# Appendix B

## Out-of-County Major Assets

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The following section highlights the major out-of-county major assets that are owned, managed, or relied on by the City and County of San Francisco. These facilities include the San Francisco International Airport[1]; County Jail #5-San Bruno Complex; facilities managed by the Parks and Recreation Department; a mental health facility owned by the Department of Public Health; wastewater treatment plants owned by San Francisco Public Utilities Commission; and the numerous infrastructure components that facilitate the operation of the Hetch Hetchy Regional Water System.

A complete vulnerability analysis for the out-of-county areas where these facilities and infrastructure are located was beyond the time and resources of the planning team for this year's assessment. However, the team is committed to completing the integration of vulnerability-related information for the out-of-county major assets during the implementation process for this plan as well as in subsequent plan updates.

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[1] Analyzed at length in the Vulnerability and Consequences Profile found in Appendix A.

## TABLE B-1
## OUT-OF-COUNTY MAJOR ASSETS

| Dept. | Facility Type | Facility Name | City | County |
|-------|---------------|---------------|------|--------|
| DPH | Mental Health Center | Redwood Center | Redwood City | San Mateo |
| MTA | Service, Repair, And Storage | Towed Cars And Signal Shop | Daly City | San Mateo |
| RPD | Other Recreational Building | Camp Mather | Groveland | Tuolomne |
| RPD | Other Recreational Building | Polo Fields | Daly City | San Mateo |
| RPD | Other Recreational Building | Sharp Park Clubhouse | Pacifica | San Mateo |
| SFO | Aircraft Operator Support | American Airlines Cargo | Unincorporated Area | San Mateo |
| SFO | Department Operations Center | Airport-San Francisco (SFO) | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Japan Airlines Cargo | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Japan Airlines Cargo Shop Building | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | N. Cargo Joint Use Freight | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | NW Airlines Cargo | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Signature Flight E. Maintenance | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Signature Flight Executive Air | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Signature Flight Support Fuel | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Skywest Commissary | Unincorporated Area | San Mateo |
| SFO | Aircraft Operator Support | Superbay | Unincorporated Area | San Mateo |

| Dept. | Facility Type | Facility Name | City | County |
|-------|---------------|---------------|------|--------|
| **SFO** | Aircraft Operator Support | Swissport | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | TAG Aviation Flight | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | TWA Cargo Building | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | UAL Cargo Building | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | UAL Service Center | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | W. Cargo Joint Freight Building (Old Building 7) | Unincorporated Area | San Mateo |
| **SFO** | Aircraft Operator Support | West Field Cargo No. 1 | Unincorporated Area | San Mateo |
| **SFO** | Airfield Lighting | Field Lighting Building No. 1 | Unincorporated Area | San Mateo |
| **SFO** | Airfield Lighting | Field Lighting Building No. 2 | Unincorporated Area | San Mateo |
| **SFO** | Airfield Lighting | Field Lighting Generator Building | Unincorporated Area | San Mateo |
| **SFO** | Communications | SFO MPOE No. 1 | Unincorporated Area | San Mateo |
| **SFO** | Communications | SFO MPOE No. 2 | Unincorporated Area | San Mateo |
| **SFO** | Education | City College Aeronautic Shop | Unincorporated Area | San Mateo |
| **SFO** | Education | City College Aeronautics | Unincorporated Area | San Mateo |
| **SFO** | Fire Station | Apparatus Storage | Unincorporated Area | San Mateo |
| **SFO** | Fire Station | Fire Station No. 1 | Unincorporated Area | San Mateo |
| **SFO** | Fire Station | Fire Station No. 2 | Unincorporated Area | San Mateo |
| **SFO** | Fire Station | Fire Station No. 3 | Unincorporated Area | San Mateo |
| **SFO** | Fire Station | Old Fire House No. 2 | Unincorporated Area | San Mateo |

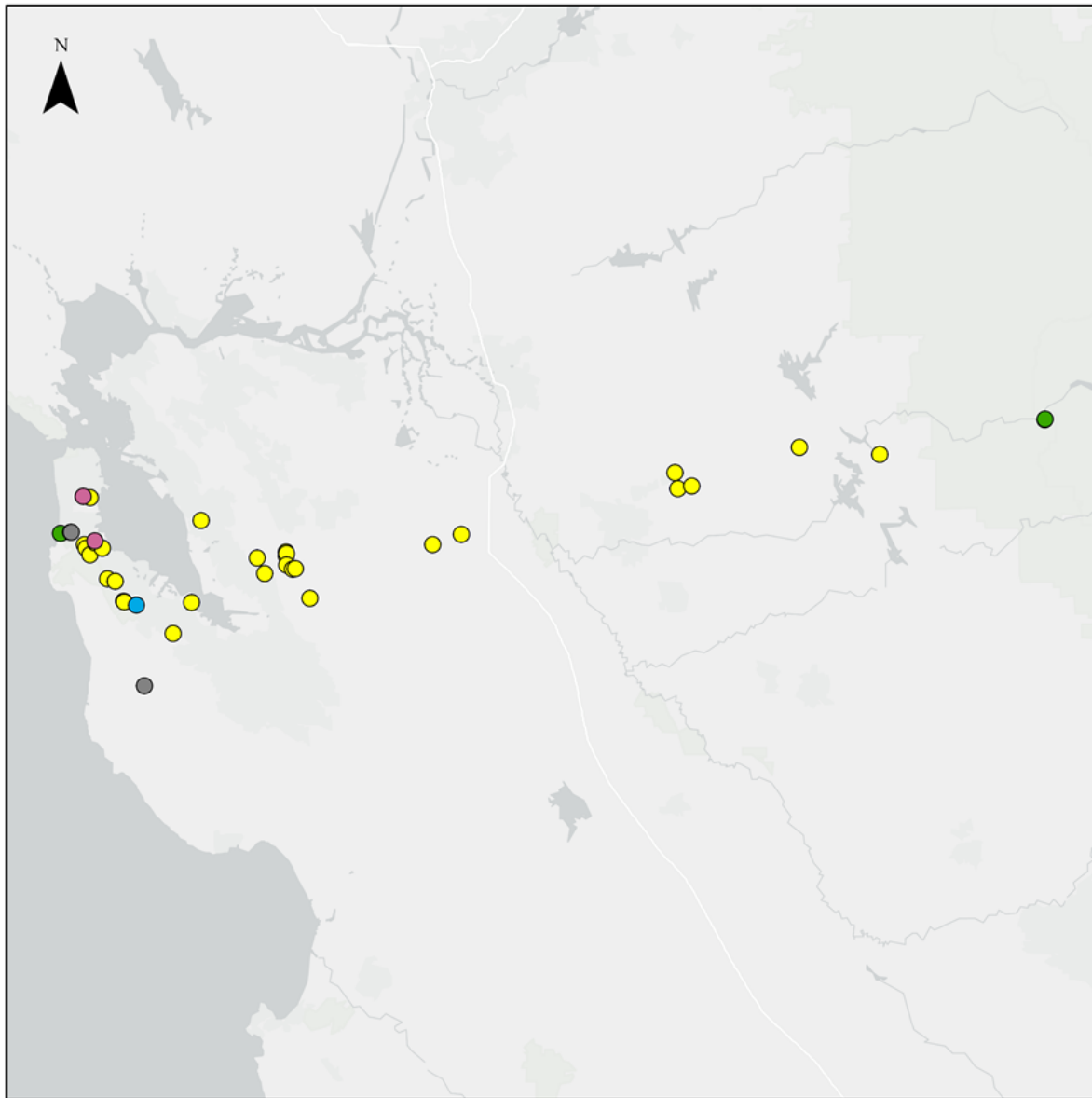| Dept. | Facility Type | Facility Name | City | County |
|-------|---------------|---------------|------|--------|
| SFO | Law Enforcement | Police Main Training Facility | Unincorporated Area | San Mateo |
| SFO | Terminal | East Terminal No. 2 | Unincorporated Area | San Mateo |
| SFO | Terminal | International Terminal | Unincorporated Area | San Mateo |
| SFO | Terminal | New Terminal No. 2 | Unincorporated Area | San Mateo |
| SFO | Terminal | North Terminal No. 3 | Unincorporated Area | San Mateo |
| SFO | Terminal | South Terminal No. 1 | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Maintenance | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station B | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station D | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station F | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station Garage A | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station N. International Terminal | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station S. International Terminal | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain System & Trains | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Central Parking Garage | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Garage G Office Building | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Lot D Exit Shelter/Ticket Booths | Unincorporated Area | San Mateo |

| Dept. | Facility Type | Facility Name | City | County |
|---|---|---|---|---|
| SFO | Transportation Systems & Facilities | Lot D Long Term Parking | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Lot DD Parking Garage | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | N. International Terminal Parking Garage G | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Parking Garage A | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | RAC Mechanical Equip Buildings | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Rental Car Center | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Rental Car Quick Turn-Around | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Road Signs / Street Lighting | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Shuttle Bus Vehicle Maintenance Facility | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station Rental Car Center | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Airtrain Station W. Field Rd | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Former Dollar Rent-A-Car | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | W. Field Parking Garage | Unincorporated Area | San Mateo |
| SFO | Transportation Systems & Facilities | Concourse H Facility | Unincorporated Area | San Mateo |
| SFO | Water Quality Control | Generator Building | Unincorporated Area | San Mateo |
| SFO | Water Quality Control | Headworks | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | 14 Sludge Drying Beds | Unincorporated Area | San Mateo |

| Dept. | Facility Type | Facility Name | City | County |
|---|---|---|---|---|
| SFO | Water Quality Control Operations | 2 Clarification Tanks | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | 2 Concrete Digesters | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Chemical Contact Basin | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Effluent Pump Station | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Equalization Tank | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Generator Building No. 2 | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Recirculating Tanks and Pumps | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Trickling Filter | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Water Quality Control Building | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Operations | Water Quality Control DeLong Building | Unincorporated Area | San Mateo |
| SFO | Water Quality Control Reclaim | Water Quality Control Reclaim | Unincorporated Area | San Mateo |
| SFPUC | Bypass Tunnel | Crystal Springs Bypass Tunnel | Unincorporated Area | San Mateo |
| SFPUC | Chlorine Station | Pulgas Dechlorination Facility | Unincorporated Area | San Mateo |
| SFPUC | Corporation Yard/Vehicle Repair | South Forks Maintenance Yard | Groveland | Tuolomne |
| SFPUC | Corporation Yard/Vehicle Repair | Millbrae Yard | Millbrae | San Mateo |
| SFPUC | Crossover | Pelican Crossover | Patterson | Stanislaus |
| SFPUC | Dam | Alameda Creek Diversion Dam | Unincorporated Area | Alameda |

| Dept. | Facility Type | Facility Name | City | County |
|-------|---------------|---------------|------|--------|
| SFPUC | Dam | O'Shaughnessy Dam | Yosemite National Park | Tuolomne |
| SFPUC | Filter Plant | San Andreas Filter Plant | San Bruno | San Mateo |
| SFPUC | General | Sunol Yard | Sunol | Alameda |
| SFPUC | Labs, Shops, Yards | Millbrae | Millbrae | San Mateo |
| SFPUC | Lime Treatment Plant | Rock River Lime Treatment Plant | Unincorporated Area | Tuolomne |
| SFPUC | Powerhouse | Holm Powerhouse | Groveland | Tuolomne |
| SFPUC | Powerhouse | Kirkwood Powerhouse | Unincorporated Area | Tuolomne |
| SFPUC | Powerhouse | Moccasin Powerhouse | Unincorporated Area | Tuolomne |
| SFPUC | Pump Station | Cherry Lake Pump Station | Groveland | Tuolomne |
| SFPUC | Pump Station | San Antonio Sub Station | Sunol | Alameda |
| SFPUC | Pump Station | Irvington Portal Pump Station | Unincorporated Area | Alameda |
| SFPUC | Pump Station | San Antonio Pump Station | Unincorporated Area | Alameda |
| SFPUC | Pump Station | Sunnydale Pump Station | Brisbane | San Mateo |
| SFPUC | Pump Station | Crystal Springs Pump Station | Unincorporated Area | San Mateo |
| SFPUC | Reservoir | Calaveras Reservoir | Calaveras | Alameda |
| SFPUC | Reservoir | Crystal Springs Reservoir | San Bruno | San Mateo |
| SFPUC | Reservoir | Pulgas Balancing Reservoir | Unincorporated Area | San Mateo |
| SFPUC | Surge Shaft | Alameda East Portal | Sunol | Alameda |
| SFPUC | Switchyard | Warnerville | Oakdale | Stanislaus |

| Dept. | Facility Type | Facility Name | City | County |
|-------|---------------|---------------|------|--------|
| SFPUC | Valve House | Early Intake Valve House | Groveland | Tuolomne |
| SFPUC | Valve House | Roselle Crossover | Modesto | Stanislaus |
| SFPUC | Valve House | San Joaquin Valve House | Modesto | Stanislaus |
| SFPUC | Valve House | Cashman Creek | Oakdale | Stanislaus |
| SFPUC | Valve House | Tesla Valve House | Tracy | San Joaquin |
| SFPUC | Valve House | Oakdale Portal / Valve House | Unincorporated Area | Tuolomne |
| SFPUC | Valve House | Albers Road Crossover | Oakdale | Stanislaus |
| SFPUC | Valve Lot | San Pedro Valve Lot | Daly City | San Mateo |
| SFPUC | Valve Lot | Baden Valve Lot | South San Francisco | San Mateo |
| SFPUC | Warehouse | Oakdale Office / Warehouse | Oakdale | Stanislaus |
| SFPUC | Water Delivery Facility | Thomas Shaft Water Delivery | Unincorporated Area | Alameda |
| SFPUC | Water Temple | Pulgas Water Temple | Unincorporated Area | San Mateo |
| SFPUC | Water Treatment Plant | Ravenswood Valve House | East Palo Alto | San Mateo |
| SFPUC | Water Treatment Plant | Harry Tracy Water Treatment Plant | San Bruno | San Mateo |
| SFPUC | Water Treatment Plant | Sunol Valley Water Treatment Plant | Sunol | Alameda |
| SFPUC | Water Treatment Plant | Tesla Water Treatment Facility / Portal | Vernalis | San Joaquin |
| SFSD | Jail / Correctional | San Francisco County Jail, San Bruno Facility | San Bruno | San Mateo |

## Assets Outside San Francisco County

- ⚫ Jail/Correctional
- 🔵 Public Health
- 🟡 Public Utilities Commission
- 🟢 Recreation and Parks
- 🟣 Technology

Source: City of San Francisco
Facility System of Record 2018

**FIGURE B-3:**
**SAN MATEO COUNTY SAN ANDREAS M7.8 SHAKING INTENSITY AREAS**



San Mateo County
Shaking Intensity Areas

- 🟩 Light
- 🟨 Moderate
- 🟧 Strong
- 🟥 Very Strong
- 🟫 Violent
- ☐ County Lines
- — San Andreas Fault

Out of County Appendix
San Andreas 7.8
Earthquake Scenario

ONESF
Building Our Future
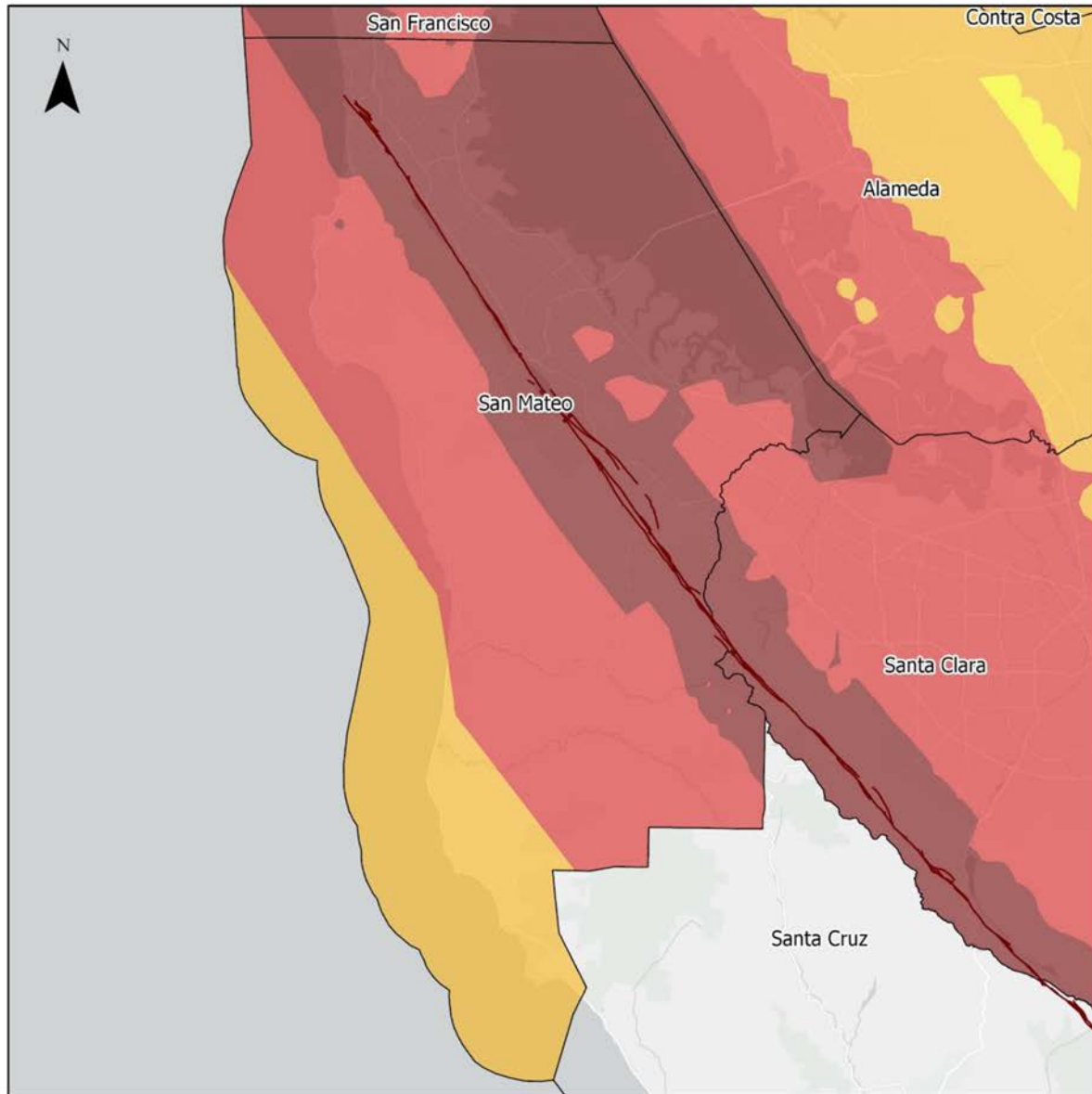
San Mateo County
Shaking Intensity Areas

Light          Violent

Moderate       County Lines

Strong         Hayward Fault

Very Strong

Out of County Appendix
Hayward 7.0
Earthquake Scenario

Hazard Data sources
USGS 2013

This map shows the fire hazard severity zones within the CCSF Local Responsibility Zones (LRA) as determined by the California Department of Forestry and Fire protection (CAL FIRE)

