

SAFETY & RESILIENCE ELEMENT—2022 UPDATES

SPRING 2022 DRAFT

- I. Introduction
- II. Glossary
- III. Summary of Goals, Objectives, and Policies
- IV. Goals, Objectives, and Policies

STRUCTURE of GOALS, OBJECTIVES, AND POLICIES

- **Goal X. SHORT PHRASE.** One descriptive sentence. All other text is supporting information.
 - **Objective X.X. SHORT PHRASE.** One descriptive sentence, with no supporting information.
 - **Policy X.X.X. One sentence.**
The **supporting text** describes the policy intention and offers guidance on interpretation and implementation.

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INTRODUCTION

Purpose

The purpose of the Safety & Resilience Element is to facilitate safety from hazards, promote racial and social equity, and strengthen community resilience. It provides a comprehensive set of policies for minimizing San Francisco's contribution to the climate crises and ensuring local resilience to multiple hazards. It contains policies to reduce future loss of life, injuries, property loss, environmental damage, and social and economic disruption from natural or technological disasters, protecting the people and assets of San Francisco, especially communities and areas that face higher vulnerability to disasters.

The Safety & Resilience Element focuses on all hazards, natural and human-made. There is a strong foundation addressing seismic hazards, as earthquakes are the greatest risk to life and property in San Francisco due to the San Andreas and Hayward Faults. There are numerous other hazards common in California and more likely to occur in San Francisco, such as inundation, poor air quality, and release of hazardous materials. Additionally, there are human-made hazards that pose threats to the City's health and welfare and must be considered alongside natural hazards for mitigation, preparedness, response, and recovery. Due to the climate crises, hazards are occurring more frequently, intensely, and simultaneously. The Safety & Resilience Element aims to address the complexity and severity of all hazards.

The Safety & Resilience Element names Environmental Justice Communities as areas in San Francisco disproportionately experiencing environmental burden. The Environmental Justice Communities Map identifies communities based on exposure to environmental pollution and other social vulnerabilities. The Safety & Resilience Element also names the American Indian community, Black community, and other communities of color who are disproportionately experiencing racial and social inequities. These communities, and other vulnerable people, tend to experience all hazards more frequently and more intensely as compared to the city, and take longer to recover. The Safety & Resilience Element offers policies to foster equity, through actions and other systemic changes that amend past injustices and enable proactive, community-led solutions for the future.

In brief, the Safety & Resilience Element is organized into six goals to champion racial and social equity, environmental justice, climate mitigation, and climate adaptation.

1. All People Live in Safe & Healthy Communities: The City must recognize that past actions have led to systemic inequities in San Francisco. To ensure equitable safety and resilience, San Francisco must remedy past injustices and eliminate disparities experienced by Environmental Justice Communities and other vulnerable people.
2. Multi-Benefit Climate and Hazard Resilience: The climate crisis is leading to hazards occurring more frequently, intensely, and simultaneously in San Francisco. To approach safety and resilience, San Francisco must pursue multi-hazard risk reductions and maximize community benefits along the way to becoming a net-zero emissions city.
3. Hazard Mitigation: Global heating is already adversely impacting San Francisco and influencing how people live, work, and play. To be as proactive as possible, the City must reduce the

likelihood, scale, and severity of impacts from all disasters to communities, the economy, and the built and natural environment.

4. Emergency Preparedness: Emergency preparedness at the individual, community, and city level is essential to the readiness of San Francisco in the face of any disaster. To avoid loss of life and damage, the City must ensure San Francisco's residents, workers, and visitors have the knowledge, capacity, and support needed to be prepared.
5. Response: In the immediate aftermath of a disaster, the City's response is paramount to stymie ongoing threats to life safety and neighborhoods. The City must provide San Francisco's residents, workers, and visitors with the essential support and services needed immediately after a disaster for life safety and functional recovery.
6. Recovery and Reconstruction: The aftermath of disaster has long-lasting impacts to society, the environment, and the economy. The City must rebuild San Francisco's built, natural, and social assets and communities towards a more equitable and resilient future.

Implementation

The Safety & Resilience Element establishes policies to guide the City's actions in preparation for, response to, and recovery from a major disaster. As a policy document, the Safety & Resilience Element guides city decision making and actions, such as funding programs and regulating development. Implementation of the Safety & Resilience Element is carried out through numerous City plans and programs, as well as actions by the private sector and development.

Notably, ClimateSF is a multi-agency effort to coordinate climate mitigation and adaptation, and to ensure San Francisco becomes more resilient to the threats of the climate crisis. Mayor London N. Breed launched ClimateSF in 2021, led by the Mayor's Office and the Office of Resilience and Capital Planning, Planning Department, Department of the Environment, Port of San Francisco, and the Public Utilities Commission. ClimateSF establishes goals for collective action on climate resilience planning, policy, and guidance across the city. This coordination supports a central focus on racial and social equity, healthy communities, just transition, connection to nature, and innovation. Through ClimateSF, major components of the Safety & Resilience Element are stewarded through City implementation.

Relationship to City-Led Action Plans and Programs

The Safety & Resilience Element contains broader policies to reduce impacts that will need to be carried out by the City. The City maintains three principal implementation plans that provide more immediate directions, specific strategies, and measurable objectives for monitoring and evaluation. These plans work in partnership with the Safety & Resilience Element, and they are incorporated by reference here. A fourth plan, a recovery plan, shall be produced by The City to facilitate healthy and equitable recovery after disaster.

- **The Hazards and Climate Resilience Plan (HCR)**, led by the Office of Resilience and Capital Planning and adopted by the Board of Supervisors, is a climate adaptation plan that responds to all hazards. The HCR serves as the City's local hazard mitigation plan for disasters, adopted by

the Federal Emergency Management Agency (FEMA). It is the City's blueprint to understand and prepare for the impacts of natural hazards and climate change on our people and our assets.

- **The Climate Action Plan**, released by the Mayor, originally was developed to reduce the City's greenhouse gas emissions. Achieving net-zero greenhouse gas (GHG) emissions is still a plan driver; the plan now acknowledges the interwoven social and racial inequities of the climate crisis. This plan accordingly advances measurable strategies to achieve net-zero emissions while addressing racial and social equity, public health, economic recovery, and community resilience.
- The **Emergency Response Plan**, led by the Department of Emergency Management, provides an immediate action plan to coordinate response to disaster. It includes an overview of the emergency management system, detailed and restricted information for the Emergency Command Center, and a set of functional and hazard-specific details. The post-COVID assessment outlined the strengths of the City's plans and suggested further updates to enhance the City's emergency response plan. Specifically, improvements should focus on increasing community equity, improving the City's Disaster Service Working program and providing further clarity and streamlining to both the organization of response services and procurement of emergency supplies.
- A **Recovery Plan** shall be produced for the City and County of San Francisco. The City needs an advance planning document to guide long-term recovery and reconstruction post-disaster. A recovery plan can support rebuilding the City in a way that is more equitable and resilient to future disaster, based on the latest citywide goals and values, community needs, and approaches for building back better.

There are many other plans and programs throughout the city that support the Safety & Resilience Element, such as the Community Action Plan for Seismic Safety, the Neighborhood Empowerment Network, the Neighborhood Emergency Response Team, and the Lifelines Council. In addition to City-led actions, the Safety & Resilience Element relies upon the private sector, community-based organizations, and a range of additional stakeholders to support full and robust implementation of these policies.

GLOSSARY

Adaptation, Adaptive Capacity

- Adaptation is the ability, competency, and capacity of a system to adjust to variables. Climate Adaptation is the proactive measures taken to adjust the built environment and human systems to reduce harm from the impacts of the climate crisis.
- Adaptive Capacity refers to the ability to adjust functions to reduce harm. In social systems, it refers to the ability of institutions and people to problem solve and take opportunities for recovery and reconstruction.

Climate Resilience

- Climate Resilience refers to a two-fold approach to the climate crisis: mitigation and adaptation. Mitigation of climate impacts means minimizing global heating by reducing greenhouse gas emissions. Adaptation to the climate crisis means protecting society, the economy, and the environment from the unavoidable impacts that are now underway and expected in the future.

Environmental Justice, Environmental Justice Communities

- Environmental Justice is the equitable distribution of environmental benefits and elimination of environmental burdens to promote healthy communities where everyone in San Francisco can thrive. Government should foster environmental justice through processes that address, mitigate, and amend past injustices while enabling proactive, community-led solutions for the future.
- Environmental Justice Communities face environmental racism and subsequently bear disproportionate environmental burdens. Environmental Justice Communities are disproportionately low-income communities and communities of color. Leadership by Environmental Justice Communities must be involved in the creation and decision-making of environmental justice solutions. In San Francisco, Environmental Justice Communities are identified through the Environmental Justice Communities Map incorporated here by reference, and are defined as the census tracts with the top 30% of cumulative environmental and socioeconomic vulnerability across the city: <https://sfplanning.org/project/environmental-justice-framework-and-general-plan-policies#ej-communities>

Functional Recovery

- A building built for “functional recovery” would be able to be used for its intended purpose—such as eating, sleeping, shopping, or learning—soon after the earthquake or other severe hazard.

Hazard,

- A Hazard is a source of potential danger or an adverse condition that could harm people, socioeconomic systems, or built and natural environments.
- Geological Hazards include: Earthquake, Tsunami, Landslide, Dam or Reservoir Failure

- An earthquake is a sudden slip on a fault in the earth's crust, and the resulting ground shaking and radiated seismic energy caused by the slip.
- A tsunami is a series of ocean waves caused by sudden movement of the sea floor, typically as a result of major earthquakes.
- Landslide is a general term used to describe the downslope movement of soil, rock, and organic materials under the effects of gravity.
- A dam or reservoir failure is an unplanned release of water resulting from the structural compromise or collapse of a dam or other structural element, such as the wall of a tank.
- Weather-Related Hazards include: Flooding, High Wind, Extreme Heat, Drought
 - Flooding is covering or inundation of normally dry land with large amounts of water, can be caused by the overflow of water from a stream, river, lake, coastal body, or a water control feature such as a pipe, dam, or levee.
 - The National Weather Service defines "high winds" as sustained wind speeds of 40 miles per hour (mph) or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration.
 - According to the National Weather Service, extreme heat occurs when the temperature reaches extremely high levels or when the combination of heat and humidity causes the air to become oppressive and stifling. Generally, extreme heat is 10 degrees above the normal temperature over an extended period.
 - Drought is insufficient water over a prolonged period.
- Combustion-Related Hazards include: Large Urban Fire, Wildfire, Poor Air Quality
 - A Large Urban Fire is a large, destructive fire that spreads across one or more city streets.
 - A Wildfire is an unplanned, uncontrolled fire in an area of combustible vegetation or fuel.
 - The Air Quality Index (AQI) measures air quality for the five pollutants regulated by the Clean Air Act: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The AQI scores air as good (0-50), moderate (51-100), unhealthy for sensitive groups (101-150), unhealthy (151-200), very unhealthy (201-300), and hazardous (301-500).
- Biological & Toxic Hazards include: Pandemic, Hazardous Materials
 - A Pandemic is when an infectious disease outbreak occurs worldwide, or over a very wide area and affects many people.
 - Hazardous Materials are harmful both to human health and to the environment. An accidental hazardous material release can occur wherever hazardous materials are manufactured, stored, transported, or used.

Infrastructure

- The system of physical and intangible assets to deliver public services to a community, such as roads, internet, and pipes.

Lifelines

- San Francisco's lifelines include city services such as water, sewer and power provision, communication networks such as phone, radio, television and Internet, and transportation infrastructure. By definition, these lifelines extend beyond city boundaries. State and private agencies operate some of the regional lifelines. Caltrans operates most of the regional transportation network, which is vulnerable to earthquake damage resulting in significant impacts on San Francisco.

Mitigation, Hazard Mitigation

- Mitigation is the reduction of vulnerabilities, risks, and impacts of hazards on people, assets, and the environment. Often strategic nearer-term investments, mitigation actions can lessen the scale and intensity of potential future damage, thereby reducing response and recovery expenditures. Proactive hazard mitigation is particularly important for protecting the most vulnerable populations.
- Hazard Mitigation is sustained actions taken to reduce or eliminate short- and long-term risks to life and property from hazards.

Racial & Social Equity

- Racial Equity is the systematic fair treatment of people of all races that results in equal outcomes, while recognizing the historical context and systemic harm done to specific racial groups.
- Social Equity is fairness and justice in the management of public institutions, forming of policy and delivery of public services taking into account historical and current inequities among groups, such as along gender identity, sex, religion, and disability status.

Recovery and Reconstruction

- Recovery and Reconstruction activities restore and rebuild communities post-disaster—with fundamentals such as housing secured, business resumption, lifeline restoration, and provision of essential services. The thoughtful rebuilding of day-to-day livelihoods can advance San Francisco towards a more equitable, sustainable, and resilient future.

Response

- Response efforts provide critical information and emergency services during and immediately after disasters. It focuses on saving lives and preventing further injury to people and places, particularly focused on vulnerable populations. Response activities bring immediate support and relief against the social, economic, and environmental consequences of disasters.

Risk, Risk Reduction

- Risk is the chance that a given hazard could occur multiplied by the understood consequences of an impact on people, socioeconomic systems, or the built and natural environment.
- Risk Reduction includes regulatory controls, plans, policies, programs, projects, initiatives, and anything else employed to cost-effectively eliminate, avoid, or minimize risks.

Safety, Life Safety

- Safety is the state of being protected from harm or other danger. This includes physical and mental harm from external and internal danger.
- Life Safety refers to building performance that prevents partial or total structural collapse and limits damage to nonstructural and non-life-threatening levels.

Vulnerable Communities

- Vulnerable Communities experience heightened risk and increased sensitivity to potential harms than the city average. To be vulnerable means possessing a lower adaptive capacity to withstand stresses, and often means that these people and places are hit the “first and worst” by disasters. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by adverse climate impacts. Vulnerability can be defined by a variety of factors, such as geography, demographics, health disparities, and asset ownership.

SUMMARY OF GOALS, OBJECTIVES, AND POLICIES

GOAL 1. ALL PEOPLE LIVE IN SAFE & HEALTHY COMMUNITIES. To ensure equitable safety, San Francisco must remedy past injustices and eliminate disparities experienced by Environmental Justice Communities.

OBJECTIVE 1.1. JUST EMPOWERMENT. Support the growth of community networks to empower all people.

POLICY 1.1.1. In all stages of safety and resilience, prioritize the needs of people most impacted by the adverse impacts of hazards.

POLICY 1.1.2. During mitigation activities, prioritize investment and resources in Environmental Justice Communities, especially through existing community-based efforts.

POLICY 1.1.3. During emergency preparedness activities, inform all individuals about the risks, vulnerabilities, and consequences of their neighborhood and communities from all hazards through culturally competent and equitable communications.

POLICY 1.1.4. During response activities, the City should partner with community-led and community-based networks to respond to hazard impacts in Environmental Justice Communities.

POLICY 1.1.5. During recovery and reconstruction activities, rebuild in ways that remedy safety and resilience injustices in Environmental Justice Communities.

POLICY 1.1.6. Prioritize funding for infrastructure improvements and maintenance in Environmental Justice Communities.

OBJECTIVE 1.2. CONTINUOUS ASSESSMENT AND EVOLUTION. Act based upon best practices and continuously improve the knowledge base to remedy past injustices and eliminate disparities.

POLICY 1.2.1. Prioritize surveys of historic, archaeological, and intangible cultural resources in most vulnerable areas, including the employment of tools such as photographs, oral histories, community knowledge repositories, architectural drawings, 3D laser surveys, and/or digital technology.

POLICY 1.2.2. Use the latest assessment tools provided by the Racial & Social Equity Action Plans and Office of Racial Equity to incorporate equity considerations into the planning, evaluation, and monitoring of programs.

POLICY 1.2.3. Engage the community in the planning process.

POLICY 1.2.4. Establish a network of neighborhood-level Equity Officers to support the equity of response, recovery, and reconstruction activities in the city post-disaster.

GOAL 2. MULTI-BENEFIT CLIMATE AND HAZARD RESILIENCE. Pursue multi-hazard risk reductions and maximize community benefits along the way to becoming a net-zero emissions city by 2040.

OBJECTIVE 2.1. CLIMATE RESILIENCE. Pursue synergistic efforts that both eliminate greenhouse gases (climate mitigation) and protect people, the built environment, and nature from the unavoidable impacts of the climate crisis (climate adaptation).

POLICY 2.1.1. Ensure that City projects and private developments provide multi-benefit solutions that mitigate hazard risk and contribute to a zero-emission future.

POLICY 2.1.2. Coordinate the regular update and execution of implementing documents of this General Plan including: the Hazards and Climate Resilience Plan (HCR), the Climate Action Plan (CAP), Emergency Response Plan (ERP), and the Recovery Plan (pending).

POLICY 2.1.3. The City shall create a Recovery Plan to facilitate robust social, economic, and environmental recovery post-disaster.

OBJECTIVE 2.2. MULTI-HAZARD RESILIENCE AND CO-BENEFITS. Maximize risk reduction, and the related community benefits, from multiple simultaneous hazards in all investments to climate adaptation and hazard mitigation.

POLICY 2.2.1. Examine the risk of flooding due to the climate crisis, such as storm surges, changes in precipitation patterns, and sea level rise as well as adaptation actions that will protect people, built environment, and ecosystem vulnerability and expand community resilience.

POLICY 2.2.2. Include multi-hazard risk assessments in private development, capital projects, and the City's climate resilience programs.

POLICY 2.2.3. Adapt the City's Bay and ocean shorelines to current and future climate flood hazards, including coastal flooding, sea level rise, groundwater rise, and extreme storms.

POLICY 2.2.4. Seek sufficient funding to address climate hazards through all phases of mitigation, preparedness, response, recovery, and reconstruction.

OBJECTIVE 2.3. NATURE-BASED SOLUTIONS. Amplify nature, biodiversity, and public open space through climate resilience that mimic or restore ecological systems and function.

POLICY 2.3.1. Prioritize nature-based solutions that restore ecosystem function and maximize ecological benefits to plants, animals, and people.

POLICY 2.3.2. Maximize the preservation and maintenance of carbon sinks in the city and landscape approaches that advance the rate of carbon sequestration.

POLICY 2.3.3. Educate and empower stakeholders and communities to know, grow, and steward local native plants and wildlife on private and public property as resilience tools.

POLICY 2.3.4. Reduce the threat of wildfire to San Francisco residents and infrastructure.

POLICY 2.3.5. Prioritize the use of green infrastructure tools and natural shoreline solutions to manage stormwater and protect against coastal flooding and sea level rise.

POLICY 2.3.6. Prioritize flood adaptation strategies that enhance shoreline ecological function and biodiversity, such as wetlands and that integrate the visibility of these systems into daily living.

GOAL 3. HAZARD MITIGATION. Reduce the likelihood, scale, and severity of impacts from all disasters to communities, the economy, and the built and natural environment.

OBJECTIVE 3.1. EXISTING BUILDINGS. Ensure retrofits and renovations to existing structures increase building longevity and meet current best practices to protect occupants and structures.

Risk Reduction

POLICY 3.1.1. Reduce the risks presented by City-owned structures and privately owned residential buildings, and provide assistance to vulnerable communities with limited adaptive capacity to reduce those risks.

POLICY 3.1.2. Reduce the risk of all hazards, especially geologic, weather-related, and combustion-related, posed by older small wood-frame residential buildings.

POLICY 3.1.3. Abate structural and non-structural hazards in City-owned structures.

POLICY 3.1.4. Encourage businesses and homeowners to evaluate their risks to all hazards.

POLICY 3.1.5. Support the ability to shelter in place, practice climate resilience, and provide help for vulnerable communities with limited adaptive capacity.

Historic Preservation

POLICY 3.1.6. Preserve, consistent with life safety and functional recovery considerations, the architectural character of buildings and structures important to the unique visual image of San Francisco, focusing on underrepresented cultures, and increase the likelihood that architecturally and historically valuable buildings and structures will survive all hazards.

POLICY 3.1.7. Safeguard diverse elements of the City's living heritage which collectively contribute to San Francisco's cultural identity through supporting the protection and/or adaptation of intangible elements and their ties to the City's natural and built environments.

POLICY 3.1.8. Maintain a data clearinghouse of existing housing and building stock that inventories their features related to vulnerability and resilience to all hazards, such as small wood-frame buildings, architectural and cultural character, and gas lines.

Resilient Retrofits

POLICY 3.1.9. Reduce hazards from gas fired appliances and gas lines, removing gas lines when possible, focusing on communities with older housing stock and privately owned residential buildings.

POLICY 3.1.10. For existing housing and building stock, provide training, guidance, and assistance to build resilience against extreme heat, poor air quality, and flooding, especially in Environmental Justice Communities and other vulnerable people.

POLICY 3.1.11. During building retrofits, follow a comprehensive retrofit strategy to reduce the risk of property loss and damage during wildfires, flooding, seismic hazards, and provide support to vulnerable communities.

POLICY 3.1.12. Provide guidance and assistance to residents about the risks associated with their home and their options to improve safety as renters.

OBJECTIVE 3.2. NEW BUILDINGS. Maximize the safety, environmental performance, and adaptability of all new development.

