Sea Level Rise Vulnerability and Consequences Assessment

May 2019

Photo: Dave R
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Sea Level Rise Coordinating Committee
Make San Francisco a more resilient city in the face of immediate and long-term threats of sea level rise to the Bayshore and Pacific Coast, by taking measures to protect and enhance public and private assets, natural resources, and the quality of life for all.
## San Francisco SLR Projections

<table>
<thead>
<tr>
<th></th>
<th>Year 2030</th>
<th>Year 2050</th>
<th>Year 2100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most Likely</strong></td>
<td>6 in</td>
<td>11 in</td>
<td>36 in</td>
</tr>
<tr>
<td>Capital Project Approvals *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upper Range</strong></td>
<td>12 in</td>
<td>24 in</td>
<td>66 in</td>
</tr>
<tr>
<td>Long-Range Planning *</td>
<td></td>
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</tbody>
</table>

* The City uses the NRC’s (National Research Council) most likely SLR projection of 36” for ongoing planning and development purposes related to environmental review and project approvals. The SLR Action Plan considers adaptive strategies to address the NRC’s upper end estimate of 66” of SLR by 2100 in the event that future GHG emissions and land ice melting accelerates beyond current predictions.

**NOTE:** Storm Surge + King Tides add ~40” to SLR (108” in 2100)

Source: Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (NRC 2012)
## Vulnerability and Consequences Assessment

<table>
<thead>
<tr>
<th></th>
<th>2030 Scenario</th>
<th>2050 Scenario</th>
<th>2100 Scenario</th>
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</thead>
<tbody>
<tr>
<td>Residents</td>
<td>5,044</td>
<td>15,471</td>
<td>31,121</td>
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<tr>
<td>Jobs</td>
<td>10,243</td>
<td>49,287</td>
<td>168,058</td>
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<tr>
<td>Streets</td>
<td>20 miles</td>
<td>50 miles</td>
<td>91 miles</td>
</tr>
<tr>
<td>Open Space</td>
<td>232 acres</td>
<td>550 acres</td>
<td>684 acres</td>
</tr>
<tr>
<td>Public Land</td>
<td>442 acres</td>
<td>887 acres</td>
<td>1,490 acres</td>
</tr>
<tr>
<td>Schools</td>
<td>2</td>
<td>9</td>
<td>19</td>
</tr>
</tbody>
</table>
Vulnerability and Consequences Assessment

Exposure

Vulnerability: Sensitivity + Adaptive Capacity

Consequences for People, Economy and Environment
Vulnerability and Consequences Assessment

SECTORS

- Water
- Wastewater
- Public Power
- Public Safety
- Mobility
- Recreation & Open Space
- Waterfront Development
- Port Facilities
Vulnerability and Consequences Assessment

**NEIGHBORHOOD PROFILES**

1. Westside/Ocean Beach
2. Marina/Presidio
3. Fisherman's Wharf/North Beach
4. Financial District
5. South of Market/Mission Creek
6. Dogpatch/Central Waterfront
7. Bayview North/Islais Creek
8. Bayview South/Hunters Point
<table>
<thead>
<tr>
<th>Key Findings</th>
<th>North Beach</th>
<th>Financial District</th>
<th>Mission Creek</th>
<th>Islais Creek</th>
<th>Hunters Point</th>
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</thead>
<tbody>
<tr>
<td>Transportation Impacts</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>Loss of Open Space</td>
<td>✔</td>
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<tr>
<td>New Development</td>
<td></td>
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</tr>
<tr>
<td>Joint Coastal and Precipitation Flood Risk</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Contamination and Liquefaction</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
Financial District

PUBLIC SAFETY
- Fire Station #77
- Contaminated Lands

MOBILITY
- The Embarcadero
- Bi-level (1-Story)
- Embarcadero BMIF
- Ferry Terminal
- Cable Car
- Regional bus routes (Temporary Transbay Terminal)

OPEN SPACE
- Embarcadero Plaza
- Ferry Piers/Plaza
- Henry Bridge Plaza
- Washington Plaza

PORT
- Pier 7: Public pier and fishing
- Pier 9: Restaurants, offices, waterfront, parking
- Pier 1: Office (4)
- Ferry Building (Offices, public sering, restaurants, retail, housing)
- Pier 11: Public (pier and ferry)
- Embarcadero Piers (Bay Trail)
- WETL, Golden Gate Ferries
Project Adaptation

Mission Rock

Pier 70

Crane Cove Park
**District-Scale Adaptation**

**Ocean Beach Long-Term Improvements Project**
- Implements portions of Ocean Beach Master Plan
- Addresses erosion at Great Highway, and protects critical infrastructure
- Adds recreational amenities

**Islais Creek/Southeast Mobility Adaptation Strategy**
- Caltrans grant award of $390,000; 2019 to 2021
- Long-range vision for Islais Creek basin, with a focus on securing transportation assets
- Youth engagement in Bayview

**US Army Corps/Port Flood Study**
- Approximately 3 to 5 year study of shoreline flood risk
- Assesses flood risk and identifies a preferred alternative
- Preferred project becomes eligible for Federal funding
Citywide Adaptation

Sea Level Rise Capital Planning Guidance
- 2019 update based on revised State guidance
- Applies to large capital projects in SLR exposure zone

Hazards and Climate Resilience Plan
- Assessment and Strategies for climate and other hazards
- Updates Local Hazard Mitigation Plan; incorporated into GP Safety Element
- Expected completion 2019, submitted to Cal OES and FEMA for review

Citywide Climate Resilience (Scope of Work TBD)
- Comprehensive capital planning for climate resilience
- Multi-hazard climate resilient codes and guidelines
- Funding, legislative, and governance strategies