ALAMEDA COUNTY
EMERGENCY OPERATIONS PLAN

December 2012

Alameda County Sheriff's Office
Of Homeland Security and Emergency Services

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Record of Changes

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

Change No.	Description	Date Entered	Posted By

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Board of Supervisors

Nathan A. Miley
Supervisor, District 4

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Letter of Promulgation

Approval Date: December 18, 2012

To: Officials, Employees, and Citizens of Alameda County

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

While no plan can completely prevent death and destruction, good plans carried out by knowledgeable and well-trained personnel can and will 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.

The objective of this plan is to incorporate and coordinate all the facilities and personnel of the County and Operational Area member jurisdictions into an efficient organization capable of responding effectively to any emergency.

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

The Alameda County Board of Supervisors gives its full support to this plan and urges all 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 and 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.

Nate Miley, President
Alameda County Board of Supervisors

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Concurrence of County Departments/Agencies

The following departments of Alameda County concur with the content of the revised (2011) Alameda County Emergency Operations Plan. As needed, revisions will be submitted to the Alameda County Sheriff's Office of Homeland Security and Emergency Services.

Signed:

Donna Ziegler, County Counsel — Date Signed: 9/25/12

Susan S. Muranishi, County Administrator — Date Signed: 9/23/12

Gregory Ahern, Sheriff — Date Signed: 10/9/12

Nancy O'Malley, District Attorney — Date Signed: 9.25.12

Demetrious N. Shaffer, Interim Chief, Fire Department — Date Signed: 10-4-12

Aki Nakao, Director, General Services Agency — Date Signed: 9/25/12

Mary Welch, Interim Director, Human Resource Services — Date Signed: 9/25/12

Daniel Woldesenbet, Director, Public Works — Date Signed: 9/25/12

Alex Briseno, Director, Health Care Services — Date Signed: 10/4/12

Lori Jones, Director, Social Services — Date Signed: 9/24/12

Diane Bellas, Public Defender — Date Signed: 9/25/2012

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1. Introduction

Alameda County is located 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 very near. Alameda County also has within its boundaries the crossroads of major highway, air, sea, and rail transportation routes that overlay commercial areas of diverse businesses, industries, and clusters of residential areas with large populations.

The Alameda County Office of Homeland Security and Emergency Services (OHSES; see **Appendix A** for a Glossary of all terms used in this report) 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, destruction to property, and damage to the environment; 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 in an efficient and effective way. This section of the EOP provides a description of the EOP's intended audience, the method of distribution, the approval process, and its applicability to other plans.

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) that are 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 members of the public.

1.2 Distribution

The Alameda County OHSES prepares, coordinates, publishes, and distributes the EOP and any revisions made to it. 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, some of which are also identified in **Table 1-1**.

Table 1-1. EOP distribution.

County Departments/Agencies	Incorporated Cities	Special Districts and Other Organizations
County Administrator	City of Alameda	Bay Area Rapid Transit
County Counsel	City of Albany	Water Emergency Transportation Authority
Emergency Medical Services	City of Berkeley	AC Transit
Environmental Health	City of Dublin	East Bay Municipal Utilities District East Bay Regional Parks District Alameda County Water District
Fire Department	City of Emeryville	Metropolitan Transportation Commission
General Services Agency	City of Fremont	American Red Cross
Housing and Community Development	City of Hayward	Collaborating Agencies Responding to Disasters Eden Information and Referral (211)
Health Care Services	City of Livermore	California Emergency Management Agency
Human Resources	City of Newark	—
Planning	City of Oakland	—
Public Health	City of Piedmont	—
Public Works	City of Pleasanton	—
Risk Management	City of San Leandro	—
Social Services	Union City	—
Public Defender Office of Education	—	—
Behavioral Health Sheriff–Coroner	—	—
District Attorney	—	—

Source: URS analysis, 2011.
— = Not applicable

In addition to the EOP recipients listed in **Table 1-1**, the EOP can also be accessed on the OHSES web page.

1.3 Promulgation and Approval

This EOP will be reviewed by all departments/agencies assigned a primary function in the County's emergency management organization, as defined in this EOP. An approved EOP gives both the authority and the responsibility to organizations to perform their tasks, formalizing their responsibilities with regard to preparing and maintaining their own procedures/guidelines that commit them to carrying out the training, exercises, and plan maintenance necessary to support the EOP. Concurrence regarding details contained in the EOP is documented using the concurrence agreement, which is included in the Preface of this EOP. A signature from the designated head of each department confirms that the department has read the EOP

and has no conflicts with its content at the time of publishing. Upon review and written concurrence by the departments/agencies, the EOP is submitted to the California Emergency Management Agency (Cal EMA) for review and then to the Alameda County Civil Defense and Disaster Council for review and approval. Upon approval by the Council, the EOP is officially adopted and promulgated by the County Board of Supervisors. A letter of promulgation is located 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 polices 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 January 24, 1995

1.4.2 State of California Authorities

The following State of California plans and polices 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 EMA, 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 may be selectively promulgated by the Governor during a State of Emergency
- Orders and Regulations that may be selectively promulgated by the Governor 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 polices stand as authorities directing the Alameda County emergency management program:

- Robert T. Stafford Emergency Disaster Relief and Emergency Assistance Act (42 United States Code [USC] §§ 5121 et seq.)
- 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)
- 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 Access and Functional Needs Populations

Alameda County is committed to ensuring that considerations are made for those with access and functional needs at every stage of the emergency management process. Caring for access and functional needs populations in a disaster is part of the responsibilities of each leader in the emergency management organization; see **Section 4.2.3** and supporting annexes of the EOP. In addition, the County maintains compliance with the Americans with Disabilities Act.

Access and functional needs populations may have additional needs before, during and after an incident in functional areas, including but not limited to: communication, medical care, maintaining independence, supervision, and/or transportation. Individuals in need of additional response assistance may include: those who live in institutionalized settings, older adults, children, those from diverse cultures, those who have limited English proficiency or are non-English-speaking, and/or those who are transportation disadvantaged.

To provide the best service to our citizens during a disaster, the County follows the guidelines below.

