

Hazards and Climate Resilience Plan

2023 Annual Progress Report



Sea Level Rise and Flood Hazards Coordinating Committee at Third Street Bridge

Photo credit: Danielle Ngo

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1 Background and Purpose

This report is the 2023 annual progress report for the Hazards and Climate Resilience Plan (HCR), San Francisco’s roadmap for reducing the impacts of hazards and climate change impacts before they occur. The HCR serves as San Francisco’s Local Hazard Mitigation Plan and was adopted by the Mayor and Board of Supervisors on June 16, 2020 and approved by the Federal Emergency Management Agency on July 22, 2020. Associated resources can be found at the following links:

- [Adopted 2020 Hazards and Climate Resilience Plan](#)
- [Summary Report](#)
- [Hazards StoryMap](#)
- [Strategy Dashboard](#)

The City has committed to maintaining the HCR and evaluating progress towards implementation in accordance with Federal Hazard Mitigation Planning requirements and described in Chapter 8 and Appendix D of the HCR. This report provides an update on the progress towards implementing the strategies of the HCR in calendar year 2023. This update was drafted through a Planning Team meeting, individual and team meetings with department strategy leads, and emailing a reporting form.

Previous versions of the annual progress reports included updates on hazards, risks, and new capabilities from the reporting period. Those updates have been incorporated into the 2025 Hazards and Climate Resilience Plan, which is being drafted at the time of writing. Instead, this report focuses on the strategy implementation progress. To that end, the report provides overall statistics on strategy progress, notable accomplishments, common challenges, and tables detailing progress and/or setbacks.

2 Strategy Progress

2.1 Summary of Strategy Progress

San Francisco has made significant progress on implementing the HCR strategies. Figure 2.1 shows that 8 strategies have been completed, 55 are progressing, and 10 are on-going efforts (without an end-date). This means that over three-quarters of the HCR strategies have been able to make notable progress. It has been determined that 3 strategies are no longer needed (for example, being completed by the State or a university), and 4 have been modified significantly. Same as the 2022 annual report, 12 strategies have not yet started. For most of those strategies, some level of planning has occurred, but staffing and budget capacity remain limiting factors. Details on the progress of each individual strategy can be found in Section 3.

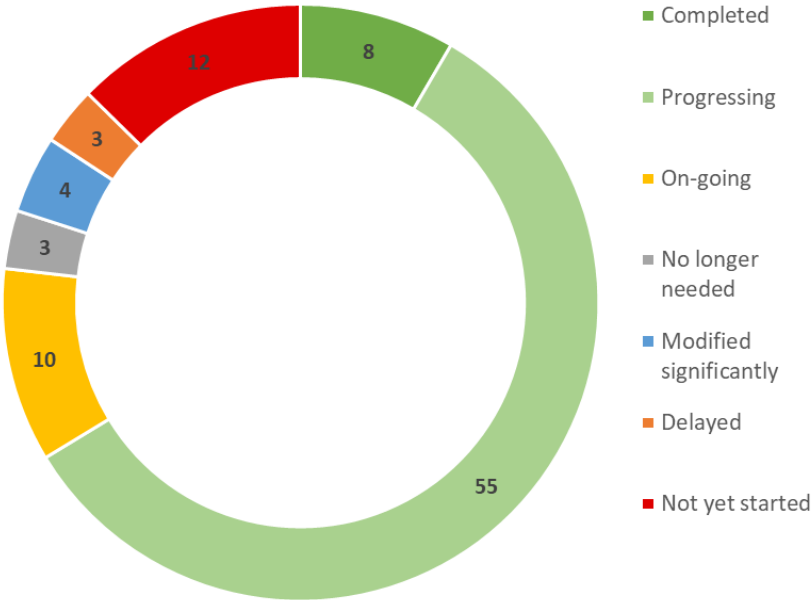


Figure 2.1: Strategy Implementation Status

2.2 Accomplishments

Below are some of the notable accomplishments during the 2023 reporting period including reference to the HCR strategy number. A complete list of accomplishments can be found in Section 3 (Strategy Status Tables).

- Waterfront Resilience Program (IN-2.09)
 - Substantially moved forward on the Port Waterfront Resilience Program strategy in partnership with USACE and departmental champions across the city. This includes a series of targeted engagement events across the waterfront, development of preliminary draft adaptation actions, and creation of a draft feasibility report for public release in January 2024.
- Floodproofing grants (B-2.04)
 - The San Francisco Public Utilities Commission implemented the new stormwater floodproofing grant program which was well utilized during the 2023 winter storm season, with 89 interest form submissions.
- Concrete Building Safety Program (B-1.07.02)
 - A stakeholder working group was created to provide input on the development of a mandatory retrofit ordinance. These recommendations will be used to guide implementation. The group also reviewed and provided feedback on technical recommendations that were developed by engineering consultants and peer reviewed.
- Extreme Precipitation Study (IN-2.07)
 - The extreme precipitation study was completed and published in partnership with Lawrence Berkeley National Labs and Pathways Climate Institute. While there is more work to be done, this groundbreaking study gives the most detailed picture of the future of storm events ever seen and will help inform climate adaptation projects going forward.
- Heat and Air Quality Resilience (HAQR) Project (B-3.01, B-3.02, C-5.04, C-5.05, C-5.15, C-5.19)
 - The Department of Emergency Management launched the Extreme Weather Resilience Program which provides wildfire and extreme heat

readiness equipment to CBO partners. Additionally, HAQR completed a community survey in partnership with University of California San Francisco (UCSF) and Patient Centered Outcomes Research Institute (PCORI) to determine community preferences and barriers to action on extreme heat and wildfire smoke mitigation/preparedness actions and moved forward on other green infrastructure analysis projects in partnership with Public Works.

