04. Building Our Future

46 Addressing Resilience Challenges
48 Racial and Social Equity
49 Affordability
50 Earthquake Safety
52 Climate Resilience
56 Infrastructure

Resilience describes the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow, no matter what kind of chronic stresses and acute shocks they may experience.

Addressing Resilience Challenges

2020 has tested the resilience of San Franciscans in many ways. COVID-19 has exacerbated existing inequalities and thrown thousands into dire economic conditions. It has also severely impacted the City's budget at a time when public services and investments are needed more than ever. San Francisco also experienced a record breaking 30 Spare the Air Days due to wildfire smoke. Making San Francisco resilient to immediate and long-term threats of the COVID-19 pandemic, climate change, and natural hazards requires bold actions to build a more equitable city, adapt our built and natural assets, and eliminate greenhouse gas emissions.

San Franciscans recognize the importance of resilience investments and caring for the most vulnerable in our communities. In November 2019, voters passed a $600 million Affordable Housing Bond to address critical housing needs, protect residents, and stabilize communities. In March 2020, San Francisco voters approved a $628.5 million Earthquake Safety and Emergency Response (ESER) bond to fund upgrades and much-needed improvements to capital infrastructure that will allow San Francisco to quickly respond to a major earthquake or other disaster and recover from its aftermath. Then in November 2020, during the worst economic recession since the Great Depression, voters passed a $487.5 million Health and Recovery Bond to invest in facilities supporting people experiencing mental health challenges, substance use disorder, and or homelessness; parks and open space; and street improvements.

This Plan considers the extraordinary economic impacts of COVID-19 and recommends investments that help businesses, workers, and families recover from this crisis, including many of the recommendations from the **Economic Recovery Task Force** report. Construction is one of the most powerful jobs stimulus tools available to local governments. This Plan calls for investing in public facilities and infrastructure to put thousands of

COVID-19 Economic Recovery Task Force

Mayor London N. Breed and Board of Supervisors President Norman Yee convened the COVID-19 Economic Recovery Task Force between April and October 2020 to guide the City's efforts through the COVID-19 recovery.

Task Force members represented a diversity of perspectives and sectors, including academia, arts, entertainment, finance, government, health care, hospitality, housing, labor, manufacturing, nonprofit, personal services, philanthropy, real estate, retail, and technology. The Task Force sought out the perspectives of underrepresented populations who are disproportionately impacted by COVID-19, bringing additional voices to the work.

The result is 41 policy recommendations to promote an equitable and resilient economic recovery. Key recommendations related to capital planning include:

- Supporting the construction sector with public infrastructure investments and continued focus on major projects
- Promoting reactivation and consider adaptive reuse of buildings for a vibrant San Francisco
- Repurposing public outdoor space
- Preserving and stabilizing affordable multifamily rental housing
- Acquiring buildings to be converted into permanent supportive housing for people experiencing homelessness
- Planning collaboratively for San Francisco's resilient future and related investments
- Bridging the digital divide with affordable connectivity and internet service
- Catalyzing neighborhood recovery through the arts
- Investing in BIPOC and immigrant communities through reparative community investment

people to work and help accelerate economic recovery. Each $1 million in construction spending translates to approximately 4.4 San Francisco jobs. For more information, see **Appendix D, Job Creation Estimation Methodology.**

As a waterfront city located between two major fault lines, we must continue to plan for the next disaster even as we work to recover from COVID crisis. Resilience is a constant process of preparing and building to protect communities, buildings, and infrastructure. This chapter is organized by San Francisco's primary resilience challenges: social and racial inequity, unaffordability, earthquakes, climate change, and aging infrastructure.

Racial and Social Equity

Eliminating social and racial disparities is a key element of resilience. This commitment has been made even more clear in the Plan's funding principles, principles, (please see **Introduction chapter**). The Office of Racial Equity is assisting City departments with the development of **Racial Equity Action Plans.** These plans will integrate racial equity into the processes and policies of each department, including community engagement, that informs their capital priorities. In addition, this Plan recommends investments to address some of San Francisco's most severe racial disparities that have been made worse by the COVID-19 crisis, such as public health and mental health, homelessness, employment, and digital connectivity.