- The County will make every reasonable effort to see that persons 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 of any sort to special populations or those with disabilities.
- Alameda County will work to accommodate those with access and functional needs in the most integrated setting appropriate to their needs.
- Alameda County will attempt to house those with access and functional needs with their families, friends, and/or neighbors when in shelters and they will not be diverted to special shelters.
- 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.

1.6 Relationship and Applicability to Other Plans/References

The EOP consists of a basic plan and functional and hazard, threat, or incident-specific annexes. These annexes, based on their inclusion in the EOP, have direct applicability and are consistent with the concepts described within it. A list of annexes to the EOP along with the agency responsible for maintaining the annex can be found in **Table 1-2**.

Alameda County agencies and departments have developed various other emergency plans. While not formal annexes to the EOP, they serve to support the annexes by providing further specificity and often field-level guidance or direction. A diagram of all Alameda County emergency preparedness plans can be found in **Appendix B**.

Additionally, each incorporated city in the county has an EOP. The EOPs, while not directly linked to the County EOP, are applicable and should maintain consistency with the concepts and structures defined by it. In order to maintain consistency with local governments in Alameda County, OHSES offers to periodically review local government EOPs.

Table 1-2. Annexes to the Emergency Operations Plan.

Annex Title	Topics	Responsible Agency
Alameda County Catastrophic Earthquake Donations Management Plan	• Coordination of monetary and in-kind donations • Allocating, tracking, and requesting donations • Warehousing and distribution of donations	General Services Agency
Alameda County Sheriff's Office Coroner's Bureau Catastrophic Earthquake 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–Coroner
Alameda County Catastrophic Earthquake Transportation and Evacuation Plan	• County evacuation guidance • Time-based objectives for transportation and evacuation activities • Catastrophic earthquake scenario impacts and assumptions	Office of Homeland Security and Emergency Services
Alameda County Operational Area Volunteer Coordination Plan	• Volunteer coordination from the perspective of the Operational Area • Emergency Volunteer Centers • Public information • Risk management	Office of Homeland Security and Emergency Services
Alameda County Operational Area Care and Sheltering Plan	• Roles and responsibilities for coordinating care and shelter activities • Shelter locations, resources, and services • Shelter types	Alameda County Social Services Agency
Alameda County Public Works Disaster Waste Management Plan	• Debris goals, objectives, policies, and implementation strategies • Disaster scenarios • Resource inventory	Alameda County Waste Management Authority
Alameda County Public Works Catastrophic Earthquake Debris Management Plan	• Time-based priorities and objectives • Disaster impacts, constraints, and needs • Debris removal activities	Alameda County Waste Management Authority
Alameda County Human Evacuation Plan	• Roles and responsibilities • Public notification, alert, and warning • Evacuation and re-entry	Alameda County Sheriff's Department
Alameda County Emergency Hazardous Materials Plan	• Roles and responsibilities for hazardous materials emergencies	Alameda County Environmental Health Department
Alameda County School Emergency Plan	• Schools identified as shelters • Coordinating with schools and school districts • Incidents involving schools • Communications	Alameda County Office of Education
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	Alameda County Health Care Services
Alameda County Countywide Terrorism Response Plan	• Protocols and procedures for responding to terrorist attacks in Alameda County	Sheriff–Coroner
Alameda County Bioterrorism Response Plan	• Protocols and procedures for responding to bioterrorist attacks in Alameda County	Alameda County Public Health Department

Source: URS analysis, 2011.

2. Purpose, Scope, Situation Overview, and Planning 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 provides a description of the emergency management organization and how it is activated. It also addresses the following issues:

- Identifies the 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 disaster 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, as applicable
- Identifies supporting plans and procedures applicable to the EOP but part of plan annexes or appendices
- 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:

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

4. **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 those with access and functional needs often presents 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. Therefore, decision makers should consider access and functional needs when ranking resource requests.

2.3 Scope

The EOP addresses the entire spectrum of contingencies, ranging from relatively minor incidents to large-scale disasters. All departments and agencies must be prepared to promptly and effectively respond to any foreseeable emergency, taking all appropriate actions. The plan applies to all elements of the Alameda County Emergency Management Organization during all phases of emergency management.

2.3.1 Phases of Emergency Management

Emergency management activities are often categorized in phases. In the past, the phases were limited to mitigation, preparedness, response, and recovery. However, with increased focus on human-caused disasters, guidance from the National Governor's Association and the National Fire Protection Association adds a fifth phase: prevention.

2.3.1.1 Prevention

The prevention phase includes activities, tasks, programs, and systems intended to avoid or intervene in order to stop an incident from occurring. Prevention can apply both to human-caused incidents (such as terrorism, vandalism, sabotage, or human error) as well as to naturally occurring incidents. Prevention of human-caused incidents can include applying intelligence[1] and other information to a range of activities that includes such countermeasures 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

[1] "Intelligence" is information that has been collected, analyzed, vetted, and disseminated in a timely fashion.

2.3.1.2 Preparedness

The preparedness phase involves activities that are 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 the implementation of the Emergency Services Act, the MMAA, and the SEP. Preparedness activities fall into two basic areas: readiness and capability.

Readiness activities shape the framework and create the basis of knowledge necessary to complete a task or mission. Readiness activities might include, but are not limited to:

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

Capability activities involve the procurement of items or tools necessary to complete tasks or missions. Capability activities include, but are not limited to:

- 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, personal protective equipment, etc.

2.3.1.3 Response

Response is typically divided into three phases. Each phase has distinct considerations, which seldom flow sequentially, often occurring 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 situation 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 and 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
- Inspecting 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, the American Red Cross, and other involved agencies
- Disseminating warnings, 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 movement of traffic/people and unnecessary access to affected areas
- Developing and implementing Incident Action Plans (e.g., field, EOC, etc.)

The County's extended response activities are primarily conducted in the EOC. Extended emergency operations involve the coordination and management of 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, EOC, etc.) for extended operations
- Conducting advance planning activities
- Procuring required resources to sustain operations
- Tracking resource allocation
- Coordinating and/or operating decedent operations
- Establishing a Local Assistance Center
- Coordinating with State and Federal agencies working within the County

2.3.1.4 Recovery

Recovery activities involve the restoration of services to the public and returning the affected area(s) to pre-emergency conditions. Recovery activities may be both 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.