Hazard Information in Decision Making

POLICY 3.2.1. Continue to support and monitor research about the nature of all hazards in the Bay Area, including research on prediction, warning systems and measuring devices, community vulnerability and consequences assessments, and about resilient construction and the improved performance of structures.

POLICY 3.2.2. Research and maintain information about all hazards, including how vulnerable communities are impacted more adversely.

POLICY 3.2.3. Consider site soils conditions, including mobilization potential of soil contamination, when reviewing projects in areas subject to liquefaction, slope instability, sea level rise, and flood hazards.

POLICY 3.2.4. Consider information about all hazards whenever City decisions are made that will influence the built environment and impact the community, such as building density, existing and planned infrastructure, environmental justice, and climate resilience.

POLICY 3.2.5. Monitor emerging industries like bioscience and ensure that state and local codes manage risks effectively.

POLICY 3.2.6. Provide training, guidance, and assistance for the geotechnical and foundation issues unique to tall buildings.

POLICY 3.2.7. Coordinate interagency Citywide efforts to assess the City's vulnerabilities to multiple hazards, such as seismic, flooding, and extreme heat.

Citywide Emissions Reduction

POLICY 3.2.8. Direct city actions to reduce local contributions towards the climate crisis by mitigating greenhouse gasses and by increasing carbon sequestration, with increased the intensity, frequency, innovation and urgency of action.

Promote Green Building

POLICY 3.2.9. Continue to promote green stormwater management techniques.

POLICY 3.2.10. During retrofits and new construction, prioritize building practices that emit lower greenhouse gasses and build resilience to multiple hazards at once, especially in Environmental Justice Communities.

OBJECTIVE 3.3. INFRASTRUCTURE AND PUBLIC REALM. Ensure the City's lifeline systems, transportation and emergency response facilities, utilities, streets, public spaces, and coastal protection can withstand and adapt to all hazards.

Public Assets and Awareness

POLICY 3.3.1. Conduct capital planning to advance resilient infrastructure that prioritize the needs of Environmental Justice Communities and other vulnerable people.

POLICY 3.3.2. Provide training, guidance, and assistance for nearby communities most vulnerable to potential threats and consequences to public assets and infrastructure within the Sea Level Rise Vulnerability Zone.

POLICY 3.3.3. Where there are known public infrastructure projects in certain locations, consider prioritizing protecting the public rights-of-way, above and below street level, against private development.

POLICY 3.3.4. Reduce the risk of all hazards to community facilities and lifeline infrastructure, starting with Environmental Justice Communities.

Resilience to Future Hazards

POLICY 3.3.5. Support development and amendments to buildings, planning and other municipal code requirements that meet City climate resilience performance goals.

POLICY 3.3.6. Maintain research, monitoring, and guidance related to sea level rise and flood hazards to inform a framework for future investments and development.

POLICY 3.3.7. For new construction and public assets, consider resilience measures against future climate projections and other hazards, beyond life safety expectations in building codes and functional recovery.

POLICY 3.3.8. Design and utilize open spaces considering their use as emergency gathering areas, floodable spaces, and ecosystem services, per the Recreation and Open Space Element.

POLICY 3.3.9. Maintain evacuation routes and emergency access areas and plan for major improvements to those corridors and access areas that support everyday use while enabling sufficient capacity for future evacuations.

OBJECTIVE 3.4. SPECIFIC HAZARDS. Identify and pursue programs and projects that mitigate and safeguard against multiple hazards across multiple assets, especially in Environmental Justice Communities and other vulnerable people.

POLICY 3.4.1. Assess and mitigate the risk of flooding in the city by incorporating the Flood Insurance Rate Map for San Francisco and related programs and utilize ecosystem services for carbon sequestration.

POLICY 3.4.2. Educate the public about hazardous materials procedures, including transport, storage and disposal.

POLICY 3.4.3. Prepare for efficient and equitable responses to medical emergencies and pandemics.

POLICY 3.4.4. Assess, mitigate, and provide holistic information about all hazards affecting the City, identified in the Hazards and Climate Resilience Plan.

POLICY 3.4.5. Protect against the risks of using, storing, and transporting hazardous materials and increase public awareness, particularly in areas prone to seismic and flooding risks.

POLICY 3.4.6. Develop a citywide sea level rise and coastal flood hazards adaptation plan.

POLICY 3.4.7. Support retrofitting measures for historic buildings vulnerable to current or future flooding, while respecting architectural and historic character, consistent with pertinent local or federal design guidelines.

POLICY 3.4.8. Develop a plan for supporting Environmental Justice Communities and other vulnerable people during Sheltering in Place activities, to protect from poor and hazardous air quality, pandemic, and other hazards.

GOAL 4. EMERGENCY PREPAREDNESS. Ensure San Francisco's residents, workers, and visitors have the knowledge, capacity, and government support they need to be safe in the face of disasters.

OBJECTIVE 4.1. AWARENESS AND CAPACITY BUILDING. Increase the understanding and training of equitable emergency preparedness to all hazards among all government, private, and public sectors.

POLICY 4.1.1. Promote greater public awareness of disaster risks, personal and business risk reduction, and personal and neighborhood emergency response.

POLICY 4.1.2. Provide ongoing emergency preparedness and response training to all City employees and other responding agencies.

POLICY 4.1.3. Create a consolidated website linking all of the City's disaster-related information for the general public and ensure distribution of the information through offline outreach that is accessible and equitable in the delivery to all people.

POLICY 4.1.4. For pandemic preparedness, develop a framework of healthcare management that combines the City's physical assets with social and management tools to maximize public health outcomes.

OBJECTIVE 4.2. CITY AGENCY CAPABILITIES. Plan ahead for the operations, data, and logistics needed to facilitate community safety during the response, recovery, and reconstruction phases of all hazards.

Water and Energy

POLICY 4.2.1. Continue to expand the City's fire department prevention and firefighting capability with sufficient personnel and training.

POLICY 4.2.2. Ensure potable water is available in an emergency.

POLICY 4.2.3. Ensure renewable energy is available in an emergency.

Disaster Response

POLICY 4.2.4. Ensure the City's designated system of emergency access routes is coordinated with regional activities for both emergency operations and evacuation.

POLICY 4.2.5. Utilize the City's and region's bus and rail transit network to facilitate response and recovery during and after a disaster.

POLICY 4.2.6. Develop a plan to acquire and store a citywide inventory of disaster supplies to meet the 72 hour response post-disaster needs for shelter, medical, and care.

OBJECTIVE 4.3. CITYWIDE COOPERATION. Create proactive plans and programs to prepare readiness and coordination for all disasters.

Emergency Management

POLICY 4.3.1. Bolster the Department of Emergency Management's role as the City's provider of emergency planning and communication, and prioritize its actions to meet the needs of San Francisco.

POLICY 4.3.2. Maintain a comprehensive, current Emergency Response Plan with neighborhood-level detail on equitable implementation, in compliance with applicable state and federal regulations, to guide the response to disasters.

POLICY 4.3.3. Maintain the San Francisco Disaster Debris Management Plan.

POLICY 4.3.4. Support the Emergency Operations Center, and continue maintenance of alternative operations centers in the case of an emergency.

POLICY 4.3.5. Ensure all response plans are coordinated with the Disaster Council.

Communications

POLICY 4.3.6. Utilize advancing technology to enhance communication capabilities in preparation for all phases of a disaster, particularly in the high-contact period immediately following a disaster.

POLICY 4.3.7. Enhance communications with other jurisdictions.

Public Safety

POLICY 4.3.8. Plan to address safety and violence issues that may arise post-disaster, and balance these issues with the other demands that will be placed on public safety personnel as emergency response providers.

Partnerships

POLICY 4.3.9. Develop agreements with private facilities to ensure immediate supply needs can be met.

POLICY 4.3.10. Continue coordination with water transit agencies, ferries and private boat operators to facilitate water transportation as emergency transport.

POLICY 4.3.11. Ensure the City's plan for medical response is coordinated with its privately owned hospitals.

POLICY 4.3.12. Develop and maintain mutual aid agreements with local, regional and state governments as well as other relevant agencies.

POLICY 4.3.13. Develop partnerships with private businesses, public service organizations and local nonprofits to meet disaster-time needs.

OBJECTIVE 4.4. GOVERNANCE AND COLLABORATION. Increase the City's collective capacity to improve safety and resilience outcomes through effective collaboration among peer agencies, the private sector, and the public sector.

POLICY 4.4.1. Develop centralized strategies for City safety and resilience functions that hold individual agencies accountable for their roles in disaster planning, coordination, decision-making, funding, cost-sharing, implementation, and risk allocation.

POLICY 4.4.2. Align safety and resilience work by regional, state, federal, and tribal government bodies to expand the reach and strength of local government support in the face of all hazards.

POLICY 4.4.3. Form effective and clear partnerships with non-government bodies, such as community organizations, institutions, private companies, and development partners to reach all people.

GOAL 5. RESPONSE. Provide San Francisco residents, workers, and visitors with the essential support and services needed immediately following a disaster for life safety and functional recovery.

OBJECTIVE 5.1. LIFELINES. Provide critical information and services to prevent further loss of life and establish community safety during the immediate aftermath of disasters.

POLICY 5.1.1. Mitigate against damage to City systems and infrastructure through awareness of threats posed by digital hazards, such as terrorism and communication failures.

POLICY 5.1.2. Increase communication capabilities in preparation for all phases of a disaster, and ensure communication abilities extend to hard-to-reach communities.

POLICY 5.1.3. Ensure plans are in place to support people most at risk during breaks in lifelines.

POLICY 5.1.4. After an emergency, follow the mandates of the Emergency Response Plan and Citywide Earthquake Response Plan.

POLICY 5.1.5. Follow the National Incident Management System (NIMS) Procedures in declared emergency scenarios.

POLICY 5.1.6. Develop a system to convey information during and immediately after a disaster.

POLICY 5.1.7. Ensure the City's lifeline systems are constantly maintained to be in a state of good repair.

OBJECTIVE 5.2. COMMUNITY PARTNERSHIPS. Work together with neighborhood-based organizations and trusted partners to expand disaster response activities across the city.

POLICY 5.2.1. Have plans to accept, organize and utilize convergence workers, training workers with basics on emergency management.

POLICY 5.2.2. Have vendors and contractors available to respond immediately after a disaster.

POLICY 5.2.3. Develop strategies for cooperating with the media.

POLICY 5.2.4. Work collaboratively with nonprofit and community partners to assist Environmental Justice Communities and other vulnerable people during and immediately after a disaster and to ensure resumption of social services directly after a disaster.

OBJECTIVE 5.3. HAZARD-SPECIFIC RESPONSE. Address any specific, shared, or compounding needs for community safety in the aftermath of a disaster.

POLICY 5.3.1. Establish centers to facilitate permits for repairs.

POLICY 5.3.2. Ensure historic resources are protected in the aftermath of a disaster, and support post-disaster restoration of damaged historic buildings.

POLICY 5.3.3. Address hazardous material and other spills by requiring appropriate cleanup by property owners per local, state, and federal environmental laws.

GOAL 6. RECOVERY AND RECONSTRUCTION. Rebuild San Francisco’s built, natural, and social assets and communities towards a more equitable and resilient future.

OBJECTIVE 6.1. BUILDINGS AND INFRASTRUCTURE. Maximize the opportunities to restore and rebuild the built environment with resilience to all hazards.

Housing Security and Justice

POLICY 6.1.1. Support policies that recognize the “right to housing” to mitigate the spread of homelessness pre-disaster and that increase the likelihood that the City’s lowest cost housing will persevere post-disaster.

POLICY 6.1.2. Provide adequate interim accommodation for residents and businesses displaced by a major disaster in ways that maintain neighborhood ties and cultural continuity.

POLICY 6.1.3. Repair damaged neighborhoods in a manner that facilitates resident return and minimizes long-term displacement, prioritizing

POLICY 6.1.4. Protect individuals and families experiencing homelessness in the wake of disaster.

POLICY 6.1.5. Ensure sufficient affordable housing and workforce housing during reconstruction.

Reinforce Mitigation

POLICY 6.1.6. Utilize emergency exemptions for rebuild projects with limited or no environmental impacts.

POLICY 6.1.7. Utilize green building practices in rebuilding and build new buildings and infrastructure to reduce greenhouse gas emissions consistent with the City’s Climate Action Plan and greenhouse gas emissions reduction targets.

POLICY 6.1.8. Ensure equitable outcomes and the consideration of design character and quality in all rebuilding projects.

OBJECTIVE 6.2. ADVANCE RECOVERY PLANNING. Comprehensively plan for the restoration of city function and economic activity with flexibility to known and unknown hazards.

POLICY 6.2.1. Before an emergency occurs, establish an interdepartmental working group to develop an advance recovery framework that will guide long-term recovery, manage reconstruction activities, and coordinate expedient rebuilding that is aligned with City policies.

POLICY 6.2.2. As a part of the advance recovery framework, develop and adopt a repair and reconstruction ordinance, to facilitate the repair and reconstruction of buildings and keep communities intact.

POLICY 6.2.3. As a part of the advance recovery framework, coordinate the realignment of government post-disaster, so City employees' skills can be used effectively towards recovery and reconstruction efforts.

POLICY 6.2.4. Update the advance recovery framework on a regular basis so that it continues to be aligned with City goals and values.

POLICY 6.2.5. Develop and maintain broad public support for the advance recovery framework to ensure its eventual implementation.

POLICY 6.2.6. Post-disaster, build upon the advance recovery framework to create a recovery and reconstruction plan to direct the City's reconstruction activities, manage the long-term recovery period, and coordinate rebuilding activity.

POLICY 6.2.7. Ensure that an equitable recovery and reconstruction plan is adopted that is comprehensive and consistent with already established City goals, policies, and programs.

POLICY 6.2.8. Where necessary, use public authority to expedite repair, reconstruction, and rebuilding in a just and equitable manner.

POLICY 6.2.9. Rebuild after a major disaster consistent with established General Plan objectives and policies.

OBJECTIVE 6.3. EQUITABLE INVESTMENT. Pursue plans and strategies that would equitably build back San Francisco for everyone.

POLICY 6.3.1. Support the efforts of the Controller's Office to ensure service continuation and financing of post-disaster.

POLICY 6.3.2. Have an economic recovery plan in place before the disaster strikes.

POLICY 6.3.3. Explore expansion of the City's disaster relief programs.

POLICY 6.3.4. Ensure effective use of public emergency funds and expenditures, and recovery of those expenditures.

POLICY 6.3.5. Provide the basic needs for all people while normal support is interrupted.

GOALS, OBJECTIVES, AND POLICIES

GOAL 1. ALL PEOPLE LIVE IN SAFE & HEALTHY COMMUNITIES. To ensure equitable safety, San Francisco must remedy past injustices and eliminate disparities experienced by Environmental Justice Communities. This includes eliminating disproportionate impact from the climate crises and other hazards and ensuring environmental justice for all. The City should foster systemic processes that address, mitigate, and amend past injustices that affect safety and resilience in the city. This includes disparities in racial and social equity, health outcomes, and quality of life and neighborhoods—that all contribute to the lived experiences of people in the event of a disaster and the adaptive capacity to recover.

OBJECTIVE 1.1. JUST EMPOWERMENT. Support the growth of community networks to empower all people.

POLICY 1.1.1. In all stages of safety and resilience, prioritize the needs of people most impacted by the adverse impacts of hazards.

The people are the most precious part of cities. As hazards occur, the adverse impacts are felt unevenly throughout the city. There are people who have higher vulnerability to hazard consequences and take longer to recover. Due to systemic inequities, there are people who are more likely to experience a hazard first and worst, and take longer to recover, than the city overall. In order to support Environmental Justice Communities and other vulnerable people, the City must identify the needs of people most impacted by hazards and work to target their needs for safety and resilience to all hazards. The City must increase baseline understanding of disproportionate inequities (causes), impacts (effects), and opportunities to increase safety and resilience (solutions). The City must continuously update understanding by identifying critical needs and infrastructure, conducting racial and social equity assessments, conducting outreach and engagement activities, and incorporating equity indicators into the evaluation and monitoring of programs.

POLICY 1.1.2. During mitigation activities, prioritize investment and resources in Environmental Justice Communities, especially through existing community-based efforts.

During mitigation activities, the goal is to reduce the amount and rate of greenhouse gas emissions as much as possible, to support the City becoming net zero by 2040. For many mitigation approaches, such as utilizing low-carbon transportation modes and electrifying buildings, it takes investment and resources to make these shifts in behavior at the individual and community level. Environmental Justice Communities and other vulnerable

people should benefit from targeted investment and resources to make these changes. During project design and planning, specify how the scope, outreach, implementation, and budget serves the needs of these communities to mitigate their contributions to greenhouse gas emissions. There can be opportunities to partner with existing community-based organizations and neighborhood-level efforts to effectively reach Environmental Justice Communities and other vulnerable people.

POLICY 1.1.3. During emergency preparedness activities, inform all individuals about the risks, vulnerabilities, and consequences of their neighborhood and communities from all hazards through culturally competent and equitable communications.

Everyone should be equipped with the public awareness of how all hazards may affect the city, the potential impact on their lives, and what to do to exercise their resilience. The City must support widespread, current, and actionable public awareness activities for robust emergency preparedness. With greater awareness, the less likelihood of loss of life and harm and the more likelihood that people are safe and able to bounce back after disaster. As hazards are felt disproportionately across the city, it is extra important that this information be made in culturally competent methods and equitably distributed to communities that are hard to reach, such as linguistically isolated communities and communities across the digital divide. As part of racial and social equity assessments and vulnerability and consequences assessments, the City can support a centralized repository of hazards information, directories to resources and training, and accessible, neighborhood-level information. The City can support conducting research and training materials, distribution across culturally competent and mass communications streams, and identify resources that can activate readily in the event of a disaster.

POLICY 1.1.4. During response activities, the City should partner with community-led and community-based networks to respond to hazard impacts in Environmental Justice Communities.

Partnerships with entities beyond government agencies can be critical resources to respond to the widespread impacts of a disaster. The City can activate public/private partnerships and partnerships with community-based organizations as a strong tool in revitalization after a community disaster. Relationships with corporate entities, particularly those with local ties, can lead to financial and other support in reconstruction and restoration efforts. By laying the groundwork necessary for strong public/private partnerships now—by establishing relationships with universities, corporations and foundations—the City can put itself in a strong position to receive support outside of state and federal aid, which could be critical if disaster is widespread and government resources must be extended. Relationships with community-based organizations and other neighborhood-level efforts can lead to increased outreach and effectiveness to people who are in need of support during the immediate aftermath of a disaster. Their local knowledge can support distribution of resources and programs, identify neighborhood-level or block-level challenges, and serve as trusted messengers of key information. In the immediate aftermath of a disaster, these partnerships will facilitate the “all hands on

deck” response to prevent further loss of life and ensure the City recovers equitably and builds back more resiliently.

POLICY 1.1.5. During recovery and reconstruction activities, rebuild in ways that remedy safety and resilience injustices in Environmental Justice Communities.

Neighborhoods can be a driving force in recovery efforts. They understand the priorities and lived experiences of their neighbors, and they have more personal motivation to ensure projects and programs are carried out successfully. Preexisting community organizations provide a ready structure for development of a strong local force that can step into roles that extend the reach of government provided recovery and reconstruction activities, often as the lynchpin for the rebuilding effort. The City’s response efforts can be made stronger with robust partnership with its neighborhoods.

In recognition of the neighborhoods’ critical role in recovery, the City should work to increase the capacity of neighborhoods and neighborhood groups. The City currently maintains a number of programs, such as NERT and the Neighborhood Empowerment Network, that empower community members and groups to share in mitigation and recovery efforts. These programs should be viewed as part of developing framework of efforts to prepare communities in advance of a disaster, beginning with outreach and provision of information, and extending into emergency preparedness activities such as mapping projects and emergency management planning development. These programs should also include community capacity building to teach people the skills and capacities they need to participate in problem solving activities that support post-disaster decision making around issues such as land use, transportation planning, economic development, etc. The City can expand opportunities for community members to organize at a neighborhood or block level to facilitate strong social ties that serve in resilient recovery and reconstruction after a disaster. Identify incentives to convene, share resources and tools, and identify community-level leadership development.

POLICY 1.1.6. Prioritize funding for infrastructure improvements and maintenance in Environmental Justice Communities.

Environmental Justice Communities and other vulnerable people often rely more heavily upon critical pieces of infrastructure that serve the whole city. Infrastructure includes physical assets, such as roads and bridges, as well as intangible assets, such as broadband internet and public safety. These pieces of infrastructure are essential for people living, working, and playing in the city. It is important to fund the operation, maintenance, and improvements of such infrastructure and prioritize the needs of the communities who are more reliant on their services.

OBJECTIVE 1.2. CONTINUOUS ASSESSMENT AND EVOLUTION. Act based upon best practices and continuously improve the knowledge base to remedy past injustices and eliminate disparities.

POLICY 1.2.1. Prioritize surveys of historic, archaeological, and intangible cultural resources in most vulnerable areas, including the employment of tools such as photographs, oral histories, community knowledge repositories, architectural drawings, 3D laser surveys, and/or digital technology.

There are historic and cultural resources that contribute to the identity of the City. The City must continuously understand and protect these resources and protect them from all hazards. There are many activities to document, preserve, and protect these resources, especially resources that are more vulnerable to hazards. For example, resources that may become inundated by sea level rise or resources that may collapse from an earthquake. The City can employ tools such as photographs, oral histories with community knowledge bearers, architectural drawings, 3D laser surveys, and/or digital technology to archive and research these resources. Relate the historic preservation approaches to emerging science and adaptation approaches accordingly, such as increased severity of poor and hazardous air quality or increased frequency of extreme storms.