Public Health and Mental Health

San Francisco is working to meet persistent and emerging mental health and substance abuse challenges. The Department of Public Health (DPH) is the City's largest provider of behavioral health services, helping approximately 30,000 individuals annually. The November 2020 **Health and Recovery Bond** provides a portion of the funding necessary to improve, acquire, and construct facilities that deliver services for people requiring mental health and substance use services. DPH also operates more than a dozen community-based primary care health centers that provide convenient access to health care services in neighborhoods across the city. The Health and Recovery Bond includes funding for improvements to **community health centers** that serve low-income and vulnerable communities.

Homelessness

San Francisco is working to address the shortage of shelter beds and permanent supportive housing available to homeless, at-risk, and extremely low-income households. Through the Department of Homelessness and Supportive Housing, San Francisco currently offers temporary shelter to approximately 3,400 people every night through shelters, Navigation Centers, stabilization beds and transitional housing. Since October 2018, the City has opened 566 additional beds and 499 are underway. Additional beds are needed to match the waitlist for individuals looking to access shelter. November 2020 Health and Recovery Bond proceeds will be used to **stabilize, acquire, construct, expand and/or improve shelters** and more investment is called for in this Plan, including a 2024 Affordable Housing Bond.

Permanent Supportive Housing is an important means of ensuring long-term health and stability for low-income San Franciscans and those exiting chronic homelessness. However, the City does not have a sufficient supply to meet the demand. While the State is making some resources available to acquire hotels and other buildings, such as through the Homekey Grant Program, the City will also make investments to purchase buildings with proceeds from the November 2020 Health and Recovery Bond.

Employment

COVID-19 job losses have had a disproportionate impact on low-income communities and people of color. Infrastructure investment is an important piece of local economic stimulus. The Certificates of Participation program has been re-tooled to **recommend investing $125 million in recovery stimulus projects** that generating an estimated 559 jobs. For more information, see the **Sources chapter.**

Digital Connectivity

Gaps in access to technology threaten to widen the economic divide, especially as more services and job opportunities are moving online. For the past three years, the Department of Technology (DT) has received funding to install broadband internet connectivity to public housing in collaboration with MonkeyBrains, a local internet service provider. During FY2020, internet service was extended to 2,132 units and serves approximately 8,258 residents. When the COVID-19 emergency started, DT's focus shifted to support student distance learning and telehealth needs, and in four weeks extended internet connectivity to 525 students and five shelter sites with 545 beds total. DT continues to **extend fiber to public housing and affordable housing** locations and this plan calls for further investment.

Affordability

To become a truly resilient city, San Francisco must tackle the challenges of unaffordability for residents today and proactively build for the future. Affordable housing is critical to the City's economic and social health. Without housing that is affordable to a range of incomes, San Francisco risk not only of losing vital components of its unique and diverse culture, but also incurring negative economic impacts as essential workers and families cannot afford to remain in the City. Moving forward, San Francisco will continue to **prioritize the production and preservation of affordable homes.** This commitment includes investments in affordable housing at low and moderate incomes.

With funding from the **2019 Affordable Housing Bond,** the City is investing in creating new affordable homes, especially for our growing senior population, accelerating the rebuilding of distressed public housing sites for some of the City's most vulnerable residents and preserving affordability in existing housing at risk of market-rate conversion or loss due to physical disrepair. Additional investment is planned for the 2024 Affordable Housing Bond. For more information on affordable housing, please see the **Affordable Housing chapter.**

Earthquake Safety

Because the risk of a major earthquake is imminent and the potential damage significant, San Francisco is constantly seeking new ways to protect our residents, workers, and buildings. The **Earthquake Safety Implementation Program (ESIP)** is a comprehensive 30-year, 50-task plan that grew out of the Community Action Plan for Seismic Safety (CAPSS) to address the City's most pressing private building seismic risks in partnership with our communities. Priority ESIP tasks currently underway include the Soft Story Retrofit Program, Tall Building Safety Strategy, and the Private School Earthquake Safety Program.

In addition to improving the safety of private buildings, the Office of Resilience and Capital Planning is making efforts to address publicly owned infrastructure that is vulnerable to failure in an earthquake. The primary tools for such analysis include the HAZUS Earthquake Loss Estimation Study and Seismic Hazard Ratings. The **HAZUS Earthquake Loss Estimation Study** is a standardized analysis developed by FEMA to estimate the physical and economic impacts for specific earthquake scenarios. San Francisco is the first known municipality to have applied the HAZUS methodology at the individual building level, run first in 2013 and updated in 2017. The results from the most recent HAZUS analysis are shown in **Table 4.1** and shown in the accompanying HAZUS map.