2.3.1.5 Mitigation

Mitigation efforts occur both before and after emergencies or disasters. Post-disaster mitigation is actually part of the recovery process. This includes eliminating or reducing the impact of hazards that exist within Alameda County. Details on Alameda County's mitigation activities (particularly post-disaster) are included in the Multijurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. Mitigation efforts include, but are not limited to:

- 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

2.3.2 Alameda County Profile

In 1853, three years after the addition of California as the 31st state of the union, the County of Alameda was established. Located on the east side of San Francisco Bay, it was carved out of territory from two previously established neighboring counties, Contra Costa and Santa Clara. A map of Alameda County can be found as **Appendix**

C. The name of the County, "Alameda" means "a place where poplar trees grow." It was derived from the Spanish/Mexican heritage of the region and was actually the name originally given to a local creek, the Arroyo de la Alameda (Poplar Grove Creek).

Though sparsely populated in the early years after incorporation, the County has since become the seventh most crowded in California. Its 14 cities and 6 unincorporated areas are located within 738 square miles of land alongside 84 square miles of water, for a total area of 831 square miles. With a 2011 population of 1,556,657, the County's density is 2,110 persons per square mile.

Alameda County's residents, since the time of incorporation, 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. Along with this natural beauty, however, come the associated dangers that such features bring.

These inherent dangers have produced a number of emergencies and major disasters, including numerous floods, the Hayward Quake of 1868, The Great San Francisco Earthquake and Fire of 1906, the Oakland Hills Fire Storm of 1991, and the Loma Prieta Earthquake of 1989. **Section 2.4** discusses the most likely hazards to occur in Alameda County.

2.4 Hazard Assessment

A hazard analysis has indicated that Alameda County is at risk from numerous hazards associated with natural disasters and human-caused disasters. Those hazards, the probability of their occurrence, and their effect are described in **Table 2-1**. Many of the hazards that exist in or adjacent to Alameda County have the potential for causing disasters exceeding any one jurisdiction's capabilities to successfully address, making centralized command and control and the support of the County and its departments/agencies essential. The County will review and update hazard analysis annually in conjunction with the review of this EOP.

Table 2-1. Hazard identification and analysis.

Disaster Threat	Probability of Occurrence			Effect			Disaster Rating (Probability x Effect)
	Likely 10	Possible 5	Unlikely 1	High 10	Average 5	Low 1	
Agriculture Infestation		X				X	5
Aircraft Incident		X				X	5
Civil Disturbance		X			X		25
Dam Failure			X	X			10
Drought			X			X	1
Earthquake		X		X			50
Energy Emergency			X		X		5
Epidemic/Infectious Disease			X			X	1
Flood/Storm	X				X		50
Hazardous Materials		X				X	5
Landslide/Mudslide		X			X		25
Liquefaction		X			X		25
Terrorism			X		X		5
Tornados and High Wind		X				X	5
Train Derailment			X			X	1
Tsunami and Seiche			X		X		5
Wildland Fire	X				X		50

Source: URS analysis, 2011.

2.4.1 Agriculture Infestation

2.4.1.1 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 that are transferable among insects or animals. The types and severity of agricultural infestations vary based on many factors, such as heavy rain and drought cycles.

The onset of an agricultural infestation can be rapid, and controlling the spread is critical to limiting the impact. Methods such as quarantine, culling, premature harvest, and/or crop destruction, when necessary, are used to control the spread. Duration is affected largely by the degree to which the infestation is controlled but commonly is more than one week. The warning time needed to control infestation is typically more than 24 hours; maximization of warning time is critical for reducing the damage from this hazard.

According to the California Farm Bureau Federation, agricultural production in 2009 was valued at just over $37 million and the top five crops were wine grapes, woody ornamentals, cattle and calves, pasture and range, and nursery products. The Alameda County Department of Agriculture is tasked with preventing the introduction, establishment, and spread of harmful insects, plant diseases, weeds, and other pests.

Exterior quarantines regulate the movement of commodities entering California. Interior quarantines regulate the movement of commodities within the State. Examples of some harmful pests that are regulated by exterior quarantines are the Mediterranean Fruit Fly, Mexican Fruit Fly, Gypsy Moth, Red Imported Fire Ant, and Japanese Beetle, all of which could cause severe damage to California crops and prevent the export of our products to other areas. Examples of pests regulated by interior quarantines are the Red Imported Fire Ant and Glassy-Winged Sharpshooter (GWSS). Citrus Tristezea virus and Ozonium Root Rot are examples of plant diseases regulated by interior quarantines.

Four pests are currently being monitored by the Alameda County Department of Agriculture: Sudden Oak Death (SOD) disease, the GWSS, the Gypsy Moth, and the Light Brown Apple Moth (LBAM).

2.4.1.2 Previous Events

Sudden Oak Death. Alameda County currently has infested sites in Redwood Regional Park, East Bay Municipal Water District property, and one hillside in Castro Valley. All of these sites are in wildland areas, characterized by oak/bay woodland.

Glassy-Winged Sharpshooter. The GWSS is native to the southeast United States and is also found in Mexico. While not identified 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 grape vines with specialized mouth parts that allow it to pierce the woody stems.

Light Brown Apple Moth. In July and November of 2006 an LBAM was found in a homeowner's blacklight insect trap in Berkeley. In Alameda County, the quarantine areas include Albany, Berkeley, most of Oakland, and areas in Dublin, Fremont, Union City, and Pleasanton. Additional inspection and/or certification for plant products leaving these quarantine areas is now required. Alameda County residents have been asked to help stop the spread of the LBAM by not taking fruits, vegetables, or plant material out of the quarantine area.

2.4.2 Aircraft Incident

2.4.2.1 Description of Hazard

An aircraft incident can cause a large loss of life, a large loss of property, and can have a drastic effect on the infrastructure and economy of a county. An airplane crash can lead to a large number of fatalities or injuries to persons both on the airplane and persons on the ground at the site of the accident.

