ALAMEDA COUNTY
OFFICE OF EMERGENCY SERVICES

2025

EMERGENCY OPERATIONS PLAN

Record of Changes

Each update or change to the plan should be tracked. When changes to the plan have been made, document the changes by inputting the change number, date of the change, name of the person who made the respective change, and a brief description. See **Section 7.3** for more information on the process of reviewing and revising the plan.

Change No.	Description	Date Entered	Posted By

Letter of Promulgation

Approval Date: February 18, 2025

The preservation of life, property, and the environment is an inherent responsibility of the local, state, and Federal governments. Alameda County, in cooperation with the cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, Union City, and special districts, has prepared this emergency operations plan to ensure the effective and economical allocation of resources for the protection of people and property in time of an emergency or disaster.

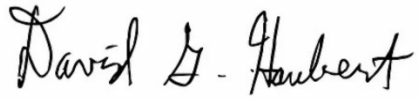
While no plan can entirely prevent death and destruction, good plans by knowledgeable and well-trained personnel can minimize losses. This plan establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts of the various emergency staff and service elements using the Standardized Emergency Management System.

This plan aims to incorporate and coordinate facilities and personnel of the County and Operational Area member jurisdictions into an efficient organization capable of effectively responding to any emergency.

This emergency operations plan is an extension of the California State Emergency Plan. It will be reviewed, assessed, and revised, as necessary, to meet with the changing conditions.

The Alameda County Board of Supervisors extends its full support for this plan and urges officials, employees, and citizens—individually and collectively—to do their share in the total emergency effort of Alameda County.

This letter promulgates the Alameda County Emergency Operations Plan. It constitutes the adoption of the Alameda County Emergency Operations Plan and the adoption of the Standardized Emergency Management System by Alameda County. This emergency operations plan becomes effective upon approval by the Alameda County Board of Supervisors.



David Haubert, President

Alameda County Board of Supervisors

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Alameda County’s Commitment to Comprehensive Equity and Climate Resilience

Overview

In alignment with FEMA's Equity and Climate Resilience Framework, Alameda County's Emergency Operations Plan (EOP) demonstrates a strong commitment to equity and climate resilience, ensuring that all community members are considered and protected during emergencies. The plan integrates comprehensive strategies to address the needs of vulnerable populations and mitigate the impacts of climate-related hazards, reflecting the county's dedication to inclusive and sustainable emergency management. This robust approach ensures that the county is proactive in its efforts to build resilience and equity, creating a safer and more sustainable environment for all its residents.

Equity Approach

1. **Inclusive Planning and Implementation:** Alameda County ensures that cultural competence and considerations for Access and Functional Needs (AFN) are integrated into every stage of emergency management, focusing on preventing disproportionate impacts on vulnerable populations.

2. **Accessible Housing and Services:** The county prioritizes accommodating AFN populations in inclusive, ADA-compliant facilities during emergencies, ensuring access to necessary services and communication aids such as interpreters and assistive technologies.

3. **Community Engagement and Accessibility:** The development of the Emergency Operations Plan (EOP) involves significant input from diverse community stakeholders and representatives to address the needs of all populations, enhancing overall resilience and inclusiveness.

Climate Resilience Strategy

1. **Comprehensive Risk Assessment:** Alameda County conducts thorough risk assessments using historical data, scientific studies, and stakeholder input to identify potential hazards and vulnerabilities, employing tools like FEMA's HAZUS software.

2. **Adaptation and Mitigation Strategies:** The county implements mitigation strategies such as updating ordinances, retrofitting structures, and educating the public to reduce risks from natural and human-caused hazards.

3. **Sustainability and Environmental Protection:** Alameda County prioritizes preserving the environment by minimizing the impact of emergencies on natural resources, ensuring that emergency responses do not exacerbate environmental degradation.

Conclusion

Alameda County's Emergency Operations Plan emphasizes equity and climate resilience by integrating inclusive planning, accessible services, and community engagement with comprehensive risk assessments, adaptation strategies, and environmental protection. These efforts ensure that the county is well-prepared to manage emergencies while protecting its diverse populations and sustaining its environment. By fostering a resilient and equitable community, Alameda County is committed to safeguarding the well-being of all its residents and maintaining a healthy, sustainable environment for future generations.

Alameda County's EOP Equity and Climate Resilience Matrix

Category	Section Summary	Details
Demographic Considerations *(p.12, 20)*	Culturally Diverse Communities Access & Functional Needs Populations and Equity	**Section 1.5:** The integration of cultural competence and consideration for those with access and functional needs (AFN) is emphasized.
	Alameda County Profile	**Section 2.4:** Provides community demographics based on the 2020 U.S. Census.
Housing and Infrastructure *(p.12, 75)*	Culturally Diverse Communities Access & Functional Needs Populations and Equity	**Section 1.5:** Efforts to house AFN populations in inclusive, ADA-compliant facilities during sheltering.
	Resource Requests	**Section 4.5:** Resource allocation processes, ensuring efficient and equitable distribution.
Resource Allocation and Accessibility *(p.75)*	Resource Requests	**Section 4.5:** Detailed process for requesting and allocating resources to meet community needs during emergencies.
Vulnerability and Mitigation *(p.16)*	Priorities	**Section 2.2:** The protection of AFN and culturally diverse populations is prioritized, integrating their needs into emergency management phases.
Community Engagement and Participation *(p.87)*	Development Process	**Section 7.2:** Development of the EOP involves stakeholders and community representatives from diverse populations.
Regulatory Framework *(p.11-12)*	Authorities	**Section 1.4:** Compliance with federal, state, and local regulations, including equity and accessibility laws like the ADA.
Climate Resilience Focus *(p.23)*	Hazard Assessment	**Section 2.5:** Alameda County uses historical data, studies, and stakeholder input to identify hazards and vulnerabilities.
Adaptation and Mitigation Strategies *(p.17)*	Phases of Emergency Management	**Section 2.3.1:** The county updates ordinances, retrofits structures, and educates the public to mitigate risks.
Sustainability and Environmental Protection *(p.16)*	Priorities	**Section 2.2:** The county prioritizes minimizing environmental damage during emergencies.
Community Resilience and Engagement *(p.87)*	Development Process	**Section 7.2:** The EOP involves community input to address diverse needs and build resilience.
Public Health and Safety *(p.16)*	Priorities	**Section 2.2:** Protecting public health and safety is a top priority in emergency planning.
Economic Resilience *(p.81)*	Recovery Operations	**Section 6:** The county focuses on restoring infrastructure and supporting businesses post-disaster.

1 Introduction

Alameda County is in the San Francisco Bay Area, an area faced with a high risk of being impacted by natural or human-caused disasters. Three earthquake faults intersect the county – the Hayward Fault, the Calaveras Fault, and the Greenville Fault – and the San Andreas Fault is nearby. Alameda County also has crossroads of major highway, air, sea, and rail transportation routes that overlay commercial areas of diverse businesses, industries, and residential areas with large populations.

The Alameda County Office of Emergency Services (OES) is managed by the County Sheriff, who is committed to its mission of preparing Alameda County to respond efficiently and effectively to emergencies, minimize loss of lives, and destruction of property, environmental damage, and ensure the continuity of government services.

The Alameda County Emergency Operations Plan (EOP) provides an overview of the jurisdiction's approach to emergency operations. It identifies emergency response policies, describes the response and recovery organization, and assigns specific roles and responsibilities to County departments, agencies, and community partners. The EOP has the flexibility to be used for all emergencies and will facilitate response and recovery activities efficiently and effectively. This section of the EOP describes the EOP's intended audience, the method of distribution, the approval process, and its applicability to other plans. (See **Section 8** for a list of all acronyms used in this report.)

1.1 Intended Audience

The intended audience of this EOP consists of Alameda County departments, elected County officials, and representatives of private corporations and nongovernmental organizations (NGOs) responsible for staffing positions in the County Emergency Operations Center (EOC). This plan is also a reference for managers from other local governments in the Operational Area, the State and Federal government, and other interested public members.

1.2 Distribution

The Alameda County OES prepares, coordinates, publishes, and distributes the EOP and its revisions. The EOP is distributed to the County departments/agencies, incorporated cities, and special districts in the Operational Area identified in **Table 1-1**. The EOP is also available upon request to other external organizations and can also be accessed on the County Emergency web page www.acgov.org/emergencysite.

County Departments/Agencies	Cities	Special Districts and Other Organizations
County Administrator	Alameda	Alameda-Contra Costa Transit District
County Assessor	Albany	Alameda County Water District
County Auditor Controller	Berkeley	American Red Cross
County Counsel	Dublin	Bay Area Rapid Transit
Child Support Services	Emeryville	California Office of Emergency Services
District Attorney's Office	Fremont	East Bay Municipal Utilities District
Fire Department	Hayward	East Bay Regional Parks District
General Services Agency	Livermore	Eden Information and Referral (211)
Community Development Agency	Newark	Metropolitan Transportation Commission
Health Care Services Agency	Oakland	Port of Oakland
Human Resources Department	Piedmont	Water Emergency Transportation Authority
Information Technology Department	Pleasanton	
Library	San Leandro	
Office of Education	Union City	
Probation Department		
Public Defender’s Office		
Public Works Agency		
Registrar of Voters		
Risk Management		
Sheriff’s Office		
Treasurer-Tax Collector		

Table 1-1. EOP Distribution

1.3 Promulgation and Approval

This EOP has been reviewed by each department assigned a primary function in the County’s emergency management organization, as defined in this EOP. An approved EOP gives organizations the authority and responsibility to perform their tasks, formalizing their responsibilities regarding preparing and maintaining their procedures/guidelines that commit them to carrying out the training, exercises, and plan maintenance necessary to support EOP. The EOP is reviewed by Cal OES throughout the revision process and then submitted to the Alameda County Operational Area Disaster Council, where each department head, as a voting member, indicates their concurrence by voting to recommend the plan for adoption. Upon approval by the Disaster Council, the EOP is officially adopted and promulgated by the County Board of Supervisors. A promulgation letter is in the preface

of this plan, which validates the concepts, roles and responsibilities, and emergency management system for the County.

1.4 Authorities

The following authorities and references provide direction and guidance for conducting emergency operations by Alameda County.

1.4.1 Alameda County Authorities

The following policies stand as authorities directing the Alameda County emergency management program:

- County of Alameda Administrative Code, Title 2, Chapter 2.118, “Civil Defense,” June 30, 2002
- County of Alameda Resolution No. R-87-465, “Adopt Multihazard Functional Plan” – October 1986, June 2, 1987
- County of Alameda Resolution No. 58748, “Adopting the California Master Mutual Aid Agreement,” November 28, 1950
- County of Alameda, Agreement for Participation in Alameda County Operational Area Emergency Management Organization, dated May 10, 2016.

1.4.2 State of California Authorities

The following State of California plans, and policies stand as authorities directing the Alameda County emergency management program:

- California Emergency Services Act, §8550 et seq., Government Code
- State of California Emergency Plan (SEP), State of California, Cal OES, 2009
- Standardized Emergency Management System (SEMS): California Code of Regulations (CCR), Title 19, Division 2, Chapter 1
- California State Emergency Plan
- Disaster Assistance Act Regulations: CCR, Title 19, Division 2, Chapter 6
- Orders and Regulations that the Governor may selectively promulgate during a State of Emergency
- Orders and Regulations that the Governor may selectively promulgate during a State of War Emergency
- California Disaster and Civil Defense Master Mutual Aid Agreement
- Media Access Regulations: California Penal Code, Section 409.5

1.4.3 Federal Authorities

The following Federal plans and policies stand as authorities directing the Alameda County emergency management program:

- Robert T. Stafford Emergency Disaster Relief and Emergency Assistance Act (42 United States Code (U.S.C.) 5121 et seq., and Related Authorities)
- Federal Disaster Relief Regulations: 44 Code of Federal Regulations [CFR] Part 206
- Individual Assistance (44 CFR 206.101 et seq.)

- Public Project Assistance (44 CFR 206.200 et seq.)
- Hazard Mitigation (44 CFR 206.430 et seq.)
- National Incident Management System (NIMS)
- Incident Command Systems (ICS)
- Homeland Security Presidential Directive (HSPD) 5, Management of Domestic Incidents
- Presidential Policy Directive 8, National Preparedness
- HSPD 21, Public Health and Medical Preparedness

1.5 Culturally Diverse Communities, Access & Functional Needs Populations, and Equity

Alameda County is committed to integrate cultural competence and ensure considerations are made for those with access & functional needs (AFN) at every stage of the emergency management process. Part of each leader's responsibility within the emergency management organization is to reflect and integrate the needs of diverse and AFN populations within the County. Additionally, to also avoid disproportionate impacts on the vulnerable populations. For EOP purposes this population consists of individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency, older adults, children, people living in institutionalized settings, or those who come from a low-income background, homeless, or transportation disadvantaged, including those who are dependent on public transit or those who are pregnant. In addition, the County maintains compliance with the Americans with Disabilities Act (ADA) of 1990(42 U.S.C. Sect. 12101 et seq.)

AFN populations and those in culturally diverse communities may have additional needs before, during, and after an incident in functional areas, including communication, maintaining health, independence, support, safety and self-determination, and transportation during evacuation and sheltering needs. Engagement and access to communications, which includes the integration of interpreters and translators, outreach techniques used to educate and prepare community members for emergencies or disasters, mitigation, prevention, and preparedness information using culturally appropriate resources should be used at every stage of the process.

To provide the best service to our community members during a disaster, the County follows the guidelines below:

The County will make every reasonable effort to see that culturally diverse community members and those with a disability will be able to access services or facilities provided by Alameda County during an emergency or disaster.

- Alameda County will not exclude or deny benefits to any populations or those with disabilities.
- Alameda County will work to accommodate diverse, AFN populations in the most integrated setting appropriate to their needs.
- Alameda County will attempt to house AFN populations with their families, friends, and/or neighbors when in shelters in the most inclusive manner available. When available, designated shelters shall be ADA compliant or compliant with modifications that are fully accessible to all occupants.
- Allowing access to shelters for those individuals with an access or functional need will not be dependent on the individual having a personal care attendant.
- Alameda County will provide emergency communications to include the integration of interpreters, translators, and assistive technology when possible.

Equity, as defined by FEMA, means treating all individuals fairly and impartially, including underserved communities of color, LGBTQ+ individuals, persons with disabilities, those who may face discrimination based on religion or national origin, and those living in rural areas who have been historically denied equal opportunities to participate in economic, social, and civic aspects of life. Alameda County has adopted FEMA's definition of equity recognizing that historically marginalized communities and individuals often face greater burdens from systemic injustices and disparities, and that these challenges are further amplified during times of disasters. To ensure equity is integrated into its strategic planning, goals and priorities, programs and activities, and foundational documents and process, Alameda County has partnered with the Emergency Management Association (EMA) of Alameda County to create a standing equity working group. The working group's purpose is to identify and address any disparities or inequities that may exist within the organization's operations, and to develop strategies and recommendations for promoting greater equity, diversity, and inclusion.

1.6 EOP Annexes and Other Emergency Plans

The EOP consists of a basic plan and several annexes, each dedicated to a specific function, hazard, threat, or incident. Together these plans make up an integrated framework of emergency plans and procedures aligned with Federal, State, Regional, and local stakeholders. **Figure 1** illustrates the relationship of the EOP to other plans within the framework and how it corresponds to the four commonly accepted phases of emergency management: Preparedness, Mitigation, Response, and Recovery.

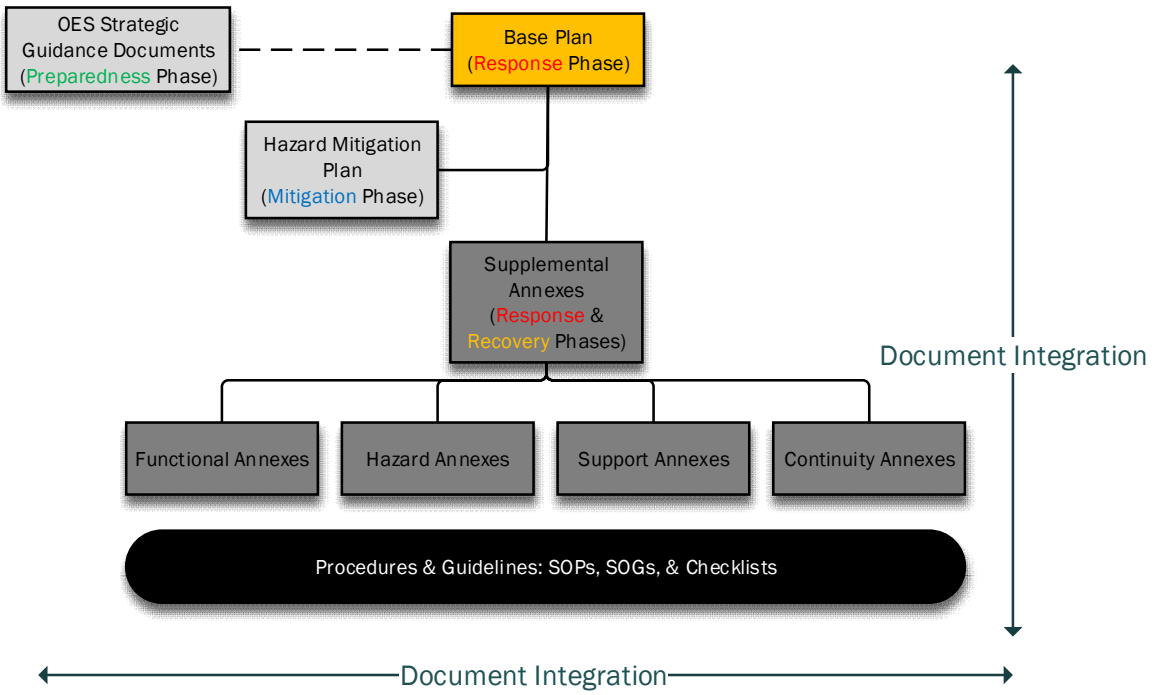

Figure 1 Emergency Planning Framework

Annexes are directly applicable to, and consistent with, the overarching concepts described within the EOP. A list of the annexes to the EOP, along with the agency responsible for maintaining each annex, can be found in **Table 1-2** of the EOP.

In addition to the annexes, several other emergency plans have been developed by agencies and departments within Alameda County. While not formally considered annexes to the EOP, these plans serve to support the annexes by providing further specificity, guidance, and direction, often at the field-level.

Furthermore, each city in the County has an EOP. While not directly linked to the County EOP, each city EOP should maintain consistency with the concepts and structures defined by the County's plan. To ensure consistency of disaster response efforts throughout the operational area, Alameda County Office of Emergency Services (OES) periodically reviews local government EOPs.

Annex	Topics	Responsible Agency
Animals in Disaster Plan	• Protocols and procedures in support of the rescue, protection, and care of animals affected by an event or disaster in Alameda County	Sheriff's Office
Bioterrorism Response Plan	• Protocols and procedures for responding to bioterrorist attacks in Alameda County	Health Care Services Agency
Cyber Security Plan	• Procedures aimed at detecting, investigating, and responding to Cybersecurity incidents in Alameda County in a way that minimizes impact and supports rapid recovery.	Information Technology Department
Debris Management Plan	• Time-based priorities and objectives • Disaster impacts, constraints, and needs • Debris removal activities	Public Works Agency
Donations Management Plan	• Coordination of monetary and in-kind donations • Allocating, tracking, and requesting donations • Warehousing and distribution of donations	General Services Agency
Hazardous Materials Plan	• Roles and responsibilities for hazardous materials emergencies	Health Care Services Agency
Local Oil Spill Plan	• Protocols and procedures for local oil spill events in Alameda County	Alameda County Fire Department
Mass Care and Shelter Plan	• Describes the policies, procedures, roles, and responsibilities for coordinating mass care and shelter activities • Identifies shelter types, locations, resources, and services	Social Services Agency
Mass Fatalities Operations Plan	• Operational considerations for handling numerous fatalities • Managing mass fatalities for a catastrophic earthquake, CBRNE incident, and pandemic influenza • Integration of State and Federal resources	Sheriff's Office / Coroner
Medical and Health Emergency Operations Plan	• Agency-level plan that outlines the joint structure of Emergency Medical Services and Public Health in dealing with events where the County provides medical services	Health Care Services Agency
Public Information and Joint Information Center Plan	• Protocols and procedures for establishment of a JIC within Alameda County	Sheriff's Office
Public Safety Power Outage Plan	• Protocols, procedures, roles, and assignments for power outage events in Alameda County	Sheriff's Office
Transportation and Evacuation Plan	• County evacuation guidance • Time-based objectives for transportation and evacuation activities	Sheriff's Office
Terrorism Response Plan	• Protocols and procedures for responding to terrorist attacks in Alameda County	Sheriff's Office
Volunteer Coordination Plan	• County Volunteer coordination • Emergency Volunteer Centers	Human Resource Services

Table 1-2. Annexes to the Emergency Operations Plan

2 Purpose, Scope, Situation Overview, and Assumptions

2.1 Purpose

The purpose of the EOP is to establish the foundational policies and procedures that define how Alameda County will effectively prepare for, respond to, recover from, and mitigate against natural or human-caused disasters. It describes the emergency management organization and how it is activated. Additionally, it addresses the following issues:

- Identifies the respective departments and agencies designated to perform response and recovery activities and specifies their roles and responsibilities
- Sets forth lines of authority and organizational relationships and shows how all actions will be coordinated
- Describes the system used to coordinate the request for and integration of resources and services available to the County during disastrous situations
- Specifies the coordination and communications procedures and systems that will be relied upon to alert, notify, recall, and dispatch emergency response personnel, warn the public, and protect residents and property
- Provides instructions and provisions for implementing Management Action Agreements
- Identifies supporting plans and procedures applicable to the EOP
- Provides for the continuity of government during emergencies
- Describes the emergency management organization and transition of priorities and objectives to address post-disaster recovery considerations

2.2 Priorities

The following overarching operational priorities govern resource allocation and response strategy for Alameda County during an emergency or disaster:

- **Save Lives** – The preservation of life is the top priority of emergency managers and first responders and takes precedence over all other considerations.
- **Protect Health and Safety –** Measures should be taken to mitigate the emergency's impact on public health and safety.
- **Protect Property –** All reasonable efforts must be made to protect public and private property and resources, including critical infrastructure, from damage during and after an emergency.
- **Preserve the Environment –** All possible efforts must be made to preserve California's environment and protect it from damage during an emergency.

Alameda County acknowledges that caring for AFN and culturally diverse populations often present unique challenges that may impact each priority listed above. Often, their needs make such individuals more vulnerable to harm. Protecting these populations is a high priority of Alameda County during and after an emergency or disaster.

2.3 Scope

The EOP addresses the entire spectrum of contingencies, ranging from relatively minor incidents to large-scale disasters. Each department and agency must be prepared to respond to any foreseeable emergency promptly

and effectively, taking all appropriate actions. The plan applies to all Alameda County Emergency Management Organization elements during all phases of emergency management.

2.3.1 Phases of Emergency Management

Emergency management activities are often categorized in four phases: mitigation/prevention, preparedness, response, and recovery.

Mitigation and Prevention

Mitigation is a sustained action to reduce or eliminate risk to people and property from hazards and their effects. Disaster mitigation includes activities, tasks, programs, and systems intended to avoid or intervene to stop an incident from occurring or to protect against deleterious impacts of a particular incident. Mitigation includes prevention and protection efforts and, can apply both to human-caused incidents (such as terrorism, vandalism, sabotage, or human error) and naturally occurring incidents. Preventative and protective mitigation measures are generally implemented before an emergency or disaster strikes; however, post-disaster mitigation efforts can also occur as part of the ongoing incident response and an integral part of the recovery process.

Prevention of human-caused incidents can include applying intelligence[1] and other information to a range of activities including countermeasures such as:

- Deterrence operations
- Heightened inspections
- Improved surveillance and security operations
- Investigations to determine the nature and source of the threat
- Law Enforcement operations directed at deterrence, preemption, interdiction, or disruption

Other examples of all-hazard mitigation efforts frequently employed to reduce potential risk to the community include:

- Amending local ordinances and statutes, such as zoning ordinances, building codes, and other enforcement codes
- Initiating structural retrofitting measures
- Assessing tax levies or abatements
- Emphasizing public education and awareness
- Assessing and altering land use planning

The details on Alameda County's ongoing mitigation activities are included in the Local Hazard Mitigation Plan viewable at https://lhmp.acgov.org.