TABLE 4.1

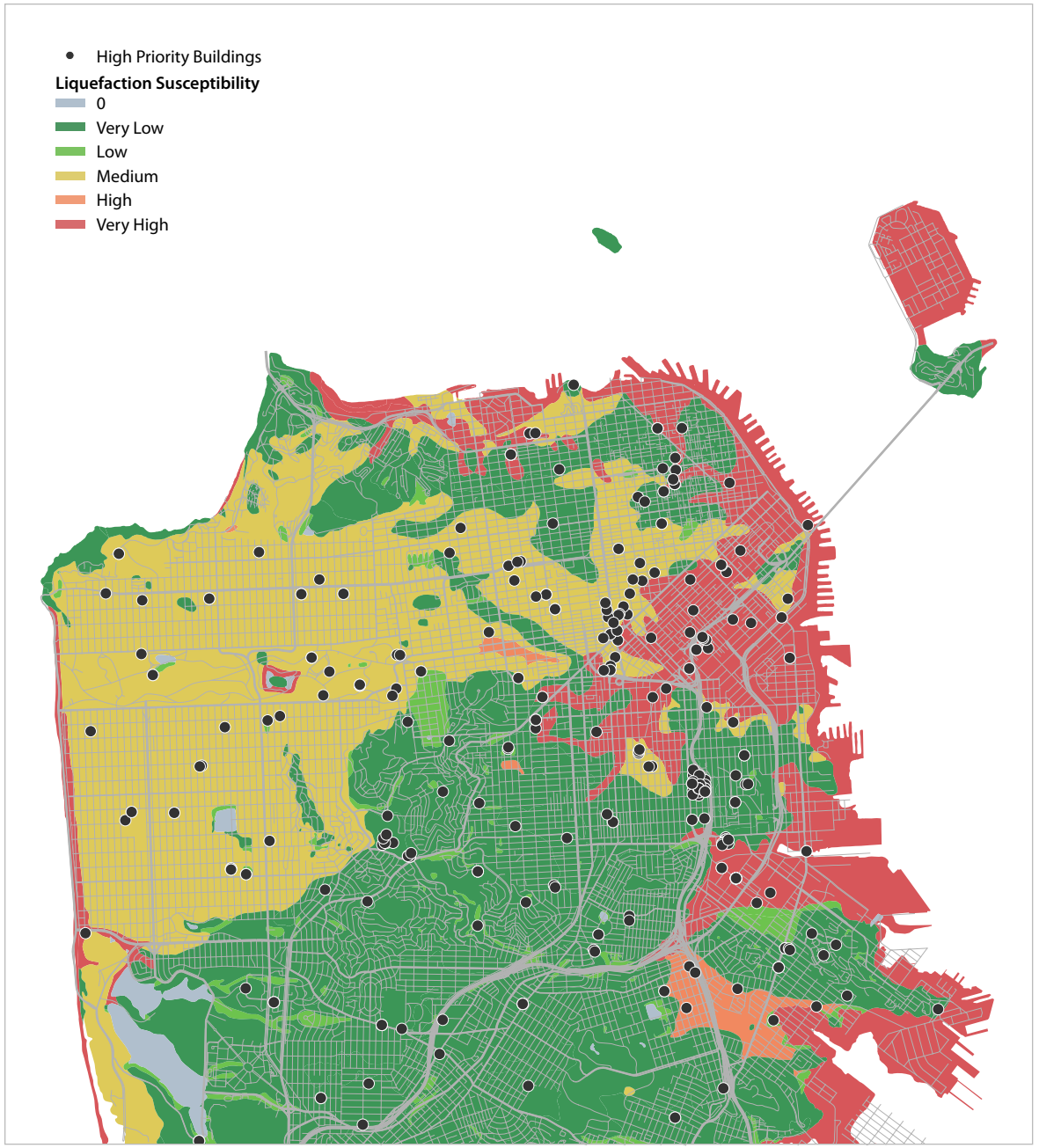
2017 SF HAZUS Results (Dollars in Millions)	Hayward M6.9	San Andreas M6.5	San Andreas M7.2	San Andreas M7.9
Structural Damage	107.2	133.4	212.3	353.1
Non-Structural Damage	398.3	545.4	859.7	1,489.3
Subtotal, Building Damage	**505.5**	**678.8**	**1,072.0**	**1,842.4**
Content Damage	130.1	426.7	523.6	714.3
Operational Losses (Rent, Relocation, and Lost Income)	154.8	191.9	314.7	527.2
Total Economic Impact (239 Buildings)	**790.4**	**1,297.3**	**1,910.3**	**3,083.8**