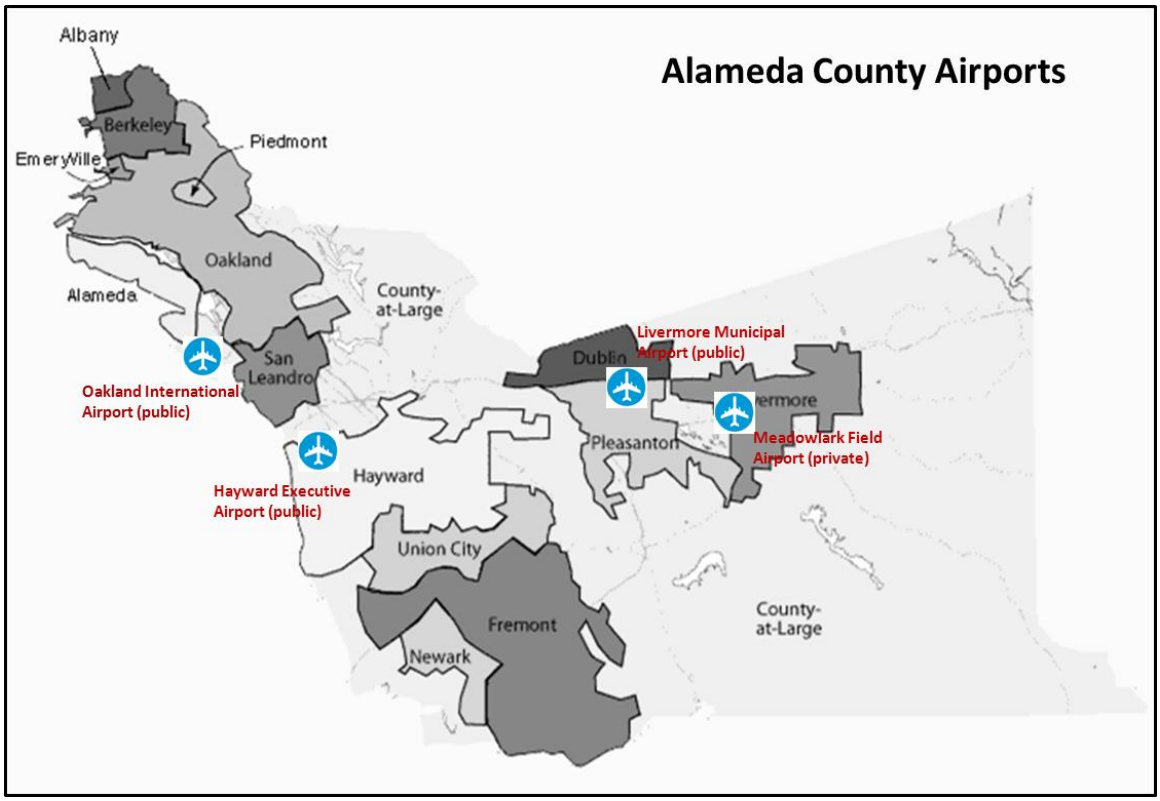
Aircraft accidents can be caused by mechanical failure, manufacturing error, pilot error, air traffic controller error, natural hazards, and inappropriate cargo. Mechanical failures and manufacturing errors can cause an aircraft to function improperly and crash. Pilot and air traffic controller errors can lead to mid-air collisions and crashes into the ground or an elevated structure. Natural hazards, such as wind shear, terrain-induced turbulence, and poor visibility, can lead to the loss of control of an aircraft or an incorrect judgment by a pilot. Inappropriate cargo, such as a pressurized container, can lead to sudden explosions and loss of control of an aircraft. Also, an aircraft accident can be caused by several of these factors that cumulatively lead to loss of control of an aircraft and a crash.

Alameda County is home to Oakland International Airport, as well as a number of small plane/private airports (**Figure 2-1**). The Oakland International Airport averages 197 departures daily. With the addition of activity at the private airports around the County, Alameda has easily over 200 planes in its airspace daily. Any size or type of aircraft can cause damage, injuries, and fatalities on the ground at the site of a crash. The amount of damage at a crash location is related to the location of the accident and the nature of the crash.

2.4.2.2 Previous Events

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

In the last ten years, 12 general aviation crashes, including two helicopter crashes, have been reported in Alameda County. In most cases the pilot/passengers do not survive. However, of the 12 reported crashes, in three cases the pilot was able to walk away from the crash. The majority of reported crashes occurred in areas such that no additional people were directly affected, such as unpopulated mountains, the San Francisco Bay, and in the vicinity of airport runways. Two instances in which this was not the case occurred in 2005 and 2008.



Source: URS analysis, 2011.

Figure 2-1. Location of Alameda County airports.

In April 2005, shortly after takeoff from the Hayward Executive Airport, the pilot radioed air traffic controllers to say he lost his only engine. The crash occurred a few hundred yards away from two schools, but the pilot was able to steer the plane into a city maintenance yard to minimize potential damage or injury. The pilot survived and did not suffer major injuries; due to his choice of landing site, no others were injured in the crash.

In July 2008, a helicopter flew into power lines, causing it to crash land near Highway 680 between Fremont and Sunol; both the pilot and passenger were killed. The crash started a five-acre grass fire; the slow lane of a portion of northbound Highway 680 was closed due to the downed lines and fire; and approximately 746 customers in the Sunol area were without power.

2.4.3 Civil Disturbance

2.4.3.1 Description of Hazard

Civil disturbance, or civil disorder, is described as "any incident intended to disrupt community affairs and threaten public safety." Civil disturbance is a result of civil unrest, when individuals or groups within the general population feel they are being

discriminated against or that their rights are not being upheld. Triggers can include racial tension, immigration control, unpopular political decisions, loss of essential services or supplies, and bad weather. 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 tear gas, curfews, and mass arrests. Severe civil disturbances may result in deaths, injuries, and property damage of varying degrees.

2.4.3.2 Previous Events

Alameda County has a long history of low severity and moderately severe civil disturbances. This is particularly so in Oakland, where the plaza in front of its city hall is the destination for many protests and marches. The largest and most recent protest in Alameda County is occurring as this EOP is being revised. The event is known as Occupy Oakland and is part of an international movement that began in New York City as Occupy Wall Street. Starting on October 10, 2011, protesters in Oakland and San Francisco took to the streets in bookend demonstrations over economic inequality, corporate excess, and homelessness. Since then, hundreds of participants set up tents in Frank Ogawa Plaza, intending to stay for a significant period of time. Some arrests were made for disruptive behavior; for the most part, the protest has remained peaceful.

