Chapter 06

Capabilities Assessment

This chapter describes San Francisco's existing authorities, policies, programs, and resources and its ability to expand on these policies and programs to advance resilience. Section 6.1 describes the City's roles in mitigation and activities underway. Section 6.2 provides an update to the actions identified in the 2014 Hazard Mitigation Plan. These two sections highlight capabilities and resources to address hazards and the stage for the strategies in Chapter 07.

San Francisco has a long history of learning from natural disasters. As a result, the City has developed extensive codes, policies, programs, projects, and studies that are recognized around the globe. An example is the Emergency Firefighting Water System (EFWS) that was designed before, but constructed after, the Great Earthquake of 1906, when over 80 percent of San Francisco was destroyed. The investments in EFWS paid-off 83 years later when the fireboat and other aspects of the system were needed put out large fires resulting from collapsed soft-story buildings and broken gas mains. As a

result of those collapsed buildings, San Francisco implemented a mandatory soft-story retrofit program that will be completed in 2020. The program dramatically improves the safety of nearly 5,000 buildings and more than 111,000 residents.

Other programs put in place after the 1989 Loma Prieta Earthquake include over $20 billion in capital improvements, a completed Unreinforced Masonry Building retrofit ordinance, regularly updated building codes, performance-based design for tall buildings, and community-based resilient hubs that cover a large portion of the city. The city also just completed a first of Its kind study of how tall buildings will perform In an earthquake and how they will affect surrounding neighborhoods.

San Francisco has also been aggressive in its efforts to adapt to the impacts of climate change. These include capturing rain-water and reducing runoff, restoring natural areas, planting trees, preserving biodiversity and open space, creating sea level rise guidelines, and putting together a sustainability plan for the most vulnerable neighborhood in the city, Chinatown.

6.1 SF Government Activities

The City and County of San Francisco plays a variety of roles with respect to how it develops capacity and implements measures to increase resilience to hazards. These roles are categorized under five areas:

1. Funding and Finance;
2. Public Asset Owner;
3. Community Services Delivery;
4. Research, Planning, and Guidance; and
5. Adopts & Enforces Regulations.

The following describes capabilities under each of these areas and includes examples of each capability. A more comprehensive list of each capability is available in Appendix F.

Funding and Finance

Given that San Francisco is one of the most expensive places in the world to live and build, the ability to have strong funding and financial mechanisms is critical to San Francisco's mitigation efforts. The City's **10-Year Capital Plan** and **its 5-Year Financial Plan** lay the foundation for hazard mitigation and climate adaptation funding. The Capital Plan establishes policies to fund large- and small-scale projects and incorporates life-safety, resilience, and sustainability in its core funding principles. The Financial Plan lays out policies to meet San Francisco's obligations and ensure sufficient rainy-day reserves and financing is available in the case of a large disaster or other emergency. These tools have helped San Francisco improve its infrastructure while maintaining the highest bond ratings possible.

The Office of Resilience and Capital Planning (ORCP) that is part of the City Administrator's Office oversees the 10-Year Capital Plan. ORCP updates the Capital Plan every odd numbered year. The FY 2020-2029 Capital Plan projects $39 billion in funding. The 5-year Financial Plan is jointly developed by the Controller's Office, the Mayor's Budget Office, and the Board of Supervisor's Budget Analyst's Office. Like the Capital Plan, they update the Financial Plan every odd-numbered year.

Both the Capital Plan and the Financial Plan use a wide range of revenue sources for infrastructure and services. The most common sources are general fund revenue, General Obligation bonds, Certificates of Participation, revenue bonds, general taxes, and fees, and grants. Descriptions of these revenue sources can be found in Appendix F.

Opportunities for Expansion/Improvement

Despite a strong economy, the City and County still has unfunded needs. For example, the Capital Plan defers $5 billion in identified needs from General Fund departments. In an environment where needs exceed public funding capacity, developing innovative financing mechanisms is necessary. Secondly, climate adaptation projects involve multiple agencies and complex improvements that anticipate future changes to the environment. The City and County will increasingly need to coordinate complicated multi-agency adaptation projects, such as the Embarcadero Seawall and Ocean Beach. Lastly, the City can consider expanding financial incentives for private mitigation actions. The City currently offers Property Assessed Clean Energy (PACE) financing for

soft-story retrofits and will need to consider additional financial incentives and programs for future mitigation and retrofit efforts.

Public Assets Owner

As an owner and builder of buildings and infrastructure, San Francisco has strong programs, mechanisms, and staff expertise to design, develop, construct, and maintain its assets. The buildings (vertical assets) range from public restrooms to complex hospitals and sewer treatment facilities. The infrastructure (horizontal assets) range from local streets to regional water delivery and transportation networks. Taking care of our capital infrastructure is an important part of building a resilient city. The City and County of San Francisco strives to maintain and improve existing assets and design new ones to withstand future hazards and serve the public's needs no matter what kinds of chronic stresses or acute shocks they face.

An example of San Francisco's mitigation capabilities for its buildings includes the **Neighborhood Fire Stations Program,** which addresses the most urgently needed repairs and retrofits to critical firefighting facilities and infrastructure. This program is funded by Earthquake Safety and Emergency Response (ESER) bonds that are placed on the ballet every six years or so.