POLICY 1.2.2. Use the latest assessment tools provided by the Racial & Social Equity Action Plans and Office of Racial Equity to incorporate equity considerations into the planning, evaluation, and monitoring of programs.

When performing racial and social equity assessments, use the latest tools provided by the respective agency's Racial & Social Equity Action Plans and the Office of Racial Equity. These tools provide high-level guidance to understanding and incorporating racial and social equity into projects and programs. The findings of these tools should inform the design, planning, implementation, evaluation, and monitoring of projects and programs. Without being clear about how safety and resilience activities relate to low-income communities and communities of color, it is difficult to assess whether activities are improving or exacerbating existing disparities in the city.

POLICY 1.2.3. Engage the community in the planning process.

All stages of hazard management—mitigation, preparedness, response, recovery and reconstruction — are too important and too big a task for City agencies to take on their own. It would also be ineffective and may cause further harm to do so in a vacuum, without the involvement of the people most affected by hazards. Residents and community members themselves must play a central role the decision-making.

The leaders of the process must develop an education-based involvement process that supports community leadership development. Planning efforts should not only identify, but actively engage, the varied interests of the community. These processes should include holistic information around hazards, impacts, and opportunities; contribute to the vision for the City's future per the General Plan and community outreach and engagement; and support the advancement of racial and social equity. As possible, identify responsible agencies, institutions, and other partners responsible for implementing strategies for safety and resilience.

The City should also help to develop community skillsets pre-disaster, on both an individual and neighborhood level, to empower community members to meaningfully participate in a post-disaster reconstruction planning process, being able to working effectively together to identify and prioritize community needs, and work collaboratively with the City to communicate these needs and ensure that they are met. Programs such as the Neighborhood Empowerment Network help to build community capacity and develop these essential skills before the disaster strikes, so that everyone can participate effectively in the reconstruction planning process after the disaster.

POLICY 1.2.4. Establish a network of neighborhood-level Equity Officers to support the equity of response, recovery, and reconstruction activities in the city post-disaster.

Based on lessons learned from the COVID-19 After Action Report for Phase I and Phase II, there is a strong need and opportunity to establish Equity Officers at the neighborhood-level to reach all parts of the city in the event of a disaster. These Equity Officers serve as experts of neighborhood-level and block-level conditions, liaisons to community-based organizations and other stakeholders, and trusted messengers to vulnerable people. The Equity Officers should represent and work strongly with the American Indian, Black, and other communities of color and other vulnerable people. During all EOC activations, it is critical to coordinate with Equity Officers to implement response, recovery, and reconstruction activities equitably. As part of a network of Equity Officers, there should be MOUs with key agencies and community stakeholders to support their integration into emergency management best practices.

GOAL 2. MULTI-BENEFIT CLIMATE AND HAZARD RESILIENCE. Pursue multi-hazard risk reductions and maximize community benefits along the way to becoming a net-zero emissions city by 2040.

OBJECTIVE 2.1. CLIMATE RESILIENCE. Pursue synergistic efforts that both eliminate greenhouse gases (climate mitigation) and protect people, the built environment, and nature from the unavoidable impacts of the climate crisis (climate adaptation).

POLICY 2.1.1. Ensure that City projects and private developments provide multi-benefit solutions that mitigate hazard risk and contribute to a zero-emission future.

With limited resources and capacity, it becomes more important that large development projects provide as much comprehensive benefit to the community as they can. The climate crisis is worsening conditions on the ground, and hazards are occurring more frequently, intensely, and simultaneously. A development project must consider a broad set of hazards and prepare holistically for the project's resilience, all the while contributing to a zero-emission future. We want to avoid increasing greenhouse gas emissions and actively reduce the rate of emissions, to support achieving Climate Action Plan targets. Explore options for carbon sequestration through urban greening and native planting, electrify buildings, and contextualize each development project into the neighborhood and surrounding ecology.

POLICY 2.1.2. Coordinate the regular update and execution of implementing documents of this General Plan including: the Hazards and Climate Resilience Plan (HCR), the Climate Action Plan (CAP), Emergency Response Plan (ERP), and the Recovery Plan (pending).

The Hazards and Climate Resilience Plan serves as the City's local hazard mitigation plan to FEMA, addressing all hazards the city is at risk to and strategies to mitigate from harm. It serves as a tracking and monitoring tool, with annual reporting to FEMA. The Climate Action Plan guides how the City can reduce greenhouse gas emissions, organized with the "0-80-100-Roots" framework. This framework aims for zero waste, 80% of trips taken by active transportation modes, 100% renewable energy, and carbon sequestration. The Emergency Response Plan provides an immediate action plan to coordinate response to disaster. It includes an overview of the emergency management system, detailed and restricted information for the Emergency Command Center, and a set of functional and hazard-specific details.

These documents should be coordinated and be regularly updated to ensure the City is doing its best to equitably protect people from all hazards and the climate crises.

POLICY 2.1.3. The City shall create a Recovery Plan to facilitate robust social, economic, and environmental recovery post-disaster.

The experiences of New Orleans, Louisiana and the Gulf after Hurricane Katrina in 2005 illustrate the need for local jurisdictions to plan for recovery before a disaster strikes, as this is when more resources within the community and within local government may be available. While the specifics of recovery would vary depending on hazards and impacts, certain aspects of recovery can be facilitated by advance planning. The Association for Bay Area Governments produced a model recovery plan for the City of Oakland. A local recovery plan for the City should be grounded in equity and should include, but not be limited to, the following topics discussed in Oakland's plan: financing recovery issues, recovery of government facilities and services, long-term housing recovery, long-term recovery of business, long-term recovery of health care, schools and education, utilities and transportation, and land use change.

OBJECTIVE 2.2. MULTI-HAZARD RESILIENCE AND CO-BENEFITS. Maximize risk reduction, and the related community benefits, from multiple simultaneous hazards in all investments to climate adaptation and hazard mitigation.

POLICY 2.2.1. the risk of flooding due to the climate crisis, such as storm surges, changes in precipitation patterns, and sea level rise as well as adaptation actions that will protect people, built environment, and ecosystem vulnerability and expand community resilience.

Despite best efforts to reduce greenhouse gas emissions and mitigate against future global heating, current CO₂ levels are already causing changes in weather patterns, more extreme weather events, and an increase in sea levels. Even if greenhouse gas emissions were halted today, the long half-life of many greenhouse gasses and the change in global ocean temperatures mean that we will be experiencing consequences of increased CO₂ in the atmosphere for centuries.

Climate risks and the associated flooding due to storm surges, increased precipitation, and sea level rise have the potential to greatly increase permanently inundated land as well as expand and alter the current 100-year floodplain, making many more people and structures vulnerable to flooding than current conditions. The City should review scientific emissions and sea level rise projections to become fully aware of risks to safety due to flooding, as well as support the institutions, professional organizations and individuals who carry out climate research.

These risks should be taken into account when making land use decisions, bearing in mind that the future landform, as well as perceptions of acceptable risk may change in the future. These risks should also be incorporated into appropriate city documents, such as the Planning and Zoning Codes, and the Planning Commission should be fully apprised of these risks as they conduct reviews.

The City should also review best practices, case studies, and current technology to mitigate these potentially harmful effects and adapt to future conditions that will reduce loss of life and loss of built structures and infrastructure. Adaptation actions should be considered for feasibility and incorporated into seismic upgrades and routine maintenance if possible.

The climate adaptation strategies can include, but are not limited to, building elevation,

floodproofing, green infrastructure, hard engineering, and zoning/code changes. Special projects should also be considered based on cost, feasibility, and consequences.

POLICY 2.2.2. Include multi-hazard risk assessments in private development, capital projects, and the City's climate resilience programs.

Assessments need to consider the near- and long-term risks of all hazards. The City faces risks today, and the risks may vary and multiply over time. These multi-hazard risk assessments should be incorporated into private development, capital projects, and the City's climate resilience programs. ClimateSF, the City's coordinated climate resilience interagency group, can support connecting climate resilience to intersecting issues across housing, health, transportation, and other public benefits.

With limited resources, and the worsening effects of the climate crisis, the City must extend the reach of every dollar spent on climate adaptation. The City must evolve the approach to climate adaptation and address how hazards are occurring more frequently, intensely, and simultaneously. In the project design and planning, incorporate how projects can deliver on a broad set of values and goals of the City. Projects can refer to components throughout the General Plan to determine opportunities to support other public benefits.

In private development and capital projects, development plans should ensure new development is designed and constructed to ensure functional recovery—beyond life safety expectations—in the event of all hazards. For known hazard risks, such as liquefaction of development on landfill areas, development should seek a performance equivalent to that of similar structures built on firm ground. For development within the Air Pollution Exposure Zone (APEZ), the plan should provide as healthy indoor air as projects that are outside the APEZ.

The project teams should conduct outreach and engagement to assess and understand the complete set of hazards and associated vulnerabilities in a project geography, especially as they relate to environmental justice. The assessments should support expanding the impact of resources directed at a singular hazard to develop multi-benefit strategies and solutions for projects and communities. Work with stakeholders, community members, and the private sector to assess and understand the complete set of hazards and associated vulnerabilities in a major development's surrounding area.

POLICY 2.2.3. Adapt the City's Bay and ocean shorelines to current and future climate flood hazards, including coastal flooding, sea level rise, groundwater rise, and extreme storms.

The city faces threats from the slow-moving disasters of sea level rise and flood hazards. Surrounded on three sides by water, the City must adapt the bay and ocean shorelines to these hazards to prevent inundation, break in services of key assets such as stormwater and underground rail, assets and property damage, and loss of open space, neighborhoods, and communities.

POLICY 2.2.4. Seek sufficient funding to address climate hazards through all phases of mitigation, preparedness, response, recovery, and reconstruction.

Each of the phases of mitigation, preparedness, response, recovery, and reconstruction require their own planning, design and engineering, construction, maintenance and operations, and ongoing monitoring. Providing sufficient staff and budget resources for cross-agency coordination is no small feat. Further, equitable distribution of funding considering historic disinvestment in certain communities requires bringing a specific consciousness to resource allocation and providing opportunities for community input and decision making. The 10-year capital plan provides a ready vehicle for long-term efforts to be balanced with immediate needs. The Capital Plan should be explicit in prioritizing funding for 1) Environmental Justice Communities for the specific threats they face that are compounded by past inequities; 2) the specific hazard threats poised in vulnerable areas; 3) areas and functions that serve the most people 4) projects with matching state and federal funding; and 5) investments that support achieving a state of good repair of existing infrastructure and assets. Traditional cost/benefit models to determine funding needs have been built around tax and economic revenue, which continues cycles of disinvestment in historically disadvantaged and disinvested areas. Instead, holistic cost-benefit analysis should consider social, economic, and environmental costs and benefits.

OBJECTIVE 2.3. NATURE-BASED SOLUTIONS. Amplify nature, biodiversity, and public open space through climate resilience that mimic or restore ecological systems and function.

POLICY 2.3.1. Prioritize nature-based solutions that restore ecosystem function and maximize ecological benefits to plants, animals, and people.

For climate resilience, nature-based solutions offer approaches to restore ecosystem function and maximize ecological benefits. In capital, development, and other projects, incorporate greening and plantings that are climate appropriate, non-invasive, and native species into the building and surrounding infrastructure. Where possible, design solutions that make ecosystem function visible so that relationships between people and nature can be understood, cultivated, and appreciated. For open space projects, it is important to ensure access to the American Indian and Alaska Native community to conduct cultural practices, such as harvesting food from the area.

POLICY 2.3.2. Maximize the preservation and maintenance of carbon sinks in the city and landscape approaches that advance the rate of carbon sequestration.

One approach to becoming a net zero city is pursuing carbon sequestration, the capture and storage of greenhouse gas emissions. The Department of Public Works has ongoing efforts to plant trees throughout the city that are sequestering carbon through tree photosynthesis. Trees, other flora, especially native plants, should be preserved,

maintained and increased as carbon sinks in the city. Native plants should be increased in pursuit of the City's carbon sequestration, water management, and biodiversity goals.

POLICY 2.3.3. Educate and empower stakeholders and communities to know, grow, and steward local native plants and wildlife on private and public property as resilience tools.

Property owners and other stakeholders can take the lead in nature-based solutions and urban greening with more support from the City. The City can develop a centralized repository of information and training to increase public awareness of climate appropriate, non-invasive, and native plants and wildlife on private and public property. For public property and open space, it is important to ensure the American Indian and Alaska Native community have access to conduct cultural practices, such as harvesting.

POLICY 2.3.4. Reduce the threat of wildfire to San Francisco residents and infrastructure.

Within San Francisco, a small portion of the Crocker Amazon neighborhood has been designated as a high fire hazard area by the state. Though the probability of wildfires within San Francisco is low, it remains high for areas outside the county where city-owned infrastructure is located. Significant portions of the Hetch Hetchy Regional Water System in San Mateo, Santa Clara, and Tuolumne Counties are located in very high fire hazard lands. Educate property owners on risk reduction and properly care for City-owned landscapes to reduce wildfire risk.

POLICY 2.3.5. Prioritize the use of green infrastructure tools and natural shoreline solutions to manage stormwater and protect against coastal flooding and sea level rise.

Against the present and increasing threats of sea level rise and flood hazards, prioritize the use of green infrastructure and nature-based solutions to increase climate resilience. The unique characteristics of these water-related hazards present the opportunities for both site-specific and district-scale solutions to manage stormwater and protect against coastal flooding and sea level rise. Avoid over-reliance on engineering and hardening solutions and instead consider approaches that expand ecosystem functions, preserve the natural aspects of the shoreline, and reconnect people to these systems.

POLICY 2.3.6. Prioritize flood adaptation strategies that enhance shoreline ecological function and biodiversity, such as wetlands and that integrate the visibility of these systems into daily living.

For climate resilience to sea level rise and flood hazards, prioritize strategies that enhance shoreline ecological function and biodiversity. Hard infrastructure, such as walls and levees, should only be used when necessary and where other strategies won't work or be

cost effective, because of their removal of ecological function and biodiversity and the disconnection of people to their environment. Where possible, consider soft landscape transitions to the bay, ocean, and creeks that maintain public access, especially visual access, to these water features.

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GOAL 3. HAZARD MITIGATION. Reduce the likelihood, scale, and severity of impacts from all disasters to communities, the economy, and the built and natural environment. In San Francisco, it is most likely that deaths and injuries will result from seismic hazards via the failure of buildings and other structures during shaking or ground failure. In addition to tragedy in communities, there will be substantial economic losses and severe social, cultural and economic dislocations. These same consequences are threats across all other hazards, including slow-moving threats such as sea level rise and emerging hazards such as poor and hazardous air quality. It is critical to ensure robust levels of safety and resilience relative to all hazards, by learning more about the risks posed to vulnerable communities and developing plans to reduce those risks; and by including a consideration of hazards in all land use, infrastructure, and public capital improvement planning.

OBJECTIVE 3.1. EXISTING BUILDINGS. Ensure retrofits and renovations to existing structures increase building longevity and meet current best practices to protect occupants and structures.

Risk Reduction

POLICY 3.1.1. Reduce the risks presented by City-owned structures and privately owned residential buildings, and provide assistance to vulnerable communities with limited adaptive capacity to reduce those risks.

In the city, seismic hazards are a major threats. Hazards such as earthquakes can cause damage to buildings to render them unsafe to occupy or collapse. Sea level rise and flood hazards can cause permanent inundation. Poor and hazardous air quality can exacerbate indoor air pollution and respiratory illness. A comprehensive approach is needed to address all at-risk buildings in the city to ensure the City's structures and buildings are resilient and support where people live, gather, and work.

While the City has numerous programs in place to bring public buildings into seismic compliance, addressing privately owned buildings is a political, legislative, and financial challenge. The Community Action Plan for Seismic Safety (CAPPS) and Earthquake Safety Implementation Program (ESIP) is a 30-year implementation plan to support the City's resilience in the face of probable earthquakes along the San Andreas and Hayward Faults. The City should create additional action plans and implementation plans to address the range of hazards that are occurring more frequently, intensely, and simultaneously. These actions should address non-ductile concrete frame buildings, old construction that is in need of retrofits, pre-cast concrete tilt-up buildings, and housing units that serve low and very low-income residents.

POLICY 3.1.2. Reduce the risk of all hazards, especially geologic, weather-related, and combustion-related, posed by older small wood-frame residential buildings.

The City's current programs for unreinforced masonry buildings and soft-story wood-frame buildings apply to larger scale and commercial structures. Individual homes or buildings under 5 units are not required to be seismically strengthened. Some individual homeowners make upgrades to their buildings voluntarily, but that number could be substantially increased with more programs designed for safety improvements by homeowners. "Soft-story" buildings, in which the ground story has much less rigidity and strength than the rest of the structure, pose significant hazards. Often the soft story is the result of multiple garage door openings or groundfloor parking. Soft-story failure was responsible for nearly half of all homes that became uninhabitable in the 1989 Loma Prieta earthquake. The City estimates 43% to 85% of soft-story buildings will be uninhabitable following a major earthquake.

These deficiencies can be fixed relatively easily and inexpensively, substantially reducing life safety hazards and the likelihood that the building will sustain substantial damage in an earthquake. There are currently no requirements to undertake this work, although many owners do so voluntarily. the City's

The City should adopt incentives and regulations to encourage relatively simple retrofit approaches that increase the structural stability and safety of smaller wood-frame residential buildings, as well as consider a phased mandate for retrofits over a 30-year timeframe. The City's Soft Story Wood-Frame Seismic Hazard Reduction Program establishes an inventory of buildings with five or more units and notifies their owners of their risk. Future phases of the program should examine mandatory strengthening of larger soft-story buildings. However, this strengthening may be financially difficult for homeowners, and they may not be aware of potential funding sources. The City should develop information about potential funding sources across a spectrum of possibilities from loans to Mello Roos districts, to assist building owners in making upgrades.

POLICY 3.1.3. Abate structural and non-structural hazards in City-owned structures.

Both technical and financial resources are needed to repair and retrofit City-owned structures. The City shall utilize its capabilities to assess hazards and to create and implement bond and other funding opportunity and to carry out retrofit projects. A number of City buildings have already been structurally upgraded utilizing bond financing.

There are other important City-owned buildings that present seismic risks, but for which funding for retrofit or replacement have not yet been secured. Among the most critical are nine subsidiary buildings at the Laguna Honda Hospital complex and 18 at the San Francisco General Hospital complex that are vulnerable to severe earthquake damage. The Hall of Justice is also vulnerable. These projects should be considered for future bond measures.

The City's Capital Improvement Advisory Committee acts as the policy body advising the City's capital-planning process. Recognizing that certain kinds of public buildings are

critical to the community's functioning, the CIAC should work to establish a clear prioritization for these projects, develop an implementation program for their upgrade including funding sources (such as bond measures), and establish a timeline for the improvements.

POLICY 3.1.4. Encourage businesses and homeowners to evaluate their risks to all hazards.

Many businesses and residents hold a misguided perception that federal and state sources will provide financial assistance after a disaster. But the federal aid provided in a declared disaster does not protect individual homeowners. And when a major disaster hits an entire area, local governments are often strapped simply to provide the funds necessary to repair major public infrastructure and buildings.

The City can encourage residents and businesses to evaluate their own risk and the repercussions they might face from reasonably foreseeable hazards. Whether through a formal risk assessment through a qualified consultant or simply through a personal assessment that evaluates the potential for damage, property owners should consider the full range of opportunities for decreasing their risk. This risk should also be clearly communicated to tenants and upon sale of the building, and be made part of public City records.

POLICY 3.1.5. Support the ability to shelter in place, practice climate resilience, and provide help for vulnerable communities with limited adaptive capacity.

The term "shelter in place" refers to people's ability to remain in their home or another place of shelter and stay there until instructed otherwise, due to ongoing hazards that threaten health and life safety.

Seismically, for a building to have shelter-in-place capacity, it must be strong enough to withstand a major earthquake without substantial structural damage. This is a different standard than that employed by the current building code, which requires buildings to meet life-safety standards. In some cases, a building may not collapse, but might be deemed unusable because of the level of damage. Shelter-in-place housing standards would mean that a building is safe enough to live in during the months after an earthquake, but may not be fully functional, as a hospital or other public facilities would need to be.

For public health emergencies, like pandemic, shelter-in-place capacity may also include indoor capacity limits on commercial uses to minimize overcrowding and the ability to isolate individuals in a dwelling unit; access to open space for physical and mental well being; access to lifeline services, such as meals and groceries and access to disaster supplies, like N95 masks and air purifiers. It may be challenging for certain vulnerable populations to receive equitable access to goods and services. For example, seniors who live alone may struggle to continue independent living during shelter-in-place and people who have disabilities or other functional access needs may struggle with mobility

challenges. With lessons learned from the COVID-19 pandemic, the City should assess improvements to household-level and neighborhood-level capacity to shelter in place.

Supporting shelter-in-place capacity can help to minimize the need for emergency housing and services post-disaster, keep current residents in their homes, and minimize disruption of society and the economy. This could greatly minimize recovery costs and allow communities to remain intact.