San Mateo County
Wildfire Hazard Zones

Very High
High
Moderate
County Lines

Out of County Appendix
Wild Fire Hazard Zones

# FIGURE B-6:
## ALAMEDA COUNTY SAN ANDREAS M7.8 SHAKING INTENSITY AREAS



Alameda County
Shaking Intensity Areas

Light
Moderate
Strong
Very Strong

Violent
County Lines
San Andreas Fault

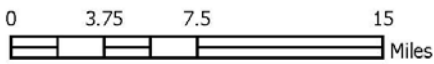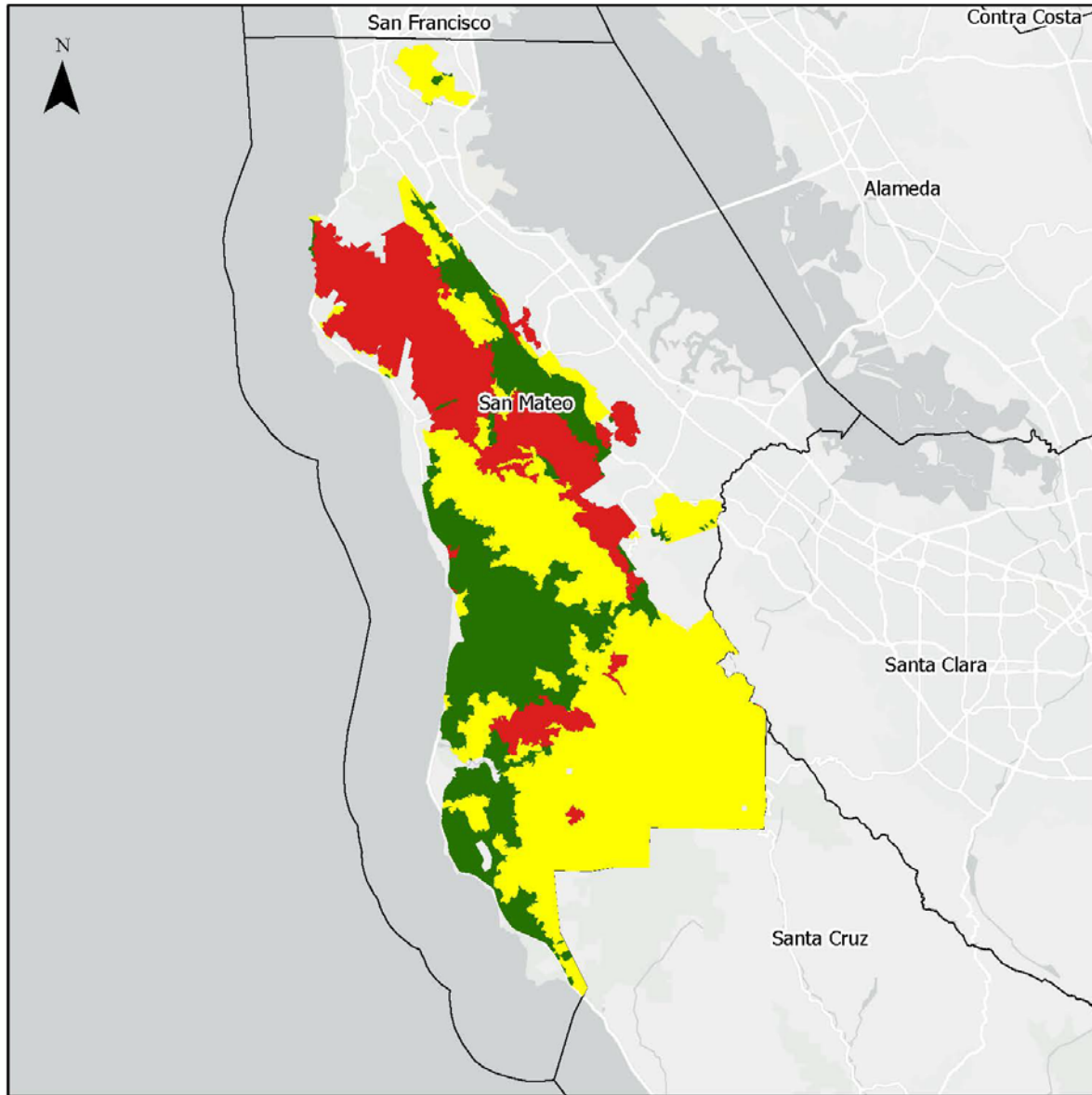Out of County Appendix
San Andreas 7.8
Earthquake Scenario
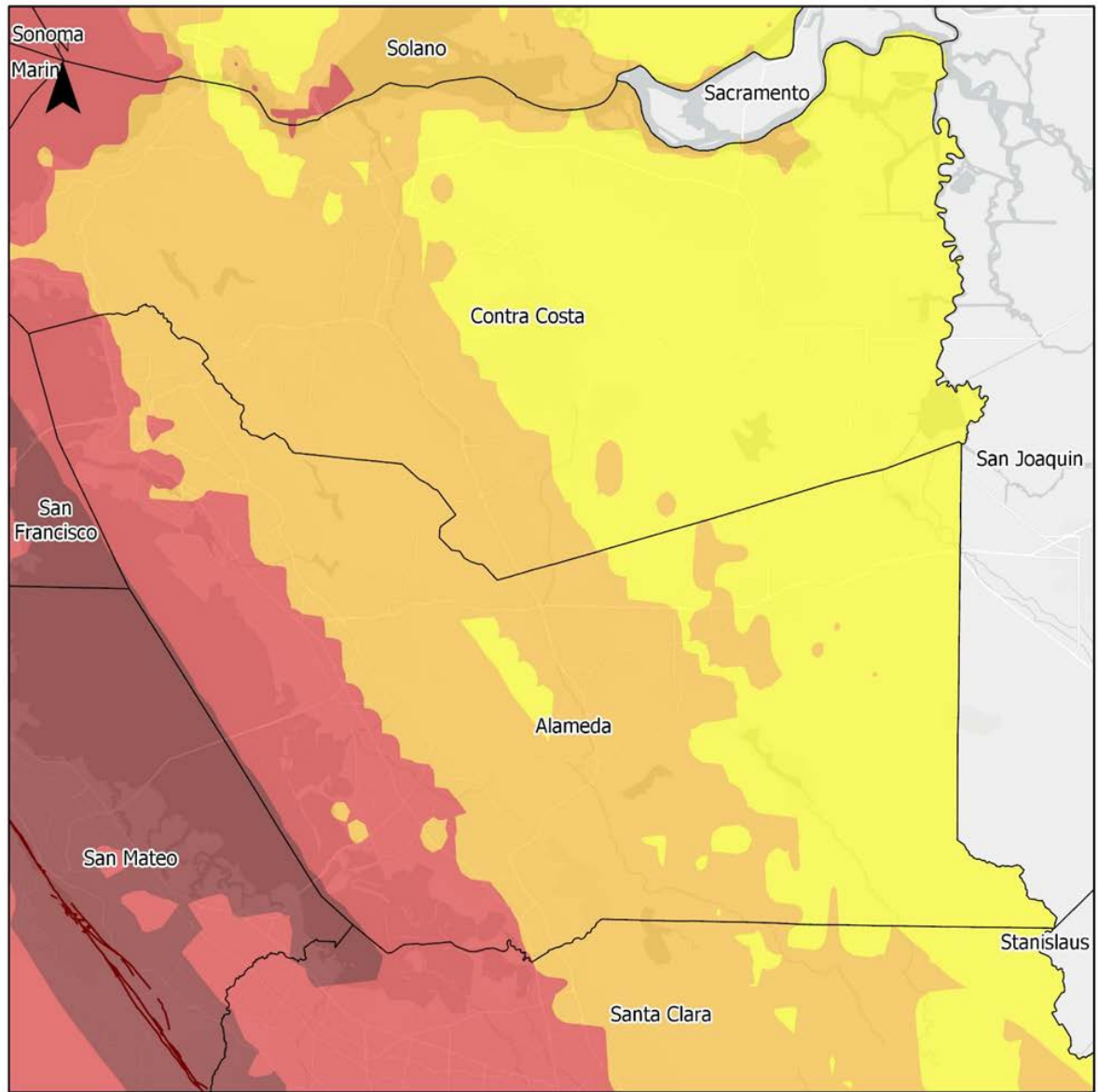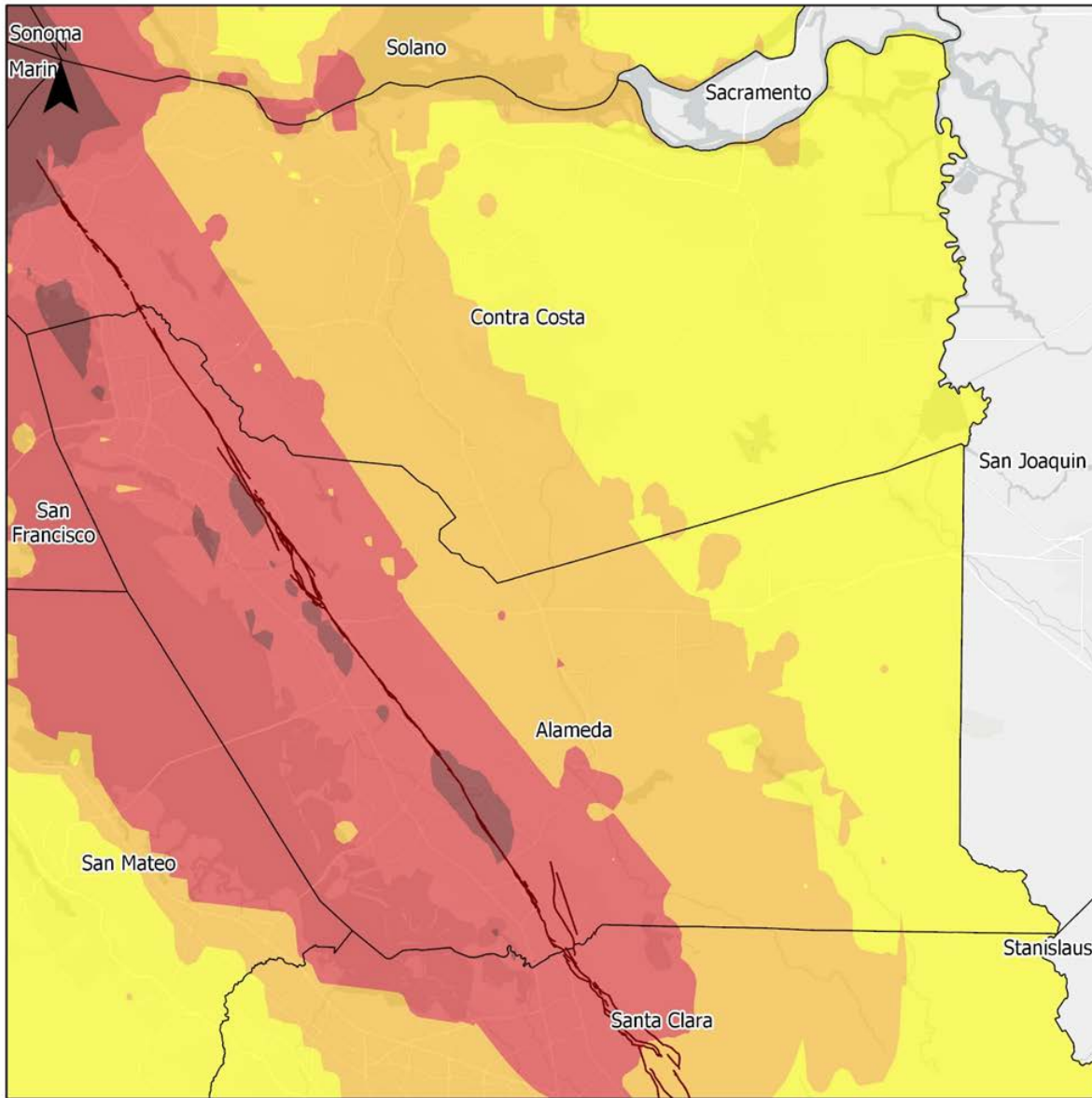
Hazard data sources
USGS 2013

Alameda County
Shaking Intensity Areas

- Light
- Moderate
- Strong
- Very Strong
- Violent
- County Lines
- — Hayward Fault

Hazard data sources
USGS 2013

Out of County Appendix
Hayward 8.0
Earthquake Scenario

ONESF
Building Our Future

This map shows the fire hazard severity zones within the CCSF Local Responsibility Zones (LRA) as determined by the California Department of Forestry and Fire protection (CAL FIRE)

Out of County Appendix
Wildfire Hazard Areas

Alameda County
Wildfire Hazard Zones

- Very High
- High
- Moderate
- County Lines

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**Alameda County**
**Soil Liquefaction Areas**

- ▮ Very High
- ▮ High
- ▯ County Lines

**Out of County Appendix**
**Soil Liquefaction**
**Hazard Areas**

**FIGURE B-10:**
**TUOLUMNE COUNTY WILDFIRE HAZARD ZONES**
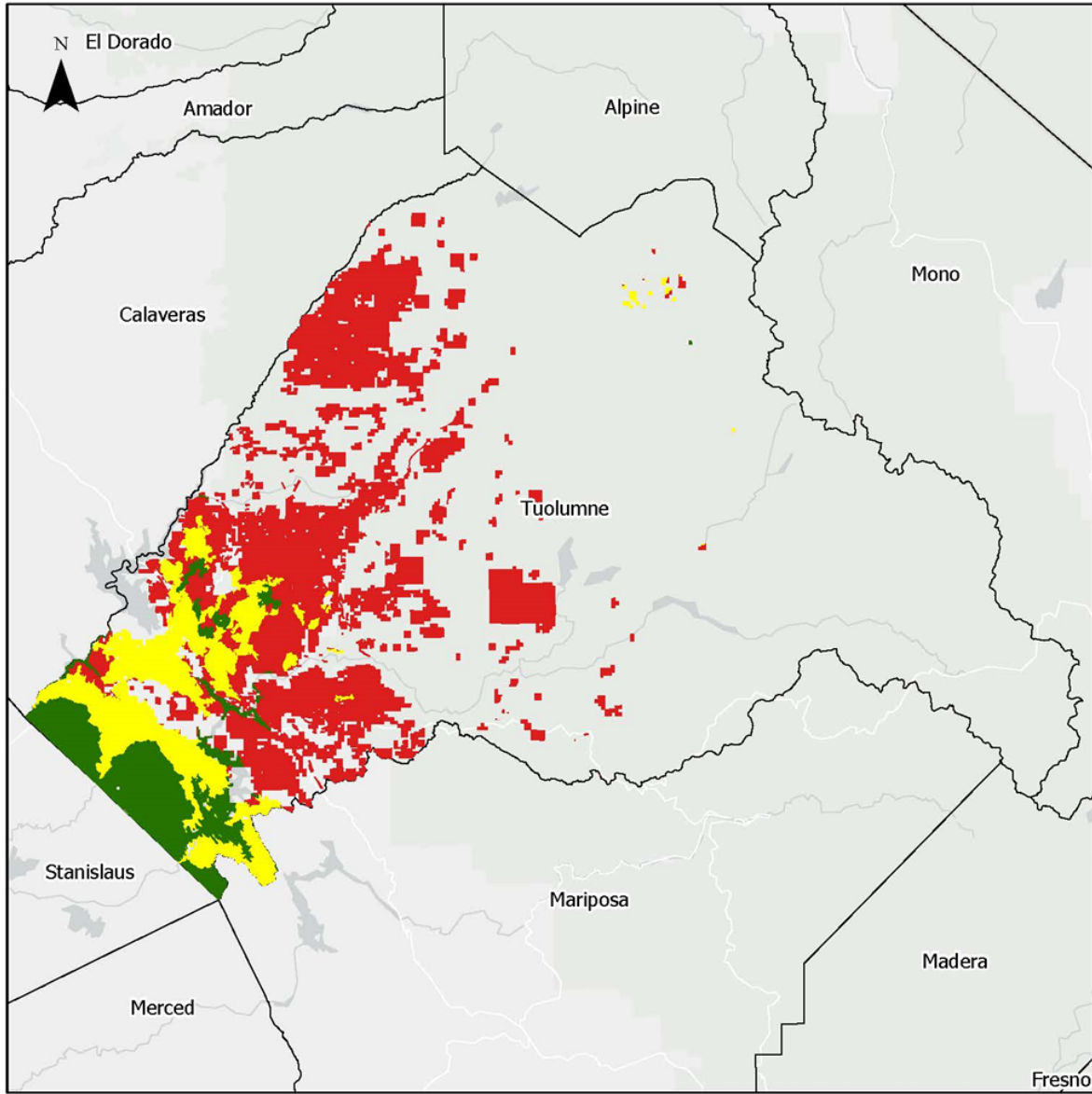
Tuolumne County
Wildfire Hazard Zones

- 🟥 Very High
- 🟨 High
- 🟩 Moderate
- ⬜ County Lines

This map shows the fire hazard severity zones within the CCSF Local Responsibility Zones (LRA) as determined by the California Department of Forestry and Fire protection (CAL FIRE)

Out of County Appendix
Wildfire Hazard Areas

**ONESF**
Building Our Future

# Appendix C

Materials from
Stakeholder Engagement

# Planning Team

## Roster

**TABLE 2-2:**
**PLANNING TEAM ROSTER**

| Name | Department/Organization |
| --- | --- |
| McLean, Mark | Controller's Office (CON) |
| Tune, Alec | Controller's Office (CON) |
| Tom, Ronald | Department of Building Inspection (DBI) |
| Chin, Tom | Department of Emergency Management (DEM) |
| Schaffer, Edie | Department of Emergency Management (DEM) |
| Zamora, Francis | Department of Emergency Management (DEM) |
| Cushing, Stephanie | Department of Public Health (DPH) |
| Dowling, Teri | Department of Public Health (DPH) |
| Gara, Max | Department of Public Health (DPH) |
| Wolff, Matt | Department of Public Health (DPH) |
| Chono, Cynthia | Department of Public Works (DPW) |
| Laue, Julia | Department of Public Works (DPW) |
| Weiner, Jerad | Department of Public Works (DPW) |
| Johnson, Jeff | Department of Technology (DT) |
| Mackstron, Michael | Department of Technology (DT) |
| Goodfriend, Wendy | Department of the Environment (SFE) |

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| Name | Department/Organization |
|---|---|
| **Felter, Elizabeth** | Department of the Environment (SFE) |
| **Cochrane, Michael** | Fire Department (SFFD) |
| **Arteseros, Erica** | Fire Department (SFFD) |
| **Hansen, Matt** | General Services Agency, Risk Management Div. (GSA) |
| **Lee, Jonah** | Mayor's Office of Housing and Community Development (MOHCD) |
| **Adams, Dan** | Mayor's Office of Housing and Community Development (MOHCD) |
| **Bohn, Nicole** | Mayor's Office on Disability (MYR) |
| **Fraguli, Joanna** | Mayor's Office on Disability (MYR) |
| **Doherty, Tim** | Municipal Transportation Agency (MTA) |
| **Lam, Scarlett** | Municipal Transportation Agency (MTA) |
| **Stefiuk, Emily** | Municipal Transportation Agency (MTA) |
| **Homsey, Daniel** | Office of the City Administrator (ADM) |
| **Majeski, Nick** | Office of the City Administrator (ADM) |
| **Levenson, Leo** | Office of Community Investment and Infrastructure (OCII) |
| **Haddix, Lindsey** | Office of Homeless of Supportive Housing (HAS) |
| **Green, Heather** | Office of Resilience and Capital Planning (ORCP) |
| **Higbee, Melissa** | Office of Resilience and Capital Planning (ORCP) |
| **Morrison, Alex** | Office of Resilience and Capital Planning (ORCP) |

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| Name | Department/Organization |
| --- | --- |
| Strong, Brian | Office of Resilience and Capital Planning (ORCP) |
| Jim Buker | Office of Resilience and Capital Planning (ORCP) |
| Tave, Anthony | Police Department (SFPD) |
| Lowe, Lindy | Port of San Francisco (Port) |
| Oshima, Diane | Port of San Francisco (Port) |
| Behar, David | Public Utilities Commission (SFPUC) |
| Chokshi, Mira | Public Utilities Commission (SFPUC) |
| Roche, Anna | Public Utilities Commission(SFPUC) |
| Tanikawa, Sachiko | Real Estate (RED) |
| Anderson, Eric | Recreation and Parks Department (REC) |
| Stokle, Brian | Recreation and Parks Department (REC) |
| Birrer, Joe | San Francisco International AirPort (SFO) |
| Cooke, Erin | San Francisco International AirPort (SFO) |
| Mares, Larry | San Francisco International AirPort (SFO) |
| Fisher, Lisa | SF Department of City Planning (Planning) |
| Varat, Adam | SF Department of City Planning (Planning) |
| Cabebe, Alejandro | Sherriff's Department (SHF) |
| Summerville, Peter | Treasure Island Development Agency (TIDA) |

# CITY AND COUNTY OF SAN FRANCISCO

# Community Engagement Report

## SAN FRANCISCO HAZARDS & CLIMATE RESILIENCE PLAN

*October 2019*

# Acknowledgements

The City greatly appreciates the valuable perspectives and feedback shared by all participants, who represented the following businesses, agencies, organizations, and programs.

| | | | |
|---|---|---|---|
| **Businesses + Commercial Properties** (18 participants) | • Able Services<br>• ACCO Engineered Systems<br>• Arup<br>• Business Council on Climate Change<br>• East Cut CBD Fisherman's Wharf CBD | • Mercy Housing<br>• Mid Market CBD<br>• Ocean Avenue Association<br>• Office of Small Business / Small Business Commission<br>• Pacific Gas & Electric (PGE)<br>• Presidio Work Spaces | • Public Utilities Commission<br>• Recology<br>• Shorenstein Real Estate<br>• terrafuse.ai<br>• Whole Foods<br>• Yerba Buena Community Benefit District |
| **Housing and Residential Property Managers/Owners** (12 participants) | • Alton Management Corporation<br>• CA Housing Partnership - SF<br>• Enterprise Community Partners<br>• FPI Management, Inc./EPMI Management Group | • McCormack Baron Salazar<br>• Mercy Housing<br>• Mission Plaza Apartments<br>• Pacific Union Development Company (PUDCo)<br>• RMS | • San Francisco Housing Authority<br>• Tenderloin Neighborhood Development Corporation (TNDC) |
| **People with Disabilities/ Access or Functional Needs and Older Adults** (25 participants) | • American Red Cross SF Disaster Cycle Services<br>• The ARC of San Francisco<br>• Department of Aging & Adult Services<br>• Department of Emergency Management<br>• Department of Family & Children's Services<br>• Department of Public Health – Community Behavioral Health Services | • Golden Gate Village<br>• Homebridge, Inc<br>• Hospice by the Bay<br>• Human Services Agency - Administration<br>• Independent Living Resource Center of San Francisco<br>• IntelliRide (Paratransit Service)<br>• Interfaith Council of San Francisco<br>• Mayor's Office on Disability | • Meals on Wheels<br>• Neighborhood Empowerment Network<br>• On Lok<br>• Richmond Senior Center<br>• San Francisco In Home Support Services (SFIHSS) Public Authority |
| **Racial, Social, and Environmental Justice** (12 participants) | • Enterprise Community Partners<br>• Gao Designs<br>• GreenAction for Health and Environmental Justice<br>• Hassell Studio | • Interfaith Power & Light<br>• Office of Civic Engagement and Immigrant Affairs<br>• Neighborhood Empowerment Network<br>• Planning Department | • RDJ Enterprises<br>• Resilient Bayview<br>• Walter & Elise Haas Fund |
| **Children, Youth, and Families** (13 participants) | • Community Youth Center<br>• CARECEN SF / Central American Resource Center<br>• Department of Children, Youth, & Families<br>• Enterprise for Youth | • Homeless Prenatal Program<br>• Hunters Point Family<br>• MEDA / Mission Economic Development Agency<br>• Oasis for Girls<br>• SF Achievers | • SF LGBT Center<br>• Third Street Youth Center & Clinic<br>• YMCA |

The following City and County of San Francisco staff (all participants in the HCR Plan Community Engagement Committee) helped organize and facilitate the stakeholder workshops:

Office of Resilience & Capital Planning
- Heather Green
- Jim Buker
- Melissa Higbee
- Alex Morrison

Planning Department
- Lisa Fisher
- Julia Branco

Department of Emergency Management
- Kristin Hogan

Department of Environment
- Elizabeth Felter

Department of Public Health
- Teri Dowling
- Sheilah Zarate

# Community Engagement Report

## SAN FRANCISCO HAZARDS & CLIMATE RESILIENCE PLAN: 2019 UPDATE

# Contents

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# Introduction

## Project Background

The City and County of San Francisco is developing a Hazards and Climate Resilience (HCR) Plan to ensure that the City and County is prepared for inevitable natural hazards. While the Federal Emergency Management Agency (FEMA) requires that the City identify and implement strategies to mitigate potential hazards, the City recognizes the impacts of climate change as a hazard and has therefore incorporated climate resilience into the hazard mitigation plan. The strategies within this plan seek to increase the resilience of all the parts of the City that keep it running - buildings, infrastructure, utilities, transportation, communication systems, and of course the people who live and work in San Francisco. The HCR Plan will also underpin the City's next Climate Action Strategy and Community Safety Element update. Numerous departments are collaborating to create this plan so that it is comprehensive and holistic. To ensure strategies are based in evidence, the project team has conducted an assessment of the unique hazards that impact San Francisco.

### Collaborative Planning Process

The City and County of San Francisco Office of Resilience and Capital Planning is leading this effort in partnership with the Department of Emergency Management, Department of Public Health, Department of the Environment, and Planning. Many other agencies (including SFO, Public Works, SFMTA, the zoo, SFPUC, Police and Fire, Recreation & Parks, Real Estate) have also contributed to the planning process.