- Treasure Island resilient housing and community development (C-1.05)
 - Completed geotechnical upgrades across both the public right-of-way and all of the parcels for buildings.
 - Completed new roadways, utilities, and key infrastructure for City acceptance.
 - These soil and infrastructure improvements support the completion of nearly 1,000 new units on Treasure Island and Yerba Buena Island by early 2025. For example, Maceo May apartments provide supportive housing for formerly homeless and low-income veterans and achieved 100% lease-up in August 2023

3 Strategy Status Tables

List of Acronyms

| | |
|--------------|---|
| ADM | Office of the City Administrator |
| BOS | San Francisco Board of Supervisors |
| CBOs | Community Based Organizations |
| DAAS | Department of Disability and Aging Services |
| DBI | Department of Building Inspection |
| DEM | Department of Emergency Management |
| DPH | Department of Public Health |
| HSA | Human Services Agency of San Francisco |
| MOD | Mayor’s Office on Disability |
| MOHCD | Mayor’s Office of Housing and Community Development |
| NEN | Neighborhood Empowerment Network |
| OEWD | Office of Economic and Workforce Development |
| ORCP | Office of Resilience and Capital Planning |
| Planning | San Francisco Planning Department |
| Port | Port of San Francisco |
| Public Works | San Francisco Public Works |
| RPD | San Francisco Recreation & Parks Department |
| SFDT | San Francisco Department of Technology |
| SFE | San Francisco Department of Environment |
| SFFD | San Francisco Fire Department |
| SFMTA | San Francisco Municipal Transportation Agency |
| SFPL | San Francisco Public Library |
| SFO | San Francisco International Airport |
| SFPUC | San Francisco Public Utilities Commission |

DOMAIN: RESILIENT BUILDINGS (B)

Primary Hazard Group: Geological (1)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|-----------------|--|
| B-1.01 | ORCP | Assess and seismically retrofit municipal buildings | Progressing | Completed projects for the reporting period include Animal Care and Control Facility, Maxine Hall Health Clinic, Castro Mission Health Clinic, 30 South Van Ness Exit, Fire Station 5, Fire Station 16, and Fire station 49 replacements. Additional public health clinic and Homeless Shelter retrofits are included in upcoming G.O. Bonds. Progress was presented at Capital Planning Committee on April 17, 2023 and that venue will continue to serve as a forum for updates. |
| B-1.02 | ORCP | Develop an earthquake risk improvement program for non-structural components of municipal buildings | Not yet started | Limited staff capacity due to focus on creating Concrete Building Safety Program. Non-structural improvements are included to the extent possible in municipal building retrofits. |
| B-1.03 | ORCP | Develop a voluntary program for seismic retrofits of one- to four-unit woodframe soft-story buildings | Progressing | ORCP supported securement of CEA grants to retrofit single family soft story homes. There were 84 applicants as of August 2023. |
| B-1.04 | ORCP | Implement the Tall Building Strategy to address the seismic vulnerability of buildings taller than 250 feet | Progressing | Recommendation 1A has been completed addressing foundation and geotechnical issues. Recommendations 3D, 3E, 3F, 2B, 2A addressing inspections, renovation triggers, and administrative triggers for tall and complex concrete buildings are in progress via contract support. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|-----------|-----------|--|------------------|--|
| B-1.05 | ORCP | Extend and Improve the Building Occupancy Resumption program (BORP) | Not yet started | Budget constraints make it challenging to expand this program, which does not have a dedicated funding source. ORCP has discussed a mandatory ordinance for new tall buildings with BOS members, but legislation has not been introduced. |
| B-1.06 | DBI | Complete the Mandatory Soft-Story Retrofit program (pre-1978 buildings with 5+ units and 2+ stories) | Completed | The final tier was completed and DBI is engaged in enforcement for non-complying properties. At 92% compliance as of November 2023. |
| B-1.07.01 | ORCP | Develop a program (standards and guidance) to screen, evaluate and retrofit older steel buildings | Not yet started | The COVID-19 Pandemic delayed the development of the steel program by at least a year. In the meantime, focus shifted to developing the Concrete Building Safety. Limited staff capacity has delayed strategy start. |
| B-1.07.02 | ORCP | Develop a program to screen, evaluate, and retrofit non-ductile concrete buildings | Progressing | Convened a Stakeholder Working Group to provide input on the development of a mandatory retrofit ordinance. Contractor developed technical recommendations with peer review. Working group recommendations will be delivered to executive panel and then integrated into the ordinance by the BOS. |
| B-1.08 | SFMTA | Implement the SFMTA Parking Garage Strategy | No longer needed | Implementation continues to be on hold due to funding constraints. Strategy can be folded into B-1.01. |