Seismic Hazard Ratings (SHRs) were first developed in San Francisco in 1992 and are used to assess risk and prioritize seismic-strengthening capital improvements for over 200 public buildings. Buildings are rated on a scale from one (best) to four (worst). At present the City has addressed nearly all of the buildings previously identified as SHR4, with the exceptions of 101 Grove Street and 170 Otis, and many of those buildings rated SHR3. Updating the ratings is important for the future prioritization of seismically vulnerable structures, and some additional vulnerabilities have been identified this way. City facilities including, police and fire stations, and public health clinics have all been found in need of seismic safety work. That information has been incorporated into the prioritized projects of this Plan.

One of these priority projects includes the historic **Kezar Pavilion,** situated in the southeastern corner of Golden Gate Park. Kezar Pavilion needs a seismic upgrade to ensure safety for staff and public use in addition to comprehensive systems upgrades and historic rehabilitation. With a seating capacity of more than 5,000, this facility could be used for functions such as shelter, mass care and mutual aid after a major disaster.

Another essential disaster preparedness project is San Francisco's **Emergency Firefighting Water System (EFWS),** which is vital for protecting against loss of life and property from fire in the event of a major earthquake. The San Francisco Public Utilities Commission assumed responsibility of the EFWS in 2011 and is steadily moving forward with plans to improve and expand its reach. For more information, please see the **Infrastructure and Streets chapter** and the **Public Safety chapter**.

The **Building Occupancy Resumption Program (BORP)** prioritizes critical facilities and reduces inspection times for reoccupation following a major



HAZUS and Liquefaction map

earthquake. Building owners may apply to the BORP through the Department of Building Inspection to expedite a private inspection for reoccupation to within eight daylight hours of an earthquake through a contract with a qualified engineer, a process that can otherwise take days or weeks in the wake of a citywide emergency. This program is the first of its kind in California for private and public buildings and will enable San Francisco to restore services with minimal delay. Many of San Francisco's critical public buildings and privately-owned buildings are part of the BORP program. Recent additions include the Moscone Convention Center and the California Academy of Sciences. San Francisco is hoping to expand participation in the program in the coming years.

A rising priority for both public and private buildings is **addressing vulnerable concrete buildings.** There are approximately 3,700 publicly and privately owned older concrete buildings built before modern building codes in the city. Some of these buildings have the potential to fail and collapse in an earthquake. The next step for San Francisco is to leverage best engineering practices to develop a screening and evaluation program to identify the most vulnerable buildings and develop a seismic retrofit program.

Climate Resilience

As we consider the next generation of programs and projects that will build strong, adaptive, and sustainable communities in San Francisco, two strategic documents serve as guides: the Hazards and Climate Resilience Plan and the Climate Action Plan.

In June 2020, San Francisco adopted the **Hazards and Climate Resilience Plan,** which also serves as the Local Hazard Mitigation Plan, making San Francisco eligible for federal funding opportunities. The plan assessed vulnerability to existing hazards, such as earthquakes, as well as hazards increasing due to climate change, such as flooding, drought, extreme heat, and poor air quality from wildfires. The plan includes resilience strategies to improve San Francisco's buildings, infrastructure, and communities and drive future resilience investment in the City.

The updated **Climate Action Plan** will define a pathway to deliver net zero emissions by 2050 and articulate the wider social, racial, environmental, and economic benefits of climate action. Since the completion of the City's 2013 Climate Action Strategy, there have been significant achievements, such as the launch of CleanPowerSF, the passing of the Better Roofs and All-Electric for New Buildings Ordinances, a transition to 100 percent renewable diesel in the City fleet, and advancements in building energy efficiency. San Francisco's post-pandemic Climate Action Plan will also center around creating good jobs and economic recovery resistant to crisis-level shocks.

