

City of Santa Barbara **Local Hazard Mitigation Plan**



**An Annex to the Santa Barbara County
Multi-Jurisdictional Hazard Mitigation Plan**

February 2023



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1.0 INTRODUCTION

Natural and human-caused disasters can lead to death, injury, property damage, and interruption of business and government services. When they occur, the time, money, and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems.

However, the impact of foreseeable yet often unpredictable natural and human-caused events can be reduced through mitigation planning. History has demonstrated that it is less expensive to mitigate against disaster damage than to repeatedly repair damage in the aftermath. A mitigation plan states the aspirations and specific courses of action jurisdictions intend to follow to reduce vulnerability and exposure to future hazard events.

The City of Santa Barbara (City) recognizes the consequences of disasters and the need to reduce the impacts of all hazards, natural and human-caused. This annex was prepared in 2022 as part of the update to the County of Santa Barbara (County) Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). This annex serves as the Local Hazard Mitigation Plan (LHMP) for the City. The LHMP was last comprehensively updated in 2017 as an annex to the 2017 MJHMP. Since 2017, the City has:

- Incorporated the LHMP goals, objectives, and mitigation actions into its local plans and processes, including the General Plan Safety Element by reference and specific hazard planning efforts (e.g., Sea Level Rise Adaptation Plan).
- Used the LHMP's assessment of capabilities, hazards, and vulnerabilities to inform planning, capital improvements, programs, decision-makers, and the public.
- Implemented mitigation actions through the City's general plan, capital improvement program, maintenance programs, grant programming, community outreach, and budget process.
- Reviewed and evaluated mitigation actions before and after disasters, including the Thomas Fire and Montecito debris flow.

This 2022 update to the LHMP builds on and refines the MJHMP's assessment of hazards and vulnerabilities countywide to develop a mitigation plan for the City. The City participated in the 2022 MJHMP Mitigation Advisory Committee (MAC) and Local Planning Team (LPT), reviewed all portions of the MJHMP pertaining to the City, and incorporated relevant components into this annex. It contains updated capability assessment information, a current vulnerability assessment, and an updated/revised mitigation strategy. The methodology and process for developing this annex build on approaches employed in the 2022 MJHMP and are explained throughout the following sections.

The 2022 MJHMP update was prepared with input and coordination from each of the county's eight incorporated cities, six special districts, the County, citizen participation, responsible officials, and support from the State of California Governor's Office of Emergency Services (CalOES) and the Federal Emergency Management Agency (FEMA). The process to update the MJHMP and this LHMP included over a year of coordination with representatives from all participating agencies within the County and County representatives who comprised the MAC (described further in Section 3.0, *Planning Process* below). The City is a participating agency in the County's MJHMP update.

The City's LHMP is used by local emergency management teams, decision-makers, and agency staff to implement needed mitigation to address known hazards. The MJHMP and this annex can also be

used as a tool for all stakeholders to increase community awareness of local hazards and risks and provide information about options and resources available to reduce those risks. Informing and educating the public about potential hazards helps all county residents and visitors protect themselves against their effects.

Risk assessments were performed that identified and evaluated priority hazards that could impact the City. Vulnerability assessments summarize the identified hazards' impact on the City. Estimates of potential dollar losses to vulnerable structures are presented. The risk and vulnerability assessments were used to determine mitigation goals and objectives to minimize near-term and long-term vulnerabilities to the identified hazards. These goals and objectives are the foundation for a comprehensive range of specific attainable mitigation actions (see Section 7.0, *Mitigation Strategy*).

2.0 PLAN PURPOSE AND AUTHORITY

Federal legislation historically provided funding for disaster preparedness, response, recovery, and mitigation. The Disaster Mitigation Act (DMA) of 2000, also commonly known as “The 2000 Stafford Act Amendments” (the Act), constitutes an effort by the federal government to reduce the rising cost of disasters. The legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Section 322 of the DMA requires local governments to develop and submit mitigation plans to qualify for the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) funds. The 2022 MJHMP meets the statutory requirements of DMA 2000 (P.L. 106-390), enacted October 30, 2000, and 44 CFR Part 201 – Mitigation Planning, Interim Final Rule, published February 26, 2002. The HMA grants include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, and the Flood Mitigation Assistance (FMA) program. Additional FEMA mitigation funds include the HMGP Post Fire funding associated with Fire Management Assistance Grant (FMAG) declarations and the Building Resilient Infrastructure and Communities (BRIC) funding associated with the 2018 Disaster Recovery Reform Act (DRRA).

DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies requirements that allow HMGP funds to be used for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan before a disaster. State, county, and local jurisdictions must have an approved mitigation plan in place before receiving post-disaster HMGP funds. These mitigation plans must demonstrate that their proposed projects are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

Local governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a local mitigation plan;
- Reviewing and updating the plan every five years; and
- Monitoring mitigation actions and projects.

To facilitate implementation of the DMA 2000, FEMA created an Interim Final Rule (the Rule), published in the Federal Register in February of 2002 at section 201 of 44 CFR. The Rule spells out

the mitigation planning criteria for states and local communities. Specific requirements for local mitigation planning efforts are outlined in section §201.6 of the Rule.

In March 2013, FEMA released The Local Mitigation Planning Handbook (Handbook) as the official guide for local governments to develop, update and implement local mitigation plans. The Handbook complements and references the October 2011 FEMA Local Mitigation Plan Review Guide (Guide) to help “Federal and State officials assess Local Mitigation Plans in a fair and consistent manner.” Local jurisdictions must demonstrate that proposed mitigation actions are based upon a sound planning process that accounts for the inherent risk and capabilities of the individual communities as stated in section §201.5 of the Rule. The Handbook and Guide were consulted to ensure thoroughness, diligence, and compliance with the DMA 2000 planning requirements.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in a faster allocation of funding and more effective risk reduction projects.

This LHMP was prepared as an annex to the County’s MJHMP in compliance with DMA 2000 and applicable FEMA guidance. The following pages show the resolutions that adopt the City’s 2022 LHMP.

RESOLUTION NO. 23-038

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTA BARBARA CALIFORNIA ADOPTING THE 2022 CITY OF SANTA BARBARA ANNEX OF THE SANTA BARBARA COUNTY MULTI-JURISDICTION HAZARD MITIGATION PLAN

WHEREAS, The Federal Disaster Mitigation Act of 2000 (Act), as described in 44 CFR Section 201.6 mandates local governments to submit and maintain a Federal Emergency Management Agency (FEMA) approved local hazard mitigation plan;

WHEREAS, The of City Santa Barbara has participated in a county-wide multi-jurisdictional Hazard Mitigation plan with Santa Barbara County Office of Emergency Management as the Operational Area and lead agency;

WHEREAS, The Multi-Jurisdiction Hazard Mitigation Plan identifies each jurisdiction's risk assessment and mitigation strategies to reduce the impacts of natural, technological, or intentional disasters on the public and local government;

WHEREAS, Identification of hazards in the City assists with response planning, exercise development, public education, and awareness, and other emergency management functions;

WHEREAS, the City's Local Hazard Mitigation Plan will be an Annex to the City's Emergency Operations Plan and a resource for the Safety Element of the City's General Plan in accordance with California Government Code Sections 8685.9 and 65302.6;

WHEREAS, The Federal Disaster Mitigation Act of 2000 requires the Plan to be formally adopted by the City Council or governing agency; and

WHEREAS, adopting the City's Local Hazard Mitigation Plan and amending the General Plan to incorporate the Local Hazard Mitigation Plan by reference is exempt from environmental review pursuant to the California Environmental Quality Act (CEQA) through the use of the "General Rule" Section 15061(b)(3) of the CEQA Guidelines as adoption of the Amendment will have no potential adverse impact upon the environment because the LHMP will act a guidebook for hazard mitigation strategies but does not implement any specific project, action, or funding.

NOW THEREFORE IT IS HEREBY RESOLVED by the City Council of the City of Santa Barbara, California, as follows:

1. The City Council approves and adopts the 2022 Local Hazard Mitigation Plan five (5) year update in accordance with the Disaster Mitigation Act of 2000.
2. The City Council adopts the Santa Barbara County Multi-Jurisdiction Hazard Mitigation Plan
3. This Resolution is effective upon its adoption.

RESOLUTION NO. 23-038

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA) ss.
)
CITY OF SANTA BARBARA)

I HEREBY CERTIFY that the foregoing resolution was adopted by the Council of the City of Santa Barbara at a meeting held on April 11, 2023, by the following roll call vote:

AYES: Councilmembers Eric Friedman, Alejandra Gutierrez, Oscar Gutierrez, Meagan Harmon, Kristen W. Sneddon, Mayor Randy Rowse

NOES: None

ABSENT: Councilmember Mike Jordan

ABSTENTIONS: None

IN WITNESS WHEREOF, I have hereto set my hand and affixed the official seal of the City of Santa Barbara on April 13, 2023.



Yazmin Dominguez
Deputy City Clerk

I HEREBY APPROVE the foregoing resolution on April 13, 2023.

Randy Rowse
Mayor

3.0 PLANNING PROCESS

3.1 OVERVIEW

The planning process implemented for the County's 2022 MJHMP update, including the City's LHMP update, utilized two different planning teams to review progress, inform and guide the update, and directly review and prepare portions of the plan, including each jurisdictional annex. The first team is the Mitigation Advisory Committee (MAC) and the second is the Local Planning Team (LPT).

All eight incorporated cities and the six special districts joined the County as participating agencies in the preparation of the MJHMP update, including the cities of Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, and Solvang; and special districts Cachuma Operation and Maintenance Board (COMB), Carpinteria Valley Water District (CVWD), Goleta Water District (GWD), Montecito Fire Protection District (MFPD), Montecito Water District (MWD), and Santa Maria Valley Water Conservation District (SMVWCD). Each of the participating agencies had representation on the MAC and was responsible for the administration of their own LPT. In addition, the MAC included representatives from other state and local agencies with an interest in hazard mitigation in Santa Barbara County, including local non-profit organizations, special districts, and state and federal agencies. This composition ensures diverse input from an array of voices representing all communities within Santa Barbara County.

Both the MAC and the LPTs focused on these underlining philosophies, adopted from the FEMA Local Mitigation Plan Review Guide:

- **Focus on the mitigation strategy**

The mitigation strategy is the plan's primary purpose. All other sections contribute to and inform the mitigation strategy and specific hazard mitigation actions.

- **Process is as important as the plan itself**

In mitigation planning, as with most other planning efforts, the plan is only as good as the process and people involved in its development. The plan should also serve as the written record, or documentation, of the planning process.

- **This is the community's plan**

To have value; the plan must represent the current needs and values of the community and be useful for local officials and stakeholders. Develop the mitigation plan in a way that best serves your community's purpose and people.

- **Intent is as important as Compliance**

Plan reviews will focus on whether the mitigation plan meets the intent of the law and regulation; and ultimately that the plan will make the community safer from hazards.

As a result, the planning process incorporated the following steps:

- **Plan Preparation**

- Form/validate planning team members
- Establish common project goals
- Set expectations and timelines
- **Plan Development**
 - Validate and revise the existing conditions/situation within the planning area;
 - Develop and review the risk to hazards (exposure and vulnerability) within the planning area;
 - Review and identify mitigation actions and projects within the planning area;
- **Finalize the Plan**
 - Review and revise the plan
 - Approve the plan locally and with state and federal reviewers
 - Adopt and disseminate the plan

3.2 MITIGATION ADVISORY COMMITTEE (MAC)

The City participated as a MAC member to prepare this LHMP as an annex to the 2022 MJHMP. The City was represented by Yolanda McGlinchey, Emergency Services Manager, on the MAC.

The MAC meetings were designed to discuss each component of the MJHMP with MAC members and coordinate annex updates. Table 3-1 below provides a list and the main purpose and topics of each MAC meeting.

Table 3-1. Mitigation Advisory Committee (MAC) Meetings Summary

Date	Purpose
March 2021	MAC Meeting #1 (virtual) Provided an overview of the project and why the plan is being revised Reviewed FEMA guidance and processes Discussed roles and responsibilities of the participating jurisdictions
September 2021	MAC Meeting #2 (virtual) Reviewed goals of the project, role of the MAC Summarized public outreach results Presented hazards assessment and displayed select draft hazard maps Conducted interactive exercise to rank hazards
October 2021	MAC Meeting #3 (virtual) Provided results of hazard ranking methodology Presented vulnerabilities assessment Discussed mitigation goals, objectives, and strategies Reviewed County goals from 2017 and compared them to new goals Conducted interactive exercise on potential mitigation goals and strategies
October 2021	MAC Meeting #4 (virtual) Collected feedback on 2017 mitigation strategies

Date	Purpose
	Conducted interactive exercise on mitigation strategies for key hazards unaddressed in previous MJHMP Discussed annex updates
January 2022	MAC Meeting #5 (virtual) Presented draft plan Discussed key MAC/LPT review needs and key issues Discussed annex updates to dovetail with plan update
March 2022	MAC Meeting #6 (virtual) Review and discuss public comments received on the draft plan Recommend a revised draft plan to decision-makers Review annex updates for review and approval

3.3 LOCAL PLANNING TEAM (LPT)

Table 3-2 lists the City's LPT. These individuals collaborated to identify the City's critical facilities, provide relevant plans, report on the progress of City mitigation actions, and provide suggestions for new mitigation actions.

Table 3-2. City of Santa Barbara Local Planning Team 2022

Department	Name	Title
Airport	Aaron Keller	Airport Operations Manager
Public Works	Adam Hendel	Principal Engineer
Sustainability & Resilience	Alelia Parenteau	Interim Sustainability & Resilience Dept. Director
Attorney	Ariel Calonne	City Attorney
Public Works	Ashleigh Shue	Principle Engineer
Fire	Brady Beck	Fire Investigator III
Airport	Brian D'Amour	Interim Airport Director
Public Works	Catherine Taylor	Water Services Manager
Community Development	Christina Dye	Building Official
Fire	Christopher Braden	Wildland Fire Services Specialist - GIS
Finance	Doug Smith	Accounting Manager
Information Technology	Eric Just	GIS Coordinitor
Waterfront	Erik Engebretson	Harbor Operations Manager
Parks & Recreation	Jazmin LeBlanc	Assistant Parks & Recreation Director
Public Works	Jeff Brent	Maintenance Supervisor II
Library	Jessica Cadiente	Library Director
Public Works	Jim Dewey	Streets Operations Infrastructure Manager
Police	Joshua Morton	Police Lieutenant
Finance	Keith DeMartini	Finance Director
Library	Kristina Hernandez	Library Services Manager
Fire	Liliana Encinas	Bilingual Public Outreach Coodinator
Sustainability & Resilience	Melissa Hetrick	Administrative Analyst II

Department	Name	Title
Administration	Rene Eyerly	Interim Assistance City Administrator
Community Development	Renee Brooke	City Planner
Parks & Recreation	Rich Hanna	Recreation Program Manager
Community Development	Rosie Dyste	Project Planner
Information Technology	Rudy Fidler	Information Technology Planner
Fire	Ryan DiGuilio	Fire Marshal
Airport	Sara Iza	Principal Project Manager
Fire/OES	Yolanda McGlinchey	Emergency Services Manager

The Santa Barbara LPT members worked directly with the Santa Barbara County Office of Emergency Management (OEM), the consultant team, and each other to provide data, recommended changes, and continually work on the MJHMP and LHMP updates throughout the planning process. The City LPT met virtually as needed during the planning process to discuss data needs and organize data collection. Table 3-3 below outlines a timeline of the LPT's activities throughout the planning process.

Table 3-3. Local Planning Team Activity Summary

Meeting Dates	Summary of Activity
February 2020	LPT kickoff meeting to discuss stakeholder and public involvement and refine the scope of hazard analysis
April 2021 to January 2022	Collated data to share with hazard mitigation planning team, including hazard identification, refreshed data layers for maps, and geographic settings. Completed Plan Update Guides to directly inform hazard priorities and mitigation capabilities Met with County OEM and consultant staff (12/17/22) to discuss LHMP priorities and mitigation approaches.
April 9, 2021	City LHMP met to review documents and forms needed for the Consultant and County OEM
November 10, 2021	City LHMP to review City's Goals and Objectives Review Mitigation Projects, Defer, Complete, Delete or add new projects and review the template for projects from Consultant Review and revise Mitigation Strategies
January and March 2022	Reviewed new maps and local vulnerabilities. Provided input on the status of 2017 LHMP mitigation strategies. Reviewed draft mitigation strategies and provide feedback. Reviewed and finalized 2022 LHMP
January through April 2022	City's LHMP meet in various small meetings to complete: Updated Section 4 – Capability Assessment Reviewed and updated on Cost-Benefit Worksheet Mitigation Projects Review and make comment on City's Annex to the MJHMP

3.4 PUBLIC OUTREACH AND ENGAGEMENT

As a participating agency in the 2022 MJHMP update, the City was directly involved in the outreach program undertaken by the County for the 2022 MJHMP update, which involved extensive outreach during 2021 and early 2022. The City's MAC and LPT members participated in public outreach efforts for the MJHMP and LHMP update planning process by distributing notices for the 6-month-long community hazards survey (refer to Section 3.4.1 of the 2022 MJHMP) and three public workshops (refer to Section 3.4.4 of the MJHMP). The Public Outreach Plan (POP) employed a diversity of tools to maximize notification and participation. The POP was responsive to limitations presented by the Coronavirus (COVID-19) pandemic and focused on direct bilingual outreach using a variety of digital tools, including a fact sheet, social media posts, emails, and press releases. Multiple platforms and tools were used to publicize opportunities to participate. All public and stakeholder meetings were hosted virtually through Microsoft Teams, and all outreach completed for the project was conducted via electronic communications. Many of the meetings used an interactive tool called Slido to collect feedback during meetings. Slido allows audience members to answer questions during presentations, helping the County collect direct detailed feedback and facilitate discussion. All written notices were made available in English and Spanish.

Emergency preparedness information is also regularly distributed to the residents and businesses via the City's website.

In May 2022, the LHMP was completed and made available for public review, concurrent with review by FEMA and CalOES. The City's Draft LHMP was published on the City OES website for comment. Once approved the plan will be placed on the OES website. The opportunity to review documents was announced through social media, media release and the City's website. The community was welcome to submit written or verbal comments to the Emergency Services Manager. In addition, the opportunity for the community to be heard was permitted during the City Council meeting before the adoption of this plan.

4.0 CAPABILITY ASSESSMENT

The City LPT identified current capabilities and mechanisms available for implementing hazard mitigation activities. This section presents a discussion of the roles of key departments, administrative and technical capacity, fiscal resources, and summaries of relevant planning mechanisms, codes, and ordinances.

4.1 COMMUNITY PROFILE AND DEMOGRAPHICS

The City of Santa Barbara is located on the south coast of Santa Barbara County. Due to the Santa Ynez mountain range that blocks colder air from the north, Santa Barbara enjoys mild and pleasant weather. It sits at an elevation of roughly 50 feet above sea level and has a land area of 19 square miles. The City received its name when the California Mission Santa Barbara was founded there in 1786. The mission was known as the Queen of the Missions due to its beauty and the beauty of its surroundings.

Attractions in Santa Barbara include the Waterfront, Downtown retail, entertainment, and cultural districts, Santa Barbara Museums of Art and Natural History, the Santa Barbara Zoo, and special

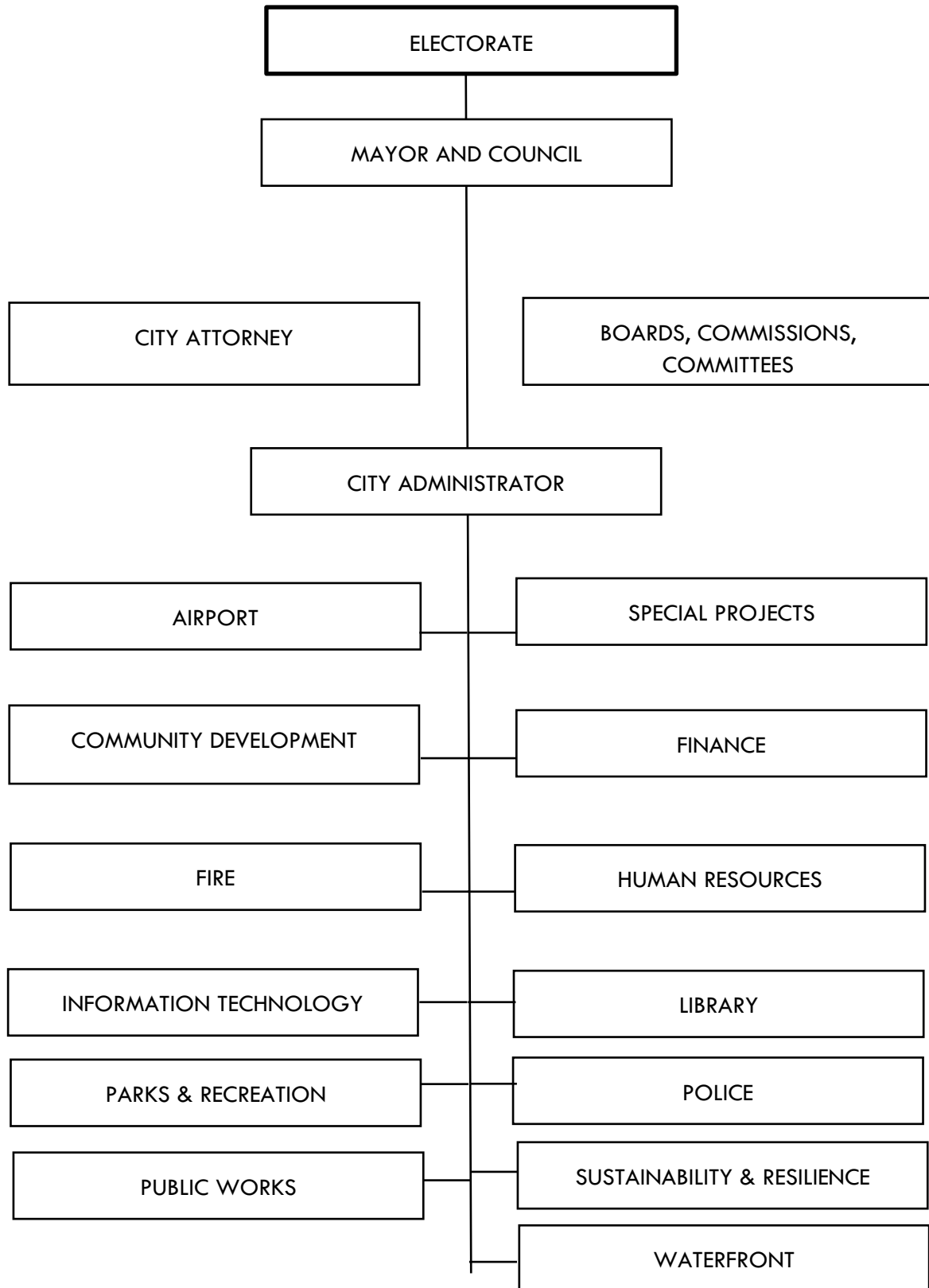
events such as Old Spanish Days – Fiesta Santa Barbara. Santa Barbara is the retail, tourism, government, education, and medical center of the County. It is home to the Santa Barbara Airport, which provides commercial services for Ventura, Santa Barbara, and San Luis Obispo Counties.

According to 2019 U.S. Census Bureau data, the City is home to 92,034 residents. This population is projected to grow to 98,655 residents by 2050 (SBCAG 2018). The average household size in the City is 2.45 and the median household income is \$78,945. Approximately 56.2 percent of City of Santa Barbara residents identify as White, 36.50 percent identify as Hispanic, and 7.4 percent identify as Asian, Black, Mixed, or Other (US Census Bureau 2019).

4.2 KEY DEPARTMENTS

The City of Santa Barbara employs a Manager-Council form of governance. Santa Barbara City Council is comprised of one Mayor and six Council Members, all of whom are elected officials each serving a four-year term. The City of Santa Barbara's organization is comprised of fifteen departments. These departments are Airport; City Administrator; City Attorney; Community Development; Finance; Fire; Human Resources, Information Technology, Library; Mayor and Council; Parks and Recreation; Police; Public Works; Sustainability and Resilience and Waterfront Departments. In addition, Santa Barbara has 29 Advisory Boards, Commissions, and Committees whose job is to advise the City Council on a wide variety of subjects.

CITY OF SANTA BARBARA ORGANIZATION CHART



Departments involved in activities related to hazard mitigation include:

4.2.1 City Administrator's Office

The City Administrator's Office provides leadership, direction, and oversight to City departments to accomplish goals and objectives approved by the City Council, per the City Charter. The City Administrator manages all departments, provides training and development for all City employees, reviews the performance of all City departments, and assists the City Council in prioritizing goals. The City Administrator's Office also provides oversight to City TV on Channel 18.

In response to natural disasters, the City Administrator's Office serves as the primary point of contact to coordinate the entire flow of public information. This is accomplished through the use of media releases, press conferences, website updates, the City TV scroll, public information kiosks, and all other social media outlets. The Administrator's office works in conjunction with other emergency personnel to coordinate the public release of accurate, timely, and consistent information.

4.2.2 Santa Barbara Airport

The Santa Barbara Airport is one of the region's most important and visible assets. A recent University of California, Santa Barbara Economic Forecast Project study found that the Airport has a \$500 million annual impact on the County. Since the 1930s, it has been the region's primary air transportation facility. Nearly 1 million passengers used the Airport in 2019; making it the busiest airport on the California coast between San Jose and Los Angeles. Consistent with national trends, air travel through the Santa Barbara Airport declined during the recent pandemic. However, passenger numbers have started to increase through the summer of 2020, and airline forecast studies show the passenger volume will grow over the next 10 years.

The Airport has recently completed a new master plan for development through 2025. The plan identifies Airport facility and capacity needs and prescribes improvements. The Airport must remain open during natural disaster situations to serve as a transportation point for the ingress and egress of personnel, equipment, and supplies during the recovery phase of a disaster. The Airport completed a master drainage plan to address flooding issues, and several of the recommended projects from the plan have been completed. The remaining flood control projects are listed in this document as potential projects for funding.

Approximately 400 of the 430 acres of the Goleta Slough Ecological Reserve are within Airport boundaries. As a steward of the slough, the Airport has made significant environmental improvements with plans for further restoration in the future.

In 2008, the Airport completed its airfield safety projects, which brought the runway safety areas up to federal standard and reduced the commercial runway flood hazard.

As mitigation for the Airfield Safety Projects, the Airport has spent nearly \$9 million to improve or restore 40 acres of wetland habitat in the Goleta Slough. Ten of those acres were completed in 2010 after a 3-year study of bird behavior in tidal wetlands. The results of this study show that the restoration of tidal circulation has improved habitat for wildlife while reducing the risk of wildlife strikes on or near the airfield. This study has national significance as other airports may follow in

Santa Barbara's footsteps. Each restoration site is overseen in a 7-year maintenance and monitoring program to ensure success, no concerns followed the conclusion of the monitoring program in 2017.

4.2.3 City Attorney Department

The City Attorney's Office is responsible for legal representation and advice to the City Council, Boards, Commissions, and all City officers and staff. These responsibilities include advising the City Council and Planning Commission, as well as City staff, on thousands of matters each year. The office is also responsible for all City code enforcement and litigation services. The office is staffed by six attorneys and five support and paraprofessional staff.

4.2.4 Community Development Department

The Community Development Department is responsible for planning and zoning, building and safety, and housing and redevelopment for the City of Santa Barbara.

The Building & Safety Division is responsible for Building Inspection and Code Enforcement; Building Counter and Plan Review; and Records, Archives, and Clerical Services. One of the primary functions of this division is to ensure all new and remodeled structures, as well as additions to existing structures, are constructed to current health and safety codes, thus lessening the potential impact of hazards.

The Planning Division is responsible for Long Range Planning and Special Studies; Zoning Ordinance Information; Development / Environmental Review; and Design Review and Historic Preservation. This division mitigates natural and human-caused hazards for new and existing development through the implementation of the General Plan, Zoning Ordinance, California Environmental Quality Act (CEQA), the Local Coastal Plan, the Subdivision Map Act, and a variety of other California planning statutes.

The primary responsibilities of this division in mitigating hazards are through 1) developing General Plan and Coastal Zone goals, policies, and implementation actions that address natural and human-caused hazards(e.g., the Safety Element and the Coastal Land Use Plan); 2) mapping geology-related hazards and providing guidelines for site-specific geological investigations for various types of development projects via the Geology and Geohazards Master Environmental Assessment; 3) review and permitting of development consistent with hazard risk reduction and community resilience-related goals, policies, and procedures; and 4) enforcing existing development to ensure continued compliance with the Zoning Ordinance. In addition, all divisions of the Community Development Department are regularly trained to respond to disasters and assist with recovery efforts.

4.2.5 Finance Department

The Finance Department is responsible for providing financial expertise and guidance to the City Council and City Departments, managing the City's daily operations, and maintaining the financial integrity of the City. The Finance Department consists of five divisions, Administration, Accounting, Risk Management, Treasury, and General Services, which encompass sixteen programs.

4.2.6 Fire Department

The mission of the Fire Department is to serve and protect the community from the perils of fires, medical emergencies, environmental emergencies, and natural disasters. This will be accomplished through education, code enforcement, planning, prevention, emergency response, and disaster recovery. The Fire Department is responsible for managing the following programs, Fire Administration; Fire Prevention; Wildland; Office of Emergency Services; and Fire Operations.

Fire Administration provides leadership, policy direction, and administrative support to the entire department. Fire Prevention protects life, property, and the environment from the perils of fire, hazardous materials, and other disasters through proactive code enforcement, modern fire prevention methods, fire and arson investigation, and progressive public safety education, which provides fire and life safety education to the whole community to reduce the loss of life and property. Wildland Division ensures a safer community in the wildland-urban interface through analysis, defensible space, evacuation planning, education, enforcement and fuels modification. The Office of Emergency Services coordinates the City's response to a disaster, educates residents to prepare and operates the City Emergency Operations Center, located at Fire Station 1; Fire Operations saves and protects lives, property, and the environment of the Santa Barbara community by preventing the impact of future events through proactive planning, public education, and occupancy fire code inspections.

In 2004, the City adopted the Wildland Fire Plan as a comprehensive, coordinated plan to mitigate the impact of wildland fire. The plan has recently been designated as the City's Community Wildfire Protection Plan. The Plan identifies and ranks the City's high fire hazard areas based on hazard and risk, identifies policies and actions to reduce the community's threat from wildland fire, and provides a process to prioritize and fund implementation of wildland fire projects. The Plan covers a wide range of areas including defensible space requirements and landscape guidelines, public education and outreach programs, evacuation preplanning, Codes modification and enforcement, fire protection services, post-fire rehabilitation, biomass utilization, and vegetation management programs on both private and public lands. To implement elements of that plan, the City adopted the Wildland Fire Suppression Assessment District (WFSAD) in 2006. The WFSAD provides an alternate funding source for defensible space chipping, vegetation road clearance, vegetation fuels management projects, and voluntary defensible space evaluations for residents located in the Foothill and Extreme Foothill high fire hazard areas. In cooperation with residents of the district, the program has removed hundreds of tons of flammable vegetation, thereby reducing the threat of wildfire and enhancing evacuation routes throughout the district.

City of Santa Barbara Office of Emergency Services Division

The City of Santa Barbara's Office of Emergency Services (OES) is a Division of the Fire Department. The OES office consists of an Emergency Services Manager and a Bilingual Public Outreach Coordinator. The purpose of OES is to develop and implement plans for the protection of persons and property within the City of Santa Barbara in the event of a disaster and to coordinate Emergency Services functions of the City with all other public agencies and affected nonprofits, corporations, and non-governmental organizations.

The City of Santa Barbara's Emergency Services Organization is managed by the Emergency Services Council (ESC). The City Administrator serves as the Director of Emergency Services and acts

as chair of the ESC. Other members of the ESC include the Police Chief; Fire Chief; Public Works Director; and representatives of each City department, service, or division designated by the City Administrator. The Emergency Services Manager is responsible for the development and maintenance of emergency plans, per the Standardized Emergency Management System (SEMS), organization and coordination of emergency programs and training, and is a member of the ESC.

The City of Santa Barbara's Emergency Services Organization is comprised of all officers and employees of the City, together with those volunteer forces enrolled to aid the City during a disaster, and all groups, organizations, and persons who may by agreement or operation of law, including persons pressed into service under the provisions of Section 9.116.060(3) of the Santa Barbara Municipal Code be charged with duties incident to the protection of life and property in the City during such disaster. This includes, but is not limited to, School Districts, Santa Barbara Community College District, Santa Barbara Metropolitan Transit District, American Red Cross, and Amateur Radio Emergency Services (ARES).

The City of Santa Barbara revised its Standardized Emergency Management System Emergency Operations Plan (SEMS EOP) in August 2019 to ensure the most effective and economical allocation of resources for the maximum benefit and protection of the civilian population in an emergency. The EOP was developed in conjunction with the Santa Barbara County Operational Area, as part of the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). The EOP addresses emergency responses associated with natural disasters, technological incidents, and national security. The objective of the plan is to establish an effective organization capable of responding to and recovering from potential large-scale emergencies using all appropriate facilities and personnel in the City. The SEMS EOP assigns tasks and procedures for the coordination of emergency staff and service elements per the Comprehensive Plan Guide 101 (CPG101). The SEMS EOP identifies emergency response actions associated with large-scale emergencies through standard operating procedures.

The plan states that hazard mitigation is a year-round effort and encourages all entities to prepare hazard mitigation plans. The following activities are identified by the plan as potential mitigation activities: improving structures and facilities at risk; identifying hazard-prone areas and developing standards for prohibited or restricted use; recovery and relief from loss; and providing hazard warning.

Santa Barbara Aircraft Rescue (ARFF) and Firefighting Services

The Fire Department has been providing ARFF services at the Airport since July 1, 1990, after the Airport Director transferred the service from Santa Barbara County Fire Department. The ARFF Station 8, which was constructed in the early 1990s, was jointly funded by Federal Aviation Administration (FAA) Airport Improvement Program grants and Airport Capital funds. The Airport provides the two ARFF apparatuses, which were purchased in 2002 with FAA Airport Improvement Program grant funds, as well as a smaller "Rescue Squad" unit. Station 8 also houses the City's Mass Casualty unit, which can provide EMS supplies and staging equipment for 100 patients. Additionally, the Airport pays for specialized equipment (silver suits), routine supplies, and services. The Fire Department provides nine permanent positions - three Captains and six Engineers - to staff the ARFF station on a 24/7 basis. This personnel is trained and certified for airport firefighting (live fire drills), rescue, and EMS operations under both the FAA and City Fire Department requirements.

To accept commercial air carrier service, an airport is required to obtain certification from the Federal Aviation Administration, per the Code of Federal Regulations (CFR) Title 14, Part 139. CFR Part 139 regulations include requirements for equipment, firefighting agents, and operational requirements such as personnel training and emergency response times. All active-duty Fire Department ARFF personnel are compliant with these mandatory FAA requirements.

4.2.7 Human Resources

Human Resources provides a centralized program of personnel administration for approximately 1,050 regular employees (FTE) and approximately 500 hourly employees in 12 departments. Human Resources oversees programs designed to meet the needs of the City and its employees throughout the employee lifecycle.

- **Classification and Compensation:** Establishes job classifications and compensation levels for over 400 classifications; manages the HR Payroll System (Munis) concerning job titles, positions, and compensation (COLAS, merit increases, status changes, etc.)
- **Recruitment and Retention:** Recruits, tests, and certifies qualified applicants for City positions; establishes programs that ensure the City is abreast of current trends to stay an employer of choice.
- **Employee Relations:** Coordinates and assists departments with disciplinary actions, performance issues, grievances, and complaints; provides guidance, interpretation of policies, processes, laws, and MOU and other personnel-related information to employees and departments.
- **Civil Service Commission:** Provides staff support to the Civil Service Commission.
- **Benefits and Wellness:** Administers employee benefit programs including medical insurance, life insurance, long and short-term disability, flexible spending accounts, deferred compensation and retirement, and leaves of absences.
- **Training and Development:** Manages employee training through the LEAP programs (Learning for Excellence and Achievement Program), including the City Leadership Academy, City Supervisory Excellence Academy, New Employee Orientation, and Educational Reimbursement.

4.2.8 Information Technology

Information Technology provides Infrastructure support, Enterprise Applications, Web Services, Computer Training, and Centralized GIS. Infrastructure Support provides technical leadership, maintenance, and user support for computing and networking services to City staff by operating and maintaining the City's 40+ Local Area Networks; providing maintenance and support to over 950 desktop and laptop computers; establishing and maintaining standards for hardware and software; and performing systems analysis, system integration and system implementation; provides consulting services to all departments in areas of business problems, implementing solutions. Enterprise Applications Support provides financial management systems (including Human Resources and Payroll systems) and related services; maintains enterprise-wide applications such as customer information system for City Utilities, maintenance management, land use permitting, electronic content and agenda management, SQL reporting services, and data exportation to support the

analysis and inquiry needs of City staff. Web Services establishes standards and provides oversight of the City's local Intranet and public Website and associated services. Computer Training coordinates the City's computer training program; provides consulting services to all departments in areas of business problems, implementing solutions. Centralized GIS provides standards and a rules-based central database of GIS data; provides tools to update and display GIS data; and provides detailed maps, drawings, and other GIS services.

4.2.9 Public Library System

The Santa Barbara Public Library is dedicated to supporting community education for all ages through classes and events, building a community of readers, empowering individuals with free access to information, and connecting people to community resources.

In addition to providing free access to physical and digital materials for information and entertainment, the Library provides computer and internet access as well as through technology available for checkout. Library programming offers educational and enrichment opportunities for people of all ages and includes early literacy classes, science, technology, and maker classes, career resources, college readiness classes for teens, one-on-one support for business owners, job-seekers, and those pursuing citizenship, tech classes for seniors, and more. The Library celebrates local Santa Barbara history, supports the local community of artists, writers, and creators, and facilitates opportunities for residents to connect with other community organizations. Santa Barbara library staff work to serve all community members, including Black, Indigenous, and people of color, immigrants, people with disabilities, and the most vulnerable in our communities, offering services and educational resources to help transform communities, open minds, and promote inclusion, diversity, equity, and justice.

The central and Eastside libraries serve the residents of Santa Barbara, while the Carpinteria, and Montecito branch libraries are owned and funded by the County of Santa Barbara and administered under an agreement with the City.

4.2.10 Parks and Recreation Department

The City of Santa Barbara Parks and Recreation Department maintains 60 parks totaling nearly 1810 acres. The Parks Division is responsible for all aspects of parks, open space, street tree care, and beach management, and during emergencies provides logistical support such as personnel and supply transportation. The Recreation Division provides numerous recreational and cultural opportunities as well as community services. During emergencies, the Department manages community buildings and recreation facilities as shelters and staging areas. The Department oversees the management of the City's municipal golf course, which is a second staging area for emergency operations. The mission of the Creeks Restoration and Water Quality Improvement Division is to improve creek and ocean water quality and restore natural creek systems with the implementation of storm water and urban runoff pollution reduction, creek restoration, and community education programs. The water quality program focuses on creek clean-up, street sweeping, and storm water projects. Creek restoration programs improve creek health and water quality. Objectives include reducing erosion by bank stabilization and providing access where feasible. The Creeks Division has prepared Watershed Action Plans for Santa Barbara's three major watersheds and has held community forums for public input into these plans.

4.2.11 Police Department

The mission of the Santa Barbara Police Department, through the philosophy of community-oriented policing, is to create a safe community where all people can live in peace without the fear of crime. This commitment will ensure a professional quality of service and accountability to the citizens of the City of Santa Barbara.

While the primary mission of the Santa Barbara Police Department is law enforcement, the Police Department plays a pivotal role in general public safety as it relates to disaster preparedness. In addition, the Police Department has created some mitigation strategies that are included in their Unusual Occurrence Manual (UOM). The UOM is a guide for how officers will respond during a major incident or disaster.

The City's dispatch center was relocated to the Granada Garage facility at 1219 Anacapa Street. The move was due to the substandard condition of the current Police Department. In many emergencies, police officers are among the first responders, assisting with traffic control, effecting evacuations, and monitoring potentially life-threatening situations.

4.2.12 Public Works Department

The City's largest department is Public Works. The department's total annual budget of nearly \$150 million represents approximately 40% of the City's total budget and its 301 full-time employees are approximately 28% of the City's permanent workforce. The Department is responsible for operating the City's El Estero Water Resources Center and Charles E. Meyer Desalination Plant both on Yanonali Street, the Ortega Groundwater Treatment Plant on Ortega Street, the Cater Water Treatment Facility on San Roque Road, and Mission Tunnel and the Gibraltar Dam and Reservoir located off Paradise Road on the Santa Ynez River. The Department's mission is to provide for the public's needs relative to the City's water and wastewater systems, construction and maintenance of all City facilities, automotive equipment, communications equipment, City parking lots and structures, and repair and maintenance of all streets, sidewalks, storm drains, traffic signals, and streetlights throughout the City.

