Hazards and Climate Resilience Plan

Melissa Higbee, Office of Resilience and Capital Planning
March 11, 2021
Why the HCR Matters

- Provides a roadmap to improve resilience that captures previous and ongoing mitigation and adaptation efforts
- Identifies projects for strategic funding
- Makes hazard information more accessible
- Focus on vulnerable communities, equity, and health
- Extensive department and stakeholder engagement
ENGAGEMENT SNAPSHOT

- 30 Strategy Sessions
- 70 Organizations参与
- 597 Survey Responses
- Planning Team met 6 times
- 9 Public Presentations

MONTHLY STEERING COMMITTEE MEETINGS
TECHNICAL WORKING GROUP MET BI-WEEKLY
Meets Federal, State, and Local Requirements

- **Federal:** Assures eligibility for FEMA disaster mitigation grants, and can reduce local cost share for Public Assistance
- **State:** Adheres to climate vulnerability assessment and adaptation planning
- **Local:** Climate adaptation component of Climate Action Plan

Adopted by Mayor and BOS on June 16, 2020
Approved by FEMA on July 21, 2020
HAZARDS

The HCR characterizes 13 natural hazards that impact San Francisco. The hazards are grouped into four different types: geological, weather-related, fire-related, and biological & toxic. This chapter also includes an overview of climate change science and how climate change influences hazards in San Francisco.
## Changes in the Global Climate Increase the Severity of Local Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Increasing Temperatures</th>
<th>Rising Sea Levels</th>
<th>Changing Precipitation Patterns</th>
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</thead>
<tbody>
<tr>
<td>Extreme Heat</td>
<td>✓</td>
<td></td>
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<tr>
<td>Drought</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<tr>
<td>Wildfire &amp; Wildland-Urban-Interface Fire</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<tr>
<td>Poor Air Quality</td>
<td>✓</td>
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<tr>
<td>Coastal Flooding</td>
<td></td>
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<td>✓</td>
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<tr>
<td>Stormwater Flooding</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<tr>
<td>Soil Liquefaction in an Earthquake</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Communities</td>
<td>HOUSING</td>
<td>VULNERABLE POPULATIONS</td>
<td>CAPACITY BUILDING</td>
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<tr>
<td>Buildings</td>
<td>MUNICIPAL BUILDINGS</td>
<td>PRIVATE BUILDINGS</td>
<td>NEW DEVELOPMENT</td>
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<tr>
<td>Infrastructure</td>
<td>TRANSPORTATION</td>
<td>WATER AND WASTEWATER</td>
<td>COMMUNICATIONS AND POWER</td>
</tr>
<tr>
<td>Cross-Cutting</td>
<td>WATERFRONT</td>
<td>OPEN SPACE AND BIODIVERSITY</td>
<td>ASSESSMENT</td>
</tr>
</tbody>
</table>
Infrastructure

Transportation
Invest in multimodal transportation

Water and Wastewater:
Modernize water utilities to support businesses and households

Communications and Power:
Enhance the reliability of communications and power in a disaster

- Implement a coastal multimodal resilience strategy for transit
- Implement the SFMTA Communications Asset Management Strategy
- Implement the SFMTA Asset Management & State of Good Repair Strategy
- Implement the SFMTA Transit Fixed Gateway Strategy
- Implement a security strategy for the SFMTA infrastructure
- Implement SFMTA Traffic Signals Strategy
- Conduct a multi-hazard vulnerability and operational assessment for Muni
- Amend the SFMTA capital improvement program to consider hazard mitigation opportunities
- Implement the SFMTA Parking Garage Strategy

Assess and develop an emergency response plan for the City’s water infrastructure

- Implement the Price Replacement Prioritization Program
- Improve flood and earthquake resilience for regional dams and ancillary facilities
- Diversify water supply options with new water sources and drought management

- Assess and develop a long-term adaptation plan for the Hetch Hetchy Regional Water System
- Mitigate wild fire hazards in SFPUC-owned watersheds
- Study, improve, and maintain the Emergency Firefighting Water System
- Increase the capacity of the Portable Water Supply System
- Advance Sewer System Improvement Program projects
- Develop technologies, systems, and capacity to treat sanitary sewage at SFO

- Increase the resilience of the municipal fiber optic network
- Increase the resilience of the 911 radio system
- Increase the resilience of the 911 radio system
- Develop redundant and resilient electrical power capacity and distribution at SFO
Cross-Cutting

