

Appendix F

Capabilities Assessment Details

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.

Resource	Department / Agency	Ability to Support Resilience
Finance Staff	Department-specific Office of Public Finance	Manages grants. Utilizes three principal types of municipal debt obligations to finance long-term capital projects and the acquisition of select equipment. 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
		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, educational facilities, and housing.
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

Resource	Department / Agency	Ability to Support Resilience
	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 on 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

Resource	Department / Agency	Ability to Support Resilience
		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.

Resource	Department / Agency	Ability to Support Resilience
practices related to buildings or infrastructure	SFMTA SFO SF Environment SF Port	<p>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.</p> <p>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).</p> <p>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.</p> <p>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.</p> <p>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.</p>

Resource	Department / Agency	Ability to Support Resilience
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	<p>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.</p> <p>SFO risk management staff evaluates risk at the Airport and ensures proper mitigation for the impact of SFO-related hazards.</p>
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

Resource	Department / Agency	Ability to Support Resilience
		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	<p>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.</p> <p>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.</p>
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
		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.
Emergency Firefighting Water System (EFWS)	SFPUC	The purpose of the EFWS 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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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	<p>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.</p> <p>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.</p>
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
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 Other Departments	<p>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.</p> <p>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.</p>
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 indicators contributing to community resilience. Identifies flooding as a high priority

Resource	Department / Agency	Ability to Support Resilience
		and high health vulnerability in specific geographies 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 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. These departments contain professionals

Resource	Department / Agency	Ability to Support Resilience
		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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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 robust public engagement over the lifetime 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 implementation 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 resilient 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.

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<p>Planners or engineers with knowledge of land development, land management practices, and human-caused and natural hazards</p>	<p>Planning Department SFPUC Public Works Port Recreation and Parks Other Departments</p>	<p>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).</p>
<p>City and County of San Francisco, General Plan: Community Safety Element, 2012</p>	<p>Planning</p>	<p>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:</p> <ul style="list-style-type: none"> •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. •Response: Communications and increased access to information; resumption of social services; access to capital; and the protection of vulnerable historic resources. •Recovery and reconstruction: Recommendations for a Recovery and Reconstruction Plan to guide long-term recovery before an emergency, and necessary

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		<p>ordinances or code changes to facilitate repair and reconstruction after the disaster.</p> <ul style="list-style-type: none"> •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	<p>The Climate Action Strategy update will focus on the following goals:</p> <ul style="list-style-type: none"> • Develop a pathway to deliver an emissions neutral city by 2050 at the latest, and set an ambitious interim target • Demonstrate how the city will adapt and improve its resilience to climate hazards that may impact the city now and in future • Outline the social, environmental and economic benefits expected from implementing the plan, and improve the accessibility of these benefits by the city's population • Detail the city's governance, powers and the partners who need to be engaged to accelerate

Resource	Department / Agency	Ability to Support Resilience
		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

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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
		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 injury or damage from earthquake hazards.
Administrative Code	n/a	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •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
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: <ul style="list-style-type: none"> •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
		<p>disposed of in the City to firefighters, health officials, planners, elected officials, and residents.</p> <ul style="list-style-type: none"> •Article 21A – Risk Management: Implements a program for prevention of accidental releases. •Article 22 – Hazardous Waste Management: Regulates local facilities that generate or treat hazardous waste. •Article 30 – Regulation of Diesel Backup Generators: Regulates the use of diesel backup generators •Article 38 – Enhanced Ventilation Required for Urban Infill Sensitive Use Developments
Public Works Code	n/a	<p>Specific chapters that address hazards include:</p> <ul style="list-style-type: none"> •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. •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. •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 •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

Resource	Department / Agency	Ability to Support Resilience
		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	<ul style="list-style-type: none"> •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 impact design (LID) strategies such as vegetated roofs, walls, 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
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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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. CCSF 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-

Resource	Department / Agency	Ability to Support Resilience
	<p>Emergency Response Team (NERT)</p> <p>San Francisco Animal Care and Control (ACC) Disaster Animal Response Team (DART)</p> <p>SFPD Auxiliary Law Enforcement Response Team (ALERT)</p> <p>SF Planning</p>	<p>deploy in the event of a serious earthquake or other major disaster.</p> <p>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.</p> <p>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.</p> <p>SF Planning educates the public on resilience issues and gathers/ incorporates community input into the planning process</p>
Zero Waste Outreach	SFE	<p>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.</p>