The most notorious civil disturbance in Alameda County occurred as a response to the shooting of Oscar Grant by a Bay Area Rapid Transit (BART) police officer. In response to the shooting, a protest was held on the afternoon of January 7, 2009. However, what began as a peaceful protest turned into a destructive riot resulting in trash can fires, multiple cars set afire, broken storefront windows, and the looting of stores. In response to the riot, both the Lake Merritt and the 12th Street BART stations were temporarily shut down.

2.4.4 Dam Failure

2.4.4.1 Description of Hazard

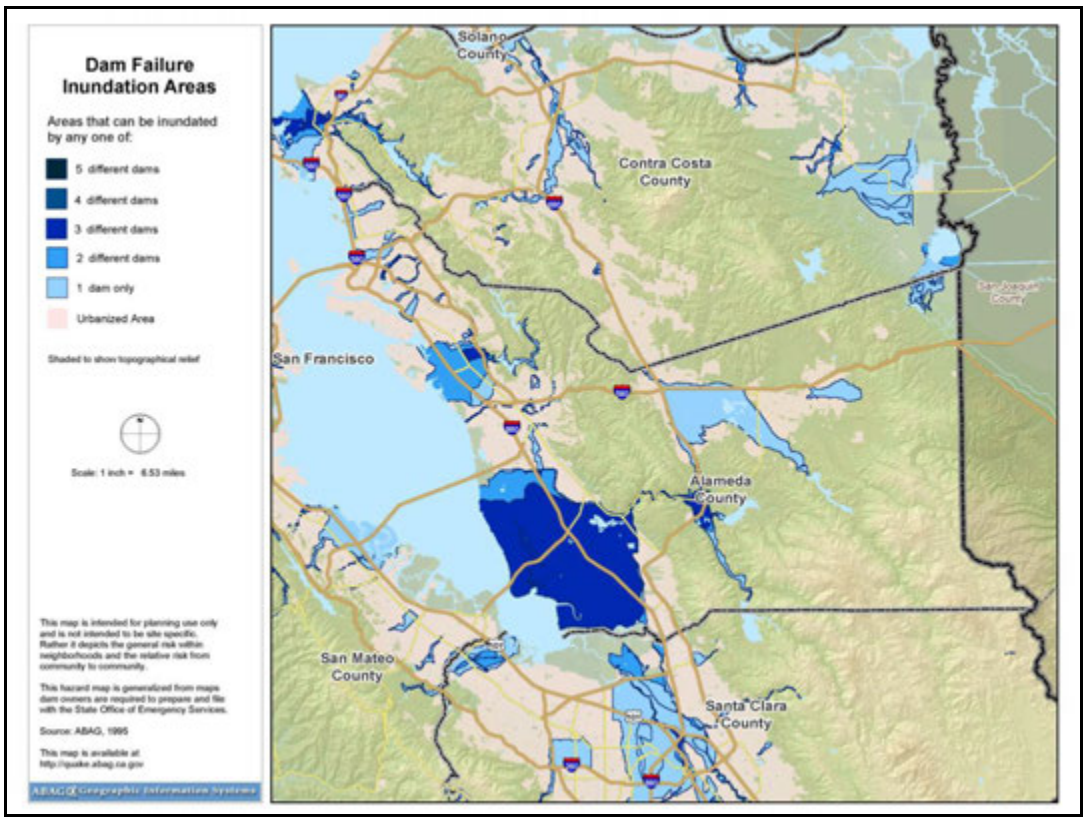
A dam failure is the structural collapse of a dam that releases the water stored in the reservoir behind the dam. A dam failure is usually the result of the age of the structure, inadequate spillway capacity used in construction, or structural damage caused by an earthquake or flood. When a dam fails, a large quantity of water is suddenly released with a great potential to cause 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 as a result of the momentum of the flood caused by the sediment-laden water flooding over the channel banks and 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 (a lengthy process).

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 estimate of the general location and extent of dam failure inundation areas.

The map shown in **Figure 2-2** 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 loss of water, as required by the State Division of Safety of Dams and by safety protocols established by dam owners. For example, the Calaveras Reservoir is currently operating 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.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-2. Alameda County dam failure inundation areas.

2.4.4.2 Previous Events

The 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 as well as the Bay Area has not experienced dam failure of a functioning dam.

2.4.5 Drought

2.4.5.1 Description of Hazard

Drought is a prolonged period of dryness in which precipitation is less than expected or needed in a given geographic location or climate over an extended period of time. For much of human history, drought and its devastations have been seen as 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, recurrent feature of climate.

Drought is commonly referenced in terms of its effects on crops; its direct environmental effects (such as crop loss or failure, livestock death or decreased production, wildfire, impaired productivity of forest land, damage to fish habitat, loss of wetlands, and air-quality effects); and its social effects (economic and physical hardship and increased stress on residents of a drought-stricken area).

Drought can impact the entire Bay Area, not just one particular county or a few cities. In addition, shortages in precipitation in the Sierra Nevada can have a more pronounced impact on water supply in the region than a drought in the Bay Area itself because of the reliance of the region on water from the Tuolumne and Mokelumne watersheds. In Alameda County, the primary impact of drought would be reduced availability of water for residential and commercial use.

However, what would be a drought in other areas of the country is controlled in the Bay Area through the importation of water and the storage of water in reservoirs. For example, the 2009–2010 winter was exceptionally wet, with late season snowfall in the Sierra mountains that filled many reservoirs to capacity due to El Niño conditions. The following years, 2010–2011, California again received above-normal precipitation levels. However, because of the previously filled reservoirs, had drought conditions occurred in 2010–2011, the Bay Area was not expected to feel the drought conditions.

2.4.5.2 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. Climate change is likely to increase the number and severity of future droughts; the magnitude of this change is currently unknown. Alameda County, specifically, has received one Presidential Disaster Declaration as a result of drought, in 1966–1967. In addition, California experienced drought conditions between 2006 and 2009, and a statewide drought was declared for 2008.