Preparedness

The preparedness phase involves activities undertaken in advance of an emergency or disaster. These activities ensure operational capabilities and effective responses to a disaster. Disaster plans are developed and revised to guide disaster response and increase available resources. Planning activities include developing hazard analyses, training response personnel, and improving public information and communications systems. Preparedness activities are part of implementing the Emergency Services Act and the Master Mutual Aid Agreement (MMAA). Preparedness activities fall into two basic areas: readiness and capability.

Readiness activities shape the framework and create the basis of knowledge that is necessary to complete a task or mission. Readiness activities might include:

- Implementing hazard mitigation projects
- Developing and maintaining emergency plans and procedures
- Conducting general and specialized training
- Developing agreements with other organizations
- Improving emergency public education and emergency warning systems

Capability activities involve procuring items or tools necessary to complete tasks or missions. Capability activities include:

- Assessing the County and its resources
- Comparing and analyzing anticipated resource requirements against available resources
- Identifying local sources to serve as anticipated resources
- Purchasing new response apparatus, vehicles, and personal protective equipment

Response

Response is typically divided into three phases. Each phase has distinct considerations, which seldomly flow sequentially, and often occurs simultaneously. These phases are increased readiness, initial response, and extended response.

Increased readiness is required upon receipt of a warning or in anticipation that an emergency is imminent or likely to occur. The County initiates actions to increase its readiness. Increased readiness activities may include, but are not limited to:

- Briefing the Board of Supervisors, other key officials, applicable agency representatives, and all County employees
- Reviewing the EOP and all relevant annexes, policies, and procedures
- Increasing public information capabilities
- Providing just-in-time training
- Inspection of critical facilities and equipment, including the testing of warning and communications systems
- Recruiting additional staff and registering volunteers
- Warning at-risk elements of the population
- Conducting precautionary evacuations in the potentially impacted area(s)
- Mobilizing personnel and pre-positioning resources and equipment
- Contacting local, State, and Federal agencies that may provide support

The County's initial response activities are primarily performed at the field level. Emphasis is placed on saving lives and minimizing the effects of the emergency or disaster. Examples of initial response activities include, but are not limited to:

- Making all necessary notifications, including those to the Alameda County Emergency Management Organization, County departments/agencies, and the American Red Cross
- Disseminating warning, emergency public information, and instructions to the community members of Alameda County
- Conducting evacuations and/or rescue operations
- Caring for displaced persons and treating the injured
- Conducting initial damage assessments and surveys
- Assessing the need for mutual aid assistance
- Restricting the movement of traffic/people
- Developing and implementing Incident Action Plans (e.g., field and EOC)

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https://tinyurl.com/ALCOEVACMAP

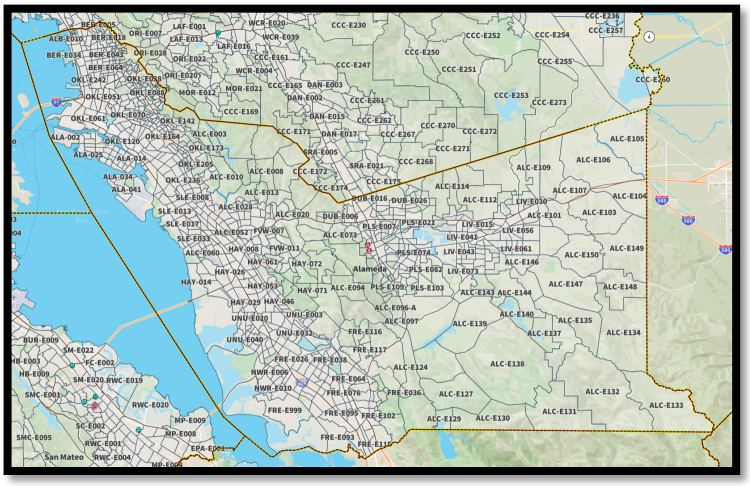


Figure 2-1 Alameda County Evacuation Map

The County's extended response activities are primarily conducted in the EOC. Extended emergency operations involve coordinating and managing personnel and resources to mitigate an emergency and facilitate the transition to recovery operations. Examples of extended response activities include, but are not limited to:

- Disseminating emergency public information
- Preparing detailed damage assessments
- Proclaiming a local emergency
- Requesting a Gubernatorial Proclamation and/or Federal Declaration that protects, controls, and allocates vital resources
- Documenting situation status
- Documenting expenditures

- Restoring vital utility services
- Coordinating mass care and sheltering facilities
- Developing and implementing Incident Action Plans (e.g., field and EOC) for extended operations
- Conducting planning activities
- Procuring required resources to sustain operations
- Tracking resource allocation
- Coordinating and operating decedent operations
- Establishing a Local Assistance Center
- Coordinating with State and Federal agencies

Recovery

Recovery activities involve restoring services to the public and returning the affected area(s) to pre-emergency states. Recovery activities may be short-term, intermediate, and long-term, ranging from restoration of essential utilities, such as water and power, to mitigation measures designed to prevent future occurrences of a given threat. Section 6 provides the recovery framework for Alameda County.

2.4 Alameda County Profile

In 1853, three years after adding California as the 31st state of the union, the County of Alameda was established. Located on the East side of the San Francisco Bay area, it was carved out of the territory from two previously established neighboring counties, i.e., Contra Costa, and Santa Clara. The name “Alameda” refers to “a place where poplar trees grow.” It was derived from the Spanish/Mexican heritage of the region and was the name originally given to a local creek, the Arroyo de la Alameda (Poplar Grove Creek). Since incorporation, Alameda County's residents have enjoyed a diverse and beautiful landscape that includes rolling open spaces, urban marinas and coastal plains along the bay, and densely vegetated hillsides with lakes and streams.

Though sparsely inhabited in the early years, the County has since risen to the seventh most populous (1,673,212 residents) and the fourth most densely populated (2,450 people per square mile) county within the State of California. **Table 2-1** below provides community demographics according to the 2020 U.S. Census Bureau’s American Community Survey 5-Year Estimates.

Ethnicity	% Population	Age	% Population	Language	% Population
White	32.1%	Under 18 years	21.1%	English	58.5%
African American	10.3%	18 - 64 years	63.3%	Spanish	18.3%
Asian	30.8%	65 and over	15.6%	Chinese	10.4%
Hispanic or Latino	23.2%			Tagalog	2.5%
Two or more races	3.6%			Vietnamese	1.6%
Native American or Alaska Native	0.5%			Korean	1.2%
Native Hawaiian or Pacific Islander	0.4%			Other	7.5%
9.9% reported having a disability 4.2% reported having difficulty hearing 4.4% reported having difficulty seeing 4.3% reported having difficulty with cognitive functioning 5.5% reported having difficulty walking or climbing stairs 3.1% reported having difficulty with self-care activities (such as bathing or dressing) 2.8% reported having difficulty with independent living activities (such as shopping)					

Table 2-1 Alameda County Demographic Information

Demographic data is self-reported and can be complex due to people identifying with multiple groups. The California Office of Emergency Services' (CalOES) Office of Access and Functional Needs (OAFN) maintains additional data specific to Alameda County's AFN community.

Scan to visit:

https://tinyurl.com/CalOESAFN

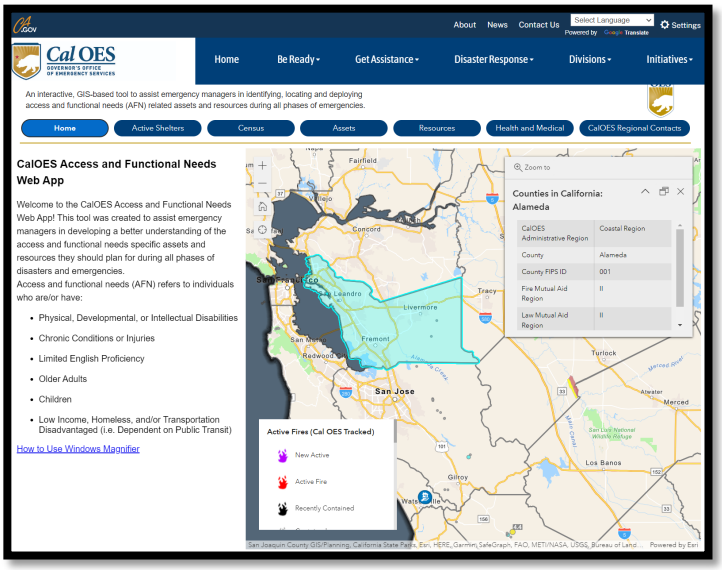


Figure 2-2 CalOES AFN Web Application

The Operational Area consists of fourteen cities and six unincorporated areas located within 739 square miles of land alongside 82 square miles of water, with a total area of 821 square miles. Approximately 99.2% of Alameda County's population lives within city jurisdictions. **Table 2-2** below indicates the population per city according to the 2020 U.S. Census Bureau's American Community Survey 5-Year Estimates.

City	Population	City	Population
Alameda	79,177	Livermore	91,070
Albany	20,496	Newark	47,116
Berkeley	124,512	Oakland	423,554
Dublin	70,143	Piedmont	11,165
Emeryville	12,047	Pleasanton	83,732
Fremont	241,110	San Leandro	90,764
Hayward	165,816	Union City	75,371

Table 2-2 Population of Cities within Alameda County

Transportation to and within Alameda County include air, rail, road, and ferry systems. There are five airports throughout the county. Oakland International Airport is the main commercial airport, which is in Oakland. Four main interstates run through the county; 80, 580, 680, 880 and five State Routes; 13, 24, 84, 92, and 238. Mass

transit consists of AC Transit bus system and other local providers. Local rail transit systems include Bay Area Rapid Transit (BART) and Altamont Corridor Express (ACE). An assessment of capacity, safety, an viability of evacuation routes within the unincorporated areas of Alameda County can be found within Appendix F of the Alameda County Safety Element.

Several ferry systems operate within and nearby Alameda County consisting of; San Francisco Bay Ferry, Alameda/Oakland Ferry, Blue & Gold Fleet, Vallejo Baylink Ferry, and Angel Island-Tiburon.

Alameda County is home to the Oakland Arena and RingCentral Coliseum. Both stadiums are in the City of Oakland.

Parks Reserve Forces Training Area (PRFTA), a federal military installation, otherwise known as Camp Parks, is in the City of Dublin. The facility provides federal support disaster response operations, with resources and personnel on standby to assist in the event of natural disaster or other emergencies. The base covers approximately 2,300 acres and is an important component of the nation's defense infrastructure.

2.5 Hazard Assessment

Alameda County identifies hazards by conducting a thorough risk assessment. This involves identifying potential hazards, determining their likelihood and potential impact, and assessing the vulnerability of the community and its critical infrastructure to those hazards. Data is gathered from a variety of sources, such as historical records, scientific studies, and input from local stakeholders. Alameda County also leverages the HAZUS "Hazards US" software program developed by the Federal Emergency Management Agency (FEMA). HAZUS estimates potential losses from natural hazards such as earthquakes and floods. The Alameda County 2021 Local Hazard Mitigation Plan (LHMP) was adopted by the County Board of Supervisors and approved by FEMA in March of 2022.

In addition to the LHMP, Alameda County participates in regional Threat Hazard Identification Risk Assessment (THIRA) processes. THIRA is a systematic process for identifying the most significant threats and hazards facing a community and assessing the risk and potential impact of those events. Unlike the hazard mitigation planning process, THIRA is more focused on the immediate threat and its potential consequences. The THIRA process includes identifying the likelihood and potential impact of each threat or hazard, as well as the community's preparedness to respond to and recover from the event. The THIRA process helps local partners prioritize resources and develop response plans to address the most significant threats and hazards facing the community.

Based on these analyses, Alameda County developed an all-hazards comprehensive understanding of the risks faced by the community and mitigation strategies to reduce those risks. **Table 2-3** below provides examples of types of hazards threatening Alameda County.

Hazard Type	Example
Natural Hazards	***Acts of nature*** such as agricultural infestations, droughts, earthquakes, floods, infectious diseases, floods/storms, landslides/mudslides, liquefaction, tornadoes, tsunamis, and wildfires.
Technological Hazards	***Accidents or the failures of systems and structures*** such as aircraft incidents, climate change, dam failures, energy emergencies, hazardous material spills, and train derailments.
Human Caused Hazards	***The intentional actions of an adversary*** such as civil disturbances, crime-related mass casualty, cyber security, and terrorism events.

Table 2-3 Examples of Types of Hazards

Hazards can be categorized as multiple types dependent upon the initial cause. Additionally, many of the hazards that exist in or are adjacent to Alameda County have the potential for causing disasters exceeding any one jurisdiction's capabilities to successfully address, making centralized collaboration and coordination and the support of the County and its departments/agencies essential.

2.5.1 Agriculture Infestation

Description of Hazard

Agricultural infestation is a naturally occurring infection of crops or livestock that renders them unfit for consumption or other use. Typical causes are insects, vermin, fungus, and diseases transferable among insects or animals. The type and severity of agricultural infestations vary based on several factors, such as heavy rain or drought.

The onset of an agricultural infestation can be rapid; therefore, controlling the spread is critical in limiting the detrimental impacts. Methods such as quarantine, culling, premature harvest, and crop destruction are used to control the spread. The duration is affected, largely, by the degree to which the infestation is controlled. However, it typically lasts for more than a week.

Previous Events

Sudden Oak Death (SOD) – Alameda County is a quarantined county for Sudden Oak Death within a broader coastal region of infestation spanning from approximately Humboldt County to Monterey County, where SOD is considered extant and naturalized within the region. Quarantine regulations and restrictions apply to the movement of nursery stock or raw plant products (e.g., green waste, firewood) of the 100+ known host species, including numerous wild and horticultural plant species.

Glassy-Winged Sharpshooter (GWSS) -- The GWSS is native to the southeast United States and is also found in Mexico. While not extant specifically in Alameda County, GWSS was first identified in California in 1990 and is now found throughout Southern California and parts of Kern and Tulare Counties. GWSS feeds on grapevines

with specialized mouth parts that allow it to pierce the woody stems. GWSS vectors a bacterial disease lethal to grapes called Pierce's Disease and is of significant concern to our local wine grape growing regions.

Light Brown Apple Moth (LBAM) – LBAM was first found in Alameda County in 2006 and has been effectively under quarantine for this pest. The county is not completely infested, but all the populated areas of the county are effectively under quarantine except for the southeastern corner of the county bounded by Tesla Road South and East in Livermore and east and south of Hwy 680 in the Sunol Area (San Antonio Reservoir area). Quarantine restrictions apply to the movement of raw plant materials, such as green waste and nursery stock.

2.5.2 Aircraft Incident

Description of Hazard

An aircraft accident can result in several deaths, significant loss of property, and can have a drastic effect on the infrastructure and economy of a county. An airplane crash can lead to many fatalities and injuries to those present on the aircraft and the ground of the accident site. According to Federal Aviation Rules Section 830.2, an aircraft accident is defined as an occurrence associated with the operations of an aircraft that takes place between the time a person boards the aircraft with the intention of flying and in which any person suffers death, serious injury, or in which the aircraft receives substantial damage. An incident means an occurrence other than an aircraft accident, associated with the operation of an aircraft, which affects or could potentially affect the operations safety.

Aircraft accidents can be caused by mechanical failure, manufacturing error, pilot error, air traffic controller error, natural hazards, and inappropriate cargo. Pilot and air traffic controller errors can lead to mid-air collisions and crashes into the ground or an elevated structure. Natural hazards, such as a wind shear, terrain-inducted turbulence, and poor visibility, can lead to the loss of control of an aircraft or incorrect judgment by the pilot. Inappropriate cargo, such as a pressurized container, can lead to sudden explosions and loss of control of a pressurized container.

Alameda County is home to Oakland International Airport and several small private airports (**Figure 2-3**). The Oakland International Airport averages approximately 300 combined air carrier and general aviation departures daily. Any size or type of aircraft can cause damage, injuries, and fatalities at the crash site. The amount of damage at a crash location is related to the location of the accident and the nature of the crash. The Oakland Fire Department provides contract aircraft rescue and firefighting services required by Federal Aviation Administration regulations; Alameda County Fire Department provides water rescue through a Memorandum of Understanding with the Port of Oakland.

Previous Events

Alameda County has never experienced an aircraft incident of a commercial flight or a large plane. However, several general aviation (all flights other than military and scheduled airline and regular cargo flights) aircraft incidents have occurred in Alameda County.

Since 2011, ten general aviation accidents were reported in Alameda County, three at Hayward Airport, three at Oakland Airport, and four at Livermore Airport. There have been 69 reported aircraft incidents, 30 at Hayward Airport, 24 at Livermore Airport, and 14 at Oakland Airport. Of the ten reported accidents, there were five total injuries (3 serious and 2 minor) with 9 fatalities.

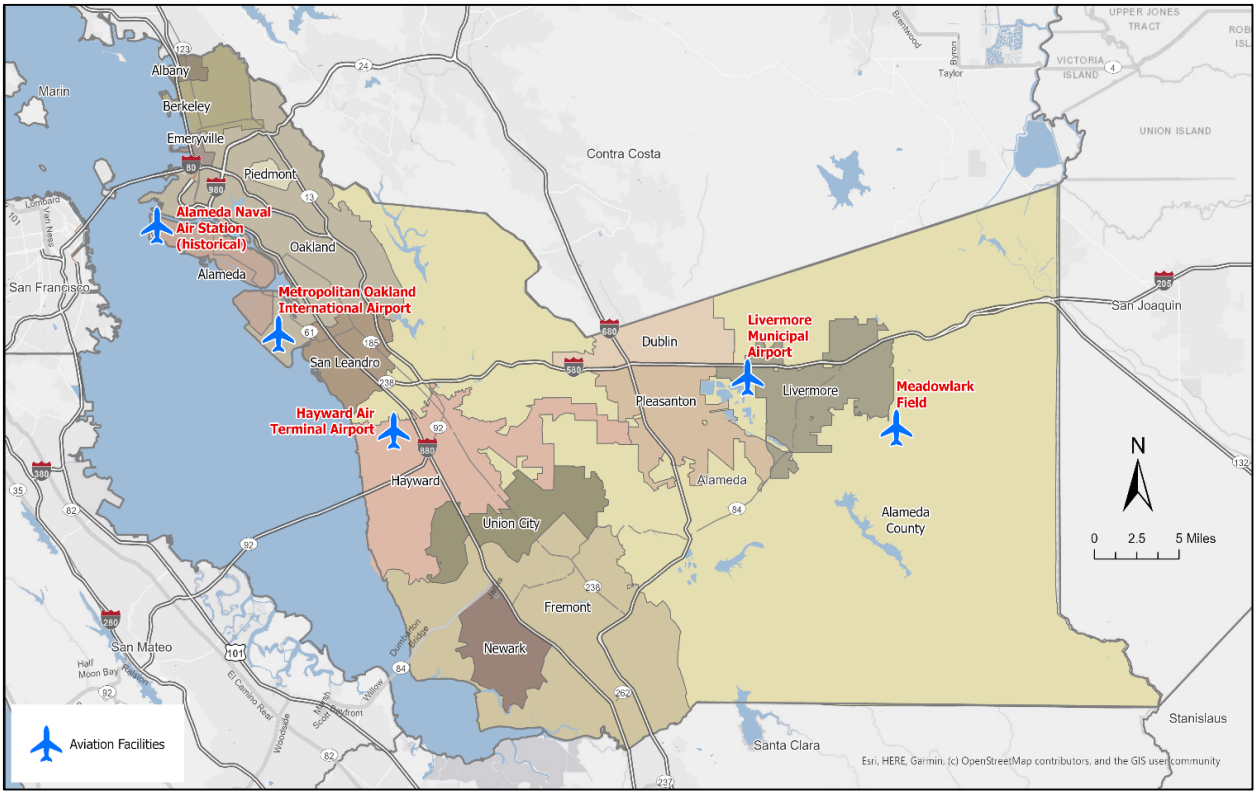


Figure 2-3. Location of Alameda County Airports

2.5.3 Civil Disturbance

Description of Hazard

Civil disturbance, or civil disorder, is described as “any incident intended to disrupt community affairs and threaten public safety.” Civil disturbance results from civil unrest, when individuals or groups within the general population feel discriminated against or that their rights are not being upheld. Triggers can include racial tension, immigration control, unpopular decisions, loss of essential services or supplies, and natural disasters. Crowds attending sporting events after the defeat or victory of their team can also be motivated to cause civil disturbances. Civil disturbance spans a variety of actions including strikes, demonstrations, riots, and rebellion.

Civil disturbance can be divided into the following three categories:

- Peaceful, non-obstructive demonstrations (low severity)
- Non-violent, disruptive demonstrations (moderately severe)
- Violent, disruptive demonstrations (severe)

In general, a low-severity disturbance such as a strike will cause little concern and little to no involvement from law enforcement. A moderately severe civil disturbance – such as a protest that disrupts nearby businesses and possibly causes some property damage – will require law enforcement intervention to restore order without using chemical agents or physical force. A severe civil disturbance – such as rioting, arson, looting, and assault – will require aggressive police action, including riot control agents, curfews, and mass arrests. Severe civil disturbances may result in deaths, injuries, and property damage of varying degrees.

Previous Events

Alameda County has a long history of low severity and moderately severe civil disturbances. This is particularly so in Oakland, where the Frank Ogawa Plaza in front of City Hall, has been the destination for many protests and marches. An example of a severe protest in Alameda County is referred to as “Occupy Oakland.” It was part of an international movement that began in New York City as Occupy Wall Street. On October 10, 2011, protesters in Oakland and San Francisco took to the streets to demonstrate over economic inequality, corporate excess, and homelessness. Hundreds of participants set up tents in Frank Ogawa Plaza, with the intent to stay for a significant period. Some arrests were made for disruptive behavior, but the protest remained peaceful for the most part.

Another example of a civil disturbance in Alameda County occurred in response to the shooting of Oscar Grant by a Bay Area Rapid Transit (BART) police officer. A protest was held on the afternoon of January 7, 2009. It began as a peaceful protest but turned into a severe civil disturbance, resulting in trash can fires, multiple cars set afire, broken storefront windows, and the looting of stores. Both Lake Merritt and the 12th Street BART stations were temporarily shut down in response to the riot. Because of many violent protesters, the Oakland Police Department requested law enforcement mutual aid. Several hundred police officers from the region responded to the request. Over several days, law and order were restored in the city.

Most recently, May and June of 2020, in response to the death of George Floyd, Alameda County experienced a significant amount of civil unrest and protests, some of which ultimately escalated into significant acts of violence, property damage and thefts. Responding to the civil unrest significantly taxed law enforcement mutual aid resources, necessitating the Director of Emergency Services to proclaim a local emergency and order nighttime curfews until the violence ultimately subsided.

2.5.4 Climate Change

Description of Hazard

Climate change is a phenomenon that involves long-term and irrevocable shifts in weather patterns, including temperature, precipitation, and seasonal trends, at a regional or global level. The Earth's ecosystem is closely tied to climate, and any permanent change can disrupt the existing balance, affecting people's way of life, food production, health, wildlife, water availability, and other factors. Scientific evidence suggests that human activities, such as burning fossil fuels and deforestation, release greenhouse gases like carbon dioxide (CO2) into the atmosphere, which trap heat and cause global warming.

As a result of climate change, Alameda County and communities around the globe are experiencing changes in weather patterns and an increase in extreme weather events. In Alameda County, these changes include rising sea levels and storm surge, flooding, wildfires, heatwaves, and prolonged periods of drought. Climate-related events within the County and in surrounding areas can result in significant social and economic impacts, such as energy shortages, infrastructure failure, and food and water insecurity. Additionally, heat-related illnesses and mortality rates may increase, while air quality may decrease due to higher temperatures and wildfire events, particularly inland.

Previous Events

Alameda County has experienced a range of climate-related hazards in recent years, including severe droughts, flooding, landslides, wildfires, and heatwaves. The historic drought of 2012-2016 was one of the most severe on record, causing widespread water shortages and impacting agriculture and food production in the region. In 2017 and 2023, heavy rainfall and flooding caused significant damage to infrastructure and properties throughout the county, leading to emergency declarations and evacuation orders in several areas. In 2020, wildfires burned

through tens of thousands of acres of land in Alameda County, resulting in air quality issues, property damage, and evacuation orders for some communities. These events highlight the significant impact that climate change can have on Alameda County, and the need for proactive planning and preparedness measures to mitigate the impacts of future climate-related events. As a result, Alameda County developed comprehensive climate protection strategies outlined within the Alameda County Climate Action Plan and the Alameda County Climate Action Plan for Government Services and Operations viewable at https://www.acgov.org/sustain/.