DOMAIN: RESILIENT BUILDINGS (B)

Primary Hazard Group: Weather-Related (2)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|---------------|--|
| B-2.01 | ORCP | Develop multi-hazard resilience design guidelines for municipal buildings | Delayed | Conducted preliminary research and scoping, but delayed due to staffing constraints. |
| B-2.02 | ORCP | Review the Guidance for incorporating sea level rise into capital planning | On-going | Updated the Guidance with the latest SLR science from the State in 2020. |
| B-2.03 | SFPUC | Develop a program to analyze, identify, and evaluate properties at risk of stormwater flooding | Completed | 100-year flood map is available on SFPUC website, PIMS, and DataSF. Additionally, a flood risk disclosure ordinance has been adopted. |
| B-2.04 | SFPUC | Implement floodproofing and elevation projects for properties at risk of stormwater flooding citywide | Progressing | SFPUC has implemented a stormwater floodproofing grant program. During 2023 winter storms (December 26th to January 17th), received 89 interest forms. |

DOMAIN: RESILIENT BUILDINGS (B)

Primary Hazard Group: Fire-Related (3)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|---------------|---|
| B-3.01 | DPH | Study emergency clean air and cooling capacity at key community facilities | Progressing | Incorporated into HAQR for further development into comprehensive strategy. Relatedly, aspects of this strategy informed DEM's Extreme Weather Resilience Program which launched in September 2023. |
| B-3.02 | SFE | Increase privately-owned building weatherization rates | Progressing | 50 homes in SF received BayREN rebates for insulation in 2022. |
| B-3.03 | SFE | Support increased building electrification (fuel switching) and mechanical upgrade | Progressing | A Building Operations Task Force has been established to identify a suite of policies and programs in service of this strategy and related actions in the Climate Action Plan. These include possible requirements regarding All-Electric New Construction for Major Renovations among other measures. A Climate Equity Hub was also formed in partnership with Bayview Hunters Point and supported by HRA advisors. This hub will serve as a one stop shop for residential electrification and green workforce development. SF Environment also awarded 4 EJ building decarb grants to CBO's for pilot projects. |

DOMAIN: RESILIENT BUILDINGS (B)

Primary Hazard Group: All Hazards (5)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|--------------|---|---------------|---|
| B-5.01 | SFMTA | Amend the capital improvement program for transportation facilities to consider hazard mitigation opportunities | Progressing | Grant applications are in progress for major projects of the Building Progress Program. This Program includes Potrero Yard and Presidio Yard Modernization Projects, which are both currently structurally unsound and must be re-built to achieve a safer and more reliable transit system, including zero-emissions bus fleet. Completed natural gas equipment inventory to support planning for facility electrification. |
| B-5.02 | Public Works | Install solar and storage systems at critical facilities | Progressing | Updated Chapter 7 of Environment Code adopted in March 2023. One substantive change is for new construction or major renovation of critical community institutions (i.e., public safety facilities, health clinics, community centers, libraries, and emergency management facilities) to install photovoltaic and battery storage to sustain emergency energy loads. Opportunity to track implementation through MGBTF. Similar state legislation adopted in January 2023. |
| B-5.03 | SFFD | Secure a resilient public safety training facility for San Francisco Fire Department | Progressing | Funding is included ESER Bond Program, but there is a funding gap that needs to be addressed in order to move the strategy forward further. |
| B-5.04 | Public Works | Increase resilience and operation efficiency of maintenance yards | Delayed | Delayed due to limited capital planning funds. Further discussion on efficiency gains to consolidating yards across departments have occurred. However, conceptual plans have been developed. |
| B-5.05 | RPD | Explore options to use Recreation Centers as public respite facilities | Progressing | REC is working with DEM to deliver a multi-functional building at Kezar Pavilion that may be operated as a support facility in the event of a major disaster. Cooling and air filtration capabilities will be installed in the facility. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|-----------------|---|
| B-5.06 | Planning | Develop comprehensive and coordinated code amendments for multi-hazard resilience of private development | Not yet started | Process identified to integrate code amendments. However, work has not yet started due to staffing and capacity limitations and competing priority of other projects. |

DOMAIN: RESILIENT COMMUNITIES (C)