2.4.6 Earthquake

2.4.6.1 Description of Hazard

An earthquake is generally a result of displacement along a geologic fault resulting in the release of accumulated strain. The effects of large earthquakes can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a few seconds, can cause significant damage and extensive casualties. The most common effect of earthquakes is ground motion, or the shaking of the ground during an earthquake. Ground shaking is caused by seismic waves traveling in the earth's interior or along the earth's surface.

The severity of an earthquake can be expressed in terms of intensity. Intensity is based on the effects and damage and observed effects on people to the natural and built environment. It varies from place to place, depending on the location with respect to the earthquake fault rupture. The intensity generally increases with the amount of energy released, which is proportional to the size of the earthquake and decreases with distance from the causative fault.

The scale most often used to measure intensity is the Modified Mercalli (MM) intensity scale. As shown in **Table 2-2**, the MM intensity scale consists of 12 increasing levels that range from imperceptible to catastrophic destruction. With the advent of modern instrumentation, ground shaking intensity can be quantitatively measured. It is measured in terms of acceleration, velocity, or displacement. Peak ground acceleration (PGA) is a common ground motion parameter used by engineers. It measures the earthquake's intensity by quantifying how hard the earth shakes in a given location. PGA is measured in units of the gravitational rate of acceleration (1 g = 980 centimeters/second^2). Moment magnitude (**M**) is the measure of the earthquake's size and is often based on the amplitude of the earthquake waves recorded on instruments. The first magnitude scale was the Richter local magnitude scale. The magnitude scale used by seismologists is the **M** scale. **Table 2-2** shows an approximate correlation between **M**, MM intensity, GPA in gs, and the perceived shaking.

Table 2-2. Magnitude/intensity/ground-shaking comparisons.

Magnitude (M)	MM Intensity	PGA (% g)	Perceived Shaking
0–4.3	I	<0.17	Not felt
	II–III	0.17–1.4	Weak
4.3–4.8	IV	1.4–3.9	Light
	V	3.9–9.2	Moderate
4.8–6.2	VI	9.2–18	Strong
	VII	18–34	Very strong
6.2–7.3	VIII	34–65	Severe
	IX	65–124	Violent
	X	124+	Very violent
7.3–8.9	XI		
	XII		

Source: U.S. Geological Survey, 2004.

Alameda County is exposed to seismic hazards from numerous known faults and potentially unmapped or undiscovered faults. The faults in Alameda County, as well as 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, both the Northern Calaveras and the Greenville Faults run straight through Alameda. **Table 2-3** lists the major regional faults that will have a significant impact on Alameda County and the probability that an **M** 6.7 earthquake or greater will occur over a 30-year period.

Table 2-3. Major Known faults in the Bay Area.

Fault Source	Fault Location	Total Length (miles)	Probability of Quake ≥ 6.7 2007–2036
San Andreas (north)	Marin, Santa Clara, Santa Cruz, San Mateo, and Sonoma counties	621	21%
Hayward/Rodgers Creek	Alameda, Contra Costa, Santa Clara, and Sonoma counties	27/19	31%
Calaveras (north and central)	Alameda, Contra Costa, and Santa Clara counties	37	7%
Concord/Green Valley	Contra Costa, Napa, and Solano counties	6/11	3%
Greenville Fault	Alameda, Contra Costa, Santa Clara counties	58	3%
San Gregorio (north)	San Mateo and Santa Cruz counties	54	6%
Mt. Diablo Thrust	Contra Costa County	8	1%

Source: U.S. Geological Survey, ñ Working Group on Earthquake Probabilities. *Forecasting California's Earthquake—What Can We Expect in the Next 30 Years? USGS Fact Sheet 2008–3027* at http://pubs.usgs.gov/fs/2008/3027; U.S. Geological Survey, USGS Working Group on Earthquake Probabilities. *The Uniform California Earthquake Rupture Forecast, Version 2—USGS Open-File Report 2007–1437* at http://pubs.usgs.gov/of/2007/1437/.

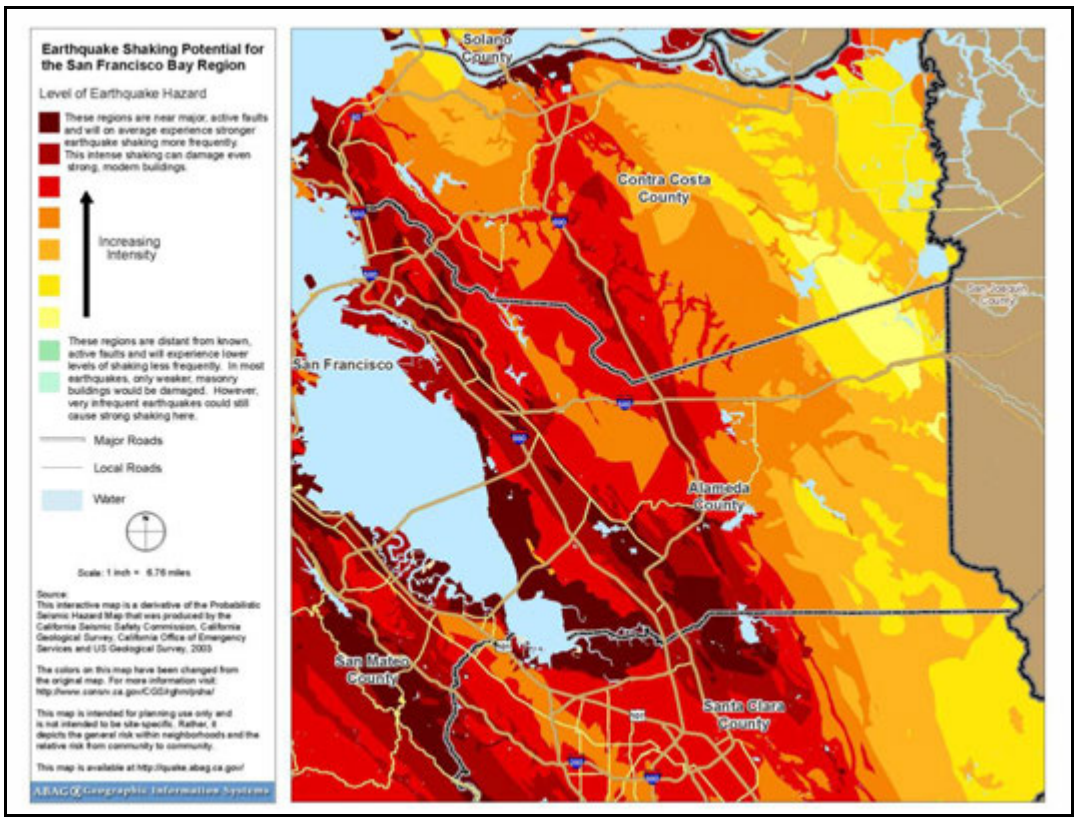
An earthquake on the Hayward Fault is the most likely and has the potential to cause the most damage for Alameda County. However, the entire western portion of the County is highly susceptible to an earthquake and earthquake damage; **Figure 2-3** illustrates the earthquake-shaking potential for Alameda County.