2.5.5 Crime-Related Mass Victimization Events

Description of Hazard

Crime Related Mass Victimization Events involve the killing or attempted killing of multiple victims in a single incident, which can involve one or more locations or jurisdictions, and where the perpetrator(s) used a firearm, explosive device, fire, vehicle, or some other method or device to inflict harm and destruction through intentional or negligent acts. The impact of crime-related mass casualty events is not only felt by the family of the deceased victims, survivors of the event but also the community. The response to such events requires collaboration from several local, state, and federal agencies to meet the needs of those impacted by the event.

Previous Events

On June 21, 2000, the owner of the Santos Linguisa Factory in San Leandro, shot at a group of government agents, which included two U.S. Department of Agriculture (USDA) compliance officers of the Food Safety and Inspection Service and two inspectors from the State Department of Food and Agriculture's meat Inspection Division. The shooter killed three agents while several people, including factory employees, escaped to a nearby bank and called the police. The shooter was arrested, charged, and convicted of 3 counts of murder and 1 count of attempted murder.

On April 2, 2012, a former student at Oikos University in Oakland shot and killed six students, and one administrator and attempted to kill several additional students. Before the Oakland Police Department arrived, the shooter left the school grounds in a car stolen from one of the victims. Upon arrival, the Oakland Police Officers treated the scene as an Active Shooter incident, as they were unaware that the shooter had fled. The shooter eventually turned himself to police and was arrested and charged with 7 counts of murder and 3 counts of attempted murder.

On December 2, 2016, a fire broke out at a warehouse commonly known as the Ghost Ship, located in Oakland. On the night of the fire, the second floor of the Ghost Ship warehouse was rented out for a music event and approximately 100 people were present. The fire started on the warehouse's first floor and quickly trapped people on the second floor. A total of 36 people lost their lives due to smoke inhalation while other victims escaped with minor to severe physical injuries. Additionally, others lost their home and possessions. Consequently, two men were charged with 36 counts of involuntary manslaughter.

2.5.6 Cybersecurity Incident

Description of Hazard

A Cybersecurity Incident is described as an event, act or omission which gives, or may give, rise to one or more of the following:

- Unauthorized access to any information system, data, or electronic communications network
- Breach of an applicable security policy
- Reduced integrity of an information system, data, or electronic communications network

- Unauthorized use of any information system or electronic communications network for the processing of data
- Disruption or change of the operation of an information system or electronic communications network, including:
- Takeover of control
- Malicious disruption and/or denial of service
- Unauthorized changes to firmware, software, or hardware
- Unauthorized destruction, damage, deletion, or alteration of data residing in an information system or electronic communications network
- Removal or limiting the availability of, or possibility to use, data residing in an information system or electronic communications network
- The appropriation, publication, dissemination, or any other use of data by persons unauthorized to do so

Previous Events

Alameda County has experienced several cybersecurity incidents. Most of the incidents focus on bad actors infiltrating end users' computers because of the user clicking on a phish. More intrusive cybersecurity incidents involving critical infrastructure have also occurred. Most recently, the City of Hayward proclaimed a local emergency due to a cyber-attack on July 9, 2023. Prior, the City of Oakland proclaimed a local emergency due to a ransomware attack which disrupted city government functions on February 14, 2023. In 2020, the public health Citrix server was compromised due to a vulnerability exposed to the Internet. In 2019, Union City and the Livermore Police Departments had separate Ransomware attacks which severely impacted their ability to function. Alameda County invoked its Incident Response Plan (IRP) to address and mitigate threats associated with each of these incidents.

2.5.7 Dam Failure

Description of Hazard

A dam failure is the structural collapse of a dam that releases the water stored in the reservoir behind the dam. Usually, a dam failure is the result of the structure's age, inadequate spillway capacity, or structural damage caused by an earthquake or flood. When a dam fails, a large quantity of water is suddenly released with great pressure, thereby resulting in human casualties, economic loss, and environmental damage. This type of disaster is especially dangerous because it can occur suddenly, providing little warning and evacuation time for the people living downstream. The flows resulting from dam failure generally are much larger than the capacity of the downstream channels and therefore lead to extensive flooding. Flood damage occurs due to the momentum of the flood caused by the sediment-laden water flooding over the channel banks and the impact of debris carried by the flow.

Dams built in the Bay Area over the last 150 years were constructed using then-current construction techniques and seismic knowledge of the time, many without the benefit of government regulation. Dams built to hold water in reservoirs can be damaged due to a huge storm and associated runoff, an earthquake, slope failures, or a terrorism event. Understanding the impact of a dam failure is critical for two reasons: (1) their catastrophic failure can kill many people and destroy homes and other structures downstream from the facility; and (2) storage capacity is lost and not recovered until the dam is rebuilt.

In the 1970s, State law required dam owners to develop maps depicting areas that might be inundated by dam failure. Development downstream of dams and upgrades to older dams have altered the inundation area of a dam, but the law does not require dam owners to update these maps. These maps still provide an estimation of the general location and extent of dam failure inundations areas.

The map shown in **Figure 2-4** illustrates the dam failure inundation potential for Alameda County. This map does not represent inundation from a single scenario event but combines inundation results for a suite of scenarios.

Additionally, when a dam is known to have failure potential, its water level is reduced to allow for partial collapse without water loss, as required by the State Division of Safety of Dams and by safety protocols established by dam owners. For example, the Calaveras Reservoir operates at less than 30 percent of capacity to avoid a catastrophic release of water. Thus, the probability of failure resulting in damage is approaching zero.

Previous Events

The San Francisco Public Utilities Commission (SFPUC)-owned Calaveras Dam, located in Alameda County, failed during construction in 1918. A landslide damaged the upstream shell of the dam and destroyed the dam's outlet tower. However, Alameda County and the Bay Area have not experienced dam failure.

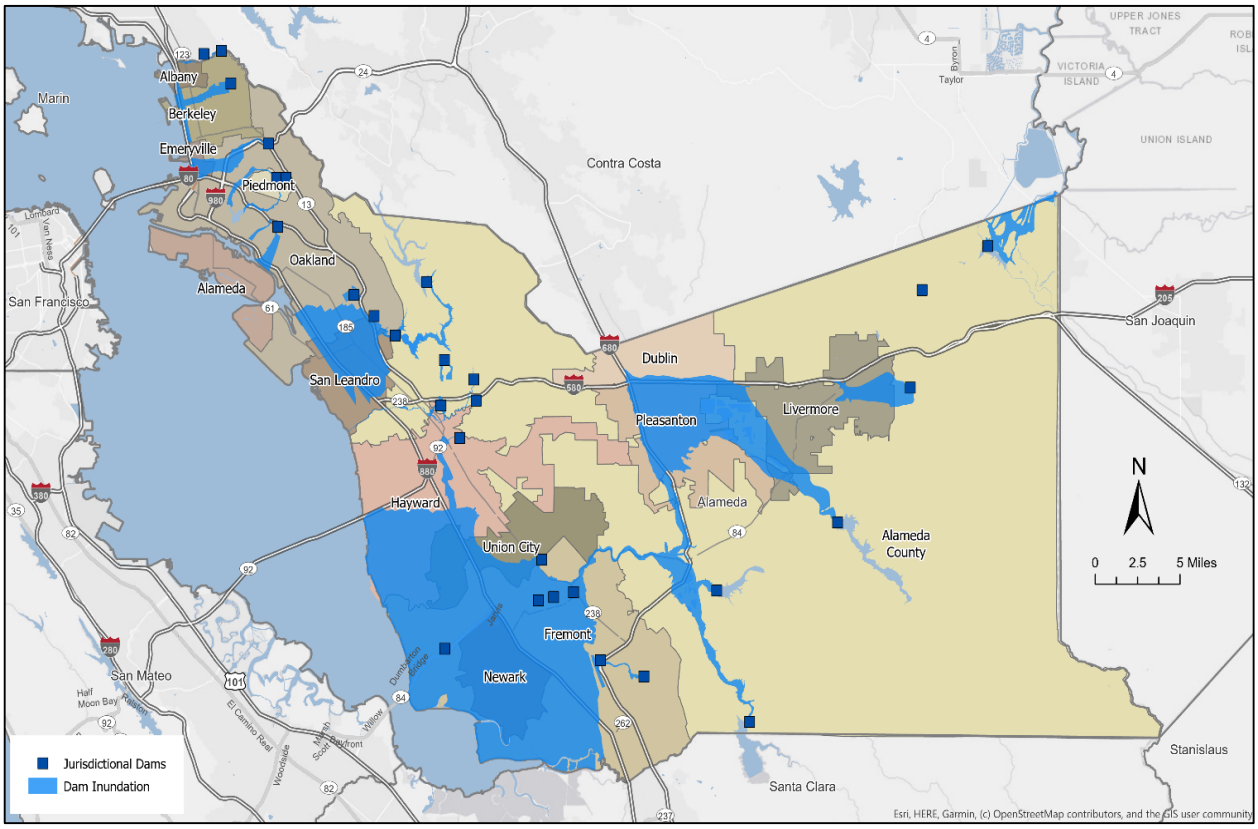


Figure 2-4. Alameda County Dam Failure Inundation Areas.

2.5.8 Drought

Description of Hazard

Drought is a prolonged period of dryness in which precipitation is less than expected or needed in each geographic location or climate over an extended period. For much of human history, drought and its devastations have been an unpredictable, unavoidable calamity. However, that viewpoint is giving way to the recognition that

climatic fluctuations occur everywhere, and that periods of low precipitation are a normal, a recurrent feature of climate. Other climate characteristics impact the severity of drought conditions, such as high temperature, high wind, and low relative humidity.

Researchers for California's Fourth Climate Change Assessment have noted that California has a "highly variable climate" with wet or dry periods that span years and are "heavily affected by extreme precipitation events." Furthermore, climate scientists suggest the possibility of longer and more destructive droughts with climate change. Therefore, drought conditions are likely to occur in Alameda County every decade. What would be a drought in other areas of the country is controlled in the Bay Area through the importation of water and water storage in reservoirs. For example, winter 2016-2017 was exceptionally wet, with record-setting rain in some portions of the Bay Area and accompanied by deep Sierra Nevada snowpack. This in turn filled many California reservoirs to their capacity. The following years, 2017-2018, ended about 25% below normal, but drought conditions were not experienced due to full reservoirs and good recharge in the groundwater from the previous winter.

Drought will likely leave Alameda County vulnerable to water-use shortages; residents will need to curtail water-use activities and conserve water. Residents may also be vulnerable to increased heat-related illnesses and favorable conditions for wildfires may also exist. Drought can reduce air quality, which can increase pollen levels, pollution, and smoke. In the county's more rural areas, drought conditions may damage crops, and farmers may have to reduce their growing season and/or switch to less water-intensive crops.

Previous Events

Drought is a cyclic part of the climate of California, occurring in both summer and winter, with an average recurrence interval of between 4 and 10 years. Short-term, annual events are more frequent, whereas the less-frequent long-term events have ranged from 2 to 4 years in length. Alameda County, specifically, received a Disaster Declaration because of drought, in 1966-1967. In addition, California experienced drought conditions between 2012 and 2016. In 2021 Governor Gavin Newsom declared a statewide drought emergency which came in the wake of record-breaking heat and drought. Since reporting began, 2021 was the second driest year on record, and August was the driest and hottest Augusts on record.

2.5.9 Earthquake

Description of Hazard

An earthquake is a sudden motion or trembling caused by the release of strain accumulated in or along the edge of Earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and can cause massive damage and extensive casualties in a few seconds. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Ground motion is the vibration or shaking of the ground during an earthquake. Seismic waves radiate when a fault ruptures, causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. Soft soils can amplify ground motions.

In addition to ground motion, several secondary natural hazards can occur from earthquakes, including the following:

- Surface Faulting: Surface faulting is the differential movement of two sides of a fault at the Earth's surface. Displacement along faults varies in terms of length and width but can be significant (e.g., up to 20 feet), as can the surface rupture length (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures, including railways, highways, pipelines, tunnels, and dams.

- Liquefaction: Liquefaction occurs when seismic waves pass through saturated granular soil distorting its granular structure and causing some of the empty spaces between granules to collapse. Liquefaction causes lateral spreads (i.e., horizontal movements of 10 to 15 feet most commonly but up to 100 feet), flow failures (i.e., massive flows of soil, typically hundreds of feet but up to 12 miles), and loss of bearing strength (i.e., soil deformations causing structures to settle or tip). Liquefaction can cause severe property damage.
- Landslides / Debris Flows: Landslides and debris flows occur because of horizontal seismic inertia forces induced in the slopes by ground shaking. The most common earthquake-induced landslides include shallow, disrupted landslides such as rock falls, rockslides, and soil slides. Debris flows are created when surface soil on steep slopes becomes completely saturated with water. Once the soil liquefies, it loses the ability to hold together and can flow downhill at very high speeds, taking vegetation and/or structures with it. Slide risks increase during a wet winter after an earthquake.
- The two most common factors considered when determining earthquakes' strength and potential impact are magnitude and intensity.
- Magnitude represents the total energy released inside the earth at the fracture point and the resulting amount of earth movement. The standard scale of measuring the magnitude of an earthquake is the moment magnitude scale. Magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 is a moderate earthquake, and a 6.3 is a strong earthquake. Due to the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude as measured on a seismogram.
- Intensity describes how strong the shaking is at a given location. Earthquake intensity values are recorded using the Modified Mercalli Intensity scale. While an earthquake has just one magnitude, its level of intensity will vary, generally decreasing with distance from the epicenter.

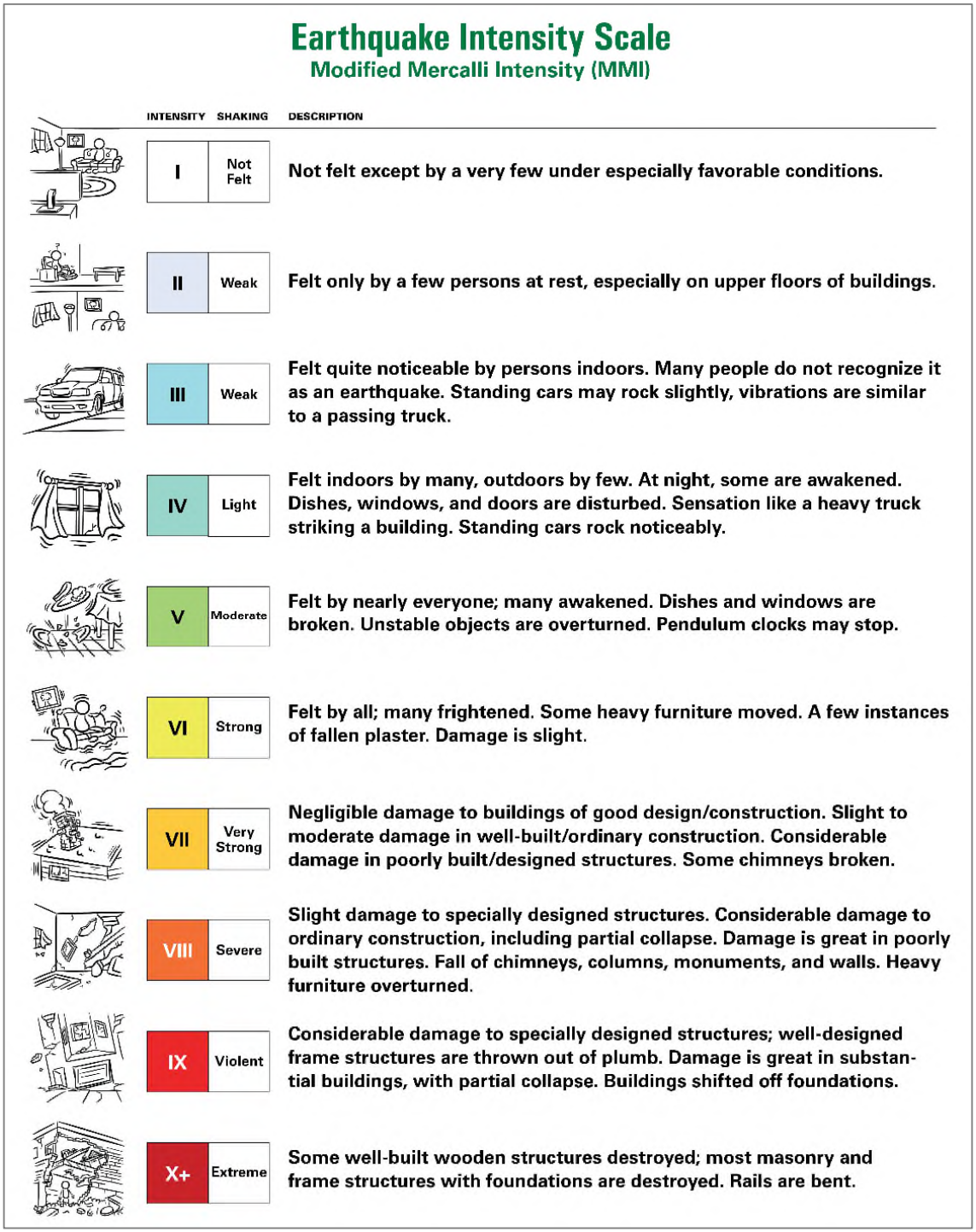


Figure 2-5. Modified Mercalli Earthquake Intensity Scale

Source: USGS - https://www.usgs.gov/media/images/earthquake-intensity-scale

Alameda County is exposed to seismic hazards from numerous known faults and potentially unmapped or undiscovered faults. The faults in Alameda County and most of the major faults in the Bay Area are strike-slip faults, where the rupture plane is oriented generally vertically and the ground on one side of the fault slips horizontally relative to the other side. The Bay Area also has several thrust or reverse faults, where ground moves

upward and over adjacent ground. The most active strike-slip fault in Alameda County is the Hayward Fault, which has three fault segments (Rodgers Creek, North Hayward, and South Hayward). The most active in the Bay Area is the San Andreas Fault, which has ten fault segments. Additionally, the Northern Calaveras and the Greenville Faults run straight through Alameda County. **Figure 2-6** lists the major regional faults that will significantly impact Alameda County and the probability that a magnitude 6.7 earthquake or greater will occur over 30 years.

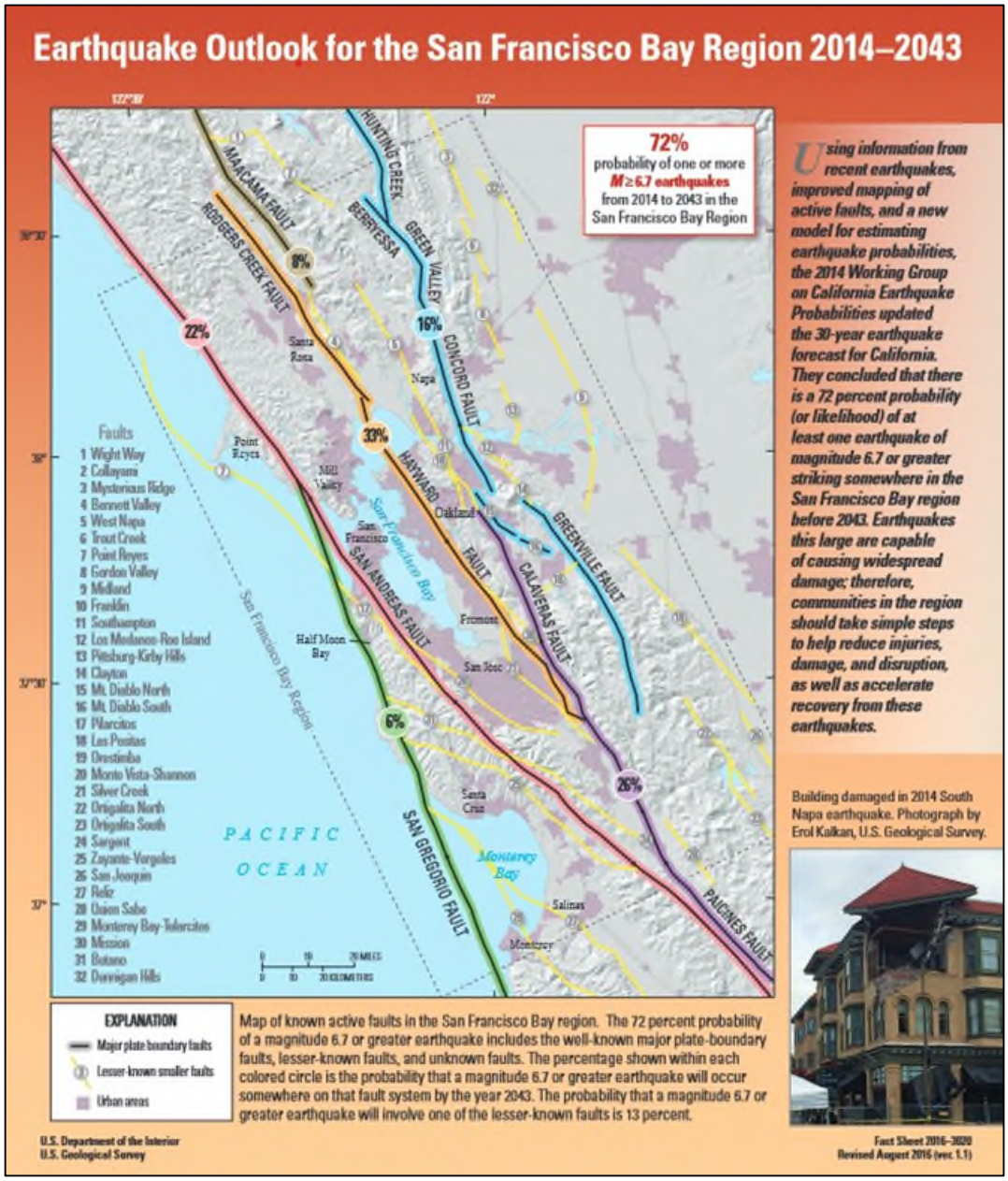


Figure 2-6 Regional Earthquake Outlook 2014-2043
Source USGS – https://pubs.usgs.gov/fs/2016/3020/fs20163020.pdf

An earthquake on the Hayward Fault is the most likely and has the potential to cause the most damage for Alameda County. However, the entire western portion of the County is highly susceptible to an earthquake and earthquake damage; **Figure 2-7** illustrates the earthquake-shaking potential for Alameda County.

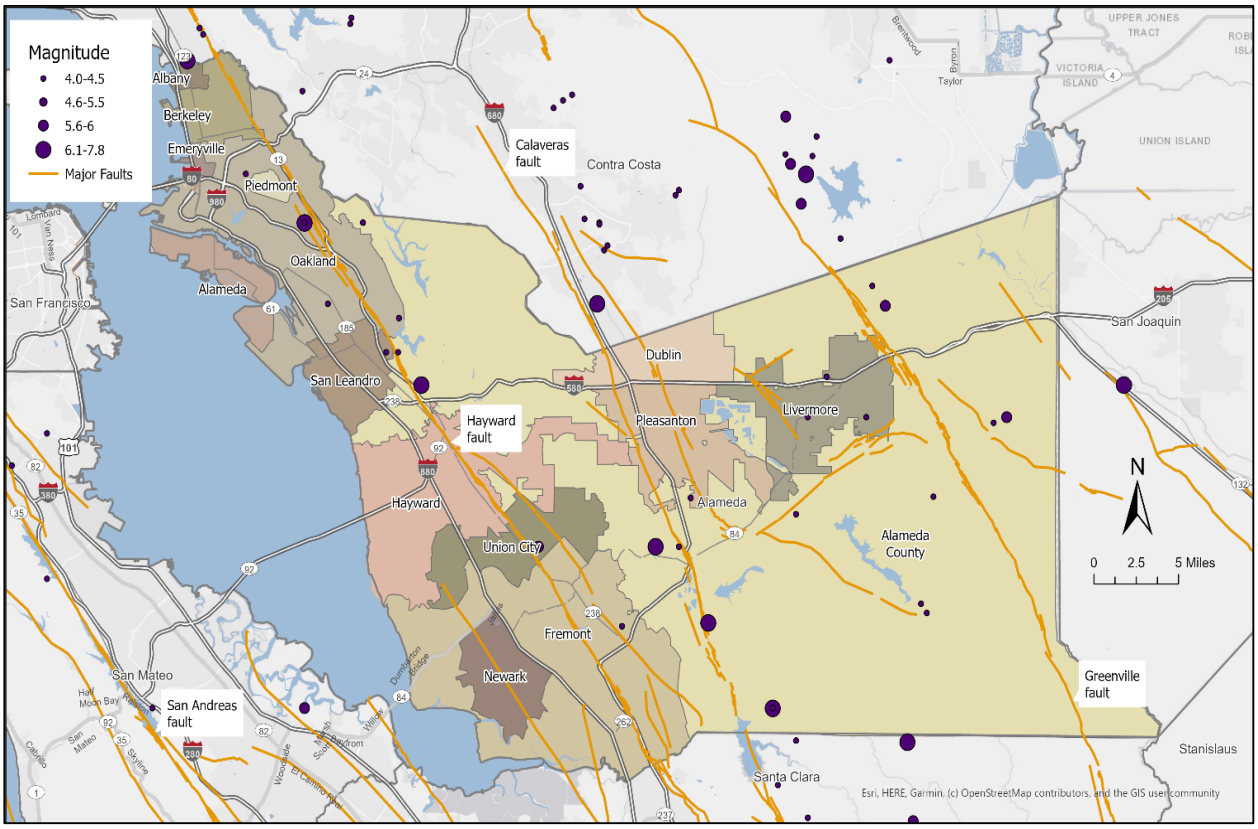


Figure 2-7 Alameda County Earthquake Shaking Potential

Previous Events

On October 21, 1868, a magnitude 6.8 earthquake struck the San Francisco Bay region on the Hayward Fault. Although the region was sparsely populated at the time, this earthquake was one of the most destructive in California's history. At the surface, ground rupture was traced for 20 miles and in the town of Hayward nearly every building was either destroyed or significantly damaged by the earthquake.