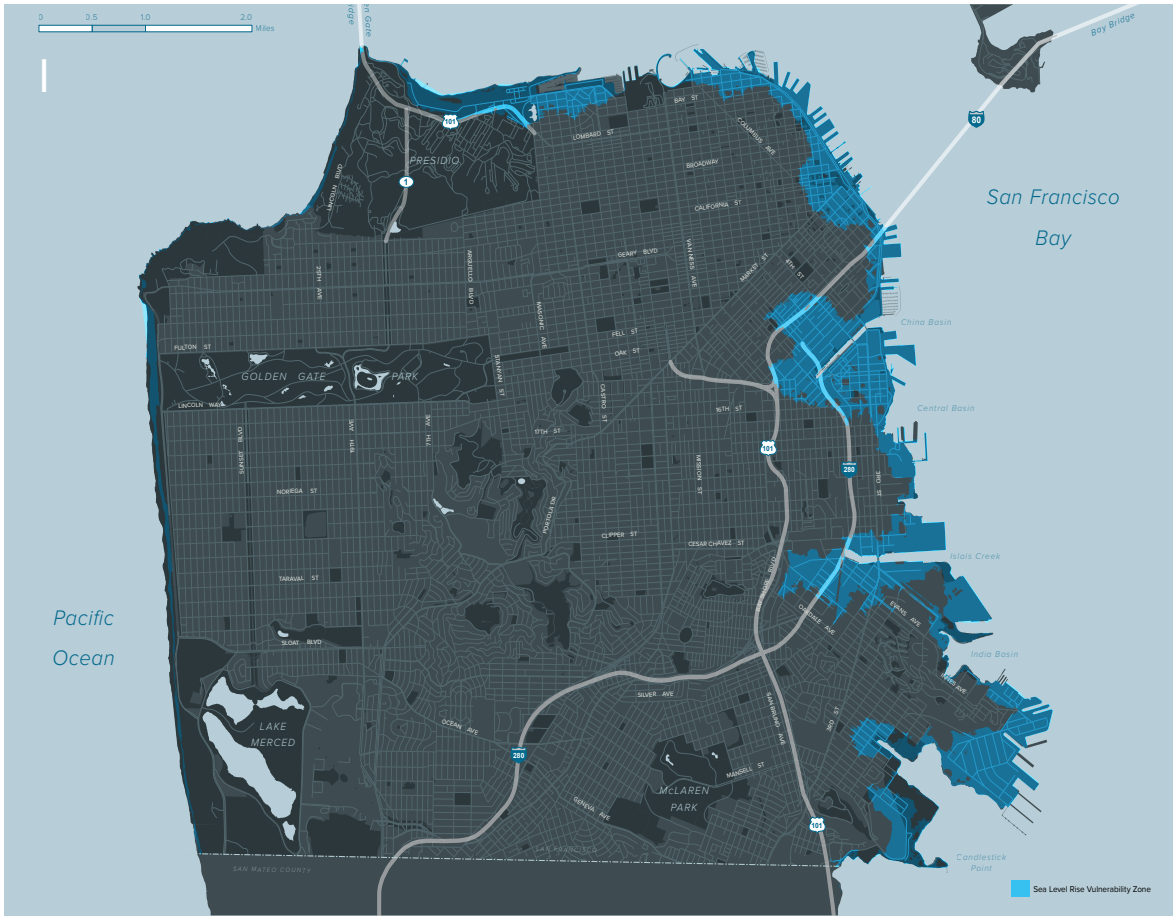
This section first discusses projects related to sea level rise and flooding and then extreme heat and poor air quality.

Sea Level Rise and Flooding

The **2016 Sea Level Rise Action Plan** left no question that San Francisco's lower-lying shoreline areas will be exposed to flood waters in the relatively near-term. The City then completed

the **Sea Level Rise Vulnerability and Consequences Assessment** in 2019 to provide detailed information to decision-makers on the level of vulnerability of public assets to inform future adaptation strategies.