### Hazards that Impact San Francisco

California communities have historically been seriously impacted by seismic hazards, such as earthquakes and landslides and, more recently, by climate hazards that will become more severe in coming decades. More recently, regional droughts and wildfires have resulted in poor air quality and extreme heat emergencies that illustrate the types of impacts this Plan and the San Francisco community must address.[1]

While natural hazards impact everyone, they have a greater impact on disadvantaged communities and vulnerable community members. Community feedback is critical to help ensure the HCR Plan prioritizes mitigation and recovery actions with multiple benefits (including increasing racial and social equity and environmental justice) and includes creative and community-supported solutions.

The primary natural hazards that impact San Francisco are:

**Geological**
- Earthquake
- Landslide
- Tsunami
- Dam or Reservoir Failure

**Weather-related**
- Flooding
- Extreme Heat
- Drought

**Combustion-related**
- Wildfire
- Urban Fire/ Conflagration
- Poor Air Quality

**Biological and Toxic**
- Disease Outbreaks
- Hazardous Materials

**Did you know?**

New models estimate that in a magnitude 7.8 San Andreas earthquake, 18,300 residential buildings could be damaged in San Francisco, temporarily or permanently

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[1] Resilience Program, Association of Bay Area Governments. (2017) "Expected Housing Losses in an Earthquake." <http://resilience.abag.ca.gov/projects/housinglosses/>

## Key Planning Issues

When the stakeholder workshops were conducted and the community survey was developed, the presentation of the HCR Plan strategies was organized around the key planning issues of: The Waterfront & Adjacent Neighborhoods, New Development, Existing Buildings, Housing, Public Awareness/Communications, Transportation, and Utilities. As a result, these planning issues are referred to throughout this report. However, the team found there are overlaps among several planning issues and therefore some strategies are associated with more than one planning issue. Incorporating input from stakeholders and residents (including the input summarized in this report), the presentation of the HCR Plan strategies was revised to improve clarity of the presentation.

The strategies in the HCR Plan are now associated with three "Domains":

- **Resilient Infrastructure**
  (e.g.., water, utilities, transportation, parks),
- **Resilient Buildings**
  (e.g., housing, commercial properties), and
- **Resilient Communities**
  (e.g., community preparedness).

Within each "Domain", the strategies are assigned to one of five "Primary Hazard Groups":

- Geological,
- Weather-Related,
- Combustion-Related,
- Biological & Toxic, or
- All Hazards.

Some strategies are associated with multiple key planning issues and are noted as such in the HCR Plan.

## Community Engagement Goals

As part of the HCR Plan development, the City and County of San Francisco contracted with Raimi + Associates to lead a community engagement process that included 1) stakeholder engagement workshops and 2) a community survey. Both the workshops and survey were designed to:

- **Help the City understand people's experience with hazard events** to inform how to improve the response to future hazards;
- **Gather community feedback on draft plan strategies** to incorporate into the Hazards and Climate Resilience Plan; and
- **Educate stakeholder groups** about
  - Prioritized hazard issues and impacts for San Francisco,
  - Existing and planned work to increase resilience within San Francisco, and
  - Purpose and contents of the HCR Plan.

☑ FEMA: Local Hazard Mitigation Plan

☑ SB 379: Climate Vulnerability Assessment & Adaptation Planning

☑ C40 Deadline 2020: Climate Hazard Assessment & Adaptation Actions

**The community engagement process was designed to maximize the ways in which information gathered from community members can be used with the overall goal of improving City preparedness.** Therefore, community members were invited to share feedback on hazard mitigation strategies, as well as on emergency preparedness and response. San Francisco's HCR Plan will help the City meet multiple requirements, including the U.S. Federal Emergency Management Agency (FEMA) requirement that local hazard mitigation plans be updated every five years. Once the HCR Plan has been finalized, the City will update the Safety Element of the General Plan accordingly, which will fulfill the State's SB 379 requirements to incorporate climate vulnerability and resilience into General Plans. The HCR Plan will also help the City meet the goals of the 2016 Paris Agreement as part of a global commitment via the C40 (along with almost 100 other cities).

# Community Engagement Highlights

**Solutions Need to be Diversified, Multi-Pronged, and Coordinated.** The most common theme from community engagement was that **there is no "one-size-fits all" solution** to addressing any of the hazards that may impact San Francisco. Workshop participants emphasized the importance of using different strategies to effectively engage with, communicate information to, and provide resources to the City's diverse communities. Workshop and survey participants also recognized the complexity and interdependence of the City's buildings, infrastructure, and economy, as well as how all of those impact residents.

**Most Concerning Hazards.** The vast majority of survey and workshop participants reported being the most concerned about **earthquakes** and **poor/unhealthy air quality**. Additionally, one of five survey respondents identified the following as one of the three hazards they are most concerned about: **disease outbreaks**, **urban fires**, **drought**, **extreme heat**, and **flooding**. Some workshop participants discussed concerns about **hazardous materials** and **tsunamis**.

> Anything that paralyzes the city is of concern to me.
>
> Survey Respondent

**Support for Improving Resilience of Key City Assets.** Nearly all survey and workshop participants agreed that it is important for the City & County of San Francisco to improve the resilience of **infrastructure** (e.g., utilities and transportation), **buildings** (including housing, existing buildings, and new development), and **communities** (e.g., community connections, neighborhood preparedness).

> Only **half** of survey respondents said they **know their neighbors well enough to help each other in an emergency.**

**Importance of Community Cohesion.** Workshop participants emphasized the importance of strengthening **relationships and interactions within individual neighborhoods**, at the **block-by-block** level, **within large multi-unit buildings**, and **through face-to-face social networks**. Only half of survey participants said they know their neighbors well enough to help each other in an emergency. Increasing relationships and connections between neighbors and community members helps ensure that vulnerable residents stay safe during and following a hazard event, as traditional communication and outreach strategies will not reach everyone. This may require expanding support for community-serving organizations that address neighborhood resilience).

**Information about Hazards and Emergency Preparedness.** Most survey participants get information about hazard events from **AlertSF** and/or **social media**, while some rely on **television**, radio, and **personal contacts** (i.e., friend, family member, neighbor). Workshop participants also identified specific methods and types of media that will be especially effective at reaching specific populations. Workshop participants were excited about the maps that will be shared with the Hazards & Climate Resilience Plan and how they and other community members will be able to use them to prepare for the specific types of hazards which they are likely to experience.

**Level of Preparedness.** Most survey respondents believe that they and the people they live with are prepared for extreme heat days, earthquakes, and poor/unhealthy air quality days, while fewer are prepared for flooding. At the same time, **more survey respondents felt that their housing in San Francisco would be a safe place to stay during flooding and extreme heat** while **fewer felt it would be safe place during a poor/unhealthy air quality day or earthquake.** Workshop participants **requested more concise**

Photo credits. *Left:* Alamy, photograph following 1989 Loma Prieta earthquake via Huffington Post <https://www.huffpost.com/entry/san-francisco-earthquake-safety_n_2475044>. *Center*: Jeff Elder via Instagram, 2012 <https://www.instagram.com/p/SvaH2MDCLP/>. *Right*: Pavel Fedorov via SFGate.com, 2018. <https://www.sfgate.com/california-wildfires/article/camp-fire-smoke-air-quality-bay-area-mask-n95-pics-13406212.php#photo-16530117>.

**information about how the organizations, businesses, and facilities in which they work should prepare for emergencies** with specific recommendations based on location in the city and the people served (e.g., how much water an afterschool program should store on-site relative to the number of children served, what supplies are most important for managers of single-resident occupancy/SRO hotels to have available).

**Experience with the Impacts of Hazards in San Francisco.** More than half of survey participants shared how they, their homes, their workplaces, and their neighborhoods had been impacted by **poor/unhealthy air quality**, **extreme heat**, and **earthquakes**. Many respondents also reported how wind, storm flooding, hazardous materials, and urban fires have impacted them and their communities.

**Making Emergency Response More Efficient, Effective, and Equitable.** Workshop participants made the following recommendations to improve response to future hazards:

- **Designate trusted facilities in all neighborhoods** where residents can go to be safe during or following a hazard and to get information and other resources—and **publicize that information** at the hyper-local level.
- **Increase coordination between City agencies and departments** around responding to hazards and in proactively sharing information (including client data) about vulnerable populations.
- **Leverage** the resources, connections, and skills of **local businesses**, local **technology companies**, **community-based organizations**, and **regional partners** to support a more efficient, effective, and equitable response to emergencies.

**Feedback on Draft HCR Plan Strategies.**

- Revise language to **include all critical facilities** involved in a given strategy.
- Address where lower-income residents may be able to live following a major hazard event given that recovery can take years and add more strategies to **address the vulnerabilities both of low-income renters and homeowners.**
- Consider expanding **"extreme heat events" to be "extreme temperatures"** since cold weather is a safety issue for residents who are homeless.

> [I am] extremely concerned about an earthquake and the potentially devastating impact it would have on the housing stock.
>
> Survey Respondent

# Community Survey

## Methodology

The Hazards & Climate Resilience Plan survey was available online in English, Spanish, Chinese, Filipino, Russian, and Korean, as well as via print-ready PDFs for community organizations to share with community members more likely to respond to a paper survey. The survey consisted of 20 questions focused on hazards and 7 demographic question and took participants 5-10 minutes to complete.

Community members were invited to participate in the online and paper survey between July 9, 2019 and September 18, 2019. The survey was advertised through emails, announcements at the stakeholder workshops, and via City social media accounts. All individuals who attended any of the stakeholder workshops and/or were invited to participate were sent the survey information to share with their colleagues, community members, and populations served by each of their agencies/organizations. City agencies and individual employees also encouraged their networks to participate in the survey. The survey was also disseminated through a number a resilience-related networks, including the Neighborhood Empowerment Network, Sustainable Chinatown, and SF Public Library's Green Stacks.

The survey had a total of **597 responses**: 533 completed and 64 partially completed surveys.

**While the survey findings provide important information about the experiences, perceptions, and preferences of community members**, the survey did not use a statistically random sample and **participants are not representative of all San Franciscans.** Because of how the survey was distributed, respondents were **more likely to be connected to City departments** or services and therefore **have a higher level of knowledge about and trust in local government** than the average community member. They may also have had a **greater familiarity with hazards and/or climate resilience** than the general public.

## Respondent Profile

### Race/Ethnicity

Survey respondents were **predominantly white or European American** (63%), with the **next most common race/ethnicities being Asian** (17%), **Hispanic or Latina/o/x** (9%), and **Black, African American, or Black African** (5%). Additionally, 9% of respondents indicated that they preferred not to identify their race/ethnicity.

**Race and Ethnicity**
($n = 529$)

| Race/Ethnicity | Percentage |
|---|---|
| White or European American | 63% |
| Asian | 17% |
| Hispanic or Latina/o/x | 9% |
| Prefer not to answer | 9% |
| Black, African American, or Black African | 5% |
| Other | 4% |
| Middle Eastern | 2% |
| American Indian, Alaska Native or First Nations | 1% |
| Native Hawaiian or Pacific Islander | 1% |
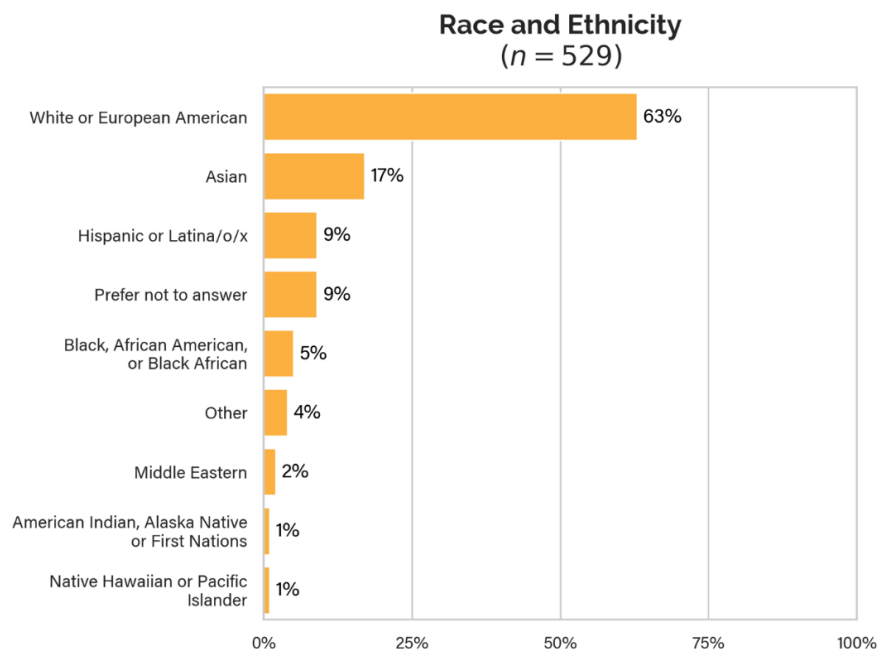
## Household Income

The **vast majority of respondents reported an annual household income of $50,000 or higher** (68%), with 10% making less than $50,000 and 22% indicating they preferred not to report their annual household income.
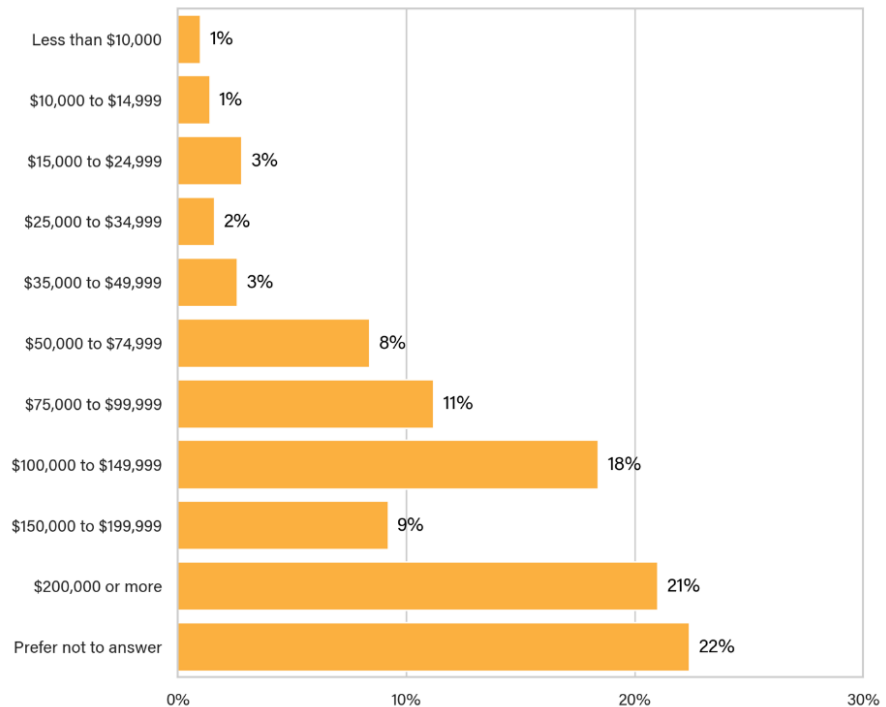
## Age

Nearly two out of five respondents were 30-49 years old (38%), while another two out of five were 50 or older (42%).

## Housing Status/ Tenure

**Just over half of respondents (55%) identified as owning the home in which they live**, while 45% reported renting their home and less than 1% reported not currently having stable/permanent housing.

**Annual Household Income**
*(n = 500)*

| | |
|---|---|
| Less than $10,000 | 1% |
| $10,000 to $14,999 | 1% |
| $15,000 to $24,999 | 3% |
| $25,000 to $34,999 | 2% |
| $35,000 to $49,999 | 3% |
| $50,000 to $74,999 | 8% |
| $75,000 to $99,999 | 11% |
| $100,000 to $149,999 | 18% |
| $150,000 to $199,999 | 9% |
| $200,000 or more | 21% |
| Prefer not to answer | 22% |

## Disability

Of the **one in five** respondents with a **long-term physical condition that limits their activities**, the most commonly identified types of difficulties were as follows:

- Ambulatory: Having a serious difficulty walking or climbing stairs (37%);
- Hearing: Deaf or having serious difficulty hearing (22%);
- Cognitive: Because of a physical, mental, or emotional problem, having difficulty remember, concentrating, or making decisions (14%);
- Vision: Blind or having serious difficulty seeing, even when wearing glasses (13%);
- Self-care: Having difficulty bathing or dressing (8%); and
- Independent living: Because of a physical, mental, or emotional problem, having difficulty doing errands alone such as visiting a doctor's office or shopping (6%).

**Age**
*(n = 511)*

30-49 (born in 1970-1989) 38%
50-64 (born in 1955-1969) 27%
65 or older (born in 1954 or earlier) 15%
I prefer not to answer 8%
Under 30 (born in or after/more recently than 1990) 12%
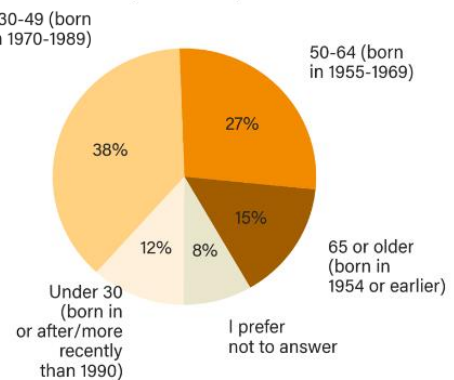
Because only respondents who reported having a long-term physical condition that limits their activities were asked what kinds of difficulties they had, the percentages reflect only those respondents who answered this question (n=86, 16% of all respondents).

## Where Respondents Live

**Respondents reported living throughout San Francisco and represented a wide range of neighborhoods.** The largest percentages of respondents reported living in the Mission (9%), Sunset/Parkside (8%), Bernal Heights (6%), another neighborhood not listed (5%), Glen Park (5%), West of Twin Peaks (4%), Excelsior (4%), Castro/Upper Market (4%), Outer Richmond (4%), South of Market (4%), and Noe Valley (4%).

**Neighborhood of Residence**
*(n = 430)*

| Neighborhood | Percentage |
|---|---|
| Mission | 9% |
| Sunset/Parkside | 8% |
| Bernal Heights | 6% |
| Other (Please specify) | 5% |
| Glen Park | 5% |
| West of Twin Peaks | 4% |
| Excelsior | 4% |
| Castro/Upper Market | 4% |
| Outer Richmond | 4% |
| South of Market | 4% |
| Noe Valley | 4% |
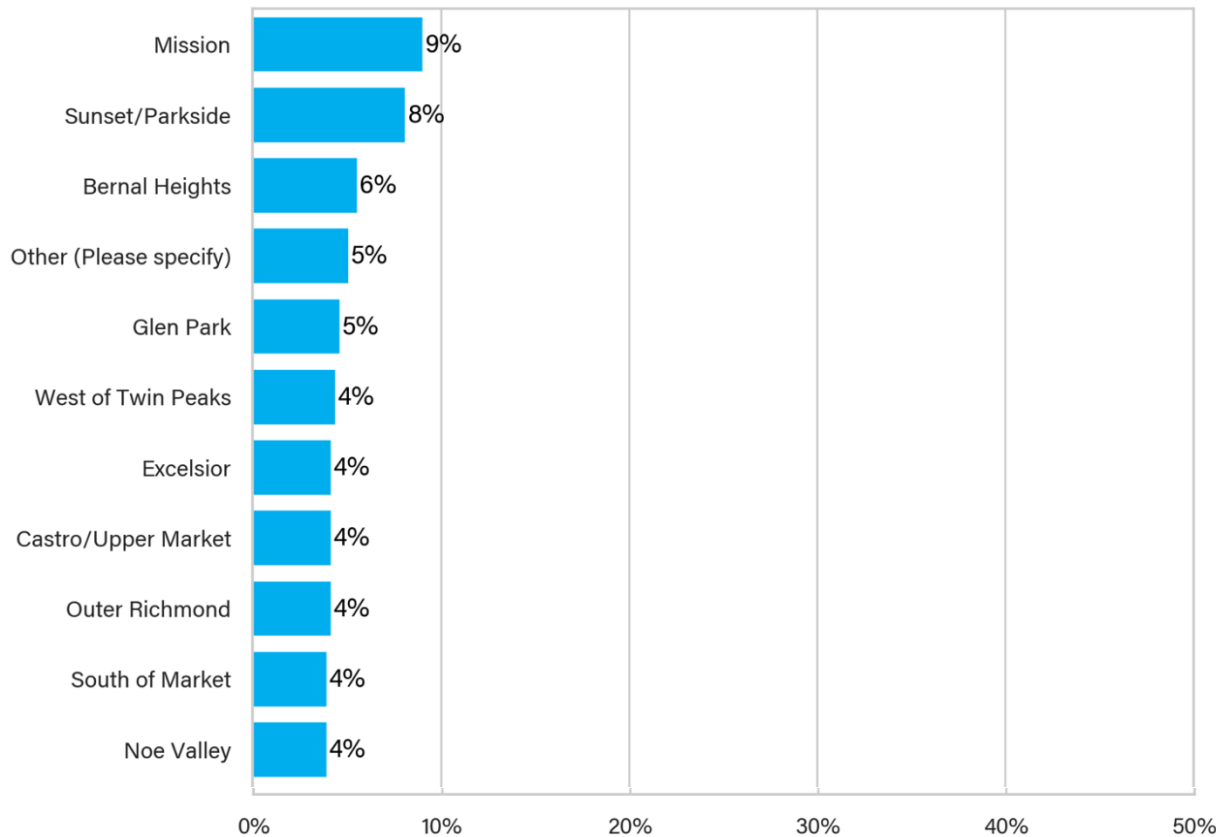
Fewer than 4% of respondents reported working in the following neighborhoods:

- 3%: Hayes Valley, Inner Richmond, Inner Sunset, Nob Hill, Potrero Hill, and Western Addition.
- 2%: Bayview Hunters Point, Haight Ashbury, Lone Mountain/USF, Marina, North Beach, Oceanview/Merced/Ingleside, and the Tenderloin.
- 1%: Financial District/South Beach, Mission Bay, Outer Mission, Pacific Heights, Portola, Russian Hill, Treasure Island, Twin Peaks, and Visitacion Valley.
- Less than 1%: Japantown, Lakeshore, and Presidio Heights.

No respondents reported living in Chinatown, Golden Gate Park, Lincoln Park, the Presidio, or Seacliff.

## Where Respondents Work

Respondents were **also diverse in the neighborhoods in which they work**, representing a wide range of neighborhoods. The largest percentages of respondents reported living in the Financial District/South Beach (17%), the Mission (15%), South of Market (15%), another neighborhood not listed (11%), the Tenderloin (10%), Hayes Valley (7%), Sunset/Parkside (4%), Western Addition (4%), and Bayview Hunters Point (4%). Additionally, 16% reported that they did not work in San Francisco.