An example of San Francisco's mitigation capabilities for its infrastructure is the **Sewer Safety Improvement Program,** a 20-year $7 billion citywide investment to upgrade San Francisco's aging sewer infrastructure to ensure a reliable, sustainable, and seismically safe sewer system now and for generations to come.

Opportunities for Expansion/Improvement

The City and County can continue to retrofit vulnerable assets, especially for impacts that are new or increasing, such as sea level rise, extreme heat, and poor air quality.

Community Services Delivery

The City and County of San Francisco offers many services that assist vulnerable populations, helping them access services that reduces their vulnerability before and after a natural disaster. These services include increasing public awareness of hazards and empowering communities to care and advocate for themselves.

The San Francisco **Homeless Outreach Team** is a collaboration between DPH, HSA, SF Public Library and the non-profit, Public Health Foundation Enterprises . The program aims to engage and stabilize the most vulnerable and at-risk homeless individuals and to help prevent the harmful effects of homelessness. Through outreach, medical services, engagement and advocacy, the program is dedicated to transitioning individuals into stable living and healthcare environments with access to services that promote greater health and housing retention and reduce vulnerability and the need for emergency services.

The Mayor's Office of Housing and Community Development promotes **Stable and Healthy Housing** by funding non-profit partner organizations to provide essential and high-quality public services. These services include eviction defense and tenants counseling, Information and counseling about housing programs, and population-specific housing support.

The **Neighborhood Empowerment Network's** Empowered Communities Program leverages a community development approach to advance a neighborhood's disaster resilience. By fusing together methods such as human centered design, collective impact and experiential leadership development, the program empowers neighborhoods to craft and implement culturally competent strategies that strengthen their capacity to negotiate times of stress and protect the health and well-being of all residents, especially the vulnerable. San Francisco has nine community based resident hubs and is in the process of developing several more.

Opportunities for Expansion/Improvement

The City can continue to improve the resilience of the facilities that provide services to vulnerable populations, such as shelters and subsidized affordable housing. The City can also consider ways to increase the resilience of leased facilities, such as public health clinics. Furthermore, the City can add capacity to expand the Empowered Communities Program and provide additional services for vulnerable populations during extreme weather events.

Research, Planning, and Guidance

The City and County of San Francisco invests in innovative hazards and climate change research that directly inform policies, programs, and services. The City consistently strives to better understand the local impacts of hazards and climate change, such as sea level rise and extreme heat, given San Francisco's unique local characteristics including a highly developed bay shoreline, dense urban form, and old and historic building stock.

The Department of Public Health developed the **Climate and Health Program** to develop solutions to support healthy and climate-ready communities. The Program has produced vulnerability assessments on heat and flooding and developed education and outreach materials.

Starting in 2014, and updated in 2015 and 2019, The City and County of San Francisco developed **Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco** to provide direction to all departments on how to incorporate sea level rise into new construction, capital improvement, and maintenance projects. The guidance includes steps for assessing and adapting projects to the impacts of sea level rise. It helps project managers and others doing construction in San Francisco to apply the latest sea level rise projections and guidance from the State to their projects.

Published in 2011, the **Community Action Plan for Seismic Safety (CAPSS)** created a 30-year plan to mitigate the risk San Francisco faces from earthquakes. CAPSS studied four probable earthquake scenarios and found that they could devastate the city's housing stock and have long-term implications on the City's affordability to middle- and low-income residents. Hundreds of people could be killed and thousands injured. The price tag of earthquake damage would be many billions of dollars. Taking action before an earthquake strikes is far less costly than repairing the damage, both in terms of dollars required and the social impacts. The CAPSS advisory committee, a diverse group of San Francisco residents, met over 30 times to develop recommendations. CAPSS continues to be the guiding document for San Francisco's on-going efforts and is implemented through the **Earthquake Safety Implementation Program.**

Opportunities for Expansion/Improvement

As climate change impacts increase, research will continue to be essential to ensure that the City can be proactive. Capital planning guidance can be expanded for additional

climate stressors beyond sea level rise. The City can also continue to follow the CAPSS work plan, moving into more complex vulnerable building types, such as unreinforced concrete and steel moment frame buildings, that will have their own research needs to develop policies and programs.

Adopts and Enforces Regulations

San Francisco adopts regulations that govern the construction of buildings, the form of urban development, and natural resource protection, among others. Regulations is one of the primary mechanisms the City has for achieving mitigation and adaptation of privately owned buildings. For example, San Francisco passed a **Soft Story Retrofit Ordinance** in 2013 which mandates retrofits to wood-frame buildings of two or more stories with five or more residential dwelling units built before 1978 that are vulnerable to potential collapse in an earthquake. This program improves the safety of nearly 5,000 buildings and more than 111,000 residents.

In 2012, San Francisco adopted the Onsite Water Reuse for Commercial, multi-family, and Mixed-Use Development Ordinance, commonly known as the **Non-Potable Ordinance.** This amended the health code to allow for the collection, treatment, and use of alternate water sources, such as graywater, rainwater, and foundation drainage, for non-potable applications in individual buildings and at the district scale. This is a mandatory requirement for all new construction of 250,000 square feet or more.