On April 18, 1906, a magnitude 7.9 earthquake struck along the San Andreas Fault. The epicenter occurred about two miles off the San Francisco coast and shaking was felt from Oregon to Los Angeles and as far east as Nevada. The earthquake led to fires, which, combined with the damage from the earthquake, became one of the worst natural disasters in the history of the United States. The combined events caused an estimated 3,000 deaths and $524 million in property losses.

On October 17, 1989, the Loma Prieta earthquake occurred along the San Andreas Fault. This was a magnitude 6.9 earthquake that greatly affected Alameda County, mainly due to the failure of the Cypress Street Viaduct on the Nimitz Freeway (Interstate 880) in the City of Oakland. A double-deck portion of the freeway collapsed, crushing the cars on the lower deck. Across the entire region it killed 63 persons, injured 3,757, displaced over 12,000 and caused approximately $6 billion of damage.

On August 24, 2014, the South Napa Earthquake struck the North San Francisco Bay Area in the early morning hours. At magnitude 6.0 on the moment magnitude scale and with a maximum Mercalli intensity of VIII (Severe), the event was the largest in the San Francisco Bay Area since the 1989 Loma Prieta earthquake. The

earthquake's epicenter was located to the south of Napa and to the northwest of American Canyon on the West Napa Fault. A smaller magnitude 5.0 earthquake on the same fault had damaged the city of Napa in 2000. The South Napa Earthquake caused extensive damage through both ground shaking and surface cracking (rupture). Ongoing fault movement along the surface rupture, called after slip, continued for several months, and caused further damage to foundations and structures. The earthquake was unusual for the length of surface rupture (8 miles), the amount of surface slip (up to 18 inches), and the large after slip that followed the earthquake (up to 14 inches).

2.5.10 Energy Emergency

Description of Hazard

Energy supply includes electrical power, natural gas, and finished petroleum products used for transportation, manufacturing, residential, and commercial purposes. It potentially encompasses the extraction, transmission, generation, distribution, and storage of fuels. Energy supply can become disrupted in several ways:

Intentional – Planned disruptions are scheduled, such as for maintenance, unscheduled disruptions are generally done on the spot. Demand-side management disruptions are done as part of an agreement during periods of peak system loads. Load shedding disruptions are done when the system is under extreme stress due to heavy demand or the failure of energy facilities.

The risk of wildfire increases when several factors are combined – these include high temperatures, high sustained and peak winds, as well as critically low humidity (red flag warning conditions). During these conditions, electrical transmission and distribution lines may ignite fires if they are downed by winds or trees. In 2018, to prevent their equipment from igniting wildland and urban interface fires during Red Flag Warning conditions, Pacific Gas & Electric Company (PG&E) adopted a de-energization program named Public Safety Power Shutoff (PSPS). Loss of critical systems due to de-energization during a PSPS may adversely impact the ability of local agencies to effectively respond to and manage emergencies. Some of the critical systems that may be impacted by de-energization during a PSPS event include:

- Public alerting communications systems – including internet and cellular towers
- Systems that monitor and maintain water supplies
- Traffic control systems – loss of traffic control systems may inhibit evacuation and response efforts

PG&E's meteorology teams work with the National Weather Systems (NWS) to determine whether impending weather conditions may require a PSPS and are in direct contact with Alameda County OES and other public safety partners, including affected cities, critical facilities, water agencies and telecommunications service providers. From the time a PSPS may be forthcoming, PG&E will coordinate timely sharing of critical information related to the PSPS event and continue to provide regular status updates until it is determined that the potential for a PSPS no longer exists, or in the alternative until such time as power is fully restored throughout Alameda County following the implementation of the PSPS.

Unintentional – Outages that are unplanned include an accident by the utility company, malfunction or equipment failure, reduced capability, vandalism or terrorism, weather, excessive operation, or overload of the system. Additionally, natural disasters such as storms and earthquakes can have the secondary effect of an unintentional power outage.

Previous Events

In December 1995, the Bay Area experienced widespread winds due to winter storms. This led to a power outage that affected approximately 1.5 million people.

Alameda County has experienced PSPS events that caused the EOC to be activated at a partial Level II staffing in 2019 on two occasions: October 9th - 12th approximately 28,500 PG&E customers lost power in the cities of Berkeley, Fremont, Hayward, Livermore, Oakland, Piedmont, Pleasanton, San Leandro, and Union City. During the event from October 26th – November 1st, approximately 55,300 PG&E customers lost power in Alameda County, including the cities of Berkeley, Dublin, Fremont, Hayward, Livermore, Oakland, Piedmont, Pleasanton, San Leandro, and Union city.

In 2020, two PSPS events occurred: October 14-17 where approximately 5,340 customers lost power in a small section of the northern and southern county hills of the unincorporated area. During the October 25th - October 28th PSPS event, approximately 18,740 customers were impacted in portions of Castro Valley, Sunol, and Berkeley, Dublin, Fremont, Livermore, Oakland, Pleasanton, and San Leandro. portions of Castro Valley, Sunol and in the Cities of Berkeley, Dublin, Fremont, Livermore, Oakland, Pleasanton, and San Leandro.

Alameda County experienced electric power supply shortages three times during 2020 and 2021. Based on forecasts from the state's electric grid operator, the California Independent System Operator (CAISO), PG&E was required to conduct rotating power outages with very little notice. Prior to the rolling black outs, Flex Alerts, calling for energy conservation due to a Statewide heatwave were issued August 14-20, 2020. Alameda County was able to reduce the power grid load therefore no rolling blackouts occurred. The second Flex Alert was issued for September 5 – 8, 2020 during extreme heat forecasts with possible PSPS events simultaneously due to ongoing wildfires, and increased trigger points reaching critical levels. Because of conservation efforts, Alameda County avoided rolling black outs. On October 15, 2020, another Flex Alert was issued due to an increased demand for electricity during a significant wind event with combined low humidity levels and critically dry fuels to mitigate the risk of catastrophic wildfires, again due to conservation efforts no black outs occurred.

2.5.11 Flood/Storm

Description of Hazard

Flooding is referred to as the accumulation of water where usually none occurs or the overflow of excess water from a stream, river, lake, reservoir, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Additionally, floods are natural events that are considered hazards only when people are affected.

Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Impact damage to structures, roads, and bridges from high-velocity flow and debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, increasing loads on these features or causing overtopping or backwater effects.
- Release of sewage and hazardous or toxic materials as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Floods also cause economic losses through closure of businesses and government facilities. They disrupt communications, disrupt the provision of utilities, such as water and sewer service, resulting in excessive expenditures for emergency response. In other words, they generally disrupt the normal functioning of a community.

There is a possibility of four types of floods; these include: coastal flooding, riverine flooding, stormwater runoff, and flash flooding.

Coastal Flooding – Coastal flooding in Alameda County is generally caused by wave run-up. Pacific Ocean storms in the months of November through February, in conjunction with high tides and strong winds can cause significant wave run-up. The size and intensity of storm-generated waves depend on the magnitude of the storm, its sustained wind speeds, and the duration of the storm. During storm conditions, the elevated water levels generated by storm surge allow waves to penetrate much closer to the shoreline, exposing coastal structures to direct wave attack, wave run-up, and wave-induced scour and erosion.

Riverine Flooding – This is the most common type of flooding. Riverine flooding, also known as overbank flooding, refers to fresh water sources. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions to wide, flat areas in plains and coastal regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and the characteristics of the land usage of the floodplain. In steep valleys, flooding is usually rapid and deep but of short duration, whereas in flat areas, flooding is typically slow, relatively shallow, but can last for longer periods.

Stormwater Runoff – Stormwater runoff is flooding due to stormwater runoff or street flooding when storm drains cannot convey the amount of water that would need to flow through them. This hazard can be due to high rates of rainfall, inadequate drainage design, storm surges, and debris blocking the storm conveyances.

Flash Flooding – Flash floods can occur due to heavy rainfall, dam or levee breaks, and mudslides. The intensity of the rainfall, the location and distribution of the rainfall, the land use and topography, vegetation types and growth/density, soil type, and soil water-content all, determine how quickly the flash flooding may occur and influences where it may occur. Urban areas are prone to flooding in short timespans, and rainfall over an urban area may cause flooding faster and more severe than in suburbs or rural areas. The impervious surfaces in the urban areas do not allow water to infiltrate the ground, and water accumulates very quickly. Flash flooding occurs so quickly that people are caught off-guard. Their situation may become dangerous if they encounter high, fast-moving water while traveling. If people are at their homes or businesses, water may rise quickly and trap them, or cause damage to the property without them having a chance to protect the property.

*In 2009, the Federal Emergency Management Agency (FEMA) prepared a countywide Digital Flood Insurance Rate Map for Alameda County. **Figure 2-8** shows the flood hazard areas for Alameda County.

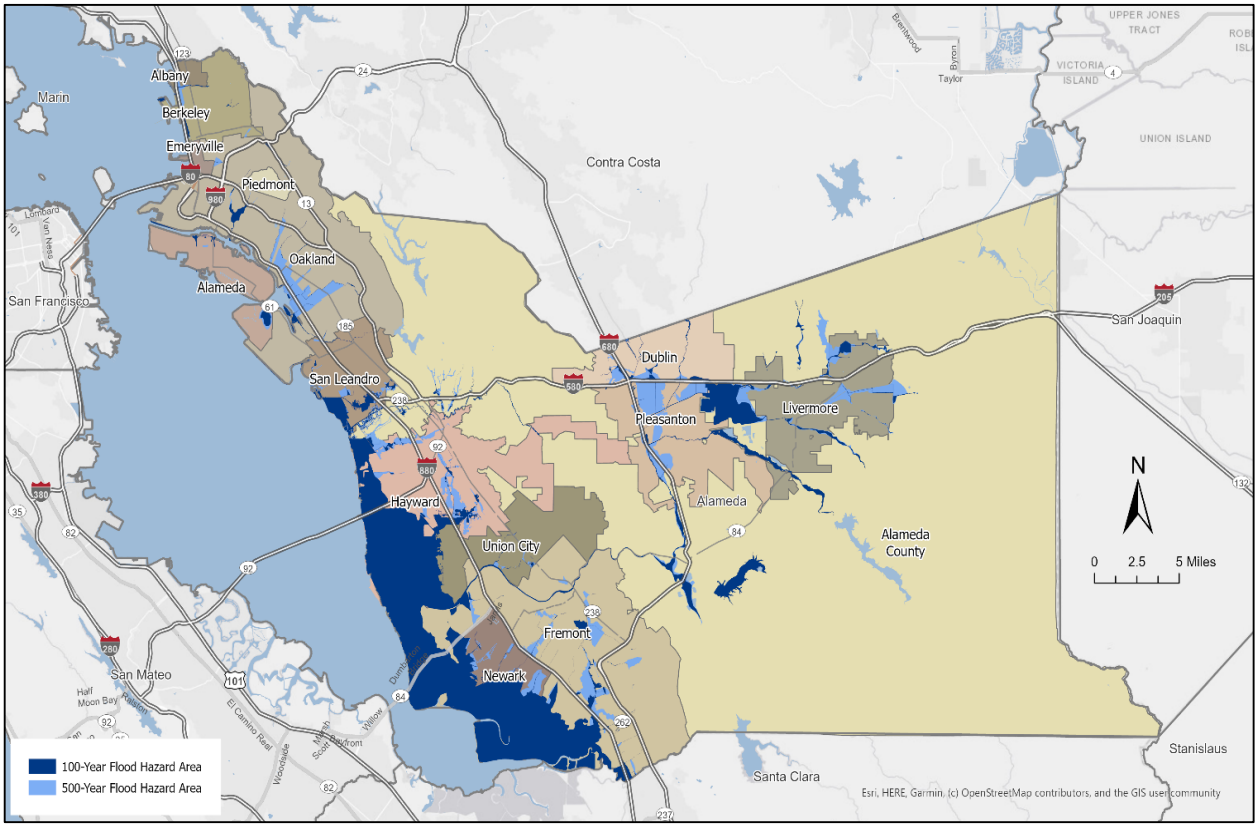


Figure 2-8 Alameda County Flood Hazard Areas

Previous Events

Flooding is among the most common disasters in Alameda County. Alameda County has experienced numerous flood events since 1950, including the 1998 El Niño events that resulted in approximately $700 thousand worth of property damage. The 2005-2006 winter storms received a presidential disaster declaration and resulted in approximately $17.6 million worth of property damage. A query of the National Centers for Environmental Information (NCEI) database indicates that in the ten-years preceding June 30, 2022, there were 97 flood events reported in Alameda County. Most of these events occurred during the months of November through February each year. The 2017-2018 winter storms received state and federal disaster declarations and resulted in approximately $1.2 million in damage to public infrastructure. Alameda County received two major disaster declarations, DR-4683 and DR-4699, in 2023 because of severe winter storms.

2.5.12 Hazardous Materials

Description of Hazard

A hazardous material is any item or agent (biological, chemical, radiological, or physical) which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Hazardous materials are defined and regulated in the United States primarily by laws and regulations administered by the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC).

Hazardous materials are abundant. The focus is not on the hazards contained in everyday products, but rather on the hazards associated with the potential release of hazardous substances from transportation corridors and fixed facilities within the County.

Mobile Incident. Mobile incidents include those that occur on a roadway, railroad, or waterway. Mobile incident-related releases are dangerous because they can occur anywhere, including close to human populations, assets and utilities, or environmentally sensitive areas. Additionally, mobile incident-related releases can be more challenging to mitigate due to the massive area over which any given incident may occur and the potential distance of the incident site from response resources.

Fixed Incident. The release of hazardous substances from stationary sources can be caused by human error, equipment failure, intentional dumping, acts of terrorism, or natural phenomena. Earthquakes pose a particular risk because they can damage or destroy facilities containing hazardous substances. The threat posed by a hazardous-material event can be amplified by restricted access, reduced fire suppression, spill containment capability, and even complete cutoff of response personnel and equipment.

Previous Events

The Cal OES State Warning Center spill report data system is the central reporting point for California. From January 1, 2020, to December 28, 2021, there have been 653 reportable hazardous material releases or spills in Alameda County.

2.5.13 Infectious Disease Epidemic/Pandemic

Description of Hazard

Infectious diseases are caused by pathogenic organisms, including viruses, bacteria, fungi, or parasites. Such diseases can affect living organisms, including people, animals, and plants. They may spread directly from person to person, through vectors (for example, from animals or insects to humans) or indirectly through interaction with a contaminated environment or substance. Some infectious diseases can affect both people and animals. The major concern regarding epidemic and pandemic diseases in humans is the evolution of pathogenic organisms, leading to potential increases in virulence, transmissibility, and resistance to available treatment modalities, or the emergence of novel virulent transmissible pathogenic organisms. Such events can lead to an epidemic or pandemic with high morbidity and mortality.

A pandemic is the worldwide spread of a disease. For example, influenza pandemics are usually caused by the emergence or reemergence of a subtype of influenza, to which the general population has less immunity. This differs from seasonal influenza caused by subtypes of the influenza virus that already circulate widely among populations. Seasonal influenza occurs routinely worldwide each year, causing an average of 36,000 deaths annually in the United States, but an influenza pandemic caused by a novel subtype may cause orders of magnitude more deaths. The COVID-19 pandemic is an example of the emergence of a wholly new virus which spreads easily from person to person and to which there was essentially no preexisting immunity in the population.

Of primary concern are infectious diseases with epidemic potential that may be:

- Circulating regionally
- Imported from other locations
- Spread from animal populations
- Introduced intentionally to spread disease as a form of bioterrorism.

Previous Events

In 1918, the world experienced a severe influenza pandemic, the Spanish Flu. Claims were made that worldwide fatalities were between 20 and 50 million. Here in the United States, deaths were claimed to be near 700,000. In April 2009, a new strain of the flu virus called swine flu (or H1N1 flu virus) emerged. The virus was first detected

in the United States and has spread around the world. Swine flu spreads in much the same way that seasonal influenza viruses spread. Like seasonal flu, H1N1 in humans can vary in severity from mild to severe. Severe disease with pneumonia, respiratory failure, and death is possible with the H1N1 flu infection. In June 2009, the World Health Organization (WHO) declared that a global pandemic of H1N1 flu was underway.

In 2014, Ebola, a virus that had first been described in 1976 and severely affected several countries in Africa, gained the attention of the world. The Democratic Republic of Congo experienced Ebola outbreaks in 2014 with 69 reported cases and 49 deaths, in 2017 with 8 cases and 4 deaths. The Democratic Republic of Congo continues to battle the latest outbreak which began on August 1, 2018, and was declared a global health emergency by the WHO on July 17, 2019. As of January 1, 2020, 3386 cases of Ebola Virus Disease and 2233 deaths have been reported in the Democratic Republic of Congo, according to the World Health Organization.

In February 2016, the Zika virus, which had caused outbreaks across many countries in the world, was declared a public health emergency. Due to the Zika virus's ability to transmit sexually and through mosquitos, the Federal, State, and local health authorities made efforts to educate travelers and providers about prevention and health risks associated with infection by the virus. Local transmission of the Zika virus was reported in Texas and Florida in 2016 and 2017.

Measles virus has been reported worldwide with outbreaks reported in multiple countries. While measles was declared as eliminated from the U.S in 2000, the vaccine is widely available, traveling to affected regions worldwide, and the introduction of the virus to unvaccinated communities has contributed to local outbreaks. Preliminary reports from CDC indicate that over 1200 cases of measles were reported in the U.S. in 2019 alone – the highest recorded since 1992. However, the last measles outbreak in Alameda County was in 2014.

In December 2019, a novel coronavirus capable of causing severe human illness called SARS-CoV2 emerged in China. COVID-19, the disease caused by SARS-CoV-2, quickly spread around the world resulting in a historic pandemic. As of July 2023, over 2,200 Alameda County residents and 1.1 million Americans have died from COVID-19. Fortunately, vaccines and medical treatments, alongside immunity from prior infection, have led to substantially lower rates of severe COVID-19 disease. Community-wide emergency mitigation strategies such as social distancing and masking wear have given way to individual-level actions tailored to personal risk. Public health efforts are now focused on maintaining awareness, keeping up to date on vaccination and preventing severe illness among people at highest risk of severe disease.

2.5.14 Landslide/Mudslide

Description of Hazard

Landslide is a general term used to refer to the dislodging and fall of a mass of soil or rocks along a sloped surface or the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hillside and mountainous areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur because of indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stable geologic conditions.

Additionally, landslides often occur with other natural hazards, thereby exacerbating the conditions listed below:

- Shaking due to earthquakes can trigger events ranging from rock falls and topples to massive slides.
- Intense or prolonged precipitation that causes flooding can saturate slopes and cause failures leading to landslides.
- Wildfires can remove vegetation from hillsides, thereby significantly increasing runoff and landslide potential.
- Landslides into a reservoir can indirectly compromise dam safety.

Mudslides are another form of soil failure and are defined as flows or rivers of liquid mud down a hillside. They occur when water accumulates under the ground, usually following long and heavy rainfalls. If there is no brush, tree, or ground cover to withhold the soil, mud forms and flows down the slope.

Previous Events

From January through March 1998, rainstorms driven by El Niño triggered landslides throughout the Bay Area. The United States Geological Survey (USGS) conducted a study to access the landslide damages in Alameda County and documented 87 sites that sustained damage from landslides, resulting in a total direct cost of about $20 million (about 50 percent roads and highways vs. private structures). Most of the losses occurred along the densely populated west flank of the Oakland Hills. About half of the damage sites were within the cities of Oakland and Berkeley.

Since then, smaller events have occurred in the Oakland Hills. In January 2008, a large section of roadway in the Oakland Hills (Skyline Boulevard) gave way, sending mud and water down to the homes below. No homes or lives were lost, but a portion of the road was closed for about six months to allow restoration.

USGS records show that localized damage in the Bay Area due to earthquake-induced landslides has been recorded since 1838 for at least 20 earthquakes. The 1906 earthquake generated more than 10,000 landslides throughout the region, killing 11 people and causing substantial damage to buildings and infrastructure. The most significant landslides caused by the 1989 earthquake were in the Santa Cruz Mountains. However, landslides from this event were reported throughout the Bay Area.

In December 2005 and March 2006, Alameda County suffered major damages due to landslides from severe winter storms, resulting in $156 million (DR-168-CA) and $35 million (DR-1646-CA). Extensive landslides at Lake Chabot Regional Park resulted in the park's closure for repairs.

In January and February of 2017, Alameda County proclaimed a local emergency due to rain-induced floods that caused numerous landslides throughout the County. Palomares Road in Castro Valley, Koopman Road in Sunol, and Niles Canyon Road were all heavily impacted due to localized landslides that caused multiple road closures and multiple traffic hazards. The heavy rains and floods affected multiple areas of East Bay Regional Parks District, causing landslides, which closed Sunol Regional Park.

Alameda County received two disaster declarations, DR-4683 and DR-4699, due to multiple storm systems that impacted the county in January and March of 2023. The county sustained more than $106 million in damages associated with infrastructure repairs and emergency response costs.

Figure 2-9 illustrates previous rainfall-induced landslides occurrences in Alameda County.