### Neighborhood of Employment
### ($n = 530$)

| Neighborhood | Percentage |
|---|---|
| Financial District/South Beach | 17% |
| Not applicable - I do not work in San Francisco | 16% |
| Mission | 15% |
| South of Market | 14% |
| Other | 11% |
| Tenderloin | 10% |
| Hayes Valley | 7% |
| Sunset/Parkside | 4% |
| Western Addition | 4% |
| Bayview Hunters Point | 4% |
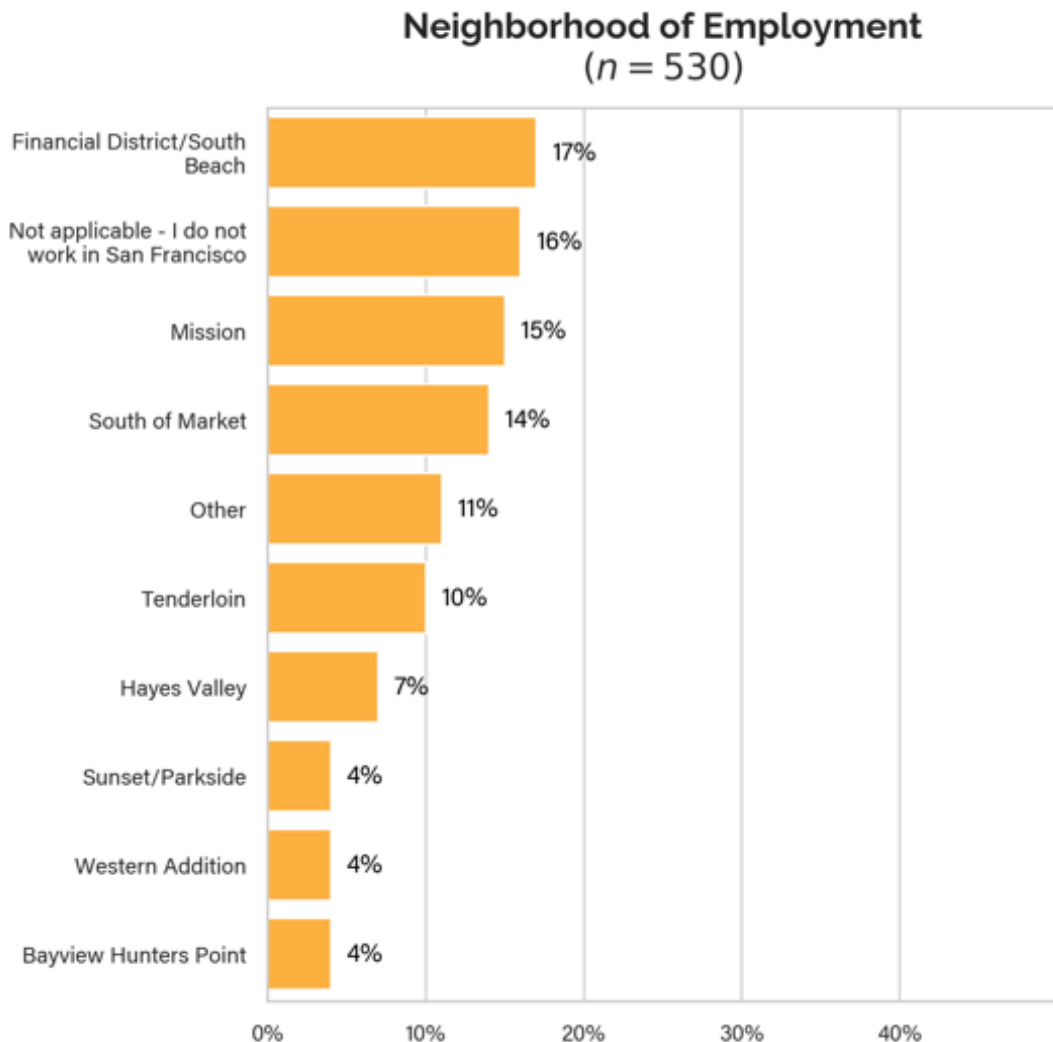
Fewer than 4% of respondents reported working in the following neighborhoods:

- 3%: Castro/Upper Market, Chinatown, Inner Sunset, Mission Bay, Noe Valley, Outer Sunset, and Potrero Hill.
- 2%: Bernal Heights, Excelsior, Glen Park, Golden Gate Park, Haight Ashbury, Inner Richmond, Japantown, Lone Mountain/USF, Marina, McLaren Park, Nob Hill, North Beach, Oceanview/Merced/Ingleside, Outer Mission, Pacific Heights, Portola, Presidio, Treasure Island, Twin Peaks, Visitacion Valley, and West of Twin Peaks.
- 1%: Lakeshore, Lincoln Park, Presidio Heights, Russian Hill, and Seacliff.

No respondents reported working in the Outer Richmond.

# Natural Hazards in San Francisco

## Respondents' Experiences with the Impacts of Natural Hazards

**Most respondents reported having experienced the impacts of poor/unhealthy air quality (due to wildfire smoke)** on their homes, streets, and neighborhoods (85%), as well as on their businesses and/or workplaces (67%). In addition to poor/unhealthy air quality, respondents identified **earthquake** and **extreme heat** among the issues that have impacted their homes, streets, neighborhoods, and businesses/workplaces. Almost half of respondents (42%) reported that **earthquakes** and **extreme heat** (39%) had impacted their homes, streets, or neighborhoods, while one out of three (34%) reported experiencing the impacts of **drought**.  Between 10% and 20% of respondents had experienced the impacts of **wind**, **storm flooding**, **hazardous materials**, and/or **urban fires**.

Many buildings/HVAC systems are not used to the extreme heat loads or humidity, so [extreme weather events] stress the system and our power grids as a whole.

[When there are] power outages, I am unable to leave my apartment [because the elevator stops working], unable to charge my mobility devices, unable to let caregivers/attendants into my building to help me [because] my building entrance system relies on electricity.

I worked at the front desk of a building and the constant opening and closing of the front door meant that I was exposed to the toxic air quality during the fire season of 2017 and 2018.

Survey Respondents

When power is lost, we must evacuate the business. Also, [organizations] working with youth must call all parents to have them pick up their children.

I teach Pilates—during the Camp Fire, I lost business because my clientele didn't want to leave the house to come exercise (we invested in air purifiers for the studio, but the air was too bad just en route). Similarly, during the heat wave I had several students cancel last minute because of the danger of exercising in the heat. One of the places I work doesn't have air conditioning in the building, and the windows aren't built such that we can put an in-unit air conditioner in. [Additionally] during one storm the street flooded outside the studio.

## Most Concerning Hazards

**More than half of survey respondents identified earthquake and poor/unhealthy air quality in the top three hazards they are concerned about** (81% and 68%, respectively). **One out of five** respondents identified each of the following in their top three hazard concerns: **disease outbreak, drought, extreme heat**, **urban fire**, and **coastal flooding** (20%-21% each). One out of ten respondents (11%) identified **hazardous materials** as one of their top concerns.

**Hazards of Most Concern**
($n = 597$)

| Hazard | Percentage |
|---|---|
| Earthquake | 81% |
| Poor/Unhealthy Air Quality (e.g., due to wildfire smoke) | 68% |
| Disease Outbreak | 21% |
| Drought | 21% |
| Extreme Heat | 21% |
| Urban Fire | 21% |
| Coastal Flooding | 20% |
| Hazardous Materials | 11% |
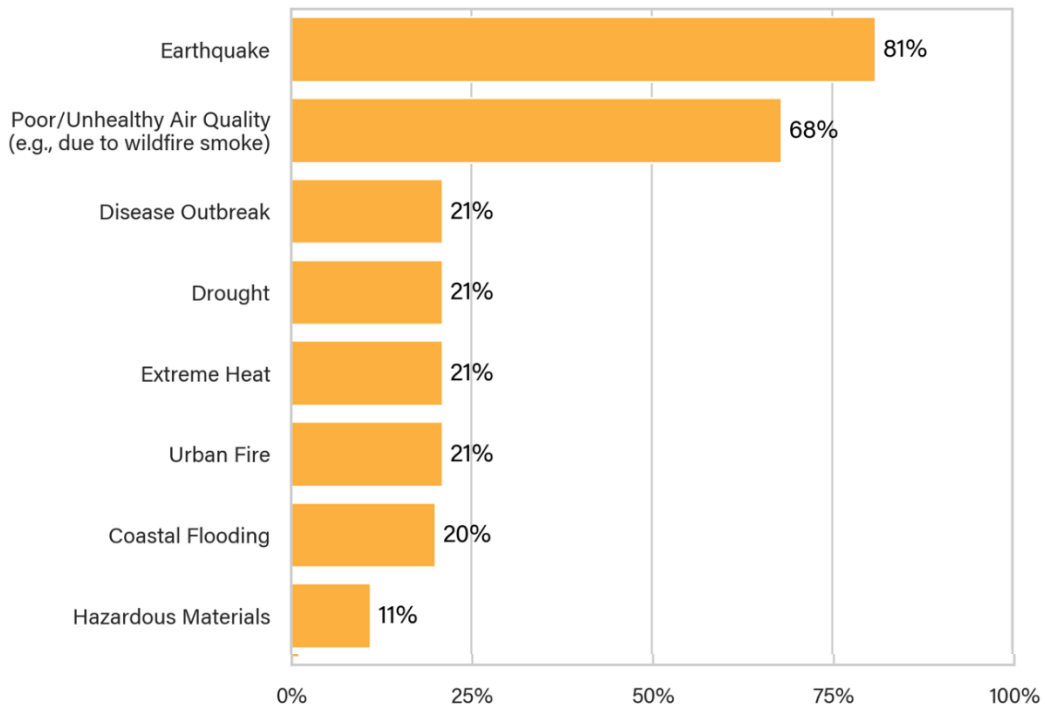
**Survey Respondents**

> Urban fire at any unit on a block is always cause for alarm due to the age and proximity of wooden structures.

> My house has survived many earthquakes and it could use a retrofit to survive the "big one" but our family doesn't have money for it.

> Too many houses have knob and tube wiring, old corroded gas pipes, no firesafe materials.

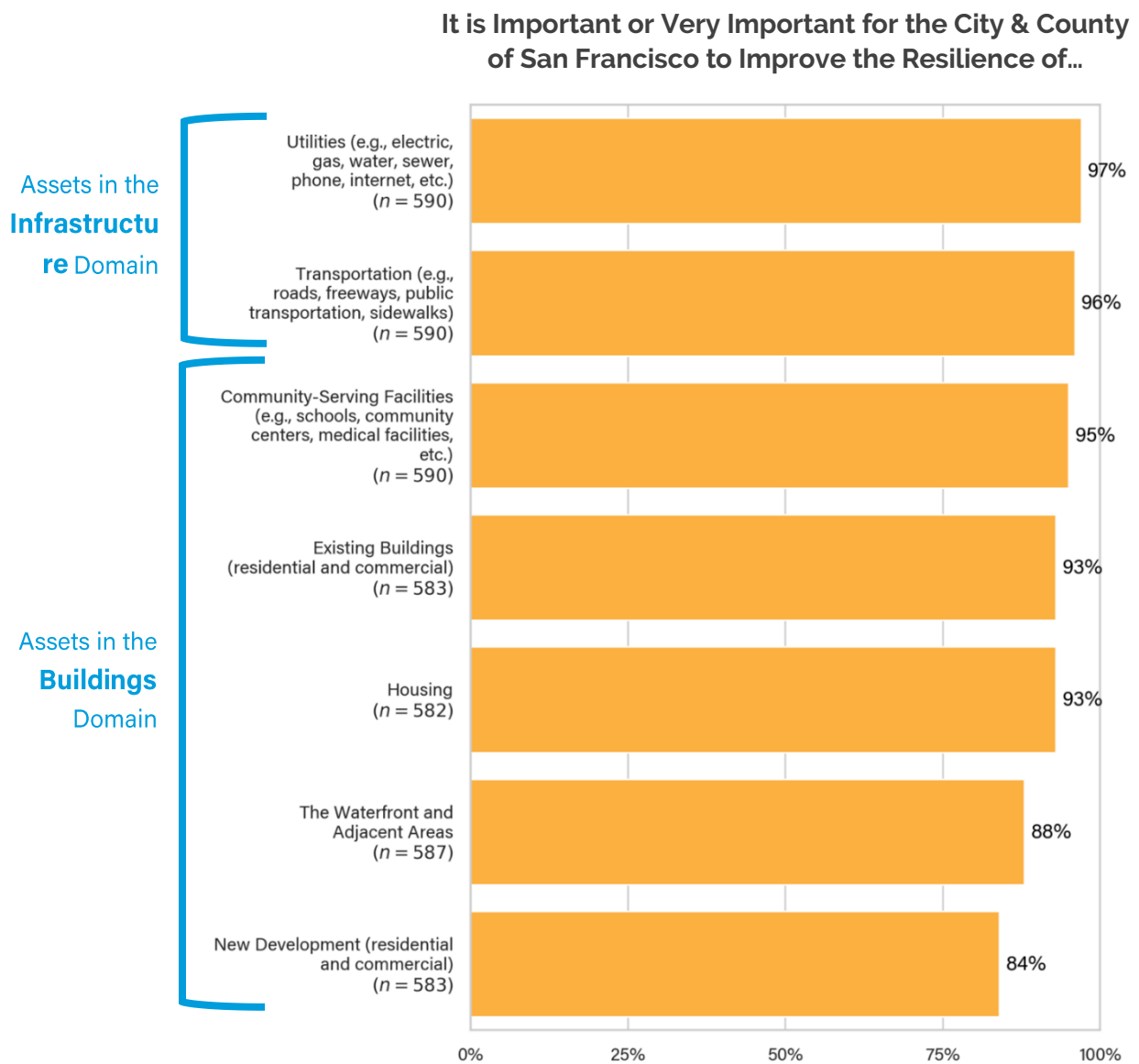> Clearly, coastal flooding will also be a problem soon.

> Regular exercise by walking is important to control of my diabetes. Extreme heat makes exercise difficult, as does hypoxia due to difficulty breathing under smoky conditions.

## Perceived Importance of Increasing Resilience of Key City Assets

As the graph on below shows, **nearly all survey participants reported that it was important or very important for the City & County of San Francisco to improve the resilience of the seven types of assets identified in the Hazards and Climate Resilience Plan survey.** At least 95% identified the importance of improving resilience of utilities, transportation, and community-serving facilities in San Francisco. Between 90% and 94% identified the importance of improving the resilience of existing buildings and housing.

As noted in the Methodology section, the survey did not use a statistically random sample and is therefore not representative. **People who learned about the survey and took the time to participate are likely to have a greater familiarity with hazards and/or climate resilience than the general public.**

**It is Important or Very Important for the City & County of San Francisco to Improve the Resilience of…**

Assets in the **Infrastructure** Domain

Assets in the **Buildings** Domain

| Asset | Percent |
|---|---|
| Utilities (e.g., electric, gas, water, sewer, phone, internet, etc.) (*n* = 590) | 97% |
| Transportation (e.g., roads, freeways, public transportation, sidewalks) (*n* = 590) | 96% |
| Community-Serving Facilities (e.g., schools, community centers, medical facilities, etc.) (*n* = 590) | 95% |
| Existing Buildings (residential and commercial) (*n* = 583) | 93% |
| Housing (*n* = 582) | 93% |
| The Waterfront and Adjacent Areas (*n* = 587) | 88% |
| New Development (residential and commercial) (*n* = 583) | 84% |

# Preparing for and Responding to Hazards

## Level of Preparedness

**For the following data, remember that survey participants are likely to have a greater familiarity with City resources, hazards, and climate resilience than the general public.**

Just over **half** of survey participants (52%) reported being **familiar with the emergency preparedness information available at www.sf72.org.**

While **more than half of respondents reported that they and the people they live with are prepa**red for **extreme heat events**, an **earthquake** or other event that could cause loss of services, and **poor/unhealthy air quality days** (70%, 69%, and 65%, respectively), less than half (40%) reported being prepared for flooding.

However, residents are **less likely to believe that their housing would be a safe place to stay** during an extreme heat event, poor/unhealthy air quality day, or earthquake. The only exception to this was that more respondents believed that their housing would be a safe place to stay during a flood.

**I am familiar with the emergency preparedness information available on www.sf72.org**
($n = 545$)
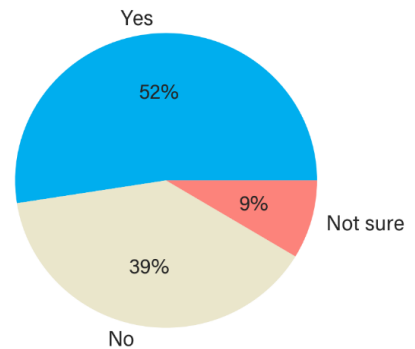


**The People I Live With and I Are Prepared or Very Prepared for the Following Hazards**
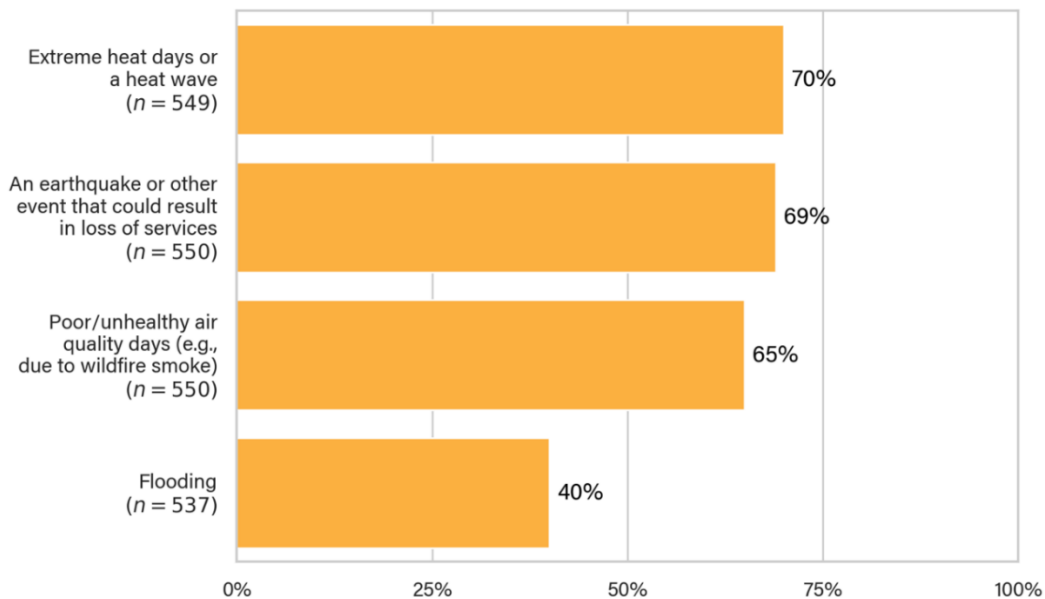
## I Think That My Housing (in SF) Would Be a Safe Place to Stay During the Following Hazards



| Hazard | Percentage |
|--------|-----------|
| Extreme heat or "heat wave" (*n* = 455) | 65% |
| Flood (*n* = 453) | 60% |
| Poor/unhealthy air quality day (e.g., due to wildfire smoke) (*n* = 455) | 51% |
| Earthquake (*n* = 452) | 47% |
| Urban fire (*n* = 457) | 15% |
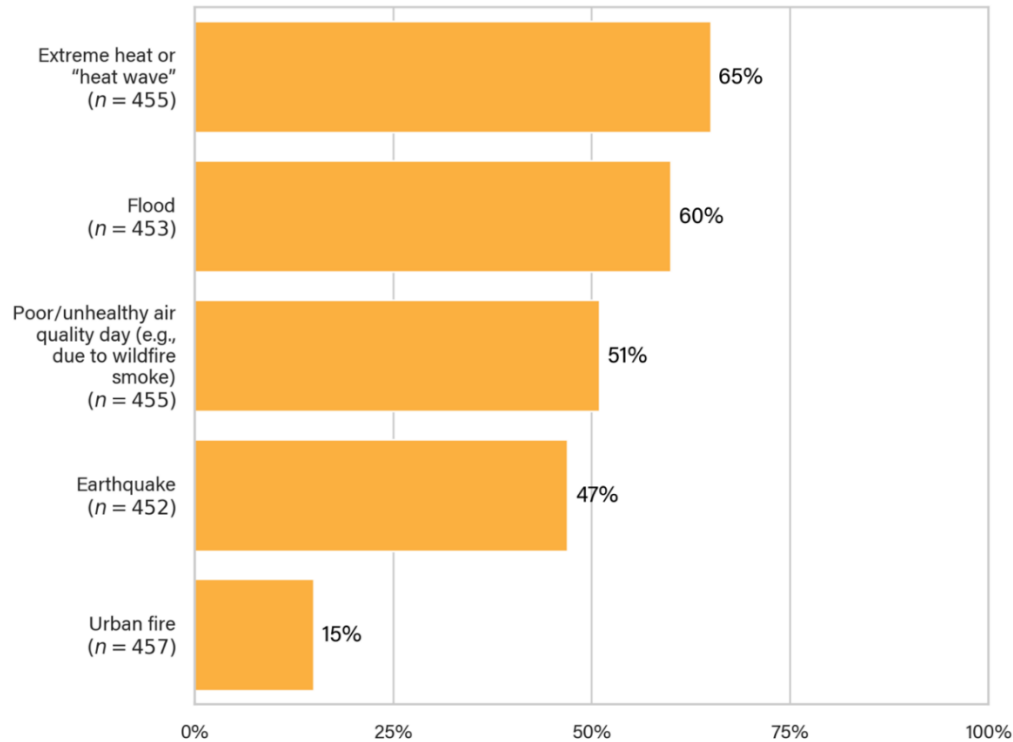
## Familiarity with Neighbors

**Slightly more than half of resident respondents reported knowing their neighbors well enough to help each other in an emergency** (53%) and knowing the unique needs that their neighbors have (69%).