The Public Works Department is divided into seven divisions: Administration, Engineering, Facilities, Streets Operations, and Infrastructure, Transportation Planning and Parking, Fleet Management, and Water Resource. The Administration Division provides administrative, personnel, and financial support to the entire department. The Engineering Division is responsible for engineering oversight for design and construction projects; land development; and real property. The Facilities Management Division is responsible for building maintenance; capital building renewal; communications; custodial services; and environmental compliance. The Transportation Planning and Parking Division is responsible for alternative transportation; parking; and transportation planning. The Streets Operations and Infrastructure Division is responsible for streets maintenance; transportation operations; traffic engineering and streets infrastructure management. The Water Resources Division is responsible for water and wastewater administration; water supply management; water treatment; water distribution; wastewater collection; wastewater treatment; and laboratory services. The Fleet Management Division is responsible for the service, repair, and replacement of all city vehicles and heavy equipment.

The Department is responsible for the following emergency activities and areas:

- Recovery operations in all types of disasters.
- Coordinating with Public Utility companies in the repair of utilities essential to the life, health, and welfare of the community.
- Coordinating and furnishing transportation to all emergency agencies of the City and providing maintenance for disaster vehicles and equipment throughout the State of Emergency.
- Assuring an adequate supply of water for emergency requirements and an adequate supply of potable water for human consumption.
- Assuring that sanitary facilities are operational or that alternate emergency facilities are provided.
- Assuring the Laguna pump station is operating.
- Assisting in and providing for traffic controls (signs, barricades, and signalization) and warning signs.
- Providing personnel to assist in EOC operations (office and field). Setting up and operating the Public Works Department Operations Center.

The Public Works Engineering Division is very involved in hazard mitigation activities. It manages the City's Capital Improvement Program and provides professional engineering services for planning, designing, and constructing public works improvements. Long-range master planning to support the City's street, water, wastewater, transportation, and parking infrastructures is also provided. The Division also provides the Airport, Waterfront, and all General Fund departments with engineering services.

4.2.13 Sustainability and Resilience Department

The City of Santa Barbara Sustainability and Resilience Department leads and coordinates projects, policies, and services related to environmental sustainability and resilience across the City. The Department consists of two divisions: Environmental Services, Energy, and Climate.

The Environmental Services Division provides garbage, recycling, and organics collection, processing, and disposal services for the community. The Division oversees zero waste planning, waste reduction policies, education, and food resilience and security programs. The Division's CleanSB program provides a suite of neighborhood services including illegal dumping, code enforcement, public area trash collection, encampment cleanup, and disaster debris planning. In the event of a disaster, Environmental Services is responsible for ensuring regular services are reestablished as quickly as possible, coordination with trash collection companies to remove disaster debris safely and efficiently, ensuring adequate disaster debris staging areas and processing, and communication with other regional solid waste agencies and state regulators.

The Energy and Climate Division is responsible for developing and managing the City's renewable energy and energy efficiency projects, creating and overseeing the Community Choice Energy enterprise, coordinating climate action planning and adaptation efforts, and overseeing other sustainable planning initiatives such as the Green Building policy. The Division is a primary contact for coordination with energy utilities providing power to the community and for coordinating efforts relating to climate hazard mitigation, such as sea level rise.

4.2.14 Waterfront Department

The Waterfront Department is an Enterprise Fund, which oversees the operations, infrastructure, and public safety within the City of Santa Barbara's Waterfront area. The Waterfront provides services in support of recreation, commercial fishing, local business, and tourism. The responsibilities of the Waterfront Department include:

- Tidelands and ocean space fronting the City of Santa Barbara
- Harbor Business District buildings and infrastructure
- Stearns Wharf buildings and infrastructure
- 1100+ Slip Marina and associated facilities
- Breakwater and associated infrastructure
- East Beach mooring areas
- 10 Waterfront parking lots and associated infrastructure

The Waterfront Department consists of three Divisions: Harbor Operations, Facilities Management, and Business Services. These three divisions are outlined below.

Harbor Operations Division

Harbor Operations oversees the marina management-related activities within the harbor, which includes oversight of visiting vessels, slip holders, and liveaboards. Additionally, Harbor Operations oversees the Santa Barbara Harbor Patrol. The mission of the Santa Barbara Harbor Patrol is to enforce laws, educate the public and provide emergency fire, medical, and ocean response services to facilitate the safe and orderly use of the Waterfront area.

Facilities Division

The Facilities Division is responsible for the maintenance of all Waterfront facilities and infrastructure, which includes the Harbor Business District, Stearns Wharf, breakwater, marina, parking lots, and all Waterfront buildings. The Facilities Division is tasked with providing clean and safe commercial and recreational facilities for tenants and visitors. The Facilities Division also oversees the Waterfront's Capital Improvement Program, which includes planning, design, permitting, and construction of all associated projects.

Business Management Division

The Business Management Division oversees all financial and budgeting elements of the entire Waterfront Department. Additionally, the Business Management Division oversees the Department's parking and property management operations. The property management operations include oversight of 61 tenant leases and licenses and associated revenues. The parking operations include 10 Waterfront parking lots and associated revenues.

For Emergency Response, the Waterfront Department is available and ready to respond. The Waterfront Department has the ability to standup a Department Operating Center (DOC) located in the Waterfront Administration Building, which is established to effectively coordinate personnel and resources to effectively respond to specific emergency events. The DOC becomes a base of operations and collection center for information, inspection/damage reports, and response

strategies as they are developed. For larger, citywide emergency events, the Waterfront Department will coordinate with the City's Emergency Operations Center (EOC) and provide support as needed.

4.3 ADMINISTRATIVE AND TECHNICAL CAPACITY

The administrative and technical capabilities of the City, as shown in Table 4-1, include staff, personnel, and department resources available to implement the actions identified in Section 7.0, *Mitigation Strategy* of this LHMP. Specific resources reviewed include those involving technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or manmade hazards, floodplain managers, surveyors, personnel with GIS skills and scientists familiar with hazards in the community. Equipment and supplies are maintained by the Public Works Director.

Table 4-1. City of Santa Barbara Administrative and Technical Capacity

Personnel Resources	Yes/No	Department/Position
Planner/engineer with knowledge of land development/land management practices	Yes	Public Works/Senior Planner Community Development/Project Planner
Engineer/professional trained in construction practices related to buildings and/or infrastructure	Yes	Public Works/Facilities Manager
Planner/engineer/scientist with an understanding of natural hazards	Yes	Community Development/Project Planner
Personnel skilled in GIS	Yes	IT/GIS Coordinator Community Development/GIS Technician
Full-time building official	Yes	Community Development/Chief Building Official
Floodplain manager	Yes	Community Development/Floodplain Coordinator
Emergency manager	Yes	Fire Department/Emergency Services Manager
Grant writer	Yes	Departmental
Other personnel		
GIS Data Resources (Hazard areas, critical facilities, land use, building footprints, etc.)	Yes	Information Technology/ Community Development and Public Works
Warning Systems/Services (Reverse 9-11, cable override, outdoor warning signals)	Yes	The City uses the County's notification system
Other	N/A	

4.4 LEGAL AND REGULATORY CAPABILITIES

The legal and regulatory capabilities of the City are shown in Table 4-2, including existing ordinances and codes that affect the physical or built environment of Santa Barbara. Examples of legal and/or regulatory capabilities can include the City's building codes, zoning ordinances, subdivision ordinances, special purpose ordinances, growth management ordinances, site plan review, general plans, capital improvement plans, economic development plans, emergency response plans, and real estate disclosure plans.

Table 4-2. City of Santa Barbara Legal and Regulatory Capability

Regulatory Tool (ordinances, codes, plans)	Yes/No
General Plan	Yes
Zoning ordinance	Yes
Subdivision ordinance	Yes
Growth management ordinance	Yes
Floodplain ordinance	Yes
Other special-purpose ordinances (stormwater, steep slope, wildfire)	Yes
Building code	Yes
Fire code	Yes
Fire department ISO rating	2
Erosion or sediment control program	Yes
Stormwater management program	Yes
Site plan review requirements	Yes
Capital improvements plan	Yes
Economic development plan	Yes
Local emergency operations plan	Yes
Other special plans	Tsunami Response Guide and Watershed Response Guide – both to be updated in the fall of 2021
Flood insurance study or other engineering studies for streams	Yes
Elevation certificates (for floodplain development)	Yes

4.5 GIS, COMPUTER AND COMMUNICATION TECHNOLOGY

The City has a basic GIS system used by the Public Works and Community Development Departments. Currently, parcels, zoning, and flood hazards have been mapped, including water, sewer, storm drain, and citywide striping. Hazard layers created for this plan can be incorporated into that system for future planning and updates. In the event it is needed, the GIS system is fully

functional and can be used to provide the State of California Office of Emergency Services with preliminary damage assessments.

Using the County's notification system, Santa Barbara has a fully functional 911 emergency telephone system, dispatch capabilities, and a reverse 911 system to issue warnings in advance of disasters.

The City has a website, which will be used to assist with communication necessary for the implementation and future updates of this plan.

4.6 FINANCIAL RESOURCES

The fiscal year 2022 adopted budget includes a total operating budget of \$305.4 million and a citywide capital program of \$460 million. The General Fund, which includes traditional local government services, is composed of a \$143.8 million operating budget and a \$24.5 million capital program.

In addition to the General Fund, the City has other funds used to account for various activities. Special revenue funds, totaling \$32.2 million are used to account for revenues legally restricted for a specific purpose. Enterprise funds, totaling \$151.7 million are used to account for the activities of the City operating like the private sector, including water, wastewater, airport, golf, downtown parking, and waterfront operations. Finally, internal service funds, totaling \$29.8 million are used to account for services provided internally to City departments and programs, such as Information Systems and Risk Management Services.

In 1996, the City Council established minimum reserve levels for all operating funds, including the General Fund. Under the adopted resolution, the General Fund currently maintains two separate reserves:

- Emergency Reserve – Set at 15% of the adopted operating budget, established to respond to natural disasters, such as floods, earthquakes, etc.
- Contingency Reserve – Set at 10% of the adopted operating budget, established to respond to provide for unique one-time costs and maintenance of City services, and to permit orderly adjustments during periods of reductions.

Table 4-3 shows specific financial and budgetary tools available to the City such as community development block grants; capital improvements project funding; authority to levy taxes for specific purposes; fees for water, sewer, gas, or electric services; ability to incur debt through general obligations bonds; and withholding spending in hazard-prone areas.

Table 4-3. City of Santa Barbara Fiscal Capability

Financial Resources	Accessible or Eligible to Use (Yes/No)	Has This Been Used for Mitigation in the Past?	Comments
Community Development Block Grants (CDBG)	Yes	N/A	
Capital improvements project funding	Yes	Yes	City budgets capital expenditures across all funds.
Authority to levy taxes for specific purposes	Yes	No	Subject to Voter Approval. The voters approved a 1% district sales tax increase (Measure C) that took effect in 2018 that is being used to maintain critical infrastructure across the City.
Fees for water and sewer service	Yes	Yes	Fees charged for City Water, Wastewater, Solid Waste and soon Community Choice Energy
Incur debt through general obligation bonds	Yes	Yes	Several Enterprise Funds have current bonds. No current General Fund debt at this time. Initial planning is underway to issue debt for the new police facility.
Incur debt through special tax bonds	Yes	N/A	The City adopted a Debt Management Plan in 2018
Incur debt through private activity bonds	Yes	Yes	The City issued a private debt in 2014 for Waterfront capital projects.
Federal Grant Programs (Hazard Mitigation Grant Program)	Yes	Yes	The City has been successful in receiving and building projects from Hazard Mitigation Funds.

4.7 EDUCATION AND OUTREACH CAPABILITIES

The City of Santa Barbara Office of Emergency Services public outreach and education programs offer comprehensive emergency and disaster education to the community to reduce the loss of life and property. It includes activities that are designed to provide a variety of safety programs appropriate for all ages. The programs offered are bilingual in English and Spanish and are listed below:

- **Community Disaster Education**
 - This program is designed to bring disaster education into all venues, including but not limited to, businesses, homeowner associations, community centers, etc. This program is tailored for meetings that have limited time for a presentation. This CDE Presentation will assist in better preparing your staff, residences and/or community for any type of disaster or emergency.
- **CERT**
 - The Community Emergency Response Team (CERT) program educates participants about disaster preparedness for hazards that can impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. CERT offers a consistent, nationwide approach to disaster training and organization to assist your family and neighbors.
- **LISTOS**
 - This program was developed to provide individuals and families with basic emergency and disaster preparedness education. LISTOS is a basic curriculum offered to all populations that desire to learn in an informal conversational setting about risks and vulnerabilities in their local community.
- **Presentations, Drills and Special Events**
 - The City of Santa Barbara Office of Emergency Services offers specific presentations on all hazards, assists with all hazard evacuation drills upon request and actively participates in community events to provide the public with general safety education.
- **Social Media**
 - The City of Santa Barbara Office of Emergency Services conducts regular messaging through a content calendar that aligns with both local and national efforts such as, Tsunami Awareness Month, Earthquake Awareness Month, The Great California Shake Out, National Preparedness Month, Firewise and Firesafe, Storm Ready etc.
 - The city provides messaging for the public, via social media platforms, such as Facebook, Instagram, Nextdoor, Twitter, the City News in Brief, utility inserts among other local committees and social groups.

- Included in the city public messaging is partnerships with local media such as local radio, newspaper, and television stations to distribute preparedness and incident specific messaging.

Contacts: Liliana Encinas, Public Outreach Coordinator at 805-564-5778 or liencinas@SantaBarbaraCA.gov

4.8 RELEVANT PLANS, POLICIES, AND ORDINANCES

The City of Santa Barbara has a range of guidance documents and plans for each of its departments. These include a general plan, public works, and public utilities plans, capital improvement plans, emergency management plans, Local Coastal Program (LCP), Master Environmental Assessment (MEA), Circulation Element, Safety Element, Mission Creek Project, Conejo Slide Area Program, Airport plans, flood response guidelines, Tsunami Response Plan, Community Wildfire Protection Plan, Sea Level Rise Adaption Plan and Vulnerability Assessment, and slough programs. The City uses building codes, fire codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One of the essential ways the City guides its future is through policies laid out in the 2011 Plan Santa Barbara General Plan. The LHMP directly informs these plans and is used to evaluate the need for adjustments or updates to existing plans and programs. The City considers the LHMP's assessment of capabilities, hazards, and vulnerabilities to inform planning, capital improvements, programs, decision-makers, and the public. The City also implements mitigation actions through the City's general plan, capital improvement program, maintenance programs, grant programming, community outreach, and budget process.

4.8.1 The General Plan

The City of Santa Barbara General Plan was first adopted in the 1960s and was last updated in 2011. The 2011 General Plan is comprised of a comprehensively updated Land Use Element and seven reorganized elements, including the seven state-mandated elements, as well as optional elements of Economy and Fiscal Health and Historic Resources. The Safety Element was updated in 2013 and the Housing Element is updated every eight years per state law. In 2022, the City initiated an update to the Housing Element and the Safety Element. The LHMP is incorporated by reference in the Safety Element.

Santa Barbara is a mature city, and not much vacant land remains for residential or nonresidential development. The remaining vacant land is generally found in areas of steep topography where development potential is constrained. Over 60 percent of the land is in residential use, excluding the residential portion of mixed-use development in the Downtown or other commercial areas. To encourage residential infill development and due to concern over resources limitations, the General Plan has a Growth Management program to limit nonresidential growth. Conversely, one of the top priorities of the General Plan is to encourage workforce and affordable housing in the City's multi-unit and commercial zones. Institutional and public facilities are mainly found all over the City while most of the City's government facilities are found in the historical center of the community. There are approximately 1,086 acres of land dedicated open space and parks (not including beaches).

Since the last update of the City's LHMP in 2017, land use and population in the City have not substantially changed. Modest development has occurred consistent with the adopted Land Use Element and has primarily comprised infill development and redevelopment within the City limits. There has been no expansion of the City boundary or its Sphere of Influence (SOI) and no comprehensive changes to the Land Use Element that would result in substantial densification. Further, City population has not substantially changed. As a result, the City's level of vulnerability to hazards analyzed in Section 6.0, *Vulnerability Assessment*, has not substantially changed due to land use, development, or population growth since the last update of the LHMP.

4.8.2 Zoning Ordinance

Local land use controls include the Zoning Ordinance, which shapes the form and intensity of land use and residential development. Consistent with the General Plan, the City's Zoning Ordinance allows a range of zones and dwelling unit densities from one unit per acre (single-unit) to 27 units per acre (studio units with variable density). Higher density residential of 28-36 units per acre and 37 – 63 units per acre (Priority Housing Overlay) is allowed in certain areas under the Average Unit-Size Density Incentive Program. These zones also allow mobile home and emergency shelter units.

Zoning ordinance regulations related to hazard mitigation relate to the risk assessment for hazards within the City, including flooding, faults, unstable soils, and wildfire hazards. Examples of zoning regulations for hazard mitigation include Development Along Mission Creek, which provides controls on development adjacent to Mission Creek to prevent undue damage or destruction of development from flood water; and a slope density regulation that increases the minimum lot area where the average slope from 10 to over 30 percent.

The Environmental Policy and Construction section of the Municipal Code includes regulations and general requirements for hazardous waste generators, seismic safety, flood plain management, erosion and sedimentation control for construction, and construction prohibited in the vicinity of the Conejo Road landslide due to special geologic hazard conditions.

4.8.3 Floodplain Management

The City of Santa Barbara has participated in the National Flood Insurance Program (NFIP) since 1978. Flood Insurance Rate Maps (FIRMs) were developed most recently in 2015 through the NFIP and have been made available in GIS format as Digital Flood Insurance Rate Maps. These are on file with the Santa Barbara County Office of Emergency Management, County Flood Control, and the Santa Barbara City Public Library to identify floodplains, along with evacuation routes and locations of public shelters. The 2018 Floodplain Management Ordinance minimizes public and private losses due to flood conditions in flood prone, mudflow or flood related erosion areas by restricting land use, controlling alteration of natural floodplains, and protecting uses that are vulnerable to floods.

Repetitive Loss (RL) Properties

Repetitive loss properties are defined as property that is insured under the NFIP that has filed two or more claims above \$1,000 each within any consecutive 10-year period since 1978. FEMA repetitive loss data shows that there have been 30 properties in Santa Barbara with multiple claims

against the NFIP. These RL properties have resulted in 65 total losses amounting to approximately \$1.5 million in loss payments.

4.8.4 Safety Element

The Safety Element is a required component of the City's General Plan and is the element most relevant to hazard mitigation and emergency response. The Safety Element was updated in 2013 and includes specific items as prescribed by the California Government Code as well as other relevant safety issues that are considered important. Hazard maps provided in the Safety Element depict the general locations and possible severity of various hazards and are important tools in identifying and reducing the potential effects of hazards and for hazard response planning. The Safety Element provides information to guide the evaluation of hazard-related effects, provides policies to protect the community from hazard-related risk, and supports the implementation of programs intended to enable and expedite the recovery of a community after a disaster occurs. The Safety Element incorporates this LHMP by reference.

4.8.5 Sea Level Rise Adaptation Plan and Vulnerability Assessment

The purpose of the City's Sea Level Rise Adaptation Plan is to identify vulnerabilities to coastal hazards expected from sea-level rise in the City of Santa Barbara and possible actions to prepare for and adapt to sea-level rise. Preparation of a sea-level rise adaptation plan was a 2017 LHMP mitigation action and is identified as a priority in the Coastal Land Use Plan, Safety Element, and LHMP. Additionally, the State requires the City, as a trustee of state tidelands, to proactively plan for sea-level rise at the Harbor and Stearns Wharf and to consider sea-level rise as part of coastal development permitting. A vulnerability assessment was prepared for the Adaptation Plan to identify the areas of the city that, in the absence of intervention, are projected to be exposed to sea-level rise and related coastal hazards. The Adaptation Plan provides the framework for the City to monitor sea-level rise impacts and reduce vulnerabilities in phases as specific thresholds for action are reached. A wide range of adaptation options are presented, providing the City flexibility to consider different adaptation strategies over time.

4.8.6 Community Wildfire Protection Plan

The City of Santa Barbara Fire Department (SBFD)'s Community Wildfire Protection Plan (CWPP) is maintained to protect lives, property, and natural resources threatened by wildland fire. The CWPP updated the City's 2004 Wildland Fire Plan, accounting for changes in the City's fire environment and work completed under that Plan. Development of the CWPP included an assessment of wildfire hazard, which involved modeling potential fire behavior in the City under extreme wind and weather conditions, consistent with conditions experienced during a sundowner wind event. Other wildfire hazard variables were evaluated (terrain, weather, fuels, development patterns, fire department response, structure density, etc.) to identify the High Fire Hazard Area of the City. The hazard assessment was used to evaluate the extent of the City's four High Fire Hazard Area Zones (Extreme Foothill, Foothill, Coastal Interior, and Coastal) and the locations of the City's Vegetation Management Units (VMUs) and Community Fuels Treatment Network (CFTN). CWPP development also included development of a Public Outreach and Engagement Plan to guide community engagement and coordination with other key stakeholders throughout the development

of the CWPP. The City's central engagement goal was to develop a CWPP that builds on input from key stakeholders, including community members, City departments, neighboring jurisdictions (e.g., Santa Barbara County Fire Department, the U.S. Forest Service), and the California Department of Forestry and Fire Protection. This CWPP outlines a series of policies and action items which are intended to guide implementation of the CWPP. The policies and actions focus on codes and standards, funding, fire rehabilitation, evacuation, fire protection, vegetation/fuels management, and public education. Action items identify tasks to be implemented by the SBFD, and other responsible City departments, to achieve the stated goal of protecting lives, property, and natural resources threatened by wildland fire.

4.9 OPPORTUNITIES FOR MITIGATION CAPABILITY IMPROVEMENTS

The City continuously strives to mitigate the adverse effects of potential hazards through its existing capabilities while also evaluating the opportunities for improvements. Based on the capability assessment, the City has existing regulatory, administrative/technical, education/outreach, and fiscal mechanisms in place that help to mitigate hazards. In addition to these existing capabilities, there are opportunities for the City to expand or improve on these policies and programs to further protect the community:

- **Regulatory Opportunities:** As part of this update, the City will comply with AB 2140 by amending its Safety Element to incorporate the LHMP by reference. The City will consider the LHMP in policy, land use plans, and programs, including coastal hazard and sea level rise planning. For example, the City's CWPP recommends expanding the geographic extent of the City's High Fire Hazard Area and increasing the quantity and extent of VMUs based on wildfire hazard. Further, the City's Sea Level Rise Adaption Plan and Vulnerability Assessment recommends continued effort to improve the quality and accuracy of coastal hazard projections under sea level rise scenarios consistent with local and state guidelines.
- **Administrative/Technical Opportunities:** The City continues to improve its resilience to ensure emergency response operations are sustained during a hazardous event, including improvements to public safety facilities and planning. Enhancements to hazard training for staff in partnership with the County and other agencies or stakeholders would improve the City's ability to mitigate hazards with the latest knowledge and resources.
- **Outreach Opportunities:** Enhanced community outreach, emergency notifications, and trainings would further enhance the City's capabilities to respond to and recover from hazards. The City could expand outreach through digital tools such as social media, participate in the Great California ShakeOut, and increase FireWise outreach events and media coverage.
- **Fiscal Opportunities:** The City can update its CIP to include hazard mitigation actions from the LHMP and related documents such as the CWPP and the Sea Level Rise Adaptation Plan. The City will continue to seek grants (e.g., HMGP, BRIC) to fund these CIP projects and related projects in the City's mitigation strategy. The City can seek opportunities to partner with the County and/or other stakeholder agencies in grant applications to address regional hazards more effectively. The City could also consider expanding its fiscal capabilities through its annual budget process and other revenue measures (e.g., raising taxes, property assessments, bonds).

5.0 HAZARD ASSESSMENT

5.1 OVERVIEW

The purpose of this section is to review, update, and/or validate the hazards identified for the 2022 City of Santa Barbara LHMP. The intent is to confirm and update the description, location and extent, and history of hazards facing the City now and in the future. This assessment also considers the potential exacerbating effects of climate change. The importance of this review is to ensure that decisions and mitigating actions are based on the most up-to-date information available.

Another purpose of this section is to screen the hazards to determine their relative probability and severity to inform the risk posed to various communities and resources. This assessment will provide an understanding of the significance by ranking hazards by their priority in the City.

In 2021, the MAC reviewed and revised 1) the list of hazards by community or geographic area; 2) the information and material presented for each hazard; and 3) the prioritization of the hazards. The City LPT refined the list of hazards applicable to the City and confirmed the hazard prioritization. The following sections provide the results of this effort.

5.2 HAZARD SCREENING/PRIORITIZATION

The Hazard Assessment presented here reflects the City's 2022 review and modifications to the updated risk assessment presented in Chapter 5.0, *Hazard Assessment*, and Chapter 6.0, *Vulnerability Assessment* of the 2022 MJHMP. Applicable hazard information from the City's 2017 LHMP was incorporated during the development of this section. A comprehensive treatment of hazards and their descriptions may be found in Chapter 5.0 of the Santa Barbara County 2022 MJHMP.

The potential extent, probability, frequency, and magnitude of future occurrences were all used to identify and prioritize the list of hazards most relevant in the City. The City LPT completed the Plan Update Guide to rank the hazards and identify key hazards to help inform this assessment (Appendix A). As summarized in Table 5-1, the local priority hazards in the City are based on the screening of frequency/probability of occurrence, geographic extent, potential magnitude/severity of the hazard, and overall significance. Local experience, MAC/LPT input, and community feedback also informed the assessment of local priority hazards. After reviewing the localized hazard maps and exposure/loss assessment provided in the 2022 MJHMP, the following hazards were identified by the Santa Barbara LPT as their top priorities (Appendix A). A brief rationale for each hazard is included below. This assessment and description of key hazards in the City are provided in addition to the 2022 MJHMP's comprehensive assessment of regional hazards that may affect the City.

Table 5-1. City of Santa Barbara Local Priority Hazards

Hazard Type and Ranking	Score	Planning Consideration Based on Hazard Level
Wildfire	12	Significant
Earthquake	12	Significant

Hazard Type and Ranking	Score	Planning Consideration Based on Hazard Level
Flood	9	Moderate
Pandemic/Public Health Emergency	9	Moderate
Tsunami	9	Moderate
Drought and Water Shortage	8	Moderate
Energy Shortage and Resiliency	8	Moderate
Dam Failure	8	Moderate
Landslide	7	Moderate
Train Accident	7	Moderate
Aircraft Crash	7	Moderate
Coastal Hazards	6	Moderate
Extreme Heat	6	Moderate
Hazardous Materials Release	6	Moderate
Oil Spill	5	Limited

To continue compliance with the DMA of 2000, the City accepts the County's natural hazard profiles presented in Chapter 5.0, *Hazard Assessment* with the following notes and refinements or elaborations provided specifically for the City in subsections below. The City's LPT acknowledged the following hazards are either not a threat, are highly unlikely within the City limits, or are adequately addressed by the 2022 MJHMP and do not require additional information to be relevant to the City's hazard setting; therefore, these hazards are not addressed further in the City's LHMP: severe weather/storm, windstorm, hurricane, tornado, utility failure, natural gas pipeline rupture and storage facilities, hydraulic fracturing and well stimulation, radiological and nuclear accidents, levee failure, cyber threats, agricultural pests and invasive species, terrorism, and civil unrest. These additional hazards are being addressed in the more comprehensive 2022 MJHMP.

5.3 HAZARD PROFILES

5.3.1 Wildfire

Description of Hazard

Wildfires can be classified as either a wildland fire or a wildland-urban interface (WUI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. A WUI fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In WUI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the wildland-urban interface is defined as "...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels."

The WUI fire can be subdivided into three categories (NWUIFPP, 1998): The classic wildland-urban interface exists where well-defined urban and suburban development presses up against open

expanses of wildland areas. The *mixed wildland-urban interface* is characterized by isolated homes, subdivisions, and small communities situated predominantly in wildland settings. The *occluded wildland-urban interface* exists where islands of wildland vegetation occur inside a largely urbanized area. Generally, many of the areas at risk within Santa Barbara County fall into the classic wildland-urban interface category.

Certain conditions must be present for a wildfire hazard to occur; a large source of fuel must be present, the weather must be conducive (generally hot, dry, and windy), and fire suppression sources must not be able to easily suppress and control the fire. The cause of a majority of wildfires is human-induced or lightning; however, once burning, wildfire behavior is based on three primary factors: fuel, topography, and weather. Fuel will affect the potential size and behavior of a wildfire depending on the amount present, its burning qualities (e.g., level of moisture), and its horizontal and vertical continuity. Topography affects the movement of air, and thus the fire, over the ground surface. The terrain can also change the speed at which the fire travels, and the ability of firefighters to reach and extinguish the fire. Weather as manifested in temperature, humidity, and wind (both short and long term) affect the probability, severity, and duration of wildfires.

Location and Extent of Hazard in Santa Barbara

The climate, topography, and vegetation in Santa Barbara County are conducive to wildfires. California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (CDF-FRAP) was mandated to map areas of significant fire hazards based on fuels (vegetation), terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, define the application of various mitigation strategies to reduce the risk associated with wildland fires. The most current mapping efforts by CDF-FRAP were conducted in 2007. Figure 5-1 below shows the Fire Hazard Severity Zones located in Santa Barbara County.

CDF-FRAP developed data that displays the relative risk to areas of significant population density from wildfire. This data is created by intersecting residential housing unit density with proximate fire threat, to give a relative measure of potential loss of structures and threats to public safety from wildfire. Figure 5-2 of the 2022 MJHMP was generated using this data to show the WUI in Santa Barbara County. The WUI map depicts areas where potential fuels treatments will be prioritized to reduce wildland fire threats.

The WUI data shown in Figure 5-2 of the MJHMP was developed on a statewide basis and does not consider the placement of local neighborhoods within the geography. Santa Barbara City Fire has created data at a more local level to convey communities at risk. Due to the threat, the City developed a 'Ready, Set, Go' guide for residents within the high fire area. A list containing the federally regulated (communities that adjoin federal lands) communities at risk, which includes the City of Santa Barbara, is provided in Section 5.3.1 of the MJHMP (see also Figure 5-3 of the MJHMP).

History of Hazard in Santa Barbara

Santa Barbara County and the City are prone to wildfires. There are many areas in which the County and City intersect; there is a long history of wildfires in the County that have affected the City (refer to Figure 5-4 of the MJHMP). Table 5-4 of the MJHMP lists the major wildfires in Santa Barbara County since 1932.

The CDF-FRAP compiles fire perimeters of wildfires and has established an ongoing fire perimeter data capture process. Figure 5-4 of the MJHMP shows historic, significant wildfire perimeters in Santa Barbara County. Fire perimeters provide a reasonable view of the spatial distribution of past large fires.

Over the last ten years, Santa Barbara County has experienced 9 major fires. Two of these fires directly threatened the heavily populated Santa Barbara Front Country and areas of the City of Santa Barbara:

- Before even larger fires in recent years, the **Thomas Fire** in 2017 was the largest California wildfire in modern California history, engulfing more than 280,000 acres, destroying or damaging more than 1,000 structures, primarily within Ventura County, and resulting in two fatalities. The fire was ignited north of Santa Paula in Ventura County and burned into Santa Barbara County through the Santa Ynez Mountains and parts of the upper Santa Ynez River watershed. It was one of the first wildfires to burn from inland Ventura County into the Santa Barbara front country of the Santa Ynez Mountains. The fire was active for 40 days and at one time involved more than 8,500 firefighters, 800 fire engines, and dozens of aircraft (National Interagency Fire Center 2021; Santa Maria Times 2021). The fire burned in the City from December 5 to December 7. Within the City, evacuations were limited to the Riviera and



The 2017 Thomas Fire burned approximately 281,893 acres in Ventura and Santa Barbara counties. The fire was started by power lines coming in contact during high winds and remained active for 40 days. Emergency personnel from all across the western U.S. responded to the fire. The fire resulted in the destruction of 1,063 structures, the loss of one civilian, and one firefighter fatality.

Source: CALFIRE 2021; Ventura County Fire Department 2019. Photo: SB Bucket Brigade

Eucalyptus Hill area. No deaths, injuries, property damage, or infrastructure damage occurred within the City boundaries. However, the City experienced economic impacts due to air quality and ash during the height of the holiday shopping season.

- The **Cave Fire** in 2019 burned over 3,000 acres near Painted Cave in the Los Padres National Forest for 21 days (National Interagency Fire Center 2021). Approximately 2,400 homes were placed under mandatory evacuation orders for areas north of Cathedral Oaks Road between Patterson Avenue and Highway 154 and areas of Foothill Road between Highway 154 and North Ontare Road. A unified command consisting of multiple County agencies was assembled to assist with the fire (County Fire Department 2021). No homes were damaged (Santa Maria Times 2021). The fire threatened a small area in the northwestern portion of the City.

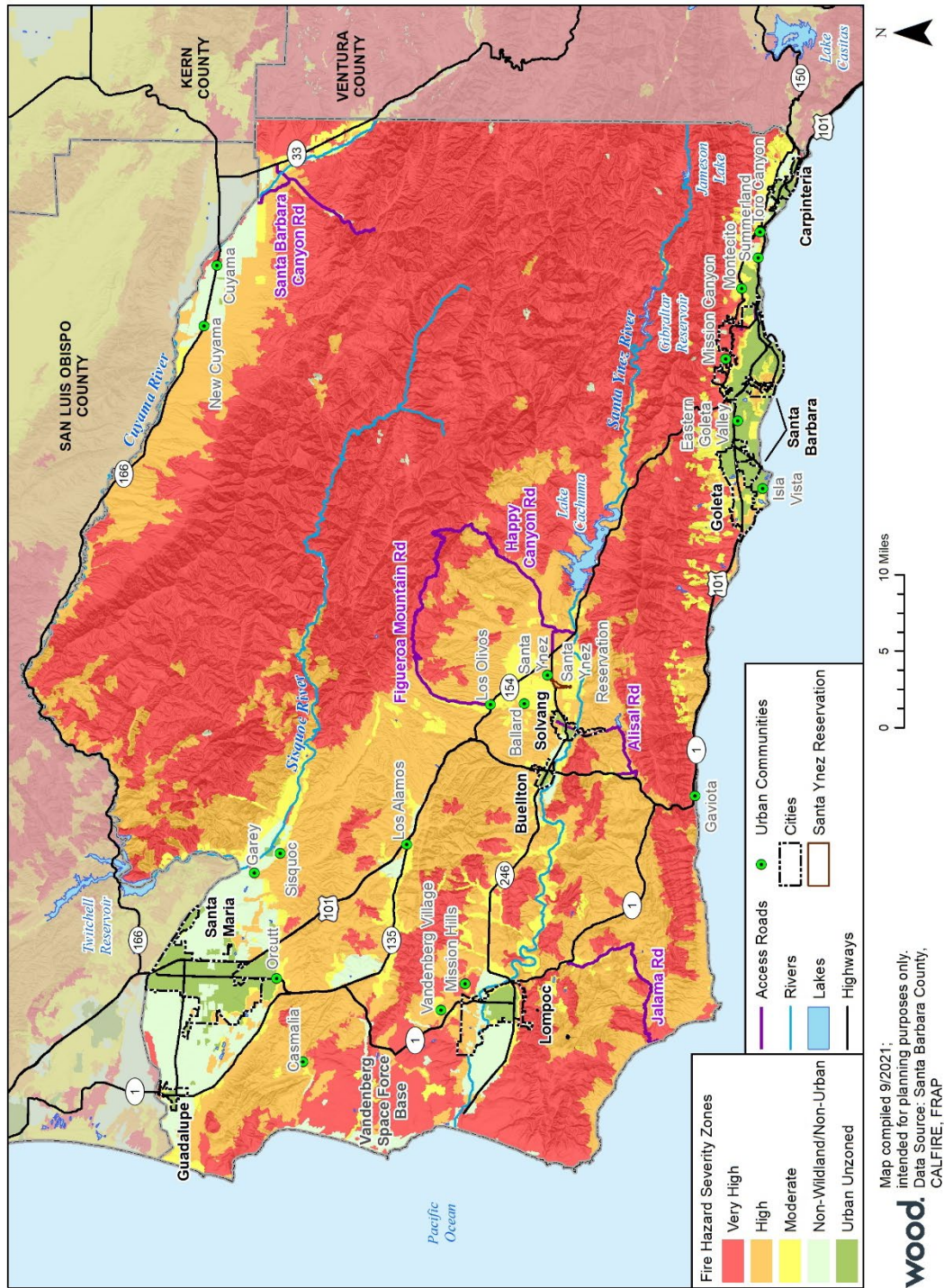
Probability of Occurrence

Vegetation and topography were significant elements in the identification of the fire threat zones. A substantial amount of the vegetation in Santa Barbara is commonly called chaparral, it is a dense and scrubby bush that has evolved to persist in a fire-prone habitat. Chaparral plants will eventually age and die; however, they will not be replaced by new growth until a fire rejuvenates the area. Chamise, manzanita, and ceanothus are all examples of chaparral which are quite common in Santa Barbara County and the foothills above the City. Santa Barbara County was subject to 42 major wildfires over 88 years, resulting in a 48 percent chance of occurrence in any given year.

Climate Change Considerations

Climate change plays a significant role in wildfire hazards. The changing conditions from wet to dry can create more fuel; the increased possibility of high winds increase risk and present a challenge, and drought conditions could hinder the ability to contain fires. Large wildfires also have several indirect effects beyond those of a smaller, local fire. These may include air quality and health issues, road closures, business closures, and other forms of losses. Furthermore, large wildfires increase the threat of other disasters such as landslide/debris flows and flooding (see Section 5.3.3, *Flood* and Section 5.3.9, *Landslide*).

Figure 5-1. Santa Barbara County Fire Hazard Severity Zones



5.3.2 Earthquake & Liquefaction

Description of Hazard

An earthquake is caused by a release of strain within or along the edge of the Earth's tectonic plates producing ground motion and shaking, surface fault rupture, and secondary hazards, such as ground failure. The severity of the motion increases with the amount of energy released decreases with distance from the causative fault or epicenter and is amplified by soft soils. After just a few seconds, earthquakes can cause massive damage and extensive casualties.

Most people are familiar with the Richter scale, a method of rating earthquakes based on strength using an indirect measure of released energy. The Richter scale is logarithmic. Each one-point increase corresponds to a 10-fold increase in the amplitude of the seismic shock waves and a 32-fold increase in energy released. For example, an earthquake registering 7.0 on the Richter scale releases over 1,000 times more energy than an earthquake registering 5.0.

Table 5-2. Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	Slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across residential areas.
7.0-7.9	Can cause serious damage to larger areas.
8 or greater	Can cause serious damage in areas several hundred kilometers across.

Peak ground acceleration (PGA) is a measure of the strength of ground shaking. Larger peak ground accelerations result in greater damage to structures. PGA is used to depict the risk of damage from future earthquakes by showing earthquake ground motions that have a specified probability (10%, 5%, or 2%) of being exceeded in 50 years return period. These values are often used for reference in construction design, and in assessing relative hazards when making economic and safety decisions.

Liquefaction is the phenomenon that occurs when ground shaking causes loose, saturated soils to lose strength and act as a viscous fluid. Liquefaction causes two types of ground failure: lateral spread and loss of bearing strength. Lateral spreads develop on gentle slopes and entail the sidelong movement of large masses of soil as an underlying layer liquefies. Loss of bearing strength occurs when the soil supporting structures liquefy, causing the structures to settle; resulting in potential damage.

Location and Extent of Hazard in the City of Santa Barbara

As previously mentioned, Santa Barbara County, including the City of Santa Barbara, is located in a high seismic activity zone. The county is located in the Transverse Range geologic province.

The movement of continental plates manifests primarily along the San Andreas Fault system. The San Andreas fault is situated 7 miles northeast of Santa Barbara County; active faults in the San Andreas Fault system that fall within Santa Barbara County include the Nacimiento, Ozena, Suey, and Little Pine faults. Other active faults in the region include the Big Pine, Mesa, Santa Ynez, Graveyard- Turkey Trap, More Ranch, Pacifico, Santa Ynez, and Santa Rose Island faults. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element provides descriptions of all faults in Santa Barbara County, including historically active, active, potentially active, and inactive, as well as their location and fault length. A map of faults in the Santa Barbara County region is located below (Figure 5-2).