2.4.6.2 Previous Events

On October 21, 1868, an **M** 6.8 earthquake on the Hayward Fault struck the San Francisco Bay region. 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, an **M** 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.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-3. Alameda County earthquake shaking potential.

Most recently, the 1989 Loma Prieta earthquake occurred on October 17, 1989 along the San Andreas Fault. This was an **M** 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.

2.4.7 Energy Emergency

2.4.7.1 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.

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.

2.4.7.2 Previous Events

Along with the rest of California, Alameda County experienced electric power supply shortages during early 2001. On January 17, the California Independent System Operator declared a Stage 3 Emergency three times between January and March 2001, as PG&E dropped firm loads[2] of 500 megawatts in Northern California. The Independent System Operator implemented rolling blackouts, which were hour-long outages that rotated among customers in hopes of avoiding a total power failure.

In December 1995, the Bay Area experienced widespread winds to due to winter storms. This lead to a power outage that affected around 1.5 million people, some of whom did not receive resumed power for over a week.

While Alameda County was not directly affected, the Southern California blackout in September 2011 is a notable incident. A widespread power outage led to controlled chaos throughout Southern California; more than 1.4 million people were without power for up to 15 hours.

[2] The load that is served, on a guaranteed basis, 100 percent of the time, and that PG&E or another supplier has a contractual obligation to serve.

2.4.8 Epidemic/Infectious Disease

2.4.8.1 Description of Hazard

Infectious diseases are caused by pathogenic organisms, which can be a virus, bacteria, fungi, or parasites. Disease can affect any living organism, including people, animals, and plants. Diseases spread directly (through infection) and indirectly (through secondary effects). Some diseases can directly affect both people and animals. The major concern with respect to disease in humans is the evolution of an epidemic or pandemic resulting from a disease that is virulent, with a high morbidity rate combined with a high mortality rate. Infectious diseases can also be released intentionally as a weapon of terror. The risk of a terror attack in Alameda County is discussed in **Section 2.4.13**.

Pandemics are different from seasonal outbreaks of influenza that are caused by subtypes of influenza viruses that already circulate among people. Pandemic outbreaks are usually caused by entirely new subtypes to which the population has no immunity because the subtype has either never circulated among people, or has not circulated for a long time. Seasonal influenza occurs routinely worldwide each year, causing an average of 36,000 deaths annually in the United States.

2.4.8.2 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.[3]

Most recent, 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 declared that a global pandemic of H1N1 flu was underway.

Table 2-4 illustrates H1N1 flu hospitalization and death information for Alameda County.

[3] http://1918.pandemicflu.gov/the_pandemic/index.htm

Table 2-4. Alameda County Pandemic (H1N1) 2009 virus provisional data: April 23, 2009–August 28, 2010.

County	Severe Cases[1]	ICU Cases[2]	Deaths[3]
Alameda County	124	119	29

Source: California Department of Public Health, 2010.

[1] Includes: (a) fatal cases not admitted to the ICU, (b) fatal cases admitted to the ICU, and (c) non-fatal cases admitted to the ICU.

[2] Includes the following individuals: (a) non-fatal ICU cases, (b) fatal ICU cases.

[3] Not all fatal cases were admitted to the ICU.

ICU = intensive care unit

2.4.9 Flood/Storm

2.4.9.1 Description of Hazard

Flooding is 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. Floods are natural events that are considered hazards only when people and property are affected.

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Inundation of structures, causing water damage to structural elements and contents.
- Impact damage to structures, roads, bridges, culverts, and other features from high-velocity flow and from 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, result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

At least four flood types can occur: 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

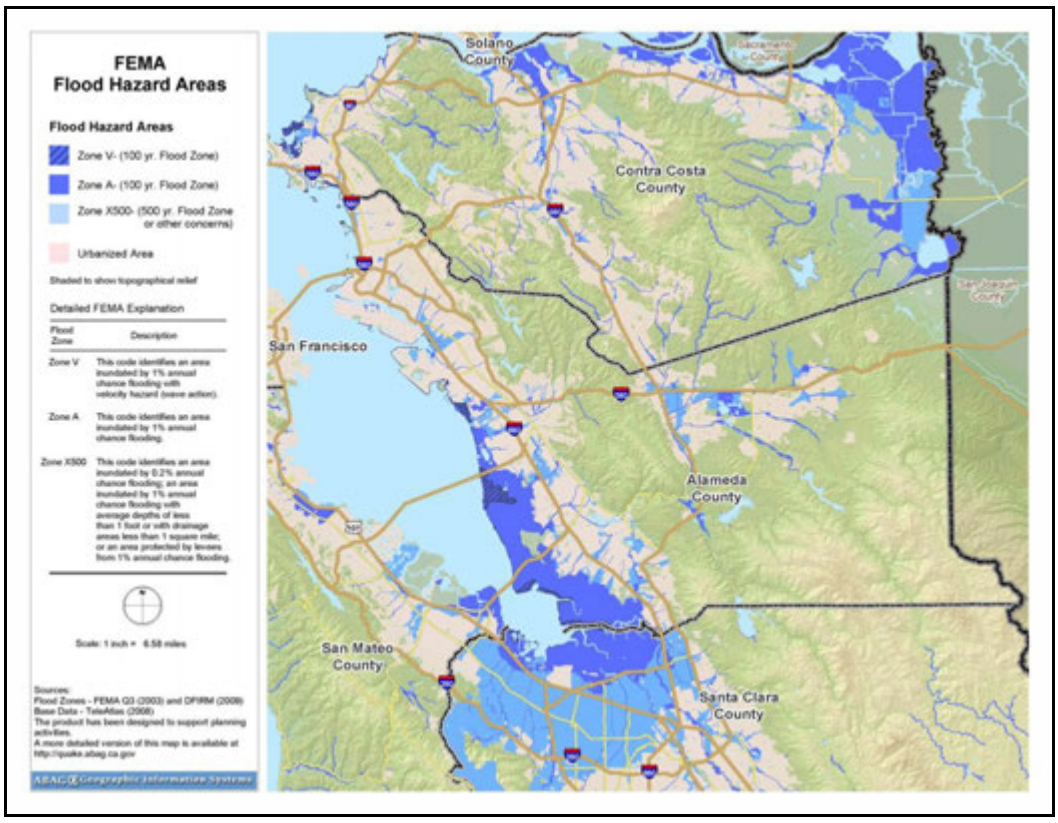
sustained wind speeds, and the duration of the storm. During storm conditions, the elevated water levels generated by storm surge allow waves to penetrate much closer to the shoreline, exposing coastal structures to direct wave attack, wave run-up, and wave-induced scour and erosion.