Historic Preservation

POLICY 3.1.6. Preserve, consistent with life safety and functional recovery considerations, the architectural character of buildings and structures important to the unique visual image of San Francisco, focusing on underrepresented cultures, and increase the likelihood that architecturally and historically valuable buildings and structures will survive all hazards.

Older buildings are among those most vulnerable to destruction or heavy damage from a large earthquake. They may not have the more recent engineering features that make buildings more resilient to ground shaking, and many of them are located in areas near the Bay and the historic Bay inlets have some of the oldest structures and the softest soil. These buildings may also have ornate façade structures that, in the event of an earthquake, can detach and threaten people on the street. Part of the city most vulnerable to fire also contains many historic structures. North Waterfront, South Beach, Mission Bay, Potrero Hill, Hunters Point, Civic Center, Downtown, Tenderloin, and Hayes Valley neighborhoods have moderate risk for large urban fires. A major earthquake could result in an irreplaceable loss of the historic built fabric and social communities of San Francisco. The City needs to achieve the related goals of increasing life safety and preserving these buildings for future generations by increasing their ability to withstand earthquake forces.

When new programs are being considered to abate hazards posed by existing buildings and structures, the likely impacts of those programs on historic buildings must be thoroughly investigated. The resulting programs should encourage the retrofit of historic buildings in ways that preserve their architectural design character while increasing life safety. When development concessions, transfers of development rights or City funds are granted to promote preservation of historic buildings, there should be reasonable measures taken to increase the building's chances of surviving future earthquakes.

POLICY 3.1.7. Safeguard diverse elements of the City's living heritage which collectively contribute to San Francisco's cultural identity through supporting the protection and/or adaptation of intangible elements and their ties to the City's natural and built environments.

In the event of a hazard, there may be damage to the people, resources, and opportunities that contribute to San Francisco's living heritage. These diverse and intangible elements of living heritage, such as performing arts, traditional crafts, foodways, rituals, and festivals, must be protected and adapted against the threats of all hazards.

After a hazard, the unique materials and supplies necessary for living heritage may be destroyed or heavily damaged beyond function. The opportunities and space to come together and practice rituals and festivals may be lost or deemed unsafe. The people and communities who own, practice, and appreciate acts of living heritage may be lost or displaced.

The City should identify the elements that contribute to San Francisco's cultural identity and work to safeguard these elements from the threats of all hazards.

POLICY 3.1.8. Maintain a data clearinghouse of existing housing and building stock that inventories their features related to vulnerability and resilience to all hazards, such as small wood-frame buildings, architectural and cultural character, and gas lines.

In order to make holistically informed approaches and strategies to improve the safety and resilience of the City's housing and building stock, the City needs a complex set of readily available, current, and high-quality data. The data on housing and building stock, including its location, specifications, conditions, and use, is managed by a number of City and private sector actors, making it difficult to conduct research, assess the vulnerability and consequences to hazards, and identify opportunities to increase safety and resilience. The City should develop and maintain a data clearinghouse that supports existing and projected housing and their interaction with all hazards.

Resilient Retrofits

POLICY 3.1.9. Reduce hazards from gas fired appliances and gas lines, removing gas lines when possible, focusing on communities with older housing stock and privately owned residential buildings.

In support of the City's goals of becoming a net zero city by 2040, the City is minimizing reliance on gas and instead electrifying the future. For the remaining gas lines, the City must protect people and assets from related hazards from seismic and combustion hazards.

A large earthquake is likely to result in fires at a time when the water systems may be disrupted and personnel needed to fight fires may be overtaxed. One of the sources of ignition will be gas leaks from appliances. As a result of its experience in the Northridge earthquake, Los Angeles now requires installation of seismic gas shut-off valves in new buildings, in renovations over \$10,000 and on transfer of ownership. The City may also encourage or require, as done in Los Angeles, the installation of shut-off valves in certain limited building types which are activated only by a major seismic shaking.

As part of removing gas lines, support the infrastructure for building electrification.

POLICY 3.1.10. For existing housing and building stock, provide training, guidance, and assistance to build resilience against extreme heat, poor air quality,

and flooding, especially in Environmental Justice Communities and other vulnerable people.

There is a set of emerging hazards occurring more frequently and severely in the city, exacerbated by the climate crises. These hazards, such as extreme heat, poor and hazardous air quality, and sea level rise and flooding, are challenging existing approaches to make existing housing and building stock resilient to hazards. As compared to new and projected housing units, the existing housing and building stock—especially older stock—often serve as the City’s valuable resource of affordable housing. For housing security and housing that is safe, healthy, and affordable to people, the City should provide training, guidance, and assistance to weatherize and retrofit. These resources should be targeted to Environmental Justice Communities and other vulnerable people.

POLICY 3.1.11. During building retrofits, follow a comprehensive retrofit strategy to reduce the risk of property loss and damage during wildfires, flooding, seismic hazards, and provide support to vulnerable communities.

During building retrofits, there is opportunity to address a broad range of hazards at once, to extend the impact of retrofit activities and enhance the resilience of buildings. The retrofit strategy should address the main hazards the area is susceptible to, including seismic hazards, sea level rise and flooding, urban fire and poor and hazardous air quality. Look to weatherize to protect building resilience, human safety, and prevent damage and loss of life.

POLICY 3.1.12. Provide guidance and assistance to residents about the risks associated with their home and their options to improve safety as renters.

San Francisco residents should be informed about the hazard risk profile of their homes and neighborhoods. For existing buildings, and new construction, property owners and residents should be notified and informed. The City should pursue policies around mandatory reporting around seismic risk, such as during the time of sale or as permanent notice in building entryways. The City should pair notification with opportunities to learn more, such as pointing to an online directory of hazard and neighborhood profile information and opportunities to increase resilience of housing units.

OBJECTIVE 3.2. NEW BUILDINGS. Maximize the safety, environmental performance, and adaptability of all new development.

Hazard Information in Decision Making

POLICY 3.2.1. Continue to support and monitor research about the nature of all hazards in the Bay Area, including research on prediction, warning systems and measuring devices, community vulnerability and consequences assessments, and about resilient construction and the improved performance of structures.

Knowledge about hazard risks in the Bay Area is substantial, but always evolving. The City needs to keep informed, through the professional contacts of its staff, and through state and federal agencies like CalEMA and the United States Geological Survey, about advances in the field. New information will be shared with the public and decision makers.

Similarly, new techniques are continually developing in the structural design of structures, and new data is emerging about the actual functional performance of previously retrofitted buildings. For example, the risks of damage to life and property from seismic hazards can be reduced by these improved engineering practices. The City should continue to support the institutions, professional organizations and individuals who carry out research in structural safety. Special attention should also be paid to support and seek out research that identifies innovative and low-cost retrofit concepts. Once the City sets new acceptable safety levels, this research should support the engineering requirements to meet safety levels.

Similarly, new techniques are continually developing to protect building occupants from poor and hazardous air quality, extreme storms and flooding, and pandemic.

POLICY 3.2.2. Research and maintain information about all hazards, including how vulnerable communities are impacted more adversely.

Since the September 11 attacks in 2001, the 2004 Indian Ocean earthquake and tsunami, Hurricane Katrina in 2005, the 2010 Haiti earthquake, and the COVID-19 pandemic, the field of disaster research is growing in both scope and recognition. While research into disasters focused primarily on natural disasters, sticking close to the areas of science and environmental management, newer research strains extend into terrorism and cyber-failures, biological and chemical emergencies, and other community-wide crises. They encompass research components such as organizational response to disasters and the social ramifications of hazards, disasters, and large-scale terrorist attacks. In addition to the science and management of all hazards, the field is increasingly aware of the disproportionate impact of disaster among different groups of people and the need to prioritize attention to the people most vulnerable to risks and consequences. As hazards occur more frequently, intensely, and simultaneously, it is often Environmental Justice Communities and other vulnerable people who experience the impacts of disaster first and more severely, and they take longer to recover. For some people, they have the resources and adaptive capacity to bear a disaster and recover to pre-disaster levels. For vulnerable communities, there are higher risks, limited resources, and constrained adaptive capacity, meaning that research on all hazards should account for these dynamics of adverse impact and work to address these community needs.

The Department of Emergency Management (DEM) should keep abreast of evolutions in this field of research, particularly as new threats emerge and as new methods of mitigating those are developed. The City should also continue grow its partnership with community response teams, such as the Neighborhood Emergency Response Team (NERT). NERT is a community-based training program dedicated to a neighbor-helping-neighbor approach to disaster response. The NERT program trains volunteers to work as members of an emergency response team, preparing them to respond to a personal emergency or assistance to Fire Department response.

POLICY 3.2.3. Consider site soils conditions, including mobilization potential of soil contamination, when reviewing projects in areas subject to liquefaction, slope instability, sea level rise, and flood hazards.

Building codes consider soil conditions only at a very general scale. But soils conditions vary enormously throughout the city. Different soils conditions can result in very different earthquake impacts and can result in damage at other times - for example, landslides. Because of the importance of soil conditions, the California Seismic Hazards Mapping Act requires that a geotechnical investigation and geotechnical report be prepared for new or renovated buildings that are constructed in Seismic Hazard Zones.

Pursuant to this act, the Department of Building Inspection (DBI) requires geotechnical reports prepared by a licensed geologist and geotechnical engineer for projects in areas with susceptibility to ground failure, including liquefaction and landslides. DBI requires that foundations and structural systems be designed that are more likely to survive these hazards. DBI has procedures in codes and bulletins for requesting additional review of proposed projects the Department believes present difficult or unusual issues in areas with the potential for ground failure.

POLICY 3.2.4. Consider information about all hazards whenever City decisions are made that will influence the built environment and impact the community, such as building density, existing and planned infrastructure, environmental justice, and climate resilience.

Land use decisions should be made with hazards in mind. The Planning Commission and other City decision makers shall be aware of and consider all hazards when making decisions that will affect the types and structures that will exist in the future, including potential and existing structures, land uses and their associated densities, transportation and other infrastructure. Area plans, changes to the General Plan and amendments to the Planning Code should take into consideration the prevalent disasters affecting the city, and the effects they may have on the safety of future development, while balancing these with other community welfare concerns, ranging from safety to community health to economic security to quality of life.

In order to protect City building, building codes and technical knowledge must be as up to date as possible as new engineering expertise is gained. Keeping abreast of such information and technologies should be a priority for the City.

POLICY 3.2.5. Monitor emerging industries like bioscience and ensure that state and local codes manage risks effectively.

The City of San Francisco has made it a goal to encourage bioscience industry in the city because of its economic development potential. The University of California San Francisco (UCSF) is a generator of life science and bioscience companies, and has made the Bay Area

a center for the industry, and the number of companies located in the city is expected to continue to grow.

Many bioscience firms contain laboratories which handle biological materials, which may generate radioactive or otherwise hazardous materials and waste. Because of this, bioscience and biotechnology facilities are governed by a strict set of federal and state regulations. Bioscience firms in the city are subject to regulation by the Department of Public Health, and are required to generate Hazardous Materials Business Plans including storage and secondary containment policies; Emergency Response Plans; and training plans to educate staff about handling and disposal. Currently, state and federal regulations seem to be sufficient to govern bioscience activities, as no local jurisdiction in the state has yet adopted health and safety controls beyond those requirements.

The bioscience industry is likely to change over time with advances in research; thus, functions of the firms located in the city may shift in the future. And as noted, state and national-level codes may lag behind technology advances. As bioscience grows, the City should monitor the industry to ensure its current safety regulations continue to be applicable to bioscience facilities. The City should encourage performance-based design and engineering technologies to protect the safety of critical bioengineering research projects, particularly if facilities are vulnerable to hazards.

POLICY 3.2.6. Provide training, guidance, and assistance for the geotechnical and foundation issues unique to tall buildings.

In San Francisco, there is a unique concentration of tall buildings that are 240 feet or taller. These tall buildings have advanced and complex characteristics and demands for seismic safety. Their structural systems preclude generic performance assumptions and prescriptive engineering solutions, and they are increasingly being used to house residents. Based on the Tall Buildings Study and Earthquake Safety Improvement Program, the City should implement mandatory training and guidance to property managers and tenants around the seismic safety of tall buildings, as well as offer assistance to improve the geotechnical and foundational issues in the event of an earthquake. As tall buildings are increasingly being used for housing purposes, in addition to business purposes, the City should set up data monitoring to track building use and resident demographics in order to address additional vulnerabilities.

POLICY 3.2.7. Coordinate interagency Citywide efforts to assess the City's vulnerabilities to multiple hazards, such as seismic, flooding, and extreme heat.

ClimateSF is an interagency collaboration to advance the City's climate resilience activities. As the City continues to experience more extreme, more frequent, and more simultaneous hazards, ClimateSF should be empowered to assess the City's vulnerabilities to a complex set of hazards. The City should develop a citywide assessment, granular at the neighborhood level, to generate baseline information around the vulnerabilities and consequences to all hazards. This assessment should include impacts on Environmental Justice Communities and other vulnerable people, businesses and economic activity,

historical and cultural resources, and critical infrastructure. This assessment should support increasing public awareness for emergency preparedness.

Citywide Emissions Reduction

POLICY 3.2.8. Direct city actions to reduce local contributions towards the climate crisis by mitigating greenhouse gasses and by increasing carbon sequestration, with increased the intensity, frequency, innovation and urgency of action.

The significance of the climate crisis, and its impact on disasters, has been clear for decades. The climate crisis increases the frequency of natural disasters and economic losses effecting the land, water, air, health, happiness, and life itself.

According to the 2022 Intergovernmental Panel Report on Climate Change, human-induced global heating is causing dangerous and widespread disruption in nature and affecting the lives of billions of people around the world, despite efforts to reduce the risks. Climate impacts and risks are becoming increasingly complex and more difficult to manage. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Some responses to the climate crisis result in new impacts and risks. Increased heatwaves, droughts and floods are already exceeding plants' and animals' tolerance thresholds, driving mass mortalities in species such as trees and corals. These weather extremes are occurring simultaneously, causing cascading impacts that are increasingly difficult to manage. They have exposed millions of people to acute food and water insecurity, especially in Africa, Asia, Central and South America, on Small Islands and in the Arctic.

To avoid mounting loss of life, biodiversity and infrastructure, ambitious, accelerated climate adaptation action is required, at the same time as making rapid, deep cuts in greenhouse gas emissions. So far, progress on adaptation is uneven and there are increasing gaps between action taken and what is needed to deal with the increasing risks, the new report finds. These gaps are largest among lower-income populations.

New urban systems to handle storm runoff, flood control structures will be needed. Continuation of the PUC's upgrade of the City sewer system is one facet of preparation, but also critical are more imaginative solutions, like capturing storm waters for irrigation, increasing urban forestry activities and other green uses.

The United Nations Intergovernmental Panel on Climate Change reported a dire warning about the consequences of inaction on the climate crises, that due to human-induced global heating, the world "faces unavoidable multiple climate hazards" over the next two decades with global warming of 2.7°F. The City must reach net zero emissions to limit further warming.

Ways to mitigate against pending damage from the climate crisis include installation of infrastructure systems that reuse resources, generate clean energy, and provide alternatives to automobile transportation; and implementation of policies that promote energy efficiency, renewable energy, and recycling. San Francisco's Climate Action Plan sets an "0-80-100-Roots" framework with goals to become zero waste, 80% of trips taken

by low-carbon modes, 100% renewable energy, and using natural systems for carbon sequestration. It presents next steps required over the near term to implement the Plan, including developing a process to support City agencies and private entities to integrate climate protection into their standard operating procedures, to be led by the Department of the Environment.

Promote Green Building

POLICY 3.2.9. Continue to promote green stormwater management techniques.

The City has an abundance of impervious surfaces. Buildings, streets, parking lots and other paved surfaces prevent the absorption of rainfall, so low lying areas of the city are particularly susceptible to flooding in heavy rains. In addition, urban storm water runoff can be highly polluted, and pollutants that go down street storm drains can have negative impacts on the sewer and storm system, contributing to system overflows. Natural systems can often be an effective supplement, helping to absorb the overflow and filter out pollutants from that runoff.

Building and site development should include natural systems wherever possible. Natural vegetation, landscaped swales and gardens included in site designs can reduce, filter or slow stormwater runoff. “Green streets” that include pervious concrete, planters and landscaped strips adjacent to sidewalks can assist the City’s sewer discharge capabilities. Green roofs incorporated into buildings provide another method of absorption. Similarly, sustainable construction techniques can be used to mitigate against the effects of future disasters. Green building technologies now allow for buildings that can provide their own power and filter their own water from run-off. This helps reduce two problems associated with disasters, the need for power and the need for potable water.

POLICY 3.2.10. During retrofits and new construction, prioritize building practices that emit lower greenhouse gasses and build resilience to multiple hazards at once, especially in Environmental Justice Communities.

When retrofitting existing construction and developing new construction, use the latest building practices to emit lower greenhouse gasses and increase resilience to multiple hazards at once. In Environmental Justice Communities, where there are disparities in the prevalence of safe, healthy, and affordable homes, it is especially important to prioritize low-carbon building practices without jeopardizing affordability of housing. In addition to the latest building standards, pursue building electrification, urban greening, low-carbon building materials, weatherization, interactions with the public realm, and more.

OBJECTIVE 3.3. INFRASTRUCTURE AND PUBLIC REALM. Ensure the City’s lifeline systems, transportation and emergency response facilities, utilities, streets, public spaces, and coastal protection can withstand and adapt to all hazards.

Public Assets and Awareness

POLICY 3.3.1. Conduct capital planning to advance resilient infrastructure that prioritize the needs of Environmental Justice Communities and other vulnerable people.

In capital planning, incorporate environmental justice analysis of community facilities and other critical infrastructure that serve and are more used by Environmental Justice Communities and other vulnerable people. Community facilities provide public services, such as public schools, child-care facilities, fire stations, police stations, recreation centers and parks, public and non-profit health facilities, libraries, arts and culture facilities, social welfare facilities, and facilities serving the homeless. With community outreach and engagement, listen to resident needs and priorities of their built environment and public realm. Explore how public infrastructure projects can improve environmental justice outcomes for active transportation, open space access, and climate resilience.

POLICY 3.3.2. Provide training, guidance, and assistance for nearby communities most vulnerable to potential threats and consequences to public assets and infrastructure within the Sea Level Rise Vulnerability Zone.

In the Sea Level Rise Vulnerability Zone, over six percent of the City's land (about four square miles) could be inundated by temporary or permanent flooding. This will affect people, jobs, and vital infrastructure in the city. There are public assets and infrastructure like the MUNI yard and PUC water stations that carry risk. The City should develop training, guidance, and assistance to communities in and adjacent to the vulnerability zone on how these assets may be affected. These resources should increase the City's understanding of how sea level rise and inundation is a potential threat and consequence to the vulnerable communities; increase the communities' understanding of adaptation efforts underway and how to stay involved; while increasing adaptation capacity and decreasing disruptions in service.

POLICY 3.3.3. Where there are known public infrastructure projects in certain locations, consider prioritizing protecting the public rights-of-way, above and below street level, against private development.

Public infrastructure projects are often linear and depend upon the system of public-rights-of way for accommodation. For this reason, the City should, prioritize maintaining and protecting the public rights-of-way, above and below street level for future public use.

For certain public infrastructure projects to deliver lifeline and other public services, they can be so large and complex that they cross multiple jurisdictional boundaries and rights between public and private spaces. The City must protect the public right of way, especially from private development projects, to have a space to deliver public services. The City should also provide accommodations to property owners when critical infrastructure needs to encroach upon private property, such as high-speed rail projects.

POLICY 3.3.4. Reduce the risk of all hazards to community facilities and lifeline infrastructure, starting with Environmental Justice Communities.

For safety and resilience, community facilities and lifeline infrastructure serve as key assets in emergency management. Many types of community facilities, such as public schools, childcare facilities, recreation centers and parks, and libraries, can be areas for refuge and evacuation, storing and distributing disaster supplies, and providing critical services like medical care. Community facilities provide public services, such as public schools, child-care facilities, fire stations, police stations, recreation centers and parks, public and non-profit health facilities, libraries, arts and culture facilities, social welfare facilities, and facilities serving the homeless. In addition to facilities supported by the Community Facilities Element, the City can coordinate with other institutions such as private schools and places of worship. Due to their critical function in the event of an emergency, the City should reduce the risk of all hazards to these facilities, starting with Environmental Justice Communities. Identify the network of these facilities, assess their vulnerability and consequences to hazards, and create a set of strategies to mitigate harm so that these are available and functional to the community during disaster.

Resilience to Future Hazards

POLICY 3.3.5. Support development and amendments to buildings, planning and other municipal code requirements that meet City climate resilience performance goals.

The design and construction methods used in buildings are critical to community safety and resiliency. Use best practices to review and amend at regular intervals all relevant public codes to incorporate the most current knowledge of structural engineering regarding seismic risks; design and siting of new buildings with regard to flood and sea level rise elevations; and green building practices relative to best biologic and ecosystem processes.

Current seismic codes ensure that new buildings are earthquake- and fire-resilient, and protect people inside buildings by preventing collapse and allowing for safe evacuation. However, current code requirements do not necessarily limit damage to a structure, or ensure its function post-earthquake. A number of factors support the idea that new and retrofitted buildings in the city should be built for better seismic performance than the default level provided by the current building code.