**Waterfront:**
Strengthen the waterfront to withstand seismic and flood risks

- Reduce seismic and flood risk along the Embarcadero Seawall
- Conduct a seismic assessment of critical City assets along the Southern waterfront
- Participate in US Army Corps of Engineers Port Flood Study
- Develop a process to move utilities from under piers
- Address flooding around Islais Creek
- Continue to implement the Oceans Beach Master Plan
- Implement multi-hazard mitigation improvements for harbor dock infrastructure
- Develop a hazard mitigation plan and emergency response evacuation plan for the SF Zoo

**Open Space & Biodiversity:**
Use ecosystems services to support climate adaptation

- Adapt shoreline parks to sea level rise and salt water intrusion using marshes and plant diversity
- Assess the stormwater catchment potential of public open space
- Expand the Street Tree SF climate resilient tree planting initiative
- Explore increasing the tree canopy in parks to provide shade
- Assess current plant palettes to consider future climate conditions in plant selection
- Strengthen efforts to conserve, restore, and steward biodiversity
- Improve fire prevention in recreation areas

**Assessment:**
Chart a path for the future through research and planning

- Complete the Utilities Restoration Performance Program and implement recommendations
- Complete the Extreme Precipitation Study
- Comprehensively assess combined flood risks for San Francisco
- Research earthquake risk mitigation of marine infrastructure piles
- Conduct groundwater data collection and modeling efforts
- Improve San Francisco’s climate-health research capability
Over 95 Strategies To Mitigate Risks

**DOMAIN: RESILIENT COMMUNITIES (C)**

**Primary Hazard Group: All Hazards**

<table>
<thead>
<tr>
<th>C-5.15</th>
<th>Study the overlap between vulnerable populations and vulnerable buildings</th>
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</thead>
<tbody>
<tr>
<td><strong>KEY PLANNING ISSUES:</strong></td>
<td>Housing, Existing Building</td>
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<tr>
<td><strong>VULNERABILITY ADDRESSED:</strong></td>
<td>Private buildings (residential, commercial and industrial) are not designed to accommodate flooding, future heat impacts, poor air quality, and other natural and climate hazards. Vulnerable populations are disproportionately impacted by climate and other natural hazards and have fewer resources to make climate resilient home and business improvements.</td>
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<tr>
<td><strong>LEAD:</strong></td>
<td>Planning/DPH/ORCP</td>
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<tr>
<td><strong>PARTNERS:</strong></td>
<td>DBI, SFPUC, SFE, MOHCD,</td>
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<tr>
<td><strong>STRATEGY SUMMARY:</strong></td>
<td>Study the overlap between vulnerable populations and vulnerable building types for natural and climate hazards. This will help identify property types and locations that may be particularly vulnerable (such as permanent affordable housing, SRO’s, etc.) to hazards and may need public subsidy or technical support to equitably pursue resilience measures. Public engagement efforts to date have identified specific vulnerabilities to consider, from San Franciscans who rely on electricity for their medical needs, to inaccessible routes of emergency evacuation.</td>
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<tr>
<td><strong>COST:</strong></td>
<td>Low: $0–500K</td>
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<tr>
<td><strong>SF GOVERNMENT ACTIVITY:</strong></td>
<td>Research, Planning &amp; Guidance</td>
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<td><strong>STATUS:</strong></td>
<td>New</td>
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Sample Strategy
Additional resources @ OneSF.org

Strategy Dashboard

Summary Report

Storymap
INTER-AGENCY CLIMATE RESILIENCE EFFORTS

- SLR Vulnerability & Consequences Assessment
- Waterfront Resilience Program
- Islais Creek Adaptation Strategy
- OCEAN BEACH ADAPTATION
- ENVIRONMENTAL JUSTICE FRAMEWORK
- Hazard & Climate Resilience Plan
- Climate Action Plan
- General Plan Updates (SAFETY, HOUSING, TRANSPORTATION)

BAYVIEW RESILIENCE STRATEGY

Strengthen Adapt Envision
General Plan Virtual Events

Help shape the future of San Francisco. Join our workshops to discuss community safety, housing, transportation, environmental justice, and more!

MARCH 15-19  MARCH 22-26, 2021

Learn more at: sfplanning.org/general-plan
Questions?

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