The City has areas of liquefaction that would cause severe damage in the downtown and lower eastside areas (Figure 5-3). After earthquakes, some regions may be prone to liquefaction. On level ground, liquefaction results in water rising to the ground surface. On sloping ground, liquefaction will usually result in slope failure such as the event at the Sheffield Dam in the aftermath of the 1925 Santa Barbara earthquake. Liquefaction risk is considered high if there are soft soils (Types D or E) present. The National Earthquake Hazards Reduction Program (NEHRP) rates soils from hard to soft and gives the soils ratings from Type A through Type E. The hardest soils are rated Type A, and the softest soils are rated Type E. The majority of the soils in Santa Barbara County are types A-C, with some areas having type D. There have been no Type E soils identified. Liquefaction risk is also determined by the depth to groundwater. Most of the low coastal plain and valley bottoms in the City are underlain by alluvium and given a moderate rating with respect to liquefaction potential.

History of Hazard in the City of Santa Barbara

The City of Santa Barbara is located in a high seismic activity zone and as such has a long history of earthquakes. Although most seismic activity in California occurs along the San Andreas Fault system, most historic seismic events in the City of Santa Barbara region have been centered offshore on an east-west trending fault between Santa Barbara and the Channel Islands. While more extensive discussion of previous earthquakes in Santa Barbara County is available in the 2022 MJHMP, the following information provides an overview of the more recent, significant events. Table 5-9 of the MJHMP provides an overview of significant events within the last 50 years. Figure 5-10 of the MJHMP displays historical epicenters of earthquakes located in Santa Barbara County since 1700

- In June of 1925, the City experienced this destructive earthquake that caused property damage estimated at \$8 million and killed 13 people. Most of the damage occurred at Santa Barbara and nearby towns along the coast, but the earthquake caused moderate damage at many points north of the Santa Ynez mountains, in the Santa Ynez and Santa Maria River valleys. North of Santa Barbara, the earth dam of the Sheffield Reservoir was destroyed, but the water released caused little damage. In Santa Barbara, few buildings on State Street escaped damage. Because parts of the main business district and the area near the seashore were built

on land fill, many of the structures there were demolished, and others were so shattered that they had to be razed. In general, however, buildings of reinforced concrete were damaged little, except where workmanship was poor; frame buildings covered with stucco, sheathing, or lath also withstood the shock well. Loss to the sewage system was heavy only in areas of land fill, but the disposal plant was destroyed above the surface of the ground.

- In March of 1978, and continuing sporadically through July of 1978, a swarm of small earthquakes, called micro-earthquakes occurred underneath the northeastern end of the Santa Barbara Channel. Toward the end of the micro-earthquake swarm, in July and early August of 1978, an unusually large amount of oil and tar was reported on local beaches in Santa Barbara. A common occurrence for the Santa Barbara area, the oil from these natural seeps was considered only a minor nuisance. On August 13, 1978, an earthquake occurred just to the southwest of the City of Santa Barbara, about 5 miles beneath the Santa Barbara Channel. There was minimal damage in the City. Sixty-five people were treated for injuries at local hospitals. No deaths were reported.
- On December 22, 2003, at 11:15 a.m. a magnitude 6.5 earthquake struck the central California coast. The event, known as the San Simeon Earthquake, was located 11 kilometers northeast of San Simeon, and 39 kilometers west/northwest of Paso Robles. Although the San Simeon Earthquake was felt in parts of the City, there was no damage.

Probability of Occurrence

The United States Geological Survey (USGS) and their partners, as part of the latest Uniform California Earthquake Rupture Forecast Version 3 (USGS 2015), have estimated the chances of having large earthquakes throughout California over the next 30 years. Statewide, the rate of earthquakes around magnitude 6.7 (the size of the 1994 Northridge earthquake) has been estimated to be one per 6.3 years (more than 99 percent likelihood in the next 30 years); in southern California, the rate is one per 12 years (93 percent likelihood in the next 30 years). Southern California's rates are given in Table 5-3.

Table 5-3. Southern California Region Earthquake Likelihoods

Magnitude (greater than or equal to)	Average Repeat Time (years)	30-year likelihood of one or more events
5	0.24	100%
6	2.3	100%
6.7	12	93%
7	25	75%
7.5	87	36%
8	522	7%

Source: USGS 2015.

Climate Change Considerations

To date, no credible evidence has been provided that links climate to earthquakes; however, climate and weather do play a significant role in the response and recovery from earthquakes. Effects from climate change could create cascading complications and impacts.

Figure 5-2. Santa Barbara County Probability of Shaking 2% in 50 Years

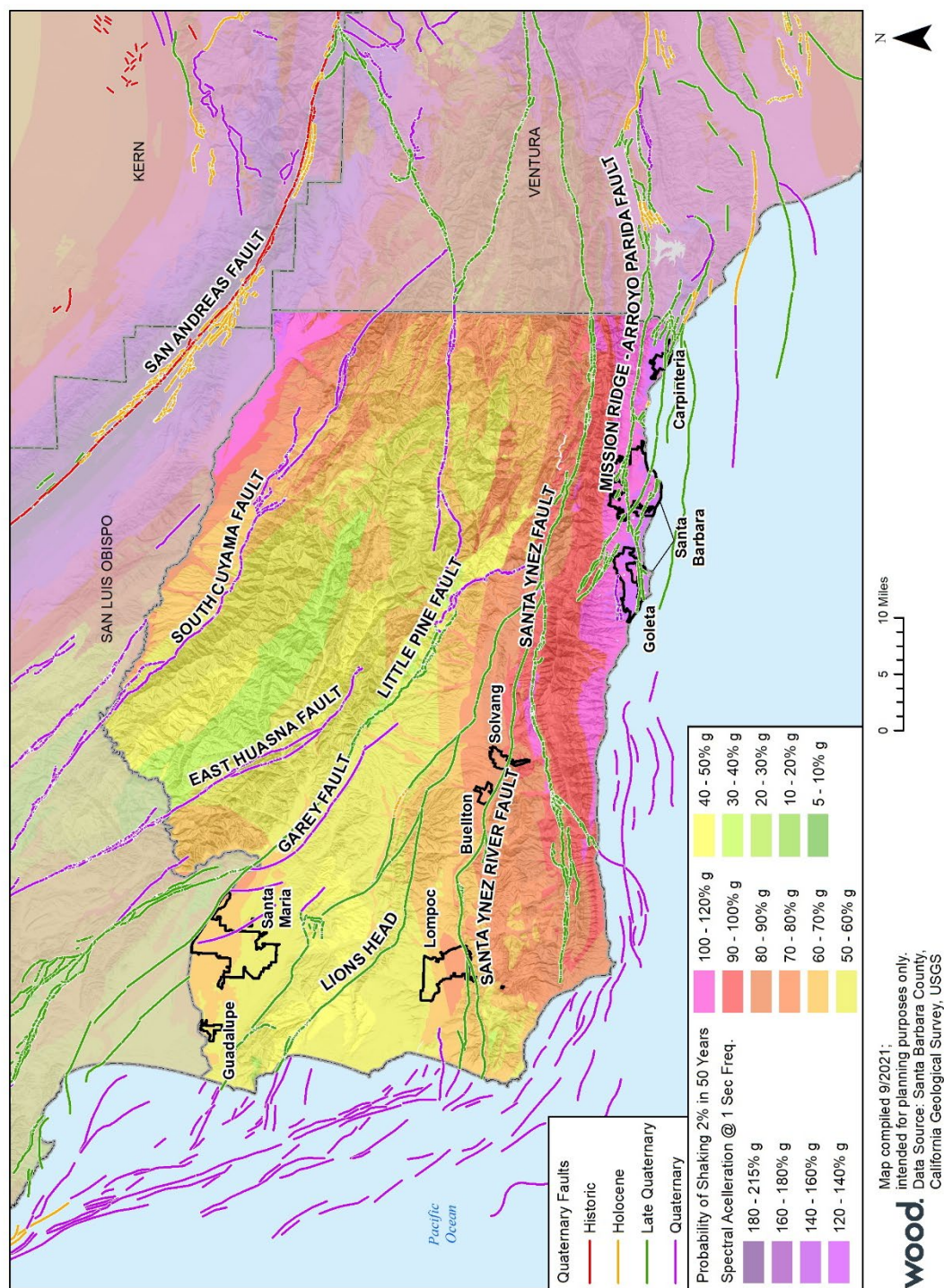
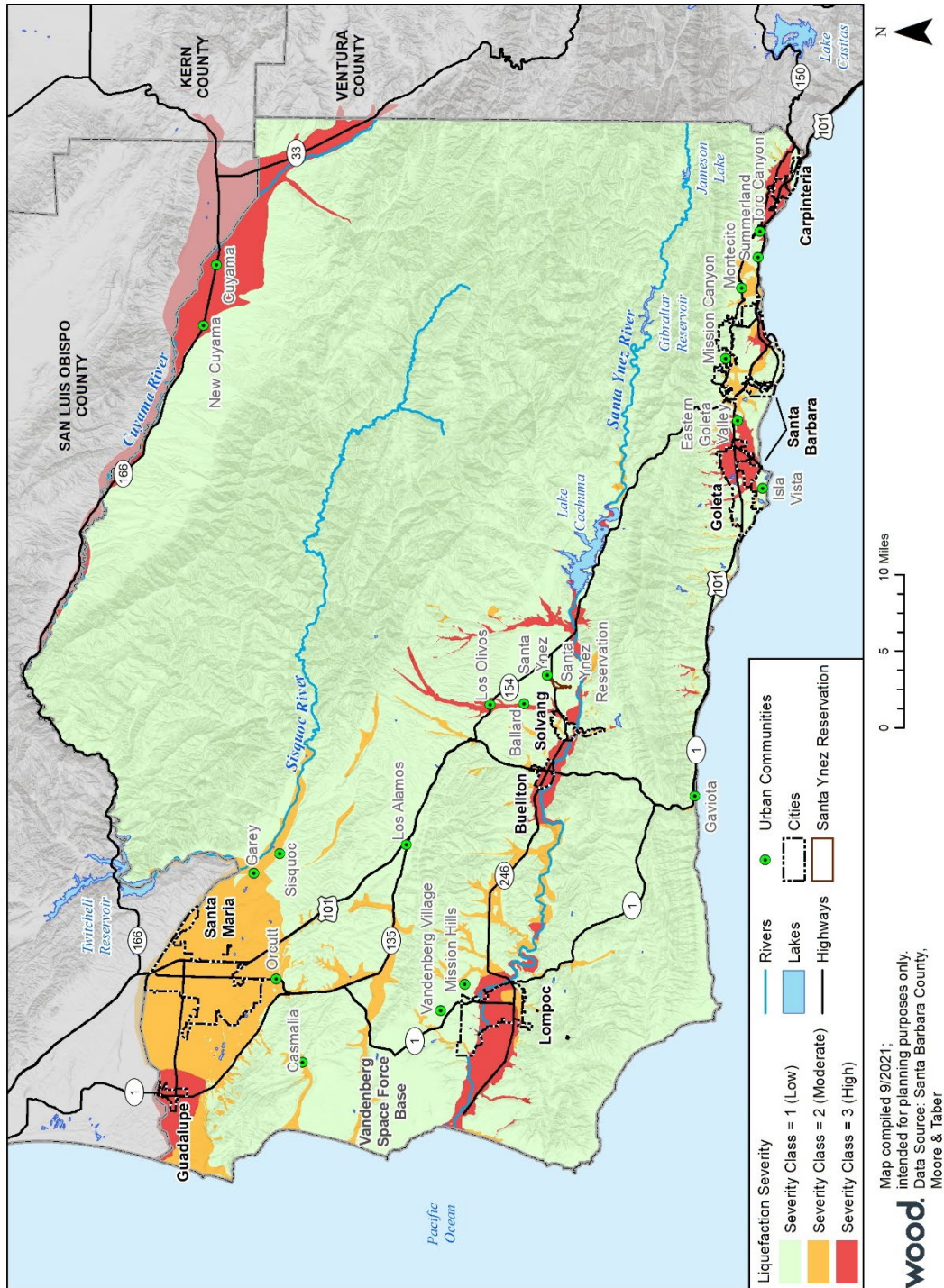


Figure 5-3. Santa Barbara County Liquefaction Severity



5.3.3 Flood

Description of Hazard

A flood is a general and temporary condition of partial or complete inundation on land that is normally dry. Several factors determine the severity of floods, including rainfall intensity and duration, antecedent moisture conditions, surface permeability, and geographic characteristics of the watershed such as shape and slope. Other causes can include a ruptured dam or levee, rapid ice or snow melting in the mountains, under-engineered infrastructure, or even a poorly placed beaver dam that can overwhelm a river or channel and send water spreading over adjacent land or floodplains.

A large amount of rainfall in a short time can result in flash flood conditions, as can a dam failure or other sudden spill. The National Weather Service's definition of a flash flood is a flood occurring in a watershed where the time of travel of the peak of flow from one end of the watershed to the other is less than six hours.

Another form of flooding occurs when coastal storms produce large ocean waves that sweep across coastlines making landfall. Storm surges inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. The County historically has been vulnerable to storm surge inundation associated with tropical storms and El Niño.

Location and Extent of Hazard in the City of Santa Barbara

The geographical location, climate, and topography of Santa Barbara City and County make it prone to flooding (Figure 5-4). In regions such as Santa Barbara, without extended periods of below-freezing temperatures, floods usually occur during the season of highest precipitations or during heavy rainfalls after long dry spells. Additionally, due to the Mediterranean climate and the variability of rainfall, stream flow throughout the County is highly variable and directly impacted by rainfall with little snowmelt or base flow from headwaters. Watercourses can experience a high amount of sedimentation during wet years and high amounts of vegetative growth during dry and moderate years.

The drainages in the southern part of the County are characterized by high intensity, short duration runoff events, due to the relatively short distance from the top of the Santa Ynez Mountains to the Pacific Ocean. Runoff from high intensity, short-duration storm events can cause inundation of over bank areas, debris including sediment, rock, downed trees in the water that can plug culverts and bridges, erosion and sloughing of banks, and loss of channel capacity due to sedimentation.

The City is traversed by the floodplains of creeks that drain the Santa Ynez Mountains, with the degree of flood hazard varying substantially by community and creek. Mission Creek has been channelized reducing but not eliminating flood hazards. Flood control debris basins have been constructed on many of these creeks to intercept sediment and debris, reducing the potential for plugging of downstream creek channels and associated flood hazards.

Another contributing factor to flooding is the City's location along the Pacific Ocean. With its six miles of coastline, the City is susceptible to storm surge events following storms off the coast. In particular, low-lying areas, including much of the City's waterfront, are subject to wave attacks,

coastal flooding, and storm surges. Additionally, portions of the City's are subject to flooding due to flash flooding, urban flooding, watershed channel overflow, and downstream flooding (see Section 5.3.12, *Coastal Hazards*).

History of Hazard in the City of Santa Barbara

Flooding has been a major problem in the City of Santa Barbara. The City has several watershed areas that have different types of flooding problems, including over bank riverine flooding, flash floods, tidal flooding/tsunamis, and dam failure. The most common flooding in the City is due to watershed channel flooding and flash flood events.

Between 1906 and 2018, Santa Barbara County experienced 22 significant inland flood events. Eight of these floods received Presidential Disaster Declarations. Section 5.3.4 of the MJHMP describes the floods, including information concerning the nature of the flooding and the extent of the damages.

While there is a detailed account of historical flood events in Santa Barbara County provided in Section 5.0 of the 2022 MJHMP, the following section provides a summary of the more recent significant flood events that affected the City:

- **1998** – The flooding events of 1998 arrived on a strong El Niño and brought several record-breaking rainfalls with 50-year storm event intensities throughout February. The City of Santa Barbara recorded its wettest month in history, 21.36-inches of rainfall. By the end of the month, many areas in the county had received 600 percent of normal February rainfall. Flood-related damages within Santa Barbara occurred during three major storm periods: February 1-4, February 6-9, and February 22-24. The cost to repair extensive flood damage to public and private property was estimated at \$15 million. Just like in 1995, transportation throughout the county was disrupted through closures of roads, the Santa Barbara Airport, and train service. Flood damage was spread throughout the county and the county was declared a Federal Disaster Area on February 9. The floods received a Presidential Disaster Declaration (County Flood Control 1998).
- **February 2, 1998** – During the first storm on February 2, winds with gusts as high as 63 miles per hour (mph) knocked over hundreds of trees and caused loss of power to thousands of homes across Goleta and Santa Barbara. The next day, 15-foot-high waves damaged pilings under Stearns Wharf and a broken sewer line near Arroyo Burro Beach, closing several nearby beaches due to high levels of bacteria buildup. Gaviota Creek overtopped and flooded the State Beach at the mouth of the creek. At the Gaviota Chevron plant, storm related damage caused a release of hazardous materials. The airport also closed down due to flood, and Highway 101 was shut down in Ventura, cutting off the City to the south (County Flood Control 1998).
- **February 6, 1998** – With little time to recuperate, the South Coast was hit by a second major storm on February 6. Disruptions of transportation were widespread throughout the South Coast – a downed tree resulted in an accident that closed Highway 101. Along the coast, berms were hastily constructed to protect beachfront property (County Flood Control 1998).

- **2018** – Following the October 2017 Thomas Fire, heavy rains unleashed destructive rivers of water, mud, and debris in Santa Barbara County, particularly Montecito, leaving at least 23 people dead, destroying over 100 homes, and damaging over 300 homes. Rain from the storm fell on hillsides and mountains stripped of trees and vegetation by the Thomas Fire. The National Weather Service, Los Angeles reported that 0.54 inches of rain had fallen in 5 minutes at Montecito. Other figures include 0.73 inches in 10 minutes at KTYD Radio Towers, 0.86 inches in 15 minutes at Carpinteria, 1.11 inches in 30 minutes at Carpinteria, and 1.45 inches in 1 hour at Matilija Canyon (FloodList 2021) (see also, Section 5.3.9, *Landslide*).

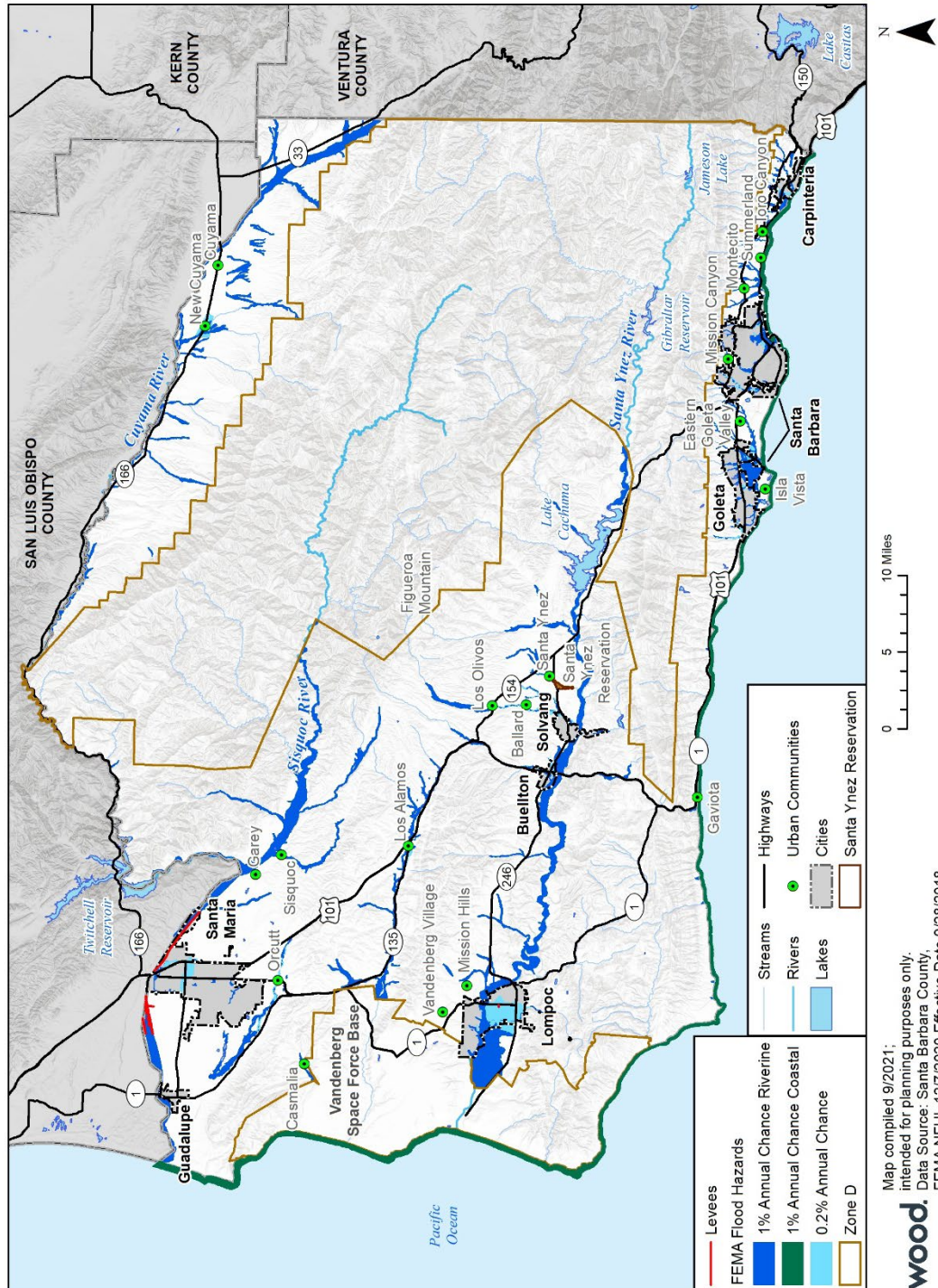
Probability of Occurrence

The 100-year flood is a flood that has a one percent chance in any given year of being equaled or exceeded. The 500-year flood is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year.

Climate Change Consideration

Climate change is projected to amplify existing flood hazards through increased frequency and strength of El Niño events and rainfall intensity. Extreme weather events have become more frequent over the past 40 to 50 years and this trend is projected to continue. Up to half of California's precipitation comes from a relatively small number of intense winter storms, which are expected to become more intense with climate change. For example, what is currently a 200-year storm, or one that has a 1 in 200 chance of occurring in a given year, by 2100 would increase in frequency by 40 to 50 years (to a 1 in 150/160 chance in a given year). This means that the 100-year and 500-year floodplains may expand, and the current floodplains may become 40- to 50-year floodplains (Santa County Barbara Planning and Development Department 2021). The frequency and intensity of heavy rainstorms are projected to increase, causing fluvial flooding along the City's creeks, although overall annual precipitation levels are expected to increase only slightly. For discussion regarding the impacts of climate change on coastal flooding and sea level rise, see Section 5.3.12, *Coastal Hazards*.

Figure 5-4. Santa Barbara County FEMA Flood Hazards



5.3.4 Pandemic/Public Health Emergency

Description of Hazard

Infectious disease emergencies are circumstances caused by biological agents, including organisms such as bacteria, viruses, or toxins, with the potential for significant illness or death in the population.

Infectious disease emergencies may be caused by:

- Naturally occurring diseases spread from person to person (e.g., measles, mumps, meningococcal disease, tuberculosis)
- Foodborne (e.g.: salmonella, E. coli, botulinum toxin, etc.)
- Vectors such as mosquitos can spread diseases (e.g.: West Nile virus, dengue, Zika, malaria).
- Newly emerging infectious diseases (e.g.: Ebola, Zika, SARS, MERS, avian influenza).
- Intentionally caused the spread of disease or toxins known as bioterrorism. Past bioterrorism events include the contamination of restaurant food with E. coli in Oregon (1984) and the release of Sarin gas in the Tokyo subway (1995).

The impact of infectious disease emergencies on the local community and its critical infrastructure will depend on:

- The type of biological agent and availability of treatment for victims
- The availability of prophylaxis for responders and the public
- The scale of exposure and ongoing exposure
- The mode of transmission and whether transmission can be interrupted
- Whether the event is affecting staffing for critical infrastructure within and outside of the county such as transportation, law enforcement, health care, and the medical and food supply chains.

An **outbreak** is when there are more cases than would be normally expected, often suddenly, of an infectious disease in a community or facility.

An **epidemic** is when there are more cases than would be normally expected of infectious disease, often suddenly, in a population of a large geographic area.

A **pandemic** refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Examples include pandemic influenza and Severe Acute Respiratory Syndrome or “SARS” and the Coronavirus (COVID-19).

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity. The 20th century saw three such pandemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 20 million deaths throughout the world. Secondary impacts include significant economic disruption to a community’s infrastructure due to loss of employee work time, essential services and products, and costs of treating or preventing the spread of the disease.

Public health measures are used to control outbreaks, epidemics, or pandemics of infectious diseases, and are especially important for diseases with high morbidity or mortality and limited medical prophylaxis and/or rapid treatment.

Measures to control disease include:

- Legal measures such as isolation and quarantine of persons or products, and legal closure of food establishments.
- Control of contaminated food or water through recall of product or, for water, “Do Not Use”, “Do Not Drink” or “Boil Water” orders issued by state or local health departments.

Vector control to eliminate vectors such as mosquitos that carry the disease from person to person. The Vector-Borne Disease Section of the California Department of Public Health identifies the following types of diseases:

- | | | |
|-------------------------|--------------------------|---------------------------------------|
| • Africanized Honeybees | • Bed Bugs | • Body Lice |
| • Cat Scratch Disease | • Conenose Bugs | • Hantavirus Cardiopulmonary Syndrome |
| • Head lice | • Lyme Disease | • Mosquitoes |
| • Murine Typhus | • Plague | • Ticks |
| • West Nile Virus | • Red Imported Fire Ants | • Scabies |
| • Swimmer’s Itch | • Tularemia | • Zika Virus |

Location and Extent of Hazard in the City of Santa Barbara

Public health emergencies, such as infectious disease hazards or epidemics, occur not only on a local or state level but on a national and global scale. It is likely that most communities in the county, including the City, would be affected, either directly or by secondary impacts. Some indirect consequences may be the diversion of resources that may be otherwise available given the limited regional transportation opportunities and flow of goods and materials to the City.

History of Hazard in the City of Santa Barbara

Outbreaks, epidemics, or pandemics can occur when a new virus emerges to which the population has little immunity.

The 20th century saw several outbreaks, pandemics, and epidemics, the most notable of which was the 1918 Spanish influenza pandemic that was responsible for 40 to 50 million deaths throughout the world. The most notable pandemic of the 21st century is the current COVID-19 pandemic. The COVID-19 pandemic has severely impacted the economic, political, social, and environmental conditions of the City, county, California, the U.S., and the world. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness; however, numerous stories were reported of young and healthy people who developed the disease and had serious complications. People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms of COVID-19 include but are not limited to fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea, or vomiting, and diarrhea. Symptoms may appear 2-14 days after exposure to the virus. Anyone can have mild to severe

symptoms (Centers for Disease Control and Prevention [CDC] 2021). On January 26, 2020, the CDC confirmed the first COVID-19 case in California, the third case in the U.S. As of June 2, 2021, there have been 34,507 confirmed COVID-19 cases within the county and 451 deaths (Santa Barbara County Public Health Department 2021a). In the City of Santa Barbara, there have been 15,065 reported cases and 112 reported deaths related to COVID-19. As of October 2021, 58 percent of Santa Barbara County was fully vaccinated (Santa Barbara County Public Health Department 2021). In the City of Santa Barbara, the County Public Health Department distributes COVID-19 vaccines at the Franklin Health Care Center and numerous participating pharmacies distribute vaccinations as well.

Probability of Occurrence

Disease outbreaks and flu epidemics occur on an ongoing basis. Occasionally these outbreaks require the initiation of the Santa Barbara County Public Health Department Infectious Disease Response Plan but have required little to no support from the City Emergency Operations Center (EOC). There is a continued threat from a novel influenza virus or other emerging epidemic or pandemic disease that would require a disaster response at the EOC level. The disease could affect the City infrastructure, and the ability of the EOC and other city departments to respond due to disease-related loss of staff.

Climate Change Consideration

It is widely accepted that the effects of climate change will facilitate increases in the frequency of infectious diseases. According to the National Institute of Environmental Health Services, many vector-borne and zoonotic diseases are climate-sensitive and ecological shifts associated with climate change are expected to impact the distribution and incidences of these diseases (National Institute of Environmental Health Services 2018). While many vector-borne and zoonotic diseases, such as malaria, yellow fever, dengue, and murine typhus, are rarely seen in the U.S., the City is directly susceptible to vector-borne and zoonotic diseases that are found in warmer climates and vulnerable due to global trade and travel. Changes in temperature and precipitation directly affect vector-borne disease transmission through pathogen-host interaction, and indirectly through ecosystem changes and species composition. As temperatures increase, vectors can spread into new areas that were previously too cold. During warm weather, animal species that carry diseases typically become more active and insects and other pests reproduce more rapidly. As climate change causes warmer temperatures earlier in the spring and later in the autumn, these animals may be active for longer periods, increasing the time that diseases can be transmitted (National Institute of Environmental Health Services 2018).

Further, climate-related natural disasters (e.g., wildfire, drought and water shortage, flood, coastal hazards) also increase the risk of infectious disease by disrupting health services and infrastructures and damaging water and sanitation networks (World Health Organization 2018).

5.3.5 Tsunami

Description of Hazard

A tsunami is a series of long waves generated in the ocean by a sudden displacement of a large volume of water. Underwater earthquakes, landslides, volcanic eruptions, meteoric impacts, or

onshore slope failures cause this displacement. Tsunami waves travel at speeds averaging 450 to 600 miles per hour. As a tsunami nears the coastline, its speed diminishes, its wavelength decreases, and its height increases. Depending on the type of event that creates the tsunami, as well the remoteness of the event, the tsunami could reach land within a few minutes or after several hours. Low-lying areas could experience severe inland inundation of water and deposition of debris more than 3,000 feet inland.

Location and Extent of Hazard in the City of Santa Barbara

As described in Section 5.3.9 of the MJHMP, areas prone to tsunami hazards in the county are limited to coastal areas and offshore areas. The cities of Santa Barbara and Carpinteria are most susceptible to tsunami hazards, given that they are located on or near several offshore geological faults, the more prominent faults being the Mesa Fault, the Santa Ynez Fault in the mountains, and the Santa Rosa Fault (refer to Section 5.3.3 of the MJHMP). Other unnamed faults in the offshore area of the Channel Islands may present tsunami hazards. These faults have been active in the past and can subject the entire county coastal area to seismic action at any time.

History of Hazard in the City of Santa Barbara

The relative threat for local tsunamis in Santa Barbara can be considered low due to low recurrence frequencies. Thirteen possible tsunamis have been observed or recorded in the county from local earthquakes between 1812 and 1988; however, there have been no recorded locally generated tsunamis since 1988. Additionally, these tsunami events were poorly documented, and the precise extent of environmental and public impacts is uncertain (refer to Section 5.3.9 of the MJHMP). The size of these tsunamis may never be known with certainty, but there are unconfirmed estimates of 30-35 feet waves in Santa Barbara City. The estimates are found in various literature and based on anecdotal history only.

- On February 27, 2010, a magnitude 8.8 earthquake occurred along the central coast of Chile and produced a tsunami. For the coast of Southern California, it was one of the largest tsunami episodes since 1964. In general, tsunami waves between 2 and 4 feet were reported. Tsunami waves of around 3 feet were reported by tide gauges across the Santa Barbara Channel. At Santa Barbara Pier, significant beach erosion was reported along with displacement of buoys. The tsunami surge lasted more than 20 hours. The most significant damage occurred along the coasts of Ventura and southern Santa Barbara counties. Numerous reports of dock damage were reported along with beach erosion.
- On March 11, 2011, a magnitude 9.0 earthquake occurred off the Pacific coast of Tohoku, Japan. This earthquake devastated many communities in Japan and caused tsunami effects across the ocean in Santa Barbara City. The only significant impact to Santa Barbara City was to the dredging contractor for the City of Santa Barbara harbor. The City harbor operations documented approximately \$1,500 of damages (Public Assistance).

Probability of Occurrence

The University of Southern California (USC) Tsunami Research Group has modeled areas in the county that could potentially be inundated in the event of a tsunami. In 2001, the Tsunami Research Group concluded the walls of the basin that form the Santa Barbara Channel are susceptible to

submarine slope failures in at least two mapped locations (USC 2001). This model is based on potential earthquake sources and hypothetical extreme undersea, near-shore landslide sources. The data was mapped by the California Geological Survey and Cal OES for Tsunami Evacuation Planning. The maps and data are compiled with the best currently available scientific information and represent areas that could be exposed to tsunami hazards during a tsunami event. The tsunami inundation map helps to assist cities and counties in identifying their tsunami hazard areas. Figure 5-5 shows tsunami hazard areas in the City.

Based on the tsunami inundation map (Figure 5-5), several areas along the City's coast have the potential to be inundated by a tsunami. Given, there is a medium probability of an earthquake, which would result in high impacts including potential tsunami events in the City, the City is at minor risk of future tsunami events.

Climate Change Consideration

As previously described, tsunamis are created by earthquakes or other earth movements. To date, no direct relationship has been made between climate change and the occurrences of earthquakes or other earth movements.

5.3.6 Drought and Water Shortage

Description of Hazard

Drought and water shortages are a gradual phenomenon and generally are not signified by one or two dry years. California's and Santa Barbara's extensive system of water supply infrastructure (reservoirs, groundwater basins, and interregional conveyance facilities) generally mitigates the effects of short-term dry periods for most water users. However, drought conditions are present when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years or may be declared after as few as 15 days.

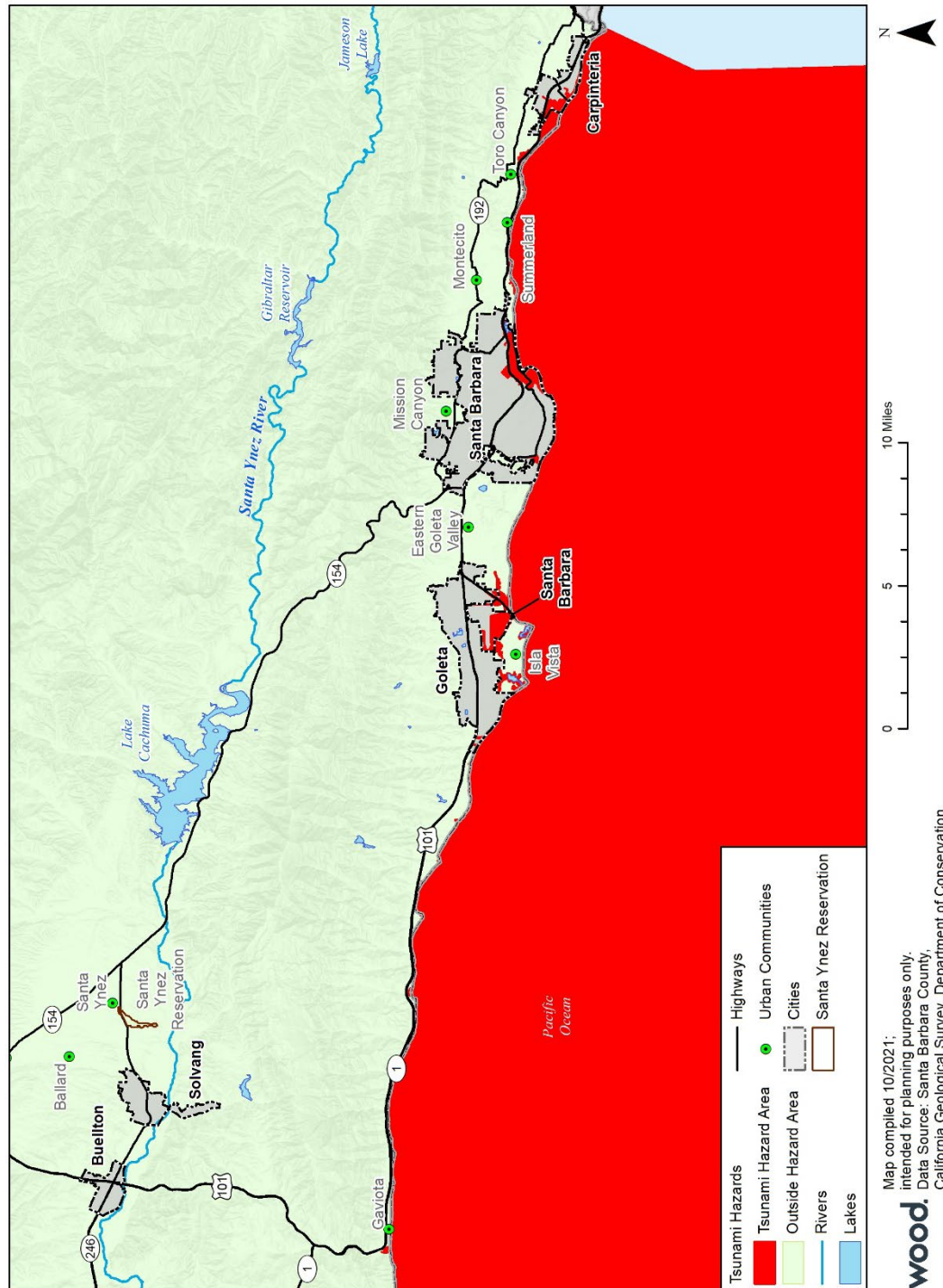
Location and Extent of Hazard in the City of Santa Barbara

The entire county is subject to drought conditions and water shortages.

History of Hazard in the City of Santa Barbara

Three 20th century droughts were of particular importance from a water supply standpoint—the droughts of 1929–1934, 1976–1977, and 1987–1992. More recent multiyear droughts occurred in 2007–2009 and 2012–2017 (DWR 2021). California's most recent multi-year drought occurred from 2012–2017. In January 2014, Santa Barbara County joined the State of California in declaring a local drought emergency, which was the first local emergency declaration of drought in the county's history (County of Santa Barbara 2014). This was the first time the state-imposed mandatory urban water use reduction requirements on water suppliers, and all of California's 58 counties declared local emergencies. Refer to Section 5.3.2 of the MJHMP for a detailed discussion of multi-year droughts that were identified as having significant impacts on the county.

Figure 5-5. South Coast Tsunami Hazard Area



Since August 2020, the period between 2012 and 2016 was one of the documented driest consecutive water years in the county with 50.83 inches in cumulative rainfall (County of Santa Barbara 2021a). Effects of the drought have lowered water storage at Lake Cachuma, one of the county's largest surface water reservoirs, with water storage at 48.4 percent of capacity in late 2021 (County Flood Control District 2021). Although the statewide drought of 2012–2016 was ended by a wet Water Year in 2017, localized drought conditions persisted in the Central Coast region and were not ended until a wet Water Year in 2019 (DWR 2021).

Probability of Occurrence

Droughts are a regularly recurring feature of Santa Barbara County weather that can be affected by overall regional or worldwide climatic patterns. El Niño and La Niña events are natural climate patterns over the Pacific Ocean often with global effects, with influence over the weather of the U.S. southwest that on average occur every two to seven years. The state recently experienced the 5-year significant drought event of 2012-2017; other notable historical droughts included 2007-09, 1987-92, 1976-77, and off-and-on dry conditions spanning more than a decade in the 1920s and 1930s. In any given year, the City can be subject to drought conditions and water shortages. However, out of the last 10 years, the county has been under a locally declared drought emergency for five years; therefore, it is likely drought and associated water shortages will continue and may increase due to climate change considerations, as described further below.

Climate Change Considerations

Climate change has the potential to make drought events more common in the county and City. Extreme heat creates conditions more conducive for the evaporation of moisture from the ground, thereby increasing the possibility of drought. A warming planet could lead to earlier melting of winter snowpacks, leaving lower stream flows and drier conditions in the late spring and summer. Snowpacks are important in terms of providing water storage and ensuring adequate supply in the summer when water is most needed. Changing precipitation distribution and intensity have the potential to cause more of the precipitation that does fall to run-off rather than be stored. The result of these processes is an increased potential for more frequent and more severe periods of drought.

5.3.7 Energy Shortage and Resiliency

Description of Hazard

Energy shortages (or disruptions) are considered a form of lifeline system failure. Disruptions can be the consequence of another hazard or can be a primary hazard, absent of an outside trigger. A failure could involve one, or a combination of the potable water system, power system, natural gas system, wastewater system, communication system, or transportation system. Most power blackouts are not human-caused. They are the result of situations involving unintended events, such as an overwhelming need for power due to weather conditions, equipment failure, or accidents. They may also fail due to natural hazards such as earthquakes, floods, and landslides. These outages can last anywhere from a few minutes to several weeks.

Santa Barbara County has two service providers. Pacific Gas and Electric (PG&E) provides electricity in the northern part of the county, with the termination of services north of the Gaviota area. Southern California Edison (SCE) provides power to the Southern parts of the county, with the

termination of services in Gaviota. The two systems are not connected. Thus, if there is a major interruption of service in the Santa Barbara area, then all services could be denied in either direction. The City of Santa Barbara is served by SCE.