Primary Hazard Group: Geological (1)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|------------------------|---|
| C-1.01 | MOHCD | Address seismic retrofit needs within San Francisco's affordable housing stock | Progressing | As new Small Sites come into the portfolio, any soft story issues identified, are part of rehabilitation process. Future guidance developed for the Concrete Building Safety Program will also influence retrofit requirements. |
| C-1.02 | ORCP | Develop a downtown resilience strategy | Modified significantly | Due to long-term COVID impacts on Downtown, this strategy has been postponed for the time being. Instead, focus has shifted to implementing specific resilience programs in Downtown such as the Concrete Building Safety Program, Building Occupancy Resumption Program, and Waterfront Resilience Program. |
| C-1.03 | ORCP | Improve San Francisco's Implementation of the State's Safety Assessment Program | Not yet started | A dedicated funding source has not been identified to proceed with implementation. |
| C-1.04 | OEWD | Develop a post hazard open for business campaign | Progressing | OEWD's Office of Small Business rebranded the shop local campaign in early 2023 to ShopDineSF (https://sf.gov/shop-dine-sf). This program serves as the main point in promoting small businesses through a variety of channels such as through the ShopDineSF website and social media. |
| C-1.05 | MOHCD | Continue to meet housing production goals (10,000 units by 2020) | On-going | The updated housing element sets a path to create 82,000 new units by 2030 and 32,881 of these units will be focused on those of very low or low income. However, funding continues to be a challenge to meeting the affordability goals. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|-----------------|--|
| C-1.06 | DEM | Develop a public outreach campaign and wayfinding plan for tsunami awareness and evacuation procedures | Not yet started | USGS Tsunami Maps were revised at the State and the local plan was revised accordingly. This includes wayfinding elements of the plan and some limited outreach. However, funding has not been identified for sign installation. |
| C-1.07 | DEM | Assess vertical evacuation options in high-hazard areas and guidance for large-building refuges | Not yet started | In partnership with MOD, this strategy has been identified as a priority for the DAFN working group. Additionally, this strategy has been revised to focus on all hazards rather than just Tsunami. |

DOMAIN: RESILIENT COMMUNITIES (C)

Primary Hazard Group: Biological and Toxic-Related (4)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|------------------|--|
| C-2.01 | DPH | Conduct studies to better understand how sea level rise may interact with contaminated lands and potential health risks | Progressing | The U.S. Navy is conducting their CERCLA (commonly known as Superfund) Five-Year Review of the former Hunters Point Naval Shipyard, in which they evaluate their remedies based on the latest science to protect human health and the environment. The Five-Year Review will be available in Spring 2024 with the opportunity for public review. Supervisor Walton's has requested an Independent Study and Task Force as a follow-up to the Civil Grand Jury report. Additionally, SF partnered with SFEI and other counties to complete groundwater rise mapping to better understand potential risks. This information has informed the Waterfront Resilience Program in the development of a report that provides an overview the known contaminated sites in the Mission Creek/Mission Bay and Islais creek/Bayview geographies under the state's regulatory authority. SF agencies are working to understand and implement new DTSC sea level rise guidance released by DTSC in February 2023. |
| C-4.01 | SFE | Expand household hazardous waste collection efforts | Progressing | Launched a city-wide HHW outreach campaign in 2022 educating residents about proper disposal of HHW generated from their home. The data trend for total weight of HHW collected has been decreasing, but the number of residents who are using the program has been increasing. We anticipate collection efforts to rebound in general and return to pre-2020 levels by 2025. |
| C-4.02 | SFE | Replace mercury-containing lighting in | No longer needed | This strategy is no longer being pursued due to higher priority strategies identified in the 2023 Climate Action Plan. |

| | | | | |
|---------------|------|--|-------------|---|
| | | preschools and daycare centers | | |
| C-4.03 | OEWD | Explore toxins abatement workforce development programs | Delayed | Due to the response to the COVID-19 pandemic, this strategy has been delayed. CityBuild had previously trained cohorts of laborers focused on abatement of public housing sites and the Hunter's Point PGE Power Plant demolition; OEWD will look to build off of that model. CityBuild will continue to work with the Laborer's Training Center to prepare for abatement certification training with the focus on recruiting underserved communities into the workforce through CityBuild pre-apprenticeship training. |
| C-4.04 | DPH | Improve citywide resilience to pandemics and infectious diseases | Progressing | Responding to the global COVID pandemic as successfully as SF did, our city is more resilient to pandemics and infectious disease. Several task forces were stood up to conduct outreach and engagement. The City developed a data and visualization system to track health impacts and published online to DataSF. The City launched a public information campaign to broadcast useful information including restrictions and policies. The City also stood up a vaccination program, include mass vaccination sites. In addition, supports were established for populations affected by the economic impacts associated with the pandemic, including food assistance, rental assistance, and small business economic relief. All of these capabilities and lessons can be brought to bear for on-going resilience to Covid-19 and future potential pandemics and infectious diseases. |

DOMAIN: RESILIENT COMMUNITIES (C)