Among U.S cities in areas of very high seismic hazard, the City is unique because of its geography, urbanization, and reliance on public transportation. Damage to new buildings and developments can have magnified impacts that affect adjacent structures and the City's lifelines. Consider creating tiered, "enhanced" levels of seismic performance that are performance-based, and developers to finance these enhanced levels, by offering incentives such as priority processing (similar to a LEED certification for sustainable design).

There are additional nature-based solutions that support the built environment's contribution to enhancing natural ecosystem function. Consider higher floor elevations, softscape and natural buffers, and other flood proofing within the Sea Level Rise Vulnerability Zone. Use the latest climate resilient expectations in the building code.

POLICY 3.3.6. Maintain research, monitoring, and guidance related to sea level rise and flood hazards to inform a framework for future investments and development.

Sea level rise is a slow-moving threat, but it demands immediate action. The City needs to learn more about the evolving science of sea level rise and flood hazards, monitor the impacts and potential threats to the people and assets of the City, and guide adaptation and response activities to these hazards. It is especially important to understand the interactions of sea level rise and flooding to other hazards, such as seismic hazards (e.g., earthquakes) and biological hazards (e.g., hazardous materials), to inform effective investment and development of strategies for resilience.

POLICY 3.3.7. For new construction and public assets, consider resilience measures against future climate projections and other hazards, beyond life safety expectations in building codes and functional recovery.

Many hazards, such as sea level rise and extreme heat, and occurring more frequently and more intensely in unpredictable ways. The research shows nonlinear projections of how these hazards occur and impact the city. While building codes prioritize life safety and seek the latest best practices, the Safety & Resilience Element encourages resilience measures in new construction and public assets to act aggressively against all hazards. As the climate crises worsens, it is beneficial to act out of an abundance of caution to protect the safety and increase resilience of people and assets. The City encourages utilizing resilience measures that may not be reflected in building codes yet or may not yet been applied.

POLICY 3.3.8. Design and utilize open spaces considering their use as emergency gathering areas, floodable spaces, and ecosystem services, per the Recreation and Open Space Element.

For certain hazards, such as earthquakes, flooding, pandemic, and extreme heat, open spaces in the public realm can serve as critical spaces for emergency gathering (evacuation, shelter) and buffers (retreat). Per the Recreation and Open Space Element, design and utilize open spaces to act as emergency gathering areas that are low-risk, flexible use, and resilient.

POLICY 3.3.9. Maintain evacuation routes and emergency access areas and plan for major improvements to those corridors and access areas that support everyday use while enabling sufficient capacity for future evacuations.

For evacuation needs, the City must maintain the safety and function of streets and roads to activate as evacuation routes and emergency access areas at any time. These transportation corridors will need to support an influx of users and maintain structural integrity and function during a hazard. Where known, consult with relevant authorities governing major transportation corridors and access areas to ensure all levels of

government are aware of the current and future capacity expectations for safe evacuation. These activities should include ground, air, and water transportation routes.

OBJECTIVE 3.4. SPECIFIC HAZARDS. Identify and pursue programs and projects that mitigate and safeguard against multiple hazards across multiple assets, especially in Environmental Justice Communities and other vulnerable people.

POLICY 3.4.1. Assess and mitigate the risk of flooding in the city by incorporating the Flood Insurance Rate Map for San Francisco and related programs and utilize ecosystem services for carbon sequestration.

The National Flood Insurance Program (NFIP), managed by the Federal Emergency Management Agency (FEMA), provides for flood insurance for communities that adopt floodplain management programs to mitigate flood losses and damages. FEMA uses the Flood Insurance Rate Map (FIRM) to identify areas with 1% annual chance of flooding, and uses this as the basis for insurance rating.

FEMA approved the City's application for participation in the NFIP in April 2010, and subsequently the City has amended the 2008 Floodplain Management Ordinance in order to meet the requirements of NFIP. The established flood damage reduction program provides homeowners and other property owners the opportunity to purchase federally subsidized flood insurance at affordable rates. FEMA issued a preliminary FIRM for San Francisco in 2007. The final map was in progress at the time of this Element's adoption and will be incorporated as soon as available. In the meantime, the City Administrator's Office has created an Interim Floodplain map (<http://www.sfgov.org/floodplain>).

The Floodplain Management Ordinance requires first floor of structures in flood zones to be constructed above the floodplain or to be flood-proofed with variances for exceptional circumstances. The map, as proposed, would designate portions of waterfront piers, Mission Bay, Bayview Hunters Point, Hunters Point Shipyard, Candlestick Point, and Treasure Island in coastal flood hazard zones, which may have implications for development plans and insurance requirements in those areas.

To mitigate against potential risks, the City should continue to pursue NFIP participation and use the information provided by FEMA to engage in additional floodplain improvements to at-risk areas. The City should continue to implement ordinance requirements for new construction, address flood hazards in the plans for refuse projects, and pursue substantial improvements for potential flood areas.

POLICY 3.4.2. Educate the public about hazardous materials procedures, including transport, storage and disposal.

Hazardous materials include chemical, physical and biological agents. Accidents such as toxic releases from facilities and vehicles, fires and explosions caused by chemical releases, and oil spills in the Bay are not uncommon. There is also increasing awareness and research about the mobility of hazardous materials during inundation and flood hazards,

and mobility in the groundwater table. FEMA has estimated that an average of 60,000 accidents involving chemicals occur in this country every year, and cause over 200 deaths and many injuries.

Several of the City's agencies provide businesses and residents with information about disposal of hazardous materials. The City's Fire Department is responsible for administering local safety regulations for business operating with hazardous materials, and is the first responder to chemical and hazardous spill accidents, and risk/hazard assessments, capability assessments, and detailed response planning. The Department of Public Health enforces state and city environmental health laws, including hazardous materials storage, issues hazardous materials use permits; investigates illicit discharge and disposal of hazardous materials. The San Francisco Public Utilities Commission provides residents and businesses with information (through ads and website resources) on how to properly dispose of hazardous materials including waste oils such as motor oil. The City should support research about the interaction of toxins with groundwater threats.

POLICY 3.4.3. Prepare for efficient and equitable responses to medical emergencies and pandemics.

On January 21, 2020, the City activated its Emergency Operations Center to support the response to COVID-19 and coordinate with active Department Operations Centers. Mayor Breed's early decision to proclaim a local emergency was instrumental to San Francisco's ultimate success responding to the pandemic, allowing City agencies to enact emergency procedures that helped save lives. As of December 2021, the City continued to have the lowest cumulative per capita COVID-1 mortality rate among other large jurisdictions.

The COVID-19 Pandemic Response After Action Report outlined the strengths of the City's response and suggested further updates to enhance the City's emergency response plan. In addition to early and rapid action, the City's successful response can be attributed to the unified priorities, pooled resources, and clear communications that came from the coordinated COVID Command Center, as well as the flexibility and capacity provided by the Disaster Service Workers. Specifically, improvements should focus on increasing racial & social equity in the community, improving the City's Disaster Service Worker program, and providing further clarity and streamlining to both the organization of response services and procurement of disaster supplies.

For all future pandemics and other medical emergencies, the City should create an advance plan to prepare similarly successful early and rapid response. This plan should include the disease testing and response capacity of hospitals, shelter in place capacity of households, the community health capacity of community facilities, and the accessibility capacity of public information. The City should ensure the public is kept well informed about evolving information regarding the public health emergency. The City should ensure systems are in place to ensure continuity of public services, such as public transportation and utilities service with staff absences. The City should maintain a stockpile of emergency supplies to use and distribute, such as medicine and protective equipment.

POLICY 3.4.4. Assess, mitigate, and provide holistic information about all hazards affecting the City, identified in the Hazards and Climate Resilience Plan.

The City should advance research and understanding of all hazards and their impact to the people and assets of San Francisco. The Hazards and Climate Resilience Plan (HCR) serves as the City's local hazard mitigation. Of the hazards identified in the HCR, work with the academic community, appropriate government agencies, and other stakeholders to assess the threat and impact of hazards to the City. Coordinate this basic research with the appropriate data clearinghouses in the city that relate to advancing racial and social equity, informing decisions around development and capital planning, and public awareness.

These hazards include geologic hazards (earthquake, tsunami, landslide, and dam or reservoir failure), weather-related hazards (flooding, high wind, extreme heat, and drought), fire-related hazards (large urban fire, wildfire, and poor air quality), and biologic and toxic hazards (pandemic and hazardous materials).

These hazards can also include the latest emerging hazards that may not be reflected in the Hazards and Climate Resilience Plan, such as sea level rise and noise pollution.

POLICY 3.4.5. Protect against the risks of using, storing, and transporting hazardous materials and increase public awareness, particularly in areas prone to seismic and flooding risks.

The City should develop a holistic regulatory and monitoring process for the use, storage, and transportation of hazardous materials. The location of hazardous materials, existing and potential, should be in areas resilient to seismic and flooding hazards to minimize the spread as an environmental pollutant and threat to public health. Where hazardous materials are close to people, and critical assets like the water table, the public should be notified and empowered to seek more information and resources to protect health and safety.

POLICY 3.4.6. Develop a citywide sea level rise and coastal flood hazards adaptation plan.

Building off of the Sea Level Rise Action Plan, the City should develop a citywide adaptation plan that addresses the interaction between sea level rise, coastal and inland flood hazards, and extreme storms. These water-related hazards may cause inundation, disruption of public services like public transportation, damage property and assets, and spread environmental pollutants. The adaptation plan should include a model of these joint hazards and have neighborhood-specific analysis, especially in low-lying areas in the Sea Level Rise Vulnerability Zone like Mission Creek, Islais Creek, and Yosemite Slough.

POLICY 3.4.7. Support retrofitting measures for historic buildings vulnerable to current or future flooding, while respecting architectural and historic character, consistent with pertinent local or federal design guidelines.

Consistent with design guidelines at the local and federal levels, address the unique retrofitting measures required for historic buildings that are vulnerable to sea level rise and flood hazards. The U.S. Secretary of the Interior issued flood mitigation design guidelines for historic properties, and the City can explore additional design guidelines that respect the architectural and historic character that is vulnerable to damage.

POLICY 3.4.8. Develop a plan for supporting Environmental Justice Communities and other vulnerable people during Sheltering in Place activities, to protect from poor and hazardous air quality, pandemic, and other hazards.

During a disaster, sheltering-in-place may be necessary to social distance, prevent the spread of disease, protect from threats to health and safety, and support public health. Sheltering-In-Place requires safe, healthy, and affordable housing be available to all. It limits the ability for people to conduct their routine behaviors for living and working, such as grocery shopping, going to work, and going outdoors for physical and mental health. The City should develop a plan for supporting Environmental Justice Communities and other vulnerable place during shelter in place, including assessing information and resource needs, culturally competent communication, outreach of public services, and disaster supplies.

GOAL 4. EMERGENCY PREPAREDNESS. Ensure San Francisco’s residents, workers, and visitors have the knowledge, capacity, and government support they need to be safe in the face of disasters. The City must be prepared to respond quickly and effectively in the case of a disaster. In order to meet the needs of its people and assets after a disaster, response, recovery, and reconstruction plans must be prepared in advance. The City must have the coordination necessary to execute them rapidly. In addition to readying its own agencies and departments, the City must ensure all people are aware and prepared for the possibility of disaster. State and local emergency responders advise people to be prepared for a minimum of 72 hours of self-sufficiency after a large earthquake. Achieving preparedness is even more critical for vulnerable populations, including the elderly and the disabled, and those in geographical areas and building types that are more vulnerable to earthquake damage.

OBJECTIVE 4.1. AWARENESS AND CAPACITY BUILDING. Increase the understanding and training of equitable emergency preparedness to all hazards among all government, private, and public sectors.

POLICY 4.1.1. Promote greater public awareness of disaster risks, personal and business risk reduction, and personal and neighborhood emergency response.

People and organizations that are well informed about possible disasters can take effective private measures to reduce their vulnerability to risks. They can also increase their effectiveness in responding to a disaster and helping others when public agencies are overwhelmed. Several of the City’s agencies, including the Department of Emergency Management, the Fire Department, the Police Department, the Department of Public Works, and the Department of Building Inspection provide information to the general public on what to do in a disaster. The City’s 72hours.org campaign has been successful in raising public awareness about personal steps to take in advance of an emergency. The Department of Building Inspection maintains a list of earthquake information, including information about PG&E, in its public reception and on its website.

However, information access can be increased beyond these sources, especially in order to reach populations who may not be familiar with the City system nor are frequent visitors to City buildings. Materials should be placed in everyday materials such as newspapers; alternative venues such as social clubs, community facilities, or service agencies; and distributed via mobile sources at gatherings such as fairs and festivals. Information should be available in large print and on audio cassette for the visually impaired, as well as in a variety of non-English languages.

POLICY 4.1.2. Provide ongoing emergency preparedness and response training to all City employees and other responding agencies.

Under state law, all public employees are designated Disaster Service Workers. At any time during a catastrophic event, which places life or property in jeopardy, City employees could be assigned to any disaster service activity that promotes the protection of public health and safety. The Department of Emergency Management and the Department of Human Resources manage the Disaster Service Worker Program, with a mandatory training for all City employees. The City should also continue to hold multi-agency drills on a regular basis to test and refine emergency plans. During the COVID-19 pandemic, the Disaster Service Worker Program was vital for the Emergency Operations Center and responding to community needs. DEM and DHR should continue to refine the Disaster Service Worker program so that is deployed equitably across City employees and used effectively to bring preparedness and response activities to the community.

In addition to responding to the emergency, one of the post-disaster tasks of City agencies will be the resumption of normal public services as quickly as possible.

POLICY 4.1.3. Create a consolidated website linking all of the City's disaster-related information for the general public and ensure distribution of the information through offline outreach that is accessible and equitable in the delivery to all people.

Just as the responsibilities for disaster planning programs is distributed among many agencies and departments within the city, the related information about those programs and operations is dispersed. Much information is housed within the agencies responsible, and it can be difficult for the layperson to secure all the information that exists.

The City should utilize technology to redress this issue—a simple solution would be to bring together all of the varied information that exists into one website. This site should contain links to hazard maps of geologic hazards and soil conditions; to the City's adopted emergency response plans and other related plans and documents; to programs such as Building Occupancy Resumption Program (BORP) and Neighborhood Emergency Response Team (NERT); to programs for property owners, incentives, and other action items; and to information about emergency services and locations. It should map relevant public information such as drinking areas, evacuation routes, emergency transport pick-up locations and locations of Public Information Centers to be set up in an emergency.

This consolidated website should be accessible to equitably reach all people, such as availability on both web and mobile platforms, translated into many non-English languages, and accessible to screen readers.

POLICY 4.1.4. For pandemic preparedness, develop a framework of healthcare management that combines the City's physical assets with social and management tools to maximize public health outcomes.

The COVID-19 pandemic transformed society overnight. It rapidly altered how people interacted with one other and the built environment, as society wrestled with how to apply public health principles to stop the spread of the virus and prevent further loss of life. Building on these lessons from COVID-19, as well as other infectious diseases, the City should develop a comprehensive framework of healthcare management that includes physical and intangible resources to maximize public health outcomes. For physical assets, there are medical institutions, public infrastructure, and land use patterns. For intangible resources, there is social cohesion, trust in government, and socio-cultural factors. These two groups of assets can be managed holistically to manage the transmission and control of infectious disease and maximize public health outcomes.

OBJECTIVE 4.2. CITY AGENCY CAPABILITIES. Plan ahead for the operations, data, and logistics needed to facilitate community safety during the response, recovery, and reconstruction phases of all hazards.

Water and Energy

POLICY 4.2.1. Continue to expand the City's fire department prevention and firefighting capability with sufficient personnel and training.

The City faces risk from fires associated with earthquakes. Huge numbers of structures were lost in the 1906 earthquake, not due to the ground shaking itself, but because of the spreading fires that were difficult to battle in the aftermath of the quake. Fires continue to be a great threat, particularly in densely developed areas.

The supplemental water supply systems including the Auxiliary Water Supply System, the Portable Water Supply System, cisterns, Bay water suction devices, and fire boats have been extended and strengthened since the Loma Prieta earthquake. Staffing and equipment needs of the Fire Department must also be foreseen in advance, and met. The City also needs to improve water supply systems to cover those neighborhoods not served by the Auxiliary Water Supply.

The Fire Department should also consider expanding the scope and training of Neighborhood Emergency Response Training (NERT) to include fire suppression, fire reporting, and other neighborhood recovery assistance, and consider coordination with neighborhood-level disaster planning.

POLICY 4.2.2. Ensure potable water is available in an emergency.

The San Francisco Public Utilities Commission (SFPUC) developed an extensive Emergency Drinking Water Plan, and recent updates ensure that the region and state's water resources would be available to the City as needed.

The plan sets forth procedures for immediate provision of critical drinking water to the city if regional and/or local water service is disrupted. The Plan locates emergency water distribution sites, and sets forth priority routes for the deliverance of emergency drinking

water. The SFPUC has created detailed maps to help people locate their neighborhood emergency drinking water hydrant location.

If the reservoirs within city boundaries fail, or if the water shortage is prolonged, the City should pursue strategies toward alternative local water sources, such as Crystal Springs and Lake Merced. The City should also continue its upgrades to local wells that can serve as emergency potable water supplies. SFPUC is in the process of upgrading the San Francisco Zoo Well and is investigating the upgrade of an additional existing well in Golden Gate Park.

POLICY 4.2.3. Ensure renewable energy is available in an emergency.

More frequently, Public Safety Power Shutoffs (PSPS) are affecting San Francisco. The disruption in energy service is an inconvenience and threat to wellbeing. There are many people who rely on continuous, affordable energy for their health and safety, such as storing life-saving medication and motorized wheelchairs. There are also public assets and infrastructure that relies on energy for safety and function, such as broadband internet and traffic lights. PSPS events occur due to a number of potential hazards, such as high winds, drought, and wildfire. The City should pursue strategies for redundant energy sources and use in the event of an emergency, and seek renewable sources of energy that do not contribute to the climate crises. The City should work with relevant government agencies, the private sector, and other stakeholders to assess capacity to generate, store, and distribute renewable energy for essential lifeline and recovery activities.

Disaster Response

POLICY 4.2.4. Ensure the City's designated system of emergency access routes is coordinated with regional activities for both emergency operations and evacuation.

After a large earthquake or other disaster, it is likely that many streets will be impassible. This will make fire fighting and other emergency response actions more difficult, hinder the movement of people, and interfere with debris removal and other short-term recovery activities. In order to support post disaster transportation movement, the Department of Public Works has developed priority routes for opening during an emergency or disaster. These routes include routes which connect fire and police stations, hospitals, and other critical facilities; routes to emergency drinking water distribution sites and City shelters; and routes to staging areas for Disaster Service work around the city. These routes enable the necessary clearance width for emergency vehicles and support trucks, and have been prioritized for debris clearance immediately following a disaster.

The City should ensure that the regional sequence of clearance activities is coordinated to connect with these priority routes, and that the route openings are well timed to synch with the opening of bridges and regional highways. This coordination can be directed using information from the Transportation Management Center (TMC) staffed by Caltrans, the California Highway Patrol and the MTC, and specifically from its Emergency Resource Center (ERC) which was created for procedural disaster management.

POLICY 4.2.5. Utilize the City's and region's bus and rail transit network to facilitate response and recovery during and after a disaster.

The transit network will be a critical component of response during a disaster. Dependence on cars will not work well in a state of emergency. The City's vehicular network is limited by bridges and freeways with little redundancy. Damage caused by the event to roadway networks, security considerations, and traffic control may restrict private automobile use for months after the event. And transit is a necessary part of the Bay Area's movement. Many workers living outside of the city rely on transit to get to their jobs, making regional transit a pivotal part of the local economy.

Transit should be used in emergency situations to move emergency workers to sites, to deliver equipment, and for communications. Evacuation plans should incorporate public transportation to efficiently evacuate people who do not have access to cars, and include clear methods to convey information about evacuation possibilities in advance and at the time of disaster. Immediately following a disaster, the City should utilize its transit network to restore the City's mobility—to help bring significant numbers of evacuees back to their neighborhoods, to move daily workers to jobs, and to resume day-to-day life, as soon as possible. Coordinated transit, ferry and bus services can be used to provide long-range links across counties. Temporary transportation improvements such as limited stop buses, bus-only routes and the addition of HOV lanes may help relieve overtaxed freeway segments. And clear conveyance of route information and service maps can help connect riders to services.

The Bay Area region, under the leadership of a task force that included the CalEMA, Caltrans, the Metropolitan Transportation Commission (MTC) and Bay Area transportation agencies, has developed a Trans Response Plan (TRP). The TRP sets out a framework for a coordinated, multi-modal and timely response by Bay Area transportation providers to a major earthquake or other significant emergency in the region. The resulting procedures are tested on an annual basis through tabletop and functional exercises. The procedures have also been integrated into individual operator emergency plans so that the regional response can be automatically invoked, if needed.

The City, in cooperation with MTC, also has plans that address immediate emergency transportation needs, and the day-to-day transportation routes that will need to be reinstated in order for the region's activities to resume. The Transportation Coordination and Recovery Plan (TCRP) focuses on 'emergency transportation' - evacuations and the movement of emergency workers. The Regional Transportation Emergency Management Plan (RTEMP) addresses the movement needs of the general public following a major disaster. Together, the two plans are expected to result in a single, unified program for direction of the region's transportation resources.