Due to recent massive wildfires throughout California and their ignition originating from utility infrastructure and high winds, the electric utilities have initiated a program to conduct Public Safety Power Shutdowns to prevent wildfire ignitions. The utilities are currently working with the County to minimize power delivery interruption while managing wildfire hazards.

Location and Extent of Hazard in the City of Santa Barbara

The entire county, which includes the City of Santa Barbara, is subject to energy shortages. Electricity service is also highly vulnerable because it is highly dependent on electrical transmission lines and substations functioning properly.

History of Hazard in the City of Santa Barbara

Energy disruptions on a small scale have occurred regularly in Santa Barbara City; especially during strong wind and storm events. One of the largest events affecting electric and natural gas services in the City in recent years was the 2017 Thomas Fire, during which the transmission system running from Ventura County to the City of Goleta was shut down, leaving more than 85,000 customers without power for an extended period during the emergency (SCE 2017). Similar service disruptions, though not quite as extensive, occur in areas affected by wildfires and other disasters or emergencies. Small-scale energy disruptions have occurred regularly in the City.

Probability of Occurrence

In any given year, the City can be subject to energy shortages. A large disruption due to a power failure or rotating brown out is highly likely during strong storm events or during times of extreme heat.

Climate Change Considerations

With increased changes in weather and climate, the energy demands will shift too. The increased prevalence of extreme heat can drive energy demand and increase the need for intentional, unscheduled power shutoffs. Further, the resiliency of power systems can be threatened during a wildfire. As wildfire occurrences associated with climate change increase so does the risk for utility failure. Energy demand and management are critical during disaster response.

5.3.8 Dam Failure

Description of Hazard

Dams fail due to old age, poor design, structural damage, improper siting, landslides flowing into a reservoir, or terrorist actions. Structural damage is often a result of a flood, erosion, or earthquake. A catastrophic dam failure could inundate the area downstream. The force of the water is large enough to carry boulders, trees, automobiles, and even houses along a destructive path downstream. The potential for casualties, environmental damage, and economic loss is great. Damage to electric generating facilities and transmission lines could impact life support systems in communities outside the immediate hazard area.

Location and Extent of Hazard in the City of Santa Barbara

There are two dams in the county (i.e., Gibraltar Dam and Lauro Dam), which, if resulted in dam failure, would impact the City. These dams range in purpose from water supply to flood control.

Gibraltar Dam is owned and operated by the City of Santa Barbara. Gibraltar Dam and reservoir are located on the Santa Ynez River in Santa Barbara County, about 9 miles north of the City and upstream from Lake Cachuma. The City owns and operates the dam and reservoir under a Notice of Appropriation posted on October 11, 1904. Stored water is diverted through Mission Tunnel to the Cater Water Treatment Plant. The dam is a constant radius, concrete arch dam constructed in 1920 with an original capacity of 14,500 acre-feet; it was raised to its current elevation in 1949 and strengthened in 1991. Gibraltar Reservoir is the source of about one-third of the City of Santa Barbara's water supply. Loss of storage capacity due to siltation has been an issue since the dam was constructed. To monitor changes in capacity, and under the requirements of the Upper Santa Ynez River Operations Agreement, the City commissions a bathymetric survey of Gibraltar Reservoir at approximately three-year intervals.

Lauro Dam, which is owned and operated by the U.S. Bureau of Reclamation, is an earthen fill structure located on Diablo Creek at the northern edge of the City. The dam has a crest length of 540 feet and a height of 137 feet. The reservoir has a capacity of 640 acre-feet.

History of Hazard in the City of Santa Barbara

As described in Section 5.6.3 of the 2022 MJHMP, the county has experienced one incident of catastrophic dam failure, which occurred in the community of Mission Canyon. No historical dam failures have occurred within or in the vicinity of the City.

The DWR Division of Safety of Dams (DSOD) provides oversight of the design, construction, and maintenance of jurisdictional-sized and non-Federal dams. With DWR DSOD oversight, many potential dam issues have been addressed and/or resolved in the county (DWR DSOD 2021). Additionally, the USBR, responsible for oversight of federal dams in the county, has improved systems to ensure that peak releases during heavy inflows do not result in excessive downstream flows, which reduces the possibility of inundation from overflows (Santa Barbara County Planning and Development Department 2015).

Probability of Occurrence

Dam failure events are infrequent and usually coincide with the events that cause them, such as earthquakes, landslides, excessive rainfall, and snowmelt. There is a "residual risk" associated with dams; residual risk is the risk that remains after safeguards have been implemented. For dams, the residual risk is associated with events beyond those that the facility was designed to withstand. However, the probability of occurrence of any type of dam failure event is considered to be low in today's regulatory and dam safety oversight environment.

Climate Change Considerations

The potential for climate change to affect the likelihood of dam failure is not fully understood at this point. There is potential for increased precipitation events as a result of climate change conditions to present a future increased risk of dam failure if large inflows to reservoirs occur.

However, this could be offset by generally lower reservoir levels if storage water resources become more limited or stretched in the future due to climate change, drought, and/or population growth.

5.3.9 Landslide

Description of Hazard

Landslides can be defined as the movement of a mass of rock, debris, or earth down an incline. Types of landslides include rock falls, rockslides, deep slope failures, shallow debris flows, and mudflows.

- Slope failure occurs when there is erosion of slopes by surface-water runoff. The intensity of slope wash is dependent on the discharge and velocity of surface runoff and the resistance of surface materials to erosion.
- Mudflows are defined as flows or rivers of liquid mud down a hillside on the surface of normally dry land. They occur when water saturates the ground, usually following long and heavy rainfalls. Mud forms and flows downslope if there is no ground cover such as brush or trees to hold the soil in place.
- Debris flow occurs when water begins to wash material from a slope or when water sheets off of a newly burned stretch of land. Chaparral land is especially susceptible to debris flows after a fire. The flow will pick up speed and debris as it descends the slope. As the system gradually picks up speed it takes on the characteristics of a basic river system, carrying everything in its path along with it.

The most common cause of a landslide is an increase in the downslope gravitational stress applied to slope materials, also known as over-steepening. Over-steepening can be caused by natural processes or by man-made activities. Undercutting of a valley wall by stream erosion or a sea cliff by wave erosion are ways in which over-steepening may occur naturally.

Location and Extent of Hazard in the City of Santa Barbara

Landslides and landslide-prone sedimentary formations are present throughout the coastal plain of western Santa Barbara County. Figure 5-18 of the MJHMP shows the location of soil types throughout the county. Generally, areas with soft soils are more prone to movement. Landslides also occur in the granitic mountains of East Santa Barbara County, although they are less prevalent. Many of these landslides are thought to have occurred under much wetter climatic conditions than at present. Recent landslides are those with fresh or sharp geomorphic expressions suggestive of active (ongoing) movement or movement within the past several decades. Reactivations of existing landslides can be triggered by disturbances such as heavy rainfall, seismic shaking, and/or grading. Many recent landslides are thought to be reactivations of ancient landslides.

Section 5.3.7 of the MJHMP lists the areas in Santa Barbara County where there are geologic formations that can lead to fairly severe landslides as identified by the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element (Santa Barbara County Planning and Development Department 2015). Some areas of the City are prone to more frequent rain-induced landslides, resulting in disruption to transportation and damage to roadways.

Figure 5-13 of the MJHMP shows the debris flow hazard areas along the South Coast as of 2018, after the Thomas Fire. As shown therein, only a small area of the northeastern portion of the City is susceptible to mudflow and debris flow hazards. However, this hazard area may shift after a debris flow or landslide or other hazards have affected an area, such as wildfire, flooding, or drought (Santa Barbara County Department of Planning and Development 2021).

History of Hazard in the City of Santa Barbara

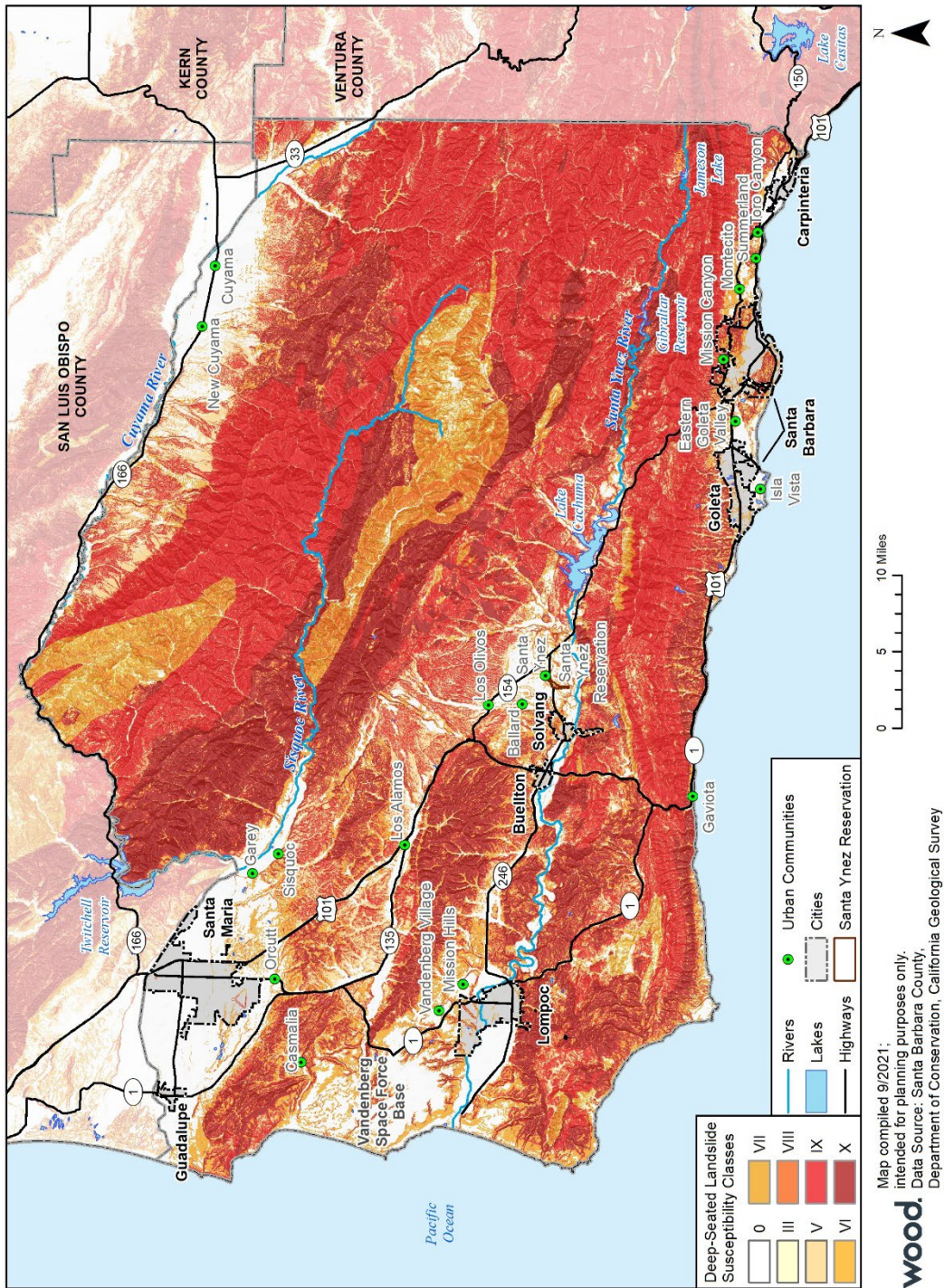
As previously mentioned, Santa Barbara County is prone to landslides; however, many previous landslide occurrences within the county were smaller and are not well documented. The Riviera area of the City has two areas of landsliding referred to as the “Conejo Road Landslide” and the “Canon View Road/Sycamore Canyon Landslide”. Movement of slopes in these areas were triggered in response to heavy rains in 1982-83 and again in 2005, destroying eight homes. Several large landslides have affected the coastal bluffs in the past, including the El Camino de la Luz landslide in 1978, which encompassed approximately three acres and destroyed two homes; and the bluff in Shoreline Park in 2008, which moved portions of the bluff edge landward 38 feet. Additionally, several historic storm and flood events in the county, particularly storms following intense wildfires, resulted in mudflows and debris flows. The most recent instance of debris flow affecting the City is the 2018 Montecito Debris Flows.

Following the 2017 Thomas Fire, which burned approximately 281,893 acres in Ventura and Santa Barbara Counties, a reported 0.59 inches of rain fell within 30 minutes in the burn scars from the Thomas Fire in the foothills of Montecito on Tuesday, January 9, 2018. Four inches of rain fell in two days, causing massive debris flows and flooding that damaged or destroyed 400 homes, killed 23 residents, and led to the closure of Highway 101 and the UPRR for more than 3 weeks, cutting off the county from communities to the south. California Geological Survey scientists estimated the Montecito debris flow as having speeds of 10-15 mph, being up to 25-30 feet deep, and capable of carrying boulders as large as a tow truck. (California Geological Survey 2019b).

Probability of Occurrence

Figure 5-6 below shows the locations of deep-seated landslide susceptibility in the county as mapped by the California Geological Survey. This map shows the relative likelihood of deep landslide based on the three site factors that most determine susceptibility: prior failure (from a landslide inventory), regional estimates of rock or soil strength, and steepness of slopes. On the most basic level, weak rocks and steep slopes are more likely to generate landslides. The map uses detailed information on the location of past landslides, the location and relative strength of rock units, and the steepness of the slope in a methodology developed by Wilson and Keefer (1985). The result shows the distribution of one very important component of landslide hazard. It is intended to provide infrastructure owners, emergency planners, and the public with a general overview of where landslides are more likely. The map does not include information on landslide triggering events, such as rainstorms or earthquake shaking, nor does it address susceptibility to shallow landslides such as debris flows. Therefore, this map is not appropriate for the evaluation of landslide potential at any specific site (California Geological Survey 2019). The areas shaded in darker red in Figure 5-6 are considered to have a higher probability of landslide occurrence than the low landslide risk areas in the City.

Figure 5-6. Landslide Susceptibility in Santa Barbara County



Based on historical data and given the likelihood of wildfires and intense rainfall events, as well as steep slopes upstream of the City, mudflow and debris flow hazards are likely to occur following wildfire and subsequent rain events. Mudflows and debris flows are usually a cascading effect of severe weather. The probability for more severe and damaging landslides increases during El Niño years or severe winter storms. The potential for debris flows dramatically increases following a wildfire (see also Section 5.3.1, *Wildfire*).

Climate Change Consideration

A 2021 study by the USGS finds that Southern California is likely to see increased post-wildfire landslides and debris flows caused by climate change-induced shifts in the state's wet and dry seasons. Wildfires make the landscape more susceptible to landslides when rainstorms pass through as the water liquefies unstable, dry soil and burned vegetation. Geologists routinely conduct landslide hazard assessments after wildfires occur, but there is often not enough time between a fire and a rainstorm to implement an effective emergency response plan (USGS 2021). Wildfire frequency, higher temperatures, and increased droughts projected to occur under climate change can reduce soil absorption capacity and kill vegetation that holds soil in place, making it unable to absorb as much water, further destabilizing slopes. The results also suggest more intense rainfall events could make landslides much more frequent. Slope failure is expected to become more frequent as more precipitation falls during fewer storm events (refer also to Section 5.3.3, *Flood*). Also, the increased heavy precipitation events may cause instability in areas where landslides were not as likely before. Therefore, resulting landslides may be larger or more widespread.

5.3.10 Train Accident

Description of Hazard

Train accidents are defined as any accidents involving public or private trains carrying passengers or cargo along the rail corridor. Train accidents, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and aforementioned.

Location and Extent of Hazard in the City of Santa Barbara

The UPRR carries both freight and passengers through the coastal areas. The county is served by two Amtrak train routes for passenger-only services along the UPRR: the Pacific Surfliner and Coast Starlight (Santa Barbara 2021). The Pacific Surfliner runs adjacent to Highway 101 and the coastline with stops in San Diego, Orange, Los Angeles, and Ventura counties (Santa Barbara 2021). The Coast Starlight connections Seattle and Los Angeles travel south from Seattle with stops in Portland, the San Francisco Bay Area, Sacramento, Paso Robles, San Luis Obispo, and Santa Barbara.

In addition to passenger-only rail services, the Santa Barbara train station receives train movements from the shipment of commodities, such as hazardous materials, fuel (including oil), agriculture, meats, and non-consumables. Train accidents are generally localized and the incidents result in limited impacts at the community level. However, if there are volatile or flammable substances on the train and the train is in a highly populated, death, injuries, and damage to homes, infrastructure, and the environment, including forest fires, can occur. Additionally, a hazardous materials incident

on the rails or roadway has the potential to shut down both rail and highway transportation routes, such as Highway 101, where the two are within proximity to one another.

History of Hazard in the City of Santa Barbara

No major train accidents have occurred in the City of Santa Barbara or Santa Barbara County. However, in the last thirty years, numerous train accidents have occurred throughout the southern California region. For example, in 1991 the Seacliff Incident occurred in Ventura County when a train released 440 gallons of aqueous hydrazine (used to make agricultural, metal, and plastics processing chemicals) and naphthalene (industrial solvent) (Los Angeles Times 1991). The accident required the evacuation of the nearby Seacliff Community along with the shutting down of Highway 101 and took 5 days to clean up.

Probability of Occurrence

Given that no known train accidents have occurred in the City or county, the probability of occurrence is low. While neither of the train accidents described above occurred within the county, due to the scale and scope of train transportation for people and commodities, such events have the potential to occur.

Climate Change Consideration

There is no known linkage between climate change and train accidents; however, because of railroad track proximity along the Pacific Ocean, sea level rise could impact service. It is expected that conditions would be gradual and would not create unforeseen problems or complications.

5.3.11 Aircraft Crash

Description of Hazard

Airline crashes are defined as an accident of private, commercial, or military aircraft on land or oversea. Airline crashes, like other transportation accidents, are less likely to lead to a state or federal disaster declaration, than other hazards previously and aforementioned.

Location and Extent of Hazard in the City of Santa Barbara

In addition to being within the flight pattern of many airports providing regional flights (i.e., Los Angeles International, San Francisco International, Oakland, San Jose International, Burbank Airport, John Wayne Airport, Long Beach Airport, Ontario International Airport), Santa Barbara has one general aviation airport

The Santa Barbara Airport (SBA) is located near Goleta, west of Santa Barbara. SBA encompasses 952 acres and services five major airlines with 12 non-stop destinations. SBA served nearly 786,000 passengers in 2018 and is the 13th largest airport in California (Santa Barbara Airport 2021). SBA has approximately 32 daily non-stop flights including to Chicago, Dallas, Denver, Las Vegas, Los Angeles, Oakland, Phoenix, Portland, Sacramento, Salt Lake City, San Francisco, and Seattle.

History of Hazard in the City of Santa Barbara

Currently, in the City of Santa Barbara, there has not been a record of a large aircraft incident.

Probability of Occurrence

Given that no known aircraft crashes have occurred in the county or the City, the probability of occurrence is low. However, with the number of general aviation operations, military flights, and its position between Los Angeles/San Diego and the Bay Area, there is a possibility of Santa Barbara County experiencing an airline crash.

Climate Change Consideration

There is no known linkage between climate change and airline crashes. Although bad weather does play a factor in some airline crashes, current aviation technology, and safety standards greatly reduce the risk of potential public and environmental safety concerns, including from weather.

5.3.12 Coastal Hazards

Description of Hazard

Erosion is a natural process that alters existing geomorphic features. Erosion can occur due to several factors, including winter storms, tidal action, wind-generated high surf, wave action, and rising sea levels.

Coastal storms produce large ocean waves that sweep across low-lying coastlines making landfall. Storm surges can inundate coastal areas, destroy dunes, and cause flooding. If a storm surge occurs at the same time as high tide, the water height will be even greater. Historically, the county has also been vulnerable to storm surge inundation associated with El Niño events and a related increase in storm severity.

Location and Extent of Hazard in the City of Santa Barbara

The impacts from sea level rise and erosion in the City will be felt along its six-mile-long coastline. Much of the westerly portion of the City's coastal zone is situated on bluffs overlooking the beach. Bluff areas in the City include the area from approximately Sea Ledge Lane at the west end of the City of Santa Barbara to approximately Santa Barbara Point, as well the far easterly portion of the City by the Bellosguardo Estate. Only a few small portions of the bluff area along the City's shoreline are currently protected by shoreline protection devices. Shoreline protection devices, such as seawalls and rock revetments, are structures along the coast that can provide flood and erosion protection for properties but can result in accelerated erosion of sandy beach areas in front of (seaward) and adjacent to the devices. These bluffs are currently eroding with exposure to waves and as a result of upland erosion and geologic hazards such as landslides (City of Santa Barbara 2020).

The low-lying areas of the City include the City's waterfront, lower downtown area, Airport, and Arroyo Burro County Beach Park. These low-lying areas have experienced coastal flooding due to storms surges and wave attacks, although the currently wide beaches fronting the City of Santa Barbara's waterfront tend to reduce such hazards. In these sandy beaches and low-lying areas in the City, impacts from erosion, tidal inundation, and storm waves are generally limited to the area south of Cabrillo Boulevard (City of Santa Barbara 2020).

Stearns Wharf is exposed to wave damage during large storms and a 100-year coastal event is expected to require temporary closure and significant structural repairs. The harbor includes the

marina, commercial uses, parking, industrial areas, and the City Pier (sometimes called the “harbor pier”), which supports the Coast Guard and houses a fuel dock. Under existing conditions, storm events and the highest high tides (e.g., “King Tides”) can dislocate pile caps at the floating docks, and waves can overtop the harbor breakwater and reduce public access (City of Santa Barbara 2020).

Sea level rise coupled with increased frequency, severity, and duration of high tide and storm events related to climate change will result in more frequent and severe extreme events along the coast.

These events could expose the coast to severe flooding and erosion, damage to coastal structures and real estate, and salinity intrusion into delta areas and coastal aquifers (Projecting Future Sea Level, A Report from the California Climate Change Center 2006).

History of Hazard in the City of Santa Barbara

Typically, coastal hazards increase during periods of major storms that can coincide with high tides, causing coastal flooding, coastal bluff erosion, and landslides such as those that were experienced during the 1983, 1998, and 2015/2016 El Niño storms. Segments of the South Coast, in particular, have been subject to significant damage from coastal hazards. Homes along the City’s coastline suffered substantial damage during the 1983 and 2015/2016 El Niño events. Subsequent El Niño seasons led to major beach erosion and further damage in some locations.

Historic coastal flooding has occurred along the county’s South Coast since the mid-1800s. Between 1862 and 2010, the county had 15 significant floods, 8 of which were deemed a Presidential Disaster Declaration (County of Santa Barbara 2011). Coastal flooding has historically damaged residences, crops, and transportation infrastructure and is highly costly (each costing millions of dollars) (County of Santa Barbara 2017).

Coastal erosion is a recurring and ongoing hazard in south county and is particularly severe along Padaro Lane, Channel Drive, Del Playa Drive, More Mesa, Goleta Beach, Hope Ranch, and Shoreline Park. Coastal erosion hazards have resulted in the adoption of required city and County blufftop setbacks because development in coastal communities generally require a minimum of 75 years of structural life. Many residences along Del Playa Drive in Isla Vista are threatened by coastal erosion and setbacks have eroded to the point many homes now sit on the cliff edge.

Probability of Occurrence

Coastal flooding from tidal inundation and wave attack and associated erosion of coastal bluffs and beaches occurs during many winters but is most pronounced during past major El Niño events, which have return intervals of 2 to 7 years. Although many private coastal properties and public facilities have been protected by rock revetments or seawalls in the County, coastal flooding, and beach and bluff erosion continue in areas such as the City. While the existing probability of occurrence is typically confined to El Niño seasons or major storm events, as discussed below, climate change and sea level rise are projected to increase in frequency and severity of occurrence.

Climate Change Considerations

The County’s 2017 Coastal Resiliency Project projects sea level in the county will rise by 10.2 inches in 2030, 27.2 inches by 2060, and 60.2 inches in 2100 (County of Santa Barbara 2017). The

County modeled coastal hazards for coastal armoring and no coastal armoring. Particularly susceptible areas of the county to sea level rise related impacts include Isla Vista, Goleta Beach County Park, and the Santa Barbara Airport, coastal bluff homes in Summerland, Toro Canyon and Padaro Lane, segments of the UPRR and Highway 101 from the City of Carpinteria to the Gaviota Coast, including the City of Santa Barbara (County of Santa Barbara 2017).

Additionally, more specific coastal hazard modeling was performed for the City by Environmental Science Associates as part of the city's 2021 *Sea Level Rise Adaptation and Vulnerability Plan*. This plan similarly concluded that the most susceptible areas of the City include Downtown Santa Barbara, East Beach, and Leadbetter Beach (City of Santa Barbara 2021). See Section 6.7, *Coastal Hazards* for more information about the Sea Level Rise Adaptation Plan's assessment of vulnerabilities in the City from coastal hazards.

Based on these studies, sea levels are projected to rise by as much as 6.6 feet by 2100, though more extreme scenarios project sea levels rising as much as 7.1 feet by 2100; however, these extreme scenarios are based on worst-case GHG emissions assumptions, are highly conservative, and considered to be very unlikely of occurring (refer to Table 5-11 of the MJHMP). While sea level rise projections will continue to change as scientific understanding increases and policy choices manifest, what is clear for the most current projections is that sea levels are bound to increase at a significant rate, further increasing both the probability and severity of coastal hazards throughout all of Santa Barbara County (Ocean Protection Council 2018).

5.3.13 Extreme Heat

Description of Hazard

Extreme heat is defined by FEMA as temperatures that hover 10 degrees Fahrenheit (°F) or more above the regional average high temperature or over 100 °F in California and last for at least three days or even as long as several weeks (FEMA 2021). Extreme heat is a function of heat and relative humidity. A heat index describes how hot the heat-humidity combination makes the air feel. As relative humidity increases, the air seems warmer than it is because the body is less capable of cooling itself or regulating heat via evaporation of perspiration. As the heat index rises, so do health risks such as heat exhaustion, sunstroke, and heatstroke.

While the effects of extreme heat on human health can be severe, so too can its effects be on natural ecosystems, services, infrastructure, and various economic sectors (e.g., agricultural sector). During periods of extreme heat, transportation, gas, power, and other services may be disrupted, and critical infrastructure may be destroyed or damaged (FEMA 2021). The National Institute for Occupational Safety and Health (NIOSH), alongside OSHA, provides a Heat Safety Tool App that offers occupational safety and health recommendations based on the heat index (OSHA 2021). Each extreme heat day or heat wave can present additional risk of other hazards present within the County but is primarily a direct contributor to wildfire hazards and risks (refer to Section 5.3.1, *Wildfire*). As heat increases, the need for additional cooling systems to avoid mechanical failure increases as well. This can increase costs to consumers and may contribute to climate change if fossil fuels are used to generate the electricity needed to operate cooling systems.

Location and Extent of Hazard in the City of Santa Barbara

All of Santa Barbara County can experience extreme heat. Coastal communities such as the City on average have lower temperatures compared to communities in the inland areas of the county and could be less at risk to extreme temperatures although potentially less acclimatized to high temperatures if they occur.

History of Hazard in the City of Santa Barbara

Santa Barbara County and the City have experienced several extreme heat events in the past; however, they are not well documented. One documented event reported as “simoon”, occurred on June 17, 1859, where a record temperature of 133 °F was taken during an extreme heat and wind event that struck Santa Barbara in the early afternoon (Noozhawk 2020). More recently, according to the NOAA Storm Events Database, a combination of high pressure and high humidity caused temperatures to spike to between 100 °F and 119 °F on July 22, 2006, throughout southern California, including the county (NOAA 2021). In 2020, heatwaves in the Santa Ynez Valley with temperatures reaching 118 °F caused early grape harvests at wineries (Jervis 2020).

Probability of Occurrence

In any given year, the City can be subject to extreme heat conditions.

Climate Change Considerations

Historically, Santa Barbara County has experienced an average of four extreme heat days a year, however, this is expected to increase to 12 extreme heat events per year by 2030, 19 extreme heat events per year by 2060, and 34 extreme heat events per year by 2100 (Santa Barbara County Planning and Development Department 2021). Due to the rising temperatures, heat waves are likely to become more frequent, which will have direct impacts on human health in terms of heat-related illness. Outdoor laborers will be most vulnerable to the rising temperatures and most at risk for heat-related illnesses. Residents will also be vulnerable to rising temperatures, as many of the homes on the coast do not have air conditioning units, as there was less of a need in the past, and therefore may be less prepared compared to the inland region of the county to adapt to extreme heat events.

Cascading impacts include increased stress on water quantity and quality, degraded air quality, and increased potential for more severe or catastrophic natural events such as heavy rain, droughts, and wildfire. Another cascading impact includes increased duration and intensity of wildfires with warmer temperatures.

Extreme heat has also been shown to accelerate wear and tear on the natural gas system and electrical infrastructure. Projected increases in summer demand associated with rising temperatures may increase risks to energy infrastructure and may exceed the capacity of existing substations and distribution line infrastructure and systems.

5.3.14 Hazardous Materials Release

Description of Hazard

Hazardous Waste/Materials are widely used or created at facilities such as hospitals, wastewater treatments plants, universities, and industrial/manufacturing warehouses. Several household products such as cleaning supplies and paint are also considered hazardous materials. Hazardous materials include:

- Explosives;
- Flammable, non-flammable, and poisonous gases;
- Flammable liquids;
- Flammable, spontaneously combustible, and dangerous when wet solids;
- Oxidizers and organic peroxides;
- Poisons and infectious substances;
- Radioactive materials; and
- Corrosive materials.

Both mobile and external hazardous materials releases can spread and affect a wide area, through the release of plumes of chemical, biological, or radiological elements or leaks or spills. Conversely, internal releases are more likely to be confined to the structure the material is stored in.

Chemicals may be corrosive or otherwise damaging over time. A hazardous materials release could also result in fire or explosion. Contamination may be carried out of the immediate area of the incident by people, vehicles, wind, and water. Weather conditions can increase the size and intensity of the Hazardous Materials Release. Topography, such as hills and canyons, can increase the size of the release or make it more difficult to contain.

Location and Extent of Hazard in the City of Santa Barbara

The locations and identity of facilities that store hazardous materials are reported to local and federal governments. Many facilities have their own hazardous materials guides and response plans, including transportation companies that transport hazardous materials.

The release of hazardous materials into the environment can cause a multitude of problems. Although these incidents can happen almost anywhere, certain areas of the City are at higher risk, such as near roadways that are frequently used to transport hazardous materials and locations with industrial facilities that use, store, and/or dispose of such materials. Areas crossed by railways, waterways, airways, and pipelines also have increased potential for mishaps.

History of Hazard in the City of Santa Barbara

Several significant hazardous material incidents have occurred in the County in the past century, and include the oil spills which occurred in 1969, 1997, 2007, 2008, 2015, and 2020 (see Section 5.3.15, *Oil Spill* for a detailed discussion of these incidents and risks associated with oil spill-related hazards). Approximately 550 hazardous materials incidents in the City were reported to the Cal OES Warning Center from 2006 through 2021, which is the largest number of incidents by far when compared to any other city within the county. These incidents include both transportation and

fixed-facility incidents. This list does not capture all hazardous material spills within the City, only those that were significant enough to be reported to Cal OES (refer to Table 5-18 of the MJHMP for a summary of hazardous materials incidents reported to Cal OES in Santa Barbara County by location and type). The data indicates that hazardous materials incidents can occur across the county with a greater frequency in the more developed areas.

Probability of Occurrence

Given that 550 significant hazardous materials incidents occurred within the City over 15 years (i.e., between 2006 and 2021), these incidents occur approximately 37 times per year or twice per month. Incidences can occur during the production, storage, transportation, use, or disposal of hazardous materials. Communities can be at risk if a chemical is used unsafely or released in harmful amounts into the environment. Hazardous materials can cause death, serious injury, long-lasting health effects, and damage to buildings, the environment, homes, and other property.

Climate Change Consideration

There are no known effects of climate change on human-caused hazards including hazardous material and waste incidents. However, the weather may play a factor in hazardous material releases. While there is little evidence to link climate change increase occurrences of hazardous material releases, it could impact the response and recovery efforts.

5.3.15 Oil Spill

Description of Hazard

An oil spill is a release of liquid petroleum hydrocarbon into the environment due to human activity or technological error that results in pollution of land, water, and air. Oil releases also occur naturally through oil seeps either on land or underwater. Marine oil spills, whether accidental or intentional, can result from the release of crude oil from offshore oil platforms, drilling rigs, wells, pipelines, tank trucks, and marine tank vessels (tankers). Refined petroleum products such as gasoline, diesel, and heavier fuels such as bunker fuel used by cargo ships are also sources of potential oil spill releases. Depending on the origin, size, and duration of the release, an oil spill can have serious impacts on air and water quality, public health, plant and animal habitat, and biological resources.

Clean up and recovery is time and cost consuming, and dependent on weather conditions such as wind and rain. Tidal and Current conditions may also make the spill more dynamic.

Location and Extent of Hazard in the City of Santa Barbara

This hazard can occur in any part of Santa Barbara County where existing oil and gas operations are located, either onshore through supply pipelines and well facilities or offshore where there are several platforms and undersea pipelines. Currently, there are 19 offshore oil platforms off the coast of Santa Barbara County as well as two onshore refineries and six oil separation and treatment plants (refer to Figure 5-32 of the MJHMP; County Department of Planning and Development 2017).

History of Hazard in the City of Santa Barbara

The City has experienced several large oil spills. In 1969, an estimated total of 100,000 barrels (4.2 million gallons) of crude oil was spilled from Platform A of a Union Oil drilling rig platform into the ocean and onto nearby shores over several months. In 2015, a 24-inch subterranean pipeline owned and operated by Plains All America Pipeline ruptured on the Gaviota Coast, west of Refugio State Park. Much of the crude oil spilled ran down a storm drain and into a ravine under the freeway and entered the ocean. The size of the spill ranged from 100,000 to 140,000 gallons, covering the Santa Barbara County coastline and extending nearly 9 miles out into the ocean. Refer to Section 5.6.7 of the MJHMP for a detailed description of these incidents and other oil spills in the county.

Probability of Occurrence

In any given year, Santa Barbara City could be subject to oil spills onshore or offshore.

Climate Change Considerations

With increased changes in weather, climate, and economics, the demands for oil and gas production may shift. This shift in demand could increase production, distribution, and transportation of oil products; thus, increasing the potential oil spill occurrences.

6.0 VULNERABILITY ASSESSMENT

The vulnerability assessment builds on the hazard assessment provided in Section 5.0 of the LHMP and Chapter 5.0 of the 2022 MJHMP to estimate losses where data is available and consider a specific list of critical facilities identified within the City of Santa Barbara. The City identified 233 critical facilities to be included in the Vulnerability Assessment portion of the LHMP. These facilities primarily included utilities, government, and educational structures as well as bridges. Of the available data, it was shown that these buildings are worth approximately \$117,303,136 in total building value (i.e., structural and content value) (Table 6-1). No values were able to be obtained for many major facilities, so the actual value may be much more than this amount.