Primary Hazard Group: All Hazards

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|-----------------|--|
| C-5.01 | ORCP | Identify and create Clean Air/Cooling Hub (CACH) Public Respite Facilities | Progressing | Incorporated into HAQR in order to approach more comprehensively. However, strategy was delayed due to staff capacity at DEM due to on-going emergencies. The Capital Plan has included upgrades to HVAC systems at public health clinics and the City is supporting various community-based organizations who are interested in applying for resilience hub grants. |
| C-5.02 | HSH | Develop a Homelessness Disaster Response Plan | Not yet started | A Disaster Manager has been hired to oversee efforts and update the COOP, Disaster Plan. They will also be updating the inclement Weather Protocol for heat, cold, rain, and poor air quality and include lower thresholds for action. Actions may include providing health training for outreach workers on how to assess for signs of heat stress. |
| C-5.03 | SFFD | Support volunteer emergency preparedness, response, and recovery programs including the Neighborhood Emergency Response Team (NERT). | Progressing | The effort has formally re-started after pivoting to support COVID response. However, additional staffing and funding is required to meet the needs of expansion and to supporting trained volunteers. |
| C-5.04 | DPH | Create a program to coordinate existing City programs providing in-home and resident-facing services related to | Progressing | Incorporated into HAQR to approach more comprehensively. Within the purview of this strategy included PHEPR working to stand up a Community Branch, the PCORI grant being pursued that will help determine resident preferences and the evaluation of BayREN program in partnership with SFE. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|-----------------|--|
| | | hazard and climate mitigation | | |
| C-5.05 | DPH | Develop a Preparedness Equipment Purchase Program to direct and fund the purchase of climate preparedness equipment | Progressing | DEM launched the Extreme Weather Resilience Program in September 2025 that will provide cooling and clean air equipment to 38 CBOs. This will allow constituents these organizations to offer spaces for residents to congregate and access respite from extreme heat or poor air quality events. |
| C-5.06 | DEM (NEN) | Expand the Neighborhood Empowerment Network (NEN) Empowered Communities Program (ECP) to additional neighborhoods | Progressing | Currently there are NEN HUBs operating at the neighborhood and district levels across the city. These include: Bayview, Excelsior, OMI, District 7 (covering West Portal / Miraloma Park /Inner Sunset / Golden Gate Heights / METNA), District 8 (covering Diamond Heights / Noe Valley / Bernal Cut). The NEN is the process of launching two new HUBS: The Southwest San Francisco HUB and the D11 HUB – which will unify all the HUBs in D11 under one cohort. |
| C-5.07 | MOD | Perform Gap analysis of vulnerable populations (ie. Access and Functional Needs) and available city services | Not yet started | DEM's work developing an AFN tool with the state will support this effort when it is able to begin. For DEM certification and both. The after-action reports for COVID were also used to identify some existing gaps for addressing as well. |
| C-5.08 | MOD | Develop Community Based Capacity Building Initiative | Not yet started | Missing data |
| C-5.09 | DAAS | Establish Evacuation Strategy for People with Access and Functional Needs | Progressing | DAFN core work group has been formed. This group is composed of MOD, H.S.A., HSH, SFFD, and DEM. This group will work with community members to vet proposed actions. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|---------------|--|
| C-5.10 | No Data | Continue Small Business COOP Assistance | No Data | No Data |
| C-5.11 | OEWD | Support the Small Business Development Center | Progressing | The Small Business Development Center (SBDC) has been integrated as part of the Office of Small Business (OSB), where staff work closely with the OSB team to provide guidance, support and access to resources for any businesses in need of assistance. |
| C-5.12 | OEWD | Establish disaster relief funding and small business resilience fund | Progressing | As a result of the COVID-19 Pandemic, OEWD and other City and community partners set up several economic relief and business resilience and recovery funds, including the COVID-19 Small Business Resiliency Fund, SF HELP, Neighborhood Mini-Grants, SF Relief Storefront Grants and Loans, and the Entertainment Venue Fund. OEWD also supported small business access to state and federal relief such as the California Small Business Grants, and the federal PPP, EIDL and Shuttered Venue and Restaurant Revitalization funds. |
| C-5.13 | OEWD | Expand layoff outplacement services | Progressing | To address the mass numbers of displaced workers as a result from the pandemic and with San Francisco's unemployment rate as high as nearly 13%, OEWD pursued multiple federal grants to help local job seekers transition back into the workforce. The COVID-19 Employment Recovery National Dislocated Worker Grant (ER NDWG), providing direct employment services and health care professionals training to 191 dislocated workers (148 successfully obtained employment). Through a regional partnership, the Comprehensive and Accessible Reemployment through Equitable Employment Recovery (CAREER Grant) addressed the needs of SF Hospitality dislocated workers, offering reemployment services and support |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|---|---------------|--|
| | | | | services, inclusive of transportation, childcare, etc. for 89 dislocated workers (72 successfully obtained employment). |
| C-5.14 | OEWD | Expand Women's Entrepreneurship Fund | Progressing | In response to the pandemic, the Fund was modified to offer \$1000 grants without any technical assistance requirement so as to get financial relief as quickly as possible in with the lowest possible barriers to women owned businesses facing hardship resulting from COVID-19. The availability and flexibility of the fund was vital to its ability to help address hardship created by the pandemic, and underscores its value to economic resilience in other disasters. |
| C-5.15 | DPH | Study the overlap between vulnerable populations and vulnerable buildings | Progressing | Current research efforts include assessing hospital data to better understand impacts from extreme heat and modeling air conditioning in SF to inform planning. Additionally, ORCP has studied the concrete building inventory for potential vulnerable populations including affordable housing, SROs, SNFs and will use that information to inform program development. |
| C-5.16 | ORCP | Develop and manage a system for hazard and climate resilience data | Progressing | Non-sensitive hazard data has been uploaded to DataSF. ORCP greatly improved internal GIS database infrastructure to facilitate the sharing of files with other departments and develop more accessible forms of information to facilitate online mapping efforts. |
| C-5.17 | ORCP | Develop a communications strategy for citywide climate resilience efforts | Completed | ClimateSF created a communications strategy that includes a quarterly newsletter and has begun convening a group of public information officers on a regular basis to support climate resilience efforts. |
| C-5.18 | DPH | Improve San Francisco's climate health research capacity | Progressing | SFDPH's Climate and Health Program has hired an Epidemiologist, worked with UCSF to secure two research opportunities around heat and air quality: PCORI and Brightline Air Quality Monitors. Additionally, implementing a UHI Grant that will marry heat island modeling with expected health outcomes and compare different potential policy options. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|--------|-----------|--|---------------|---|
| C-5.19 | DPH | Develop and Implement a Centralized Air Quality and Extreme Heat Preparedness Campaign | Progressing | Incorporated into HAQR to pursue comprehensively. PHEPER has on boarded a Community Branch that will include a focus on messaging. Recent efforts like the release of the HAQR Implementation Plan and the SF Urban Heat Watch Campaign have provided opportunities to educate on extreme heat as issues. |
| C-5.20 | SFMTA | Implement SFMTA's Traffic Signals Strategy | On-going | The Signals strategy was updated in the FY23-27 CIP to include 22 projects and \$73.1M in investment. |
| C-5.21 | DPH | Improve and prepare behavioral health services for hazard events | On-going | Overall, there was a notable increase in services provided due to COVID-19 and the mental health repercussions it has (and continues to have) in the community. |