POLICY 4.2.6. Develop a plan to acquire and store a citywide inventory of disaster supplies to meet the 72 hour response post-disaster needs for shelter, medical, and care.

Due to the complexity of hazard impacts on people and assets, there are a broad range of disaster supplies necessary to support health and safety in the 72 hours immediately post-

disaster. The supply chain, especially the “last mile” of shipping and deliveries, may be disrupted and make it challenging for the people of San Francisco to acquire necessary supplies in the aftermath of a disaster. The City should develop a plan to support essential shelter, medical, and care supplies to support the most vulnerable people. The stock pile of supplies should address critical resources needed for 72 hours post-disaster and be readily available to distribute to vulnerable neighborhoods.

OBJECTIVE 4.3. CITYWIDE COOPERATION. Create proactive plans and programs to prepare readiness and coordination for all disasters.

Emergency Management

POLICY 4.3.1. Bolster the Department of Emergency Management’s role as the City’s provider of emergency planning and communication, and prioritize its actions to meet the needs of San Francisco.

The Department of Emergency Management has responsibility for developing the City’s Emergency Response Plan, annexes, and other emergency plan elements; supporting the coordination of the response and recovery agencies; providing emergency training opportunities; conducting and advising on functional and discussion-based exercises, coordinating activities with regional, State and federal agencies; and maintaining the Emergency Operations Center. This agency must be maintained at an appropriate level, with sufficient personnel and resources to carry out these tasks.

The agency also manages Homeland Security Grants disbursed by the federal government. In recent years, the City has been the recipient of a significant amount of homeland security funds, most of which were targeted for urban centers. In the future, DEM should work with the state to improve its homeland security spending, to ensure that grant money can be effectively utilized and will not revert back to the federal government.

POLICY 4.3.2. Maintain a comprehensive, current Emergency Response Plan with neighborhood-level detail on equitable implementation, in compliance with applicable state and federal regulations, to guide the response to disasters.

The Emergency Response Plan (ERP) ensures that the roles of city agencies and others are well defined. The ERP utilizes an all-hazards approach to emergency planning, and therefore encompasses all natural and human-made hazards applicable to the city. The ERP addresses the roles and responsibilities of City agencies and personnel during an all-hazards emergency response. Specifically, the ERP identifies and describes City interactions with regional, state, and federal entities, the role of the San Francisco Emergency Operations Center (EOC), and the coordination that occurs between the EOC and City agencies. The ERP has several annexes based on hazards and local emergency support functions that provide further guidance on those aspects of emergency management. Periodic functional and discussion-based exercises based on the directives of this Emergency Response Plan should be implemented within the framework of the

Department of Emergency Management's Master Improvement Plan to test plans and identify gaps in emergency management practices.

POLICY 4.3.3. Maintain the San Francisco Disaster Debris Management Plan.

The City's Emergency Response Plan includes a response strategy, and identifies post disaster debris management as a key function. The Post Disaster Debris Management Plan establishes a strategy for removal and disposal of disaster debris. Designating appropriate temporary and permanent disposal sites as part of this plan is critical for long-term land use planning.

Post-disaster, the Plan aims to incorporate existing waste ordinances, diverting as much waste as possible from landfills through reuse and recycling. All vegetative debris should be composted; metals can be recycled; other wastes should be separated and reused or recycled wherever possible. Disaster recycling programs seek to follow the City's recycling program already in place, so as not to require new permits or other legal permission to be developed. The City should develop clear guidelines to direct businesses and residents as they deal with their own debris and trash removal after the disaster.

POLICY 4.3.4. Support the Emergency Operations Center, and continue maintenance of alternative operations centers in the case of an emergency.

The City's Emergency Operations Center (EOC) is designed to serve as a secure well-equipped location for centralized communications and direction. This center houses the Department of Emergency Management, including its Division of Emergency Communication; and consolidates 911 calls and Fire, Police, and Medical Dispatch. It is managed by the Department of Emergency Management.

However, emergency centers may be destroyed or rendered inaccessible in a major catastrophe. The City should prepare for this possibility in advance, by ensuring duplication of information and systems in multiple locations, by identifying alternative sites for temporary EOCs, and by establishing a mobile command center with the necessary technology and information infrastructure for flexible operations.

POLICY 4.3.5. Ensure all response plans are coordinated with the Disaster Council.

The San Francisco Disaster Council is the City's central body for emergency planning, and has been accredited by the California Emergency Council. The Disaster Council is codified by the San Francisco Administrative Code, Chapter 7, and is chaired by the Mayor and composed of the Director of Emergency Services, key department heads and City officials, three members of the Board of Supervisors, and representatives of private organizations having official emergency responsibilities. The Council reviews the efforts of the Emergency Response Planning Task Force and recommends emergency actions such as mutual aid plans and for adoption by the Board of Supervisors.

In order to coordinate the actions of the various agencies throughout the City, the Disaster Council should serve as a central repository for all mitigation, preparedness, and response and recovery activities. The Disaster Council, through its contact with the State Emergency Council and the several local disaster councils within this metropolitan area, can ensure that the work of the City is coordinated with those of the surrounding region. All actions recommended by the Safety & Resilience Element, and developed in other efforts or documents, should be brought forth to the Disaster Council for their review and approval.

Communications

POLICY 4.3.6. Utilize advancing technology to enhance communication capabilities in preparation for all phases of a disaster, particularly in the high-contact period immediately following a disaster.

Reducing the impacts of natural and technological hazards requires extraordinary cooperation and coordination among City agencies, and between departments and other governments and non-government agencies. During the immediate response period, the City will need to determine the extent and location of damage, marshal resources for response, provide information to the public, and provide critically needed services to the affected populations. The Division of Emergency Communications of DEM maintains responsibility for coordinating communication among emergency responders, private partners, and people in San Francisco to ensure an effective and successful emergency operations system.

The City currently uses technologies such as geographic information systems and global positioning to allow wide access to everyday information, and is extending these networks to enhance disaster communication. The City has developed an emergency text-message alerting system, AlertSF, which delivers disaster notifications to registered users, and allows users to access neighborhood specific information. It has reestablished the old World War II sirens to provide alerts, and is further upgrading the system to broadcast voice instructions for responding to an emergency. There is also the 311 City phone service, where callers will get assistance from an agent 24 hours a day, seven days a week, and will provide real-time instructions during an actual emergency.

Continuing advances in technology and information systems will enable information to be more widely, quickly, and reliably accessible. Under the direction of CalEMA, the City should keep abreast of these advances and utilize them to bolster the existing local information network. DTIS and ECD should explore opportunities to use technology to keep all people informed during an emergency, using the full potential of rapid, online, and offline communications mediums. The City should ensure redundant networks exist to communicate at all levels- to internal staff and emergency response personnel, to convey public information, to ensure communication with special needs populations such as the hearing impaired or non-English speakers. The City should also explore work to improve inter-departmental communications during a disaster. The City's police, fire and most other agencies are on the same radio system, but other agencies such as the City's Municipal Railway and the California Highway Patrol use separate systems. And public safety agencies throughout the Bay Area use a varied network of radio frequencies and equipment, making direct intercommunication difficult. The City should work internally to

coordinate the radio frequencies used for its various agencies to aid smoother communications during a disaster. The City should also coordinate with other municipalities to coordinate frequencies across the Bay Area, perhaps using a model similar to that used by the San Diego area, where a regional radio communications network links all of the areas public safety agencies.

POLICY 4.3.7. Enhance communications with other jurisdictions.

Local Emergency Planning Committees (LEPCs) are regional entities set up to enhance coordination among adjacent municipalities. LEPCs are comprised of representatives from local government, the fire service, law enforcement, the local community, and industry; and are intended to facilitate the coordination and flow of mutual aid. CalEMA Coastal Regional Branch-Mutual Aid Region 2 is the LEPC for the San Francisco Bay Area and nearby counties.

The City is acting as the lead agency to develop a Regional Emergency Coordination Plan (RECP) to help the Coastal Region CalEMA address gaps in regional emergency plans. The plan will detail how the communities which make up the LECP will work together on evacuation, housing and transportation of displaced people. It also will outline how medical professionals will interact and how to cope with threats to the water supply, among other issues. Once complete, the City should utilize this plan as a basis for emergency operations issues that transcend City boundaries, such as emergency transportation, evacuation and the movement of emergency workers.

Public Safety

POLICY 4.3.8. Plan to address safety and violence issues that may arise post-disaster, and balance these issues with the other demands that will be placed on public safety personnel as emergency response providers.

Violence in the community, including looting and rioting, can occur in the aftermath of disaster. Desperate situations, such as being without food or being stranded with no expectation of rescue, can lead to desperation and risky personal actions. Experts state that perceptions of widespread community violence are often based on misinformation, and cite human tendency to misread crowds as more malevolent than they really are. De-escalation training should be provided to all City employees and volunteer emergency responders.

The Centers for Disease Control recommends that efforts to prevent violence after a natural disaster should focus on supporting the physical and emotional needs of individuals and families as well as restoring community-based services.

San Francisco recently started a program called, Street Crisis Team, that sends Fire and Health teams to respond to behavioral issues, instead of police. Similar programs should be pursued to prioritize the deployment of police officers for interventions where they are most needed. During a disaster, police will be needed for public safety including activities such as search-and-rescue activities, directing traffic, or dealing with other emergency

duties. Police response must be coordinated so that it can respond to both social and physical needs in the face of disaster. Law enforcement agencies, including the San Francisco Police Department and the Sheriff's Department, District Attorney's Office, agency forces such as San Francisco Municipal Railway Police Department, and institutional agencies such as the San Francisco Community College District Police Department, should work to ensure better organization among agencies, so that their magnitude can be leveraged towards the many services that will be required. The City should also maintain relationships with state and federal level peacekeepers that may be needed in an emergency, such as the Coast Guard and National Guard. Finally, security forces should establish communication with Disaster Service Workers to mobilize civilians if necessary to support their efforts.

Partnerships

POLICY 4.3.9. Develop agreements with private facilities to ensure immediate supply needs can be met.

Supplies that may be critical and in short supply after a disaster include food, water, medical supplies. Hospitals and service providers may also have difficulty in obtaining replacement equipment and medication. The City should coordinate agreements with private facilities such as hospitals, private schools, and warehouses to ensure that reasonable quantities of these necessities can be made available to the City and its people in case of a disaster. The City should also maintain its up-to-date list of rental agreements, for use of temporary supplies and facilities should they be necessary.

POLICY 4.3.10. Continue coordination with water transit agencies, ferries and private boat operators to facilitate water transportation as emergency transport.

Water transit has the potential to provide vital transportation support in response to a natural or human-made disaster. Ferries can play a particular role in moving people and goods after a disaster because of their flexibility and size. Smaller commercial boats can supplement the role of ferries in evacuating people, and can also provide transit to emergency personnel and equipment in reaching disaster sites.

For disaster relief to be successful, vessels must be quickly deployed where most needed, and the response needs to be coordinated with land transit providers to get evacuees to/from the shoreline. The Trans Response Plan (TRP) includes a Regional Maritime Contingency Plan, which aims to establish this coordination through its guidelines and procedures for utilizing the Bay's water transit system in the recovery phase of a major disaster.

The Water Emergency Transit Authority (WETA) manages a Emergency Water Transportation System Management Plan which lays out emergency response and communication procedures in the case of an emergency. WETA also has plans to add seven new routes through its Ferry Implementation and Operations Plan, and will add a number of new boats and terminals. The increase in capacity gained by these new improvements would allow the Bay Areas ferries to carry over 20,000 trips per hour during

a response to disaster, which is almost the evacuation capacity provided during the Loma Prieta by ferries. The City should support these plans, and should ensure coordination is in place so these new boats and facilities can be added to the existing fleet designated by the Ferry Implementation and Operations Plan. While WETA has plans to slowly transition existing public transportation ferry services within the Bay Area region to WETA, the City should coordinate with private operators not yet transitioned to WETA, with the aim of establishing emergency aid agreements for the boats as well as the operators in the case of need.

POLICY 4.3.11. Ensure the City’s plan for medical response is coordinated with its privately owned hospitals.

The Department of Public Health is the City’s lead health response agency in the event of a hazard that leads to a major health emergency. They should continue efforts to coordinate with Bay Area private hospitals, community-based clinics and CBO’s in the Bay Area.

POLICY 4.3.12. Develop and maintain mutual aid agreements with local, regional and state governments as well as other relevant agencies.

Many state and local governments and private nonprofit organizations enter into mutual aid agreements to provide emergency assistance to each other in the event of disasters or other crises. The California Master Mutual Aid Agreement has been adopted by the City, as well as most cities and counties in the state. This agreement creates a formal structure for giving and receiving assistance in emergency situations. The City should expand its network of mutual aid beyond local governments to include relevant agencies such as transit providers, utilities, volunteer agencies and professional organizations for groups like health workers and emergency managers. Numerous agencies and businesses may have resources—facilities, trained staff, transportation or equipment—that can be valuable in emergencies. The City should pursue Memorandums of Understanding or other contracts with any local agencies or businesses that can be identified as resources, including the Unified School District. Discipline-specific mutual aid agreements, such as those for public works, engineering, Emergency Managers Mutual Aid, or public information, may also be useful.

POLICY 4.3.13. Develop partnerships with private businesses, public service organizations and local nonprofits to meet disaster-time needs.

The City should seek opportunities to partner with private sector businesses and organizations where possible. For example, drug stores can be used to distribute medical supplies and pharmaceuticals during emergencies. Medical institutions and university health centers can be set up to provide medical treatment such as inoculations in the event of a chemical or biological emergency.

Private and community-based organizations can assist with recovery activities, and in the dissemination of disaster information. The American Red Cross, Habitat for Humanity and

the Salvation Army, as well as numerous local groups, can be supportive partners in providing emergency shelter, food, clothing, and physical and mental health support. The City's relationships with these agencies and organizations should be mutually supportive. Local services, particularly in lower-income areas, such as food banks, senior centers, child care centers, may be ill-prepared to cope with disaster. The City should assist in developing support networks for these organizations, providing them with employee response training, assisting them in securing insurance coverage and helping to develop contingency plans for their operations' continuance post-disaster.

OBJECTIVE 4.4. GOVERNANCE AND COLLABORATION. Increase the City's collective capacity to improve safety and resilience outcomes through effective collaboration among peer agencies, the private sector, and the public sector.

POLICY 4.4.1. Develop centralized strategies for City safety and resilience functions that hold individual agencies accountable for their roles in disaster planning, coordination, decision-making, funding, cost-sharing, implementation, and risk allocation.

The City must be prepared to deliver life safety and functional recovery services at all times. Beyond basic life-safety functions, critical government programs need to continue in the aftermath of disaster. While it is incumbent on each city agency to do their own planning, centralizing plans across departments is needed to ensure that efforts by individual departments complement each other and provide a continuous service to the public without disruption. These centralized strategies need to systematically ensure advanced planning results in the proper preparation activities, disaster response activities, and adjustments necessary for life safety and functional recovery. These strategies must also include securing dedicated funding essential to a sustained effort with program longevity and consistent engagement and outreach to connect with the private and public sectors.

POLICY 4.4.2. Align safety and resilience work by regional, state, federal, and tribal government bodies to expand the reach and strength of local government support in the face of all hazards.

Climate resilience and mitigation spans government jurisdictional boundaries. Actions that the City take should be consistent with regional, state and federal plans and projections. the City should take steps to assist these larger governmental agencies in meeting local needs. The City can pursue cooperative actions with other jurisdictions such as recommending localized and evidence-based strategies, exploring policy advocacy and funding opportunities for alignment, and developing mutual aid agreements.

POLICY 4.4.3. Form effective and clear partnerships with non-government bodies, such as community organizations, institutions, private companies, and development partners to reach all people.

When a disaster strikes, the “all hands on deck” response requires advance collaboration and partnerships across agencies, sectors, and jurisdictions. The overall response provided by government agencies, the private sector, and the public sector must be evidence-based, timely and proportional, multi-objective, and well measured and quantified. The response, recovery, and reconstruction strategies must be based on strong, local evidence in order to reach all people at the neighborhood-by-neighborhood or block-by-block level. The strategies must be acutely aware that the climate crisis is an emergency that is already impacting communities and the environment, and so there is urgent and transformative actions needed. The strategies must be developed around equity and long-term sustainability, and they must be tracked as close to real-time as possible, so that adjustments and recalibration can be made in an informed way.

The long-term capacity-building partnerships with major institutions, like hospitals and universities, private development partners, and community-based organizations, will support response, recovery, and reconstruction activities meeting the highest resilience strategies.

GOAL 5. RESPONSE. Provide San Francisco residents, workers, and visitors with the essential support and services needed immediately following a disaster for life safety and functional recovery. The first days after a disaster make up the response phase. Immediate response will focus on saving life and property damaged by the disaster, and restoring functional recovery. The City has a network of emergency response strategies in place which have been discussed above. The response activities will provide aid for the community, stabilization of day-to-day conditions, and reestablish the critical economic welfare, social networks, and emotional well being of the City.

OBJECTIVE 5.1. LIFELINES. Provide critical information and services to prevent further loss of life and establish community safety during the immediate aftermath of disasters.

POLICY 5.1.1. Mitigate against damage to City systems and infrastructure through awareness of threats posed by digital hazards, such as terrorism and communication failures.

While the City does maintain some risk of terrorism, it is more likely at risk of deliberate acts intended to impact its service and communication networks. Often the objective of such acts is not destruction or death, but disturbance - a visible impact to the City's public services, economies, and social networks. Critical facilities include the City's communication systems including its fiber-optic data network, and network data, its physical infrastructure such as its water and power systems, important public facilities upgrades to enhance security, through physical security measures, cyber protection measures, and tight security procedures and policies should be made as technology and practices improve. Redundant networks will help ensure that incidental failures to not have grave impacts.

One such network is the Mayor's Emergency Telephone System (METS), which provides communication to key agencies and individuals in a disaster, linking City agencies, fire and police stations with citywide call boxes in the case of an emergency. The METS telephone system is also connected to the State of California's satellite telephone system for direct communication with the Governor's Office of Emergency Services in Sacramento, as well as the emergency operations centers of surrounding counties. Another network is the 800 MHz trunked radio system that links the City's public safety departments and first responders including police and fire, which will help to avoid the kinds of communications failures that occurred during New York's September 11th tragedy.

POLICY 5.1.2. Increase communication capabilities in preparation for all phases of a disaster, and ensure communication abilities extend to hard-to-reach communities.

Strong communication systems are critical to a City's functioning in a hazard scenario. Communication will be necessary in the response phase immediately following a disaster, and continued conveyance of recovery efforts and their progress is an important aspect of the reconstruction period. The City should have redundant networks in place to communicate at all levels, to coordinate internal staff and emergency response personnel, to convey public information, to ensure equitable communication with special needs populations such as the hearing impaired or non-English speakers. The communication methods should be culturally competent, address the digital divide, and also be independent from reliable cell service, such as outdoor public warning systems.

In addition, existing neighborhood organizations can develop local models that serve the same purpose. Development of a neighborhood communications plan can allow community members to keep in touch with—and keep track of—their neighbors, particularly the elderly or disabled that may be most in need of support during a time of emergency. Elements of this plan could include phone trees, text message trains, and the establishment of physical block captains to perform door-to-door checks if necessary.

The Department of Public Health's Community Response Plan calls for community members and organizations to have the means necessary to be inform policy makers about the damage and critical needs of each neighborhood throughout the city. By having a method for communicating at the neighborhood level, community members will be able to notify officials and seek out help in areas of the city that might be difficult to reach after a disaster.

POLICY 5.1.3. Ensure plans are in place to support people most at risk during breaks in lifelines.

As events have repeatedly shown, from the Loma Prieta earthquake in 1989 to SARS-CoV in 2019, the most vulnerable populations become even more vulnerable when their lives and communities are disrupted by disasters. Gaps in transit service can drastically impact immobile populations such as the elderly, low-income, and medically fragile, especially in terms of their access to medical care. Loss of electrical power can also be a problem for homebound, medically dependent individuals. Programs to notify officials, especially power providers, of these individual locations should be developed so that patients who may be unable to help themselves during a power outage or any other emergency can get the necessary support, including continuing medical care for chronic conditions and delivery of prescription refills.

One such program is the Department of Public Health's Disaster Registry Program (DRP), which lists persons who have registered to indicate they may need special assistance during or after a disaster, such as the elderly and persons with disabilities. This Disaster Registry will be provided to the Fire Department, volunteer Neighborhood Emergency Response Teams (NERT) and other rescue and assistance resources to check on registrants, and provide first aid if required.

POLICY 5.1.4. After an emergency, follow the mandates of the Emergency Response Plan and Citywide Earthquake Response Plan.

The Emergency Response Plan directs the City's actions after a disaster, assigning responsibility to agencies and departments. Many of the immediate actions needed to begin the recovery process, such as debris removal, emergency building assessment and repairs, and meeting the immediate needs of federal and state agencies for information, are described in the Emergency Response Plan.

The Citywide Earthquake Response Plan supports this plan by providing response actions for the incident of an earthquake. Both plans should be used to guide all responsibilities and activities in the case of a disaster.

POLICY 5.1.5. Follow the National Incident Management System (NIMS) Procedures in declared emergency scenarios.