Table 6-1. Critical Facilities in the City of Santa Barbara

Type	Name	Address	Total Building Value
Communications	Vic Trace Ac		-
Paging Tower	Dial Page, Inc	923 Laguna Street	-
Paging Tower	Dial Page, Inc	320 West Pueblo Street	-
Community Center	Recreation	1232 De La Vina Street	-
Community Center	Recreation	100 E. Carrillo Street	-
Community Center	Lower Westside Community Center	629 Coronel Place	-
Community Center	Franklin Community Center	1136 E. Montecito Street	-
Hydrology Field	Hydrology Field Installations	735 Anacapa Street	\$463,890

Type	Name	Address	Total Building Value
Reservoir	Escondido Pump Station and Reservoir	2300 Skyline Way	-
Reservoir	La Cornilla Pump Station and Vic Trace Reservoir	1631 La Coronilla Drive	-
Utilities	Sheffield Pump Station	2375 Foothill Road	-
Utilities	Skofield Pump Station	2117 Mount Calvary	-
Utilities	Laguna Pump Station	236 E. Cabrillo Blvd	-
Water District	Goleta West Water District	J Road	-
Water Treatment Plant	Cater Water Treatment Plant	1150 San Roque Road	-
Water Treatment Plant	Ortega Well Treatment Plant	220 E. Ortega Street	-
Water Treatment Plant	Ortega Well Treatment Plant	631 Garden St	-
Water Treatment Plant	Sheffield Treatment Plant	530 Mountain Drive	-
Water Treatment Plant	Charles E. Meyer Main Desalination Plant	525 E. Yananoli St.	-
Water Treatment Plant	SCADA / MCC Building	525 E. Yananoli St.	-
Water Treatment Plant	El Estero Water Resources Center	520 E. Yananoli St.	-
Clinic	McDonald Building Human Resources	1226 Anacapa Street	\$1,036,791
Clinic	Sansum Clinic-Pesetas	215 Pesetas Ln	-
Clinic	Santa Barbara Community Dialysis Center	222 Pesetas Lane	-
Clinic	Valle Verde Health Facility- SNF	900 Calle De Los Amigos	-
Clinic	La Cumbre Senior Living Concepts	3880 Via Lucero	-
Clinic	Vista Del Monte Sunridge SNF	3775 Modoc Road	-
Clinic	Sansum Clinic-Hitchcock	51 Hitchcock	-
Clinic	Samarkand- Smith Center- SNF	2566 Treasure Drive	-
Clinic	Mission Terrace Convalescent Hospital	623 West Junipero Street	-
Clinic	Sansum Clinic- Ob/ Gyn	515 W. Pueblo St	-
Clinic	Cottage Rehabilitation Hospital	2415 De La Vina Street	-
Clinic	Sansum Clinic- Pueblo	317 Pueblo St	-
Clinic	Santa Barbara Cottage Hospital	Bath At Pueblo	-
Clinic	Santa Barbara Convalescent Hospital	2225 De La Vina Street	-
Clinic	Santa Barbara Neighborhood Clinic- Westside	628 W. Micheltorena Street	-
Clinic	Santa Barbara Artificial Kidney Center	1704 State Street, #2	-

6.0. Vulnerability Assessment

Type	Name	Address	Total Building Value
Clinic	Santa Barbara Neighborhood Clinic- Eastside	915 N Milpas St	-
Clinic	PhD Franklin Clinic	1136 Montecito St	-
Clinic	PhD Children's Medical Services	1111 Chapala Street	\$375,583
EMS Station	American Medical Response Station 3	415 West Figueroa Street	-
EMS Station	American Medical Response Station 4	1025 Castillo Street	-
Nursing Home	Cliff View Terrace	1020 Cliff Drive	-
Nursing Home	Alto Lucero Transitional Care	3880 Via Lucero	-
Nursing Home	The Californian	2225 De La Vina St	-
Nursing Home	Alexander Court	325 W Islay St	-
Nursing Home	Samarkand Skilled Nursing Facility	2566 Treasure Dr	-
Nursing Home	Samarkand of Santa Barbara	2550 Treasure Drive	-
Nursing Home	Wood Glen Hall, Inc.	3010 Foothill Road	-
Nursing Home	Mission Villa	321 West Mission Street	-
Nursing Home	Vista Del Monte	3775 Modoc Road	-
Nursing Home	Valle Verde Health Facility	900 Calle De Los Amigos	-
Nursing Home	Alexander Gardens	2120 Santa Barbara Street	-
Nursing Home	Mission Terrace Convalescent Hospital	623 W Junipero St	-
Nursing Home	Oak Cottage of Santa Barbara Memory Care	1820 Delavina Street	-
Nursing Home	Garden Court at Villa Santa Barbara	227 E. Anapamu Street	-
Nursing Home	Villa Alamar	45 East Alamar	-
Nursing Home	Villa Riviera	1621 Grand Avenue	-
Nursing Home	Mountain House	37 Mountain Drive	-
Nursing Home	At Home in Santa Barbara	1801 Bath Street	-
Veteran Services	Sb Veterans Memorial Bldg.	112 W. Cabrillo Blvd.	\$2,034,893
Airport Patrol	Santa Barbara Airport Patrol	601 Firestone Road	-
Colleges / Universities	Fielding Graduate University	2020 De La Vina St	-
Colleges / Universities	The Santa Barbara and Ventura Colleges of Law At Santa Barbara	20 E Victoria St	-
Colleges / Universities	Antioch University-Santa Barbara	602 Anacapa Street	-
Colleges / Universities	Santa Barbara City College	721 Cliff Drive	-
Court	County Courthouse	1100 Anacapa Street	\$40,553,793
Court	Sb Superior Court Building	118 E. Figueroa Street	\$9,343,534
Court	County Courthouse Annex	1100 Anacapa St	\$6,023,849
Court	Court Services Bldg.	118 E. Figueroa Street	\$357,608

Type	Name	Address	Total Building Value
Education	Saint Vincent Orphanage and School Building	925 De La Vina Street	-
Education	Santa Barbara Unified Early Childhood	1030 E. Yanonali St.	-
Education	Adelante Charter	1102 E. Yanonali St.	-
Education	Franklin Elementary	1111 E. Mason St.	-
Education	Harding University Partnership	1625 Robbins St.	-
Education	Monte Vista Elementary	730 N. Hope Ave.	-
Education	Alta Vista Alternative High	215 E. Ortega St.	-
Education	McKinley Elementary	350 Loma Alta Dr.	-
Education	Roosevelt Elementary	1990 Laguna St.	-
Education	Open Alternative	4025 Foothill Rd.	-
Education	Monroe Elementary	431 Flora Vista Dr.	-
Education	Alta Vista Alternative Junior High	215 E. Ortega St.	-
Education	La Cumbre Junior High	2255 Modoc Rd.	-
Education	Santa Barbara Community Academy	850 Portesuello Ave.	-
Education	Adams Elementary	2701 Las Positas Rd.	-
Education	Santa Barbara Junior High	721 E. Cota St.	-
Education	Santa Barbara Senior High	700 E. Anapamu St.	-
Education	La Cuesta Continuation High	710 Santa Barbara St.	-
Education	Washington Elementary	290 Lighthouse Rd.	-
Education	Hope Elementary	3970-A La Colina Rd.	-
Education	La Colina Junior High	4025 Foothill Rd.	-
Education	Cleveland Elementary	123 Alameda Padre Serra	-
Education	Peabody Charter	3018 Calle Noguera	-
Education	Providence-SBCS	3723 Modoc Rd	-
Education	El Montecito School San Roque	3225 Calle Pinon	-
Education	Notre Dame School	33 E Micheltorena St	-
Education	Bishop Garcia Diego High School	4000 La Colina Rd	-
Education	Sunrise Montessori School	1201 E Yanonali St	-
Education	Providence	630 E Canon Perdido St	-
Education	Santa Barbara Middle School	1321 Alameda Padre Serra	-
Education	The Knox School of Santa Barbara	1525 Santa Barbara St	-
Education	Eureka School of Santa Barbara	3324 State St Ste M	-
Education	St Therese Classical Academy	33 E Micheltorena St	-
Fire Station	Fire Station 4	19 N. Ontare Road	-
Fire Station	Fire Station 5	2505 Modoc Road	-
Fire Station	Fire Station 6	1802 Cliff Drive	-
Fire Station	Fire Station 1	121 W. Carrillo St	-

6.0. Vulnerability Assessment

Type	Name	Address	Total Building Value
Fire Station	Fire Station 3	415 E. Sola Street	-
Fire Station	Fire Station 7	605 Mission Ridge Road	-
Fire Station	Fire Training	30 S. Olive Street (2 S. Cesar Chavez)	-
Fire Station	Fire Station 2	819 Cacique	-
Fire Station	Airport Fire Station 8	40 Hartley Place	-
Government	Administration Building	105 E. Anapamu Street	\$27,266,352
Government	Engineering Building	123 E. Anapamu Street	\$11,145,938
Government	Sbch East Wing	1105 Santa Barbara Street	\$7,308,080
Government	Probation Building	117 E. Carrillo Street	\$4,216,037
Government	Hall Of Records	1100 Anacapa Street	\$4,179,732
Government	Schwartz Building	130 E Victoria St	\$2,652,501
Government	City Hall	735 Anacapa Street	-
Government	Public Works	220 E. Ortega Street	-
Government	Public Works	630 Garden Street	-
Government	Community Development	630 Garden Street	-
Government	Public Works	630 Garden Street	-
Government	Public Works Yard	635 Laguna Street	-
Government	Admin Well Corp. at Parks Department	402 East Ortega Street	-
Government	Parks And Recreation	620 Laguna St.	-
Government	ADMHS Offices	2034 De La Vina Street	\$145,154
Government	Sb Child Support Office	4 East Carrillo Street	\$199,401
Harbor Patrol	Santa Barbara Waterfront Harbor Patrol	132 Harbor Way A, Po Box 1990	-
Historic Site	Virginia Hotel	17 And 23 West Haley Street	-
Historic Site	Mission Santa Barbara	2201 Laguna Street	-
Historic Site	Janssens-Orella-Birk-Building	1029 - 1031 State Street	-
Historic Site	Hill-Carrillo Adobe	11 East Carrillo Street	-
Historic Site	Old Lobero Theatre	33 E. Canon Perdido	-
Historic Site	Casa De La Guerra	808-818 State Street, 813 - 819 Anacapa Street, 9 - 25 E. De La Guerra Street	-
Historic Site	Santa Barbara Presidio	123 East Canon Perdido Street	-
Historic Site	Hastings Adobe	414 W. Montecito Street	-
Historic Site	Covarrubias Adobe	715 Santa Barbara Street	-
Historic Site	Rafael Gonzalez House	835 Laguna Street	-
Historic Site	Faith Mission	409 State Street	-
Historic Site	Los Banos Del Mar	401 Shoreline Drive	-
Historic Site	Andalucía Building	316 - 324 State Street	-
Historic Site	Burton Mound	129 W. Mason At Burton Circle	-
Police	Police Department	215 E. Figueroa St.	-

Type	Name	Address	Total Building Value
Post Office	US Post Office Main	836 Anacapa Street	-
Airport	Santa Barbara Airport	500 James Fowler Road	-
Bridge	Bridge	'Olive Mill Road' / 'U.S. Highway 101'	-
Bridge	Bridge	'State Route 192' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Castillo Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Carrillo Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Street'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Street'	-
Bridge	Bridge	'State Route 225' / UPRR	-
Bridge	Bridge	HWY 101 Sb' / 'Garden Street'	-
Bridge	Bridge	HWY 101 Nb' / 'Garden Street'	-
Bridge	Bridge	HWY 101 Sb' / 'State Street'	-
Bridge	Bridge	HWY 101 Nb' / 'State Street'	-
Bridge	Bridge	HWY 101' / 'Sycamore Creek'	-
Bridge	Bridge	HWY 101' / 'Cacique Street'	-
Bridge	Bridge	'Mission Canyon Rd' / 'Mission Creek'	-
Bridge	Bridge	'Las Canoas Rd' / 'Rattlesnake Canyon'	-
Bridge	Bridge	'Ontare Road' / 'San Roque Creek'	-
Bridge	Bridge	'Hollister Ave' / 'Carneros Creek'	-
Bridge	Bridge	'Gutierrez St' / 'Mission Creek'	-
Bridge	Bridge	'State St' / 'Mission Creek'	-
Bridge	Bridge	'Castillo Street' / 'Mission Creek'	-
Bridge	Bridge	'Carrillo St' / 'Mission Creek'	-
Bridge	Bridge	'State Street' / 'San Roque Creek'	-
Bridge	Bridge	'Pueblo St' / 'Mission Creek'	-
Bridge	Bridge	'Montecito St' / 'Mission Creek'	-
Bridge	Bridge	'James Fowler Road' / 'San Pedro Creek'	-
Bridge	Bridge	'Quinientos St' / 'Sycamore Creek'	-
Bridge	Bridge	'Torino Drive' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Por Lamar Dr' / 'Sycamore Creek'	-
Bridge	Bridge	'Ninos Dr' / 'Sycamore Creek'	-
Bridge	Bridge	'Zoological Garden' / 'Sycamore Creek'	-
Bridge	Bridge	'Carpinteria St' / 'Sycamore Creek'	-
Bridge	Bridge	'De La Guerra St' / 'Mission Creek'	-
Bridge	Bridge	'Firestone' / 'Carneros Creek'	-
Bridge	Bridge	'Pedregosa Street' / 'Mission Creek'	-
Bridge	Bridge	'Calle De Los Amigo' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Fairview Ave' / 'Up Rr & Amtrak'	-
Bridge	Bridge	'East Cabrillo Blvd' / 'Laguna Channel'	-

Type	Name	Address	Total Building Value
Bridge	Bridge	'E Mason Street' / 'Sycamore Canyon Creek'	-
Bridge	Bridge	'De La Vina St' / 'Mission Creek'	-
Bridge	Bridge	'Ortega Street' / 'Mission Creek'	-
Bridge	Bridge	'Primavera Road' / 'Cieneguitas Creek'	-
Bridge	Bridge	'Hope Avenue' / 'Arroyo Burro Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Cabrillo Blvd'	-
Bridge	Bridge	HWY 101 Nb' / 'Cabrillo Blvd'	-
Bridge	Bridge	'State Route 192' / 'San Roque Canyon'	-
Bridge	Bridge	'State Route 192' / 'Sycamore Canyon Creek'	-
Bridge	Bridge	'State St (Wb)' / 'Us Highway 101'	-
Bridge	Bridge	'State St (Eb)' / 'Us Highway 101'	-
Bridge	Bridge	'State Route 225' / HWY 101'	-
Bridge	Bridge	HWY 101 Nb' / 'Carrillo Street'	-
Bridge	Bridge	HWY 101 Nb Rt Lane' / 'Mission Creek'	-
Bridge	Bridge	HWY 101' / 'Quarantina Street'	-
Bridge	Bridge	HWY 101' / 'Salsipuedes Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101' / 'Chapala St Equalizer'	-
Bridge	Bridge	'La Cumbre Road' / HWY 101'	-
Bridge	Bridge	'Micheltorena St' / HWY UPRR Mission'	-
Bridge	Bridge	HWY 101' / 'Milpas Street'	-
Bridge	Bridge	HWY 101' / 'Cacique Street'	-
Bridge	Bridge	'Cliff Drive' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Hollister Avenue' / 'San Pedro Creek'	-
Bridge	Bridge	'Mission St' / 'Mission Creek'	-
Bridge	Bridge	'Alamar Ave' / 'Mission Creek'	-
Bridge	Bridge	'State Street' / 'Mission Creek'	-
Bridge	Bridge	'Valerio St' / 'Mission Creek'	-
Bridge	Bridge	'Junipero Street' / 'Mission Creek'	-
Bridge	Bridge	'Tallant Road' / 'Mission Creek'	-
Bridge	Bridge	'Yanonali Street' / 'Laguna Drainage Channel'	-
Bridge	Bridge	'East Cabrillo Blvd' / 'Sycamore Creek'	-
Bridge	Bridge	'Chapala Street' / 'Mission Creek'	-
Bridge	Bridge	'Punta Gorda Road' / 'Punta Gorda Creek'	-

Type	Name	Address	Total Building Value
Bridge	Bridge	'Cliff Drive' / 'Hillside'	-
Bridge	Bridge	'Anapamu Street' / 'Old Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Castillo Street'	-
Bridge	Bridge	'State Route 154' / 'La Colina Rd'	-
Bridge	Bridge	'State Route 154' / 'Primavera Rd'	-
Bridge	Bridge	'Hollister Avenue' / 'Tecolotito Creek'	-
Bridge	Bridge	'Arrellaga Street' / 'Mission Creek'	-
Bridge	Bridge	'De La Vina St' / 'Mission Creek'	-
Bridge	Bridge	'Islay St' / 'Mission Creek'	-
Bridge	Bridge	'Bath St' / 'Mission Creek'	-
Bridge	Bridge	'Matthews Street' / 'San Pedro Creek'	-
Government	Buses/Vehicles		-
Train Depot	Southern Pacific Train Depot	209 State Street	-

Using a GIS and the mapped extents of the hazards affecting the City, it was determined which critical facilities are exposed to which hazards depending on whether they fall within the mapped hazard area. The results of the exposure analysis are included in this section. A further description of the threats and methodologies used in this analysis is provided in Chapter 6.0, *Vulnerability Assessment* of the 2022 MJHMP. As the City continues to assess its vulnerability, the collection of better and more complete data will help to improve the risk assessment process to direct planning and mitigation decisions.

Table 6-2. Summary of Potential Impacts on Critical Facilities

Hazard Type	Specific Risk	Count	% of Critical Facilities Impacted	Exposure (\$)
Wildfire	Moderate Wildfire Threat	6	3%	-
	Very High Wildfire Threat	1	0.5%	-
Earthquake	High Liquefaction Potential	75	32%	\$2,034,893
	Moderate Liquefaction Potential	61	26%	-
Flood	1% Chance FEMA Flood Zone	73	31%	\$2,034,893
	0.2% Chance FEMA Flood Zone	6	3%	-
Tsunami		23	10%	\$2,034,893
Dam Failure	Lauro and Glen Annie Dam Failure	21	9%	-
Landslide	Class 7 and 9	40	17%	-
Coastal Hazards	Sea Level Rise (2030)	14	6%	-
	Sea Level Rise (2060)	19	8%	-

6.1 WILDFIRE

The City and surrounding landscape exhibit a complex wildfire environment that presents a significant wildfire risk due to steep and varied terrain, a mosaic of different vegetation types, and a Wildland-Urban Interface (WUI) development pattern. The southern side of the Santa Ynez Mountains, including portions of the City, has a significant history of devastating wildland fires, including 2 of the state's 20 most destructive wildfires—the 1990 Paint Fire and the 2017 Thomas Fire. The Santa Barbara Fire Department recognizes the catastrophic impact of wildfire in the community and is committed to reducing hazards and risk through fire protection, fuel hazard reduction, public education, preparedness, and community involvement.

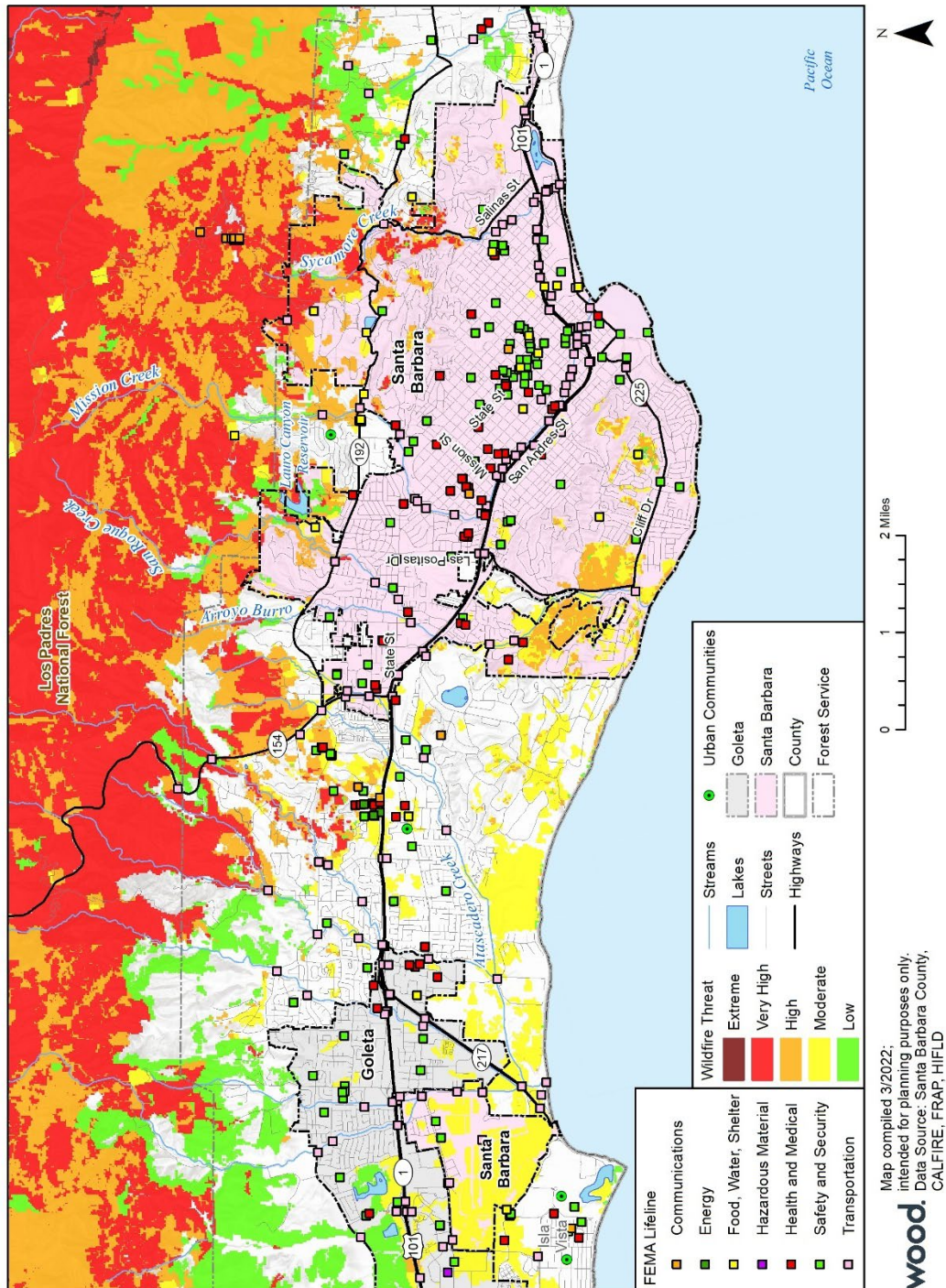
Santa Barbara County has extensive areas within mapped Fire Hazard Severity Zones and Wildland-Urban Interface (WUI) areas. These hazard areas generate vulnerability for life and structures, including critical facilities, throughout the county, but most severely within rural foothills areas where dry vegetation, steep slopes, and difficult access combine to create a high probability of wildfire. The City is surrounded by wildland vegetation and the western and southern slopes of the Santa Ynez Mountains. The City contains WUI area and has therefore been designated as a WUI community at risk. Based on these maps, the City has 321 acres (2.55 percent) within Very High Wildfire Threat areas, 746 acres (5.91 percent) within High Wildfire Threat areas, 942 acres (7.47 percent) within Moderate Wildfire Threat areas, and 94 acres (0.74 percent) within Low Wildfire Threat areas. Most of these areas are residential with limited vulnerabilities in commercial, agricultural, and industrial areas.

Based on the GIS analysis conducted for the 2022 MJHMP, in Santa Barbara, 561 improved properties with a total value of over \$687 million are vulnerable to wildfire. In Santa Barbara, approximately 1,333 residents live in very high, high, moderate, or low wildfire threat areas. This information is summarized in Table 6-3 below (see also, Section 6.3.1, *Wildfire* of the 2022 MJHMP). Figure 6-1 shows the fire threat in the City. Fire threat is a combination of two factors: 1) fire frequency or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four threat classes ranging from Moderate to Extreme. While the probability for the City is likely lower due to the urban environment and the Pacific Ocean to the south, the threat remains Moderate. However, northern portions of the City are adjacent to High and Very High threat areas.

Table 6-3. City of Santa Barbara at Risk to Wildfire Threat

Property Type	Improved Parcel Count by Wildfire Threat Level						Total Value	Population
	Extreme	Very High	High	Moderate	Low	Total		
Agricultural	0	1	0	0	0	1	\$90,528	
Commercial	0	0	1	6	0	7	\$48,704,948	
Exempt	0	0	1	3	0	4	\$4,194,834	
Industrial	0	0	0	1	0	1	\$69,301,580	
Mixed Use	0	0	0	0	0	0	\$0	0
Residential	0	60	198	253	33	544	\$562,254,207	1,333
Improved Vacant	0	0	3	1	0	4	\$2,935,184	
Total	0	61	203	264	33	561	\$687,481,281	1,333

Figure 6-1. City of Santa Barbara Critical Facilities within Wildfire Threat Zones

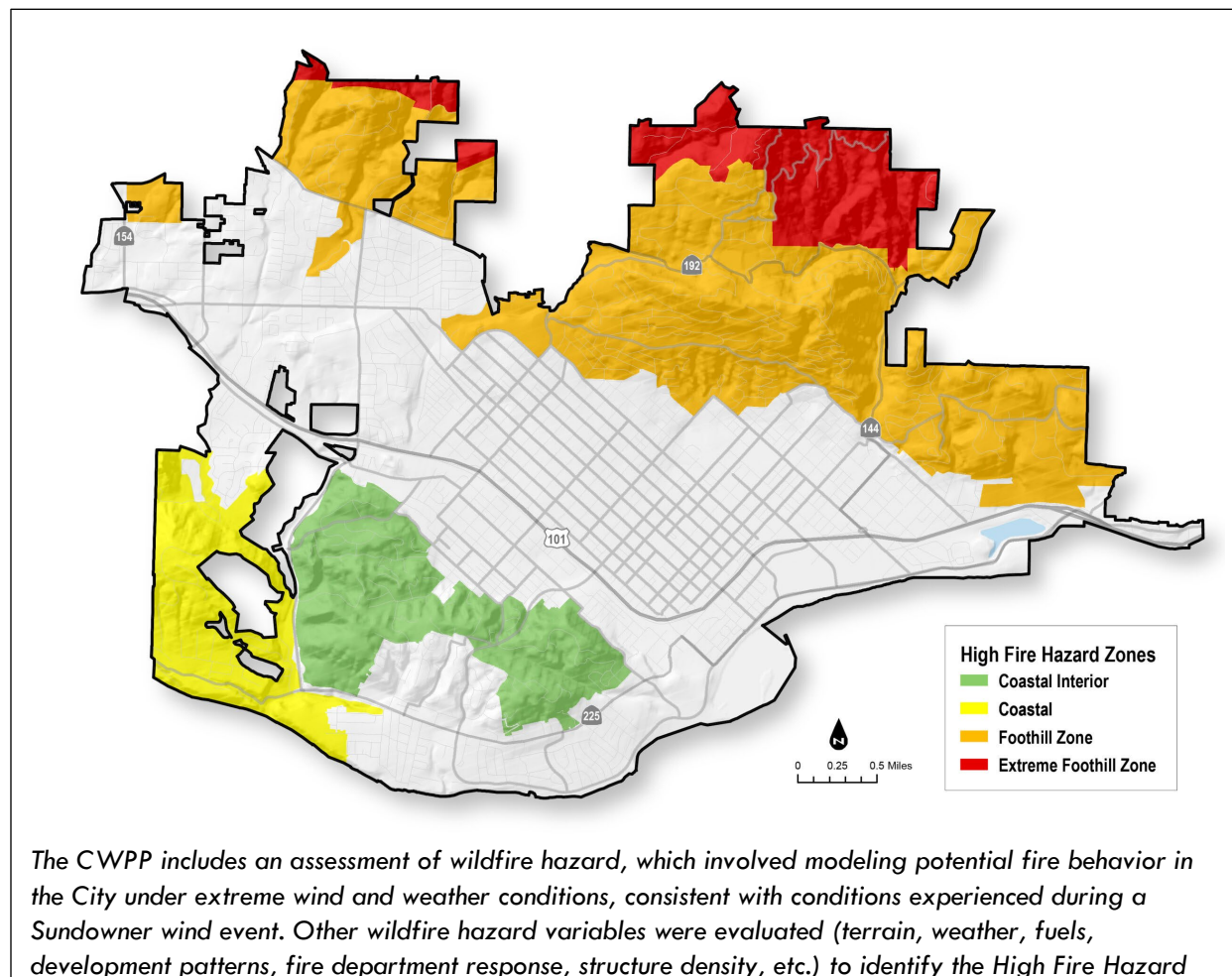


Seven of the City's critical facilities fall within Very High or Moderate wildfire threat areas, as listed in Table 6-4 (see also, Section 6.3.1, *Wildfire* of the 2022 MJHMP).

Table 6-4. City of Santa Barbara Critical Facilities Vulnerable to Wildfire

Type	Critical Facility	Hazard Source/Type	Total Building Value
Water Treatment Plant	Cater Water Treatment Plant	Moderate Wildfire Threat	-
Clinic	Sansum Clinic	Moderate Wildfire Threat	-
Airport	Santa Barbara Airport	Moderate Wildfire Threat	-
Bridge	Bridge	Very High Wildfire Threat	-
Bridge	Bridge	Moderate Wildfire Threat	-
Bridge	Bridge	Moderate Wildfire Threat	-
Bridge	Bridge	Moderate Wildfire Threat	-

The City has also delineated local High Fire Hazard Zones, linking to local wildfire management and response strategies in the CWPP. The CWPP is maintained to protect lives, property, and natural resources threatened by wildland fire. Development of the CWPP included an assessment of wildfire hazard to identify the High Fire Hazard Area of the City. The hazard assessment was used to evaluate the extent of the City's four High Fire Hazard Area Zones (Extreme Foothill, Foothill, Coastal Interior, and Coastal).



6.2 EARTHQUAKE & LIQUEFACTION

Chapter 6.0, *Vulnerabilities Assessment* of the 2022 MJHMP addresses regional seismicity under two scenarios that include the City of Santa Barbara. The 2,500-year scenario considers general seismicity from multiple faults in the region and a 7.0 magnitude event. The methodology utilizes probabilistic seismic hazard contour maps developed by the U.S. Geological Survey (USGS) for the 2018 update of the National Seismic Hazard Maps that are included with Hazus-MH. A deterministic scenario was also prepared to predict the outcome of a specific earthquake event. The deterministic scenarios used USGS provided ShakeMap datasets to model a Magnitude 7.4 earthquake of the Red Mountain Fault. This scenario assesses the effect that an earthquake sourced from this fault would generate in terms of damages and losses for the chosen area of interest (i.e., southern Santa Barbara County, including the City). Figure 6-2 is the ShakeMap produced for this scenario.

As described in the MJHMP, regional losses to people and property would include the City. As shown in the Red Mountain Fault ShakeMap scenario, the south and central parts of the county would perceive much stronger shaking and would likely receive the most severe damage when compared to the rest of the county. The entire City would perceive severe to extreme shaking and would likely receive moderate/heavy to very heavy damage. Direct effects of ground shaking could damage buildings and create dangerous debris and unstable structures. Displaced residents would likely seek shelter in the City, including residents from outside the City. Further, fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control.

Unreinforced masonry building type structures consist of buildings made of unreinforced concrete and brick, hollow concrete blocks, clay tiles, and adobe. Buildings constructed of these materials are heavy and brittle and typically provide little earthquake resistance. In small earthquakes, unreinforced buildings can crack, and in strong earthquakes, they tend to collapse. The City does not have any known unreinforced masonry buildings.

The City lies in an area with high, moderate, and low liquefaction severity classes. Regional earthquakes could cause liquefaction in the City, which could damage buildings and utilities when soils become unstable. Based on the GIS analysis conducted for the 2022 MJHMP, the City has 123,784 improved parcels valued at over \$21 billion in liquefaction severity zones. Based on this analysis, which accounts for residents only and not workers, 52,849 residents are living in this hazard zone within the City. While liquefaction would not likely affect all areas uniformly during an earthquake, this analysis indicates the extent and scale of vulnerabilities to liquefaction during a large earthquake.

Table 6-5. City of Santa Barbara at Risk to Liquefaction Hazard by Property Type

Property Type	Improved Parcel Count	Total Value	Population
<i>High Liquefaction Hazard</i>			
Agricultural	0	\$0	
Commercial	441	\$770,747,018	
Exempt	26	\$40,500,456	

Property Type	Improved Parcel Count	Total Value	Population
Industrial	193	\$386,752,938	
Mixed Use	43	\$171,822,528	105
Residential	2,212	\$2,036,799,933	5,419
Improved Vacant	9	\$3,921,284	
Total High Liquefaction	2,924	\$3,410,544,157	5,525
<i>Moderate Liquefaction Hazard</i>			
Agricultural	0	\$0	
Commercial	432	\$933,498,844	
Exempt	48	\$179,684,078	
Industrial	113	\$109,571,348	
Mixed Use	29	\$153,807,638	71
Residential	5,868	\$2,849,407,328	14,377
Improved Vacant	7	\$4,990,218	
Total Moderate Liquefaction	6,497	\$4,230,959,453	14,448
<i>Low Liquefaction Hazard</i>			
Agricultural	3	\$1,476,116	
Commercial	755	\$2,296,776,766	
Exempt	113	\$2,098,371,104	
Industrial	7	\$5,104,908	
Mixed Use	40	\$131,219,472	98
Residential	13,379	\$9,195,180,227	32,779
Improved Vacant	66	\$60,205,324	
Total Low Liquefaction	14,363	\$13,788,333,916	32,877
Total Liquefaction Hazard	23,784	\$21,429,837,526	52,849

As listed in Table 6-6, all critical facilities in the City would be vulnerable to damage or destruction from ground shaking and liquefaction during a significant regional earthquake (Figure 6-3; see also, Section 6.2.1, *Earthquake (Groundshaking)* and Section 6.3.3, *Liquefaction (Earthquake)* of the 2022 MJHMP).

Table 6-6. City of Santa Barbara Critical Facilities Vulnerable to Groundshaking & Liquefaction

Type	Name	Address	Total Building Value
Communications	Vic Trace Ac		-
Paging Tower	Dial Page, Inc	923 Laguna Street	-
Paging Tower	Dial Page, Inc	320 West Pueblo Street	-
Community Center	Recreation	1232 De La Vina Street	-
Community Center	Recreation	100 E. Carrillo Street	-
Community Center	Lower Westside Community Center	629 Coronel Place	-

Type	Name	Address	Total Building Value
Community Center	Franklin Community Center	1136 E. Montecito Street	-
Hydrology Field	Hydrology Field Installations	735 Anacapa Street	\$463,890
Reservoir	Escondido Pump Station and Reservoir	2300 Skyline Way	-
Reservoir	La Cornilla Pump Station and Vic Trace Reservoir	1631 La Coronilla Drive	-
Utilities	Sheffield Pump Station	2375 Foothill Road	-
Utilities	Skofield Pump Station	2117 Mount Calvary	-
Utilities	Laguna Pump Station	236 E. Cabrillo Blvd	-
Water District	Goleta West Water District	J Road	-
Water Treatment Plant	Cater Water Treatment Plant	1150 San Roque Road	-
Water Treatment Plant	Ortega Well Treatment Plant	220 E. Ortega Street	-
Water Treatment Plant	Ortega Well Treatment Plant	631 Garden St	-
Water Treatment Plant	Sheffield Treatment Plant	530 Mountain Drive	-
Water Treatment Plant	Charles E. Meyer Main Desalination Plant	525 E. Yananoli St.	-
Water Treatment Plant	SCADA / MCC Building	525 E. Yananoli St.	-
Water Treatment Plant	El Estero Water Resources Center	520 E. Yananoli St.	-
Clinic	McDonald Building Human Resources	1226 Anacapa Street	\$1,036,791
Clinic	Sansum Clinic-Pesetas	215 Pesetas Ln	-
Clinic	Santa Barbara Community Dialysis Center	222 Pesetas Lane	-
Clinic	Valle Verde Health Facility- SNF	900 Calle De Los Amigos	-
Clinic	La Cumbre Senior Living Concepts	3880 Via Lucero	-
Clinic	Vista Del Monte Sunridge SNF	3775 Modoc Road	-
Clinic	Sansum Clinic-Hitchcock	51 Hitchcock	-
Clinic	Samarkand- Smith Center- SNF	2566 Treasure Drive	-
Clinic	Mission Terrace Convalescent Hospital	623 West Junipero Street	-
Clinic	Sansum Clinic- Ob/ Gyn	515 W. Pueblo St	-
Clinic	Cottage Rehabilitation Hospital	2415 De La Vina Street	-
Clinic	Sansum Clinic- Pueblo	317 Pueblo St	-
Clinic	Santa Barbara Cottage Hospital	Bath At Pueblo	-
Clinic	Santa Barbara Convalescent Hospital	2225 De La Vina Street	-

6.0. Vulnerability Assessment

Type	Name	Address	Total Building Value
Clinic	Santa Barbara Neighborhood Clinic- Westside	628 W. Micheltorena Street	-
Clinic	Santa Barbara Artificial Kidney Center	1704 State Street, #2	-
Clinic	Santa Barbara Neighborhood Clinic- Eastside	915 N Milpas St	-
Clinic	PhD Franklin Clinic	1136 Montecito St	-
Clinic	PhD Children's Medical Services	1111 Chapala Street	\$375,583
EMS Station	American Medical Response Station 3	415 West Figueroa Street	-
EMS Station	American Medical Response Station 4	1025 Castillo Street	-
Nursing Home	Cliff View Terrace	1020 Cliff Drive	-
Nursing Home	Alto Lucero Transitional Care	3880 Via Lucero	-
Nursing Home	The Californian	2225 De La Vina St	-
Nursing Home	Alexander Court	325 W Islay St	-
Nursing Home	Samarkand Skilled Nursing Facility	2566 Treasure Dr	-
Nursing Home	Samarkand of Santa Barbara	2550 Treasure Drive	-
Nursing Home	Wood Glen Hall, Inc.	3010 Foothill Road	-
Nursing Home	Mission Villa	321 West Mission Street	-
Nursing Home	Vista Del Monte	3775 Modoc Road	-
Nursing Home	Valle Verde Health Facility	900 Calle De Los Amigos	-
Nursing Home	Alexander Gardens	2120 Santa Barbara Street	-
Nursing Home	Mission Terrace Convalescent Hospital	623 W Junipero St	-
Nursing Home	Oak Cottage of Santa Barbara Memory Care	1820 Delavina Street	-
Nursing Home	Garden Court at Villa Santa Barbara	227 E. Anapamu Street	-
Nursing Home	Villa Alamar	45 East Alamar	-
Nursing Home	Villa Riviera	1621 Grand Avenue	-
Nursing Home	Mountain House	37 Mountain Drive	-
Nursing Home	At Home in Santa Barbara	1801 Bath Street	-
Veteran Services	Sb Veterans Memorial Bldg.	112 W. Cabrillo Blvd.	\$2,034,893
Aiport Patrol	Santa Barbara Airport Patrol	601 Firestone Road	-
Colleges / Universities	Fielding Graduate University	2020 De La Vina St	-
Colleges / Universities	The Santa Barbara and Ventura Colleges of Law At Santa Barbara	20 E Victoria St	-
Colleges / Universities	Antioch University-Santa Barbara	602 Anacapa Street	-
Colleges / Universities	Santa Barbara City College	721 Cliff Drive	-

Type	Name	Address	Total Building Value
Court	County Courthouse	1100 Anacapa Street	\$40,553,793
Court	Sb Superior Court Building	118 E. Figueroa Street	\$9,343,534
Court	County Courthouse Annex	1100 Anacapa St	\$6,023,849
Court	Court Services Bldg	118 E. Figueroa Street	\$357,608
Education	Saint Vincent Orphanage and School Building	925 De La Vina Street	-
Education	Santa Barbara Unified Early Childhood	1030 E. Yanonali St.	-
Education	Adelante Charter	1102 E. Yanonali St.	-
Education	Franklin Elementary	1111 E. Mason St.	-
Education	Harding University Partnership	1625 Robbins St.	-
Education	Monte Vista Elementary	730 N. Hope Ave.	-
Education	Alta Vista Alternative High	215 E. Ortega St.	-
Education	McKinley Elementary	350 Loma Alta Dr.	-
Education	Roosevelt Elementary	1990 Laguna St.	-
Education	Open Alternative	4025 Foothill Rd.	-
Education	Monroe Elementary	431 Flora Vista Dr.	-
Education	Alta Vista Alternative Junior High	215 E. Ortega St.	-
Education	La Cumbre Junior High	2255 Modoc Rd.	-
Education	Santa Barbara Community Academy	850 Portesuello Ave.	-
Education	Adams Elementary	2701 Las Positas Rd.	-
Education	Santa Barbara Junior High	721 E. Cota St.	-
Education	Santa Barbara Senior High	700 E. Anapamu St.	-
Education	La Cuesta Continuation High	710 Santa Barbara St.	-
Education	Washington Elementary	290 Lighthouse Rd.	-
Education	Hope Elementary	3970-A La Colina Rd.	-
Education	La Colina Junior High	4025 Foothill Rd.	-
Education	Cleveland Elementary	123 Alameda Padre Serra	-
Education	Peabody Charter	3018 Calle Noguera	-
Education	Providence-SBCS	3723 Modoc Rd	-
Education	El Montecito School San Roque	3225 Calle Pinon	-
Education	Notre Dame School	33 E Micheltorena St	-
Education	Bishop Garcia Diego High School	4000 La Colina Rd	-
Education	Sunrise Montessori School	1201 E Yanonali St	-
Education	Providence	630 E Canon Perdido St	-
Education	Santa Barbara Middle School	1321 Alameda Padre Serra	-
Education	The Knox School of Santa Barbara	1525 Santa Barbara St	-
Education	Eureka School of Santa Barbara	3324 State St Ste M	-
Education	St Therese Classical Academy	33 E Micheltorena St	-

6.0. Vulnerability Assessment

Type	Name	Address	Total Building Value
Fire Station	Fire Station 4	19 N. Ontare Road	-
Fire Station	Fire Station 5	2505 Modoc Road	-
Fire Station	Fire Station 6	1802 Cliff Drive	-
Fire Station	Fire Station 1	121 W. Carrillo St	-
Fire Station	Fire Station 3	415 E. Sola Street	-
Fire Station	Fire Station 7	605 Mission Ridge Road	-
Fire Station	Fire Training	30 S. Olive Street (2 S. Cesar Chavez)	-
Fire Station	Fire Station 2	819 Cacique	-
Fire Station	Airport Fire Station 8	40 Hartley Place	-
Government	Administration Building	105 E. Anapamu Street	\$27,266,352
Government	Engineering Building	123 E. Anapamu Street	\$11,145,938
Government	Sbch East Wing	1105 Santa Barbara Street	\$7,308,080
Government	Probation Building	117 E. Carrillo Street	\$4,216,037
Government	Hall Of Records	1100 Anacapa Street	\$4,179,732
Government	Schwartz Building	130 E Victoria St	\$2,652,501
Government	City Hall	735 Anacapa Street	-
Government	Public Works	220 E. Ortega Street	-
Government	Public Works	630 Garden Street	-
Government	Community Development	630 Garden Street	-
Government	Public Works	630 Garden Street	-
Government	Public Works Yard	635 Laguna Street	-
Government	Admin Well Corp. at Parks Department	402 East Ortega Street	-
Government	Parks And Recreation	620 Laguna St.	-
Government	ADMHS Offices	2034 De La Vina Street	\$145,154
Government	Sb Child Support Office	4 East Carrillo Street	\$199,401
Harbor Patrol	Santa Barbara Waterfront Harbor Patrol	132 Harbor Way A, Po Box 1990	-
Historic Site	Virginia Hotel	17 And 23 West Haley Street	-
Historic Site	Mission Santa Barbara	2201 Laguna Street	-
Historic Site	Janssens-Orella-Birk-Building	1029 - 1031 State Street	-
Historic Site	Hill-Carrillo Adobe	11 East Carrillo Street	-
Historic Site	Old Lobero Theatre	33 E. Canon Perdido	-
Historic Site	Casa De La Guerra	808-818 State Street, 813 - 819 Anacapa Street, 9 - 25 E. De La Guerra Street	-
Historic Site	Santa Barbara Presidio	123 East Canon Perdido Street	-
Historic Site	Hastings Adobe	414 W. Montecito Street	-
Historic Site	Covarrubias Adobe	715 Santa Barbara Street	-
Historic Site	Rafael Gonzalez House	835 Laguna Street	-
Historic Site	Faith Mission	409 State Street	-

Type	Name	Address	Total Building Value
Historic Site	Los Banos Del Mar	401 Shoreline Drive	-
Historic Site	Andalucía Building	316 - 324 State Street	-
Historic Site	Burton Mound	129 W. Mason At Burton Circle	-
Police	Police Department	215 E. Figueroa St.	-
Post Office	US Post Office Main	836 Anacapa Street	-
Airport	Santa Barbara Airport	500 James Fowler Road	-
Bridge	Bridge	'Olive Mill Road' / 'U.S. Highway 101'	-
Bridge	Bridge	'State Route 192' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Castillo Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Carrillo Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Street'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Street'	-
Bridge	Bridge	'State Route 225' / UPRR	-
Bridge	Bridge	HWY 101 Sb' / 'Garden Street'	-
Bridge	Bridge	HWY 101 Nb' / 'Garden Street'	-
Bridge	Bridge	HWY 101 Sb' / 'State Street'	-
Bridge	Bridge	HWY 101 Nb' / 'State Street'	-
Bridge	Bridge	HWY 101' / 'Sycamore Creek'	-
Bridge	Bridge	HWY 101' / 'Cacique Street'	-
Bridge	Bridge	'Mission Canyon Rd' / 'Mission Creek'	-
Bridge	Bridge	'Las Canoas Rd' / 'Rattlesnake Canyon'	-
Bridge	Bridge	'Ontare Road' / 'San Roque Creek'	-
Bridge	Bridge	'Hollister Ave' / 'Carneros Creek'	-
Bridge	Bridge	'Gutierrez St' / 'Mission Creek'	-
Bridge	Bridge	'State St' / 'Mission Creek'	-
Bridge	Bridge	'Castillo Street' / 'Mission Creek'	-
Bridge	Bridge	'Carrillo St' / 'Mission Creek'	-
Bridge	Bridge	'State Street' / 'San Roque Creek'	-
Bridge	Bridge	'Pueblo St' / 'Mission Creek'	-
Bridge	Bridge	'Montecito St' / 'Mission Creek'	-
Bridge	Bridge	'James Fowler Road' / 'San Pedro Creek'	-
Bridge	Bridge	'Quinientos St' / 'Sycamore Creek'	-
Bridge	Bridge	'Torino Drive' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Por Lamar Dr' / 'Sycamore Creek'	-
Bridge	Bridge	'Ninos Dr' / 'Sycamore Creek'	-
Bridge	Bridge	'Zoological Garden' / 'Sycamore Creek'	-
Bridge	Bridge	'Carpinteria St' / 'Sycamore Creek'	-
Bridge	Bridge	'De La Guerra St' / 'Mission Creek'	-
Bridge	Bridge	'Firestone' / 'Carneros Creek'	-
Bridge	Bridge	'Pedregosa Street' / 'Mission Creek'	-