DOMAIN: RESILIENT INFRASTRUCTURE (IN)

Primary Hazard Group: Geological

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|------------|-----------|---|------------------------|--|
| IN-1.01 | Port | Southern Waterfront Seismic Study | Completed | <p>The initial Southern Waterfront Earthquake Assessment has been completed which focused on heavy industrial areas and the piers.</p> <p>The next steps will be focused on wharf areas with high potential for liquefaction, such as the backlands. An HMGP app was submitted for geotech exploration and design of mitigation to 65% Design and this would include for Pier 94 and 96. These piers are being assessed for re-purposing in support of developing local wind power industry.</p> |
| IN-1.02 | Port | Conduct a research project for earthquake mitigation of marine structure piles | Modified significantly | The grant project is moving forward, with UC San Diego acting as lead. The Port is on the advisory committee and providing information and technical support. |
| IN-1.03.01 | SFO | Develop technologies, systems, and capacity to treat sanitary sewage at SFO | Completed | Project Completed on schedule. |
| IN-1.03.02 | SFO | Develop redundant and resilient electrical power capacity and distribution at SFO | Modified significantly | Planning has progressed on a Phased Build Out plan that will include building a new substation, upgrading the current airport substation, and increasing the new substation to full capacity over time. |
| IN-1.04 | SFPUC | Conduct a Risk and Resilience Assessment and Emergency Response Plan for the City's water infrastructure system | Completed | Currently in compliance with the next date for AWIA compliance being 2024. It will include an updated Emergency Response Plan (ERP) and an updated Risk and Resiliency Assessment (RRA). |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|--|------------------|---|
| IN-1.05 | ORCP | Complete the Lifelines Restoration Performance Project and implement recommendations | Progressing | The report was complete in 2020 and now staff are following up on the recommendations to ensure implementation. |
| IN-1.06 | DT | Increase the Resilience of the Municipal Fiber Optic Network | Progressing | Significantly expanded the fiber backbone by an additional 20,000 fiber miles and connections to over 100 locations thereby improving the fiber redundancy and resiliency. |
| IN-1.07 | DT | Increase the Resilience of the 911 Radio System | Progressing | Completed projects to improve radio system inter-operability between different agencies and added additional layers of radio back up infrastructure. These efforts improved system reliability. |
| IN-1.08 | Port | Implement multi-hazard mitigation improvements for harbor dock infrastructure | No longer needed | Incorporated into Waterfront Resilience Program adaptation strategies and early projects. |
| IN-1.09 | RPD | Develop a hazard mitigation and emergency response evacuation plan for at SF Zoo | Completed | SF Zoo is in process of updating their latest Emergency Procedures Guide. Expected completion date: Spring 2024. |
| IN-1.10 | RPD | Implement the East Harbor Renovation Project | Progressing | Project is currently in Planning and Design. |

DOMAIN: RESILIENT INFRASTRUCTURE (IN)