Opportunities for Expansion/Improvement

Building and planning codes could be improved to better accommodate flooding, extreme heat, and poor air quality. Additional service level standards for utilities and buildings performance standards in light of expected earthquakes can also be further developed. In a City where the cost of construction is extremely high, any additional regulations need to be carefully studied to understand potential impacts to housing costs and impacts to low-income owners and renters.

6.2 Status of 2014 HMP Actions

In order to assess progress on local mitigation efforts, the 2019 HCR process involved reviewing the action plan detailed in the 2014 HMP in order to track updates for each of the projects pursued by departments across the City. Table 6-1 displays the status of all of these projects, including whether they are completed, delayed, or currently ongoing.

TABLE 6-1:
STATUS OF ACTIONS FROM 2014 HMP

Action #	Action Description	Status
1.A	Create a joint Planning Department (Planning)-Department of Building Inspection (DBI), GIS-based pre-computer system tying hazard areas such as liquefaction, lateral spread, landslide, or Special Flood Hazard Area (SFHA) to Assessor's Parcel Numbers (APNs) for new construction and major remodels in those areas.	Delayed
1.C	Implement Auxiliary Water Supply System (AWSS) Planning Study recommendations to rehabilitate the system, seismically brace weak pipes and cisterns, construct new cisterns, and make other improvements to ensure its continued operation after a disaster.	On schedule
2.A	Refine inventory and/or develop replacement values for all CCSF-owned facilities and their contents to help CCSF better understand the values of assets at risk.	On schedule
2.F	Develop criteria for high priority neighborhoods where microgrids can provide a strategic and critical difference for community energy emergency resilience. Identify up to 10 neighborhoods and specific areas for development of microgrids. Develop an implementation plan and funding plan for each microgrid.	Completed
3.A	Continue to hold workshops and advance implementation of the Mandatory Soft Story Retrofit Ordinance.	On schedule
3.B	Relocate the Office of Chief Medical Examiner (OME) to a seismically safe facility of about 45,000 square feet.	Completed

Action #	Action Description	Status
3.D	Relocate the San Francisco Police Department (SFPD) Forensic Services and Traffic Company to a seismically safe, 105,000 square foot building.	On schedule
3.H	Seismically upgrade the Treasure Island Causeway to preserve critical lifeline access to the island and to protect the utility corridor that runs under the causeway.	On schedule
3.I	Continue to develop the Building Occupancy Resumption Program (BORP) program for critical CCSF facilities and privately-owned buildings, and expand BORP to more buildings in CCSF, as appropriate.	On schedule
3.J	Continue to use FEMA-developed HAZUS and similar models and tools to guide emergency and capital planning decisions.	On schedule
3.K	Update or assign an additional 50 Seismic Hazard Ratings (SHR) to city-owned buildings using the City's rating system.	Completed
3.N	Seismically retrofit or upgrade seismically deficient Recreation and Parks Department (RPD) facilities and shelters.	Ongoing
4.B	Implement Phase I of the Sewer System Improvement Program (SSIP), including Low Impact Development (LID) projects, and conduct public outreach and Urban Watershed Seminars in the eight urban watershed areas of CCSF. Publish watershed design tools and website resources devoted to green infrastructure.	On schedule
4.E	Continue the Great Highway Long-Term Stabilization program to respond to continuing beach erosion impacts along the Great Highway at Ocean Beach south of Sloat Boulevard.	On hold
4.H	Develop a public outreach and awareness program about heat and human health. Ideas include media announcements; public information about heat effects and cooling centers; outreach visits to the elderly, homeless, and other vulnerable populations; community resilience efforts; etc.	Completed

Action #	Action Description	Status
4.I	Upgrade segments of the San Francisco International Airport (SFO) shoreline protection system that do not meet regulatory freeboard requirements when compared to the one-percent-annual-chance stillwater elevation. Address gaps in the system that could allow the entry of floodwater; and address openings for stormwater drainage that do not have closure devices, which could allow the entry of floodwaters. Upgrade seawalls to address sea level rise.	Ongoing
4.L	Perform annual maintenance of the Crystal Springs, Calaveras, and San Antonio watersheds to construct fire breaks, mow areas of grass, and clear around assets to prevent wildfire damage and mitigate wildfire hazards.	Ongoing
4.M	Upgrade storm drainage outfall pump stations 1A, 1B, and 1C to protect the SFO airfield from 100-year floods and sea level rise.	Delayed
5.A	Complete the Calaveras Dam retrofit, as part of the Water System Improvement Program (WSIP).	Completed
5.B	Implement recommended Buffer Zone Protection measures for predesignated critical facilities and infrastructure.	No longer pursuing
5.C	Develop and implement a public outreach campaign to educate property owners, and to enable removal of household hazardous waste from homes and businesses to prevent toxic spills, fires, environmental exposure, and health hazards in case of disaster.	On schedule
5.D	Implement physical security upgrades at all new WSIP facilities.	On schedule