### I Know my Neighbors Well Enough to Help Each Other During an Emergency (Live in San Francisco) (*n* = 471)



Yes 53%
Maybe or not sure 26%
No 21%
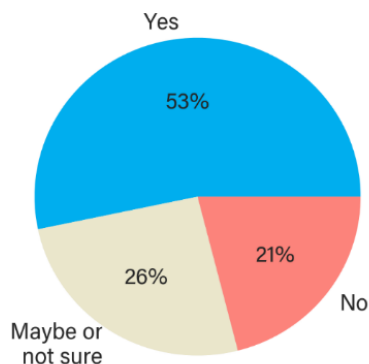
### Knowledge of Immediate Neighbors' Needs Relevant to Staying Safe During Hazards (Live in San Francisco) (*n* = 469)



I know the unique needs that my neighbors have 60%
I do not know the unique needs that my neighbors have 40%
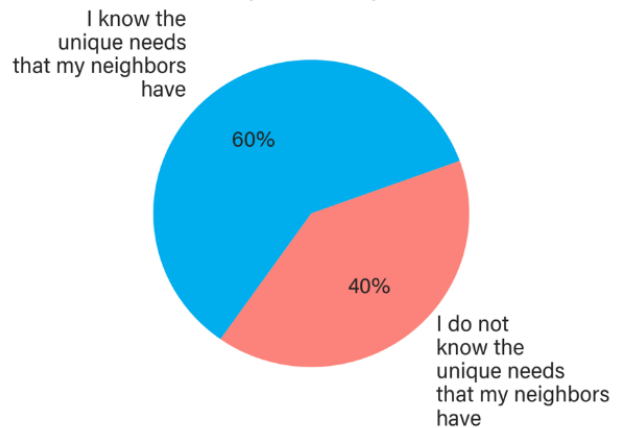
## Sources of Information During Hazard Events

More than half of respondents reported getting information about hazard events from **AlertSF** and **social media** (60% for each). Approximately **one out of three reported getting information from television, radio, or family, friends, or neighbors** (36%, 34%, and 30%, respectively).

Three out of five respondents reported being signed up for AlertSF (59%, n=544)—although as has been noted, respondents are more likely to be connected to City resources than the general public.

### Sources of Information about Hazard Events
(*n* = 544)

| Source | Percentage |
|---|---|
| AlertSF | 60% |
| Social media (Facebook, NextDoor, Twitter) | 60% |
| TV | 36% |
| Radio | 34% |
| Family, friend, or neighbor | 30% |
| Email listserv | 18% |
| Other | 15% |
| Library | 5% |
| Community or recreation center | 2% |
| Local business | 2% |

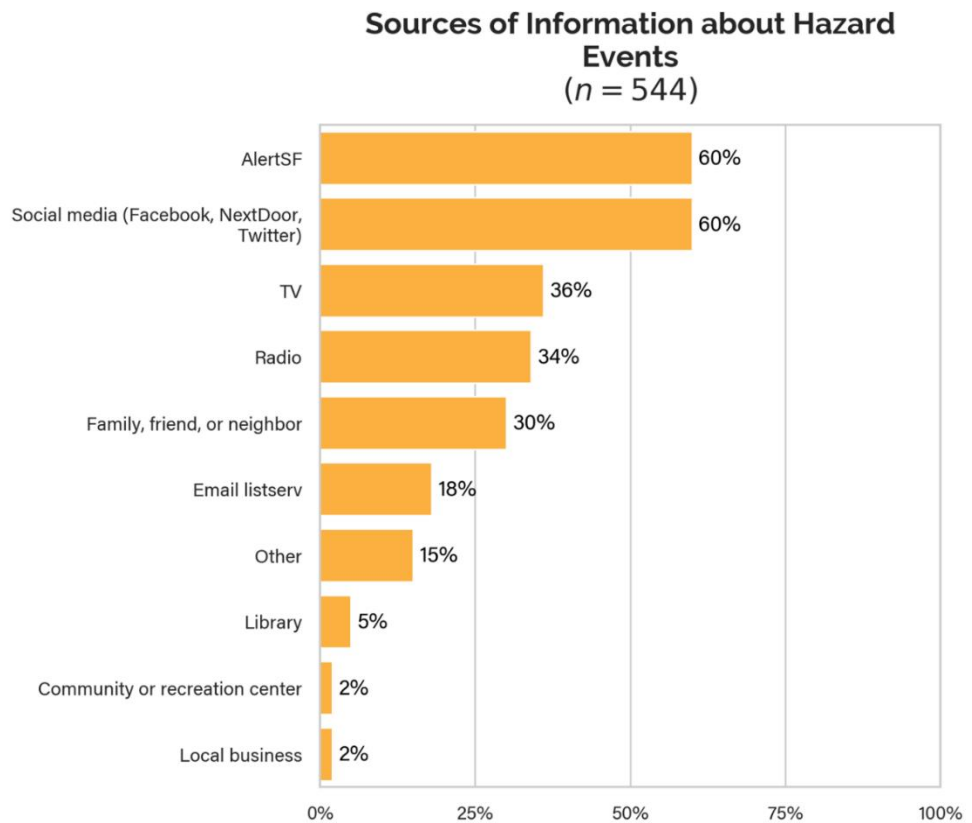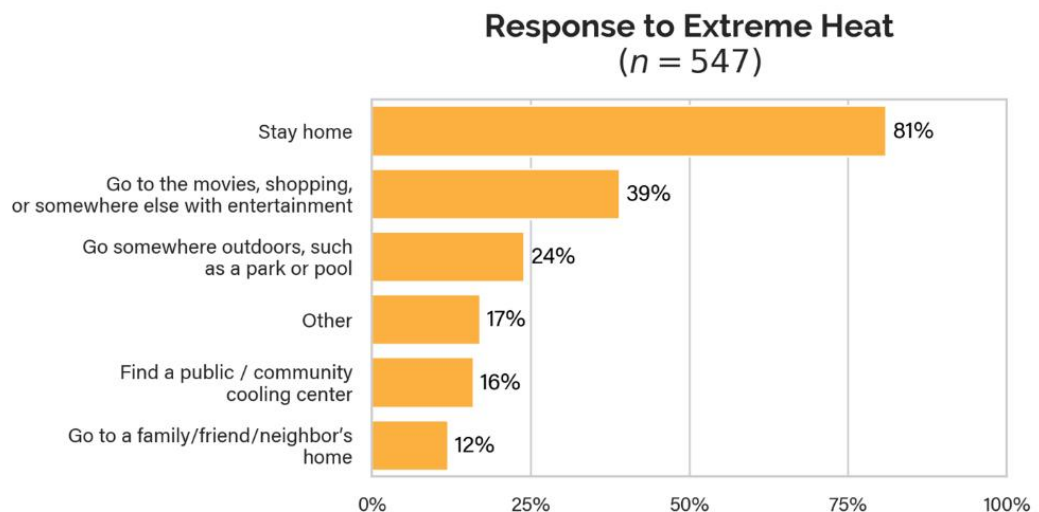## Extreme Heat and Poor Air Quality Events

As is shown below, **four out of five respondents reported staying home during extreme heat events** (81%), while two out of five reported going to the movies, shopping, or somewhere else with entertainment (39%). One quarter reported going somewhere outdoors (24%) and fewer than 20% of respondents reported finding a public or community cooling center, going to a family/friend/neighbor's home, or going somewhere else (16%, 12%, and 17%, respectively). A few respondents reported that they use their car's air conditioning during extreme heat events because they do not have cooling in their home or

### Response to Extreme Heat
(*n* = 547)

| Response | Percentage |
|---|---|
| Stay home | 81% |
| Go to the movies, shopping, or somewhere else with entertainment | 39% |
| Go somewhere outdoors, such as a park or pool | 24% |
| Other | 17% |
| Find a public / community cooling center | 16% |
| Go to a family/friend/neighbor's home | 12% |

other easily accessible locations.

Half of respondents (53%) reported that during times of heat and/or poor air quality, a facility providing cleaner air and/or cooling would be useful, while 35% reported they were not sure if it would be useful. Only 13% reported that such a facility would *not* be useful.

Of the respondents who reported that such a facility would *not* be useful or that they were *not sure* if it would be useful, the four most common reasons identified were:

▪ **Having cooling and filtration/cool air in their home** (33%),

▪ **Not wanting to travel** to a facility (29%), and

▪ Preferring to go to a **family, friend, or neighbor's home** (27%), and

▪ Preferring to go **somewhere with entertainment** such as a movie theater or mall (25%).

**During Times of Extreme Heat and/or Poor Air Quality, a Facility Would be Useful**
($n = 547$)
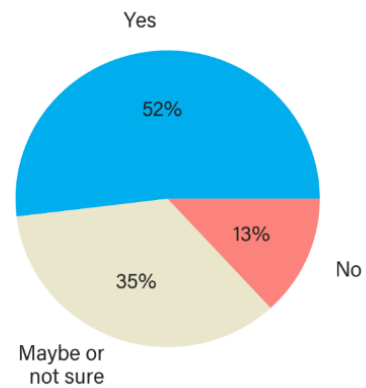


Survey respondents who reported that a facility would *not* be useful to them primarily identified the following reasons: **being concerned about the wellbeing of their pets** and that animals would not be allowed in a facility and **being concerned about such a facility being no better than their home or other places** (e.g., due to being crowed and thereby offsetting any cooling or filtration). One respondent also noted that they have a suppressed immune system and therefore need to avoid spaces with many people.

**In Times of Extreme Heat and/or Poor Air Quality, a Facility Providing Cleaner Air and/or Cooling Would <u>Not</u> be Useful to Me Because…**
($n = 291$)
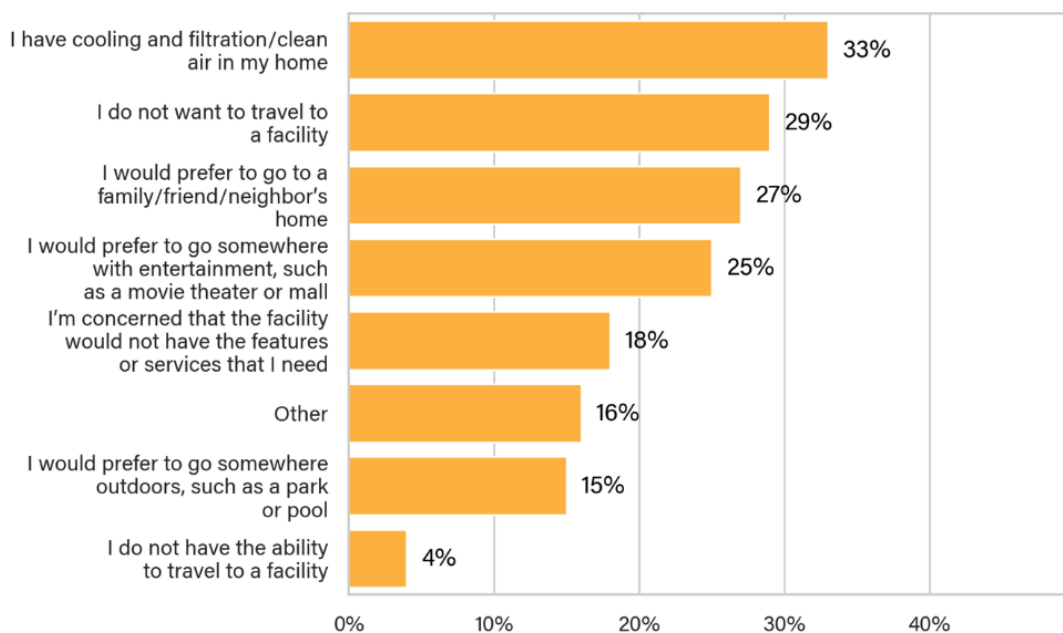
**Lower income** survey respondents and respondents who are **renters** were *more likely* to report that they **would or might use a facility that provided cooling and/or cleaner air** (compared to higher income respondents and respondents who live in a home they own). Additionally, **survey participants *without* a disability or other access/functional need(s) were *more likely*** that participants with disabilities **to report that they would or might find a facility with cooling and/or filtered air to be useful.** Furthermore, **lower income respondents were *more* likely to report that they would "prefer to go somewhere with entertainment**, such as a movie theater or mall" rather than a facility providing cleaner air and/or cooling: 33% for lower income respondents (n=131) compared to 13% for higher income respondents (n=67). However, lower income respondents were *less* likely to report being "concerned that the facility [providing cleaner air and/or cooling] would not have the features or services that I need": 13% for lower income respondents (n=131) compared to 24% for higher income respondents (n=67).

The facilities most commonly identified as ones which respondents would visit for relief from heat and poor air quality were the Main/Civic Center Library (28%), Moscone Center (20%), Glen Park Branch Library (17%), and Mission Branch Library (17%).

## Would Visit for Relief from Heat and Poor Air Quality
### ($n = 528$)
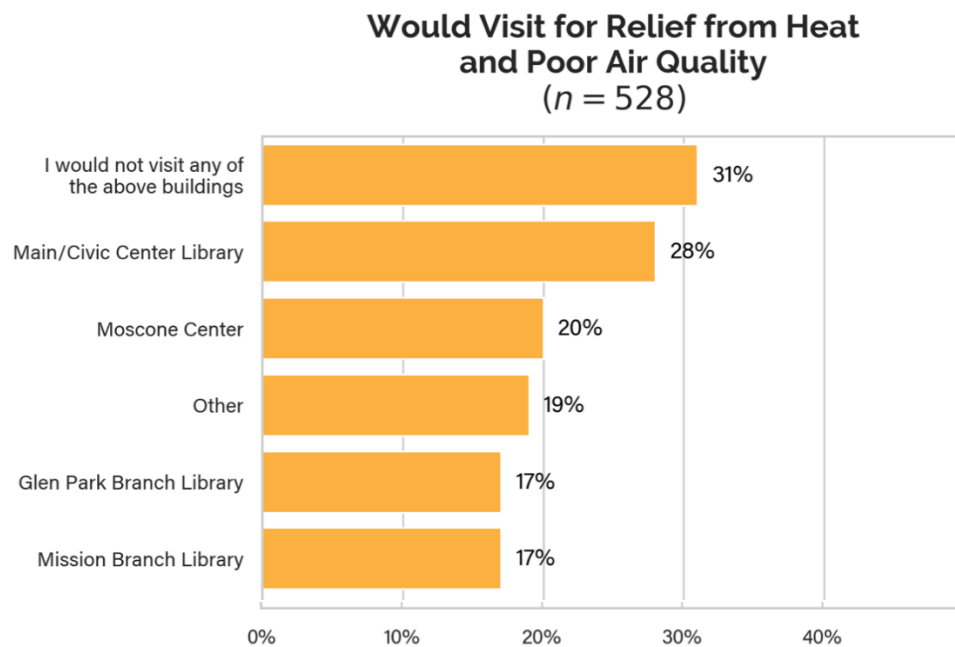


Less than 15% of survey respondents indicated that they would visit the following places for relief from heat and poor air quality: African American Art & Culture Complex, Mission Cultural Center, Pier 1, Bayview Opera House, Potrero Branch Library, North Beach Branch Library, Mission Bay Branch Library, Park Branch Library, Presidio Branch Library, Ortega Branch Library, Veterans Building, Chinatown Branch Library, and Visitacion Valley Branch Library.

Facilities not listed on the community survey but that respondents identified (via write-in response) as places they would visit for relief from heat and poor air quality included: Bayview YMCA, Bernal Rec Center, CCSF Chinatown, CCSF Mission Campus, City Hall, Coffman Pool, Eureka Valley Rec Center, Garfield Rec Center, Glen Park Rec Center, and the Harvey Milk Rec Center, as well as the following branch libraries: Anza, Bayview, Bernal Heights, Eureka Valley, Excelsior, Golden Gate Valley, Ingleside, Marina, Noe Valley, Parkside, Portola, Richmond, Sunset, and West Portal.

# Stakeholder Meetings

## Overview

The series of **five stakeholder workshops** held in July 2019 built on a focus group/working meeting held with representatives of community-based organizations in February 2019. The July 2019 workshops were held to gather feedback from the following five groups of stakeholders with specific perspectives related to their interests and/or the needs of vulnerable populations within San Francisco. The stakeholder groups are listed in the order in which the workshops took place.

The **80 people** who participated in the five workshops **represented 69 organizations, agencies, and businesses** in San Francisco.

| Stakeholder Group | Examples of Unique Perspectives for Each Group |
|---|---|
| Stakeholders for **Businesses and Commercial Properties** (non-residential) | • Provided feedback on relative effectiveness and likely impacts of incentivizing or mandating specific strategies (e.g., weatherizing buildings, installing solar panels and storing energy on-site), including for small businesses<br><br>• Identified challenges and opportunities to partner with businesses in implementing strategies |
| **Housing** Stakeholders **and Residential Property** Managers/Owners | • Provided feedback on relative effectiveness and likely impacts of incentivizing or mandating specific strategies (e.g., installing or upgrading HVAC systems, communicating about hazards to residents/tenants)<br><br>• Identified challenges and opportunities for implementing strategies in supportive housing |
| Community Leaders and Stakeholders Representing **People with Disabilities (Access or Functional Needs) and Older Adults** | • Identified unique needs when responding to hazards (e.g., to charge motorized wheelchairs' batteries, to maintain power for residents with assisted respiration)<br><br>• Emphasized the need to ensure that communication is accessible to people with a range of different disabilities |
| **Racial, Social, and Environmental Justice** Organizations | • Emphasized the need to set up processes prior to a hazard to ensure that critical information about hazards reaches *and* is easily understood by low-income, immigrant, homeless, and other vulnerable communities<br><br>• Provided additional information on how hazards impact vulnerable, disenfranchised, and under-resourced communities, as well as critical needs for these communities |
| Organizations Serving **Children, Youth, and Families** | • Identified challenges in keeping young people of different ages groups safe during and immediately following a hazard<br><br>• Identified challenges and opportunities for implementing strategies in schools and out-of-school programming (e.g., summer camps, afterschool care) |

At each stakeholder workshop, participants heard a presentation from the HCR Plan Community Engagement Committee on the purpose and steps of the planning process and example findings from vulnerability assessments conducted by City staff to estimate impacts of specific hazards in different areas of the City and critical assets (e.g., schools, waste treatment facilities, light rail) located in high risk areas.

They were then invited to share personal experiences and to suggest how the City could improve communications around the response to hazards. Finally, participants reviewed and provided feedback on the draft strategies for the HCR Plan.

## Importance of Preparing for Specific Natural Hazards

In their small group discussions, all five stakeholder groups emphasized the importance of improving preparedness and responses related to **earthquakes**, **tsunami**, **heat**, **poor air quality**, and **flooding**. Stakeholders representing organizations focused on housing, racial/environmental/social justice, and children, youth, and families also expressed concerns about **hazardous materials.** None of the five stakeholder groups focused on the impacts of **wildfire** (except for its impact on air quality), **wind**, **reservoir/dam failure**, **urban conflagration**, **disease outbreaks**, **landslide**, or **drought**. A few participants in the stakeholder groups representing people with disabilities and older adults and racial, environmental, and social justice encouraged the City to revise the hazard of "extreme heat events" to be "extreme weather events" or "extreme temperatures," recognizing how cold weather is a health and safety issue for residents who are homeless.

## Stakeholder Feedback on Draft HCR Plan Strategies

After reviewing the draft strategies for each planning issue for the HCR Plan, participants were invited to share:

- Any **concerns or questions** they had related to a single strategy or set of strategies,
- Anything they thought was **missing**, and
- **Ideas for how the City might implement strategies** in a way that addressed the needs of the population(s) stakeholders represented.
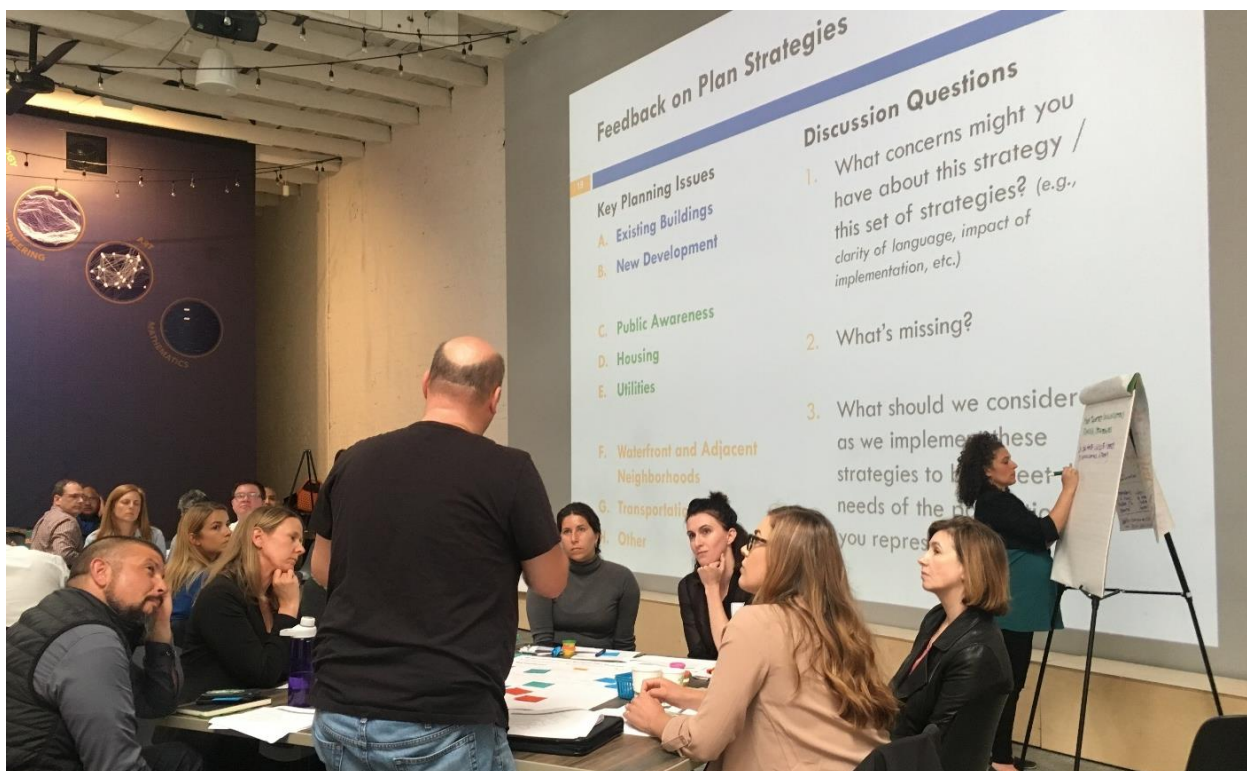
## Themes Across Stakeholder Groups

Stakeholders consistently expressed their **interest in learning more about the hazard risks relevant to the neighborhoods in which they work** as well as the City's **recommendations (or general best practices) to prepare** for the hazards they are most likely to experience. Many participants were excited to learn that the HCR Plan would include **maps with citywide risks and vulnerabilities**. Many participants also wanted to know what the City considered to be **key community facilities** (both which specific facilities and more general types of facilities).

