resources

• Shoreline Monitoring Program

• Re-evaluation of adaptation plan every 10 years
Sea-level Rise Planning Timeframes

<table>
<thead>
<tr>
<th>Planning Timeframes</th>
<th>Sea-Level Rise</th>
<th>Projected Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near-Term</td>
<td>0.8 ft</td>
<td>2030</td>
</tr>
<tr>
<td>Mid-Term</td>
<td>2.5 ft</td>
<td>2060</td>
</tr>
<tr>
<td>Long-Term</td>
<td>6.6 ft</td>
<td>2100</td>
</tr>
</tbody>
</table>

Source: ESA 2018; 2018 State of California Sea-Level Rise Guidance
Bluffs will be exposed to more extreme waves more often, and erosion rates are expected to increase.
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6.6 ft. SLR (±2100) Hazard Map

Bluffs will be exposed to more extreme waves more often, and erosion rates are expected to increase (40% higher by 2060 and 140% higher by 2100).

Bluff erosion hazards are expected to reach Cliff Drive and Shoreline Drive by 2100.
Adaptation Recommendations: Coastal Bluff Areas

- Beach nourishment and sand retention are not effective in bluff areas.
- Rock revetments and slope protection are options, but should be limited in near-term.
- Relocation of non-essential assets.
- Mid- and long-term consider protection of Shoreline Drive with revetments.
The Harbor and Stearns Wharf are exposed to tidal inundation. However, much of the infrastructure is floating or elevated and not damaged under tidal conditions.
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6.6 ft. SLR (± 2100) Hazard Map

North of 101
- More frequent flooding
- Future coastal flooding in areas already flooded during heavy rains

South of 101
- Regular tidal inundation
- More frequent and severe coastal flooding
- Shoreline erosion

The Harbor and Stearns Wharf are exposed to tidal inundation. However, much of the infrastructure is floating or elevated and not damaged under tidal conditions.
Low-Lying and Waterfront Areas

• Recommended Near-Term Actions
  - Raise Harbor breakwater and groins
  - Raise Harbor marinas and pier
  - Introduce additional beach nourishment, beach berms, or dunes
  - Redesign Laguna Tide Gate
  - Relocate or flood proof sewer mains and utilities under beach
Low-Lying and Waterfront Areas

• Recommended Near-Term Actions
  - Revise floodplain regulations for development south of Highway 101
  - Continue development requirements south of Cabrillo Blvd. that factor in SLR
  - Initiate studies of mid- and long-term options for wastewater, stormwater, and water
Low-Lying and Waterfront Areas

• Decisions in the Mid- and Long-Term
  - Consider flood protection measures:
    • Seawalls or levees along the Waterfront
    • Levees or floodwalls along lower portions of major creeks
    • Groundwater dewatering wells and stormwater pumps
    • Relocation and flood proofing of facilities
  - Raising Harbor Commercial area grades
  - Redesign or removal of Stearns Wharf
Regional Collaboration Needs

• SLR and shoreline monitoring so that all jurisdictions use same parameters and data.
• Joint regional principles for adaptation
• Joint funding, studies, and projects (sediment management and others)
• Coordinated messaging to State and Federal legislature and agencies on needs
## ADAPTATION PLAN SCHEDULE

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date/Timeframe</th>
</tr>
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<tbody>
<tr>
<td>Public outreach and comment period</td>
<td>August 11 – September 30</td>
</tr>
<tr>
<td>Revisions to Draft Plan</td>
<td>October 2020</td>
</tr>
<tr>
<td>Subcommittee recommendation</td>
<td>October/November 2020</td>
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<tr>
<td>Council consideration of Final Plan</td>
<td>November/December 2020</td>
</tr>
<tr>
<td>Implementation, including LCP Amendment</td>
<td>2021 onward</td>
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- Comments by September 30th: SLRPlan@SantaBarbaraCA.gov
- Contact: Melissa Hetrick, Project Planner SLRPlan@SantabarbbaraCA.gov; 805-564-5470 ext. 4556