Type	Name	Address	Total Building Value
Bridge	Bridge	'Calle De Los Amigo' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Fairview Ave' / 'Up Rr & Amtrak'	-
Bridge	Bridge	'East Cabrillo Blvd' / 'Laguna Channel'	-
Bridge	Bridge	'E Mason Street' / 'Sycamore Canyon Creek'	-
Bridge	Bridge	'De La Vina St' / 'Mission Creek'	-
Bridge	Bridge	'Ortega Street' / 'Mission Creek'	-
Bridge	Bridge	'Primavera Road' / 'Cieneguitas Creek'	-
Bridge	Bridge	'Hope Avenue' / 'Arroyo Burro Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Cabrillo Blvd'	-
Bridge	Bridge	HWY 101 Nb' / 'Cabrillo Blvd'	-
Bridge	Bridge	'State Route 192' / 'San Roque Canyon'	-
Bridge	Bridge	'State Route 192' / 'Sycamore Canyon Creek'	-
Bridge	Bridge	'State St (Wb)' / 'Us Highway 101'	-
Bridge	Bridge	'State St (Eb)' / 'Us Highway 101'	-
Bridge	Bridge	'State Route 225' / HWY 101'	-
Bridge	Bridge	HWY 101 Nb' / 'Carrillo Street'	-
Bridge	Bridge	HWY 101 Nb Rt Lane' / 'Mission Creek'	-
Bridge	Bridge	HWY 101' / 'Quarantina Street'	-
Bridge	Bridge	HWY 101' / 'Salsipuedes Street'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Sb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Mission Creek'	-
Bridge	Bridge	HWY 101' / 'Chapala St Equalizer'	-
Bridge	Bridge	'La Cumbre Road' / HWY 101'	-
Bridge	Bridge	'Micheltorena St' / HWY UPRR Mission'	-
Bridge	Bridge	HWY 101' / 'Milpas Street'	-
Bridge	Bridge	HWY 101' / 'Cacique Street'	-
Bridge	Bridge	'Cliff Drive' / 'Arroyo Burro Creek'	-
Bridge	Bridge	'Hollister Avenue' / 'San Pedro Creek'	-
Bridge	Bridge	'Mission St' / 'Mission Creek'	-
Bridge	Bridge	'Alamar Ave' / 'Mission Creek'	-
Bridge	Bridge	'State Street' / 'Mission Creek'	-
Bridge	Bridge	'Valerio St' / 'Mission Creek'	-
Bridge	Bridge	'Junipero Street' / 'Mission Creek'	-
Bridge	Bridge	'Tallant Road' / 'Mission Creek'	-
Bridge	Bridge	'Yanonali Street' / 'Laguna Drainage Channel'	-

Type	Name	Address	Total Building Value
Bridge	Bridge	'East Cabrillo Blvd' / 'Sycamore Creek'	-
Bridge	Bridge	'Chapala Street' / 'Mission Creek'	-
Bridge	Bridge	'Punta Gorda Road' / 'Punta Gorda Creek'	-
Bridge	Bridge	'Cliff Drive' / 'Hillside'	-
Bridge	Bridge	'Anapamu Street' / 'Old Mission Creek'	-
Bridge	Bridge	HWY 101 Nb' / 'Castillo Street'	-
Bridge	Bridge	'State Route 154' / 'La Colina Rd'	-
Bridge	Bridge	'State Route 154' / 'Primavera Rd'	-
Bridge	Bridge	'Hollister Avenue' / 'Tecolotito Creek'	-
Bridge	Bridge	'Arrellaga Street' / 'Mission Creek'	-
Bridge	Bridge	'De La Vina St' / 'Mission Creek'	-
Bridge	Bridge	'Islay St' / 'Mission Creek'	-
Bridge	Bridge	'Bath St' / 'Mission Creek'	-
Bridge	Bridge	'Matthews Street' / 'San Pedro Creek'	-
Government	Buses/Vehicles		-
Train Depot	Southern Pacific Train Depot	209 State Street	-

Figure 6-2. City of Santa Barbara Critical Facilities and Earthquake Groundshaking Potential (Red Mountain Fault 7.4 Magnitude ShakeMap)

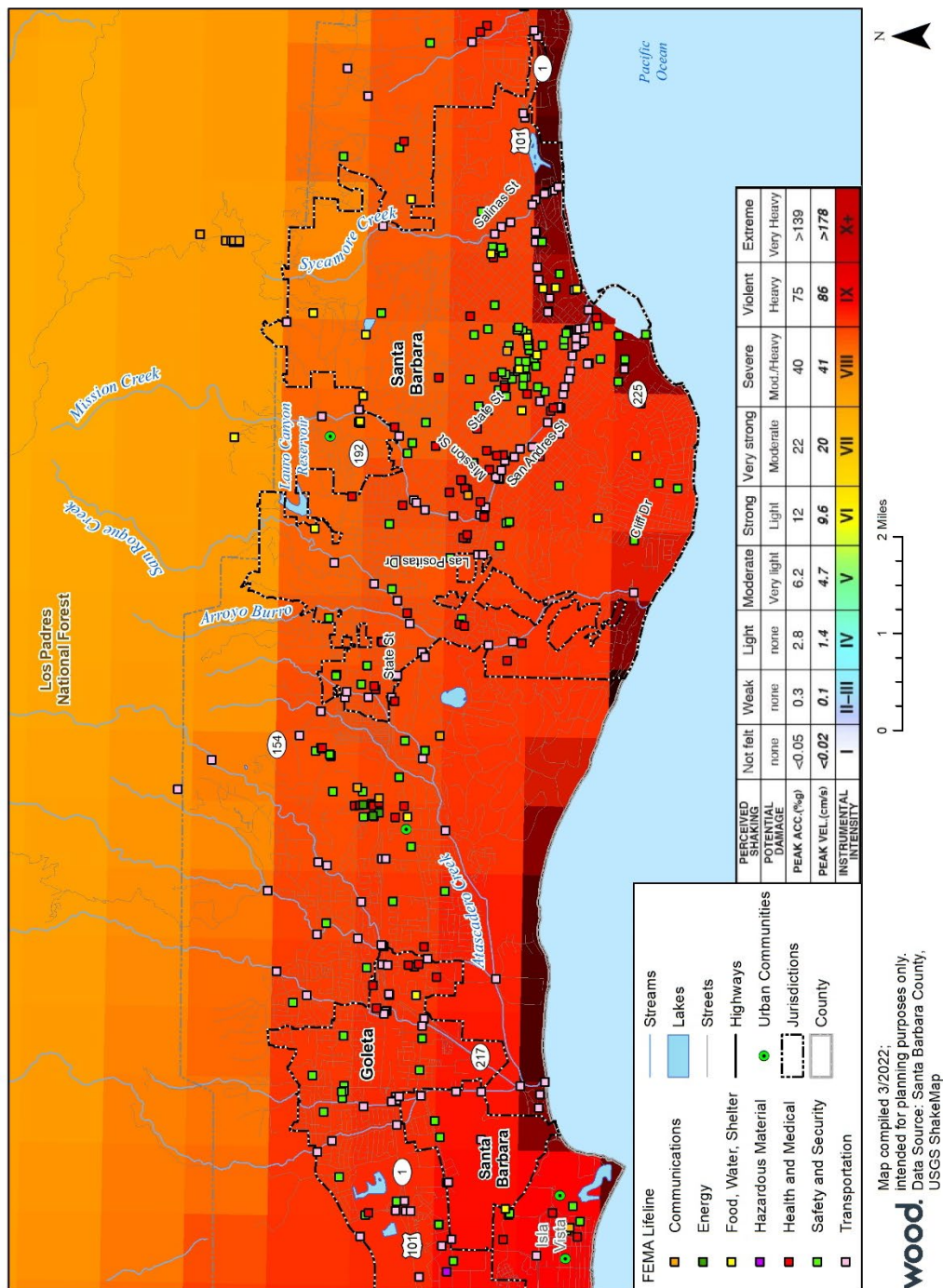
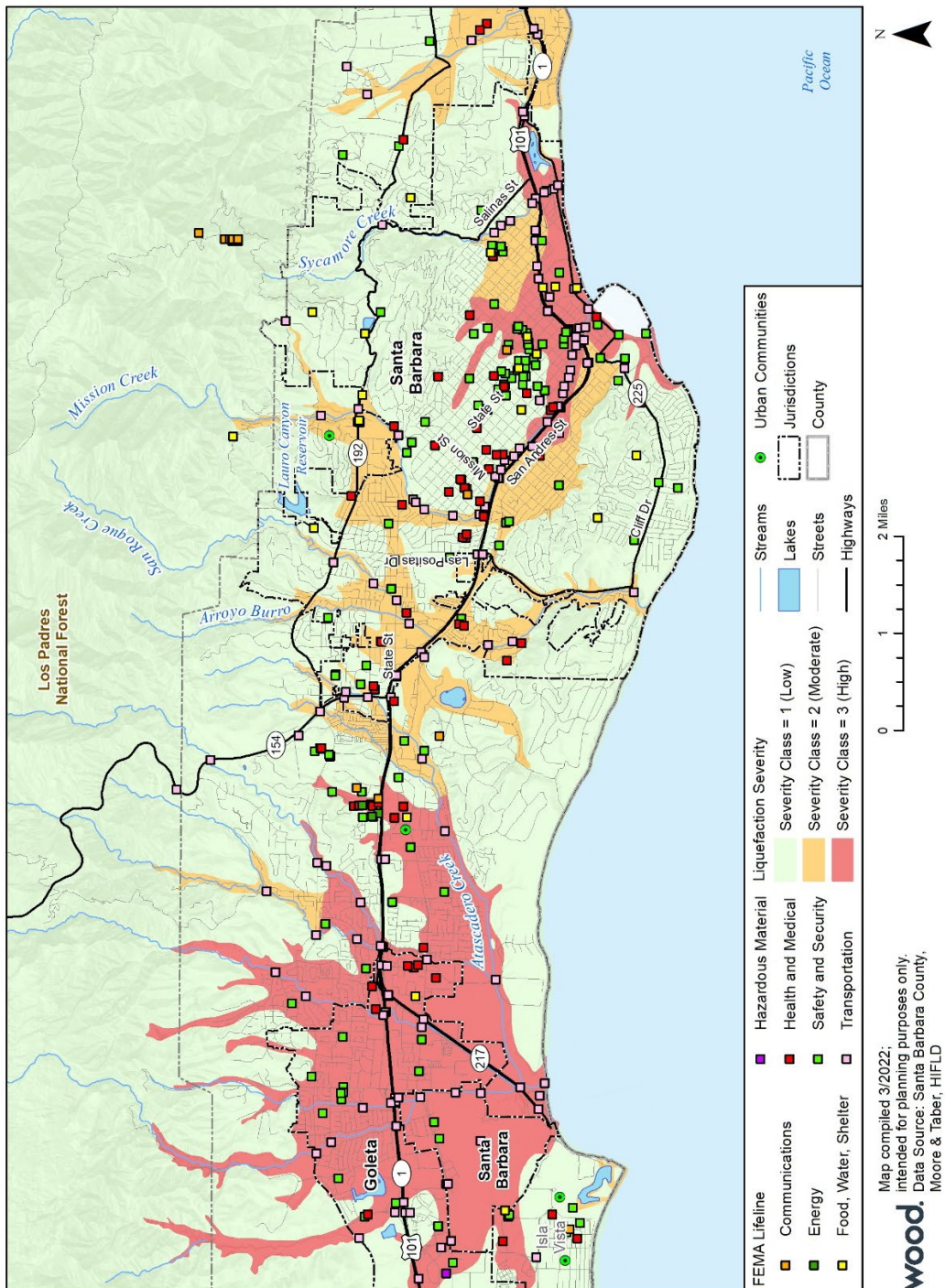


Figure 6-3. City of Santa Barbara Critical Facilities and Liquefaction Potential



6.3 FLOOD

The geographical location, climate, and topography of the South Coast make some areas of the City prone to flooding, particularly near the coastline and low-lying creek corridors. Flooding presents a hazard to development in floodplains. In addition to the damage to properties, flooding can also cut off access to utilities, emergency services, transportation, and may impact the overall economic well-being of an area. Emergency response can be interrupted by damaged roads and infrastructure. Fire can break out as a result of dysfunctional electrical equipment. Hazardous materials can also get into floodways, causing health concerns and polluted water supplies. During a flood, the drinking water supply can be contaminated. Climate change is expected to increase the frequency and intensity of heavy rainstorms that cause riverine flooding.

Based on the GIS analysis conducted for the 2022 MJHMP, the City has 1,792 improved parcels valued at over \$1.9 billion in the 1-percent annual chance floodplain. Based on this analysis, which accounts for residents only and not workers, 3,339 residents are living in the 1-percent annual chance floodplain throughout the City. An additional 515 improved parcels and over \$564 million in value fall within the 0.2-percent annual chance floodplain. Areas of the City vulnerable to the 0.2-percent annual chance riverine flood are home to 1,063 residents. Development in the 0.2-percent annual chance floodplain is typically not regulated, thus a large flood event could be extremely damaging in the City. This information is summarized in Table 6-7 below.

Table 6-7. City of Santa Barbara FEMA Floodplain Exposure and Loss

Property Type	Improved Parcel Count	Total Value	Estimated Loss	Population
Riverine 1% Annual Chance Floodplain Exposure and Loss				
Commercial	238	\$503,338,458	\$125,834,615	3,339
Exempt	20	\$60,896,806	\$15,224,202	
Industrial	166	\$242,179,170	\$60,544,793	
Mixed Use	23	\$81,217,906	\$20,304,477	
Residential	1,340	\$1,031,372,627	\$257,843,157	
Improved Vacant	5	\$2,968,766	\$742,192	
Total 1% Chance	1,792	\$1,921,973,733	\$480,493,433	
Riverine 0.2% Annual Chance Floodplain Exposure and Loss				
Commercial	73	\$147,840,838	\$36,960,210	1,063
Exempt	5	\$27,790,650	\$6,947,663	
Industrial	3	\$80,753,765	\$20,188,441	
Mixed Use	5	\$30,479,344	\$7,619,836	
Residential	429	\$277,449,645	\$69,362,411	
Total 0.2% Chance	515	\$564,314,242	\$141,078,561	
Total Flood Hazard	2,307	\$2,486,287,975	\$624,571,994	4,403

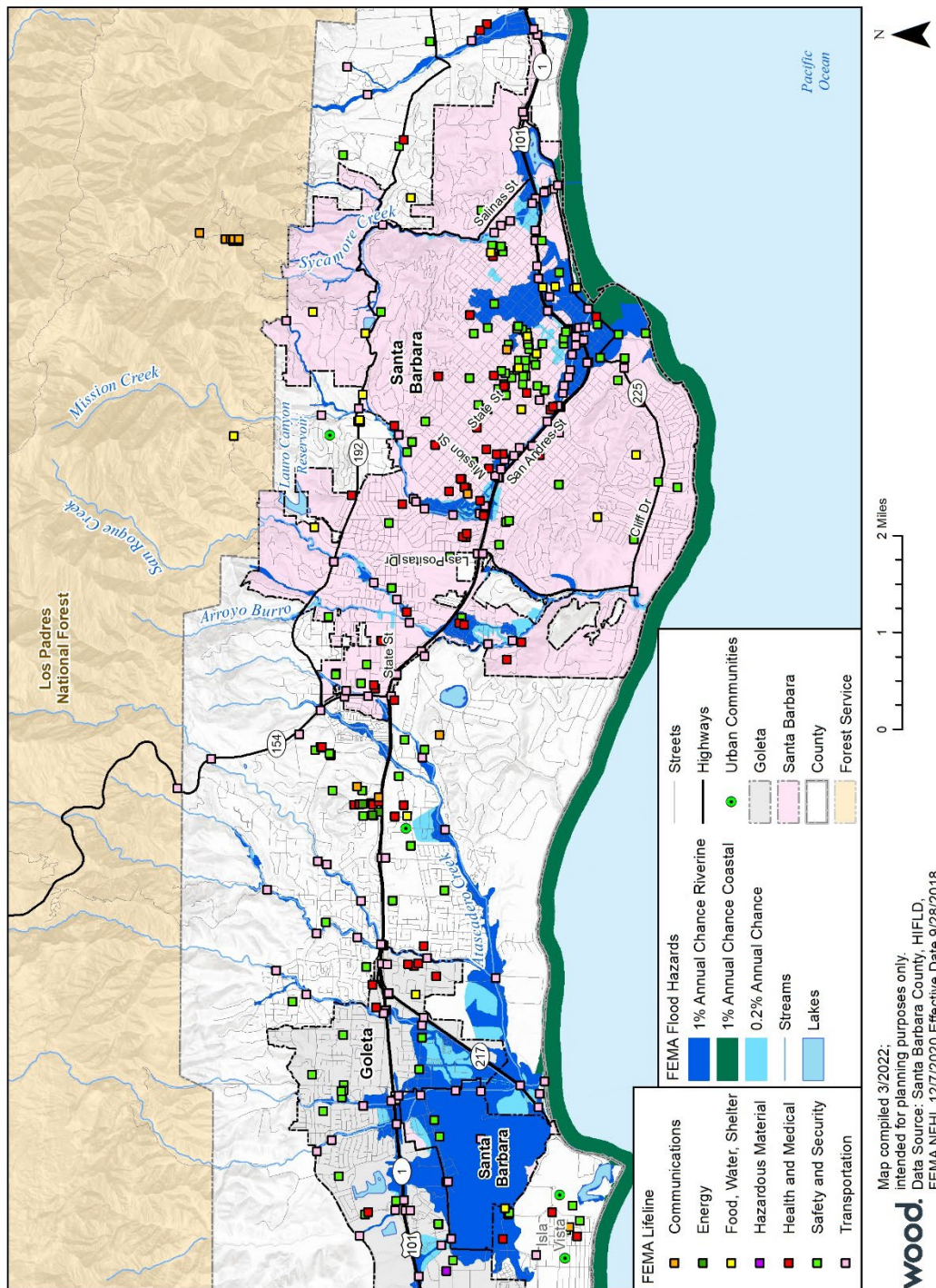
As listed in Table 6-8, 79 critical facilities in the City with a total value of \$2,034,893 would be vulnerable to damage or destruction from 1-percent or 0.2-percent annual chance flood (Figure 6-4; see also, Section 6.3.3, *Flood of the 2022 MJHMP*).

Table 6-8. City of Santa Barbara Critical Facilities at Risk to Flood Hazard

Type	Critical Facility	FEMA Flood Chance	Total Building Value
Utilities	Sheffield Pump Station	1 % Chance	-
Utilities	Laguna Pump Station	1 % Chance	-
Water District	Goleta West Water District	1 % Chance	-
Water Treatment Plant	Charles E. Meyer Main Desalination Plant	1 % Chance	-
Water Treatment Plant	SCADA / MCC Building	1 % Chance	-
Clinic	Vista Del Monte Sunridge SNF	1 % Chance	-
Clinic	Mission Terrace Convalescent Hospital	0.2% Chance	-
Clinic	Sansum Clinic- Ob/ Gyn	1 % Chance	-
Nursing Home	Vista Del Monte	1 % Chance	-
Nursing Home	Mission Terrace Convalescent Hospital	0.2% Chance	-
Veteran Services	Sb Veterans Memorial Bldg.	1 % Chance	\$2,034,893
Airport Patrol	Santa Barbara Airport Patrol	1 % Chance	-
Education	Santa Barbara Junior High	1 % Chance	-
Education	Providence-SBCS	1 % Chance	-
Education	El Montecito School San Roque	1 % Chance	-
Fire Station	Fire Training	1 % Chance	-
Fire Station	Airport Fire Station 8	1 % Chance	-
Government	Public Works Yard	1 % Chance	-
Government	Admin Well Corp. at Parks Department	1 % Chance	-
Government	Parks And Recreation	1 % Chance	-
Historic Site	Hastings Adobe	1 % Chance	-
Historic Site	Los Banos Del Mar	1 % Chance	-
Historic Site	Burton Mound	1 % Chance	-
Airport	Santa Barbara Airport	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	0.2% Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	0.2% Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-

Type	Critical Facility	FEMA Flood Chance	Total Building Value
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	0.2% Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
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Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	0.2% Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Airport	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Bridge	Bridge	1 % Chance	-
Train Depot	Southern Pacific Train Depot	1 % Chance	-

Figure 6-4. City of Santa Barbara Critical Facilities in FEMA Flood Hazard Zones



6.4 TSUNAMI

Based on the GIS analysis conducted for the 2022 MJHMP, the City has 890 improved parcels valued at over \$1.3 billion in the tsunami hazard zone. Based on this analysis, which accounts for residents only and not workers, 1,580 residents are living in the tsunami hazard zone throughout the City. This information is summarized in Table 6-9 below and depicted in Figure 6-5.

Table 6-9. City of Santa Barbara at Risk to Tsunami Hazard

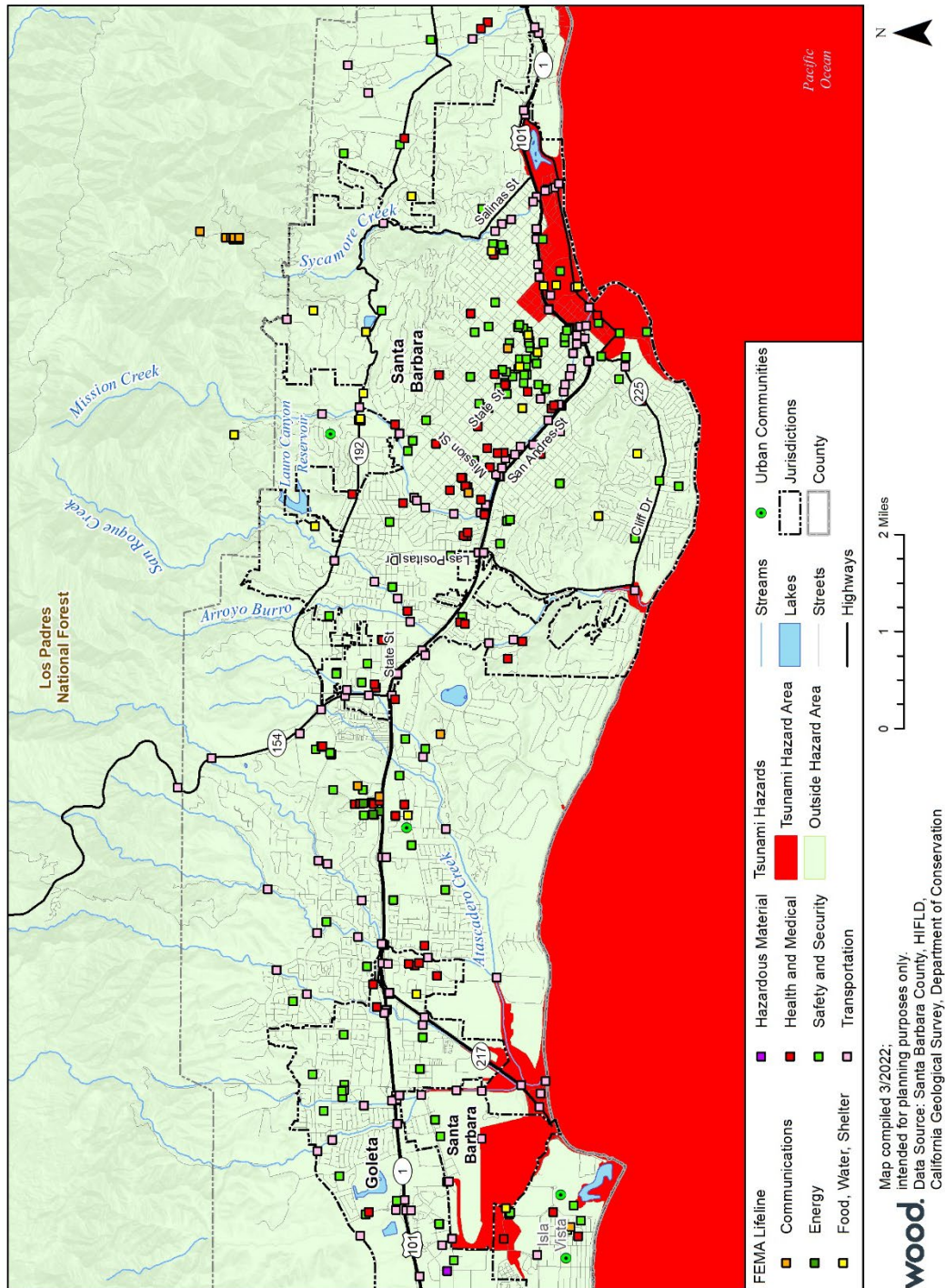
Property Type	Improved Parcel Count	Total Value	Population
Commercial	113	\$225,256,702	
Exempt	4	\$12,479,014	
Industrial	128	\$186,632,753	
Mixed Use	7	\$12,260,718	17
Residential	638	\$951,704,762	1,563
Improved Vacant	3	\$1,794,022	
Total	890	\$1,388,333,948	1,580

As listed in Table 6-10, 23 critical facilities in the City would be vulnerable to damage or destruction from tsunami inundation (See also, Section 6.3.9, *Tsunami* of the 2022 MJHMP).

Table 6-10. City of Santa Barbara Critical Facilities Vulnerable to Tsunami

Type	Name	Total Building Value
Utilities	Laguna Pump Station	-
Water Treatment Plant	Charles E. Meyer Main Desalination Plant	-
Water Treatment Plant	Scada / Mcc Building	-
Water Treatment Plant	El Estero Water Resources Center	-
Veteran Services	Sb Veterans Memorial Bldg.	\$2,034,893
Fire Station	Fire Training	-
Fire Station	Fire Station 2	-
Harbor Patrol	Santa Barbara Waterfront Harbor Patrol	-
Historic Site	Los Banos Del Mar	-
Historic Site	Burton Mound	-
Airport	Santa Barbara Airport	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-
Bridge	Bridge	-

Figure 6-5. City of Santa Barbara Critical Facilities in Tsunami Hazard Zone



6.5 DAM FAILURE

Lauro Dam is of the largest concern to the City of Santa Barbara. Failure of Lauro Dam would inundate portions of the City with relatively little evacuation time. Based on the GIS analysis conducted for the 2022 MJHMP, in Santa Barbara, 1,224 properties with a total value of \$808 million are vulnerable to the catastrophic flooding that would occur if Lauro Dam failed. Approximately 2,754 residents within the inundation zone may need to be evacuated, cared for, and possibly permanently relocated. This information is summarized in Table 6-11 below.

Table 6-11. City of Santa Barbara at Risk to Dam Inundation Hazard

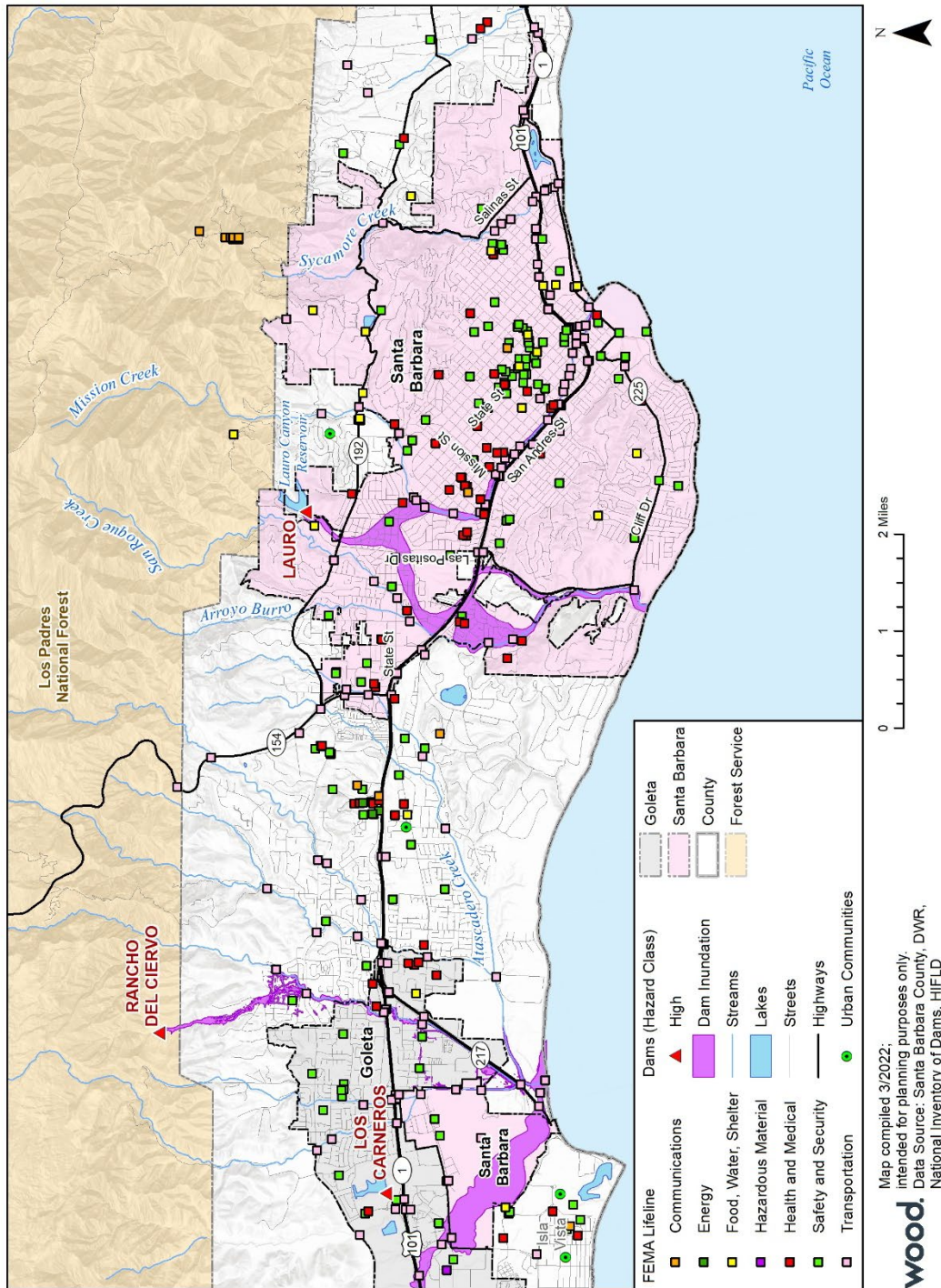
Property Type	Improved Parcel Count	Total Value	Population
Commercial	88	\$133,647,498	
Exempt	11	\$57,291,886	
Industrial	1	\$163,005	
Mixed Use	1	\$919,448	2
Residential	1,123	\$616,614,786	2,751
Total	1,224	\$808,636,623	2,754

As listed in Table 6-12, 21 critical facilities in the City would be vulnerable to damage or destruction from dam inundation (Figure 6-6; see also, Section 6.6.3, *Dam Failure* of the 2022 MJHMP). All but one of these facilities would be affected by the failure of the Lauro Dam. One bridge would be affected by the failure of the Glen Annie Dam.

Table 6-12. City of Santa Barbara Critical Facilities Vulnerable to Inundation from Dam Failure

Type	Name	Dam Name	Total Building Value
Clinic	Vista Del Monte Sunridge SNF	Lauro	-
Nursing Home	VISTA DEL MONTE	Lauro	-
Education	PEABODY CHARTER	Lauro	-
Education	PROVIDENCE-SBCS	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Glen Annie	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-
Bridge	Bridge	Lauro	-

Figure 6-6. City of Santa Barbara Critical Facilities in Dam Inundation Zone



6.6 LANDSLIDE

As described in Section 5.3.9, *Landslides*, landslides are most common on steep slopes made of loose soil and other material such as those found in the City, but they can also happen on shallower slopes. The City has 9,925 improved parcels that lie within Class 5, 7, 8, 9, or 10 landslide hazard zones, amounting to \$7.6 billion and home to 23,758 residents.

Table 6-13. City of Santa Barbara Improved Properties at Risk to Landslide Summary

Class 5 Parcel County	Class 7 Parcel Count	Class 8 Parcel Count	Class 9 Parcel Count	Class 10 Parcel Count	Total Improved Parcel Count	Total Value	Population
10	6,961	16	1,551	1,387	9,925	\$7,652,734,542	23,758

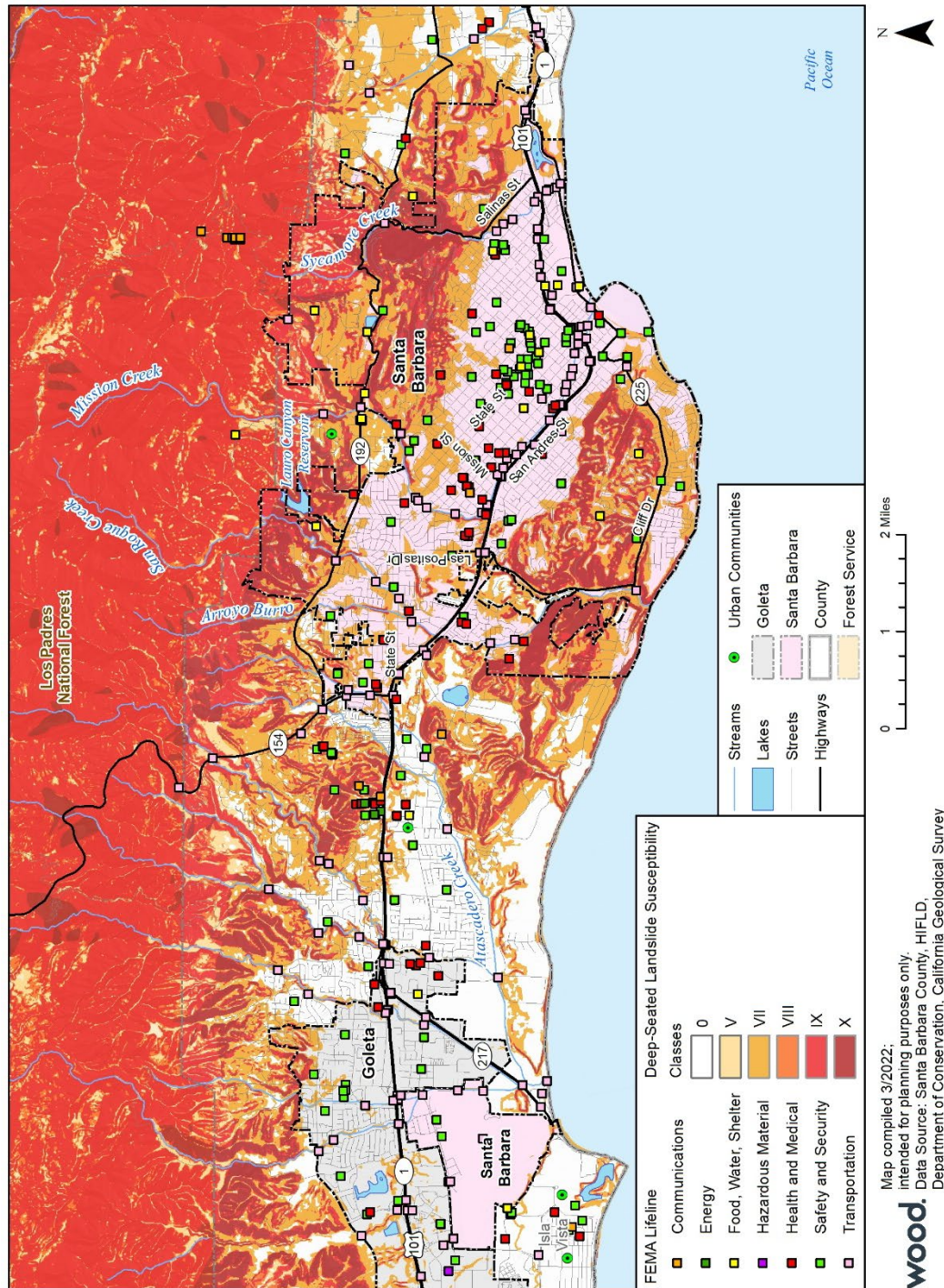
Further, as listed in Table 6-14, 40 critical facilities in the City would be vulnerable to damage or destruction from landslides (Figure 6-7; see also, Section 6.3.7, *Landslide* of the 2022 MJHMP).

Table 6-14. City of Santa Barbara Critical Facilities Vulnerable to Landslide

Type	Name	Landslide Severity Class	Total Building Value
Reservoir	Escondido Pump Station and Reservoir	7	-
Utilities	Sheffield Pump Station	7	-
Utilities	Skofield Pump Station	7	-
Water Treatment Plant	Cater Water Treatment Plant	7	-
Clinic	Valle Verde Health Facility- SNF	7	-
Clinic	La Cumbre Senior Living Concepts	7	-
Clinic	Sansum Clinic-Hitchcock	7	-
Clinic	Samarkand- Smith Center- SNF	7	-
Nursing Home	Alto Lucero Transitional Care	7	-
Nursing Home	Samarkand Of Santa Barbara	7	-
Nursing Home	Wood Glen Hall, Inc.	7	-
Nursing Home	Valle Verde Health Facility	7	-
Nursing Home	Alexander Gardens	9	-
Nursing Home	Mission Terrace Convalescent Hospital	7	-
Nursing Home	Villa Riviera	9	-
Nursing Home	Mountain House	7	-
Colleges / Universities	Santa Barbara City College	7	-
Education	Roosevelt Elementary	7	-
Education	Open Alternative	9	-
Education	Monroe Elementary	7	-

Type	Name	Landslide Severity Class	Total Building Value
Education	Adams Elementary	7	-
Education	La Colina Junior High	7	-
Education	Cleveland Elementary	9	-
Education	Eureka School of Santa Barbara	7	-
Fire Station	Fire Station 6	7	-
Fire Station	Fire Station 3	7	-
Fire Station	Fire Station 7	7	-
Historic Site	Los Banos Del Mar	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	7	-
Bridge	Bridge	9	-
Bridge	Bridge	7	-
Bridge	Bridge	9	-
Bridge	Bridge	7	-

Figure 6-7. City of Santa Barbara Critical Facilities within Landslide Susceptibility Zones



6.7 COASTAL HAZARDS

In 2021 the City approved a Sea Level Rise Adaption Plan and Vulnerability Assessment that quantifies the exposure of identified assets and resources to projected future coastal flood and erosion hazards. The purpose of the Sea Level Rise Adaption Plan and Vulnerability Assessment is to identify vulnerabilities to coastal hazards expected from sea-level rise in the City of Santa Barbara and possible actions to prepare for and adapt to sea-level rise. The plan can be found at www.SantaBarbaraca.gov/slr and is hereby incorporated by reference into this plan.

The City's 2021 Sea Level Rise Adaptation Plan and Vulnerability Assessment only included the main portion of the City and not the Airport and Goleta Slough. Sea level rise vulnerabilities at the Airport and Goleta Slough area were analyzed as part of the 2015 Goleta Slough Area Sea Level Rise And Management Plan. An updated vulnerability assessment and sea level rise adaptation plan is currently being developed for the City's Airport area.

The following analysis is based on the Santa Barbara County Climate Vulnerability Assessment to be consistent with the methodology contained for the greater Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan. Based on the MJHMP's analysis, approximately 100 acres of the City are susceptible to coastal hazards and sea level rise by 2030 (10.2 inches) and 145 acres by 2060 (27.2 inches). Based on the GIS analysis conducted for the 2022 MJHMP, the City has 1,014 improved parcels valued at over \$1.6 billion in sea level rise coastal hazard zones. Based on this analysis, which accounts for residents only and not workers, 1,436 residents are living in this hazard zone within the City.