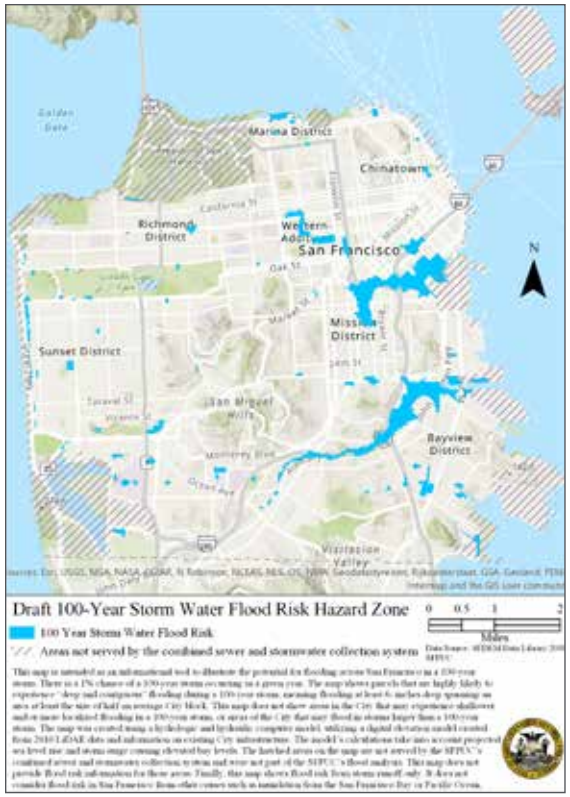
The City has already adopted technical **guidance for incorporating sea level rise into capital planning**. Approved by the Capital Planning Committee in 2014 and updated in 2020, this guidance establishes a consistent review, planning, and implementation process for projects in the Sea Level Rise Vulnerability Zone. Departments are expected to identify and map project sites to check whether they fall within the Vulnerability Zone, fill out a checklist for all projects over $5 million funded within the next 10 years, and submit for review by the Chair of the Capital Planning Committee and the City Engineer.



Sea Level Rise Vulnerability Zone map

In September 2020, the Federal Emergency Management Agency (FEMA) finalized San Francisco's revised Flood Insurance Rate Map (FIRM) that shows flood hazards associated with flooding from coastal tides and storm surge. The National Flood Insurance Program provides reasonably priced flood insurance to homes within the flood zone and helps communities manage floodplains. The City will amend its **Floodplain Management Ordinance** in 2021 so that the revised FIRM can go into effect.

Storm water also poses a threat, particularly during extreme precipitation events as runoff can result in flooding and sometimes property damage. As this type of flooding is not captured by our sea level rise maps or the FEMA floodplain maps, SFPUC has developed



a **100-Year Storm Flood Risk Map** that shows areas of San Francisco where significant flooding from storm runoff is highly likely to occur during a 100-year storm. The purpose of the map is to inform existing and future property owners about flood risk on their property and promote resilience. This effort will be closely aligned with the City's Floodplain Management Ordinance.

Preliminary planning is already underway in areas known to be vulnerable to sea level rise. The Port has partnered with the United States Army Corps of Engineers (USACE) for a **Flood Resiliency Study,** where the Port and USACE each committed $1.5 million to study flood risk along San Francisco's 7.5 mile waterfront. This USACE appropriation represents the beginning of the General Investigation process that will culminate in a recommendation to Congress regarding additional federal funding to support the Seawall Program and other areas at risk of flooding along the Port's jurisdiction. For more information, please see the **Economic and Neighborhood Development Chapter**.

Also along the bayside, the Planning Department and San Francisco Municipal Transportation Agency (SFMTA) are collaborating to develop the **Islais Creek Southeast Mobility Adaptation Strategy,** funded by a Caltrans grant. This strategy will build adaptation scenarios to lay the groundwork for a resilient, safe, and reliable multimodal transportation system for projected population and job growth.

Also in the Southeast bayfront, the Recreation and Parks Department will remediate a brownfield site adjacent to **India Basin Shoreline Park** to create one grand waterfront park in the Bayview-Hunters Point neighborhood. This park will increase access to open space in an under-served area of the city and programming will have an emphasis on access, social equity, waterfront recreation, sea level rise resilience, and marsh and wetland habitat. For more information, please see the **Recreation, Culture, and Education Chapter**.

Adaptation to sea level rise is also underway on the west side of the city. The 2012 **Ocean Beach Master Plan (OBMP),** led by SPUR, involved

federal, state, and local agencies in the development of a sustainable and resilient long-term vision for Ocean Beach. The 3.5-mile stretch of Ocean Beach is home to rugged coast, a national park, popular urban open space, and the site of some major infrastructure assets. The OBMP presents recommendations for the management and protection of Ocean Beach in the context of climate-induced sea level rise and severe erosion. It includes six Key Moves over a horizon of several decades. Current efforts include the removal of the Great Highway between Sloat and Skyline Boulevards and the introduction of a coastal protection, restoration, and access system.