A major disaster will entail assistance from far beyond the City's borders, involving the assistance of other Bay Area jurisdictions, the state of California, and even the federal government. To coordinate this assistance, the federal government has developed a national approach to incident management, called the National Incident Management System (NIMS), to act as the common language and procedural guide bridging different entities. NIMS was developed so responders from different jurisdictions and disciplines could talk to each other in a common language, and work together better to respond to natural disasters and emergencies, including acts of terrorism. NIMS uses a systems approach to integrate the best of existing processes and methods into a unified national framework for incident management. Its concepts and practices cover incident management; standard command and management structures; and emphasis on preparedness, mutual aid and resource management.

The City's various agencies, particularly those who are its first responders, are already familiar with the NIMS system, and utilizing its framework in the development of emergency response and other plans. The City should continue this practice, and ensure it is kept up-to-date with current NIMS practices. New approaches that will improve effectiveness are likely to result in refinement of the NIMS over time, so the City should maintain an awareness of any changes and incorporate them into its response planning and practices.

POLICY 5.1.6. Develop a system to convey information during and immediately after a disaster.

In addition to conveying general public information about the disaster to people and the outside world, the City will also need to respond to more personal inquiries by impacted people. This can include questions about what services and aid is available, as well as inquiries about the location, health, and welfare of relatives or other community members.

The City should plan for an information system composed of a series of local Public Information Centers intended to convey this more personalized information to the public. These centers should be located in accessible community locations such as libraries, but should also be sited away from the centers of emergency activity, like lifeline facilities.

They can be outdoor public warning systems, centralized online systems, decentralized offline systems, and delivered in culturally competent manners. These centers should be connected to receive up-to-date information from law enforcement agencies, other City agencies, the school district, public shelters, local hospitals, and the coroner, and should also be linked to regional centers in other parts of the Bay Area. During a disaster, these regional information centers should be directly linked to consumers via the 311 City phone service.

POLICY 5.1.7. Ensure the City’s lifeline systems are constantly maintained to be in a state of good repair.

The transportation system is a key component of lifeline infrastructure essential to disaster response, such as serving as evacuation routes to move people out of harm’s way and limit further loss of life. It is important that the transportation system is maintained to be in a state of good repair, meaning it remains in function or can soon return to function immediately after a catastrophic event. The City should coordinate with relevant government agencies, such as the Federal Transit Administration, to preserve and expand transportation investments and financing for a well-maintained and reliable transportation infrastructure.

OBJECTIVE 5.2. COMMUNITY PARTNERSHIPS. Work together with neighborhood-based organizations and trusted partners to expand disaster response activities across the city.

POLICY 5.2.1. Have plans to accept, organize and utilize convergence workers, training workers with basics on emergency management.

Post-disaster, it is likely that the City will see an outpouring of people willing and wanting to help with recovery efforts. Mobilization and reinforcement of these resources will require significant management by City responders. If no system is in place to harness the potential provided by these spontaneous, or “convergent,” volunteers, this resource will be lost.

The City should continue the effort currently underway with the Red Cross on a plan for organizing and mobilizing convergent volunteers. The Volunteer Centers of the Bay Area have developed a program the City should review as a model for managing disaster volunteers. The City may also want to consider a civilian program similar to the Disaster Service Worker program, which deputizes non-employees to provide similar service functions after a disaster. This program should set forth how to receive volunteers, assess their skills and experience, and match them to the tasks, and be designed to work in concert with the City’s ongoing disaster service volunteer programs such as NERT. The City should also, as a part of this program, identify and establish a volunteer mobilization center as a meeting point to coordinate volunteer activity post-disaster.

POLICY 5.2.2. Have vendors and contractors available to respond immediately after a disaster.

When a disaster strikes, there will be a run on needed goods and services, such as provision of shelter, food distribution, removal of solid waste, recycling and debris removal. One way to address the immediacy of post-disaster needs is to make arrangements with local and regional contractors *before* disaster strikes. Pre-qualifying of contractors who can respond in emergency and who have equipment to handle the work is another solution for immediate response.

The Office of Contract Administration maintains an emergency list of supply vendors. The Office should work with other departments to understand the types of supplies that may be necessary in the case of a disaster and have contracting options readily available, including an up-to-date list of qualified contractors. The list should contain sufficient sources for the kinds of goods that will be most in demand after a disaster—tents, food, etc. As-needed contracts should be readily implementable to meet emergency need, and existing contracts and franchise agreements should be reviewed for their applicability in the case of a disaster.

The Department of Public Works maintains a registry of construction-related contractors. This list can be a valuable resource after a disaster. The agency should ensure it is kept up-to-date, and that old or unavailable contractors are removed on an annual basis. The City should also explore methods that will enable small and local firms, including minority- and women-owned businesses, to take a more active role in the response and rebuilding process, it may be beneficial to develop a program to train and qualify local contractors for government-backed projects.

POLICY 5.2.3. Develop strategies for cooperating with the media.

Having a media communication strategy is an important component of responding to a disaster. Beyond communicating locally and to the region, the media is the means by which the outside world understands what has happened. Media coverage leads to national, even global understanding, of a disaster and its impacts. Coverage can be a primary factor in attracting public and private aid. It can also fuel demands for action, and stimulate public support for actions to prevent or mitigate disasters.

The Mayor's Office of Communication will direct all media responses, in cooperation with the Department of Emergency Management's joint information center, which will provide a centralized source for department information. The Mayor's Office's crisis communications plan should include strategies for openly and honestly dealing with the media. Procedures for disaster media relations should also ensure that the designated spokesperson—and in the case of a disaster, this may not be the usual media spokesperson - understands the depth of the disaster and the details of its impacts. Media kits should be prepared and ready for distribution as soon as possible.

There are frequently concerns about the negative impact of media coverage on a community post-disaster. Because of the nature of media, often stories can be overtaken by a focus on deaths and damage to property. Political leaders may be concerned about publicity's impact on tourism and outside investment, or fear that it could incite mass

departure of business and residents. Even in the face of these fears, it is important that the City take a positive view of media operations, and cooperate with the media based on a policy of openness. Rather than restricting information, the City should work to present media organizations with a balance of information, about the kinds of public actions and safety measures that have succeeded well as those that have failed, so that coverage can go beyond simply accounting for totals of loss. A news story giving the amount of earthquake damage inflicted could just as easily include information about the number and types of structures that survived because of mitigation measures.

POLICY 5.2.4. Work collaboratively with nonprofit and community partners to assist Environmental Justice Communities and other vulnerable people during and immediately after a disaster and to ensure resumption of social services directly after a disaster.

In addition to disrupted infrastructure such as transit and transportation, power, water, gas and sewer, phone service, the City will also face disruptions to its social services at a time when they may be most needed. The City's most vulnerable populations, including seniors, people with disabilities and other functional needs, institutionalized or incarcerated people, youth who have been separated from their families due to the disaster, and residents of single-room occupancy hotels and public housing, will be at risk of falling through the cracks. Hospitals and clinics may be damaged or overcrowded, schools and daycare centers will be closed, and families may be separated. Centers for special needs populations may be temporarily shut down, due to damage or unavailability of employees. Local services, particularly those meeting the needs of residents in lower-income areas, may be ill-prepared to cope.

The City should have continuity policies and plans in place for its municipally-run and municipally-funded services. One way of supporting their immediate resumption would be to establish a policy clarifying that for specified City employees, maintaining continuity of social service provision by carrying out their everyday positions is their primary role as disaster service workers. In advance of a disaster, processes should be established to ensure the continuity of payments to social service organizations under contract with the City.

The City is not, however, the only service provider that needs to plan for this inevitability. Community-based organizations and neighborhood-level emergency planning efforts should plan for this and be in coordination and partnership with the City. Nonprofit groups are key players in disaster response, providing food and shelter in the short term, and assisting in longer term recovery through health care and job placement. But in past disasters, lack of coordinated planning—between the City and among agencies - has resulted in gaps in aid or in redundant services. Therefore, the City should also assist local service providers, including mental health centers, substance abuse services, homeless shelters, community health centers, senior services and aids activities, so that they can resume services, to cope in a disaster. They can support religious and community organizations by providing them with employee response training, insurance coverage, and encouraging development of contingency plans.

OBJECTIVE 5.3. HAZARD-SPECIFIC RESPONSE. Address any specific, shared, or compounding needs for community safety in the aftermath of a disaster.

POLICY 5.3.1. Establish centers to facilitate permits for repairs.

Rebuilding can be facilitated by increasing the points of access where permitting can occur. Satellite permitting centers that offer City services such as building permits, electrical, plumbing, and mechanical inspections can be one way to increase building owners' access to services in their own neighborhood, and can reduce the possibility of overload at the central permitting facilities at Planning and the Department of Building Inspection. These centers can be operated on a temporary basis, perhaps until a targeted number of buildings are brought back online.

POLICY 5.3.2. Ensure historic resources are protected in the aftermath of a disaster, and support post-disaster restoration of damaged historic buildings.

Preservation of the City's historic resources is an immediate concern when damage is being assessed. The older construction techniques of historic buildings make them more vulnerable to damage, and if the damage is noted without recognition of the resources historic value, the building can be at risk of further damage or demolition.

Accurate information about historic resources is fundamental to ensuring they are not lost. Complete survey information ensures that resource documentation of relevant buildings exists, and this information can be mapped and used by assessors in the tagging of buildings post-disaster. The Planning Department has been actively engaged in survey work through the Citywide Survey Program. The focus of the program is on neighborhoods that are undergoing long-range planning efforts or are the focus of intense development activity, but the Citywide Survey Program will continue survey efforts in neighborhoods outside of Area Plan study areas as resources become available. While that Citywide Survey is underway, the City should make use of existing survey information, including privately developed property reviews, and ensure it is made available to DBI and any other relevant contractors who may be charged with doing evaluations of damaged buildings.

Post-disaster assessment should include an analysis of the extent of the damage to historic areas and resources. In a typical assessment scenario, assessors will attach a green tag if a building is structurally sound, a yellow tag where repairs are needed, and a red tag if the structure is uninhabitable. This system should ensure sufficient protection for historic resources post-disaster, in that all tagged buildings receive further detailed evaluation considering survey information before any steps towards demolition are taken. The system could also include separate placards identifying the building as a historic resource. Without such identification, the buildings are at risk.

POLICY 5.3.3. Address hazardous material and other spills by requiring appropriate cleanup by property owners per local, state, and federal environmental laws.

Spills and releases of hazardous waste and substances can cause severe damage not only to the environment, but to public health. This is a particular issue for older industrial

properties with toxic spill issues as they convert to other uses or forms of development. In cases where environmental damage or hazardous conditions have occurred, the City shall require all property owners and other responsible parties to report spills or leakages and to perform clean up to the level required by local, state, and federal environmental regulations. Where such parties delay in this required cleanup, the City, working with other regulatory agencies, shall take all measures necessary to ensure public health and safety is protected.

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GOAL 6. RECOVERY AND RECONSTRUCTION. Rebuild San Francisco’s built, natural, and social assets and communities towards a more equitable and resilient future. Short-term recovery actions—ensuring reconnection of utilities and services, temporary housing—are often an outgrowth of the response phase. Long-term recovery begins once many of those short-term actions are underway or have been completed—as the rubble and debris have been cleared, major services are restored, and daily operations are reinitiated. The actual reconstruction phase typically takes 5 to 10 years, but it can be much longer. Even across the city, full recovery—return to or improvement beyond the pre-disaster state—can vary considerably from neighborhood to neighborhood. A major disaster resulting in extensive destruction will require a public and private commitment to rebuild the City, as quickly as possible, equitably without leaving anyone behind, and more resilient than before. Some areas might best be repaired and rebuilt in ways similar to their pre-disaster conditions, while new area plans applying citywide objectives may be needed in others with pervasive damage. Longer-term recovery and reconstruction decisions will need to be made by decision makers including the Mayor, the Board of Supervisors, the Planning Commission and others, with considerable public involvement by the people most impacted by hazards and their consequences. Advance planning for the recovery process will improve the City’s ability to make these decisions quickly, equitably, and resiliently, which will profoundly influence the future of the City.

OBJECTIVE 6.1. BUILDINGS AND INFRASTRUCTURE. Maximize the opportunities to restore and rebuild the built environment with resilience to all hazards.

Housing Security and Justice

POLICY 6.1.1. Support policies that recognize the “right to housing” to mitigate the spread of homelessness pre-disaster and that increase the likelihood that the City’s lowest cost housing will persevere post-disaster.

Individuals and families experiencing homelessness are especially vulnerable to hazards and have high exposure to risks. They lack adequate shelter and protection from harm. Post-disaster, especially catastrophes like earthquake and fire that destroy housing, the City’s already existing affordable housing shortage will be exacerbated. Some of the neighborhoods most vulnerable to serious damage in an earthquake provide a significant portion of the City’s affordable housing stock. Without action, sea level rise and flood hazards may increase risks flower cost housing in Environmental Justice Communities. Much of the City’s lowest-cost housing is located in older buildings, which are more likely to sustain damage in the case of an earthquake. Many of these older units are kept

affordable through rent control, which through state-mandated vacancy decontrol may be increased when the unit is vacated, and does not have to be restored if the unit is replaced. These conditions are likely to exacerbate homelessness and displacement post-disaster.

Damaged affordable housing and single-room occupancy hotels should be replaced on a one-to-one basis when possible. Cooperation among the private market, nonprofit agencies, and local, state or federal government sources should be pursued to achieve a similar level of affordability as units are replaced or made resilient to future hazards. Eviction regulations in the post-disaster period should ensure the disaster is not misused as a way to remove tenants with low rents.

Pursue policy advocacy at the state and federal levels to enable eviction moratoriums and rental relief during disasters. This relief should be available to vulnerable people, property owners, and businesses who are displaced by disasters and to facilitate their right to return. The policy advocacy should identify inclusive eligibility criteria, robust funding sources, and have limited barriers to accessing the relief. In the wake of a disaster, it may be difficult for residents, especially renters, to demonstrate proof of residency and liaise with landlords and property owners.

POLICY 6.1.2. Provide adequate interim accommodation for residents and businesses displaced by a major disaster in ways that maintain neighborhood ties and cultural continuity.

While the City's first priority should be to encourage and enable the retrofit of residential buildings to minimize damage and allow residents to shelter-in-place following a disaster, the Department of Emergency Management estimates that after a major earthquake, between 20,000 to 90,000 housing units may be destroyed or substantially damaged. Many businesses that provide necessary services to residents will also be displaced. Repair and reconstruction will take several years. The Care and Shelter Plan establishes a framework for the provision of emergency shelter for the general population. The Care and Shelter Plan should be expanded to accommodate people experiencing homelessness at the time of disaster. Currently, no specific agency is tasked with the responsibility of interim housing, nor with finding temporary space for displaced businesses. Future implementation plans should address these issues.

The City should designate a lead agency to plan for interim housing and business needs. This agency should work in collaboration with state and federal agencies to consider City goals and advocate for the affected communities. In order to maintain relationships and connections within the community, interim housing and other facilities should prioritize keeping residents in their neighborhoods and near their pre-disaster homes as much as possible.

POLICY 6.1.3. Repair damaged neighborhoods in a manner that facilitates resident return and minimizes long-term displacement, prioritizing Environmental Justice

Communities and other communities disproportionately impacted by housing disparities.

San Francisco neighborhoods have distinct characters, and often have long-term residents, businesses and institutions. Many neighborhoods have distinct cultural identities, and provide the bonds of community for their residents. The City, in cooperation with state and federal agencies, and community-based organizations, must manage rebuilding to minimize long-term displacement, retain neighborhood cohesion, and expand housing opportunities for communities disproportionately impacted by housing disparities.

As such, plans should provide opportunities for those who lived in the area to return to new or repaired homes and other facilities there. The City should explore methods of providing return rights to tenants that must vacate their unit because of reconstruction, renovation or improvement.

POLICY 6.1.4. Protect individuals and families experiencing homelessness in the wake of disaster.

Homelessness, and the risk of becoming homeless and hazards will exacerbate not only housing opportunity but also related issues such as health and safety for these populations. The Loma Prieta earthquake damaged homeless shelters and a number of the single-room-occupancy hotels that were an important source of housing for the very poor.

Prior to a disaster the City should inventory its stock of homeless shelters, single-room-occupancy hotels and transitional living facilities. The City must ensure its post-disaster plans consider major social issues such as homelessness. With many properties destroyed or uninhabitable, it will be even more difficult for this challenged population to find suitable housing after an earthquake. Transition to long-term shelter will be needed for those already homeless, requiring long-term aid and greater assistance than is typically required by disaster victims. When a disaster strikes, it can be traumatizing to a community already disproportionately impacted by mental health. The City should pair long-term shelter and aid with comprehensive, evidence-based systems that offer a continuum of care, such as mental health and substance abuse care, social work, and other supportive systems.

POLICY 6.1.5. Ensure sufficient affordable housing and workforce housing during reconstruction.

Lack of housing can have a severe impact on economic recovery. If the labor pool has nowhere to live, they are unable to work. Limited housing opportunities, particularly at the lower end of the income spectrum, can curtail the available labor pool for construction during rebuilding, and the absence of permanent housing once businesses have come back online may cause local employees to seek work elsewhere.

The City should partner with business community in restoring workforce housing for the community after a disaster. The most useful assistance local businesses can provide may be financial contributions, whether they are at-large contributions coordinated by the City

or direct subsidies offered to their own workers. Some possible methods include the development of employer-directed community land trusts or rental deposit and down payment grants for displaced workers.

Reinforce Mitigation

POLICY 6.1.6. Utilize emergency exemptions for rebuild projects with limited or no environmental impacts.

The California Environmental Quality Act (CEQA) currently allows emergency exemptions for projects which are necessary to prevent or mitigate an emergency. In cases where projects are being restored to their pre-disaster state, the sum of their impact has already been reviewed by previous assessments, and thus CEQA enables categorical exemptions for projects reconstructing to standards existing prior to the disaster. The City should ensure these statutes are utilized wherever they make sense to avoid unnecessary delay, while ensuring that new or large-scale projects which may alter the balance of the City receive sufficient review.

POLICY 6.1.7. Utilize green building practices in rebuilding and build new buildings and infrastructure to reduce greenhouse gas emissions consistent with the City's Climate Action Plan and greenhouse gas emissions reduction targets.

Particularly with large-impact earthquakes, there may be consequence of completely destroyed buildings and infrastructure. Salvaging their building material not only aids in the objective of reducing the amount of debris going to a landfill, it also supports the rebuilding process. The City should support the establishment of new businesses that can reclaim, warehouse, and resell debris for reconstruction. They should also provide incentives, either financial or otherwise, for the use of recycled materials in redevelopment.

One way the City could ensure a market for these recycled materials is to require green building in new development and redevelopment. The City has many green building requirements already in place that should be reconsidered and perhaps revised in light of projected post-earthquake reconstruction needs.

POLICY 6.1.8. Ensure equitable outcomes and the consideration of design character and quality in all rebuilding projects.

The City's attitude toward rebuilding will have to balance sometimes competing objectives—the need to rebuild quickly, the need to rebuild equitably and the desire to maintain or improve design character. It is important that large-scale rebuilding does not succumb to the political pressure of property owners to rebuild, at the sake of important interests in community equity, urban design, historic and cultural preservation, mitigation and resilience opportunities, and the needs of the community. A natural or other disaster may damage many of the neighborhoods and buildings that contribute to the City's urban

design character, and it is imperative that reconstruction be done in a way that will strengthen, as the city continues to grow and evolve. While many of the preceding policies speak to the need for timeliness in review of reconstruction projects, the policies developed must ensure humane outcomes for vulnerable communities and that design character and quality are not ignored in the urgency of rebuilding. All reconstruction should be steeped in equity and should follow the framework put in place by the post-disaster recovery and reconstruction plan, as well as the urban design standards and design guidelines already in place in the city.

OBJECTIVE 6.2. ADVANCE RECOVERY PLANNING. Comprehensively plan for the restoration of city function and economic activity with flexibility to known and unknown hazards.

POLICY 6.2.1. Before an emergency occurs, establish an interdepartmental working group to develop an advance recovery framework that will guide long-term recovery, manage reconstruction activities, and coordinate expedient rebuilding that is aligned with City policies.

Advance recovery planning is critical role for the City's emergency preparedness. An agreed-upon recovery and rebuilding plan can reduce disagreements about how to rebuild, and result in a faster reconstruction. The City's disaster history proved that pressures for speedy rebuilding are strong. Therefore, it is critical that the governance and planning framework for recovery and reconstruction be established before the disaster occurs.

To provide direction for any planning that happens post-disaster, the Mayor and the Board of Supervisors should establish an interdepartmental working group to create a framework for recovery. The working group should be comprised of representatives from the following departments: Department of Building Inspection, City Administrator's Office, Controller's Office, Department of Emergency Management, Department of the Environment, Mayor's Office Economic and Workforce Development, Mayor's Office of Housing, Planning Department, Public Works, Public Utilities Commission, Human Rights Commission, and the Office of Community Investment and Infrastructure.

The recovery framework should outline the City's priorities and guidelines for the City's post-disaster recovery and reconstruction. This framework should be tested through scenario planning before being developed fully into a post-disaster recovery and reconstruction plan. While such an effort cannot anticipate the impact of every disaster, the effort can reduce the demands of rebuilding after a disaster.