Table 6-15. City of Santa Barbara at Risk to Sea Level Rise Coastal Hazards by Property Type

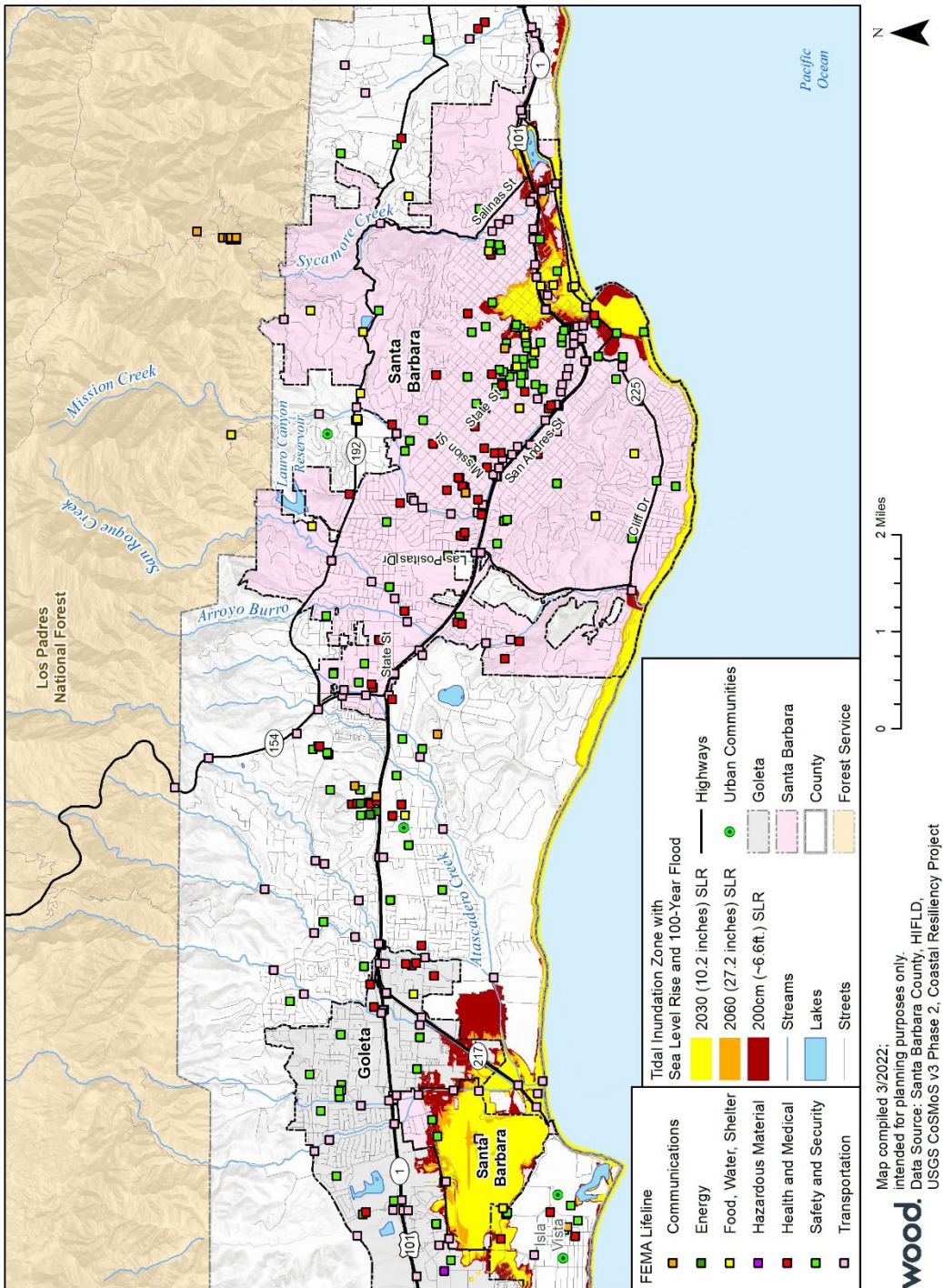
Property Type	Improved Parcel Count	Total Value	Population
2030 Sea Level Rise			
Commercial	84	\$187,609,824	
Exempt	3	\$618,954	
Industrial	98	\$143,146,390	
Mixed Use	5	\$21,117,388	12
Residential	231	\$340,247,270	566
Improved Vacant	1	\$68,994	
Total	422	\$692,808,820	578
2060 Sea Level Rise			
Commercial	109	\$236,143,706	
Exempt	5	\$926,740	
Industrial	126	\$213,313,565	
Mixed Use	13	\$48,788,222	32
Residential	337	\$464,798,276	826
Improved Vacant	2	\$657,114	
Total	592	\$964,627,623	858
Total Sea Level Rise Hazard	1,014	\$1,657,436,442	1,436

Additionally, 14 critical facilities are vulnerable to damage or destruction from coastal hazards and sea level rise by 2030, and 19 critical facilities are vulnerable by 2060 (Table 6-16) (Figure 6-8; see also, Section 6.3.6, *Coastal Hazards* of the 2022 MJHMP).

Table 6-16. City of Santa Barbara Critical Facilities Vulnerable to Coastal Hazards

Type	Name	2030	2060	Total Building Value
Utilities	Laguna Pump Station	Yes	Yes	-
Water District	Goleta West Water District	No	Yes	-
Water Treatment Plant	Charles E. Meyer Main Desalination Plant	No	Yes	-
Water Treatment Plant	Scada / Mcc Building	No	Yes	-
Government	Public Works Yard	Yes	Yes	-
Government	Admin Well Corp. at Parks Department	Yes	Yes	-
Government	Parks And Recreation	Yes	Yes	-
Harbor Patrol	Santa Barbara Waterfront Harbor Patrol	Yes	Yes	-
Airport	Santa Barbara Airport	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	No	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	No	Yes	-
Bridge	Bridge	Yes	Yes	-
Bridge	Bridge	Yes	Yes	-

Figure 6-8. City of Santa Barbara Critical Facilities in Sea Level Rise Coastal Hazard Zones



7.0 MITIGATION STRATEGY

In preparation for the 2022 LHMP update, the City's LPT made no revisions to the countywide goals and objectives because they continue to reflect the needs of the City; see also, Chapter 7.0, *Mitigation Plan* of the 2022 MJHMP. This section contains the City's updated and most current mitigation strategy as of 2022.

7.1 MITIGATION GOALS AND OBJECTIVES

The City's LPT developed the following goals and objectives for the 2022 update. These goals and objectives represent a vision of long-term hazard reduction or enhancement of capabilities. These preliminary goals, objectives, and actions were developed to represent a vision of long-term hazard reduction or enhancement of capabilities. To help further the development of these goals and objectives, the LPT compiled and reviewed current jurisdictional sources, including the City's planning documents, codes, and ordinances, and specifically discussed hazard-related goals, objectives, and actions as they related to the overall LHMP.

The updated goals and objectives of this plan are:

Goal 1: Promote disaster-resistant development and strive to minimize the risks of hazards

Objective 1A: Minimize development in known hazard areas. When development must be sited in hazardous areas, minimize the impacts of hazards through hazard-resistant designs or phasing of development based on degree of hazard.

Objective 1B: Minimize hazard frequency, severity, and risks through mitigation projects and programs.

Objective 1C: Continue to assess hazards in the City based on best available science and information.

Goal 2: Prioritize hazard mitigation for critical facilities and community assets

Objective 2A: Plan for redundancy of critical services and infrastructure (energy, transportation, water supply) in the event of a hazard.

Objective 2B: Implement hazard mitigation projects for critical facilities, public transportation systems, and public services that are essential for basic city functions. Upgrade and replace aging critical facilities and infrastructure.

Objective 2C: Promote mitigation projects that have co-benefits and that minimize impacts to existing development, the local economy, natural resources, community and historical assets, and the public shoreline, parks, open spaces, and recreation areas.

Objective 2D: Promote mitigation projects that benefit or minimize impacts to vulnerable populations that may have a higher sensitivity and lower adaptive capacity to hazards.

Objective 2E: Promote mitigation projects and programs that respond to climate change and build resiliency partnerships and coordination locally, regionally, and statewide.

Goal 3: Actively promote understanding, support, and funding for hazard mitigation by participating agencies and the public.

Objective 3.A: Engage, inform, and educate the public on tools and resources to improve community resilience to hazards, reduce vulnerability, and increase awareness and support of hazard mitigation activities.

Objective 3.B: Ensure effective outreach and communications to vulnerable and disadvantaged communities.

Objective 3.C: Increase awareness and encourage the incorporation of hazard mitigation principles and practice among public, private, and nonprofit sectors, including all participating agencies.

Objective 3.D: Ensure interagency coordination and joint partnerships with the County, cities, state, tribal, and federal governments.

Objective 3.E: Continuously improve the City's capability and efficiency at administering pre- and post-disaster mitigation programs.

Objective 3.F: Monitor and publicize the effectiveness of mitigation actions implemented in the City.

Objective 3.G: Position the City to apply for and receive grant funding from FEMA and other sources.

Goal 4: Promote community resilience to hazard events

Objective 4A: Integrate hazard mitigation with public policy and standard business practices.

Objective 4B: Create community resilience plans and resource hubs

Objective 4C: Incentivize resilience actions in the community.

Goal 5: Minimize the risks to life and property associated with urban and human-caused hazards

Objective 5A: Minimize risks from biological hazards, including disease, invasive species, and agricultural pests.

Objective 5B: Be prepared and respond to urban hazards, including terrorism, cyber threats, and civil disturbance.

Objective 5C: Minimize risks from energy production, including hazardous oil and gas activities.

Goal 6: Update and improve emergency response planning and programs

Objective 6A: Provide effective life safety measures and reduce property loss.

Objective 6B: Ensure rapid resumption of basic City services after an emergency.

Objective 6C: Accurately document and record response efforts to ensure cost recovery.

Goal 7: Prepare to adapt and recover from the impacts of climate change and ensure regional resiliency.

Objective 7A: Promote projects and programs that reduce greenhouse gas emissions, utilize carbon free energy, and reduce the potential of further impacts from climate change

Objective 7B: Identify, assess, and prepare for the impacts of climate change.

Objective 7C: Use the latest climate science to implement hazard mitigation strategies in response to climate change.

7.2 MITIGATION PROGRESS

Since 2017, the City has incorporated the LHMP goals, objectives, and mitigation actions into its local plans and processes, including the General Plan Safety Element by reference, specific hazard planning efforts (e.g., Sea Level Rise Adaptation Plan), the City's grant pursuits, and capital improvement planning. Ongoing monitoring and evaluation of the LHMP by the City ensured mitigations are implemented and tracked. Key mitigation actions completed since 2017 include improving the resilience of coastal structures, including Stearns Wharf and Mesa Lane and 1,000 Steps Coastal Access, beginning upgrades to the Laguna Pump Station and the Santa Barbara Police Station, and completing the Sea Level Rise Adaptation Plan and Vulnerability Assessment. The City's LPT reviewed the mitigation actions listed in the 2017 LHMP to determine the status of each action. Once reviewed, deferred projects from 2017 were renumbered to reflect 2022 updates (see Table 7-1).

Table 7-1. Status of City of Santa Barbara Previous Mitigation Actions

Mitigation Action No.	Mitigation Action Description	Status	Comments	In 2022 Update?
2016-1	Pedregosa Storm Drain	Deferred	Construction will significantly reduce flooding in the Mission Creek area around Pedregosa	X
2016-2	Replacement Storm Drain Outfall (Airport)	Canceled	Previously from 2011 – This project is planned but not budgeted. Will significantly reduce flooding on Hollister Avenue.	
2016-3	Flood Wall Construction (Airport)	Deferred	Flood Wall Construction - Around buildings 223, 304, 314, and 315 to protect these structures from flooding. Eliminate frequent water intrusion into buildings and subsequent clean-up costs due to storm events, many of which are less than 10-year events.	X
2016-4	Honda Valley Hillside Stabilization in a location of High-Pressure Gas Line Serving City	Deferred	A high-pressure gas line serving the City is located in an area of Honda Valley where stabilization of soil is needed.	X
2016-5	Hidden Valley Park Slope Stability	Deferred	To reduce risk to life and property from slides and flooding.	X
2016-6	Stevens Park Eastern Access Erosion Remediation	Deferred	A benefit to secure life and property and the preservation of an effective and ecologically sound creek system.	X
2016-7	Francheschi Park/Mission Ridge	Deferred	Deferred due to lack of funding – a retaining wall is crucial to evacuation and emergency response.	X

Mitigation Action No.	Mitigation Action Description	Status	Comments	In 2022 Update?
	Hillside geotechnical stabilization of retaining wall			
2016-8	Bluff Retreat Management at Shoreline Park	Deferred	Deferred due to lack of funding – This project is ongoing due to continuous bluff erosion.	X
2016-9	Rehabilitate Coastal Access Stairs at 1000 Steps	In Progress	In DART Process. Rehabilitation of damaged steps and drainage improvements anticipated in 2022.	X
2016-10	New Police Department	In Progress	PD Station funding through Measure C and potential bond	X
2016-11	High Fire Area Roadways	Deferred	Previously from 2011 - Erosions and landslides due to steep slopes and unreinforced retaining walls will hamper evacuation and emergency response. Renamed to Unreinforced Retaining Walls and Unstable Slopes project	X
2016-12	Laguna Pump Station	In Progress	The project is currently being funded by FEMA Mitigation Grant Funding – 2023	X
2016-13	Replace deluge system on Stearns Wharf	Completed	Continues to be an ongoing maintenance Project to promote firefighting on Stearns Wharf, which is a historical site in the Waterfront area.	
2016-14	Backup generator for Waterfront Department Operating Center.	Completed	Upgraded power needed for Harbor Patrol and Waterfront DOC.	
2016-15	Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety	Deferred	Current Harbor facilities are early 60s type construction that would not withstand a large earthquake. Seismic evaluation is needed.	X
2016-16	Mesa Lane Coastal Access	Completed	The lowest portion of the Mesa Lane steps was replaced in 2012. Replacement of the upper portion is deferred.	
2016-17	Salsipuedes Street Storm Drain Improvement	Deferred	Potential improvements include the connection of storm drain inlets on Micheltorena Street to the existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets. Pipes continue to be identified; funding for the project is from Measure C	X
2016 -18	Corrugated Metal Pipe Repairs	Deferred	Repair through slip lining or completely replace the highest priority corrugated metal pipe drain lines annually. Pipes are being identified; funding for the project is from Measure C.	X
2016-19	Gutierrez Storm Drain Improvements	Canceled	Construct additional storm drains to reduce the duration and severity of flooding when the upstream storm drain system is overwhelmed. The project is intended to improve the ability to remove runoff from the area by providing increased inlet	

Mitigation Action No.	Mitigation Action Description	Status	Comments	In 2022 Update?
			capacity and by providing larger conduits between the street inlets and the box culverts under Hwy 101. Current funding for the project with Hazard Mitigation Grant	
2016-20	Goleta Slough Mouth Management	Deferred	The project will control the water level in the Goleta Slough to minimize flood hazards, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. The project will be designed to minimize adverse effects to the Federally endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013, and February 2014. Currently waiting on Federal environmental regulators	X
2016-21	Hollister Drainage Improvement	Deferred	The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be “eco-channels” which are constructed to allow a certain depth of water to still fill the wetlands but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat. Continued wetland disruption.	X
2016-22	Sea Level Rise Adaptation Plan	Completed	Comprehensive Sea Level Rise Adaptation Plan completed in 2021.	
2016-23	Review/Revise the City’s Critical Facilities List	In Progress	Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities, and private companies; as applicable.	X

7.3 MITIGATION APPROACH

A simplified Benefit-Cost Review was applied to both deferred and new mitigation actions to prioritize the mitigation recommendations for implementation. The priority for implementing mitigation recommendations depends upon the overall cost-effectiveness of the recommendation when considering monetary and non-monetary costs and benefits associated with each action. Additionally, the following questions were considered when developing the Benefit-Cost Review:

- How many people will benefit from the action?
- How large an area is impacted?
- How critical are the facilities that benefit from the action?
- Environmentally, does it make sense to do this project for the overall community?

Section 7.4, *Implementation Plan* provides a benefit-cost review for each mitigation recommendation, as well as a relative priority rank (High, Medium, and Low) based upon the judgment of the Planning Team. The general category guidelines are listed below:

- High – Benefits are perceived to exceed costs without further study or evaluation
- Medium – Benefits are perceived to exceed costs but may require further study or evaluation before implementation
- Low – Benefits and costs evaluation requires additional evaluation before implementation

Discussion of the rationale for these priorities is included in the mitigation action descriptions below.

7.4 IMPLEMENTATION PLAN

2022-1. Pedregosa Storm Drain

Priority: High	
Mitigation Strategy Description	This storm drain was recorded as part of the Storm Drain System Data Collection and Inspection Services, Phase 2. The City retrieved a Pipeline Assessment Certification Program ranking on portions of this storm drain. The City is determining the priority and scope of repair for this known drainage issue. Additional video of the pipe will be necessary following a storm drain clearing effort as the first camera was unable to traverse debris in certain areas.
Relevant Objective	Reducing significant flooding
Applicable Hazards	Flood
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Measure C/Streets Capital Fund – estimated cost of project \$700,000
Responsible Agency/Department	Public Works – Streets Division
Other Comments	Adapted from 2016-1 in the 2016 LHMP

2022-2. Honda Valley Hillside Stabilization

Priority: High	
Mitigation Strategy Description	<p>Honda Valley Hillside Stabilization in a location of High-Pressure Gas line Serving the City.</p> <p>An area near a roadway and private property where high-pressure gas lines are buried erodes frequently due to runoff and the steepness of the slope. This necessitates stabilization of the continually eroding hillside containing the gas line. An engineering consultant would prepare plans for slope stabilization and native revegetation, and infrastructure relocation if necessary.</p> <p>Identify Funding Prepare scope of work Hire consultation firm to design job</p>

7.0. Mitigation Strategy

	Acquire all necessary permits. Write Specifications Bid construction Construct project
Relevant Objective	The benefits of public safety and a secure utility delivery would outweigh the likely financial costs of planning and implementation of a slope stabilization project.
Applicable Hazards	Flooding, Landslide/Coastal Erosion
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	The benefits of public safety and a secure utility delivery would outweigh the likely financial costs of planning and implementation of a slope stabilization project.
Responsible Agency/Department	Parks & Recreation – Parks Division
Other Comments	City of Santa Barbara Parks and Recreation Department working with City of Santa Barbara Public Works and the Gas Company Adapted from 2016-4 in the 2016 LHMP

2022-3. Hidden Valley Park Slope Stability

Priority: High	
Mitigation Strategy Description	At numerous locations throughout the park, slope stability problems are reoccurring along steep creek banks causing public safety hazards from slides and flooding, as well as stability issues on private and public property that lines the park. Potential hazards to park users and public and private economic losses would be reduced if the slopes were stabilized. Identify Funding Hire consultation firm to design job Acquire all necessary permits. Write Specifications Bid construction Construct project
Relevant Objective	Reduced risk to life and property from slides and flooding would outweigh likely fiscal costs.
Applicable Hazards	Flooding
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	Funding has not been specified
Responsible Agency/Department	Parks & Recreation – Parks Division
Other Comments	City of Santa Barbara Parks and Recreation working with County of Santa Barbara Flood Control and City of Santa Barbara Creeks Division. Adapted from 2016-5 in the 2016 LHMP

2022-4. Stevens Park Eastern Access Erosion Remediation

Priority: High	
Mitigation Strategy Description	<p>The sole emergency access point to the majority of Stevens Park is subject to severe erosion, undercutting, potential slope failure, and substantial sedimentation into San Rogue Creek from storm damage and poor drainage. To reduce the hazard to life and property from slides and flooding and to maintain a functional flood control system the area must be repaired employing bank stabilization, revegetation, and appropriate drainage control.</p> <p>Identify Funding Prepare scope of work Hire consultation firm to design job Acquire all necessary permits. Write Specifications Bid construction Construct project</p>
Relevant Objective	The benefit of secure life and property and the preservation of an effective and ecologically sound creek system would outweigh the likely fiscal costs.
Applicable Hazards	Flooding, Landslide/Coastal Erosion
Estimated Timeline for Completion	2024
Estimated Cost/Funding Source	Funding has not been specified
Responsible Agency/Department	Parks & Recreation – Parks Division
Other Comments	<p>The benefit of secure life and property and the preservation of an effective and ecologically sound creek system would outweigh the likely fiscal costs.</p> <p>Adapted from 2016-6 in the 2016 LHMP</p>

2022-5. Francheschi Park/Mission Ridge Hillside Geotechnical

Priority: High	
Mitigation Strategy Description	<p>Francheschi Park/Mission Ridge Hillside geotechnical stabilization of retaining wall Improve storm drain infrastructure improvements</p>
Relevant Objective	Retaining wall is crucial to ingress and egress in the area; especially for evacuation and emergency response
Applicable Hazards	Flooding, Landslide/Coastal Erosion
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Funding has not been specified
Responsible Agency/Department	Parks & Recreation – Parks Division
Other Comments	Adapted from 2016-7 in the 2016 LHMP

2022-6. Bluff Retreat Management at Shoreline Park

Priority: High	
Mitigation Strategy Description	Since the late '90s, the Park's bluff has been subject to numerous slides. Management of sidewalks and parkway needs to be continually addressed.
Relevant Objective	Currently, the erosion of the park continues and will continue. Keeping the management of sidewalks and vegetation in the area is an ongoing issue.
Applicable Hazards	Sea Level Rise, Landslide Coastal Erosion, Tsunami
Estimated Timeline for Completion	2028
Estimated Cost/Funding Source	Currently an unfunded project
Responsible Agency/Department	Parks & Recreation – Parks Division Public Works - Engineering
Other Comments	Adapted from 2016-8 in the 2016 LHMP

2022-7. Rehabilitate Coastal Stairs at 1000 Steps

Priority: High	
Mitigation Strategy Description	Coastal erosion to the access on the beach has been ongoing. The lower portion of the stairway needs to be rebuilt to maintain coastal access for first responders at this location.
Relevant Objective	Civil engineering plans are completed and permitting is in the process as of summer 2019. Construction is anticipated to be completed in summer 2022.
Applicable Hazards	Sea Level Rise, Landslide/Coastal Erosion, Tsunami
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$800,000
Responsible Agency/Department	Parks & Recreation – Parks Division Public Works - Engineering
Other Comments	Adapted from 2016-9 in the 2016 LHMP

2022-8. New Police Department

Priority: High	
Mitigation Strategy Description	The police building has been assessed by an outside architectural firm and has been determined that the building needs seismic renovation.
Relevant Objective	Critical facility seismic renovation
Applicable Hazards	Earthquake
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	Measure C Funding and potential bond will assist in funding the new Police Department - \$96,000,000
Responsible Agency/Department	Police Department Community Development – Planning Division
Other Comments	Adapted from 2016-10 in the 2016 LHMP

2022-9. Unreinforced Retaining Walls and Unstable Slopes

Priority: High	
Mitigation Strategy Description	Many steep-sloped areas are subject to erosion and have already partially failed in areas due to past flooding events. Gravity and unreinforced retaining walls subject to landslides, earthquakes, and fires are at a higher risk of failing in an emergency event. Reinforcement and replacement of the walls would protect infrastructure, access, and the residents of the Riviera. The City is determining whether an unreinforced wall on Marilyn Way is a good fit for LHP.
Relevant Objective	Erosions and landslides will hamper emergency responders from accessing these high fire areas and will drastically slow down calls times if these roads are hampered.
Applicable Hazards	Flooding, Wildfire, Landslide/Coastal Erosion
Estimated Timeline for Completion	2036
Estimated Cost/Funding Source	\$30,000,000
Responsible Agency/Department	Public Works, Engineering Fire Dept., Fire Prevention Bureau, Wildland Specialist
Other Comments	Adapted from 2016-11 in the 2016 LHMP

2022-10. Seismic Upgrades to City Facility in the Harbor

Priority: High	
Mitigation Strategy Description	Current Harbor facilities are old early 60s type construction – seismic renovation needed for safety
Relevant Objective	Critical Facility needing seismic upgrades for safety
Applicable Hazards	Earthquake
Estimated Timeline for Completion	2032
Estimated Cost/Funding Source	\$5 Million
Responsible Agency/Department	Waterfront – Operations Division Public Works – Engineering Division
Other Comments	Adapted from 2016-15 in the 2016 LHMP

2022-11. Salsipuedes Street Storm Drain Improvements

Priority: High	
Mitigation Strategy Description	The project first involves the study of existing public and private storm drain facilities beginning on Salsipuedes Street at Micheltorena Street and continuing south to Victoria Street. Potential improvements include the connection of storm drain inlets on Micheltorena Street to an existing storm drain on Salsipuedes Street and the construction of a new storm drain pipe along Salsipuedes and Victoria Streets.
Relevant Objective	Public Works will pursue the completion of an initial study and design for this project if grant funding or a cost-sharing agreement with County Flood Control can be secured to cover 50% of the cost for construction.
Applicable Hazards	Flooding

7.0. Mitigation Strategy

Priority: High	
Estimated Timeline for Completion	2035
Estimated Cost/Funding Source	\$1,500,000
Responsible Agency/Department	Public Works – Engineering Division
Other Comments	Adapted from 2016-17 in the 2016 LHMP

2022-12. Corrugated Metal Pipe Repairs

Priority: High	
Mitigation Strategy Description	Studies done in several areas within the City noted many corrugated metal pipes would need to be replaced. This project would seek to repair through slip lining, spiral wound lining, or replacement of the highest priority corrugated metal pipe drain lines.
Relevant Objective	Many of the City-owned corrugated metal pipes were installed over 50 years ago and may require replacement. Due to the lack of funding for this project, repairs are typically only completed as emergency maintenance projects in response to failures evident at the street level (typically as sinkholes following rain events). 2019 – Currently pipes are being identified. The City will review findings from an ongoing Pipeline Assessment Certification Program and create a replacement plan
Applicable Hazards	Flooding
Estimated Timeline for Completion	2028
Estimated Cost/Funding Source	Measure C Funding - \$20,000,000
Responsible Agency/Department	Public Works – Engineering Division
Other Comments	Adapted from 2016-18 in the 2016 LHMP

2022-13. Goleta Slough Mouth Management

Priority: Medium	
Mitigation Strategy Description	This project will control the water level in the Goleta Slough to minimize flood hazards, mosquito population blooms, and waterfowl attractants that pose a greater bird-strike risk. This project will be designed to minimize adverse effects to the Federally endangered tidewater goby and steelhead trout, while avoiding significant flood and bird-strike hazards such as those experienced in November 2012, May 2013, and February 2014.
Relevant Objective	The Federal Aviation Administration (FAA) requires that wildlife strike risk be avoided to the maximum extent feasible within environmental constraints. The Santa Barbara County Flood Control District completed an Environmental Impact Report for their maintenance activities, including slough mouth management in 2011. 2019 – Continue to work with environmental regulators.
Applicable Hazards	Flooding, Sea Level Rise, Agricultural Pests/Disease, Commercial Aircraft
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Discussion with the County regarding potential mitigations. Funding sources include funding from FAA and the Airport. - \$300,000

Priority: Medium	
Responsible Agency/Department	Airport – Operations Division Public Works – Engineering Division
Other Comments	Adapted from 2016-20 in the 2016 LHMP

2022-14. Hollister Drainage Improvement

Priority: Medium	
Mitigation Strategy Description	The project includes establishing new swales to connect to an existing culvert emptying to Carneros Creek. To preserve the wetland habitat within the project site, the swales will be “eco-channels” which are constructed to allow a certain depth of water to still fill the wetlands but now allow the water to overflow into Hollister Avenue. There will be a significant component of wetland enhancement/planting to offset any detrimental impacts of the project to the wetland habitat.
Relevant Objective	Hollister Avenue is an important access route to the Airport and needs to remain a safe and dependable route to the Airport in moderate and heavy rains. The project is consistent with Public Works Engineering standards that require roads to be adequately drained during a 10-year storm. 2019 – Not planned due to mitigating wetland disruptions.
Applicable Hazards	Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Airport Project funding - \$500,000
Responsible Agency/Department	Airport – Operations Division
Other Comments	The area south of Hollister Avenue and east and west of Los Carneros Way is twelve-acre moisture of upland and wetland habitats. The area is drained by several poorly defined swales, which have not been maintained for many years. In moderate storm events (3–5-year storms), the swales, which are severely choked by bulrush, back up with storm runoff and flood over Hollister Avenue. The depth of water on Hollister Avenue is as much as 12 inches and the road has to be closed for safety reasons. Adapted from 2016-21 in the 2016 LHMP

2022-15. Review/Revise City's Critical Facilities List

Priority: Medium	
Mitigation Strategy Description	Develop a more comprehensive list of Critical Facilities that would include hospitals, skilled nursing facilities, and private companies; as applicable.
Relevant Objective	To have a comprehensive Hazard Mitigation Plan, the City will need to develop a critical infrastructure list that includes outside agencies and businesses, such as hospitals, skilled nursing facilities, dialysis clinics, etc.
Applicable Hazards	All
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	In-Kind staff cost
Responsible Agency/Department	Finance – Risk Management

Priority: Medium	
	Community Development – Long Range Planning Division Fire – Office of Emergency Services
Other Comments	Adapted from 2016-23 in the 2016 LHMP

2022-16. Sycamore Creek Flood Control and Restoration Project

Priority: High	
Mitigation Strategy Description	The proposed project is an effort to prevent flooding in the Lower Eastside, relieve major flow constriction points, and improve overall flow capacity and system reliability. Work consists of several bridge replacements and channel widening, along with additional improvements to the entire lower reach of Sycamore Creek.
Relevant Objective	The list of undersized bridges includes Indio Muerto Street Bridge, Zoo Bridge, El Escorial Bridge, Railroad Bridge, and the Por La Mar Bridge. The reaches between the bridges are also significantly undersized.
Applicable Hazards	Flooding
Estimated Timeline for Completion	2032
Estimated Cost/Funding Source	\$50,000,000
Responsible Agency/Department	Public Works - Streets Division
Other Comments	

2022-17. Parma Park Debris Basin

Priority: High	
Mitigation Strategy Description	The proposed project is an effort to prevent flooding and erosion along Sycamore Creek, its tributary areas, and downstream properties. Work consists of clearing debris and vegetation to restore the basin's capacity to its original conditions.
Relevant Objective	Parma Park basin was impacted by the Thomas Fire and subsequent debris flows.
Applicable Hazards	Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	\$5,000,000
Responsible Agency/Department	Parks & Recreation – Parks Division Public Works – Streets Division
Other Comments	

2022-18. Creeks Development Standards

Priority: Medium	
Mitigation Strategy Description	Establish creek development standards for new development and redevelopment along the City's creeks inland of the Coastal Zone and prepare or update guidelines for restoration, an increase of pervious surfaces, and appropriate land uses within designated creek buffers.

Priority: Medium	
Relevant Objective	Protection and restoration of creeks and their riparian corridors is a priority for flood control in conjunction with adaptation planning for climate change.
Applicable Hazards	Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	\$100,000/Grant or General Fund
Responsible Agency/Department	Community Development – Long Range Planning Division
Other Comments	Creek development standards, specifically numeric development setbacks, protect from flood, erosion, and geologic hazards and provide an area for habitat support. Numeric creek setbacks and buffer standards have been developed in the Coastal Land Use Plan for the Coastal Zone. This project would provide appropriate standards for the inland areas of the City. The policy direction for this project is found in the 2011 Environmental Resources Element and 2012 Climate Action Plan.

2022-19. Automatic Reservoir Isolations Valves

Priority: High	
Mitigation Strategy Description	The City's 14 potable water reservoirs should be retrofitted with automatic isolation valves, which would shut in the event of a water main break caused by an earthquake or other force.
Relevant Objective	The reservoirs all range in capacity from 1 to 10 million gallons. Retrofitting each reservoir with automatic isolation valves is important for protecting the City's water supply from an earthquake event and also protecting surrounding structures from a flood event resulting from a free-flowing pipe from the reservoir.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$1,400,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-20. Automated Metering Infrastructure (AMI) Program

Priority: High	
Mitigation Strategy Description	The City currently manually reads its 27,000 meters monthly. In the event of a private property leak, a month might pass before the meter is read and the leak is noticed because of the high use registered by the meter.
Relevant Objective	AMI would provide the infrastructure to enable leak notification 24 hours within the leak incident, thus eliminating high amounts of water loss. AMI would be a significant tool for helping conserve water Citywide.
Applicable Hazards	Earthquake, Wildfire, Drought
Estimated Timeline for Completion	2023

7.0. Mitigation Strategy

Priority: High	
Estimated Cost/Funding Source	This project is partially funded through the City's Capital Program. In addition, the City has received a grant for \$1,500,000 from the Federal Bureau of Reclamation for Phase II implementation.- \$6,802,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	The City is nearing the completion of the installation of compatible meters. Pilot testing of a limited number of meters is complete. The City is starting Phase II which is the AMI Implementation Phase in which smart meter communication equipment will be installed, data storage created and, a customer interface set up. Once Phase II is complete, the project will be complete

2022-21. El Estero WRC – Chlorine Contact Chamber Bypass

Priority: High	
Mitigation Strategy Description	Many of the structural components are past their useful life, such as baffle walls, flow control gates, and monitoring devices. Upgrading the structure and equipment will reduce the risk of failure due to natural disasters, such as floods, earthquakes, fires, and associated power disruptions.
Relevant Objective	
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Wastewater Capital Funds - \$1,500,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-22. El Estero WRC – New DAFT and GT

Priority: High	
Mitigation Strategy Description	Many of the structural components and equipment are past their useful life, such as weirs, rotating equipment, walkways, and stairs. Upgrading the structure and equipment will reduce the risk of failure due to natural disasters, such as floods, earthquakes, fires, and associated power disruptions.
Relevant Objective	Maintain human health and safety and preserve the environment
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	Wastewater Capital Funds - \$6,400,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-23. El Estero WRC – Digester Upgrades

Priority: High	
Mitigation Strategy Description	This project will result in a third digester being constructed. This third digester will reduce the risk of failure due to natural disasters that may subject the older digesters to failure.
Relevant Objective	A new digester will allow this critical wastewater treatment process to continue to operate during floods, earthquakes, and power failures due to wildfires. This new digester will also allow for El Estero to operate independently from Southern California Edison and the power grid during a natural disaster.
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise
Estimated Timeline for Completion	2042
Estimated Cost/Funding Source	Wastewater Capital Funds - \$14,600,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-24. El Estero WRC – Electrical Distribution Upgrade Project

Priority: High	
Mitigation Strategy Description	The Electrical Distribution System Upgrade project will replace the substations and electrical equipment that is outdated and past useful life.
Relevant Objective	The new electrical substations and equipment will be designed with redundancy and features that will allow the important wastewater treatment facilities to run independently on internally generated power. This redundancy and power independence will allow the wastewater treatment process to be maintained during earthquakes, floods, and wildfires. The project is in the final design stage.
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	SRF – \$30,200,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-25. Community Resilience Plans and Hubs

Priority: High	
Mitigation Strategy Description	Develop community resilience plans including a comprehensive database of relief resources in the event of a disaster and neighborhood-level Community Resilience Hubs to improve initial emergency response, subsequent recovery, and ongoing self-sufficiency. Resilience hubs are community-serving facilities augmented to support residents, coordinate communication, distribute resources, and reduce carbon pollution while enhancing the quality of life. The plans will define, identify, and analyze the logistical and economic feasibility of Community Resilience Hubs and develop a comprehensive implementation and operations plan for several Community Resilience Hubs in the City. Execute elements needed for the resilience hubs,

7.0. Mitigation Strategy

Priority: High	
	including but not limited to installing energy generation and storage, building upgrades, and improvements necessary for services.
Relevant Objective	
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise, Drought, Agricultural Pests/Disease, Epidemic/Pandemic, HazMat Release, Oil Spills, Landslide/Coastal Erosion, Tsunami, Dam Failure, Commercial Aircraft, Terrorism, Cyber Threat
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$250,000-\$1,500,000 depending on scope and implementation
Responsible Agency/Department	Community Development and Sustainability and Resilience
Other Comments	

2022-26. Water System Reservoirs Seismic Evaluation and Other Upgrades

Priority: High	
Mitigation Strategy Description	The City's 13 potable water reservoirs would be evaluated for seismic code deficiencies and other needed upgrades as necessary. The reservoirs all range in capacity from 1 to 10 million gallons.
Relevant Objective	Seismically retrofitting and upgrading aging equipment in each reservoir is important for protecting the City's water supply from an earthquake event and also for protecting surrounding structures from a flood event resulting from a failed reservoir.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2022
Estimated Cost/Funding Source	Capital Program funding - \$173,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-27. Transfer of Development Rights (TDR) Program

Priority: Low	
Mitigation Strategy Description	Develop a TDR Program that allows the transfer of residential density from the City's High Fire Hazard Areas to High-Density residential land use designations.
Relevant Objective	Reduce residential density in High Fire Hazard Areas
Applicable Hazards	Wildfire
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	\$100,000/Grant or General Fund
Responsible Agency/Department	Community Development Dept. – Long Range Planning Division
Other Comments	Residential growth within the City is encouraged in the existing urban areas, rather than the front-country areas most subject to wildfire risk. The City's General Plan Update of 2011 did not change land use designations or increase development potential within High Fire Hazard Areas; however, this project would implement a policy that proposes to limit new development in High Fire Hazard Areas by

Priority: Low

	offering incentives and/or an option to transfer development rights to urban areas. The policy direction for this project is found in the 2011 Land Use Element and 2012 Climate Action Plan.
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2022-28. El Estero WRC – Solids Handling**Priority: High**

Mitigation Strategy Description	The Solids Handling project includes Sludge Holding Tank replacement, Dewatering Building structural upgrades, conveyance/truck loading, and polymer system upgrades.
Relevant Objective	The construction of the new structures will bring these facilities up to earthquake standards reducing the risk of failure to structures and important wastewater processes within these structures during earthquakes. Also, the new facilities will allow the important wastewater process of dewatering to continue during floods or power failures due to wildfire
Applicable Hazards	Earthquake, Flooding, Wildfire, Sea Level Rise
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	SRF – \$23,270,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-29. Desal Intake Pump Platforms Hardening Project**Priority: High**

Mitigation Strategy Description	With the recent start-up of the City's Desalination Facility, it was found that the Intake Pump Platforms are not fully supported by the ocean floor.
Relevant Objective	The platforms were originally pinned to the sandy, ocean bottom with vertical pilings in the 1990s. The pilings lack adequate scour protection. Currently, one of the platforms was found to be without any sand support to a depth of 18" below the bottom of the slab. Only the friction with the pilings is holding the slabs from dropping. Failure of the platforms would result in the interruption of raw water supplies to the Desalination Plant.
Applicable Hazards	Earthquake, Landslide/Coastal Erosion, Tsunami
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Hazard Mitigation Grant Program and Water Capital funds as the grant match – \$4,200,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-30. Castillo Street Capacity Improvement Project**Priority: High**

Mitigation Strategy Description	This project would divert flow from the existing trunk sewer on the west side of Highway 101.
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7.0. Mitigation Strategy

Priority: High	
Relevant Objective	The new pipeline would follow Castillo Street from Pedregosa Street to Haley Street, where it would reconnect to the existing system. The existing trunk sewer cannot convey wet weather peak flows.
Applicable Hazards	Earthquake, Flooding,
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$3,201,000
Responsible Agency/Department	Public Works – Water Resource Division
Other Comments	

2022-31. Milpas Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	This project would provide relief for an undersized existing 6-inch pipe between Alphonse Street and Ortega Street.
Relevant Objective	Model results indicate the pipe currently has limited capacity during storm events and cannot convey the peak wet weather flow without surcharging the system.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$82,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-32. Nopal Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	At Nopal Street and De La Guerra Street, a short reach of 6-inch pipe is a hydraulic bottleneck, which has difficulties conveying wet weather peak flows.
Relevant Objective	This project would provide a parallel pipe to support the bottleneck and prevent a surcharge in the system.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$35,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-33. Olive Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	This project would provide relief for an existing 8-inch pipe in Olive Street from Cota Street to Haley Street.
Relevant Objective	The existing pipe is a hydraulic bottleneck that does not convey the peak wet weather flow for preventing a system surcharge.