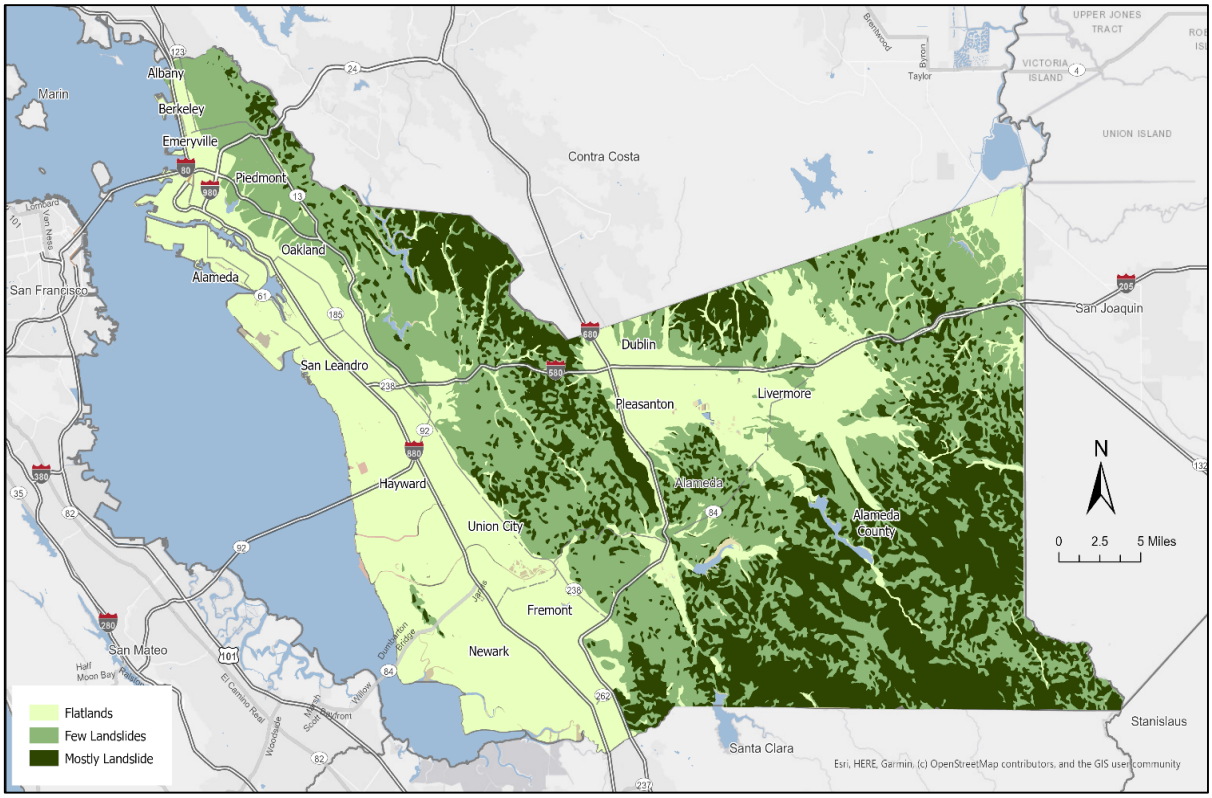


Figure 2-9 Alameda County Rainfall-Induced Landslides

2.5.15 Liquefaction

Description of Hazard

Liquefaction occurs when earthquake waves pass through a saturated granular soil layer, distort its granular structure, and cause some of its pore spaces to collapse. The collapse of the granular structure increases pore space water pressure, decreasing the soil's shear strength and causing ground rupture, sand boils, ground subsidence, and later ground displacement. This can lead to pipe leakage, building foundation damage, and buckling roads and airport runways.

Figure 2-10 maps the liquefaction susceptibility for Alameda County. As illustrated, areas on the Bay front around the Alameda County Control Channel/Alameda Creek and areas of Livermore and Pleasanton are most susceptible to liquefaction. Most of the County falls within the very low and low liquefaction susceptibility areas. Those in the very high susceptibility areas are predominately found along the coast from Albany south to San Lorenzo.

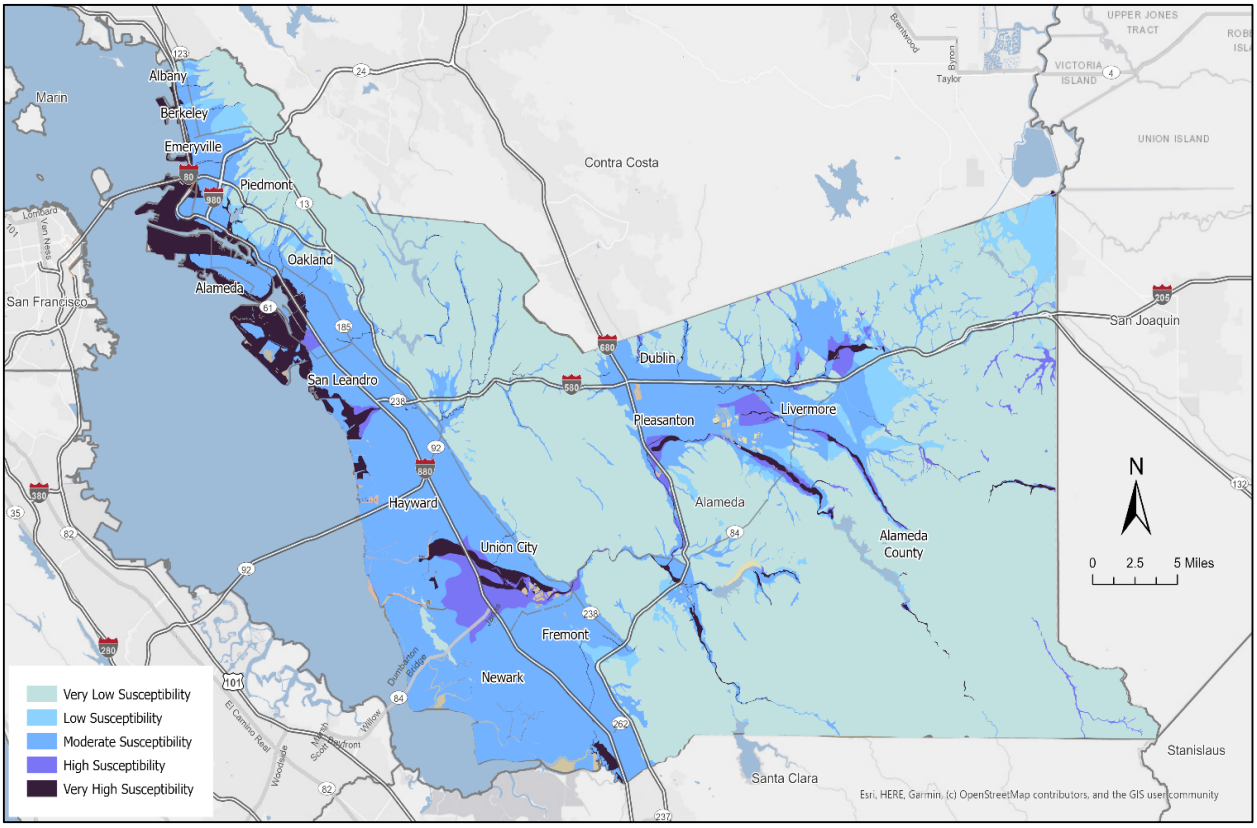


Figure 2-10 Alameda County Liquefaction Susceptibility

Previous Events

The USGS has mapped liquefaction occurrences for parts of the Bay Area due to earthquakes occurring in the following years: 1838, 1852, 1868, 1906, 1957, and 1989.

In the 1989 Loma Prieta Earthquake, 90 percent of water main breaks were due liquefaction. In Alameda County, East Bay Municipal Utility District (EBMUD) facilities suffered significant damage due to liquefaction, and the runways at the Oakland Airport experienced some deformation.

History has revealed that the Oakland coast, Alameda, Oakland International Airport, and Alameda Creek near Fremont are most affected by liquefaction.

2.5.16 Terrorism

Description of Hazard

No universally accepted definition of terrorism is available; however, the Code of Federal Regulations defines terrorism as "…the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." In general, terrorism is viewed as an act of violence against civilians to achieve a political or ideological objective.

Terrorism can occur in various forms, such as assassinations, kidnappings, hijackings, bomb scares, bombings, cyber-attacks, chemical, biological, nuclear, and radiological weapons. The concern is also growing regarding emerging infectious diseases and the possibility of a bioterrorism attack.

A bioterrorism attack is the deliberate release of viruses, bacteria, or other pathogens with the intention of causing illness or death to people, animals, or plants. These agents are typically found in nature, but it is possible for them

to be artificially modified to enhance their ability of becoming more resistant to current medicines or to increase their ability to be spread into the environment. Biological agents can be spread through the air, through water, or in food. Terrorists may use biological agents because they can be extremely difficult to detect and do not cause illness for several hours or several days. Some bioterrorism agents, like the smallpox virus, can be spread from person to person; some, like anthrax, cannot.

The Department of Homeland Security's National Planning Scenario identifies potential terrorist strikes that they deem as the most plausible. Places at risk include cities that have economic and symbolic value, places with hazardous facilities, and areas where large groups of people congregate, such as an office building or sports arena. Places at risk in Alameda County may include the Federal Building in downtown Oakland, the Oakland Coliseum and Arena, the Port of Oakland, Oakland International Airport, and the Bay, San Mateo, and Dumbarton bridges.

Previous Events

Alameda County has experienced few instances of terrorism. On August 8, 2003, two bombings at the Chiron Corp in Emeryville were attributed to a faction of the Animal Liberation Front. On September 9, 2003, a bombing at Shaklee Corp in Pleasanton was also attributed to an Animal Liberation Front faction. Daniel Andreas San Diego was the suspect and was on the FBI's Ten Most Wanted Terrorists List. At the time of the bombings, he was living in Berkeley, California.

2.5.17 Tornadoes and High Winds

Description of Hazard

Tornadoes are fast-spinning columns of air that reach from the base of a thunderstorm down to the ground, with wind speeds up to 300 miles per hour. Tornadoes are spawned when there is warm, moist air near the ground, cool air aloft, and winds that speed up and change direction. Tornadoes can cause fatalities and devastate a neighborhood within seconds. Damage paths from a tornado can be more than one-mile-wide and 50 miles long.

Tornadoes can range in their shape and size. Some massive tornadoes are over a mile across, while others can be nearly invisible due to rain or low-hanging clouds. Often a cloud of debris, kicked up by the tornado's winds, encircles the lower portion of the funnel. This debris cloud can mark the location of a tornado even when the funnel is not visible. Tornadoes in California are uncommon, and the risk to Alameda County is very low, but they do occur.

Winds are horizontal flows of air that blow from areas of high pressure to areas of low pressure. Wind strength depends on the difference between the high and low-pressure systems and the distance between them. A steep pressure gradient results from a large pressure difference or a short distance between these systems and causes high winds. High winds are defined as those that last longer than 1 hour at greater than 39 miles per hour or for any length of time at greater than 57 miles per hour.

Previous Events

As reported by the NCDC, Alameda County has experienced three tornadoes since 1950. The tornadoes are listed in **Table 2-3**. The largest tornado near Alameda County occurred in Santa Clara County in May 1998. The tornado, which was listed as a magnitude F2, touched down in Sunnyvale, causing one injury and $3.8 million in property damage. All tornadoes that have occurred in Alameda County have been magnitude F0 and have led to no injuries or death.

Location or County	Date	Time	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Alameda	03/29/1982	1725	F0	0	0	$25 K	0
Alameda	12/17/1992	1230	F0	0	0	$0 K	0
Livermore	04/25/1994	1150	F0	0	0	$50 K	0
TOTALS				**0**	**0**	**$75 K**	**0**

Table 2-3 Alameda County Tornado History
Source: National Climatic Data Center, 2022.

2.5.18 Train Derailment

Description of Hazard

Most railroad accidents in the United States are the result of train derailments – a problem that is typically track-related. Due to the reduction of routes used by the nation's rail systems, there has been substantial increased traffic over the tracks that remain in use. At present, Union Pacific uses tracks that run through Livermore and Pleasanton for freight traffic. About 5 to 10 trains use this corridor per day. The train tracks running North and South along the coast are owned and operated by Union Pacific. Amtrak, Santa Fe, and Port of Oakland trains also use this route. Amtrak passenger trains use this route as part of the Capitol Corridor. They also use tracks from Oakland to Berkeley as part of the San Joaquin route.

A train derailment affects not only those directly involved in the incident, but can cause transportation disruption, power failures, the release of hazardous materials, smoke, fire, or a toxic plume.

Previous Events

Alameda County's recent history shows an average of one to two train derailments a year. However, the magnitude of each incident has remained quite small and, therefore, has led to minimal consequences. Examples of train derailment incidents are:

In August 2004, while removing cars from a facility, one non-hazmat car derailed and two tank cars containing methanol were damaged. However, no materials release was reported.

In July 2005, a train derailed near a Kinder Morgan pipeline. Kinder Morgan shut down the pipeline in case of any release. No further information was reported.

In October 2008, the derailment of one car led to about $8,500 worth of track damage.

In December 2009, a train derailed about 100 feet short of Oakland's 12th Street station, which led to two injuries.

On March 7, 2016, at 7:20 pm, during a heavy rainstorm, an Altamont Corridor Express (ACE) train carrying 214 passengers struck a downed tree near Sunol, causing the derailment of the commuter train. The accident injured nine, four seriously, when the train cars landed in the Niles Canyon creek. The Alameda County EOC was partially activated to assist the Incident Commander with transportation and relocation efforts of those who were injured and other passengers to reach their destinations.

2.5.19 Tsunami and Seiche

Description of Hazard

A tsunami is a series of waves generated in a body of water by a sudden uplift of the seafloor that vertically displacing a large volume of water. Tsunamis are generated by vertical displacement of the seafloor by large earthquakes along subduction zone faults, landslides, and volcanic eruptions. Tsunamis exhibit long wave periods and wavelengths that can extend up to several hundred miles and increase in height as they enter shallow coastal area waters.

The actual height of a tsunami wave in open water is generally less than a couple feet and is often unnoticeable to people on ships in deep water. The energy of a tsunami passes through the entire water column to the seabed. Tsunami waves may travel across the ocean at speeds up to 500 miles per hour and slow down to less than 20-30 miles per hour near the coast.

Tsunamis affect not only beaches that are open to the ocean but also bay mouths, tidal flats, and the shores of large coastal rivers. Tsunami waves can also diffract around land masses, since tsunamis are not symmetrical, the waves may be much stronger in one direction than another, depending on the nature of the source and the surrounding geography.

A seiche is very similar to a tsunami, with the difference being that the water waves are generated in a closed or restricted body of water such as a lake or within a harbor. The shaking of an earthquake can result in large and destructive oscillations that produce waves tens of feet above normal lake (i.e., water) level. Seiche waves typically impact waterfront areas, and in harbors and closed or restricted bays, these waves can damage harbor and shore facilities. The secondary effects of a seiche can often produce more damage than the seiche itself. Large seiches can spill over dams on manmade lakes or reservoirs, causing flooding in the areas downstream. This can also erode and wash out earth-filled dams causing complete collapses.

Historically, tsunamis have not been a significant problem in the Bay Area, specifically in Alameda County. The most recent event was on January 15, 2022, when the Tonga volcanic eruption generated a tsunami "Advisory" statewide; an Advisory means strong currents and dangerous waves are expected in harbors and coastal areas, but inundation is not anticipated. However, there is still a moderate tsunami hazard for Alameda County. The map shown in **Figures 2-11** illustrates the Tsunami Hazard Area for Alameda County mapped by the State of California (visit tsunami.ca.gov). This map does not represent inundation from a single scenario event but combines inundation results for a suite of scenarios. The worst-case tsunami threat for the county comes from a large magnitude 9.3 earthquake scenario originating from the Eastern Aleutian Islands and Alaska. Based on these maps, it is estimated that there are at least 60,000 residents and 60,000 employees who occupy the Tsunami Hazard Area daily (personal communication with Rick Wilson, California Geological Survey).

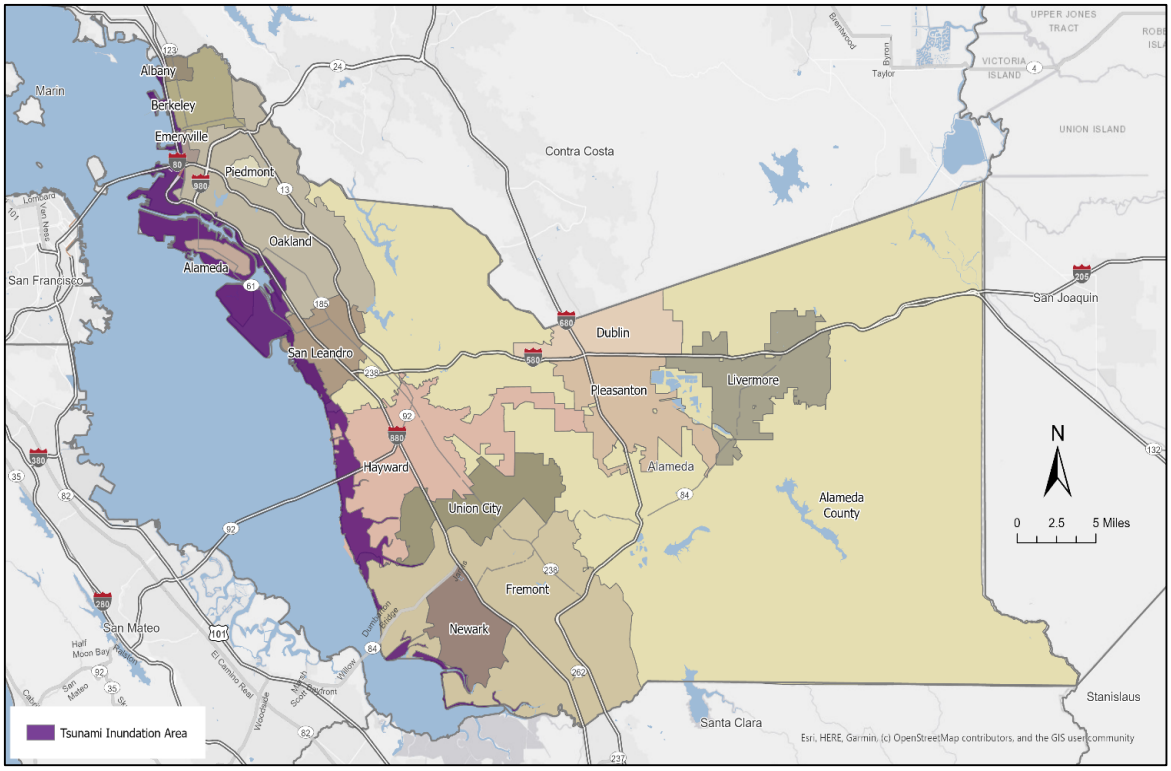


Figure 2-11 Alameda County Tsunami Inundation Area

Previous Events

From 1812 to 2000, 22 tsunamis have been recorded by the National Oceanic and Atmospheric Administration in the Bay Area. The majority, 15 of 22, of these tsunamis originated in Alaska and were caused by an earthquake, earthquake, and landslide, or volcano and earthquake; the remainder had a source location in Northern California, Japan, or Chile. In 1859, a tsunami generated by an earthquake in Northern California generated 4.6-meter wave heights near Half Moon Bay. The Great 1868 earthquake on the Hayward Fault is reported to have created a local tsunami in the San Francisco Bay. In 1960, Pacifica experienced high water resulting from a magnitude 9.5 earthquake off the coast of Chile. The tsunami generated by the 1964 Alaskan earthquake caused wave heights of three to seven meters off the coast of Northern California, Oregon, and Washington. As a result of this tsunami, eleven people lost their lives in Crescent City. Along the coast of San Francisco, Marin, and Sonoma Counties, the maximum wave heights were recorded at 1.1 meters and no significant damage was experienced.

In March 2011, an M9.1 earthquake struck off the coast of Japan, and in February 2010, an M8.8 earthquake struck off the coast of Chile. The 2011 tsunami caused approximately $80,000 worth of damage to several docks in Berkeley Marina and significant damage to harbors and piers along the outer coast of Northern California. Waves surging along the coast reached as high as 7 feet tall; the cities of Crescent City and Santa Cruz were hit the hardest. During the tsunami incident generated by the Tonga volcanic eruption, a tide gauge near Alameda measured minor tsunami waves in this area of the San Francisco Bay. A complete history of tsunamis affecting the San Francisco Bay Area coastal cities is included in **Table 2-4**.

Date	Source/Source Location	Tsunami Location	Remarks
11/13/1851	Earthquake – California: Northern	San Francisco Bay	"Unusual movement of water" was felt
10/21/1868	Earthquake – California: Northern	San Francisco Bay	14.76-foot MWH*
3/31/1898	Earthquake – Oakland	Oakland	1.0-foot MWH
4/1/1946	Earthquake – Alaska (Unimak Island)	Alameda	.66-foot MWH
3/9/1957	Earthquake – Alaska (Andreanof Islands)	Alameda	.59–foot MWH
5/22/1960	Earthquake – Southern Chile	Alameda	1.0-foot MWH
		Berkeley	Unknown
3/28/1964	Earthquake – Alaska (Prince William Sound)	Alameda – Alviso Sough	.59–foot MWH
		Alameda – Naval Air Station	2.62-foot MWH
		Oakland	4.0-foot MWH
5/16/1968	Earthquake – Japan (off the east coast of Honshu Island)	Alameda	.33–foot MWH
4/25/1992	Earthquake – Cape Mendocino	Alameda	.13-foot MWH
10/4/1994	Earthquake – Russia (S. Kuril Islands)	Alameda	.13-foot MWH
5/3/2006	Earthquake – Tonga	Alameda	.13-foot MWH
2/27/2010	Earthquake – Central Chile	Alameda	.39-foot MWH
3/11/2011	Earthquake – Japan (Honshu Island)	Alameda	1.67-foot MWH
		Berkeley Marina, CA	1.67-foot MWH
10/28/2012	Earthquake – British Columbia	Alameda	.36-foot MWH
9/16/2015	Earthquake – Central Chile	Alameda	.20-foot MWH
7/29/2021	Earthquake – Alaska (Perryville)	Alameda	,20-foot MWH
1/15/2022	Volcano - Tonga	Alameda	.75-foot MWH

Table 2-4. Historical List of San Francisco Bay Area Coastal Tsunamis.

Source: National Geophysical Data Center/World Data Service: Global Historical Tsunami Database. 2022.

Maximum Water Height – Peak observed tsunami amplitude or wave height above existing sea level.

*The waves observed during the 1868 event may have represented inland inundation instead of a tsunami wave height.

2.5.20 Wildland Fire

Description of Hazard

A wildfire is an uncontrolled fire spreading through vegetative fuels. Wildfires can be caused by human activities, such as arson, downed electrical wires, campfires, or natural events. In areas where urban development meets or intermingles with wildland-which are referred to as wildland urban interface (WUI) – wildfires can cause significant property damage and present extreme threats to public health and safety.

The following three factors contribute significantly to wildfire behavior and can be used to identify wildfire hazard areas:

Topography – As the slope increases, the rate of wildfire spread increases. Therefore, since South-facing slopes are exposed to more sunlight, they are drier, and this intensifies their wildfire behavior. However, ridgetops may mark the end of wildfire spread, as the fire spreads more slowly or may even be unable to spread downhill.

Fuel – The type and condition of vegetation plays a significant role in the occurrence and spread of wildfires. Certain types of plants, including non-native plants, are more susceptible to burning or burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the "fuel load"). The ratio of living-to-dead plant matter is also essential. The decrease in moisture content and an increase in disease and infestation add to the severity of the risk.

Weather – The most variable factor affecting the behavior of wildfires is weather. Temperature, humidity, wind, and lightning can affect the chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildfire activity. By contrast, cooling and higher humidity often signal reduced wildfire occurrence and easier containment.

Alameda County is situated between two unique microclimates which interact with the local terrain within June – September to produce extreme fire conditions on almost a daily basis.

Even small fires can threaten lives, resources, and destroy property. If not promptly controlled, wildfires may result in an emergency or disaster.

The indirect effects of wildfires can be catastrophic, such as by stripping the land of vegetation and destroying forest resources, large, intense fires can also harm the soil, waterways, and the land. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

Residential and commercial encroachment into wildland areas has increased the potential for disastrous fires in the County's lower hillside areas. To reduce fire dangers near the urban development interface, the construction of a fuel modification zone is applied. The continued application of this method has drawbacks; however, there are the impacts on wildlife, on unique vegetation, and in some cases to the watershed cover, as deep-rooted chaparral species are replaced by shallow-rooted grasses.

The California Department of Forestry and Fire Protection (CAL FIRE) has developed several maps depicting wildfire hazard areas. The two most useful maps are those depicting WUI wildfire threat (see **Figure 2-12**) and wildfire threat from wildland fuels in State Responsibility Areas (see **Figure 2-13**). The WUI map depicts communities within 1.5 miles of a potential wildfire source, as determined by CAL FIRE – Fire and Research Assessment Program fuel and hazard data.