POLICY 6.2.2. As a part of the advance recovery framework, develop and adopt a repair and reconstruction ordinance, to facilitate the repair and reconstruction of buildings and keep communities intact.

The rebuilding and reconstruction efforts that will need to be undertaken after a disaster will need to be swift in repairing lifelines, homes, and other resources the City depends

upon. After a disaster, the Departments of Building Inspection and Planning will likely see a surge in permit applications. While the Department of Building Inspection already maintains procedures to deal with emergency repairs, the City does not have plans to deal with the sustained demand that may result from large-scale reconstruction. Upon completion of the advance recovery framework, the task force should develop a recovery and repair ordinance that help implement the framework and facilitate the repair and reconstruction of buildings following disaster.

The recovery and repair ordinance should build upon existing building and planning code standards and policies to facilitate an efficient reconstruction process, help to streamline and expedite the permitting and review process, support integration of equity and resilience principles, while avoiding a hastily administered permitting process. The Ordinance should establish clear permit processing and review procedures to expedite rebuilding in the post-disaster period, while providing the amount of review necessary to ensure that reconstruction meets the City's objectives and appropriate local policies, plans, and code standards, yet is economically feasible.

The ordinance should consider policies to address nonconforming uses and buildings, explore modifications to outdated codes and standards, consider the applicability of the City's notification or other review procedures, and address historic buildings to ensure repairs maintain the integrity of the structure without adversely affecting its historic nature. The ordinance should also revise post-earthquake building inspection protocols to identify buildings that have reached functional recovery that can be occupied safely despite damage and loss of utilities, allowing residents to safely shelter in place while waiting to make repairs.

The ordinance should create priority categories for building types, prioritizing critical response facilities first. The ordinance should also be clear on the length of time during which it is applicable. It is important that the ordinance not work at cross-purposes with other City goals. Large-scale damage to confined areas might warrant specific neighborhood-level plans or reconstruction guidelines, and these will take time to prepare. If necessary, the ordinance should allow for periods of non-building while important changes are adopted into law. The ordinance should also include sufficient provisions to ensure that it is evaluated and amendments can be made as needed, post-disaster, to appropriately address the disaster impacts.

POLICY 6.2.3. As a part of the advance recovery framework, coordinate the realignment of government post-disaster, so City employees' skills can be used effectively towards recovery and reconstruction efforts.

New roles and responsibilities for governments will emerge after a disaster strikes. It is imperative that government be able to be nimble enough to adjust to the various roles after the disaster. The City should be willing to reconfigure offices, departments, and services to be best serve the public after a disaster. The Disaster Service Workers program may extend into recovery and reconstruction phases.

One example of such realignment might be the need for the Planning Department or Department of Building Inspection to be decentralized and set up offices in neighborhoods

that were particularly devastated by a disaster. By placing them in neighborhoods their time can be better spent on the ground understanding what type of reconstruction is necessary and possible. Another example of such realignment might call for certain departments to assist others for a longer-term as the original department's services are not required until the City is fully functioning.

POLICY 6.2.4. Update the advance recovery framework on a regular basis so that it continues to be aligned with City goals and values.

The advance recovery framework should be updated as necessary to reflect changing conditions, changes in City policy and technology, and changes in state and federal regulations that affect post-disaster recovery management, financing, and other processes. The task force should set, in its creation of the plan, a schedule for regular updates to ensure it keeps up with shifting community priorities as well as to keep it present and important in the public's mind.

POLICY 6.2.5. Develop and maintain broad public support for the advance recovery framework to ensure its eventual implementation.

Once an advance recovery framework is developed, its work is not over. Implementation of the framework post-disaster is its critical conclusion, and achieving this in the aftermath of a disaster will require vigilance on the City's part. Community demands for rapid reconstruction will likely be perceived by many to be in conflict with calls for post-disaster planning and time needed to complete such a process.

The City should develop an ongoing program to regularly train the City's leadership and build community support for the framework to ensure its implementation in a time-compressed, and high-pressure post-disaster environment. While there will always be tensions to rebuild quickly post-disaster, the desire for haste should not preempt the implementation of the recovery framework or undermine a potentially necessary recovery and rebuilding process. The community outreach process for the advance recovery framework should provide a vehicle to strengthen community support.

POLICY 6.2.6. Post-disaster, build upon the advance recovery framework to create a recovery and reconstruction plan to direct the City's reconstruction activities, manage the long-term recovery period, and coordinate rebuilding activity.

Using the pre-disaster framework as the basis for all planning, the next step is turning that framework into tangible actions to direct and manage the specific impacts of an actual disaster.

Therefore, after a disaster occurs, the City shall establish a recovery and reconstruction task force to guide the planning process and plan development built upon the City's recovery framework. The task force should be made up not only of City agencies represented in the working group, but also a range of community representatives, including business interests, nonprofits and industry leaders, policy advocates, and

neighborhood representatives. The task force should also engage with and involve representatives of other counties, state, and federal agencies. The task force's efforts should be directed by a designated lead agency or individual who can facilitate the recovery and reconstruction planning process and plan development, and oversee its implementation.

The task force will be responsible for the development, drafting and adoption of the post-disaster recovery and reconstruction plan, following the established framework and guidelines. Perversely, a disaster may present the City with a unique opportunity to physically, economically, and socially strengthen the City and the region equitably; and the recovery and reconstruction plan should take advantage of this opportunity.

POLICY 6.2.7. Ensure that an equitable recovery and reconstruction plan is adopted that is comprehensive and consistent with already established City goals, policies, and programs.

The recovery and reconstruction plan will need to prepare the City to meet immediate changing needs after a disaster. Special services and facilities will be needed on a short-term basis, including temporary housing, commercial facilities, and health and human services. During the recovery period, it may be necessary to temporarily locate these facilities in areas not normally available for development, or at higher densities than is normally allowed. Extensive damage may warrant reconsideration of large-scale issues such as housing locations, transit, and public infrastructure such as streets. A detailed recovery and reconstitution plan will grapple with processes for planning at scales that are exceed existing policies and controls.

The recovery and reconstruction plan should build upon established General Plan goals, objectives, and policies, and ensure consistency with City programs, policies, and regulations. The plan should include clear policies and programs addressing the following issues, including the following at a minimum:

- Coordination with federal and state agencies
- Coordination with other regional cities and counties
- Protecting vulnerable communities
- Plans for interim housing (considered to be a part of long-term planning, because many of the housing solutions may become permanent)
- Planning for financing and incentivizing housing repairs and construction of potentially large numbers of replacement housing units, including consideration for affordability needs
- Land use decisions and recommended changes in response to local opportunities
- Establishment of public reconstruction priorities

The recovery and reconstruction plan may also consider potential changes to the City's physical framework and development pattern, potentially reviewing issues such as:

- Structurally and geologically hazardous conditions and mitigation options
- Re-examination of street patterns, street design, and standards such as required width, etc.

- Designation of areas for consideration of land acquisitions, reconfigurations, consolidations, and subdivisions.
- Comprehensively addressing environmental justice issues
- Recommendations for changes and improvements to major transportation routes, transit networks and other lifelines.
- Revisions to City infrastructure networks, including possible undergrounding of utilities, and use of new technologies in service provision.
- Guidance for financing and advancing the City's long-term economic recovery.

While the specific uses of public lands may shift and morph after a large-scale disaster, public lands must be preserved for public purposes. If circumstances allow, pursue opportunities for expanding public lands for public purposes.

POLICY 6.2.8. Where necessary, use public authority to expedite repair, reconstruction, and rebuilding in a just and equitable manner.

In the aftermath of a disaster, there may be properties that lie fallow for some time. The damage may be so severe that owners without insurance simply abandon properties; absentee owners and landlords could choose simply to not return; and there may be cases where it is not economically feasible or possible for owners to rebuild.

The City maintains the authority to impose policies, rules, and regulations to protect the public welfare, order, and security. If public welfare is at stake—for example, in damaged rental properties that remain unrepaired and unoccupied, are a safety or health hazard, or have deteriorated to such a degree that they are unlikely to be restored to quality housing—the City may need to explore ways of restoring these units through partnerships with community based organizations, neighborhood based efforts, and other key stakeholders.

The power of public authority should be used judiciously and sparingly. There have been historic misuses of public authority that have significantly harmed communities. In the 1940s, public authority harmed the Japanese American community during internment with forcible loss of property and belongings. In the 1950s, public authority harmed the African American community during redevelopment of the Western Addition and the Fillmore. These pernicious events should be used as cautionary tales for future uses of public authority. The power of public authority can be used to expand public benefits, such as the Hualapai Nation of Arizona exercising its authority to reclaim land for tribal ownership and use.

In addition to health and safety, the City should prioritize housing equity in the community. The City can consider the return and retention of the American Indian community, Black community, and other communities of color post-disaster; the housing needs for individuals and families with experience of homelessness; the community needs for low-income and other vulnerable people; and the recovery and growth of the local business community.

POLICY 6.2.9. Rebuild after a major disaster consistent with established General Plan objectives and policies.

The General Plan has been adopted, after much public consideration, to assure the preservation and enhancement and safety of this very desirable urban environment. In the efforts to restore damaged areas of the City, existing development policies and regulations should be respected. Opportunities may be created for realizing General Plan policies, such as increasing affordable housing, improvements to circulation systems, the provision of needed public or private open space, or hazard reduction. In areas with extensive building and infrastructure damage, coordinated rebuilding to take advantage of opportunities for neighborhood improvement, may be best achieved with an area plan approach. The rebuilding process may also enable possibilities for advancing environmental justice, increasing mobility through improved and increased public transit, as well as other alternatives to the private automobile. Future Elements and Area Plans of the General Plan, transportation policies and guiding principles developed by the City should be formulated with an awareness of their potential applicability in relation to earthquake recovery.

OBJECTIVE 6.3. EQUITABLE INVESTMENT. Pursue plans and strategies that would equitably build back San Francisco for everyone.

POLICY 6.3.1. Support the efforts of the Controller's Office to ensure service continuation and financing of post-disaster.

The Controller's Office is the designated lead agency for the Finance and Administration Section of the Emergency Response Plan, supported by the Department of Administrative Services and the Office of the Treasurer. These groups are tasked with ensuring employee payment and compensation, and with payment of contractor and vendor accounts, in the immediate response phase of a disaster through recovery to pre-disaster service. These elements will be critical to the continuing operation of City services.

In order to ensure continuation, the Controller's Office has programs underway to ensure that payroll continues to be processed for all City workers, implementing off-site payroll processing if needed; that employee compensation is resumed; that financial and accounting computer systems can recover and resume as soon as possible; and that all payments, both to City workers and to outside vendors, are processed within a reasonable time.

The City should actively encourage the use of direct deposit by all City employees, and inform all employees of the potential loss of pay in the event of a disaster for those who do not use direct deposit. Additionally, the Controller's Office should work with City employees not currently using direct deposit in order to provide backup account information that can be switched to direct deposit in the event of a disaster. The City should assist those employees without access to a bank account to open an account with a bank or credit union.

The Controller's Office will also direct the financial policies established to guide the City in its response and recovery to an emergency, particularly as it relates to personnel time,

contracts, and equipment and supplies relating to the emergency. As a part of this responsibility, the Office should work with other City agencies to determine need for contracts with vendors who do not already occur on existing approved vendor lists, and set up these new vendor contracts well before the emergency occurs.

POLICY 6.3.2. Have an economic recovery plan in place before the disaster strikes.

A disaster can have a major impact on the economic landscape of the City. Previous earthquakes have resulted in dramatic losses in office space and subsequent relocation of businesses; in drops in tourism, which is one of the City's major industries; and disproportionate impacts on small businesses, who have fewer resources with which to recover. The City should ensure an economic recovery strategy is in place to foster business resumption and growth post-disaster.

In the wake of a disaster, many local businesses, particularly small businesses, will struggle to resume activity. They may have lost assets, necessary facilities or equipment, access to employees, and even their customer base. While the City's own funds will be limited from providing direct financial assistance, there are many other things it can do to support businesses. In response to the COVID-19 pandemic, the social distancing and masking requirements, as well as discouragement of sharing indoor space, made it challenging for businesses such as restaurants and small retail shops from operating normally. The City's Shared Spaces Program supported the ability to bring business operations to outdoor places like sidewalks, streets, and open lots.

The City can encourage loan and grant funding from non-government sources, and further affected businesses' ability to secure loans from local banks or unions by offering government guarantees on loans. Tax incentives, including temporary payroll tax exclusion, sales tax exemption and tax write-offs on replaced business equipment and furniture, and property tax abatements, should be explored to encourage reinvestment and growth of businesses.

The economic recovery strategy should prioritize the elements of the City necessary to support business activity, such as the restoration of transit and regional roadways; utilities and services available to the business community; and housing availability for the local workforce and customers. The City should work with the business community to develop this strategy, and solicit wide advice on how to facilitate business revitalization. The strategy may include recommendations to hasten the resumption of business such as loans, funding for workplace building repair, and financial assistance. Updates to the City's Economic Strategy, created by the Office of Economic and Workforce Development, should include plans for economic recovery in case of a disaster.

POLICY 6.3.3. Explore expansion of the City's disaster relief programs.

The City provides financial relief to property owners through tax programs including disaster relief on property taxes, and participation in the state's Section 69.3 property tax disaster relief program which enables former residents who move to other counties to maintain their previous level of property taxation prior to the disaster.

The City should review other forms of tax relief to affected residents and business owners, including reductions on other fees and taxes. A temporary moratorium on payroll taxes may be one way to get business back up and running directly after a disaster. In the wake of their 2000 earthquake, Napa Valley's ordinance provided a month-long extension of a number of taxes and fees, including sales taxes; reduced property tax assessment and deferral of property taxes on damaged property; and refunds on taxes paid for unmarketable goods.

Educating citizens about the lack of access to funds in the event of a disaster is critical. The Office of the Treasurer and Tax Collector should be involved in working with financial institutions and educating the public on how to access private funds during a time when typical procedures will not be possible.

POLICY 6.3.4. Ensure effective use of public emergency funds and expenditures, and recovery of those expenditures.

The Controller's Office is responsible for tracking expenditures for the cost of responding to, and recovering from, the disaster. This includes tracking, recording, and reporting on all payments made in response to the emergency, including personnel working during the emergency, outside contractor work, and expenses such as supplies, materials, equipment, and vehicles.

It is important that the tasks that are authorized are relevant and necessary, and that their completion is well-documented by the Controller's Office and its supporting agencies. This documentation will be critical in submitting disaster reimbursement claims to the state and federal government and ensuring support funding is received.

POLICY 6.3.5. Provide the basic needs for all people while normal support is interrupted.

Beyond the immediate aftermath of a disaster, and beyond the assurance of infrastructure with explicit life safety purpose, there may still be persistent and critical basic needs for the people of San Francisco as the City recovers from disaster. The City should make a plan and provide support to cover the basic needs for all people while systems are reestablished and communities return to self-sufficiency. The plan should include basic shelter, health, and food needs, and focused on those with the least adaptive capacity for self-care. This includes Environmental Justice Communities, people with disabilities and other functional needs, the young and the elderly, and other vulnerable people.

PROPOSED TO BE REMOVED

Existing Policy 1.3: Assure that new construction meets current structural and life safety standards.

The Department of Building Inspection and the Fire Department have ongoing responsibility for reviewing plans for proposed buildings and inspecting buildings under construction to ensure that they are built as shown on the approved plans and in accordance with applicable codes. This includes ongoing training for plan checkers and inspectors and the involvement of professional structural and civil engineers with expertise in seismic engineering.

The engineering of complex or unusual structures requires more than the routine application of set rules. It often involves creativity and judgment in solving new design problems. Because there can be considerable independent judgment required, the involvement of more than one design professional can often shed new light on structural issues, or uncover overlooked problems.

Existing Policy 1.4 Use best practices to review and amend at regular intervals all relevant public codes to incorporate the most current knowledge of structural engineering regarding existing buildings.

The State of California mandates the local adoption of the California Building Code, which is adopted from the International Building Code. Buildings built to these provisions are expected to resist damage from minor earthquakes, experience some non-structural damage from moderate earthquakes, and suffer some structural damage, but not collapse; from major earthquakes (specially-regulated buildings such as hospitals are designed for better performance.) The Code is updated triennially, with a provision for additional amendments as knowledge grows about how structures respond to earthquakes. Local governments may impose more restrictive standards than those in the State code. San Francisco adopts the State code with modifications that concern the resistance to ground-shaking and hillside construction, as well as other local equivalencies. San Francisco has adopted the 2010 California Building Code with local amendments.

Chapter 34 of the San Francisco Building Code includes long-standing local provisions that supplement those of the state and model codes with regard to required upgrades of existing structures. These provisions have been updated and modified to be in coordination with the current California Building Code. In addition, the City should consider provisions that explicitly endorse or adopt consensus standards for the seismic evaluation and retrofit of existing buildings. State amendments to the model code (for DSA-regulated structures) and related model code provisions (such as those in the International Existing Building Code) provide examples to follow.

Even with this new building code, however, the local code may, in time, lag behind technology advances. For example, recent advances in elevator safety make it possible for occupants to use elevators for escape and for firefighters to use them to ascend to fight fires, which could be critical for taller buildings. Recognizing that San Francisco is at high risk to fires due to seismic issues, the Fire Department has developed local code amendments that would make elevators in new high-rises more resistant to fire, smoke and water. The City should continue this practice of proactively reviewing and updating codes to incorporate the latest knowledge and standards of safety and seismic design.

Existing Policy 1.12 Ensure that new development on Treasure Island, Yerba Buena Island and Hunters Point Shipyard are resistant to natural disasters.

Landfill areas are at a high risk of liquefaction during an earthquake. Current plans for the development of approximately 6,000 new homes on Treasure and Yerba Buena Islands do recognize this risk, and require the seismic stabilization of the islands' perimeter.

In addition to soil stabilization, development plans should ensure new development is designed and constructed to ensure performance equivalent to that of similar structures built on firm ground.

Existing Policy 1.18: Identify and replace vulnerable infrastructure and critical service lifelines in high-risk areas.

In the case of a disaster, two of the most critical networks will be the City's water system and its sewer and sanitation lines. Upgrades are already underway: The Water Department and the Department of Public Works have ongoing programs to replace vulnerable water mains and sewers and to improve performance of the systems during earthquakes by including system segmentation, safety shut-off systems and redundant back-up systems or other methods of reducing damage and providing alternative sources of service. The San Francisco Public Utilities Commission is undertaking a Water System Improvement Program to strengthen the Hetch Hetchy water transmission system against earthquake damage, with completion anticipated by 2015. A connecting pipeline is currently under construction to connect the region's major water supply systems of the Hetch Hetchy, managed by the SFPUC, and the reservoirs in Calaveras, Amador and Alpine counties managed by the East Bay Municipal Utility District (EBMUD), which will enable water to be distributed from one Bay Area system to another in the case of failure. However, aging infrastructure in the City's sewer and sanitation system is a concern – beyond ailing pipes, the City's tunnels, pump stations and treatment plants need upgrades and repairs. The SF Sewer System Master Plan project currently underway at the PUC will eventually provide a detailed roadmap for these major improvements, and provide a plan for funding these improvements.

Other upgrades underway include Pacific Gas and Electric's seismic program replacing vulnerable gas lines, and Caltrans' bridge and highway retrofit programs. BART is in the midst of a system wide seismic upgrade project; the City should lobby for continued seismic retrofit and disaster-resistance measures on our regional transportation systems such as Caltrans and AC Transit. More upgrades are needed to PG&E's electric system to reduce the risk of service disruption to customers, including transmission improvements, replacement of vulnerable transformers, circuit breakers, and other at-risk components of the electric system. The City should require a specific plan detailing these improvements, and a timeline for their implementation.

Existing Policy 1.23: Enforce state and local codes that regulate the use, storage and transportation of hazardous materials in order to prevent, contain and effectively respond to accidental releases.

Homes, businesses and other facilities contain many materials that, if not properly handled, can result in risks to life, health, or the environment. During a disaster, especially an earthquake, such materials could be accidentally released. The materials that generally pose the greatest hazard during a disaster are those that can, in the form of gas, spread and affect large numbers of people; those that are highly flammable or explosive; and those that are highly toxic or are strong irritants. Large earthquakes lead to release of hazardous materials while reducing the ability of emergency personnel to respond. The continued requirement of business and facility emergency plans and local inspections as part of the City's permitting process for hazardous material storage is critical to reducing an overload on public emergency response resources during a major earthquake.

Existing Policy 2.19: Seek funding for preparedness projects.

A significant amount of preparedness funding exists at the state and federal level. Several recent state propositions provide funding for specific disaster mitigation projects. The Disaster Preparedness and Flood Prevention Bond Act funds storm water flood management projects throughout California. The Strategic Growth Plan education proposal authorizes state dollars for seismic safety improvements to schools and education facilities. In addition, the Department of Homeland Security has lately been a large source of funding for preparedness and mitigation projects.

Since so much of the available funding is disbursed beyond the local level, access to these funds requires coordination for project proposals. As noted above, the Department of Emergency Management is responsible for coordination of preparedness funds. Securing these grant dollars, and effective utilization of them, should remain a priority in coming years. The City should explore the creation of a grant officer specifically tasked with coordinating with state and federal grant offices, as well as designate internal coordinators to work with each individual City department as they navigate applications and grant requirements.