Heat and Poor Air Quality

San Francisco faced a record 30 consecutive spare-the-air days due to wildfire smoke in summer 2020 and the City must continue to prepare for more poor air quality and heat waves due to climate change. We must also look out for the most vulnerable and make sure people know where they can go to access **cleaner air and cooler facilities.** The City has identified public facilities that are well suited to serve as cleaner air and/or cooling respite centers, and facilities that could serve as respite centers with investments in ventilation, air conditioning systems, and window upgrades. Going forward, the City Administrator's Office will work with partner agencies to recommend an equitable level of service for cleaner air and cooling centers in San Francisco and strategic investments in public facilities. The City is also working to advance the capital-related strategies called for in the Hazards and Climate Resilience Plan, including expanding the Street Tree SF climate resilient tree planting initiative and developing multi-hazard resilience design guidelines.

Eliminating Greenhouse Gas Emissions

At the Global Climate Action Summit in 2018, Mayor London Breed committed San Francisco to new building decarbonization goals, which require all new buildings to be net zero emissions no later than 2030 and all existing buildings to be net zero emissions by 2050. A key first step in achieving this goal is the **Municipal All**

The 2018 Global Climate Summit

In 2018, San Francisco hosted the world's climate change leaders, problem-solvers, and advocates for the Global Climate Summit convened by Governor Jerry Brown. In tandem with that event, San Francisco made ambitious new climate commitments to:

- Reduce emissions to net zero by 2050.
- Reduce waste generation by 15% and landfill disposal by 50% by 2030.
- Build net-zero carbon buildings by 2050.
- Issue more green bonds to finance capital projects.
- Switch all electricity in to renewables by 2030.

Electric Ordinance passed in January 2020. The legislation requires that all new construction and renovations of municipal buildings to be all electric. Facilities funding through this Capital Plan will meet this new requirement.

Infrastructure

Infrastructure is central to our daily lives yet often hidden from view. The Capital Plan is critical to taking care of the infrastructure we already have and investing in systems that meet the challenges of the future.

Lifelines

The Lifelines Council of San Francisco brings together public and private sector infrastructure operators to share information, ideas, and data that provide the basis for a coordinated response to hasten the recovery, restoration and viability of San Francisco following a major earthquake. In 2014, the Council published an Interdependency Study, which identified a series of actions to improve utility reliability and post-disaster functionality in San Francisco. Building on that study, the **Lifelines Restoration Performance Project,** completed in 2020, developed for the first time, a common set of expectations for when lifelines systems serving San Francisco will restore service following a major earthquake and sets restoration goals for each system. The plan identifies projects, policies, and actions needed to close the gap between current and target restoration times.