Recognizing the significant impacts that some hazards will have and the many jurisdictions that will be involved in recovering from such hazards, **participants emphasized how important it is for the City to support and participate in coordinating planning between City departments, with overlapping jurisdictions** (e.g., SFUSD, SF Port, National Park Service), with neighboring jurisdictions (e.g., Marin County, Daly City, San Mateo County, Alameda County), and potentially with geographically remote partners (for example, to provide supportive housing while the City and region recover from a major earthquake).

Workshop participants agreed that **resources should be prioritized for and directed to vulnerable populations and the critical facilities that serve those populations.** However, different stakeholder groups had **different ideas of what populations are most vulnerable and what types of facilities are "critical."** Participants in most workshops identified the **importance of involving Single-Room Occupancy hotels (SROs) and temporary shelters,** as well as residents who are currently experiencing homelessness, in the implementation of resilience strategies.

### Strategies within the *Resilient Infrastructure* Domain

#### Related to Strategies for Transportation

- Stakeholders in all workshops noted the **absence of strategies focused on or involving Transportation Network Companies (TNCs)** (e.g., lyft, uber) **and other sharing models** (e.g., short-term rental bicycles and electric scooters). People suggested that TNCs be regulated to **avoid surge pricing during a disaster** and to prioritize more vulnerable people first and encouraged the City to **coordinate proactively** with companies around unlocking bicycles during emergencies or extended power outages to aid residents.

#### Related to Strategies for Utilities

- Participants expressed **concern about how sanitary sewage and human waste collection/disposal would be managed in a major hazard event** and recommended that the strategy be expanded to include the entire City (rather than focusing on SFO).

### Strategies within the *Resilient Buildings* Domain

#### Related to Strategies for the Waterfront and Adjacent Neighborhoods

- Stakeholders in each workshop expressed concerns about additional sites and facilities **beyond those called out in the draft strategies** (e.g., SFO, the zoo). They **identified additional key community facilities,** including the new MTA facility near Islais Creek, AT&T Park, Pier 39, Recology facilities on the waterfront, navigation centers for homeless residents, and storage facilities/caches containing emergency supplies for the City and the Red Cross.
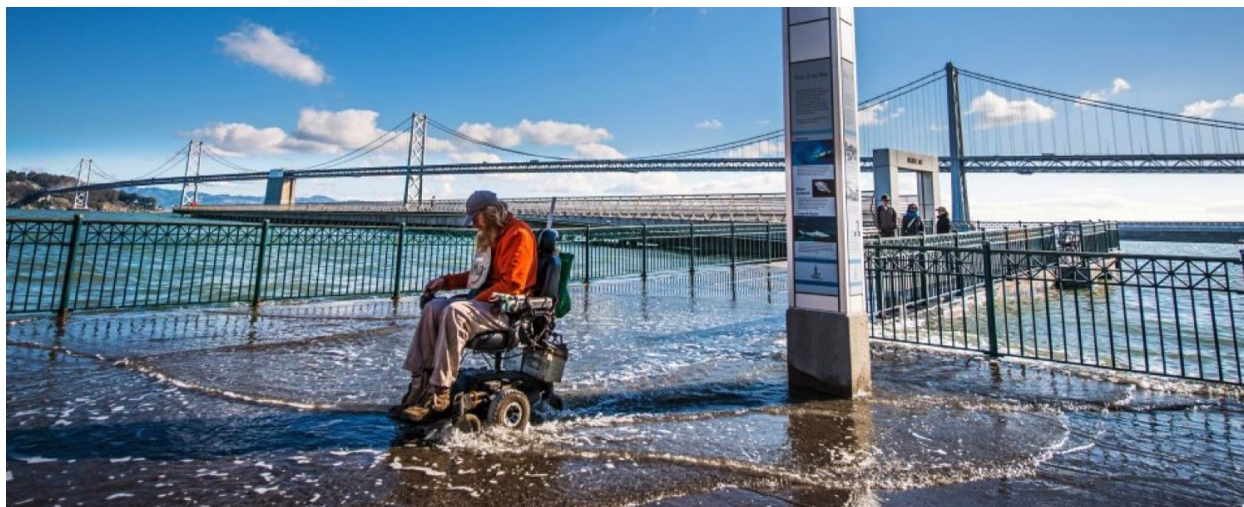
Photo credit: Michael Filippoff via KQED < https://ww2.kqed.org/quest/2013/07/16/wetlands-horizontal-levees-sea-level-rise/>.

- Participants in most workshops questioned whether the strategy, "Continue to implement the Ocean Beach Master Plan to address sea level rise at the southern end of Ocean Beach" was intended to focus on the waste treatment plant located next to the zoo. They **recommended that the waste treatment/sewer treatment plant be specifically identified in either this or another strategy.**

**Related to Strategies for New Development**

- All stakeholder groups recognized that **new development can play a critical role in resilience** and encouraged the City to maximize these opportunities. In addition to building standards that make new construction more resilient and able to withstand hazards, participants identified opportunities for new development to include **dedicated storage space for emergency equipment and supplies**, to function as a **temporary shelter or respite facility** (e.g., as a cooling center), and/or to include **climate resilience initiatives within Community Benefit Agreements.**
- Stakeholders shared that **many new developments in the City do not address the needs of the current community** and long-term residents—especially the most vulnerable populations. T**he use of and services provided by buildings also contribute to the resilience of San Francisco.**

**Related to Strategies for Existing Buildings**

- Workshop participants shared concerns about how the implementation of some costly strategies may be funded (or may be mandated without funding or financing available to assist property owners). In particular, many participants in multiple workshops expressed **how challenging it would be for their business, organization, or property to make some of the improvements to existing buildings without financial assistance.** Participants indicated that incentivizing property owners to make certain improvements would have some success but would also leave many buildings unaltered. Nonetheless, participants in all stakeholder group **recognized the importance of making existing buildings more resilient** (and expressed support for these strategies). A few people encouraged the City to focus on improvements that were the best **balance between most effective and lowest cost** (or with cost savings to offset initial expenses, as can happen with solar energy storage), with the potential to shift foci as new innovations and technologies become available or have demonstrated success.

- Recognizing the large population of renters in San Francisco and the extremely high cost of housing, **stakeholders in all workshops identified concerns about the displacement of renters whose housing units are damaged in a hazard.** People noted that it often takes two or more years for buildings that are damaged in a major disaster to be made safe for occupancy. **Many residents who are low income** (including those living on fixed incomes such as Social Security) and/or have physical disabilities **may not be able to afford to stay in the region** during the lengthy rebuilding process. While participants also recognized that **low income homeowners also face significant challenges** in responding to a hazard, the most consistent feedback focused on the **need for strategies that address renter vulnerabilities following a major disaster** (e.g., mid-term housing, process for displaced residents to return).
- **Stakeholders also expressed concern that the costs** of improving the resilience of existing buildings (e.g., seismic retrofits, weatherization) **would be passed on to tenants with limited resources.**

### Related to Strategies for Housing

- Many participants supported the strategy of **enhancing existing home visiting programs by integrating emergency preparedness education and supplies** into the work. They also suggested that **City staff might help assess home safety with a focus on the specific age-related concerns** of a unit's resident(s).

## Strategies within the *Resilient Communities* Domain

### Related to Strategies for Public Awareness & Communications

- All stakeholder groups emphasized the **need to leverage existing networks and resources to communicate information about hazards**. They also identified many existing organizations, associations, and informal networks that could help disseminate critical information prior to and during a hazard. At the same time, all stakeholder groups recognized the **challenge of communicating with those members of vulnerable populations who are isolated and not connected to existing resources or networks**. Participants also widely supported increasing **resources to increase community cohesion and connectedness at the hyperlocal level** (i.e., neighbor to neighbor, within a large building or on a single block).
- Participants expressed **consistent support for expanding targeted emergency preparedness trainings** like NERT. They recommended that NERT **engage community anchor organizations and the tenants of large multi-unit buildings in addition to their traditional focus on individual residents.** This would allow training participants to identify additional preparation that they need (for example, including clinically trained staff in emergency response planning to ensure that residents with serious mental illnesses are supported and participate in evacuations). Some hazard mitigation efforts could also be targeted to engage residents of key areas (for example, targeting outreach for the Adopt a Drain program to areas prone to stormwater flooding). Participants recommended a **multi-pronged approach** of having the City take the lead on communicating the importance of the issue, leveraging community organizations and leaders to engage diverse residents, collaborating with faith communities and other networks to disseminate information, and developing the skills and leadership of residents over time.

## Feedback Unique to Each Stakeholder Group

Each stakeholder group contributed some unique concerns, feedback, and suggestions, including some that may be applicable to other stakeholder groups or to the general population.

**Stakeholders for Businesses and Commercial Properties (non-residential)**

Participants in this workshop made the following suggestions:

- Implement strategies so they **align with consumer demands** (for example, pairing solar energy and electric vehicle (EV) charging stations).
- **Streamline the permitting process** for buildings to make resiliency-related improvements.
- Be more specific about **differences in how strategies will be implemented with key community facilities that are owned by the City and those that are privately owned.**
- **Scale smart microgrid energy storage and energy distribution** based on what will be most efficient and cost effective (i.e. implement pooled backup storage instead of storage for individual buildings).
- **Provide incentives** for building owners to implement solar energy storage.
- Require commercial buildings in San Francisco to **participate in BORP (Building Occupancy Resumption Plan).**

Business and Commercial Property Stakeholders also asked about:

- How downed power and/or communications lines in public rights of way factored into the vulnerability analyses,
- How power demands would be managed during rolling brownouts, and
- What the City's strategies or recommendations are related to water capture from (or for) plumbing systems during an emergency.

**Housing Stakeholders and Residential Property Managers/Owners**

Housing stakeholders suggested that the City provide assistance to supportive housing facilities and other housing for vulnerable populations (e.g., SROs, retirement communities) in **developing resident leadership and skills around emergency preparedness and response,** with clearly identified roles and responsibilities for residents and employees.

Participants in this workshop also recommended that resilience-related building improvements should include improvements to **make stairwells safer** so residents can safely use them when elevators are not able to be used.

**Community Leaders and Stakeholders for People with Disabilities or Access & Functional Needs and for Older Adults**

Participants in this workshop made the following suggestions:

- **Elevate power outages as a hazard** and ensure that there is a reliable and proactive alert system for brownouts (from PG&E).
- When seismic assessments are done, conduct a **concurrent accessibility assessment** to identify buildings that will be challenging for people with disabilities to exit during some emergencies.
- Require that **residential facilities owned or contracted by the City** prepare and **update disaster response plans** for those facilities.
- Bring back **free public transit on Spare the Air Days.**
- Recognize and **plan for the unique energy/power needs of some people with disabilities** (e.g., people who use motorized wheelchairs, people who had devices that assist with respiration). For example, people who use motorized wheelchairs may need access to a battery charger that matches the battery in the model of wheelchair they have.

- Add a **strategy focused on accessible transportation.** This might involve developing an inventory of accessible vehicles and a coordinated plan to share available resources prior to a hazard. Accessible vehicles owned and operated by UCSF, hotels, paratransit, and SFUSD should be included in this inventory and plan in addition to MUNI vehicles and other City-owned vehicles.

**Stakeholders for people with access and functional needs and older adults also expressed excitement about and emphasized the importance of the strategy to "Study the overlap between vulnerable populations and vulnerable residential buildings to focus future grant and incentive programs."** For example, participants shared that many high-rise buildings that house seniors do not have generators or cooling systems, which is important to know during power outages and extreme heat events.

**Stakeholders for Racial, Environmental, and Social Justice**

Participants in this workshop asked:

- When will groundwater in Bayview be clean and how will that be communicated?
- What interactions should residents anticipate related to flooding for areas with toxic waste? How can communities prepare for this or mitigate these dangers?

Stakeholders for racial, environmental, and social justice also shared the following perspectives:

- **Some San Francisco neighborhoods are not well-served by public transit and/or don't have good transportation options.** This isolation increases vulnerability.
- **Buildings need air cooling systems but not necessarily air conditioning** (since the hydrofluorocarbons in air conditioners are so harmful to the environment and contribute to climate change). Supporting this may require **pilot testing alternative cooling technologies** or supporting the production of such technologies.
- Funding to support community resilience needs to **support community-based organizations** in doing (or continuing to do) the work to build resilience.
- Make sure that **Treasure Island** is considered and included in the implementation of strategies and planning for hazards.

**Stakeholders for Children, Youth, & Families**

Stakeholders for children, youth, and families shared the following perspectives:

- The strategies seem to focus more on protecting **revenue-generating physical assets** than protecting people/human life.
- Expanding public transit can help the city reduce its carbon footprint, but **riders** (especially low-income riders) **should not bear the cost for expanded transit service.**

Participants in this workshop also asked:

- Do evacuation routes and procedures recognize social conditions and geographies (e.g., gang territories)?
- What facilities are being prioritized for resilience-related renovations? Have communication plans been integrated into these analyses? Participants supported making seismic upgrades to schools to protect children and youth in the schools. They also expressed concerns about how communications would happen and how normal operations could resume if most SFUSD administrators are injured or killed in a major earthquake because the administrative buildings were not prioritized for renovations.

# How to Improve Hazard Response + Communications

Stakeholders were invited to reflect on their experiences with natural hazards and share their ideas about how the City and/or community's response (before, during, and following the hazard) could be more efficient, more effective, and more equitable. Ideas addressed how the response to a hazard could happen more quickly, be better coordinated, prevent harm, communicate information more clearly, and better meet the needs of a specific vulnerable population. They were also asked about how to effectively communicate with and engage the groups participants represented.

## Making Response to Future Hazards More Efficient, Effective, and/or Equitable

The follow feedback was consistent across all or most stakeholder groups.

- **There need to be clearly designated and well-established facilities in which residents of different neighborhoods can go to be safe during or following a hazard** (e.g., during an extreme heat event, following flooding) **and get critical information and other resources** (e.g., food, water, access to energy/power). If there are no facilities designated prior to a hazard, they should be identified and publicized at the neighborhood level as soon as possible once a hazard has taken place or begun. Ideally available resources should be pooled to help an existing trusted location (e.g., library branch, fire station, community center) become more resilient so that facilities can be designated throughout the City. These **facilities should be prepared to (with support) provide childcare or supervision for children is SFUSD temporarily closes.** Nonetheless, some vulnerable populations (e.g., people with mobility limitations or developmental disabilities) may need to have rooms designated within their buildings that will be more accessible than traveling to another facility (e.g., an air-conditioned community room in a supportive housing facility).
- **The City should provide clear guidance and specific recommendations for the minimum types and amount of emergency supplies that should be available at different types of community-**

**serving facilities.** For example, maybe supportive housing facilities should have a generator or backup power supply and store enough water on-site to sustain all residents and the approximate number of staff at the facility at any given time. Perhaps organizations that provide after school programming for children and youth should have one first aid kit for every 15 children, enough water stored to sustain all program participants and employees for 36 hours, and enough nonperishable food for half the number of children/youth and staff for 36 hours. **Participants also requested support identifying alternate supplies if the recommended ones could not be maintained or stored on-site** (e.g., maintaining a minimum number of water purifying tablets in lieu of some of the stored water). Many stakeholders also recommended that the City or a close partner (e.g., Association of Bay Area Governments (ABAG), Bay Area Housing Risk Management Agency (BAHRMA)) support community-serving facilities in procuring the recommended emergency supplies via bulk purchasing.

- **City agencies and departments need to coordinate sharing more information (and ideally some amount of client data) with other City agencies/departments.** Additionally, the City should **coordinate with residential property managers that serve vulnerable populations** to systematize how residents who have specific types of access and functional needs are identified (while ensuring that information is kept protected, is managed respectfully, and is regularly updated), how property managers utilize that information to conduct wellbeing checks following a hazard, and how property managers communicate information about access and functional needs to emergency responders when residents need assistance.

- **The City should leverage the resources, connections, and skills of local businesses, local technology companies, community-based organizations, and regional partners to support a more efficient and effective response to emergencies.** Many participants suggested that the City work with Google to integrate specific information about hazards into GoogleMaps (e.g., the locations for nearby designated cooling centers during an extreme heat event, evaluation routes and where to evacuate to during a tsunami warning).

## Improving Communication Before and During Hazards

**Critical Content and Format**

- Participants emphasized that **communications about how to stay safe in a hazard need to be consistent, simple, clear, and repeated.** It needs to include a very brief explanation of the hazard and why/how it is dangerous, how people can keep themselves safe, and where or how to get additional information if desired. **The same information needs to be provided in multiple languages, in accessible formats** (e.g., high-contrast visuals, announcements, with an ASL interpreter), and **with as many non-text visuals or videos available as possible** (similar to airplane safety pamphlets).

- Additionally, the **City needs to provide clear instructions on how specific stakeholders should respond and share information** with their students/clients/tenants/employees/etc.

> **Did you know?**
>
> You can sign up for emergency text message alerts from AlertSF by texting your ZIP code to 888-777 or visiting AlertSF.org.

**Ideal Timing and Frequency for Communications**

- Stakeholders consistently expressed wanting **more warnings and earlier warnings about likely natural hazards** (e.g., extreme heat event, poor air quality, flood watch). Although they recognized

that community members can become frustrated with too many warnings that do not become reality, workshop participants felt strongly that it was **better for the City to be overprepared**. Most participants recommended that **repeated information is useful if it is concise and provided with regularity** (e.g., an update every morning during poor air quality) **either to communicate that the hazard is still active or to update people as conditions evolve.** They also suggested that automatic alerts (e.g., via text message or email) were especially helpful, even though not all community members have access to a cell phone or email.

- Across all stakeholder groups, people emphasized the **importance of community connections**, people knowing their neighbors, and the active participation or leadership of community members. They also recommended that there be **more efforts focused on vulnerable or disenfranchised communities and neighborhoods to help residents develop or strengthen community cohesion and relationships.** Stakeholders representing racial, environmental, and social justice, as well as those representing children, youth, and families, noted that it may be necessary to provide intentional leadership development opportunities supported with payment and food or other incentives for participants.
- Many workshop participants noted how information about hazards and how to respond is useful, but that **education followed by recurring drills or practice exercise was the most effective way to prepare** community members to respond.

**Recommended Media/Methods for Communicating Critical Information**

Participants encouraged the City to utilize a wide range of media, including:
- Traditional media (e.g., radio, television news shows)
- Both digital and analog modes
- Public alert systems – ideally updated to provide information in multiple languages
- Via app-based services that people regularly use (e.g., NextBus, GoogleMaps)
- Via text message alerts
- Billboards and other public information display boards (e.g., MUNI posters, Salesforce tower display)
- Inserts into utility bills
- Fliers distributed by property management companies and tenant associations
- Through person-to-person community networks that may or may not exist yet, such as the Neighborhood Empowerment Network groups in some areas of the city
- Via a call center or hotline that people could use to get additional information without calling 911
- Requiring that information about recommended emergency supplies be included in all new and renewed leases for renters
- Website with a simple and easy-to-remember URL
- "Welcome packet" provided when people establish residency or change their address within the City that notes the primary hazards and vulnerabilities in their new neighborhood and shares recommendations to be prepared and local resources
- In-person education and materials distribution at community events and through a pop-up strategy
- Messaging shared by bike share companies and San Francisco Bicycle Coalition to not ride on poor air quality days
- Through neighborhood schools
- Via interactive and engaging opportunities (e.g., "gamifying" preparedness, engaging youth in poster design competitions)

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# Next Steps

## How Community Input Informs HCR Plan

Community-based organizations were engaged to gather input from stakeholders who directly interface with the public. Insights gleaned from this public engagement process have been integrated into the plan, by amending the summaries of strategies that were originally proposed by City departments to explicitly reflect and acknowledge the public input, or through creation of new strategies.

## Plan Adoption and Implementation

The timeline for the revision, adoption, and implementation of the HCR Plan is as follows.

| City staff incorporate stakeholder feedback into plan, revise strategies | Draft Plan available for review by the public, CalOES, and FEMA | Approval of final HCR Plan by SF Board of Supervisors, SF Mayor, and FEMA | HCR Plan is implemented and used to update Safety Element of General Plan |
| --- | --- | --- | --- |
| Aug-Oct 2019 | Nov 2019 | Dec 2019 until FEMA approves plan | Once plan is finalized (March 2020 or later) |

For more information and to see the draft plan when it is available for public comment, please visit: OneSanFrancisco.org/hazard/overview.