Primary Hazard Group: Weather-Related (2)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|--|------------------------|--|
| IN-2.01 | Planning | Develop projects to address flooding around Islais Creek | Progressing | Completed the Islais Creek Adaptation Strategy in 2021. Implementation is folded into Waterfront Resilience Program and guides the WRP strategies. This includes seeking funding through the USACE Flood Study process. Currently, Public Works is working to elevate the Islais Creek Bridge. |
| IN-2.02 | Port | Develop a process to move utilities from under pier structures | Modified significantly | Internal consideration of the strategy has led to the conclusion that movement of utilities from under deck of piers and wharves would be required only for large development projects or reconstruction of piers and wharves. Other, smaller tenant improvements cannot support the cost of moving the utilities above deck. Port to develop guidance with this position for implementation moving forward. |
| IN-2.03 | SFPUC | Continue to implement the Ocean Beach Master Plan | Progressing | Progress on Ocean Beach Climate Adaptation Project is 95% design completed and released Final EIR; team continuing to work on Coastal Development Permit submittal questions. |
| IN-2.04 | RPD | Adapt shoreline parks to sea level rise and salt water intrusion, using marshes and plant diversity | Progressing | The renovation and expansion of the India Basin Shoreline Park along the southeastern San Francisco shoreline will create over 1.4 acres of saltmarsh habitat with upland migrations zone to facilitate marsh transgression. Wetland restoration efforts will be completed by the end of 2026. |
| IN-2.05 | RPD | Assess the current stormwater catchment potential of open space managed by the Recreation and Parks Department | Not yet started | In lieu of a formal assessment, park renovation projects are reviewed with PUC to identify opportunities for green infrastructure (GI) improvements. As part of the SFPUC's stormwater management ordinance, park renovation projects 2,500 – 5,000 Sq.ft in size are required to incorporate GI into their design. To date, RPD has received GI grants for installations at four project sites |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|--------------|---|---------------|--|
| IN-2.06 | Public Works | Expand the StreetTreeSF Climate Resilient Tree Planting Initiative | Progressing | External and internal funding has been secured to further work and long-term investment in tree plantings across the city. This has included \$12M from Urban Forestry Inflation Reduction Act grant, \$465k California Natural Resources Agency grant, and \$6.5 M funding for street tree nursery. These resources will be used to focus tree planting on underserved and low-canopy areas of the city. |
| IN-2.07 | SFPUC | Complete the Extreme Precipitation Study | Completed | Completed and published in the scientific journal Weather and Climate Extremes and on the SFPUC website. |
| IN-2.08 | SFPUC | Complete a comprehensive assessment of combined flood risks for San Francisco | Progressing | Completed assessment in Islais Creek project area. Became a model that is being replicated in Yosemite Slough. This study analyzes and maps the combined risks of sea level rise, storm surge, wave hazards, urban flooding, and groundwater in a non-dynamic model. |
| IN-2.09 | Port | Participate in US Army Corps of Engineers (USACE)/Port Flood Study | Progressing | Port and partner agencies have been engaging with the Army Corps intensively. A Draft Comprehensive Benefits Plan will be developed by End of September 2023. Public release of the Plan and EIS expected January 2023. |
| IN-2.10 | RPD | Explore increasing tree canopy and shade structures in parks | Progressing | Where feasible, park renovation projects are designed to maximize tree canopy to create a flourishing urban tree canopy, while also weighing this objective against competing considerations such as minimizing fire risk, planning for extended drought scenarios, and maximizing biodiversity conservation. Where possible, shade structures are included around seating and play areas. RPD recently received a \$2 million USDA grant to enhance the urban tree canopy in southeast San Francisco. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|--------------|---|-----------------|--|
| IN-2.11 | RPD | Assess current plant palettes and tree canopy needs to increase consideration of future climate conditions in the selection options | Not yet started | RPD maximizes the use of native and drought-tolerant plant palettes whenever feasible. Plant palettes are adapted to weigh competing considerations such as minimizing fire risk, planning for extended drought scenarios, and maximizing biodiversity conservation. |
| IN-2.12 | SFPUC | Diversify water supply options year-round by improving the use of new water sources and drought management | Progressing | Continued work to implement alternative water supply program projects. |
| IN-2.13 | Public Works | Continue to conserve and monitor water use by capital projects | On-going | Already required for drought tolerant plantings and irrigation, currently not monitoring. |
| IN-2.14 | SFPUC | Develop a Long-term Vulnerability Assessment and Adaptation Plan for the Hetch Hetchy Regional Water System | Progressing | The assessment component of the program was completed and reported in 2021. Adaptation planning is underway through operationalizing developed tools during the assessment. |
| IN-2.15 | SFMTA | Implement a Coastal Multimodal Resilience Strategy | Progressing | Completed Islais Creek Adaptation Strategy. Advancing Waterfront Resilience Program with Port and USACE. Applied and selected for BRIC grant in the Embarcadero area. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|--|---------------|---|
| IN-2.16 | SFE | Strengthen citywide efforts to conserve, restore, and steward biodiversity | Progressing | Launched Reimagine SF with the Academy of Sciences as an anchor partner. This is a collaboration between biodiversity organizations to think about a regenerative economy. Additionally, SF and 5 other cities to create a biodiversity strategy. Partnerships have included native plant restoration projects on Yerba Buena and Treasure Island. daylighting of Yosemite Creek, and a Living Seawall Pilot Project. |

DOMAIN: RESILIENT BUILDINGS (B)

Primary Hazard Group: Fire-Related (3)

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|---|---------------|--|
| IN-3.01 | SFPUC | Complete studies, analysis, and capital projects to improve and expand the Emergency Firefighting Water System (EFWS) | Progressing | The Potable Emergency Firefighting Water System (PEFWS) will provide high-pressure seismically reliable firefighting water after an earthquake, but also will provide day-to-day drinking water, and will survive a major earthquake to provide drinking water after the fires are extinguished. The PEFWS meets drinking water criteria and is also designed to the same standards as EFWS; it can provide an almost unlimited supply of non-potable water for firefighting if needed. Conceptual Engineering Report for the first two PEFWS pipeline contracts was completed. Almost one mile of PEFWS pipeline was constructed along 19th Ave from Sloat Blvd to Vicente, and along Vicente from 19th Ave to 23rd Ave. Another 5 miles of PFEWS pipeline is in design for the western side of the city. Relocation and replacement of fireboat manifolds projects are in planning. These manifolds allow fireboats to inject Bay water into the City’s EFWS pipelines for fire suppression. |
| IN-3.02 | SFFD | Improve the capacity of the Portable Water Supply System to fight fires following earthquakes and other large urban fires | Progressing | Missing data |