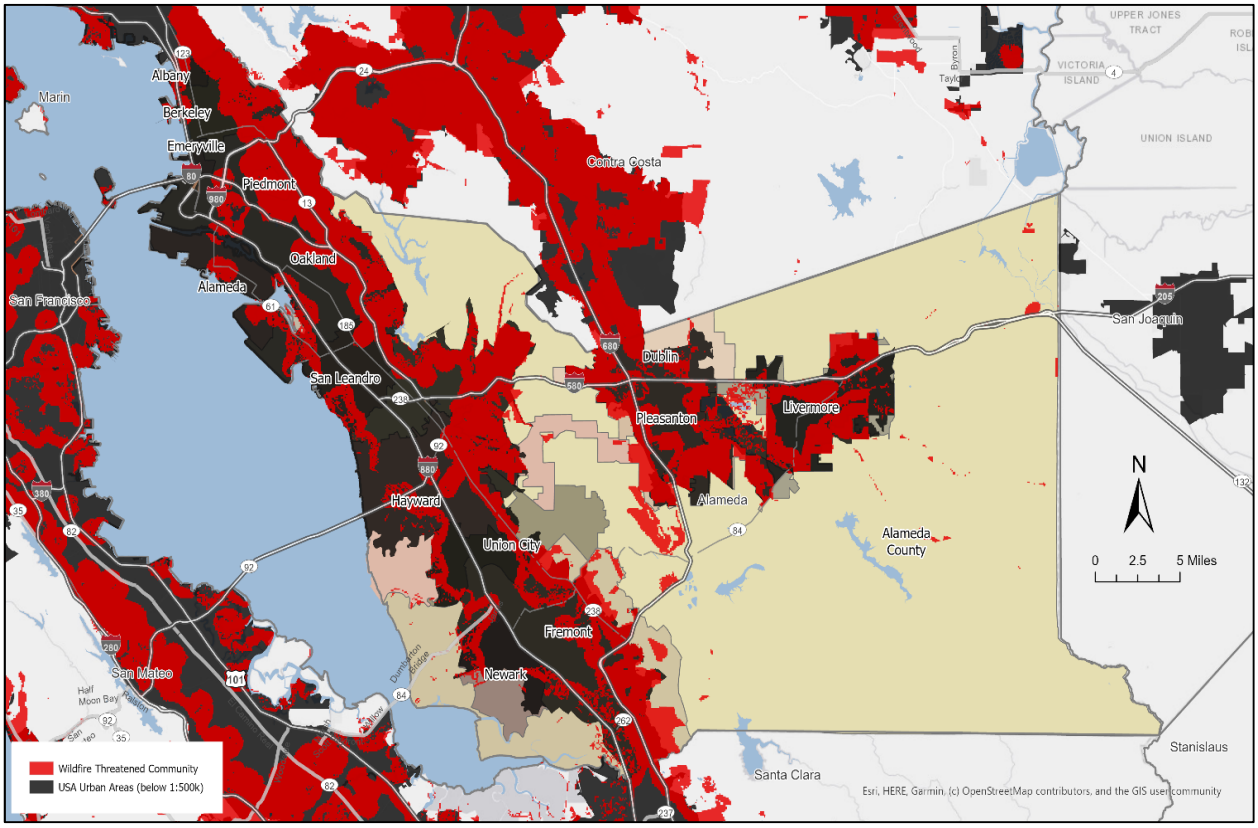


Figure 2-12 Alameda County wildland urban interface wildfire threat

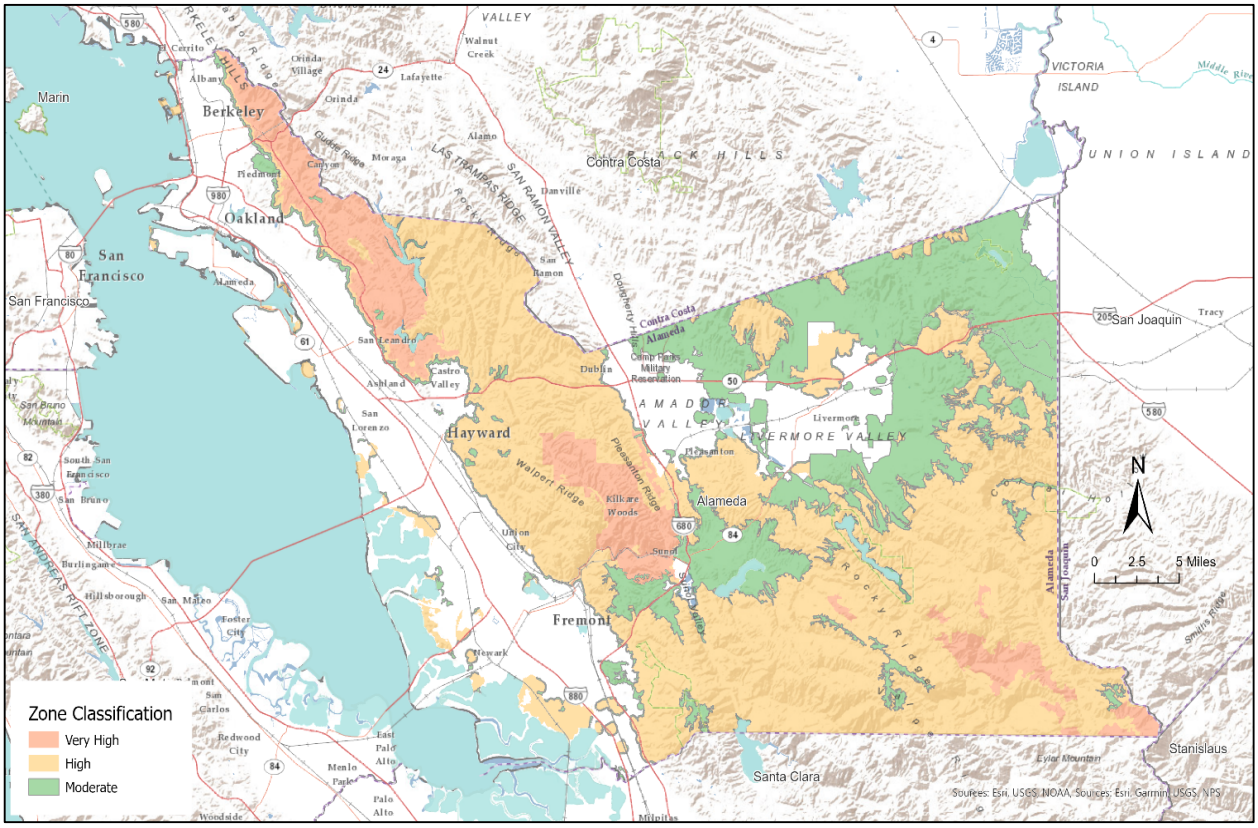


Figure 2-13 Alameda County wildfire threat, State responsibility areas.

Previous Events

Wildfires are common within the Bay Area. Large historic wildfires occurred in 1961, 1962, 1964, 1965, 1970, 1981, 1985, 1988, and 1991. Additionally, CAL FIRE maintains information on an archived list of fires going back to 2003 viewable at www.fire.ca.gov.

The largest urban-wildland fire in the Bay Area, and one of the worst wildland fires to ever strike the United States, occurred in 1991, in the Oakland Hills of Alameda County. The fire resulted in $1.7 billion in losses and received a Federal Disaster Declaration. The fire spread across 1,520 acres, destroyed 3,354 family dwellings and 456 apartments, injured 150 people, and took the lives of 25 others.

The Santa Clara Unit (SCU) Lightening Complex started as 20 different wildland fires across 5 counties, sparked by dry lightning strikes on August 16, 2020. Eventually, these fires merged into one major fire that forced evacuation orders and warnings, destroyed 222 structures, damaged 26 additional structures, caused 6 injuries and produced smoke that blanketed surrounding areas. The fire resulted in $70 million in losses and received a Federal disaster Declaration. Ranking as the fourth-largest wildfire in California history, the complex remained active for 46 days until full containment.

2.6 Assumptions

For planning purposes, Alameda County makes the following assumptions:

- Emergency management activities are accomplished using the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS).
- Local authorities maintain operational control and responsibility for emergency management activities within their jurisdictions, unless otherwise superseded by statute or agreement.
- Mutual aid assistance is requested when disaster relief requirements exceed the County's ability to meet them.
- Mutual aid assistance is provided when requested if resources are available.

3 Program Administration

This section describes how the Alameda County Emergency Management Program is administered. Specifically, this section describes foundational guidelines, the process and authority for proclaiming emergencies, and additional elements to sustain the program before, during, and after a disaster.

3.1 SEMS and NIMS Compliance

The Alameda County Emergency Management Program complies with Federal guidance to use NIMS and State guidance to use SEMS. Each system is comprehensively described below:

3.1.1 NIMS

NIMS provides a comprehensive approach to emergency management for all hazards. NIMS integrates the best existing practices into a consistent, nationwide approach to domestic emergency management applicable to all jurisdictional levels (public and private) and across functional disciplines. NIMS incorporates the Incident Command System (ICS), a standardized on-scene emergency management concept designed to provide an integrated organizational structure for single or multiple emergencies, and to enable emergency response across jurisdictional boundaries.

3.1.2 SEMS

SEMS is used to manage multi-agency and multi-jurisdictional responses to emergencies in California. SEMS consists of five hierarchical levels: Field, Local Government, Operational Area, Regional, and State. SEMS incorporates the principles of the ICS, the (MMAA), existing discipline-specific mutual aid agreements, the Operational Area concept, and multi-agency or interagency coordination and communication. Under SEMS, response activities are managed at the lowest possible organizational level.

Field

The Field level is where emergency response personnel and resources, under the command of responsible officials, carry out tactical decisions and activities in direct response to an incident or threat.

Local Government

The Local Government level for Alameda County consists of 14 incorporated cities, the County, and special districts. Local governments manage and coordinate the overall emergency response and recovery activities within their jurisdiction. Local governments are required to use SEMS when their EOC is activated, or a Local Emergency is proclaimed to be eligible for State reimbursement of response-related costs.

Operational Area

An Operational Area is the intermediate level of the State's emergency management organization. It encompasses a county's boundaries and all political subdivisions within that county, including special districts. The Operational Area facilities coordinates information, resources, and decisions regarding priorities among local governments in the Operational Area. The Operational Area serves as the coordination and communication link between the Local Government level and regional level. This concept is reinforced by the Alameda County Operational Area Agreement noted within section 1.4.1 above.

Regional

The Regional level manages and coordinates information and resources among Operational Areas within the mutual aid region and between the Operational Area and the State level. The Regional level also coordinates the overall State agency support for emergency response activities within the Region. California is divided into three California Office of Emergency Services (Cal OES) administrative regions – Inland, Coastal, and Southern. The Regional level operates out of the Regional Emergency Operations Center (REOC).

State

The State level of SEMS prioritizes tasks and coordinates State resources in response to requests from the regional level. It coordinates mutual aid among the mutual aid regions and between the regional level and State level. The State level also serves as the coordination and communication link between the State and the Federal emergency response system. The State level requests assistance from other State governments through the Emergency Management Assistance Compact and similar interstate compacts/agreements. It coordinates with FEMA when Federal assistance is requested. The State level operates out of the State Operations Center (SOC).

3.1.3 ICS

Alameda County responds to disasters using the ICS, which is a primary component of both SEMS and NIMS. This standardized incident management concept allows responders to adopt an integrated organizational structure equal to the complexity and demands of a single incident or multiple incidents without being hindered by jurisdictional boundaries.

ICS is based on a flexible, scalable response organization. This organization provides a common framework which allows people to effectively work together. Since the response personnel may be drawn from multiple agencies that do not routinely work together, the ICS is designed to establish standard **response** and operational procedures. This reduces the potential for miscommunication during incident response.

3.2 Emergency Proclamations

The Board of Supervisors, the Director of Emergency Services, or the Assistant Director has the authority to proclaim a Local Emergency and to request the Governor to proclaim a State of Emergency. The Board must ratify a proclamation within 7 days, review it every 60 days, and terminate it as soon as possible.[1]

[1] Alameda County Administrative Code, Title 2, Chapter 2.118, Section 2.118.110; California Government Code, Emergency Services Act, Section 8630

The County Health Officer has the power to proclaim a local health emergency, as awarded and defined in State law. The Board must ratify a proclamation within 7 days, review it every 30 days, and terminate it as soon as possible.[2]

3.2.1 Purpose

The purpose of a local government emergency proclamation is as follows:

- Authorizes the undertaking of extraordinary police powers
- Provides limited immunity for emergency actions of public employees and governing bodies
- Authorizes the issuance of orders and regulations to protect life and property (e.g., curfews)
- Activates pre-established local emergency provisions such as special purchasing and contracting
- Serves as a prerequisite for requesting a Governor's Proclamation of a State of Emergency and a Presidential Proclamation of a State of Emergency
- Declares an emergency or major disaster

3.2.2 Deadlines

Local governments should be aware of the following deadlines when considering an emergency proclamation:

- An emergency proclamation must be issued within 10 days of the occurrence of a disaster if assistance is requested through the California Disaster Assistance Act.
- The emergency proclamation must be ratified by the Board of Supervisors within 7 days of issuance if issued by an official designated by ordinance.
- Emergency proclamations must be reviewed at regularly scheduled Board of Supervisors' meetings until terminated. Emergency proclamations should be reviewed every 14 days until terminated. No review should wait longer than 21 days from the previous review.
- The emergency proclamation should be terminated when conditions warranting proclamation have ended.

3.2.3 Notification

When issuing a Local Government emergency proclamation, the following notifications should be made:

- Local governments should notify the Operational Area and provide a copy of the local emergency proclamation as soon as possible.
- The Operational Area should notify the Cal OES Region and provide a copy of the proclamation as soon as possible.
- The Cal OES Region notifies the Cal OES State level and is the primary contact between the Cal OES State level, the Operational Area, and the Local Government(s) for updates or on any requests for assistance.
- The Cal OES State level responds in writing to the Local Government(s) concerning the status of any requests for assistance included within the local proclamation or accompanying letter.

[2] California Health and Safety Code, Division 101, Part 3, Chapter 2, Article 2, Section 101080

3.3 Alert, Warning, and Notification

Alameda County uses several systems to communicate with its employees and with the public after a disaster. These systems are identified in the sections below.

3.3.1 Capabilities

Systems of communications used may be damaged or overloaded after an event, making communication difficult. Therefore, several other systems are available:

- AC Alert is the Alameda County mass notification system powered by Everbridge software. Alameda County began implementation of the AC Alert project in 2015 and all 14 cities participated with the County in the program. The AC Alert system is capable of broadcasting messages to large numbers of people through multiple devices including land line, mobile and voice over internet protocol (VoIP) telephones, electronic mail, facsimile, and TTY/TDD. It's an internet-based system that can be launched by an authorized user from any device with internet access.

- In the event of an emergency or disaster, AC Alert messages can be sent to impacted residents. Participating agencies can also broadcast non-emergency community notifications to those who have subscribed to receive them. AC Alert also allows alerts to be posted on Twitter and Facebook. AC Alert is fully compliant with the FEMA Integrated Public Alert and Warning System (IPAWS), including Wireless Emergency Alert (WEA) and Emergency Alert System (EAS).

- WEA – Alameda County is licensed by FEMA to send emergency alerts through the WEA system, which accesses cell phone towers to broadcast alerts to all cell phones within the targeted area.

- EAS – AC Alert has the capability of utilizing the EAS system to send emergency alerts to the public via local media outlets.

- The California Law Enforcement Telecommunications System (CLETS) may be used to contact any public safety agency in the county or state. Access is through public safety dispatch centers.

- Amateur radio frequencies may be used to relay emergency information to other agencies – cities, counties, or state – using amateur radio operators. The Alameda County Sheriff's Communication Team (ACSCT) is a group of amateur radio operators available through County OES.

- The Operational Area Satellite Information System (OASIS) may be used to exchange information between Operational Area EOCs and Cal OES emergency centers. The OASIS system may also be used to make phone calls if the EOC's primary phone system is inoperable.

- The Public Health Department also uses the California Health Alert Network, a rapid and secure communications system among State and local health agencies, health care providers, emergency management officials, and other emergency response partners. It provides the capability to disseminate announcements from local, State, or Federal public health authorities to inform health and medical service personnel of likely or imminent dangers to the health of their community.

3.3.2 Government Notification/Alerts

Each county agency or department is encouraged to develop its own plan to notify employees after an emergency or disaster. If typical communication resources are not available, then KCBS radio can be used via OES.

The Sheriff's Office has a predetermined plan in place for its employees and EOC staff if all communications systems fail to work.

3.3.3 Public Notification/Alerts

The Public Information Officer (PIO) disseminates notifications to the public using standard media outlets, including radio, television, and social media sites like Facebook and Twitter. Additionally, OES manages the AC Alert system which can be utilized for sending public alerts and notifications as outlined in **Section 3.3.1**.

3.4 Continuity of Government

3.4.1 Board of Supervisors

To provide for the continuation of the Board during an emergency, the Board may appoint standby Board members or make necessary appointments, at the time of the emergency, for an official quorum.[3]

3.4.2 County Officials

Depending on the extent of the emergency, the normal County organization may be partially or entirely replaced by an emergency organization, and County officials may or may not be fully occupied with their emergency roles.

3.4.3 Alternate Facilities

The County Board of Supervisors and OES have identified alternate facilities to coordinate emergency response. Those facilities are identified below:

Board of Supervisors

If the Board of Supervisors' chambers in the County Administration Building, Oakland, are unusable, the temporary seat of government shall be:

First Alternate: Planning Commission Hearing Room
399 Elmhurst Street
Hayward, CA 94544

Second Alternate: Alameda County Fairgrounds
Pleasanton, CA 94566

Emergency Operations Center

The EOC is equipped with emergency power generators, radios, telephones, and maps and can be staffed 24 hours per day.

Primary EOC: 4985 Broder Boulevard, Dublin, CA, 94568

3.4.4 Succession

The County Administrative Code requires that the order of succession for the position of the Director of Emergency Services be as follows:

1. Sheriff, Director of Emergency Services

[3] Government Code Section 8637-8641

2. Undersheriff, Assistant Director of Emergency Services
3. Captain, Specialized Services, Sheriff's Office

3.4.5 Vital Records Protection

Vital records are defined as those that are essential to continue government functions and to conduct emergency operations. Furthermore, vital records are necessary for:

- Protecting the rights and interests of individuals, corporations, or other entities. Examples include, vital statistics, land and tax records, license registers, emergency operations plan, and personnel rosters.
- Conducting emergency response and recovery operations. Records of this type include, utility system maps, locations of emergency supplies and equipment, emergency operations plan, and personnel rosters.
- Re-establishing normal governmental functions. Included in this group are government charters, statutes, ordinances, court records, and financial records. Records are available during emergency operations and later for re-establishing normal governmental activities.

  Each level of the government down to the department/agency level is responsible for designating a custodian for vital records and ensuring that vital records storage and preservation is accomplished. Vital records storage and protective methods that might be used to prevent damage or loss include:

- Overhead sprinkler systems
- Fireproof containers
- Vault storage
- Backup of vital computer files

3.5 Training and Exercises

Alameda County has a basic philosophy on training and exercises that lies at the foundation of its Emergency Management Program preparedness. Listed below are some of the policies that Alameda County has institutionalized to promote readiness:

- Individual department exercises are conducted frequently and in accordance with procedures to ensure people remember what to do and how to perform tasks. In addition, repetitive training is necessary for learning. Personnel cannot be expected to learn something once and retain it.
- A quick EOC refresher orientation is provided to responding staff as they arrive during an activation.
- Amateur radio operators and volunteers are engaged during training, exercises, and real-life incidents as much as possible.
- All equipment is checked at least once a month to ensure communication equipment, computers, and other equipment is operational.
- Alert, warning, and notification systems are tested monthly to promote efficient activation in an actual incident.

3.5.1 Training

OES informs County departments, cities, and special districts of training opportunities associated with emergency management. Those agencies with responsibilities under the authority of this plan must ensure their personnel are properly trained to carry out their responsibilities.

3.5.2 Exercises

Exercises are conducted on a regular basis. Exercises should involve County departments and agencies, relevant outside stakeholders, and SEMS level coordination points, to include Region II Mutual Aid Coordinators, the Cal OES Administrative Region, and Operational Area member jurisdictions.

3.5.3 After-Action Review

After an exercise or actual incident, an After-Action Review is conducted, and an After-Action Report (AAR) is developed which identifies areas of strengths and possibilities for improvement. Using the AAR, OES leads a Corrective Action Planning Process to develop an Improvement Plan that assigns improvement tasks to the appropriate responsible agency. This process is in accordance with the guidance found in the Homeland Security Exercise and Evaluation Program.

4 Concept of Operations

This section explains in broad terms leadership intent regarding an emergency response operation. The Concept of Operations describes how the emergency response organization accomplishes its mission. Ideally, it offers transparent methodology to realize the goals and objectives to execute the plan. It includes roles and responsibilities, the organizational element of the overall emergency management program, a brief discussion of the EOC activation levels, and a description of control, direction, and intra- and interagency coordination.

4.1 Roles and Responsibilities

Roles and responsibilities for County departments are described in **Table 4-1**. **Table 4-2** presents Alameda County agencies and their primary and supporting roles. Alameda County maintains a traditional functional EOP format. **Table 4-3** approximately articulates federal and state Emergency Support Functions (ESFs) to terms used locally. This table is meant to reinforce understanding of interagency and intra-agency roles and relationships.

Department	Responsibilities
Sheriff–Coroner	• Serves as the lead agency for the management of fatalities for the Operational Area. • Manages/coordinates the recovery, storage, transport, processing, and final disposition of human remains. • Signs death certificates for all fatalities within its jurisdiction. • Manages and oversees the Family Assistance Center when activated.
Sheriff's Office	• Manages law enforcement activities for the unincorporated and contracted areas of the County • Manages and coordinates evacuations in unincorporated areas of the County • Provides security and perimeter control for critical facilities and other vulnerable emergency response locations • Coordinates law enforcement and Coroner mutual aid for the Operational Area
Environmental Health	• Provides information to the public regarding safe storage of emergency food and water supplies as well as the safe disposal of sewage following a disaster. • Evaluates operation impacts on the environment. • Monitors food and water distribution during disaster response operations.
Board of Supervisors	• Provides direction for the overall Operational Area coordination of Local Emergency response efforts. • Issues proclamation of a Local Emergency. • Approves the EOP and any future revisions. • Makes, enforces, or waives County regulations to facilitate an effective emergency response.
Fire	• Activates USAR teams. • Provides search, rescue, and recovery operations. • Assists with decontamination operations. • Coordinates Fire and Rescue Mutual Aid. • Provides expertise on hazardous materials. • Provides decontamination of people and resources. • Safely disposes of hazardous materials.
Behavioral Health Care Services	• Assesses and activates the response to disaster mental health issues. • Provides mental health counselors to shelter facilities. • Ensures the continuation of care, treatment, and housing for those clients residing within the County mental health system prior to the incident. • Provides counselors at the Family Assistance Center for decedents' family members and response personnel when applicable. • Disseminates information to the community on stress management through the Operational Area JIC.
Office of Emergency Services	• Oversees the Alameda County Emergency Management Program. • Provides emergency management training to key stakeholders. • Coordinates the establishment of the Op Area EOC and JIC. • Initiates warnings and notifications. • Maintains the EOP and the Operational Area EOC.
Public Health	• Provides technical guidance and issues orders through the authority of the Health Officer to protect and preserve the public's health (e.g., to prevent the spread of disease). • Provides information on health surveillance, disease control measures, and risk avoidance.

Emergency Medical Services	• Coordinates with health care facilities and emergency medical response providers. • Coordinates Operational Area Medical/Health Mutual Aid under the function of the Medical/Health Operational Area Coordinator. • Coordinates the mass distribution of pharmaceuticals to prevent or treat disease in response to communicable disease outbreaks or acts of bioterrorism. • Manages the Strategic National Stockpile and Bioterrorism Programs for Alameda County.
Public Works	• Coordinates debris clearance and removal for the County. • Identifies temporary collection and processing sites for debris. • Conducts damage assessments and building inspections for structures under the jurisdiction of the County.
Social Services Agency	• Manages the Care and Shelter Branch in the Op Area EOC to coordinate the activation and operation of emergency shelters throughout the Op Area. • Provides support services at Local Assistance Centers when activated. • May support local governments by providing staff to operate disaster shelters. • Administers public benefit programs and coordinates services available through multiple public assistance programs, including but not limited to: Childcare, General Assistance, Medi-Cal, Housing Assistance, CalFresh, and Supplemental Security Income for disaster victims in need.
General Services Agency	• Manages the logistics section, including all resources and their status for the Operational Area. • Coordinates resources, transportation, facilities, and communication during an activation.
District Attorney	• Provides support to Law Enforcement at mass fatality incidents and to the Family Assistance Center (FAC) when activated. • Provides support and staff as needed to the Medical Health branch with mental/behavioral health needs.
Information Technology Department	• Operates and maintains Data networks and communications systems for all County Agencies. • Ensures all necessary computer systems are functioning correctly to support EOC operations. • Implements measures to secure and safeguard EOC's network infrastructure and data.
Auditor/Controller	• Ensures that approved financial resources are disbursed appropriately, including tracking expenditures and associated costs. • Collaborates with other departments and agencies involved in the emergency response to coordinate financial activities and share relevant information.