Waterfront Resilience

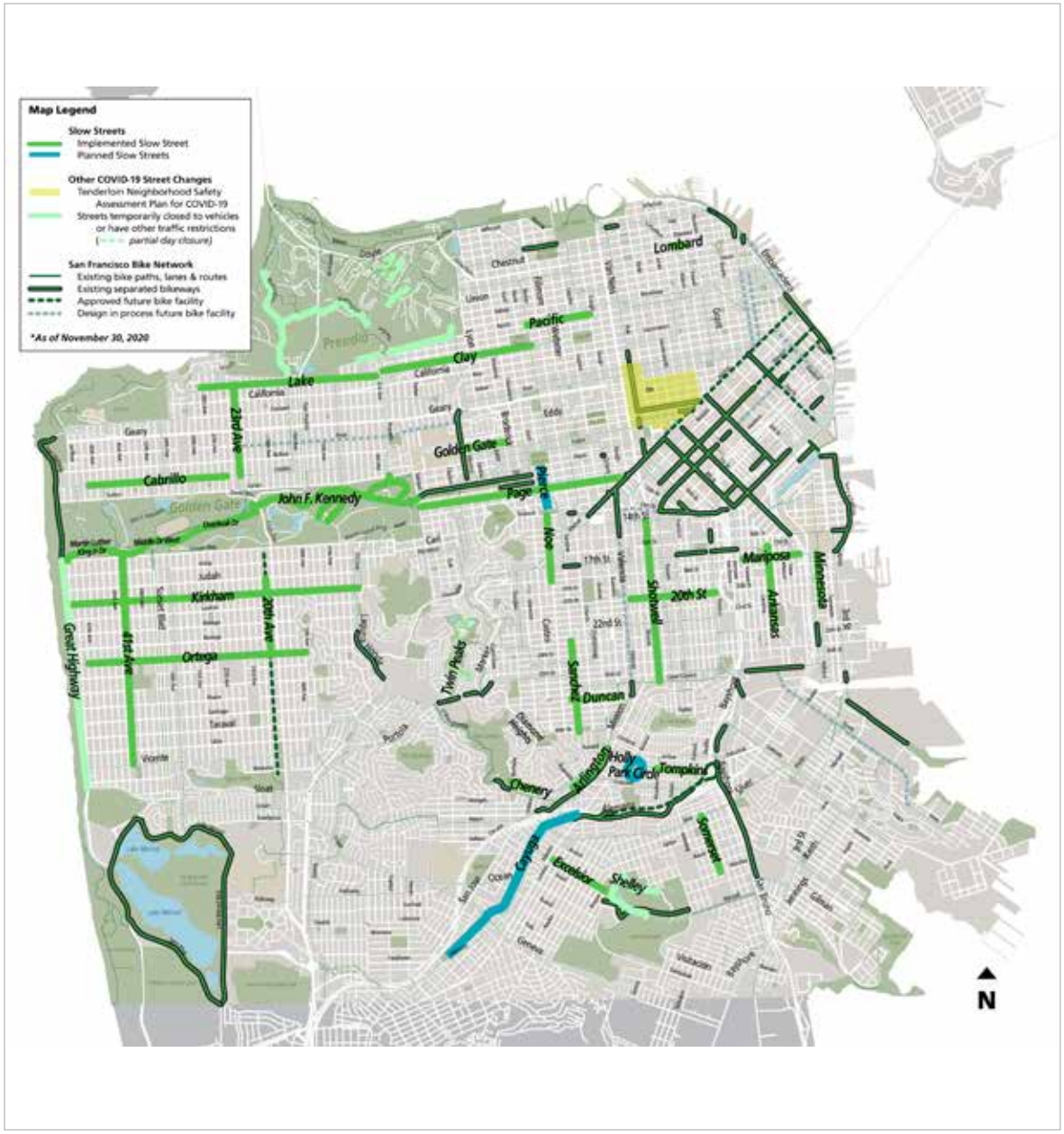
The Embarcadero Seawall, which spans three miles of shoreline from Fisherman's Wharf to Mission Creek, needs to be strengthened to address seismic risks, floods, and sea level rise. Recognizing the significant consequences to the city, the region, the state, and the many community members and businesses that depend on the Seawall's integrity, the City initiated the **Seawall Program,** led by the Port of San Francisco. Phase I will implement the most immediate life safety upgrades to the Embarcadero Seawall at select locations and plan for additional work to ensure a resilient waterfront for 2100 and beyond. The Port will implement the Seawall Program over several decades and will require federal, state, and local permitting and funding to complete the effort. For more information please see the **Neighborhood and Economic Development chapter.**

Transportation

The COVID-19 crisis has greatly impacted public transit in San Francisco and the SFMTA has developed the **Transportation Recovery Plan (TRP)** to strategically respond to the crisis. The TRP makes the best use of the SFMTA's limited resources to adapt its transportation services to minimize risk to its employees and the public, meet changing health guidance and transportation needs and support a strong economic recovery. Among TRP measures are strategies that enable efficient modes of transportation, like the Slow Streets Program, temporary emergency transit lanes, and temporary bike improvements. SFMTA's **Slow Streets program** is designed to provide more space for social distancing by limiting through traffic on certain residential streets. Throughout the city,

over thirty corridors have been planned or implemented as a Slow Street by adding signage and other improvements to these streets to help minimize through vehicle traffic and prioritize walking/biking. This program also helps the City towards its Vision Zero goals of prioritizing street safety and eliminating traffic deaths by 2024.

Vision Zero SF uses data-driven strategies to protect people from serious injury or death by crash with safer roads, slower speeds, improved design, and education and enforcement to support safer road behaviors. In addition to strengthening and adapting infrastructure and making our right-of-way safer, the City is also working to make sure that the transportation network supports San Franciscans' vision for the future. With the help of thousands of residents who participated in focus groups, surveys, and targeted outreach, **ConnectSF** developed a vision, goals, and objectives that will guide the city's long-range transportation planning. For more information on these efforts, please see the **Transportation chapter.**



San Francisco Slow Streets