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|---------|-------|--|----------|--|
| IN-3.03 | SFPUC | Continue to mitigate wildfire hazards in SFPUC owned-watersheds to protect source water quality and minimize risk to SFPUC water and power infrastructure. | On-going | SFPUC is implementing its 2023-2025 Wildfire Mitigation Plan. All prior year reports and independent evaluations are available here: https://sfpu.org/about-us/policies-plans/wildfire-mitigation-plan |
| IN-3.04 | RPD | Improve Fire Prevention in Recreation Areas | On-going | RPD conducts routine fire abatement to reduce the volume of flammable vegetation in selected areas susceptible to wildfire risk. Fire abatement includes cutting dry grass, removal of downed limbs, and pruning flammable vegetation. |

DOMAIN: RESILIENT COMMUNITIES (C)

Primary Hazard Group: All Hazards

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|---|---------------|---|
| IN-5.01 | SFMTA | Conduct a system wide multi hazard vulnerability and operational assessment for Muni | Progressing | Through WRP, the city has developed a better understanding of impacts to facilities from storms and flooding. This has included developing a Waterfront Resilience Transportation Assessment that identifies critical potential disruptions to transit facilities and the broader network. |
| IN-5.02 | Port | Reduce seismic and flood risk along three miles of the San Francisco Waterfront from Fisherman's Wharf to Mission Creek | Progressing | Completed Multi-Hazard Risk Assessment (MHRA) which facilitated the Embarcadero Early Projects effort. Over 23 potential projects were identified. Of these, 16 projects were recommended to advance with Prop A G.O. Bond funding. The other projects are pursuing funds for the remaining projects. |
| IN-5.03 | SFPUC | Continue to advance Sewer System Improvement Program (SSIP) projects to meet level of service objectives | Progressing | The SSIP Phase 1 is 57.1% complete, Other SSIP phases are 6.3% complete, and Overall SSIP is 44.1% complete as of March 2023. As of the end of the reporting period, the SSIP Phase 1 includes 70 projects in various phases as follows: seven (7) projects in planning or design, eleven (11) projects in construction, eleven (11) projects in closeout, and forty-one (41) projects completed. |
| IN-5.04 | SFPUC | Implement the Pipe Replacement Prioritization Program | On-going | During Fiscal Year 2022-2023, nine miles of potable distribution pipelines were replaced. These pipelines were prioritized as high risk and consequence of failure. |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|---|---------------|---|
| IN-5.05 | SFPUC | Continue to improve power distribution infrastructure to support new development and increase resiliency | Progressing | <p>Progress has been made on constructing the Bay Corridor Transmission Distribution Project (BCTD), with energization expected by the end of 2023. SFPUC Power Enterprise worked with master developers on the design and construction of new underground electric distribution infrastructure and facilities that the SFPUC will own, operate, and maintain. Power is working with SFPUC's Infrastructure division to build BCTD -phase 4; the 2000 Marin extension.</p> <p>In 2022, the SFPUC completed a 90-kilowatt solar electric project and started two solar plus storage projects adding 190-kilowatts of solar generation and 365-kilowatts of energy storage to our renewable energy generating capacity portfolio. These projects provide power directly to their host buildings as part of the Hetch Hetchy Power program's electricity service</p> |
| IN-5.06 | SFPUC | Improve Resilience and Sustainability for regional dams and ancillary facilities from probable maximum flood (PMF) and maximum credit earthquake (MCE) events | Progressing | Completed seismic stability analysis for Pilarcitos Dam, Turner Dam, and a preliminary embankment stability analysis for San Andreas Dam. Additionally, completed probable maximum flood study for Pilarcitos Dam, San Andreas Dam, and Turner Dam. |
| IN-5.07 | ORCP | Develop a Citywide Climate Resilience Framework | Progressing | A draft framework was completed in 2022. This will be refined further and improved when there is sufficient staff capacity. |
| IN-5.09 | SFMTA | Implement SFMTA Asset Management and State of Good Repair Strategy | On-going | With the \$1.85 billion allocated or likely to be allocated to SGR in the FY 2023-2027 CIP, combined with prior years funding, the agency is on-track to exceed it's \$250 million commitment in the coming years |

| Code | Lead Dept | Strategy Name | Status (2023) | What was accomplished during the reporting period? (2020-2023). If strategy was cancelled, delayed, or modified, please explain. |
|---------|-----------|---|---------------|--|
| IN-5.10 | SFMTA | Implement SFMTA Transit Fixed Guideway Strategy | On-going | The Transit Fixed Guideway Strategy was updated in the FY23-27 CIP and includes 34 projects and \$593M in investment. |