Table 4.1 County Departments

ICS Functions	Management							Operations					Plans					Logistics					Finance			
Alameda County Agencies	EOC Director	Section Chiefs	Emergency Manager	Legal Advisor	Public Information Officer	Safety Officer	Liaison Officer	Fire	Law Enforcement	Medical/Health	Care & Shelter	Public Works	Situational Analysis	Documents Unit	Intelligence Unit	Technical Specialist	Advanced Planning Unit	Resource Unit	Personnel/Volunteer Unit	Transportation Unit	Facilities Unit	Communications Unit	Timekeeping Unit	Compensation Unit	Costs Unit	Recovery Unit
Assessor													S													S
Auditor/ Controller																							L	L	L	S
Community Development					S								S				S									S
County Administrator		L			S																		S	S	S	L
County Counsel				L																						
District Attorney									S	S	S															
General Services		L											S					L	S	L	L	L		S	S	
Fire					S			L	S	S			S									S				S
Health Care Services					S				S	L			S													
Human Resources					S														L				S			S
Information Technology Dept.													S		S	S						S				
Library																			S							
Probation									S		S															
Public Works					S			S	S			L	S			S					S					S
Risk Management						L													S							
Sheriff	L	L L	L		L		L	S	L				L	L	L		L					S				S
Social Services					S				S		L		S													
Treasurer																										S

Table 4.2 Agencies with Roles Supporting Alameda County's Emergency Management Program
L = Lead Agency: Responsible for overall management or coordination of a particular function.
S = Support Agency: Responsible for providing support to a particular function, as necessary to carry out response/recovery activities.

County Departments not listed will Support (S) the Personnel & Volunteer Unit by providing Disaster Service Workers (DSWs).

FEMA Emergency Support Function (ESF)	Cal OES Emergency Support Function (ESF)	Alameda County EOC Section and Position	Description
ESF 1 – Transportation	**EF 1** – Transportation	**Logistics Section:** Transportation Unit	Assists in the management of transportation systems and infrastructure during response to incidents or threats.
ESF 2 – Communication	**EF 2** – Communication	**Logistics Section:** Communication Branch	Provides resources, support, and restoration of government emergency telecommunications, including voice and data.
ESF 3 – Public Works and Engineering	**EF 3** – Construction and Engineering	**Operations Section:** Public Works Branch	Organizes the capabilities and resources of the government to facilitate the delivery of services, technical assistance, engineering expertise, construction management and other support to local jurisdictions.
ESF 4 – Firefighting	**EF 4** – Fire and Rescue	**Operations Section:** Fire a Rescue Branch	Monitors the status of fire mutual aid activities. Coordinates support activities related to the detection and suppression of urban, rural, and wild land fires and emergency incidents scene rescue activities and provides personnel, equipment and supplies to support local jurisdictions.
ESF 5 – Emergency Management	**EF 5** – Management	**Management Section:** All Positions **Plans and Intelligence Section:** Plans Chief and Situation Status Branch	Services in an advisory capacity to the EOC Director while providing EOC personnel with guidance. Ensures accurate and timely situational awareness is provided to support staff in the form of a common operating picture.
ESF 6 – Mass Care, Emergency Assistance,	**EF 6** – Care and Shelter	**Operations:** Care and Shelter Branch	Coordinates actions to assist responsible jurisdictions to meet the needs of victims displaced

Housing, and Human Services			during an incident including food assistance, clothing, non-medical care sheltering, family reunification and victim recovery.
ESF 7 – Logistics Management and Resource Support	**EF 7** – Resources	**Logistics Section:** All Positions	Coordinates plans and activities to locate, procure, and preposition resources to support emergency operations.
ESF 8 – Public Health and Medical Services	**EF 8** – Public Health Medical	**Operations Section:** Medical/Health Branch	Coordinates public health and medical activities and services in support of resource needs for preparedness, response and recovery from emergencies and disasters.
ESF 9 – Search and Rescue	**EF 4** – Fire and Rescue	**Operations Section:** Fire Branch	Supports and coordinates response of personnel and equipment to search for and rescue missing or trapped persons. Supports and coordinates response to search for, locate and rescue missing or lost persons, missing and downed aircraft, high angle rock rope rescue and investigations of missing person incidents that may involve criminal acts and water rescues. Supports and coordinates responses to search for, locate and rescue victims of structure collapse, construction cave-ins, trench, confined space, high angle structure rope rescue and similar emergencies and disasters and water rescues.
ESF 10 – Oil and Hazardous Material Response	**EF 10** – Hazardous Materials	**Operations Section:** Fire Branch	Coordinates resources and support the responsible jurisdictions to prepare for, prevent, minimize, assess, mitigate, respond to, and recover from a threat to the public or environment by actual or potential hazardous materials releases.

ESF 11 – Agriculture and Natural Resources	**EF 11** – Food and Agriculture	**Operations Section:** Medical/Health Branch	Support the responsible jurisdictions and coordinates activities during emergencies impacting the agriculture and food industry and support the recovery of impacted industries and resources after incidents.
ESF 12 – Energy	**EF 12** – Utilities	**All Utility Liaisons:** Energy Representatives **Operations Section:** Public/Works Branch	Coordinates with private and public energy services providers to meet energy needs before, during, and after an emergency.
ESF 13 – Public Safety and Security	**EF 13** – Law Enforcement	**Operations Section:** Law Branch	Coordinates law enforcement personnel and equipment to support responsible law enforcement agencies, coroner activities, evacuation, and public safety in accordance with law enforcement plans.
ESF 14 – Long-Term Community Recovery	**EF 14** – Long-Term Community Recovery	**As appointed by EOC Director**	Supports and enable economic recovery of communities in the Operational Area for the long-term consequences of extraordinary emergencies and disasters.
ESF 15 – External Affairs	**EF 15** – Public Information	**Management Section:** Public Information Officer	Supports the accurate, coordinated, timely and accessible information to affected audiences, including governments, media, the private sector, and the local populace, including people with access and functional needs and culturally diverse communities.
N/A	**EF 17** – Volunteer and Donation Management	**Logistics Section:** Logistics Chief, Resource Unit, Personnel/Volunteer Unit	Supports responsible jurisdictions in ensuring the most efficient and effective use of affiliated and unaffiliated volunteers and organizations and monetary and in-kind donated resources to support incidents requiring a response.

N/A	**EF 18** – Cyber Security	**Logistics Section:** Communications Unit	Supports county departments in ensuring secure technological infrastructure and takes measures to protect against the criminal or unauthorized use of County electronic data.

Table 4.3 Local, State, and Federal Crosswalk of Terms & Functions

4.2 Emergency Operations Center (EOC)

The Alameda County EOC is a location from which centralized emergency management can be performed. The use of an EOC to manage and coordinate is a standard practice in emergency management. Furthermore, the activation level of the EOC and associated staffing needs vary based on the specific emergency incident.

4.2.1 Levels of Emergency Incidents/Activations

Table 4-4 describes the EOC activation levels and corresponding staffing requirements.

	Activation Level	Description	Staffing Level
1	Full Activation	EOC Team is activated, including personnel from all assisting agencies, to support the response to a major incident or credible threat. Examples: Major earthquake, large-scale terrorist attack, large wildland fire, or other incident requiring a state proclamation or federal declaration.	For full activation, the EOC is activated, and all or most of the positions are filled. A full activation occurs for the most significant events involving the use of the full scope of County resources and the needs for outside assistance.
2	Enhanced Steady-State/Partial Activation	Certain EOC team members/organizations are activated to monitor a credible threat, risk, or hazard and/or to support the response to a new and potentially evolving incident. Example: local resources are insufficient to manage an incident such as a fire and/or two or more cities have been impacted resulting in the need for local proclamations.	For a partial activation, the EOC is activated, but only some of the positions are filled. This may involve a smaller emergency than a limited number of responders can handle, it might involve the early stages of an expanding disaster, or it might involve the late stages of a response prior to deactivation of the EOC. Staffing needs for partial activations vary depending on the scope of the event and must be adaptable to changing conditions.
3	Normal Operations/Steady State	Activities that are normal for the EOC when no incident or specific risk or hazard has been identified Routine watch and warning activities if the EOC normally houses this function	
*Virtual EOC activations can occur across all EOC activation levels depending on the incident complexity and operational needs. Expenses associated with virtual staff time will be included in disaster cost recovery documentation.			

Table 4-4 EOC Activation and Staffing Levels

It also addresses scenarios that may trigger a particular level of activation. The levels of emergency in California are:

4.2.2 Activation

This section identifies when to activate the EOC and the different levels of activation.

When to Activate

SEMS regulations specify seven circumstances in which the operational area EOC must be activated:

- A local government within the operational area has activated its EOC and requested activation of the operational area EOC to support its emergency operations.
- Two or more cities within the operational area have proclaimed a local emergency.
- The county and one or more cities have proclaimed a local emergency.
- A city, city, and county or county has requested a governor's proclamation of a state of emergency.
- A state of emergency is proclaimed by the governor for the county or two or more cities within the operational area.
- The operational area requests resources from outside its boundaries. This excludes resources used in normal day-to-day operations, which are obtained through existing mutual aid agreements.
- The operational area has received resource requests from outside its boundaries. This does not include resources used in normal day-to-day operations, which are obtained through existing mutual aid agreements.

  While it is not required, Alameda County should also consider activating the EOC if any of the following occur:

- An event occurs or is expected to occur in the operational area that significantly impacts the public health and safety of the population or the environment.
- An event occurs or is expected to occur outside the operational area that is likely to impact the operational area.
- Cal OES makes a request to the operational area to activate.

  When activating the EOC, the responsible official should consider the following as part of the process of activation:

- Determine the scope of the incident or event
- Determine the appropriate level of activation
- Notify/recall EOC staff for activation
- Open the EOC and prepare the facility to host operations

4.2.3 Organization Structure

Each box in **Figure 4-1** corresponds to a role with associated responsibilities. Under the title of the position, the agency or department responsible for staffing the position is identified. Not all the roles are necessary for each EOC activation. In fact, an EOC more frequently activates partially since most incidents do not require all disciplines to respond. Position checklists that identify tasks associated with each position can be found in the EOC Manual.

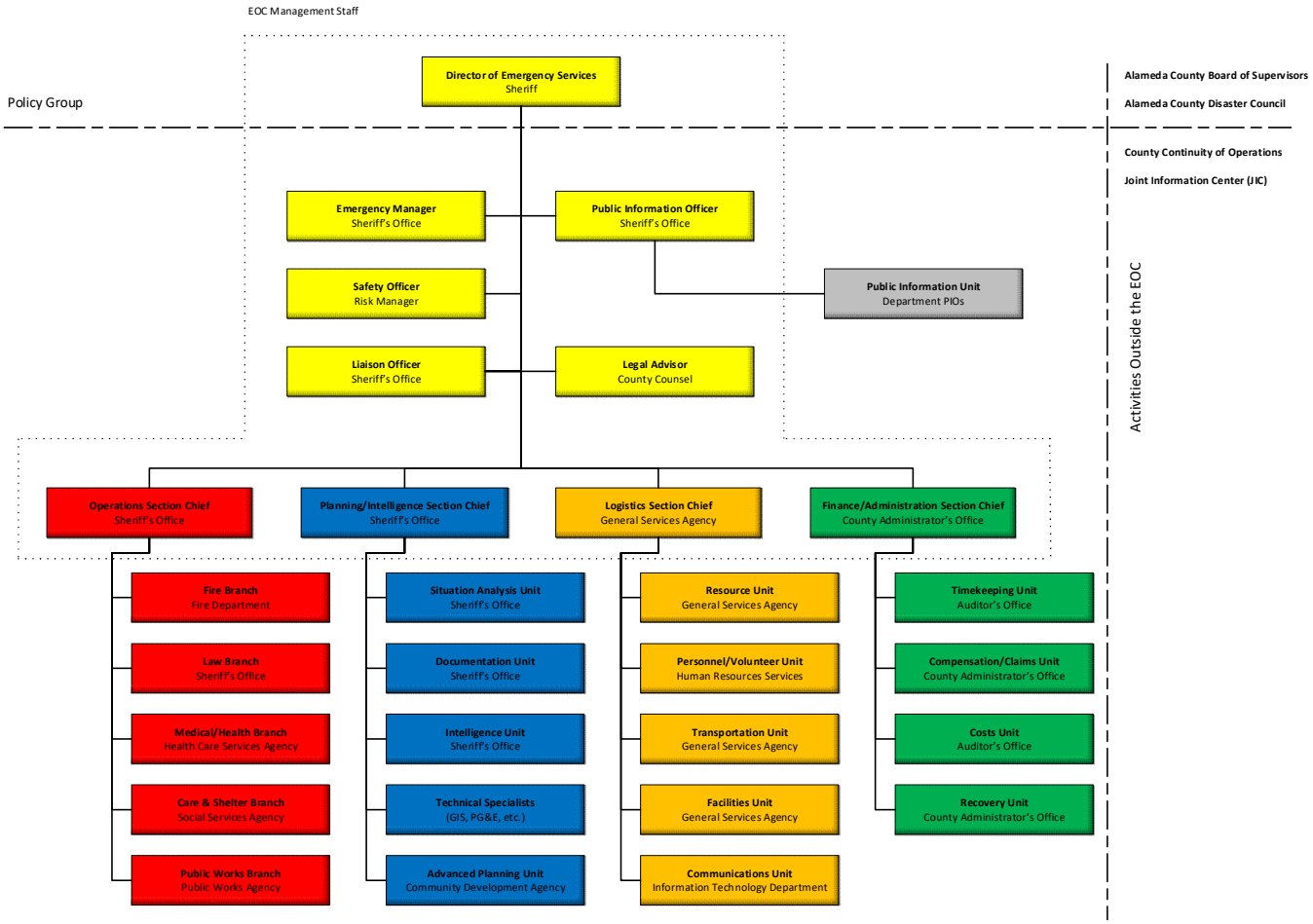


Figure 4-1 EOC Organizational Chart

4.3 Department Operations Centers

Due to the size and complexity of the county's routine business operations, Departments within Alameda County have established Department Operations Centers (DOC) in support of the Emergency Operation Center (EOC). A DOC is dedicated to a single, specific department or agency. The focus of a DOC is on internal agency incident management and response. DOCs are linked to or physically represented in a combined agency EOC by an authorized agent(s) for the department or agency.

4.4 Mutual Aid System

Emergency assistance for Alameda County is based on a statewide mutual aid system designed to ensure that additional resources are provided to the state's political subdivisions whenever their own resources are overwhelmed or inadequate. The basis for this system is the Master Mutual Aid Agreement (MMAA), which is entered into by and between the State of California, its various departments and agencies, and the various political subdivisions, municipal corporations, and public agencies to assist each other by providing resources during an emergency. Alameda County is a signatory to this agreement. The agreement obligates each signatory entity to provide aid to each other during an emergency without the expectation of reimbursement. Under specific conditions, Federal and State monies may be appropriated to reimburse public agencies that aid other jurisdictions. If other agreements, memorandums, and contracts are used to aid, the terms of those documents may affect disaster assistance eligibility, and local entities may be reimbursed only if funds are available.

4.5 Resource Requests

During the response phase, the real-time tracking of incidents and response resources is critical. Resources may be in short supply, and multiple requests for services can occur. Resource requirements for supplies, equipment, vehicles, facilities, or personnel are initially filled from within Alameda County departments. Once internal resources have been exhausted (including inventories on hand and procurement from vendors) or when a shortfall is projected, a resource request based on a needed outcome is submitted by the DOC to its representative at the EOC.

The request is then filled, if possible, by other departments represented in the Operations Section of the EOC. When no internal sources exist to fulfill the resource request, or a shortage is anticipated, the request is forwarded to the Logistics Section via the appropriate EOC representative. The Logistics Section attempts to fulfill the request by procuring the necessary personnel, equipment, services, or supplies first from within existing Alameda County resources and from the private sector or other non-governmental sources.

If resources are exhausted in the Operational Area, requests are routed to the REOC following SEMS protocols or through the established mutual aid system when appropriate. **Figure 4-2** represents the resource request flow as defined by SEMS and the State of California Emergency Plan.

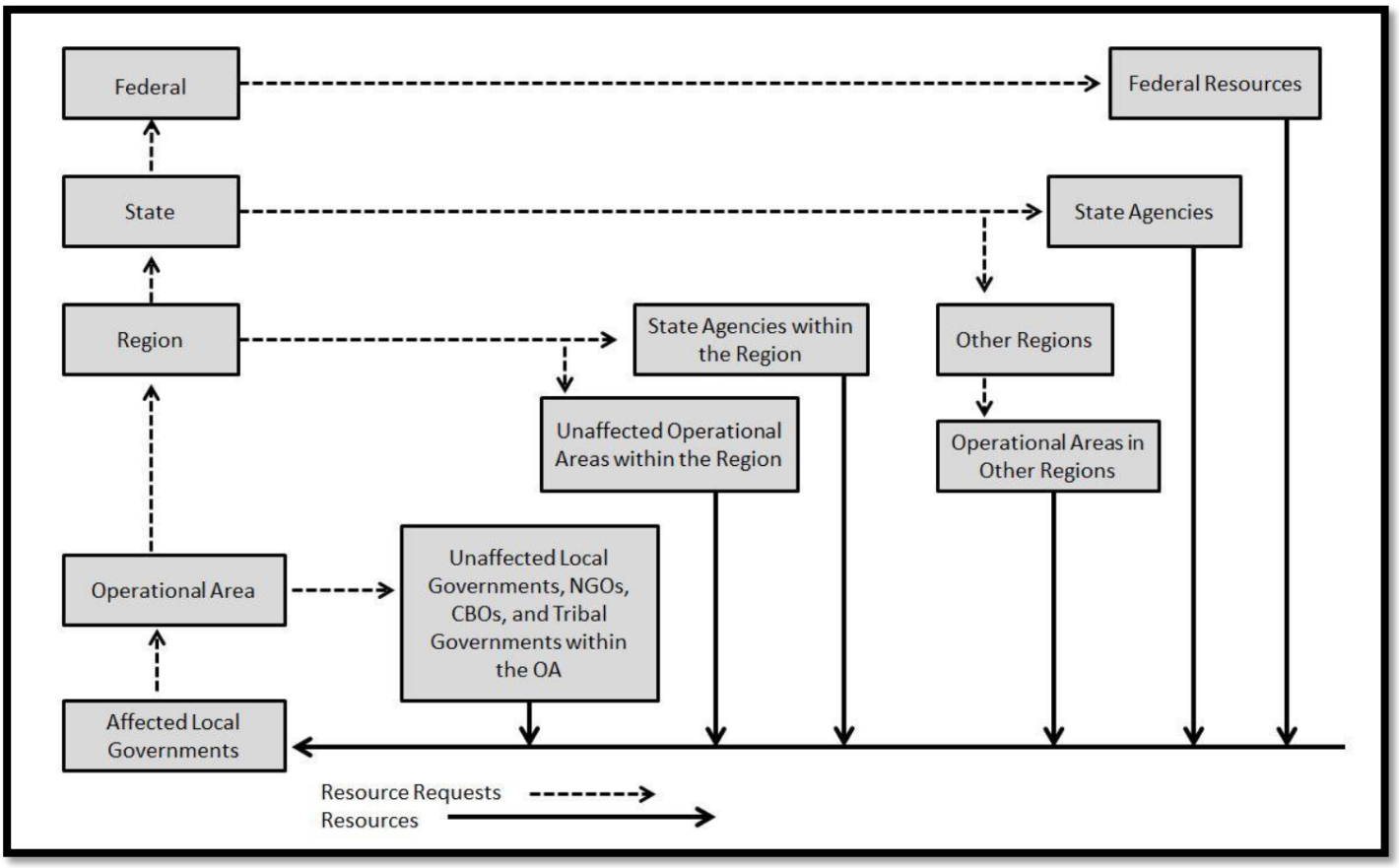


Figure 4-2 SEMS Resource Request Workflow

Resource request flow Note: "Flow of Requests and Resources depicts the resource management process for the State under SEMS. In this model, the affected local government can access all stakeholders at all levels of the system." *Exhibit10-3* (Cal OES, 2017, p.64-65) from the State of California Emergency Plan. [4]

All resource requests made to the Operational Area or to the Region should include the following:

- Clearly describe the current situation
- Describe the requested resources
- Specify the type or nature of the service the resources(s) are providing
- Provide delivery location with a familiar map reference
- Provide local contact at delivery location with primary and secondary means of contact
- Provide the name and contact information for the requesting agency or Mutual Aid Coordinator
- Indicate the time the resource is needed and include an estimate of the duration of use
- For resource requests involving personnel and equipment with operators, indicate if logistical support is required (i.e., food, shelter, fuel, and reasonable maintenance).

[4] Cal OES. (2017). *State of California emergency plan*. https://www.caloes.ca.gov/cal-oes-divisions/planning-preparedness/state-of-california-emergency-plan-emergency-support-functions

4.6 Direction, Control, and Coordination

This section describes the framework for all direction, control, and coordination activities. Additionally, this section identifies who has tactical and operational management of response assets. Furthermore, this section explains how multi-jurisdictional and multi-agency coordination systems support the efforts of organizations to coordinate across jurisdictions while allowing each jurisdiction to retain its authority.

4.6.1 Direction and Control

The Director and the Assistant Director of OES have the power to direct staff and civilian responses in the unincorporated areas of the County and to settle questions of authority and responsibility[7]. If necessary, to protect life and property or to preserve public order and safety, the Board of Supervisors or the Director may promulgate orders and regulations. These must be in writing and must be given widespread publicity[8]. In a proclaimed emergency, the Director may buy or commandeer supplies and equipment and may command the aid of citizens[9].

Additionally, the Governor has the power to suspend State agency orders, rules, or regulations that may impede emergency responses. Generally, local governments do not have this power, except by order of the Governor[10].

4.6.2 Coordinating with Field-Level Incident Command Posts

Under the Incident Command System, Field-level responders organize and coordinate with local government DOCs or EOCs. For Alameda County, functional elements at the field level coordinate with the applicable DOC or EOC branch.

4.6.3 Coordinating with Local Government EOCs

When activated, the Alameda County EOC coordinates with local governments through their activated EOC to facilitate the request and acquisition of resources and to share information. When the Alameda County EOC is not activated, local governments coordinate through the Office of Emergency Services, Operational Area Mutual Aid Coordinators, or through the Dispatch Center.

4.6.4 Coordinating with the State of California

Alameda County OES coordinates with the State of California through the REOC or the Regional Mutual Aid Coordinators. When the REOC is not activated, coordination occurs through the Region's Duty Officer by means of the State Warning Center.

4.6.5 Coordinating with NGOs/Private-Sector Organizations

Non-Governmental Organizations (NGO's), private-sector businesses, and faith-based organizations that provide resources and services in response to an emergency or disaster may be encouraged to provide liaisons to the EOC. The Alameda County EOC has space to facilitate the support of these liaisons.

5 Information Collection, Analysis, and Dissemination

Obtaining situational awareness is one of the most impactful tasks following an incident or catastrophic disaster. Information collection consists of the processes, procedures, and systems to communicate information timely, accurately, and accessibly regarding the incident's cause, size, and current situation to the public, responders, and additional stakeholders – to those directly and indirectly affected. Information must be coordinated and integrated across jurisdictions and across organizations, among Federal, State, tribal, and local governments, and with the private sector and NGOs.

Additionally, education strategies and communications plans help to ensure that lifesaving measures, evacuation routes, threat and alert systems, and other public safety information are coordinated and communicated to numerous audiences in a timely, consistent manner. Like obtaining situational awareness, public information includes processes, procedures, and organizational structures required to gather, verify, coordinate, and disseminate information.

Alameda County utilizes a web-based emergency management system" to provide emergency management personnel with real-time access to critical information during an emergency. The application tracks, manages resources, coordinates response efforts, communicates with Operational Area partners, and shares information with the public. Its purpose is to provide the Operational Area, region, and CalOES with a common operating picture.

5.1 Information Collection

Information is collected after an incident or catastrophic disaster to gain situational awareness. Information is gained from field-level responders through inspection of infrastructure and facilities, "windshield surveys" which are used to acquire damage assessments and the potential for human causalities, and status calls and situation reports from other agencies at each governmental level.

5.2 Analysis

All information acquired by Alameda County should be analyzed and confirmed prior to disseminating it further and prior to providing direction to staff or making other decisions based on the information. As part of the analysis, information should be dated, given a credibility rating, and compared to other information collected for the same or similar subject matter.