If you have any questions or comments, please contact the following SF Office of Resilience and Capital Planning staff:

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# CITY AND COUNTY OF SAN FRANCISCO

raimi+
associates

# Appendix D

Plan Maintenance Documents

# Hazard and Climate Resilience Plan: Planning Team Annual Review Questionnaire

| Name | | Department | |
|---|---|---|---|
| Contact Email | | Contact Phone Number | |

## PLANNING PROCESS

| Questions | Yes | No | Comments |
|---|---|---|---|
| Do you have suggestions on how to improve the plan update process (e.g., meeting announcements, meetings, reviewing plan content, etc.)? | | | |
| Have any internal or external departments, agencies, or organizations been invaluable to the planning process or to a mitigation action item? | | | |
| Have you or your department or agency undertaken any public outreach activities relate to the HCR Plan? | | | |
| Do you know of any changes in public support or decision-maker priorities for HCR Plan or a part of the plan? | | | |

## HAZARD ANALYSIS

| Questions | Yes | No | Comments |
|---|---|---|---|
| Has a natural disaster occurred during the past year? | | | |
| Should the list of hazards profiled in the current HCR Plan be modified? | | | |
| Do you know of new data sources, reports, studies, maps or other hazard–related information that should be considered in the next plan update? | | | |

## CAPABILITY ASSESSMENT

| Questions | Yes | No | Comments |
|---|---|---|---|
| Has the City adopted new policies, plans, reports, ordinances, or other regulatory provisions that should be incorporated into the HCR Plan? | | | |
| Does your department or agency have different or additional administrative, personnel, technical, or financial resources available for mitigation planning (e.g., any changes in mitigation resources since the HCR Plan was drafted)? | | | |
| Has the City's National Flood Insurance Program (NFIP) participation changed in any material way since the current HCR Plan was adopted? | | | |

## CAPABILITY ASSESSMENT

| | | | VULNERABILITY ANALYSIS |
|---|---|---|---|
| **Questions** | Yes | No | Comments |
| Does your department or agency have new facilities or infrastructure that needs to be added to the HCR Plan asset lists? | | | |
| Do you know of any changes that have occurred in development trends or land use that could create additional risks to people, facilities, or infrastructure? | | | |

## MITIGATION STRATEGY

| **Questions** | Yes | No | Comments |
|---|---|---|---|
| Should new mitigation strategies be added to the mitigation action plan in the current HCR Plan? | | | |
| Do the mitigation strategies in the current HCR Plan need to be modified given changes in resources or other issues? | | | |
| Since adoption of the current HCR Plan have new obstacles arisen to mitigation action plan strategies that need to be considered? | | | |

## PLAN MAINTENANCE

| Questions | Yes | No | Comments |
|---|---|---|---|
| Is implementation of the current HCR Plan being monitored and evaluated as planned? | | | |
| Do you have any suggestions for improving HCR Plan implementation, monitoring, or maintenance? | | | |
| Is the Planning Team continuing to involve the public in plan maintenance process? Please comment. | | | |

## OTHER FEEDBACK

| Questions | Yes | No | Comments |
|---|---|---|---|
| If you have additional feedback on the current HCR Plan or on the plan update process, please comment. | | | |

# Hazard and Climate Resilience Plan: Action Progress Reporting

| Report Period | From Date: | | To Date: | |
|---|---|---|---|---|
| **Mitigation Action Project Name** | | | | |
| **Mitigation Action Code** | | | | |
| **Administering Department or Agency** | | | | |
| **Point of Contact Name** | | | | |
| **Contact Phone Number** | | | | |
| **Contact Email** | | | | |
| **Project Status** | ☐ Project Completed <br><br> ☐ Project Cancelled <br><br> Reason for cancelation: <br><br><br><br><br> ☐ Project on Schedule <br><br> ☐ Project delayed <br><br> Reason for Delay: <br><br><br><br><br> ☐ Anticipated Completion Date: | | | |

**Summary of Progress on Mitigation Action for This Reporting Period**

| | |
|---|---|
| 1. What was accomplished on this action during the reporting period? | |
| 2. What obstacles, problems, or delays, if any, did the project encounter during this period? | |
| 3. If these issues have been resolved, how? If not resolved, how might they be resolved? | |
| 4. In what ways has equity been considered in the structure or implementation of this action? (Can include description of type of equity, i.e, procedural vs. distributional, etc.) | |
| 5. Other comments? | |

# Appendix E

## Local Plan Adoption

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Based on requirements as set forth in the Stafford Act, as amended by the Disaster Mitigation Act of 2000, and its implementing regulations, the local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction.

The Board of Supervisors of the City and County of San Francisco adopted the Hazards and Climate Resilience Plan as the 2019 Hazard Mitigation Plan by resolution on Month Day, Year. Mayor London Breed approved the resolution on Month Day, Year. A scanned copy of the resolution follows.

**ONESF**
Building Our Future

# Appendix F

## Capabilities and Existing Actions

The following tables provide additional details on the capabilities described in Chapter 06. They are organized by San Francisco Government Activities:

- Funding and Financing
- Public Asset Owner
- Planning, Research, and Guidance
- Adopt and Enforce Regulations
- Deliver Community Services

## TABLE F-1:
## FUNDING AND FINANCING CAPABILITIES

| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| 10-Year Capital Plan | ORCP | In compliance with Administrative Code Section 3.20, the 10-Year Capital Plan is the guiding document for the City's capital needs, identifies the level of investment to meet those needs, and provides a constrained plan of finance for the next 10 years. The 2020-2029 Plan recommends a record level of $39 billion in investments that will improve San Francisco's resilience through critical seismic repairs, transportation and utility system improvements, a stronger seawall, modern public health and safety facilities, and safer streets for all. |
| Capital Appreciation Bonds | City and County of San Francisco | Bonds in which the principle and accumulated interest are repaid in a single balloon payment once the bond reaches maturity. These have not seen widespread use in adaptation funding in California |
| Catastrophe (CAT) Bonds | City and County of San Francisco | CCSF may serve as a sponsor of Cat Bonds to insure against damages and fund recovery efforts in the case. |
| Certificates of Participation (COPs) | City and County of San Francisco | Used for acquisition of existing facilities or construction of new facilities that result, on a present value basis, in immediate or future savings in payments currently made or to be made by the City's general fund. For example, COPs may be used to provide funds to execute a lease purchase option for a facility through which future savings accrue, on a net present value basis, to the general fund during the period for which the COPs and the obviated lease would be outstanding. |
| Departmental General Revenue Bonds | SFO, SFPUC, SFMTA, SFRPD | Used for construction of SFO Capital Plan Projects, including improvements to facilities and infrastructure, health, safety and security enhancements, environmental mitigation, and seismic retrofits. |

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| Resource | Department / Agency | Ability to Support Resilience |
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| Finance Staff | Department-specific<br><br>Office of Public Finance | Manages grants.<br>Utilizes three principal types of municipal debt obligations to finance long-term capital projects and the acquisition of select equipment.<br>Other departments with financial or grant personnel include DEM, the Port, Planning, SFMTA, and SFPUC; SFE |
| Financing District: Business Improvement Districts | City and County of San Francisco | The City can levy an assessment against businesses or property to fund services or improvements that benefit the assessed value of businesses or property within a given overlay area |
| Financing District: Infrastructure Finance District | City and County of San Francisco | Uses Property tax increment revenues to finance infrastructure projects |
| Financing Districts: Special Assessment Districts | City and County of San Francisco | CCSF can form assessment districts that fund a portion of public facilities and service costs to provide a "Special" benefit to parcels paying the assessment. This cost has to be separate from the general costs to properties inside and outside of the district for those facilities and services. Therefore, mutual benefits must be disaggregated through the use of formulas to determine different benefit shares. Examples include Geological Hazard Abatement Districts (GHADs), Integrated Financing Districts, and can have numerous forms of special purposes based on the needs of the jurisdiction. |
| Financing Districts: Special Tax Districts | City and County of San Francisco | Special taxes are imposed through Community Facilities Districts (CFDs). CFD special taxes are levied on parcels within a district, without the need to distinguish between special and general benefit. The City and County can create the special tax formula in order to garner the broadest landowner support and maximize revenue. For example, a CFD could fund resilient infrastructure by levying special taxes on the basis of exposure to rising sea levels and amount |

| Resource | Department / Agency | Ability to Support Resilience |
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| | | of property protected (e.g. building square footage). |
| General Obligation (GO) Bonds | City and County of San Francisco | GO Bonds are appropriately used for the construction or acquisition of improvements to real property broadly available to San Francisco residents and visitors. Such improvements include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities. |
| General Taxes | City and County of San Francisco | General tax revenues can be used to fund adaptation projects as a portion of general fund budgets |
| Green Bonds | City and County of San Francisco | Green bonds are issued to fund projects with environmental or climate adaptation benefits. Standards for these bonds are set by the International Capital Market Association and the Climate Bonds Initiative. SFPUC has experience issuing these bonds in the past. |
| Impact Fees | City and County of San Francisco | A development impact fee is an exaction that is imposed as a precondition for the privilege of developing land. Such fees are commonly imposed on developers in order to lessen the impacts of increased population or demand on services generated by that development. |
| Lease Revenue Bonds | City and County of San Francisco | Lease revenue bonds are appropriately used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.); (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or (3) finance the acquisition and installation of equipment for the City's general governmental purposes. |
| Long-Range Financial Management | Mayor's Office Board of Supervisor's | Forcasts the impact of existing service levels and policies on revenue and expenditures, considering departmental operations, facilities, debt management, capital, and technology |

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| Resource | Department / Agency | Ability to Support Resilience |
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|  | Controller's Office | Institutionalizes financial policies that increase resilience. These measures include budget stabilization reserves, economic resiliency and recovery planning, interfund borrowing provisions, GO Bond authorization, and state/federal assistance programs. |
| Pooled Financing | City and County of San Francisco | These can come in numerous forms but generally the main goal is to have multiple agencies pool their resources and issuing joint public bonds in order to pay for capital improvements that may cross jurisdictional lines. Numerous types: Joint-use facility pool, dedicated pools, blind pools, and composite issues. |
| Port Capital Plan | Port | Identifies a total of approximately $2.2 billion for maintenance and seismic upgrade work required on Port facilities, including rehabilitation and redevelopment of the Pier 70 area, security upgrades to the Pier 27 cruise terminal; substructure repair and seismic improvements to the Pier 35 cruise terminal, and repairs and seismic upgrades to Piers 9, 19, 23, 33, and 50. |
| Property Assessed Clean Energy (PACE) | Various regional Joint Powers Authorities (JPA's) in partnership with PACE Program Administrators (private companies) | 100% upfront, long-term financing for energy efficiency and renewable energy projects om privately owned property, paid back as a non-ad valorem assessment added to property taxes. Recent state bill added fire protection measures as a PACE-eligible measure. |
| Public-Private Partnerships | Various Departments, City Administrator | Includes the use of professionals and professional associations for research and development of plans, guidance, recommendations, etc. |
| Resilience Bonds | City and County of San Francisco | Similar to CAT bonds but may also provide financing for adaptation and resilience projects. Financing comes from rebates to sponsor |

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| Resource | Department / Agency | Ability to Support Resilience |
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| | | government action where rebates are used to reduce exposure and risk. Thereby, investor risk is reduced and premiums go down for the sponsoring entity. |
| Seismic Retrofit Financing | City and County of San Francisco | The City is offering a public financing option through AllianceNRG/ Counterpointe Sustainable Real Estate (CounterpointeSRE) to help property owners make soft story retrofit improvements to their properties more affordable. PACE Financing is offered for thousands of risk mitigation, energy efficiency, and water conservation improvements. Property owners can enhance the property's value while also promoting a more sustainable and safer environment. |

## TABLE F-2:
## PUBLIC ASSET OWNER CAPABILITIES

| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| Building Occupancy Resumption Program | DBI | The Building Occupancy Resumption Program consists of three basic phases geared towards reducing the potential disruptions from earthquake hazards by streamlining the inspection and safe reoccupation of buildings through the creation of inspections plans before an event. The first is the assessment of the building and preparation of a BORP program, including a building-specific post-earthquake inspection plan. The second phase includes annual update and renewal activities, the maintenance portion of the work. The third phase is the post-disaster implementation of the program. |
| Engineers or professionals trained in construction | DBI Public Works GSA SFPUC | DBI oversees enforcement of the San Francisco Building, Housing, Plumbing, Electrical, Mechanical, and Disability Access Codes. |

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| Resource | Department / Agency | Ability to Support Resilience |
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| practices related to buildings or infrastructure | SFMTA SFO SF Environment SF Port | Public Works maintains city roads and street structures; promotes the undergrounding of overhead utilities; and provides architectural, civil, structural, electrical, hydraulic, and mechanical engineering services, including project and construction management. Public Works also is the regulator of the Subdivision Code.<br><br>GSA oversees the maintenance, operations, and management of City-owned buildings and infrastructure, technology and telephony services, and design and construction of department's capital improvements. SFPUC, under the Infrastructure Division, has engineers (Civil, Mechanical, Electrical, Structural, and Corrosion disciplines) in the Engineering Management Bureau (EMB) and construction inspectors in the Construction Management Bureau (CMB).<br><br>SFMTA's Capital Program and Construction oversees capital improvement programs for city's transportation initiatives and employs Civil, Mechanical and Electrical engineering. Additionally, SFMTA has subdivisions that oversee transportation engineering and bus, rail and transit right of way maintenance.<br><br>SFO oversees maintenance, operations, and management of city-owned airport buildings and infrastructure, technology, and telephony services, design and construction of the SFO's capital improvements, and airport risk management.<br><br>SF Environment (SFE) works with other city departments to update and maintain the SF Green Building Code and the Municipal Green Building Code. SFE also leads green building programs and policy initiatives to advance state-of-the art practices toward sustainability in design, construction, and operation. |

| Resource | Department / Agency | Ability to Support Resilience |
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| Executive Directive 18-04: Air Quality Emergency Response | DEM, ADM, DPH | This executive directive mandates DPH, DEM , and ADM to update existing emergency response plans for poor air quality, create a task force to establish public respite facilities, set up a structure of mutual aid around these events, and organize culturally competent regional coordination |
| Risk Management | GSA SFO | GSA maintains the Risk Management Program for CCSF, which provides services to City departments by assisting them in managing their risk of injury to people and property, involving employees, City property, and the public at large. This program purchases insurance for City departments and acts in an advisory capacity with respect to workers compensation, public liability, City property, and City contracts. Risk Management is also active in bond and insurance matters to facilitate small-business contracting with CCSF.<br><br>SFO risk management staff evaluates risk at the Airport and ensures proper mitigation for the impact of SFO-related hazards. |
| SFMTA Building Progress Program | MTA | Building Progress is a modernization program for SFMTA facilities in order to meet the needs of everyone who travels in San Francisco. The program will improve our transportation system's resiliency to climate change and seismic events. Furthermore, the program will allow us to be a better neighbor in the parts of the city that currently host our facilities. Benefits that could accompany modernizing our facilities could potentially include beautification, noise reduction and joint uses like housing or other uses that support community goals. |
| Seawall Safety Improvement Program | Port | Improvements to the Embarcadero Seawall will reduce the significant life safety seismic risk, improve current flood protection and provide a stable foundation for future adaptation to sea level rise. Full infrastructure improvements will cost up to $5 billion dollars. Phase 1 funding has |

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| Resource | Department / Agency | Ability to Support Resilience |
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| | | been developed to address immediate life safety improvements. |
| StreetTreeSF | Public Works | StreetTreeSF is a voter-approved initiative managed by San Francisco Public Works to professionally maintain and care for the 124,000-plus street trees growing throughout all neighborhoods in the City. These trees provide a variety of benefits to communities and help mitigate extreme heat and flooding hazards. |
| Asset management and repair assessment | Public Works SFMTA | Asset management tool for roads and street structures that helps prioritize repair work and establish fiscal year projects. Projects are submitted through the capital plan process for funding. This process could be adapted to include hazard vulnerability in DPW annual inspection process.<br><br>The SFMTA is committed to maintaining its transportation infrastructure in a State of Good Repair. State of Good Repair is defined as the condition in which a capital asset is able to operate at a full level of performance. This is done by monitoring the assets its condition, and age, and establishing performance metrics. Additionally, the SFMTA's Asset Management Program has established a Transportation Asset Management Policy and set forth goals consistent with the Federal Transit Administration's requirements for Transit Asset Management. |
| Neighborhood Fire Stations | SFFD | Driven by a comprehensive SFFD Capital Improvement Plan, the Neighborhood Fire Stations program addresses the most urgently needed repairs and improvement to critical firefighting facilities and infrastructure. Projects can be comprehensive, focused, or seismic in scope. |
| Ambulance Deployment Facility | SFFD | The current SFFD houses the entire SFFD ambulance fleet, medical equipment inventory, pharmaceuticals, and logistics and is located in a structure that is extremely susceptible to |

| Resource | Department / Agency | Ability to Support Resilience |
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| | | seismic damage. Currently, there is a new Ambulance Deployment Facility being constructed as it's replacement. |
| San Francisco International Airport Shoreline Protection Program | SFO | This program integrates the results of the Airport Shoreline Protection Feasibility Study to plan, permit, design, and construct comprehensive shoreline protections systems and storm drainage improvements to protect SFO from the impacts of sea level rise. |
| Auxiliary Water Supply System Projects (AWSS) | SFPUC | The purpose of the AWSS is to provide the San Francisco Fire Department (SFFD) with a high-pressure fire suppression water system that can be utilized during large fires. The system is vital for protection against the loss of life, homes, and businesses from fire following an earthquake and non-earthquake multiple-alarm fires. Following a 2014 planning study, projects were identified to increase the systems citywide reliability following seismic events from 47% to 94%. |
| Water System Improvement Program (WSIP) | SFPUC | The Water System Improvement Program (WSIP) is a $4.8 billion dollar, multi-year capital program to upgrade the SFPUC's regional and local water systems. |
| SFPUC Local Water Program | SFPUC | This program develops CCSF's local groundwater supply portfolio and ensures that we have a local source for water should a drought, earthquake or other disaster interrupt our Regional Water System supply. This includes specific projects such as the San Francisco Groundwater Supply Project, Westside Enhanced Water Recycling Project, and the Eastside Recycled Water Project |
| Wildfire Mitigation | SFPUC | SFPUC staff and contractors continuously maintain vegetation in all watersheds to mitigate wildfire hazards as much as possible. Special attention is paid to this in summer months, when the potential for fire is increased. |

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| Resource | Department / Agency | Ability to Support Resilience |
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| San Francisco Unified School District (SFUSD) Capital Improvements | SFUSD | Substantial capital improvements to 59 school sites, including addressing safety and modernization needs. |
| Sewer System Improvement Program (SSIP) | SFPUC | The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come. |

## TABLE F-3:
## PLANNING, RESEARCH, AND GUIDANCE CAPABILITIES

| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| **City and County of San Francisco, Emergency Response Plan (ERP) (2010-Updated May 2017)** | DEM | Provides a high level overview of how CCSF will respond to an emergency. The ERP also describes the role of the Emergency Operation Center (EOC), and the coordination that occurs between the EOC and City's departments and other response agencies.<br><br>Additionally, the ERP describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster. Annexes to this plan describe in more detail the actions required of CCSF departments, agencies, and personnel in addressing particular hazards or carrying out specific emergency functions. |
| **City and County of San Francisco Tsunami Annex** | DEM | Provides a high level overview of how CCSF will respond to a local-, regional-, or distant-source tsunami impacting the City. The Tsunami Annex describes the role of the EOC and the |

| Resource | Department / Agency | Ability to Support Resilience |
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| **to the Emergency Response Plan (2016)** | | coordination needed between the EOC, Department Operations Centers (DOCs), and other response agencies in a tsunami. |
| **Emergency managers and analysts** | DEM<br><br>Other Departments | DEM maintains the Emergency Response Plan and other emergency plans for San Francisco. Provides support to local response and relief activities within the Emergency Operation Center, and works closely with regional, state, and federal partners to provide information and coordinate resources and other assistance. Helps coordinate regional emergency response planning in partnership with the nine Bay Area counties and the cities of Oakland and San Jose. Highlights the importance of disaster preparedness through public education efforts; including its preparedness website, www.sf72.org, which helps San Franciscans plan for emergencies such as earthquakes, fires, severe storms, and power outages. Facilitates meetings of the San Francisco Disaster Council.<br><br>Other departments with emergency management staff include San Francisco Public Works (SFPW), General Services Agency (GSA), the Port, San Francisco International Airport (SFO), the San Francisco Municipal Transportation Agency (SFMTA), and SFPUC. Public Works plans for emergency route clearance, post emergency inspection services, and debris removal. |
| **Climate and Health Program** | DPH | A 2010 initiative created by the San Department of Public Health in recognition of the health impacts of climate change. This program develops research backed solutions to support healthy and climate-ready communities across San Francisco. |
| **Climate and Health Profile** | DPH | Describes health impacts of climate change, maps vulnerable populations across the city, and indicatorscontributing to community resilience. Identifies flooding as a high priority |

| Resource | Department / Agency | Ability to Support Resilience |
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| | | and high health vulnerability in specific geographis such as Chinatown and Downtown; Bayview Hunters Point; and SOMA and Mission Bay. |
| **Understanding the Risk: An Assessment of San Francisco's Vulnerability to Flooding & Extreme Storms** | DPH | This risk assessment provided relevant information to develop adaptive measures that protect public health in the face of climate change related extreme weather events. Specifically, this assessment is designed to prepare the San Francisco Department of Public Health and the City for both the direct and indirect health impacts of flooding. |
| **Understanding the Risk: An Assessment of San Francisco's Vulnerability to Extreme Heat Events** | DPH | This report provides an overview of the health department's study of neighborhoods that are especially vulnerable to extreme heat in San Francisco, California. The assessment will inform climate change adaptation planning efforts including a heat wave disaster response plan. |
| **San Francisco Climate and Health Adaptation Framework** | DPH | This framework integrates the work of SFDPH's Climate and Health program over the last couple years into actionable steps and specific interventions. |
| **Disaster recovery and vulnerability assessment of information technology (IT)** | DT | Currently conducting a disaster recovery and vulnerability assessment of IT infrastructure. Results of the assessment will help identify hazard mitigation projects. |
| **Geographic Information System (GIS)- or HAZUS-MH- skilled personnel** | DT<br><br>GSA, Public Works, DEM, Port, RPD, SFPUC Planning | Department of Technology's San Francisco Enterprise Geographic Information System (SFGIS) provides high-quality spatial data to City departments and to the public and offers essential mapping services to citizens through SFgov.org.<br><br>These departments contain professionals |

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| Resource | Department / Agency | Ability to Support Resilience |
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| | | trained in GIS. Used for a variety of purposes ranging from standard record keeping to detailed spatial analysis. |
| San Francisco Transportation Sector Climate Action Strategy (2017) | MTA | The strategy contains seven climate mitigation program areas with actions to reduce greenhouse gas emissions and five climate adaptation program areas that provide the framework for building a more resilient transportation system. |
| SFMTA Facilities Framework | MTA | The Facilities Framework is intended to be a flexible and dynamic tool that provides alternatives to address SFMTA's facilities needs. This report highlights findings for the following: facility condition assessment, planning objectives and principles, needs and opportunities, facility framework and recommended next steps. |
| Lifelines Restoration Timelines Project | ORCP | The goal of the project is to help the City and County of San Francisco and its people more quickly recover from a major earthquake by assessing ways to reduce damage to critical systems, and therefore, improve the restoration performances of lifelines (transportation, communication, water and wastewater, electricity, natural gas, and fuel). By identifying the gap between current recovery performance and recovery performance goals, targeted improvements can be developed and implemented. |
| Tall Buildings Safety Strategy | ORCP | This strategy stems from the 2012-2042 work plan developed through the ESIP program and presents key recommendations to begin understanding and addressing the unique seismic challenges facing the City's tall buildings. |
| Guidance for Incorporating Sea Level Rise into Capital | ORCP | This guidance provides a framework for City departments to consider sea level rise within the capital planning process. This document is not made to provide specific adaptation |