Priority: High	
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Wastewater Collection Capital Funds – \$174,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-34. Ortega Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	Between Laguna Street and Garden Street, an existing 6-inch pipe is a hydraulic bottleneck that does not convey wet weather flow capacity.
Relevant Objective	This project would provide a parallel pipe to support the bottleneck and prevent a surcharge in the system.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$107,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-35. Quarantina Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	This project would start near the intersection of Ortega Street and the extension of Nopal Street. It would provide wet weather capacity to carry flows southwest in Ortega Street and then southeast in Quarantina Street.
Relevant Objective	
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$650,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-36. State Street Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	This project would provide additional wet weather capacity in State Street in front of La Cumbre Plaza and would address the restriction in the current siphon under Arroyo Burro.
Relevant Objective	Maintains human health and safety and preserves the environment
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2025

7.0. Mitigation Strategy

Priority: High	
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$541,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-37. Various Collection System Pipe Segments Capacity Improvement Project

Priority: High	
Mitigation Strategy Description	This project would address wet weather capacity constraints throughout the collection system. These pipes are currently unable to convey peak wet weather flows without surcharging the system.
Relevant Objective	Maintains human health and safety and preserves the environment
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	Wastewater Collection Capital Funds - \$13,000,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-38. Rattlesnake Sewer Crossing Project

Priority: High	
Mitigation Strategy Description	A sewer main supported on a pipe bridge conveys sewage across Rattlesnake Creek where it joins the remainder of the sewage conveyance system to the wastewater treatment plant.
Relevant Objective	This project would replace the pipe bridge that carries the sewer main across the creek with a directionally drilled pipe under the creek and a lift station. The pipe bridge is exposed and vulnerable and its length makes it cost-prohibitive to strength. In addition, strengthening would require extensive environmental review and mobilization in a creek. Failure of the pipe would spill sewage into the creek.
Applicable Hazards	Earthquake, Flooding
Estimated Timeline for Completion	2028
Estimated Cost/Funding Source	Currently, there is funding for this project - \$1,000,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-39. El Camino de la Luz Sewer Crossing Project

Priority: High	
Mitigation Strategy Description	A sewer main supported on a pipe bridge conveys sewage across a ravine where it joins the remainder of the sewage conveyance system to the wastewater treatment plant.
Relevant Objective	This project would replace the pipe bridge that carries the sewer main across the ravine by rerouting it through city streets. The pipe bridge is exposed and vulnerable and its length makes it cost-prohibitive to

Priority: High	
	strengthen. In addition, strengthening would require extensive environmental review and mobilization in a creek. Failure of the pipe would spill sewage into the ravine and potentially carry sewage to the ocean.
Applicable Hazards	Earthquake, Flooding, Landslide/Coastal Erosion
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Currently, there is no funding for this project - \$1,000,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-40. Wastewater Generator Containment Project

Priority: High	
Mitigation Strategy Description	This project would install containment around the generators throughout the wastewater treatment plant and collection system to prevent the spill of oil in the event of an earthquake.
Relevant Objective	Maintains human health and safety and preserves the environment
Applicable Hazards	Earthquake
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Currently, there is no funding for the project - \$700,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-41. Braemar Flood Wall Project

Priority: High	
Mitigation Strategy Description	This project would install a floodwall around the Braemar Lift Station to prevent inundation during flooding or dam failure and as prevention against sea level rise.
Relevant Objective	Braemar Lift Station is the largest lift station belonging to the City pumping approximately 1041 gal/min of sewage. The pump station sits next to the Arroyo Burro Creek and is vulnerable to flooding, dam failure, and sea level rise.
Applicable Hazards	Flooding, Sea Level Rise, Dam Failure
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	SRF – 100,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	Final design in progress. City preparing SRF funding application

2022-42. Creek Crossing Projection Project

Priority: High	
Mitigation Strategy Description	This project would move sewer pipelines that are exposed on the sides of bridges to a place underneath the bridge for better protection during a high flow event or in the event of a landslide.

7.0. Mitigation Strategy

Priority: High	
Relevant Objective	Maintains human health and safety and preserves the environment
Applicable Hazards	Flooding, Landslide/Coastal Erosion
Estimated Timeline for Completion	2029
Estimated Cost/Funding Source	Currently, there is no funding for this project - \$7,000,000
Responsible Agency/Department	Public Works – Water Resources Division
Other Comments	

2022-43. Central Library Backup Power

Priority: High	
Mitigation Strategy Description	The Santa Barbara Public Library (SBPL) does not currently have any form of backup power. SBPL is a safe place during times of disaster and emergency, providing trusted information and serving as a place of refuge to the most vulnerable populations. Battery energy storage systems are the preferred source of backup power.
Relevant Objective	SBPL is also considered a cooling center during times of extreme heat. Additionally, with the advent of the Public Safety Power Shutdown, the Library must have an alternate source of power. On a typical day, SBPL welcomes over 1500 visitors and this number is often doubled during outages and/or emergencies. This project proposes the installation of a portable backup generator and associated infrastructure costs to serve the Library.
Applicable Hazards	Power Outages
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Purchase the portable generator and trailer to include the necessary retrofitting of the Library. The estimated cost is \$300,000; there is currently no funding for this project
Responsible Agency/Department	Resilience & Sustainability Public Works – Facilities Library - Administration
Other Comments	

2022-44. Collection System Freeway Crossing Project

Priority: High	
Mitigation Strategy Description	This project will assess collection system pipes that run under the 101 freeway and recommend repairs, realignment, and/or abandonment.
Relevant Objective	This project will harden the current infrastructure and make this part of the collection system easier to operate and maintain. It will provide reliability during earthquake events.
Applicable Hazards	Earthquake
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Wastewater Capital Funds – \$5,800,000
Responsible Agency/Department	Public Works, Water Resources Division - Wastewater Systems

Priority: High	
Other Comments	The alternative analysis phase is in progress. Once a preferred alternative for consolidation and repair is determined, the final design of the project will begin.

2022-45. Lower Elevation Sewer Collection System

Priority: High	
Mitigation Strategy Description	The sewer collection system located south of the 101 freeway sits at a lower elevation that is at risk of becoming inundated with any rain or flooding event, which may lead to failure of the system.
Relevant Objective	Reinforcement of the underground collection system and the sealing of the manhole covers will be required to protect the system from infiltration and potential damage
Applicable Hazards	Flooding, Sea Level Rise, Tsunami
Estimated Timeline for Completion	2035
Estimated Cost/Funding Source	Wastewater Collections Capital Improvement Program - \$20,000,000
Responsible Agency/Department	Public Works – Water Resources Division – Wastewater Collections
Other Comments	

2022-46. Cater Clearwell Seismic Upgrade

Priority: High	
Mitigation Strategy Description	The clearwell is a 5-million gallon finished water reservoir at the Cater Water Treatment Plant that was constructed in 1965. It has not had significant structural improvements since that time. It is believed that the buried clearwell, which is topped with two feet of soil, is overloaded and does not meet current seismic standards. In addition, it is a single point of failure having no bypass for distribution of water produced by the Cater Water Treatment Plant.
Relevant Objective	Maintains safe drinking water for human health and safety
Applicable Hazards	Earthquake, Wildfire, Drought
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Water Capital Fund, Joint Powers Agreement – \$1,500,000
Responsible Agency/Department	Public Works, Water Resources Division – Water Systems
Other Comments	In the planning stages

2022-47. Water Conveyance Main

Priority: High	
Mitigation Strategy Description	This project would install a pipeline in the downtown area of the City to convey water from the desalination plant to the Cater Water Treatment Plant where it can be distributed to the entire City.
Relevant Objective	Currently, water from the desalination plant is used in the downtown area of the City only. In the case of a natural disaster where the flow

Priority: High	
	from Lake Cachuma or Gibraltar Reservoir is interrupted, the entire City would be able to receive water.
Applicable Hazards	Earthquake, Wildfire, Drought
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Water Capital Funds, IRWM grant, Water Sales Agreement with Montecito Water District - \$20,500,000
Responsible Agency/Department	Public Works, Water Resources Division - Water Systems
Other Comments	The final design is complete. The final execution of the Water Sales Agreement is needed to begin construction

2022-48. Desalination Project Water Pump Station

Priority: High	
Mitigation Strategy Description	This project would install a pump station at the desalination plant to convey water from the desalination plant to the Cater Water Treatment Plant where it can be distributed to the entire City. Currently, water from the desalination plant is used in the downtown area of the City only. In the case of a natural disaster where the flow from Lake Cachuma or Gibraltar Reservoir is interrupted, the entire City would be able to receive water.
Relevant Objective	Maintains safe drinking water for human health and safety
Applicable Hazards	Earthquake, Wildlife, Drought
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Water Capital Funds, Water Sales Agreement with Montecito Water District - \$4,000,000
Responsible Agency/Department	Public Works – Water Resources Division – Water Systems
Other Comments	Final Design is beginning

2022-49. Water Transmission Main Renewal

Priority: High	
Mitigation Strategy Description	This four-part project will perform maintenance on and add resilience to the main pipelines that convey water throughout the City. A portion of this project will harden piping along the route needed to convey water from the desalination plant to the Cater Water Treatment Plant where it can be distributed to the entire City. This project will be in two phases, also renew the main transmission pipeline from the Cater Water Treatment Plant to Vic Trace reservoir. The final phase will install a system to cathodically protect the metal pipeline thereby extending pipeline life.
Relevant Objective	Maintains safe drinking water for human health and safety
Applicable Hazards	Earthquake, Wildfire, Drought
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Water Capital Funds, Water Sales Agreement with Montecito Water District (only Phase One) - \$3,500,000
Responsible Agency/Department	Public Works – Water Resources Division – Water Systems

Priority: High	
Other Comments	Design is in progress

2022-50. Cater Yard Piping Project

Priority: High	
Mitigation Strategy Description	This project would install a pipeline at the Cater Water Treatment Plant to allow water from the desalination plant to be piped into the Cater Water Treatment Plant Clearwell where it can be distributed to the entire City. Currently, water from the desalination plant is used in the downtown area of the City only. In the case of a natural disaster where the flow from Lake Cachuma or Gibraltar Reservoir is interrupted, the entire City would be able to receive water.
Relevant Objective	Maintains safe drinking water and human safety
Applicable Hazards	Earthquake, Wildfire, Drought
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	Water Capital Funds, Water Sales Agreement with Montecito Water District - \$1,200,000
Responsible Agency/Department	Public Works, Water Resources Division – Water Systems
Other Comments	In the planning stages

2022-51. Sheffield Pump Station Rehabilitation

Priority: High	
Mitigation Strategy Description	This pump station was constructed in 1982 and is nearing the end of its useful life. It is the City's largest pump station and is critical for supplying water to the upper reaches of the City's water distribution system by pumping water from the Cater Water Treatment Plant to Hoover and McLaughlin Reservoirs. Rehabilitation of this pump station will ensure the City's ability to supply water to several high fire danger areas in case of an emergency.
Relevant Objective	Maintain safe drinking water and human safety
Applicable Hazards	Earthquake, Wildfire
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	Water Capital Fund – \$166,000
Responsible Agency/Department	Public Works – Water Resources Division – Water Systems
Other Comments	

2022-52. Vic Trace Reservoir Replacement

Priority: High	
Mitigation Strategy Description	This reservoir was constructed in 1956 and has a capacity of ten million gallons. It is one of the City's larger reservoirs and is critical for supplying water to the lower portion of the City's water distribution system. Work has been recommended to improve the operations and maintenance of this reservoir and to increase the flexibility of supplying the water distribution system.

7.0. Mitigation Strategy

Priority: High	
Relevant Objective	This reservoir is critical for supplying water in fire emergencies to the coastal and coastal interior high fire hazard areas.
Applicable Hazards	Earthquake, Wildfire
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	SRF – \$40,000,000
Responsible Agency/Department	Public Works – Water Resources Division – Water Systems
Other Comments	

2022-53. Via Lucero Lift Station and Force Main

Priority: High	
Mitigation Strategy Description	The project will rehabilitate the Via Lucero Lift Station and reroute the force main to provide redundancy to the existing system that has limited capacity during storm events and cannot convey the peak wet weather flow.
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$1,000,000
Responsible Agency/Department	Water Resources/Public Works
Other Comments	

2022-54. Alameda Well Pipeline to Ortega Groundwater Treatment Plan

Priority: High	
Mitigation Strategy Description	The Alameda Well accesses one of the City's primary groundwater basins, Storage Unit 1 (in the general vicinity of downtown); however, water quality is relatively poor. The purpose of the proposed project is to install approximately 3,300 feet of new raw water main from the existing Alameda Well in Alameda Park to a tie-in point in the intersection of Olive Street and Anapamu Street, to the existing raw water main. Once tied in, the raw water main system will convey the raw water from Alameda Well to the Ortega Groundwater Treatment Plant to treat it for potable use, further adding to the City's available water supply and resiliency to drought.
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Drought
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$1,500,000
Responsible Agency/Department	City of Santa Barbara/Public Works/Water Resources
Other Comments	

2022-55. Bilingual Outreach and Education campaign for Energy Assurance, Hazard Adaptation, and Climate Measures

Priority: Medium	
Mitigation Strategy Description	Develop and implement bilingual outreach and education campaigns around energy and climate initiatives, including but not limited to energy resilience, climate adaptation, climate mitigation strategies.
Relevant Objective	Disaster planning, recovery, and relief. Energy resilience. Climate change. Sea-level rise. Public Outreach.
Applicable Hazards	Climate change; sea-level rise; energy outages; disaster relief.
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$100,000
Responsible Agency/Department	Sustainability and Resilience
Other Comments	

2022-56. Community Energy Assurance

Priority: High	
Mitigation Strategy Description	Conduct site assessments, feasibility studies, and implementation plans for community-wide energy assurance projects. Projects may include community-scale energy generation and storage, microgrid deployment, vehicle to grid technologies, and demand response programs.
Relevant Objective	Disaster planning, recovery, and relief. Energy resilience. Climate change.
Applicable Hazards	Energy outages; disaster relief; climate change
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$300,000-\$700,000 depending on scope
Responsible Agency/Department	Sustainability and Resilience
Other Comments	

2022-57. Clean Energy Assurance for City Facilities, Emergency Operations, and City Fleet

Priority: High	
Mitigation Strategy Description	Scope and implement clean energy generation and storage for critical municipal facilities, City emergency operations, and the City's fleet. Ensure functionality during energy outages.
Relevant Objective	Disaster planning, recovery, and relief. Energy resilience. Climate change.
Applicable Hazards	Disaster planning, recovery, and relief. Energy resilience. Climate change.
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$200,000-\$2,000,000 depending on scope
Responsible Agency/Department	Sustainability and Resilience
Other Comments	

2022-58. Disaster Debris Management Plan Implementation

Priority: High	
Mitigation Strategy Description	Build upon the Santa Barbara County Debris Management Plan by assessing, securing, and permitting appropriate temporary debris storage, disposal, and discharge sites and developing processes for the City of Santa Barbara to support regional debris management during and following a disaster. Debris-generating events include windstorms, flooding, debris flows, mudslides, earthquake, wildland fires, and other incidents. Appropriate sediment sources could also potentially be used for beach nourishment and other erosion mitigation efforts.
Relevant Objective	Disaster planning and recovery.
Applicable Hazards	Windstorm, flooding, debris flows, mudslides, earthquake, wildland fire, and other incidents
Estimated Timeline for Completion	2024
Estimated Cost/Funding Source	\$250,000
Responsible Agency/Department	Sustainability and Resilience and Public Works
Other Comments	

2022-59. Airport Sea-Level Rise Adaptation Plan

Priority: High	
Mitigation Strategy Description	Building upon the previously completed Goleta Slough Sea-Level Rise Assessment, study adaptation actions for the Airport, including adaptations options for the impacted stormwater system.
Relevant Objective	Would prepare airport for sea level rise.
Applicable Hazards	Sea-level rise; flooding
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$250,000
Responsible Agency/Department	Airport; Sustainability and Resilience
Other Comments	

2022-60. Changes to Development Floodplain Regulations and Creek Setbacks

Priority: High	
Mitigation Strategy Description	Modify the City's floodplain regulations and creek setbacks south of Highway 101 for new and substantially redeveloped structures to address increased flood risks associated with sea level rise and extreme rainfall events. Develop incentives for floodproofing and raising existing structures (permit streamlining or relief from design, zoning, or height requirements) south of Highway 101 and other areas of the City with projected increases in flooding from sea-level rise and extreme rainfall events.
Relevant Objective	Would prevent damages to structures during flooding
Applicable Hazards	Sea level rise; flooding; climate change
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$100,000

Priority: High	
Responsible Agency/Department	Sustainability and Resilience
Other Comments	

2022-61. Sea-Level Rise Groundwater Impacts and Adaptation Options Study

Priority: High	
Mitigation Strategy Description	Study existing groundwater elevations, freeboard from typical levels up to flood threshold, and potential impacts of sea-level rise. Study the potential of raised groundwater levels to spread contamination. Study feasibility of groundwater pumping to lower the water table.
Relevant Objective	Would prevent damage to infrastructure and buildings from corrosion and other groundwater impacts
Applicable Hazards	Sea-level rise; flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$150,000
Responsible Agency/Department	Sustainability and Resilience;
Other Comments	

2022-62. Harbor Breakwater and Groins

Priority: High	
Mitigation Strategy Description	The City's recently completed Sea-Level Rise Adaptation Plan identified critical facilities that are vulnerable to sea level rise and prioritized actions to adapt. Conduct a feasibility study and concept design for raising or modifying Harbor breakwater, rock groin, sand spit, and walkway and wall spanning from the breakwater to the Harbor commercial area to reduce impacts from existing storm surges and address the impacts of sea-level rise. This will protect not just the Harbor, but also continue to protect the West Beach neighborhood.
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Sea-level rise; flooding; storm surge and waves; tsunami
Estimated Timeline for Completion	2024
Estimated Cost/Funding Source	\$200,000
Responsible Agency/Department	Waterfront and Sustainability and Resilience
Other Comments	Upon completion of the feasibility and alternatives analysis, a capital project will be programmed in future years.

2022-63. Laguna Creek, Tide Gate, and Pump Station Redesign

Priority: High	
Mitigation Strategy Description	The City's recently completed Sea-Level Rise Adaptation Plan identified critical facilities that are vulnerable to sea level rise and prioritized actions to adapt. Redesign the Laguna Creek tide gate, pump station, and channel to accommodate sea level rise and increased creek discharge flooding from changes in rainfall runoff. The

Priority: High	
	project includes the creation of a Laguna Creek conceptual plan, infrastructure relocation alternatives analysis, beach berm analysis, and updated hydrologic and biological studies. The tide gate already overtops during some high tide events and storm surges.
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Sea-level rise; flooding; tsunami
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$350,000
Responsible Agency/Department	Sustainability and Resilience and Public Works
Other Comments	Upon completion of the feasibility and alternatives analysis, a capital project will be programmed in future years.

2022-64. Prepare Marina Facilities and City Pier for Sea-Level Rise

Priority: High	
Mitigation Strategy Description	Renovate marina facilities and the City Pier to accommodate increased tide heights and storm surges related to sea-level rise. City Pier supports the marinas fuel dock, icehouse, and coast guard facilities.
Relevant Objective	Would prevent damage to marinas and pier during storms and high tide events
Applicable Hazards	Sea-level rise; storm surge
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	\$500,000
Responsible Agency/Department	Waterfront; Sustainability and Resilience
Other Comments	

2022-65. Master Drainage Plan and Increased Rainfall Intensities

Priority: High	
Mitigation Strategy Description	This project consists of new hydrologic and flood modeling factoring in sea-level rise and changes in rainfall intensities from climate change. Results from this study are necessary for other projects including changes to floodplain regulations, creek setbacks, design of the Laguna Creek tide gate, and adaptation options for the stormwater system.
Relevant Objective	Would facilitate planning for increased flooding and impacts to stormwater system
Applicable Hazards	Sea-level rise; flooding
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$150,000
Responsible Agency/Department	Sustainability and Resilience
Other Comments	

2022-66. Regional Shoreline Monitoring Program

Priority: High	
Mitigation Strategy Description	Develop and implement a Shoreline Monitoring Program in coordination with other regional, state, and federal agencies to monitor sea-level rise-related hazards; identify action thresholds, and regularly reassess the need for hazard mitigation actions. Use program to assess the success of implemented mitigation actions.
Relevant Objective	Key element in decisionmaking for adaption
Applicable Hazards	Sea-level rise; flooding; shoreline erosion
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$300,000
Responsible Agency/Department	Sustainability and Resilience; BEACON
Other Comments	

2022-67. Stormwater System Vulnerability Assessment and Adaptation Plan

Priority: High	
Mitigation Strategy Description	Assess vulnerabilities and adaptation options for those portions of the stormwater system potentially affected by sea-level rise and extreme rainfall-related hazards.
Relevant Objective	Would ensure continued operation of stormwater system during flooding and erosion events
Applicable Hazards	Sea-level rise; flooding; climate change; erosion
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$300,000
Responsible Agency/Department	Sustainability and Resilience; Public Works
Other Comments	

2022-68. Wastewater and Water System Vulnerabilities and Adaptation Options

Priority: High	
Mitigation Strategy Description	<p>The City's recently completed Sea-Level Rise Adaptation Plan identified critical facilities that are vulnerable to sea level rise and prioritized actions to adapt. One of the highest priority actions identified for the next few years is a comprehensive study of adaptation options for threatened portions of the wastewater and water systems, including the redesign of portions of the system, adaptation options for El Estero Water Resource Center, and possible service point improvements. Portions of the wastewater system, in particular, are already at risk from flooding during major storms.</p> <p>One of the most vulnerable facilities identified is the existing sewer trunk line on Cabrillo Boulevard that carries sewage to the El Estero Water Resources Center to be treated. The existing pipeline and manholes are vulnerable to flooding from storm surges during major storms and will be at risk from storm surge and erosion due to sea-level rise, which would result in sanitary sewer overflows. The analysis</p>

Priority: High	
	should study the feasibility and alternatives for relocating the existing trunk line.
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Sea-level rise; flooding; shoreline erosion; tsunami
Estimated Timeline for Completion	2023
Estimated Cost/Funding Source	\$500,000
Responsible Agency/Department	Sustainability and Resilience and Public Works
Other Comments	Upon completion of the feasibility and alternatives analysis, a capital project will be programmed in future years.

2022-69. Waterfront and Harbor 30-Year Plan

Priority: High	
Mitigation Strategy Description	<p>This is a detailed study of the assets along the Waterfront and Harbor to:</p> <p>Analyze adaptation options and establish 30-year design storm and sea level rise amounts for Harbor Commercial area, parking areas, and other assets along the Waterfront.</p> <p>Identify options to relocate to the extent feasible and where not feasible protect in place sewer main and collocated gas pipelines, water lines, and major utilities south of Cabrillo Boulevard;</p> <p>Assess the feasibility of additional beach berm construction, dune creation, and sediment management to address 30-year vulnerabilities along Waterfront;</p> <p>Assess options for increased Harbor dredging and other sand supplies.</p>
Relevant Objective	Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Applicable Hazards	Sea-level rise; flooding; shoreline erosion; tsunami
Estimated Timeline for Completion	2025
Estimated Cost/Funding Source	\$250,000
Responsible Agency/Department	Sustainability and Resilience; Waterfront; Parks and Recreation
Other Comments	

2022-70. Airport Sewer Master Plan – Phase III

Priority: High	
Mitigation Strategy Description	<p>The 2004 Sewer Master Plan was prepared to provide a modern solution to the airport sewer system originally constructed in the 1940s. This project would implement a second phase of the Sewer Master Plan. The second phase consists of the removal of lift station 3 and the re-routing of the northwest quadrant of the airfield to flow to the new Goleta Sanitary District lift station on Norman Firestone Road. This will avoid the need to pump sewage in an 80-year-old force main under the main air carrier runway and through the Goleta Slough State Ecological Reserve.</p>

Priority: High	
Relevant Objective	Maintain Infrastructure, Modernize City Facilities, Support the City's Plans
Applicable Hazards	Earthquake, flood, infrastructure failure
Estimated Timeline for Completion	This is an unscheduled project in the City's CIP. Completion would take nine months.
Estimated Cost/Funding Source	\$2.3 million – Airport Capital Fund
Responsible Agency/Department	Airport Department
Other Comments	The first phase of the Sewer Master Plan, the removal of lift stations 1 and 2 and their replacement with a new Goleta Sanitary District lift station, was completed in 2009.

2022-71. Central Library ADA Elevator

Priority: High	
Mitigation Strategy Description	Installation of an ADA compliant elevator would ease mobility challenges and allow for greater access to all areas of the Library. The Santa Barbara Library (SBPL) serves as a cooling center during extreme weather conditions and serves as a place of refuge for all ages during times of disaster such as local fire. While the Library does have a small elevator, its size presents challenges for mobility devices, which in turn limits ease of access to spaces in the facility.
Relevant Objective	Installation of an ADA compliant elevator to allow for full access to all spaces in the Library, particularly while serving as a cooling shelter or refuge during disaster and emergency.
Applicable Hazards	Lack of compliance with current ADA standards and challenges for mobility devices.
Estimated Timeline for Completion	Tentatively Fall/Winter 2022
Estimated Cost/Funding Source	\$2,267,535/ Partially Measure C
Responsible Agency/Department	City of Santa Barbara Library Department
Other Comments	This project is in progress. The design and plan review is complete. The permit has been issued and bidding should take place in January 2022 with construction to tentatively begin March 2022.

2022-72. Las Positas Landfill Capping Project

Priority: High	
Mitigation Strategy Description	The Closed Las Positas Landfill is located within the boundaries of Eling's Park includes a methane recovery system that burns off methane produced. The methane recovery system requires an onsite propane tank that poses an explosives hazard and produces hazardous and non-hazardous waste products that are stored onsite pending disposal. There is also a section of soil that has tested above the action limits for lead contamination. The land is currently held in a longer-term lease agreement with a private operator that operates sports fields and recreational amenities onsite.

Priority: High	
Relevant Objective	This project includes the installation of a clay liner over the closed landfill footprint at the baseball and soccer fields. The cap would decrease the potential for infiltration of water into the buried waste which may decrease the generation of methane and decrease the potential for leaching of contaminants to groundwater.
Applicable Hazards	Hazardous Materials release
Estimated Timeline for Completion	2025? (prefer to occur when field turf replacement occurs in 2-3 years)
Estimated Cost/Funding Source	\$720,000 for clay layer to cap sports fields (does not include design, permitting, etc.), the cost would be more do line the entire landfill area.
Responsible Agency/Department	City of Santa Barbara, Sustainability and Resilience Department
Other Comments	The project could be expanded to install the cap across the entire closed landfill footprint, but that would cost more. The above cost does not include design, technical studies, permitting, maintenance, and monitoring. Before moving forward with designing the cap the metrics for ending the monitoring and reporting program and methane mitigation should be defined with the Central Coast Regional Water Quality Control Board and the Santa Barbara County Public Health Department.

2022-73. Las Positas Creek Restoration Project

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Las Positas Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent homes and Las Positas Road.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Las Positas Road and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion.
Estimated Timeline for Completion	Estimated completion in 2027.
Estimated Cost/Funding Source	The estimated cost is \$950,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-74. Arroyo Burro Restoration at Palermo Drive

Priority: High	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Arroyo Burro, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near the adjacent park, homes, and commercial properties.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along City park and nearby private properties.

Priority: High	
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2026.
Estimated Cost/Funding Source	Estimated cost is \$2,000,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-75. San Roque Creek Restoration Project

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from San Roque Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent roads, homes, and commercial areas of the City.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along San Roque Creek.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2027.
Estimated Cost/Funding Source	Estimated cost is \$1,300,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-76. Mid-Arroyo Burro Restoration Project

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Arroyo Burro, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure along Arroyo Burro in the upper State Street area of the City.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Arroyo Burro, upper State Street, and the surrounding neighborhood and business district.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2027.
Estimated Cost/Funding Source	Estimated cost is \$1,350,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-77. Upper Mission Creek Restoration Project

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from upper Mission Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent parks, homes, and Mission Canyon Road.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Mission Canyon Road and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2028.
Estimated Cost/Funding Source	Estimated cost is \$1,600,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-78. Mission Creek Restoration at Oak Park

Priority: High	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Mission Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent homes and Oak Park.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Mission Creek at Oak Park and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2024.
Estimated Cost/Funding Source	Estimated cost is \$1,250,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-79. Lower Mission Creek Restoration Project

Priority: High	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from lower Mission Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent homes, businesses, and downtown Santa Barbara streets.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along lower Mission Creek, downtown roads, and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2025.

Priority: High	
Estimated Cost/Funding Source	Estimated cost is \$2,300,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-80. Old Mission Creek Restoration at Figueroa Street

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Old Mission Creek, which will facilitate flood flow conveyance and improve floodplain access through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent homes and Figueroa Street.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Old Mission Creek, Figueroa Street, and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2028.
Estimated Cost/Funding Source	Estimated cost is \$1,000,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-81. Rattlesnake Creek Restoration Project

Priority: Medium	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Rattlesnake Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent homes and Las Canoas Road.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Rattlesnake Creek, Las Canoas Road, and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2027.
Estimated Cost/Funding Source	Estimated cost is \$1,250,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-82. Sycamore Creek Restoration Project

Priority: High	
Mitigation Strategy Description	This creek restoration/water quality improvement project includes the removal of concrete, invasive plants, and other debris from Sycamore

7.0. Mitigation Strategy

Priority: High	
	Creek, which will facilitate flood flow conveyance through the creek channel. The project scope also includes biotechnical bank and toe stabilization, which will reduce erosion and bank failure near adjacent streets, parks, homes, and businesses.
Relevant Objective	Reduce flooding, erosion, and creek bank failure along Sycamore Creek and nearby private properties.
Applicable Hazards	Flooding, creek bank erosion
Estimated Timeline for Completion	Estimated completion in 2028.
Estimated Cost/Funding Source	Estimated cost is \$80,000,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-83. Andree Clark Bird Refuge Restoration Project

Priority: High	
Mitigation Strategy Description	This wetland restoration/water quality improvement project includes removal and replacement of a failing weir and weir gates at the Andree Clark Bird Refuge, which will facilitate flood flow conveyance out of the Bird Refuge and under Cabrillo Boulevard. The project scope also includes managing the sand berm between the Bird Refuge and the Pacific Ocean during storms to allow water to flow through the culverts and prevent flooding of Cabrillo Boulevard.
Relevant Objective	Reduce flooding on Cabrillo Boulevard.
Applicable Hazards	Flooding.
Estimated Timeline for Completion	Estimated completion in 2023.
Estimated Cost/Funding Source	Estimated cost is \$2,500,000. The funding source is Measure B (Creeks Fund) and unidentified grant funding.
Responsible Agency/Department	Parks and Recreation/Creeks Division
Other Comments	

2022-84. Defensible Space/Home Hardening Survey

Priority: High	
Mitigation Strategy Description	Assess vulnerabilities and needs regarding home hardening and defensible space within the City's designated High Fire Hazard Areas. Encourage home hardening retrofits Complete Defensible Space Survey Increase grant funding opportunities Develop programs to incentivize improved defensible space around homes
Relevant Objective	Improve Defensible Space regarding home hardening within communities vulnerable to wildfire.
Applicable Hazards	Wildfire
Estimated Timeline for Completion	FY 2023-24
Estimated Cost/Funding Source	\$20,000 from grants and/or Wildland General Fund

Priority: High	
Responsible Agency/Department	Fire Department/Prevention - Wildfire
Other Comments	This task is based on recommendations made in the 2021 Community Wildfire Protection Plan (CWPP)

2022-85. Expand Wildland Fire Suppression Assessment District

Priority: High	
Mitigation Strategy Description	The Community Wildfire Protection Plan (CWPP) expanded all four of the City's designated High Fire Hazard Areas. As part of the CWPP implementation, a study and survey should be completed to determine areas to potentially be included in the Wildland Fire Suppression Assessment District. This would be determined by ballot measure to residents in the newly proposed area.
Relevant Objective	Create a new Assessment District in the Coastal and Coastal Interior High Fire Hazard areas and expand the existing Wildfire Suppression Assessment District within the Foothill High Fire Hazard area to include parcels added in the CWPP.
Applicable Hazards	Wildfire
Estimated Timeline for Completion	FY2024-25
Estimated Cost/Funding Source	\$40,000 Wildland General Fund
Responsible Agency/Department	Fire Department/Prevention - Wildfire
Other Comments	This project is expected to take 2+ years and implementation will be determined by ballot measures issued to all residents within the proposed areas.

2022-86. Increase Evacuation Safety

Priority: High	
Mitigation Strategy Description	Combine CWPP and 2014 Evacuations Procedure Analysis. Publicly identify evacuation routes in High Fire Hazard Areas with signage Identify Roads that do not meet SBFD Access Standards Conduct detailed evacuation study
Relevant Objective	Improve evacuation safety in communities vulnerable to wildfire.
Applicable Hazards	Wildfire, Flooding, Debris Flow
Estimated Timeline for Completion	FY2023-24
Estimated Cost/Funding Source	\$20,000 from grants and/or Wildland General Fund
Responsible Agency/Department	Fire Department/Prevention - Wildfire
Other Comments	A consultant may be needed for portions of the Evacuation Procedure Analysis.

2022-87. Fuels Reduction Within Identified Vegetation Management Units

Priority: High	
Mitigation Strategy Description	Complete fuels reduction projects within all 50 of the identified Vegetation Management Units within the City. This also includes areas within the Community Fuels Treatment Network.
Relevant Objective	Reduce wildfire danger within our communities by expanding defensible space in targeted locations beyond the homeowner's required clearance.
Applicable Hazards	Wildfire
Estimated Timeline for Completion	FY2035
Estimated Cost/Funding Source	\$500,000-\$1,000,000 from Grants/Wildland General Fund/Wildland Fire Suppression Assessment District Fund
Responsible Agency/Department	Fire Department/Prevention - Wildfire
Other Comments	Reduce wildfire danger within our communities by expanding defensible space in targeted locations beyond the homeowner's required clearance.

2022-88. Community Wildfire Protection Plan Implementations

Priority: High	
Mitigation Strategy Description	Continue to evaluate and implement actions recommended within the Community Wildfire Protection Plan (CWPP).
Relevant Objective	Complete all recommended actions, projects, and goals as outlined and identified within the Community Wildfire Protection Plan.
Applicable Hazards	Wildfire
Estimated Timeline for Completion	FY2030
Estimated Cost/Funding Source	\$300,000 from Grants/Wildland General Fund/Wildland Fire Suppression Assessment District Fund
Responsible Agency/Department	Fire Department/Prevention - Wildland
Other Comments	Multiple projects and recommendations identified within the Community Wildfire Protection Plan are critical in improving the Fire Department's ability to mitigate wildfire danger within vulnerable communities. This includes educational outreach, improved enforcement, updating mapping, and increased training opportunities for both agency personnel and the public.

2022-89. Upgrade City Emergency Operations Center (EOC)

Priority: High	
Mitigation Strategy Description	Upgrade the City EOC's electronic technology for better communications and interoperability. The upgrading of the EOC would replace projectors and screens with smart TVs, including teleconferencing capabilities, wireless network, and cameras to feed information to the Policy Room, Bullpen, and Administrative Conference Room.
Relevant Objective	The City's EOC is a critical facility during times of disaster. The facility has not been upgraded since 2009 and there are challenges with interoperability.

Priority: High	
Applicable Hazards	All Hazards
Estimated Timeline for Completion	2026
Estimated Cost/Funding Source	\$75,000
Responsible Agency/Department	Fire Department/Office of Emergency Services
Other Comments	

2022-90. Relocation of Fire Station 7 Building

Priority: High	
Mitigation Strategy Description	<p>Fire Station 7, located at 2411 Stanwood Drive, was built in 1951 and the station is essentially the same as when it was built. The station was built to accommodate an all-male crew with one dorm room, one locker room, and one shower/restroom. The shower/restroom was divided in the early 1980s.</p> <p>During the remodeling review process, it was noted that Station 7 was built above an earthquake fault. With that discovery, it was determined that Station 7 needs to be relocated for the safety of the staff housed in that station.</p>
Relevant Objective	For the relocation and construction of the Station, the project will include hiring a design professional to evaluate the long-term needs (Needs Assessment) of the Fire Department at Fire Station 7 that contains separate dorm rooms with lockers, separate restrooms, a separate captain's office, and more apparatus floor space to accommodate today's larger fire engines.
Applicable Hazards	Earthquake, Wildfire
Estimated Timeline for Completion	2030
Estimated Cost/Funding Source	\$6,000,000
Responsible Agency/Department	Fire Department/Public Works
Other Comments	

8.0 PLAN MAINTENANCE

8.1 MONITORING, EVALUATING, AND UPDATING THE PLAN

Since the last LHMP in 2017, the LPT has monitored, evaluated, and updated the plan on a continuing and as-needed basis. The City was very successful in implementing the 2017 mitigation actions as noted in Table 7-1. The remaining mitigation actions outlined in the 2017 LHMP are ongoing at the time of this 2022 update.

The City of Santa Barbara Office of Emergency Services (OES) will be responsible for ensuring that this plan is monitored on an ongoing basis. City OES will call the Local Hazard Mitigation Planning (LHMP) team together on an annual basis to review the mitigation actions outlined in this plan and discuss progress. During this meeting, the LHMP team will develop a list of items to be updated, added, or removed in future revisions of this plan.

City OES will report the outcomes of the annual meeting to the County Office of Emergency Management (OEM) and the City's Disaster Council.

The Plan will be a discussion/work item on the City's Emergency Managers Task Team (EMTT) agenda each year. Department heads and other emergency preparedness staff who serve in the City's Emergency Operations Center (EOC) will focus on evaluating the Plan in light of technological, budgetary, political changes, or other significant events that may occur during the year.

The Plan's existence will be addressed in the City's Emergency Management Plan, as well as discussed at Community Disaster Education presentations in both English and Spanish.

The City will continue to participate in the countywide MAC and attend the annual meeting organized by the County Office of Emergency Management to discuss items to be updated/added in future revisions of this plan. The MJHMP is evaluated by the MAC annually to determine the effectiveness of programs, and to reflect changes in land development or programs that may affect mitigation priorities. This includes re-evaluation of goals, objectives, and mitigation actions for each jurisdiction by the MAC. The MAC also reviews the goals and mitigation actions to determine their relevance to changing situations in the county, as well as changes in State or Federal regulations and policy. The MAC reviews the risk assessment portion of the MJHMP and its annexes to determine if this information should be updated or modified, given any new available data. The responsible parties for the mitigation actions report on the status of their projects, the success of various implementation processes, difficulties encountered, success of coordination efforts, and which strategies should be revised. Any updates or changes necessary for the City's LHMP will be forwarded to the County Office of Emergency Management for inclusion in further updates to the MJHMP.

Major disasters affecting the City, legal changes, and/or other events may trigger a meeting of the LHMP team. This group will be responsible for determining if the plan needs to be updated before the five-year mark.

The City of Santa Barbara is committed to reviewing and updating this plan at least once every five years, as required by the Disaster Mitigation Act of 2000.

8.2 IMPLEMENTATION THROUGH EXISTING PLANS AND PROGRAMS

The City implements the LHMP through existing plans, programs, and procedures, as detailed in Section 4.0, *Capability Assessment*. This LHMP provides a baseline of information on the hazards impacting the City and the existing institutions, plans, policies and ordinances that help to implement the LHMP (e.g., General Plan, building codes, floodplain management ordinance). The General Plan and the LHMP annex are complementary documents that work together to achieve the goal of reducing risk exposure to the City's citizens. An update to a general plan may trigger an update to the hazard mitigation plan. Implementation responsibilities of mitigation actions is integrated into the operational functions of the responsibility parties identified, including responsibility for seeking funding needed for implementation.

The City incorporates the LHMP by reference into its General Plan Safety Element. Under AB 2140, the City may adopt its current, FEMA-approved LHMP into the Safety Element of the General Plan. This adoption makes the City eligible to be considered for part or all of its local-share costs on

eligible Public Assistance funding to be provided by the state through the California Disaster Assistance Act (CDAA) (see Section 2.0, *Plan Purpose and Authority* for the adopting resolutions). The LHMP has also been prepared to support the City's CWPP to reduce wildfire risks and Sea Level Rise Adaption Plan to address changing coastal hazards over time. The Floodplain Management Ordinance applies in concert with the City's zoning ordinance and building codes to reduce flooding hazards from land use. The LHMP includes several mitigations addressing flood control infrastructure to support the City's efforts to reduce flooding hazards.

The information contained within this LHMP, including results from the Vulnerability Assessment and the Mitigation Strategy, is used by the City to help inform updates and the development of local plans, programs, and policies. The City may utilize the hazard information when developing and implementing the City's capital improvement programs and the Planning and Building Divisions may utilize the hazard information when reviewing a site plan or other type of development applications. The City's budget process and CIP are updated to include hazard mitigation actions.

8.3 ONGOING PUBLIC OUTREACH AND ENGAGEMENT

The public will continue to be involved whenever the plan is updated and, as appropriate, during the monitoring and evaluation process. Before the adoption of updates, the City will provide multiple opportunities for the public to comment on the revisions. A public notice will be published before the meetings to announce the comment period and meeting locations. Moreover, the City will engage stakeholders in community emergency planning. As described in Section 3.4, *Public Outreach and Engagement*, the public outreach strategy used during development of the current update will provide a framework for public engagement through the plan maintenance process. It can be adapted for ongoing public outreach as determined to be feasible by the MAC and the LPT.

8.4 POINT OF CONTACT

Comments or suggestions regarding this plan may be submitted at any time to the City using the following information:

Liliana Encinas, Fire Public Outreach Coordinator
City of Santa Barbara
Fire Department
Office of Emergency Services
925 Chapala Street
Santa Barbara, CA 93101

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