5.3 Community Lifelines

FEMA's Community Lifelines (CL) are a set of essential services and functions that are essential to support communities during all phases of an emergency or disaster. The CL concept provides a framework for organizing and prioritizing critical needs during emergencies, and it serves as a basis for coordination between the public and private sectors. Figure 5-1 below illustrates CLs:

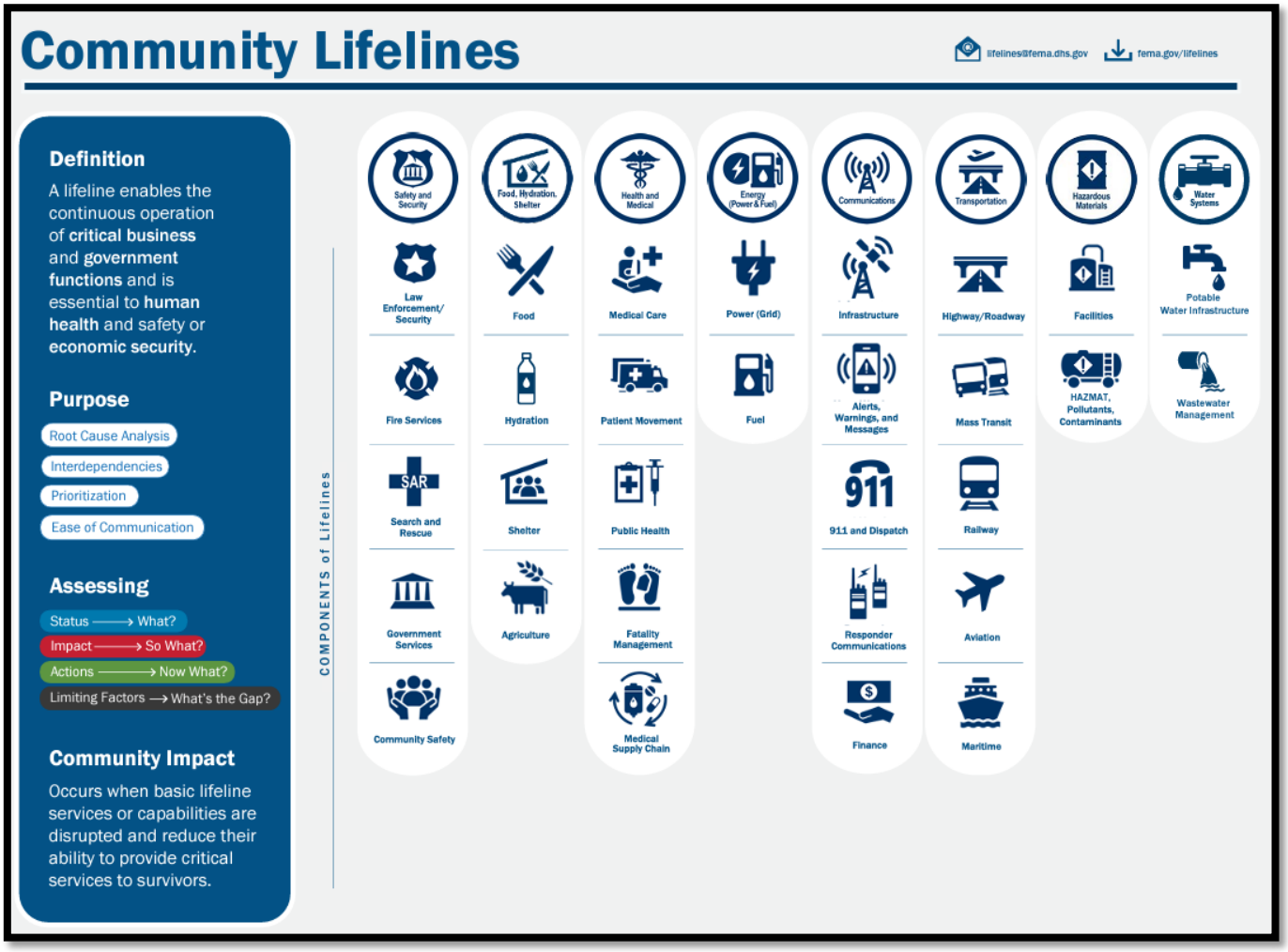


Figure 5-1 Community Lifelines, FEMA 2023

To assess the effectiveness of the CL framework, FEMA has evaluated several exercises and real-world disaster responses at the local, state, and federal levels. Alameda County strives to integrate CL into their emergency management plans, including training and exercises, and emergency operations centers (EOCs). Primarily, Alameda County leverages partnerships with the private sector and non-governmental organizations through the Emergency Management Association (EMA) of Alameda County, local and regional Volunteer Organizations Active in Disaster (VOAD), and Municipal Advisory Councils (MACs) to ensure coordination and collaboration during emergencies.

5.4 Dissemination

Information for the public is disseminated through several mechanisms under the control of the Sheriff's Office.

5.4.1 Public Information Officer

Public Information Officers (PIOs) support their agency's director. In respect to emergency management, the lead PIO supports the EOC Director or the Incident Commander in the field as a member of their command staff. The PIO advises leadership on all public information matters relating to the management of the incident. The PIO handles inquiries from the media, the public, and elected officials, emergency public information and warnings, rumor monitoring and response, media monitoring, and other functions required to gather, verify, coordinate, and disseminate accurate, accessible, and timely information related to the incident, particularly regarding information on public health, safety, and protection.

5.4.2 Joint Information System

The Joint Information System (JIS) is the broad mechanism that organizes, integrates, and coordinates information to ensure timely, accurate, accessible, and consistent messaging activities across multiple jurisdictions and/or disciplines with the private sector and NGOs. It includes the plans, protocols, procedures, and structures used to provide public information. Federal, State, tribal, territorial, regional, local, and private sector PIOs and established Joint Information Centers (JICs) at each level of SEMS are critical elements of the JIS.

5.4.3 Joint Information Centers

The JIC is a central location that facilitates operation of the JIS. It is where personnel with public information responsibilities from multiple agencies, departments, and other local governments perform the critical functions of emergency public information and crisis communications. JICs may be established at various levels of the government, or can be components of the Federal, State, tribal, territorial, regional, or local multi-agency coordination (MAC) groups or EOCs. Incident dependent, a JIC can be established at the Field level to support the incident commander. For incidents requiring the activation of the EOC, Alameda County establishes a JIC to coordinate public messaging for the Operational Area.

5.4.4 Message Development and Approval

The JIC allows subject matter experts working in support of the County's response efforts to ensure all information disseminated to the public, or other agencies and organizations, is effective and consistent. Working collaboratively within the JIC, PIOs can better combat rumors, correct inaccuracies, minimize misinformation, and maintain consistency in messaging. In most cases, the responsibility for approval of a public message lies with the head of the agency that is responsible for its release.

5.4.5 Methods of Dissemination

Alameda County uses various mechanisms to disseminate public information. Among them are newspapers, television, radio, social media, and AC Alert. Additional methods are used for those with access and functional needs.

6 Recovery Operations

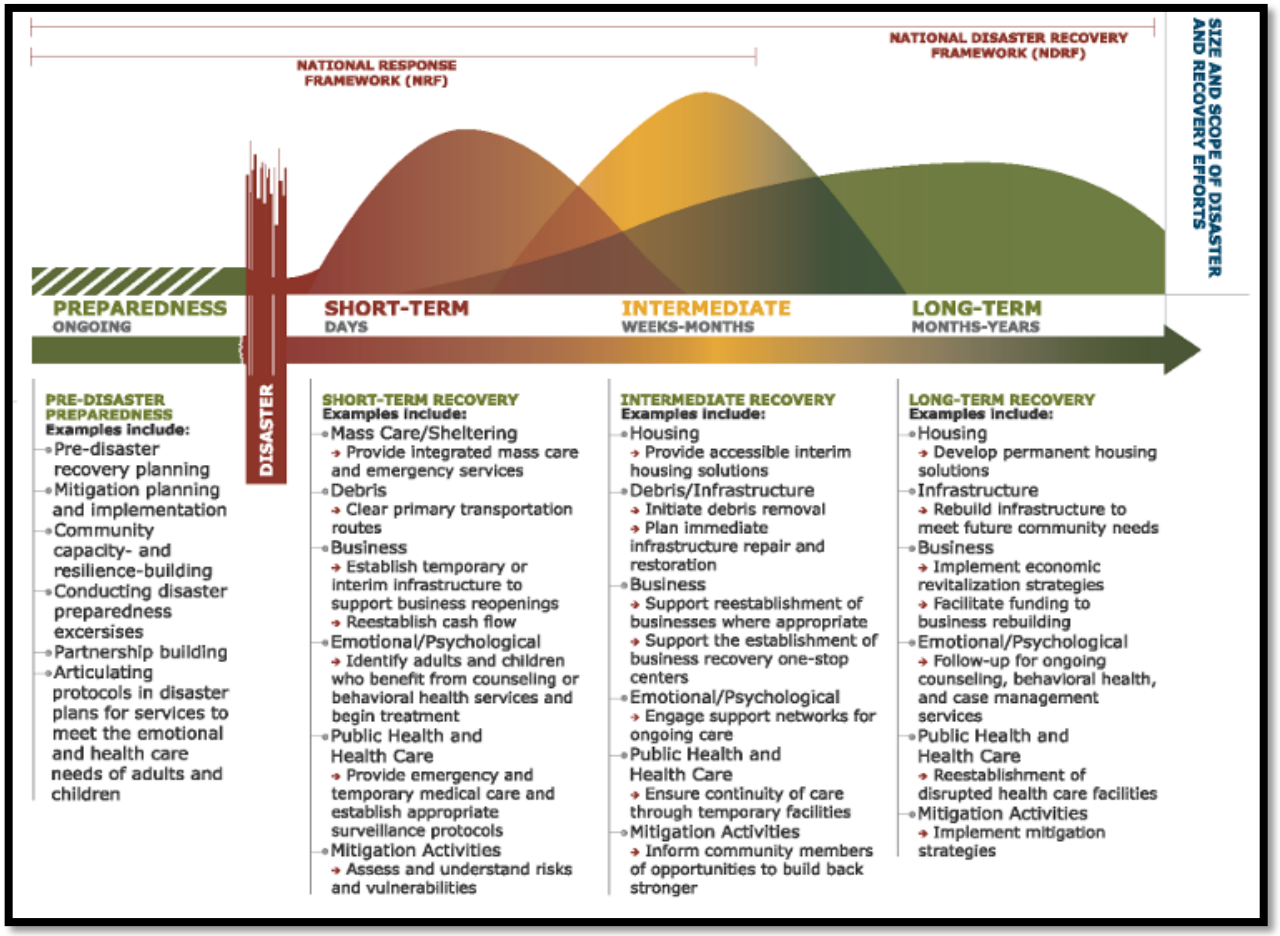
Although no single definition fits all situations, successful recoveries share similar benchmarks, which includes:

- Successfully overcoming the physical, emotional, and environmental impacts of the disaster
- Reestablishing an economic and social base that instills confidence in community members and businesses regarding community viability
- Integrating the functional needs of all residents, thereby reducing its vulnerability to all hazards facing it

- Demonstrating the capability to be prepared, responsive, and resilient in dealing with the consequences of disasters
- To achieve these conditions, Alameda County has adopted the following recovery objectives from the Regional Emergency Coordination Plan Recovery Subsidiary Plans:
- Restoration of basic hospital services and other facilities that provide medical care to the community
- Facilitation of the transition of displaced populations from shelters to interim and long-term housing arrangements and ensuring social services
- Facilitation of the resumption of employment and economic activity of small businesses in neighborhoods and downtowns as well as national and international businesses located in the region
- Identification of repairs that can immediately be implemented and long-term restoration needs of critical infrastructure such as transportation, communications, and utilities to enable the resumption of basic services
- Resumption of the delivery of a full range of government services
- Resumption of the functioning of educational systems
- Development of a comprehensive plan for rebuilding that is consistent with regional policies and priorities, including focused development, environmental sustainability, equitable use of resources, and historic preservation
- Coordination of funding resources for recovery efforts, including State and Federal assistance programs
- Facilitation of restoration of the region's economy, including sectors as financial services, shipping, and manufacturing
- Establishment by local governments and regional entities of their own objectives for recovery, depending on the specific effects of a disaster in their respective jurisdictions.
- Initiation of the process for long-term recovery

6.1 Phases of Recovery

The phases of recovery, or the "recovery continuum," as FEMA refers to them, offer a process of interdependent and often concurrent activities that seek to progressively advance a community toward a successful recovery. However, decisions made, and priorities set early in the recovery process by a community have a cascading



effect on the nature and speed of the recovery progress. **Figure 6-1** indicates how response and recovery functions are related and describes overlapping recovery activities by phase.

Figure 6-1. Recovery Continuum

Note: "The recovery process is best described as a sequence of interdependent and often concurrent activities that progressively advance a community toward a successful recovery. However, decisions made, and priorities set early in the recovery process by a community will have a cascading effect on the nature and speed of the recovery progress. Figure [6.]1 indicates how response and recovery functions are related in example sectors." *Recovery Continuum – Description by Phase* (FEMA, 2011, p. 8) figure from the National Disaster Recovery Framework: Strengthening Disaster Recovery for the Nation.

6.1.1 Short-Term

Recovery operations begin concurrently with, or shortly after, the commencement of response operations. The Short-Term Recovery Unit in the Planning section is charged with facilitating short-term recovery activities. The Short-Term Recovery Unit should be staffed with personnel from agencies with primary responsibilities in the

EOC. Additionally, short-term recovery activities typically, occur within 90 days of the incident, but may continue beyond that point. Short-term recovery actions include:

- Stabilizing the situation
- Restoring essential services
- Commencing the process of restoring the community and economic functions

Recovery operations are transitioned from the EOC to County departments based on their functional responsibilities. These departments coordinate recovery functions as part of their daily mission. Recovery activities, typically, comprise of:

- Damage assessment
- Debris removal
- Restoration of utilities, such as water and power services
- Restoration of basic transportation services and routes
- Provision of temporary housing
- Disaster-related social services

6.1.2 Intermediate (Mid-Term)

Intermediate or mid-term recovery involves returning individuals, families, critical infrastructure, and essential government or commercial services to a functional, if not pre-disaster, state. Such activities are often characterized by temporary actions that provide a bridge to permanent measures. During the intermediate period, it is essential that long term objectives are prioritized and agreed upon by the recovery operations group. The type of work in the intermediate recovery period falls under Type A and B, which are debris removal and protective measures respectively. Typically, these timelines fall within 6 months of the incident, but these projects could be extended.

6.1.3 Long-Term

Long-term recovery consists of activities necessary to restore a community to its pre-disaster state from the impacts of a major disaster. Long-term recovery requires significant planning to maximize opportunities and mitigate risks after a major incident. Long-term recovery can continue for years and may include the following:

- Reconstructing public and private facilities and infrastructure
- Planning and rebuilding of housing
- Implementing waivers, zoning changes, and other land-use legislation to promote recovery
- Providing long-term assistance to displaced families, including financial support as well as social and health services
- Restoring the local economy to pre-disaster levels
- Integrating mitigation strategies into rebuilding efforts
- Recovering disaster-related costs for infrastructure restoration through Federal grant programs

These types of work projects, which fall under Types C through G, are categorized as permanent work and are typically completed within 18 months:

- Type C: Roads and Bridges
- Type D: Water Control Facilities
- Type E: Buildings and Equipment
- Type F: Publicly owned Utilities
- Type G: Parks and Recreation and Other

6.2 Roles and Responsibilities

Responsibility for supporting recovery efforts in Alameda County after a disaster is shared among several agencies from each level of government. Because recovery efforts are shared among several county agencies, the Recovery Unit will be staffed by personnel from several departments from thein EOC operations section. Recovery for Alameda County is more complex because it relies on resources shared by other counties in the region, like transportation systems and infrastructure, and an employee base that commutes into and out of the county. To facilitate the progressive advancement towards recovery, all levels of government must effectively coordinate and prioritize activities and funding.

6.2.1 Cal OES Recovery Branch

The Cal OES Recovery Branch is responsible for managing disaster recovery and aiding local governments and individuals impacted by disasters. The Recovery Branch ensures that the State and Federal support are provided in an efficient and timely manner throughout the recovery process. The Recovery Branch acts as the grantee for Federally funded disaster assistance programs, as grantor for the California Disaster Assistance Act program, and coordinates recovery assistance for individuals, businesses, and the agricultural community. The Recovery Branch provides technical support to reduce the costs and streamline the process of future recovery efforts. Additionally, the Recovery Branch ensures that proposed recovery projects are reviewed for environmental concerns and that historical preservation activities are considered.

In support of these responsibilities, the Recovery Branch performs extensive liaison activities with local, State, and Federal agencies, legislators, various volunteer and nonprofit organizations, and the public. The Recovery Branch emphasizes recovery preparedness through the coordination of recovery planning efforts, the development of recovery training programs, and the involvement in emergency management exercises and drills.

6.2.2 FEMA Emergency Support Function #14

Emergency Support Function #14, Long-Term Recovery (ESF #14), is coordinated by the Department of Homeland Security and FEMA. ESF #14 has the following responsibilities:

- Develops coordination mechanisms and requirements for post-incident assessments, plans, and activities that can be scaled to incidents of varying types and magnitudes
- Conducts impact evaluation of prior ESF #14 efforts and other studies to improve future operations
- Facilitates development of national long-term recovery strategies and plans in coordination with other relevant Federal departments and agencies that have independent authorities and responsibilities for addressing key issues regarding catastrophic incidents. These may include accessible housing, large displacements of individuals (including those with access and functional needs, contaminated debris management, decontamination and environmental restoration, restoration of public facilities and infrastructure, and restoration of the agricultural sector.
- Develops plans, procedures, and guidance delineating appropriate agency participation and available resources, considering the differing technical needs and statutory responsibilities

6.3 Recovery Organization

As previously described, the emphasis of local, state, and Federal activities shifts from response to relief and short-term recovery as the requirements to save lives, protect property, and protect public health and safety diminishes. During this phase, Alameda County will transition recovery planning out of the Recovery Unit of the EOC to an Operational Area Recovery Task Force. Consequently, OES has a diminishing role in recovery activities as the recovery proceeds.

6.4 Operational Area Recovery Task Force

To facilitate the integration of recovery efforts in the Operational Area and promote the effective use of available resources, the County may establish an Operational Area Recovery Task Force. The Operational Area Recovery Task Force should consist of members of the community, the private sector, NGOs, local governments, special districts, and State and Federal agencies with roles in supporting recovery in the Operational Area.

6.5 State and Federal Integration

Both the State and Federal governments provide disaster assistance. Emergency proclamation thresholds and resource requests typically determine the amount of assistance required. When the State and Federal government assists, they typically do so through the following assistance programs:

6.5.1 Local Assistance Center

A Local Assistance Center (LAC) is a centralized location where individuals and families can access available disaster assistance programs and services following a disaster. Local, State, and Federal agencies, as well as nonprofit and voluntary organizations, may provide staff at the centers. The Federal Government may open separate assistance centers through which only the services of Federal programs are offered.

In cooperation with Cal OES Recovery, the County assesses the need for a LAC and will establish them as required. Based on the assessed needs, Cal OES Recovery ensures that an appropriate number of LACs are established. They also coordinate the participation of State and Federal agencies at the centers. Not all areas affected by an incident require LACs. Cal OES Recovery may provide financial support to the County for the operation of LACs through the California Disaster Assistance Act.

6.5.2 Disaster Recovery Centers

Disaster Recovery Centers (DRC) are like LACs in that they provide aid to affected community members. DRCs are managed by FEMA and the State to offer financial support through programs described below and may be co-located in LACs.

6.5.2 Federal Assistance Programs

The Federal government relies primarily on the following programs to aid State and local governments.

Direct Federal Assistance

At the request of the state, FEMA coordinates direct Federal assistance to State and local governments through designated ESFs.

FEMA coordinates the activities of ESF #14 with Cal OES through the Joint Field Office. Through ESF #14, Federal agencies help affected communities identify recovery needs and potential sources of recovery funding and provide technical assistance in the form of recovery planning support. ESF #14 leverages and increases the effectiveness of Federal recovery assistance through coordination and collaboration among Federal agencies and

local communities. Working with local governments, Cal OES identifies communities for which this mechanism is necessary.

Recovery Programs

Under the Stafford Act, FEMA coordinates Federal recovery programs, which may include:

Assistance for individuals and families through the Individual and Household Program, including provision of temporary housing

Assistance to State and local governments and certain private nonprofit organizations for extraordinary costs related to response, removal of debris, and damage to buildings and infrastructure through Public Assistance Program

Assistance to State and local governments through the Hazard Mitigation Grant Program for measures to reduce damage from future disasters

Other Federal Programs

Other Federal agencies may implement non-Stafford Act recovery programs, or programs authorized under disaster-specific legislation. For example:

The Small Business Administration provides low-interest loans for repairing damaged homes and damaged businesses.

The Federal Highway Administration provides funding to the State and local governments for the restoration of damaged roads, bridges, and other features that are part of the system of Federal-aid routes.

Delivery of Federal Assistance Programs

FEMA coordinates Stafford Act programs, such as the Public Assistance Program, with Cal OES through the Joint Field Office. Coordination of other programs, such as the Emergency Relief Program, may occur outside the Joint Field Office. Federal funding for these programs, such as the Public Assistance Program, may pass through the state, or it may be delivered directly to recipients, such as assisting people through the Individual Housing Program. However, these programs generally are not implemented through SEMS. For example:

A city public works department seeking assistance for repairs to damaged infrastructure applies for Public Assistance funding through Cal OES to FEMA and works directly with Cal OES and FEMA to obtain that funding.

A county transportation department seeking assistance for repairs to a Federal-aid route applies for Federal Highway Administration Emergency Relief Program funding through Caltrans and works directly with Caltrans to obtain that funding.

7 Plan Development and Maintenance

The EOP is developed under the authority of the Board of Supervisors. It is a living document, subject to revision based on agency organizational changes, new laws or guidance, and experience obtained from exercises or responding to real events. Section 7 describes the plan development and maintenance process for keeping the EOP current, relevant, and in compliance with SEMS, NIMS, and other applicable instructions.

7.1 Development and Maintenance Responsibilities

OES is responsible for the development and maintenance of the EOP. Each County department/agency tasked with a functional responsibility is charged with developing and maintenance of its portions of the EOP, which include the annexes.

7.2 Development Process

The initial development and new material will follow basic guidelines for strategic planning. The process is led by OES drawing on community-based values and customs while incorporating stakeholders and community representatives from diverse populations within Alameda County to assist in the development of the EOP. Stakeholders and representatives participate in functional work groups to generate material for the EOP which will address the considerations and integration of AFN and cultural diversity within the county. OES combines the contributions of these stakeholders and other subject matter experts to develop the draft EOP. The draft EOP will be reviewed, comments addressed, and edits made as necessary. OES will produce the final EOP. The involvement of Stakeholder, AFN, and community representatives' is key to developing a comprehensive EOP that is useful, applicable, consistent with best practices, while also protecting and accommodating vulnerable populations.

7.3 Revision and Maintenance Process

A review of the EOP is conducted annually to ensure the plan elements are valid, current, and remain in compliance with SEMS, NIMS, and other instructions. Like the development process, each of the responsible department/agency reviews and updates its portion of the EOP and appropriately modifies its standard operation based on deficiencies identified during exercises or real events. All revisions to the EOP are documented in the Record of Changes at the front of the plan.

8 Acronyms

AFN	Access & Functional Needs
Cal OES	California Office of Emergency Services
CAL FIRE	California Department of Forestry and Fire Protection
CBRNE	Chemical, Biological, Radiological, Nuclear & high yield Explosives
CFR	Code of Federal Regulations
CL	Community Lifelines
DOC	Department Operations Center
DRC	Disaster Recovery Center
EMA	Emergency Management Association
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESF#14	Emergency Support Function #14, Long-Term Recovery
FEMA	Federal Emergency Management Agency
ICS	Incident Command System
JIC	Joint Information Center
JIS	Joint Information System
LAC	Local Assistance Center
M	Moment magnitude
MAC	Multi-agency coordination
MMAA	Master Mutual Aid Agreement (California Disaster and Civil Defense)
NCDC	National Climatic Data Center
NGO	Non-governmental organization
NIMS	National Incident Management System
NRC	Nuclear Regulatory Commission
OES	Office of Emergency Services
PIO	Public Information Officer

PSPS	Public Safety Power Shutoff
REOC	Regional Emergency Operations Center
SEMS	Standardized Emergency Management System
USGS	United States Geological Survey
WUI	Wildland/Urban Interface