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| Resource | Department / Agency | Ability to Support Resilience |
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| Planning in San Francisco | | strategies but rather, sets a step by step process for departments to consider SLR while pursuing the assessment of their capital planning needs. It includes a guidance and a checklist for assessing the vulnerability and risk of capital projects to sea level rise. |
| ESIP (Earthquake Safety Implementation Program) | ORCP | An adjusted 30-year implementation program formally adopting the recommendations and goals of the CAPPSS to create an earthquake resilient San Francisco |
| CAPPSS  Community Action Plan for Seismic Safety (CAPPSS) | ORCP | 25-year action plan for seismic improvements targeted at private buildings |
| Resilient San Francisco | ORCP | This plan sets a bold strategy for CCSF to deal with the most pressing interconnected challenges of the 21st century. This plan sets out actionable goals to address challenges ranging from sea level rise and climate change to social inequity and unaffordability. |
| Sea Level Rise Vulnerability and Consequences Assessment | Planning | This studies the vulnerability of city-owned assets to a wide range of future bay water levels and the consequences for society, economy, and the environment. The assessment analyzes numerous sea level rise scenarios to identify impact tipping points to inform citywide planning and capital improvement efforts |
| Resilient By Design: Islais Creek | Planning | In May 2018, the Resilient by Design Bay Area Challenge launched design concepts for nine sites including one in the Islais Creek area in San Francisco.  The design developed by the BIG+Sherwood team includes a restored creek with public spaces offering recreational amenities, as well as industrial zones clustered in a jobs and logistics hub. |

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| **Sea Level Rise Action Plan** | Planning | The SLR Action Plan defines an overarching vision and set of objectives for future sea level rise and coastal flooding planning and mitigation in San Francisco. |
| **Islais Creek Adaptation Strategy** | Planning | The Southeast Mobility Adaptation Strategy (SMAS) is a two-year community planning process in the Islais Creek area that will develop actionable strategies that address sea level rise and coastal flood risk through a robust public engagement process. Building on the Resilient by Design proposal and other city and regional efforts, the SMAS will develop a long-range vision for the Islais Creek shoreline, asset-specific solutions for public infrastructure, and a prioritized funding and implementation strategy that increases the resilience of the community and provides improved transportation networks and new open space. This will include rebust public engagement over the liftime of the planning period. |
| **City and County of San Francisco, General Plan Updates.** | Planning | San Francisco's General Plan is designed as a guide to coordinate the development of the city in a way that attains common goals and preserves the values of the community. These goals and values are achieved through implentation of the zoning code that undergirds the plan, this determines the land use across the city through a variety of mechanisms. Currently, the general plan is being updated in order to increase the climate resilience of the city as a whole. |
| **Central SoMa Plan, Ch.6: Environmental Sustainability & Resilience** | Planning | The Central SoMa plan focuses on redeveloping this section of the city to be as sustainable and reslient community as possible. To achieve this, provisions have been added to create an eco-district in the neighborhood that will include local energy generation, increased flood resiliency, and increased biodiversity among other interventions. |

| Resource | Department / Agency | Ability to Support Resilience |
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| **Planners or engineers with knowledge of land development, land management practices, and human-caused and natural hazards** | Planning Department SFPUC Public Works Port Recreation and Parks Other Departments | Planning develops and maintains the General Plan, including the Community Safety Element. Develops area plans based on the General Plan to provide more specific guidance for the development of the various neighborhood areas. Reviews of private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. Design Guidelines and Design Review for vertical development in the City. Anticipates and acts on the need for new plans, policies, and Planning Code changes. Applies approved General Plan Elements, Area plans, policies, Planning Code, and other regulations to proposed land use decisions. Planning capacity may also be applied to the Other CCSF departments with planning personnel including the Port of San Francisco (Port), the Recreation and Parks Department (RPD), Department of the Environment (SFE), San Francisco Municipal Transportation Agency (SFMTA), Public Works, and the San Francisco Public Utilities Commission (SFPUC). |
| **City and County of San Francisco, General Plan: Community Safety Element, 2012** | Planning | Includes a comprehensive description of plans and programs aimed at addressing earthquake risk. Provides an overview of civic organizations and resources addressing mitigation, preparation, response, and recovery, including:<br>•Mitigation and preparedness: Medical emergencies and pandemics; preparedness strategies for builders, developers, and private homeowners; and the importance of retrofitting privately-owned and public buildings.<br>•Response: Communications and increased access to information; resumption of social services; access to capital; and the protection of vulnerable historic resources.<br>•Recovery and reconstruction: Recommendations for a Recovery and Reconstruction Plan to guide long-term recovery before an emergency, and necessary |

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| | | ordinances or code changes to facilitate repair and reconstruction after the disaster. •Minor updates will occur in 2020 including adding the 2019 HCR by reference. |
| **Port of San Francisco Stormwater Management Plan (2003)** | Port | Describes measures the Port will take on Port property to minimize stormwater ponding and pollution. |
| **U.S. Army Corps of Engineers General Investigation Feasibility Study** | Port | Congress and the White House awarded the Port New Start for a General Investigation that will analyze the entire Port jurisdiction and can bring substantial amounts of federal money for projects that protect not only the Port, but the City broadly. As a result, a new General Investigation Feasibility Study is beginning.  The study is targeted to be complete in 3 years and will hopefully culminate in one or more flood risk reduction projects to protect stretches of the City's Bayfront, from Fisherman's Wharf to Heron's Head Park at Cargo Way, including Mission Creek and Islais Creek. |
| **Urban Water Management Plan: 2015 Update** | SFPUC | As water supplies become more vulnerable due to drought and the effects of climate change, it is critical that we diversify our water supplies to add more local sources into our water portfolio. Urban Water Management Plan (2015) presents the latest information on the San Francisco Public Utility Commission's service areas, Hetch Hetchy Regional Water System and other water systems operated by the SFPUC, system supplies and demands, water supply reliability, Water Conservation Act of 2009 compliance, water shortage contingency planning, and demand management. |
| **SFPUC Climate Stressors and Impacts:** | SFPUC | This technical memorandum provides context for the ongoing assessment of SSIP projects for their vulnerability and risk from climate |

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| **Bayside Sea Level Rise Mapping** | | change impacts, particularly focused on Bayside assets. |
| **Ocean Beach Master Plan** | SFPUC, RPD, MTA, Planning | The Ocean Beach Master Plan, completed in 2012, lays out a vision for adapting to a changing coastline at Ocean Beach. It is the result of a two-year process that brought together community members and numerous public agencies to consider the area's future as erosion continues. |
| **Sustainable Chinatown Plan Implementation** | RPD, Planning, SFPUC | Sustainable Chinatown aims to protect those most vulnerable to climate change and gentrification by improving the neighborhood's environmental performance, ensuring long-term cultural resilience and maintaining affordability of housing and commercial properties threatened by a speculative market. (SF Planning and SF Environment)Current implementation projects include the improvement of all existing park features in Portsmouth Square including buildings, pedestrian bridges, landscaping, adjacent streetscapes, and associated site work to include more greenspace and the development of a community/cooling center. Another project includes the installation of a parklet/living alleyway spearheaded by PUC. |
| **City and County of San Francisco Climate Action Strategy update (2020) (In progress)** | SFE | The Climate Action Strategy update will focus on the following goals:<br>• Develop a pathway to deliver an emissions neutral city by 2050 at the latest, and set an ambitious interim target<br>• Demonstrate how the city will adapt and improve its resilience to climate hazards that may impact the city now and in future<br>• Outline the social, environmental and economic benefits expected from implementing the plan, and improve the accessibility of these benefits by the city's population<br>• Detail the city's governance, powers and the partners who need to be engaged to accelerate |

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| Resource | Department / Agency | Ability to Support Resilience |
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| | | the delivery of the city's mitigation targets and resilience goals |
| Solar+Storage for Resilience Assessment | SFE | San Francisco's Solar+Storage for Resiliency project is a national model for integrating solar and energy storage into City emergency response plans. With the grant funding, SFE examined the possibility of solar plus storage in both individual and groups of buildings in the event of the next large-scale disaster in San Francisco, and developed resources and tools, such as Best Practice Guide and SolarResilient.org, a sizing tool for solar PV and battery storage systems. (SF Environment) |
| Airport Shoreline Protection Feasibility Study | SFO | Recognizing the flood risks, SFO completed an Airport Shoreline Protection Feasibility Study to better understand the deficiencies in its existing shoreline protection system. The study also provides recommendations on improvements needed to protect the Airport from 100-year flood events and sea level rise. |
| Extreme Precipitation Study | SFPUC | This project focuses on using climate simulations of past notable storms, and two climate future scenarios, to develop a practical stakeholder guidebook for use by various San Francisco agencies when determining design standards (i.e., Level of Service Goals, Design Storms, Intensity-Duration-Frequency Curves) |
| SFPUC Climate Adaptation Plan | SFPUC | The SFPUC Climate Adaptation Plan lays the foundation to safeguard San Francisco's wastewater enterprise by identifying the stressors and vulnerabilities due to climate change impacts. This facilitates SFPUC's mission to provide quality service and environmental stewardship to the residents of San Francisco |
| Long-term Vulnerability Assessment and Adaptation | SFPUC | The SFPUC Water Enterprise is conducting a long-term vulnerability assessment to its levels of service for the Regional Water System (RWS). A vulnerability-based planning approach |

| Resource | Department / Agency | Ability to Support Resilience |
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| Plan for the SFPUC Water Enterprise | | will explore a range of future conditions to identify vulnerabilities, assess the risks associated with these vulnerabilities and later develop an adaptation plan that is flexible and robust to a wide range of future outcomes. This plan will guide water supply decisions to reduce the risk of particular vulnerabilities of the Hetch Hetchy Regional Water System (RWS) over the next 50 years or longer. |

**TABLE F-4:**
**ADOPT AND ENFORCE REGULATIONS CAPABILITIES**

| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| San Francisco Floodplain Management Program: National Flood Insurance Program (NFIP) | ADM | San Francisco is a member of the National Flood Insurance Program (NFIP). Currently, San Francisco is working with FEMA to update the preliminary maps but these have not been finalized at the time of this report. The Floodplain Manager is responsible for working with stakeholders to ensure the Floodplain Damage Prevention Ordinance is followed. Under this program, which is managed by FEMA, the Federal government makes flood insurance available at affordable rates in the city. Homeowners, renters, and businesses in areas of the City that are subject to flooding during severe storms are eligible to purchase Federally subsidized flood insurance to financially protect their properties. San Francisco will continue to adhere to all NFIP requirements. |
| Soft Story Retrofit Ordinance and Program | DBI | This program administers mandatory retrofits to wood-frame buildings of three or more stories, or two stories over a basement, or underfloor area that have any portion extending above grade containing five or more residential dwelling units where the permit to construct was applied for prior to January 1, 1978, and |

| Resource | Department / Agency | Ability to Support Resilience |
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| | | where the building has not yet been seismically strengthened. This targets buildings that are most vulnerable to significant damage or potential collapse in a significant earthquake event. The program has a tiered implementation structure, where buildings have different deadlines for the submission of building permits as well as the completion of applicable retrofits. |
| Private School Earthquake Program | DBI | Per the Private School Earthquake Program, existing private elementary and secondary schools in San Francisco are now required to obtain an earthquake evaluation of their campus. The goal of this program is to ensure that all private school structures are safe for the students who attend them and the staff who teach there. The associated ordinance, number 202-14, amends the building code to make the assessment mandatory for applicable buildings. |
| Unreinforced Masonry Building Retrofit Program | DBI | Provided $350M in bonds to retrofit privately owned UMBs to minimize potential injusry or damage from earthquake hazards. |
| Administrative Code | n/a | ·Specific chapters of the code that address hazards include: Chapter 66 – Seismic Safety Retrofit Program Chapter 66A – Seismic Safety Loan Program-- Implements a program to lend taxable general obligation bond proceeds to building owners to finance the seismic retrofit of unreinforced masonry buildings. Administrative Code updates for Urban Flood risk under consideration in 2019 |
| Building Code (2016), including California Residential Code (2016) and California Green Building | n/a | ·Establishes minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control demolition of all buildings and |

| Resource | Department / Agency | Ability to Support Resilience |
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| Standards Code (2016) | | structures, and the quarrying, grading, excavation, and filling of land; and to provide safety to fire fighters and emergency responders during emergency operations |
| Municipal Green Building Code | n/a | In addition to the requirements of the San Francisco Green Building Code, city-owned facilities and leaseholds are subject to the requirements set by Chapter 7 of the Environment Code, which requires LEED certification from the US Green Building Council for all new construction projects and major alterations for projects >10,000 SF, and additional measures such as Solar+Storage feasibility analysis for certain public facilities; and for projects less than or equal to three stories above grade, design teams shall determine the feasibility of designing and constructing such project to have zero net annual site energy consumption, including all building end uses. |
| Housing Code | n/a | Provides for the maintenance of minimum requirements for the protection of life, limb, health, property, safety, and welfare of the general public and the owners and occupants of residential buildings in San Francisco. |
| Fire Code | n/a | Regulates and governs the safeguarding of life and property from fire and explosion hazards arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises; provides for the issuance of permits, inspections, and other Fire Department services, and the assessment and collection of fees for those permits, inspections, and services. |
| Health Code | n/a | Specific chapters that address hazards include: •Article 2 – Communicable Diseases •Article 21 – Hazardous Materials: Provides information on the location, type, and health risks of hazardous materials used, stored, or |

| Resource | Department / Agency | Ability to Support Resilience |
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| | | disposed of in the City to firefighters, health officials, planners, elected officials, and residents.<br>·Article 21A – Risk Management: Implements a program for prevention of accidental releases.<br>·Article 22 – Hazardous Waste Management: Regulates local facilities that generate or treat hazardous waste.<br>·Article 30 – Regulation of Diesel Backup Generators: Regulates the use of diesel backup generators<br>·Article 38 – Enhanced Ventilation Required for Urban Infill Sensitive Use Developments |
| Public Works Code | n/a | Specific chapters that address hazards include:<br>·Article 4 – Sewers: Article 4.2, Sewer System Management, protects and enhances sewer system water quality and stormwater collection by minimizing increases in pollution from stormwater runoff; by controlling discharges to the sewer and drainage systems from spills, dumping, or disposal of pollutants; and by reducing stormwater run-off rates, volume, and nonpoint source pollution through stormwater management controls.<br>·Article 16 – Urban Forestry Ordinance: Promotes the planting and maintenance of trees and green spaces in public places to favorably modify microclimates, abate air and noise pollution, and reduce soil erosion and runoff.<br>·Article 18 – Utility Facilities: Regulates activities such as undergrounding utilities in designated areas of the jurisdiction, which can contribute to their resiliency to certain hazards<br>·Article 22: Reclaimed Water: Regulates effective management of limited water resources by creating provisions allowing for the use of reclaimed water in certain development situations |
| Subdivision Code | n/a | Establishes procedures and requirements for control and approval of subdivision development within CCSF in accordance with California Subdivision Map Act (SMA); ensures |

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| Resource | Department / Agency | Ability to Support Resilience |
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| | | the development of subdivisions consistent with the objectives of the San Francisco Master Plan. |
| Planning Code | n/a | Establishes procedures rules and regulations governing the composition and form of urban development within the city. This can include provisions for Living Roofs, Special Use Districts that include sea-level rise adaptation, increased bike parking, and more flood resilient street designs. |
| Port Building Code | n/a | •Specific chapters that address hazards include: Chapter 7 – Fire Resistance Rated Construction Chapter 7A – Materials and Construction Methods For Exterior Wildfire Exposure Chapter 9 – Fire Protection Systems Chapter 10A – Security Systems Chapter 13 – Resource Conservation Chapter 13A – Commercial Water Conservation Chapter 16 – Structural Design Chapter 31F – Marine Oil Terminals |
| Local Coastal Program Amendment (Ocean Beach) | Planning | The Local Coastal Program is a policy and regulatory document required by the California Coastal Act that establishes land use, development, natural resource protection, coastal access, and public recreation policies for San Francisco's Coastal Zone. Amendments to this document are essential to implementing the aspects of the Ocean Beach Master Plan. |
| San Francisco Stormwater Ordinance and Design Guidance | SFPUC, Port | The guidelines require new development and redevelopment disturbing 5,000 square feet or more of ground surface to manage stormwater on-site using low imapct design (LID) strategies such as vegetated roofs, wales, rainwater harvesting, and rain gardens. The Guidelines protect CCSF by reducing the wet weather burden on its combined sewer and by reducing pollution in stormwater runoff in areas of new development and re development. |

| Resource | Department / Agency | Ability to Support Resilience |
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| Construction and Demolition Program | SFE | In partnership with DBI, Public Works, DPH, SF Planning, and many private sector actors, this program aims at reducing the number of materials needlessly discarded to existing landfills by increasing the amount of materials reused/recycled from demolition or construction activities within the city. This reduces the possibility that the city exceeds landfill capacity in the case of an emergency/disaster. |
| SFPUC Non-Potable Water Program | SFPUC | The Non-potable Water Program details the steps that must be taken to collect, treat, and use non-potable water in commercial, mixed-use, and multi-family residential developments. The program also outlines the oversight of the SFPUC and the City's Departments of Public Health (SFDPH) and Building Inspection (DBI) during the review process. This amendment added Article 12C to the San Francisco Health Code, allowing for the collection, treatment, and use of alternate water sources for non-potable applications in individual buildings and at the district-scale. |

**TABLE F-5:**
**COMMUNITY SERVICES**

| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| NEN: Empowered Communities Program | ADM | The Empowered Communities Program helps neighbors connect and collaborate to create stronger, healthier, safer and more resilient communities. This is done through the HUB program which activates community serving organizations to support each other and neighborfest, an initiative that builds social cohesion and awareness through block parties and the production of other materials |

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| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| National Weather Service (NWS) TsunamiReady and StormReady Status | DEM, SFO | To achieve TsunamiReady and StormReady status, San Francisco County incorporated severe weather threats into the HMP and the Emergency Response Plan; maintains a 24-hour warning point and an emergency operations center; established multiple ways to receive severe weather warnings and forecasts and to alert the public; created a system to monitor weather conditions locally; and promoted public readiness through community seminars, severe weather spotter training, and by conducting emergency exercises. In addition, San Francisco International Airport became a NWS StormReady Commercial Site in 2009, and a TsunamiReady Commercial Site in 2013. |
| Public Information Officers (PIO) | Department-specific | Provide public and media information regarding disaster preparedness, response, mitigation, and recovery efforts. Gather and integrate community input into resilience and hazard mitigation planning processes.\n\nCCSF departments with PIOs include DEM, SF Planning, SFFD,  SFPD, the Port, SFO, and SFPUC. |
| Community Training on Emergency Preparedness | DPH | The Department of Public Health has developed and offers community trainings and multilingual informational sheets on a variety of emergency preparedness topics: e.g. Psychological First Aid, storm and flood impacts, extreme heat impacts, and proper shelter-in-place practices. The presentations and tip-sheets are provided by DPH staff and are also available for trainers in other organizations to provide to their staff and/or the public. |
| Public Preparedness Education | San Francisco Fire Department (SFFD) Neighborhood | NERT offers free disaster preparedness training to thousands of San Francisco residents and to those who work in CCSF. Provides an organizing framework and support to neighborhood NERT teams, which self- |

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| Resource | Department / Agency | Ability to Support Resilience |
|---|---|---|
| | Emergency Response Team (NERT)<br><br>San Francisco Animal Care and Control (ACC) Disaster Animal Response Team (DART)<br><br>SFPD Auxiliary Law Enforcement Response Team (ALERT)<br><br>SF Planning | deploy in the event of a serious earthquake or other major disaster.<br><br>DART offers free training in caring for and sheltering animals in a disaster. Volunteers assist ACC in staffing animal shelters in disasters. Participants must complete basic NERT training in order to volunteer.<br><br>ALERT offers free training to those who live, work, or attend school in CCSF in how to assist law enforcement during disasters, including performing traffic control, reporting criminal activity, assisting at an SFPD incident Command Post, providing well-being checks, securing resource locations, and delivering logistical supplies. Participants must complete basic NERT training in order to volunteer.<br><br>SF Planning educates the public on resilience issues and gathers/ incorporates community input into the planning process |
| Zero Waste Outreach | SFE | Through maximization of the use of the three primary residential and commercial zero waste programs, the city can reduce the amount of unnecessary materials headed to landfill sites, thus saving their capacity for use when disasters or other major hazard events strike. Current programs will be expanded in the future to increase promotion and community education. These efforts also assist the city in meeting state regulatory requirements. |

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# Appendix G

## Acronym Index

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## Acronym Index

- **ACC:** Animal Care and Control

- **ADM:** Office of the Administrator

- **ADU:** Accessory Dwelling Unit

- **BayREN:** Bay Area Regional Energy Network

- **BDC:** Building Design Construction

- **BOS:** San Francisco Board of Supervisors

- **CEA:** California Earthquake Authority

- **CON:** Controller's Office

- **CPC:** Capital Planning Committee

- **CPUC:** California Public Utilities Commission

- **DAAS:** Department of Aging and Adult Services

- **DBI:** Department of Building Inspection

- **DCYF:** Department of Children, Youth & Their Families

- **DEM:** Department of Emergency Management

- **DPH:** Department of Public Health

- **DPH PHEPR:** Public Health Emergency Preparedness and Response

- **DPW:** Department of Public Works

- **DSOD:** California Department of Water Resources, Division of Safety of Dams

- **DT:** Department of Technology

- **FEMA:** Federal Emergency Management Agency

- **GGNRA:** Golden Gate National Recreational Area

- **GSA:** General Services Agency

- **HSH:** Department of Homelessness of Supportive Housing

- **IDC:** Infrastructure Design Construction

- **LIB:** San Francisco Public Library

- **LIHEAP:** Low Income Home Energy Assistance Program

- **LIWP:** Low Income Weatherization Program

- **MOHCD:** Mayor's Office of Housing and Community Development

- **MYR:** Mayor's Office

- **NEN:** Neighborhood Empowerment Network

- **OCII:** Office of Community Investment and Infrastructure

- **OEWD:** Office of Economic and Workforce Development

- **ORCP:** Office of Resilience and Capital Planning

- **OSB:** Office of Small Business

- **PACE:** Property Assessed Clean Energy Financing

- **Planning:** San Francisco Planning Department

- **Port:** Port of San Francisco

- **REC:** Recreation and Parks Department

- **RED:** Real Estate Division

- **SFAC:** San Francisco Arts Commission

- **SFCARD:** San Francisco Community Agencies Responding to Disaster

- **SFE:** Department of the Environment

- **SFFD:** San Francisco Fire Department

- **SFMTA:** San Francisco Municipal Transportation Agency

- **SFO:** San Francisco International Airport

- **SFPD:** San Francisco Police Department

- **SFPUC:** San Francisco Public Utilities Commission

- **SFUSD:** San Francisco Unified School District

- **SHF:** Sheriff's Department

- **SMIP:** Strong Motion Implementation Program

- **TIDA:** Treasure Island Development Authority

- **VOAD:** Voluntary Organizations Active in Disasters

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