Riverine Flooding. 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 land use characteristics of the floodplain. In steep valleys, flooding is usually rapid and deep but of short duration; in flat areas, flooding is typically slow, relatively shallow, but can last for long periods of time.

Stormwater Runoff. Flooding due to stormwater runoff or street flooding often occurs 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/or debris blocking the storm drain conveyances.

Flash Flooding. A flash flood, also a fresh water source, is the fastest-moving type of flood; this hazard can fill a normally calm area with a rushing current in a relatively short time. Flash floods occur when water falls too quickly on saturated soil or dry soil that has poor absorption ability. This water cannot be absorbed into the soil and therefore flows elsewhere.

The defining characteristic of a flash flood is the timescale in which it develops; a flash flood generally develops in less than 6 hours. Flash flood waters also move at very great speeds and have the power to move boulders, tear out trees, and destroy both buildings and transportation infrastructure. During a flash flood, walls of water can reach heights of 10 to 20 feet. This combination of power and suddenness makes flash floods particularly dangerous. In 2009, the Federal Emergency Management Agency (FEMA) prepared a countywide Digital Flood Insurance Rate Map for Alameda County. **Figure 2-4** shows the flood hazard areas for Alameda County.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-4. Alameda County flood hazard areas.

2.4.9.2 Previous Events

Flooding is among the most common disasters in Alameda County. Query results from the National Climatic Data Center (NCDC) show that Alameda County has experienced 29 flood events since 1950. Recent events include the 1998 El Niño events, which led to about $700 thousand worth of property damage. The 2005–2006 winter storms received a presidential disaster declaration and resulted in about $17.6 million worth of property damage. All 29 of the recorded flood events occurred during the months of October, November, December, January, or February; 69 percent of them occurred in January and February.

2.4.10 Hazardous Materials

2.4.10.1 Description of Hazard

Hazardous materials are substances that may have negative effects on health or the environment. Exposure to hazardous materials may cause injury, illness, or death. Effects may be felt over seconds, minutes, or hours (short-term effects), or they may not emerge until days, weeks, or even years after exposure (long-term effects). Also,

some substances are harmful after a single exposure of short duration, but others require long episodes of exposure or repeated exposure over time to cause harm.

The toxicity of a specific substance is one important factor in determining the risk it poses, but other factors can be just as important, if not more so. Factors affecting the severity of an accidental release include: toxicity, quantity, dispersal characteristics, location of release in relation to population and sensitive environmental areas, and the efficacy of response and recovery actions.

Hazardous materials are abundant. The focus is not on the hazards contained in everyday products, but rather on the hazards associated with potential releases of hazardous substances from transportation corridors (mobile incident) and fixed facilities (fixed incident) 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. Mobile incident-related releases can also be more difficult to mitigate because of the great area over which any given incident might 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 and spill containment capability, and even complete cutoff of response personnel and equipment.

2.4.10.2 Previous Events

The web-based query system of the National Response Center, which serves as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States, shows that in the last 10 years (2002–2011), 16 hazardous material release incidents were reported in Alameda County. However, the size of each release was relatively small and had no significant impact on the County.

In addition, the query system showed that since 2002, 110 vessel-related oil spills (bilge oil, gasoline, hydraulic oil, jet fuel, and diesel oil) have been reported in Alameda County. Common causes of incidents included operator error and equipment failure.

The largest oil spill event in most recent history occurred on November 7, 2007, when a container ship struck a pier bumper at the western span of the Bay Bridge, causing

58,000 gallons of bunker fuel to be released into the water. Oiled and dead wildlife, oil slicks, and oil globs were reported around the Bay and the Pacific coastline. Beaches, marinas, and other shoreline areas of Alameda County, most noticeably from Albany to Alameda, were closed for days and weeks as oiled birds were rescued or removed, and oil globs were cleaned up.

In 2009, an oil tanker south of the Bay Bridge was being fueled when a serious of human errors caused the tanks to overflow, releasing about 400 gallons of fuel into the Bay. This lead to around 60 birds being oiled and about six miles of East Bay shoreline being oiled, specifically Bay Farm Island and Alameda Island.

The National Response Center's web-based query system also shows that since 2002, 21 transportation accidents that resulted in petroleum spills were reported in the County. The most significant occurred on April 29, 2007, when a gasoline tanker carrying 8,600 gallons of unleaded gasoline hit a guard rail and burned, causing the MacArthur Maze overpass to the Bay Bridge in Oakland to collapse.

2.4.11 Landslide/Mudslide

2.4.11.1 Description of Hazard

Landslide is a general term for 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, rock slides, 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 together with other natural hazards, thereby exacerbating conditions, as described 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 also saturate slopes and cause failures leading to landslides.
- Wildfires can remove vegetation from hillsides, significantly increasing runoff and landslide potential.
- Landslides into a reservoir can indirectly compromise dam safety; a landslide can even affect the dam itself.

Mudslides are another type 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 hold the soil, mud forms and flows down the slope.

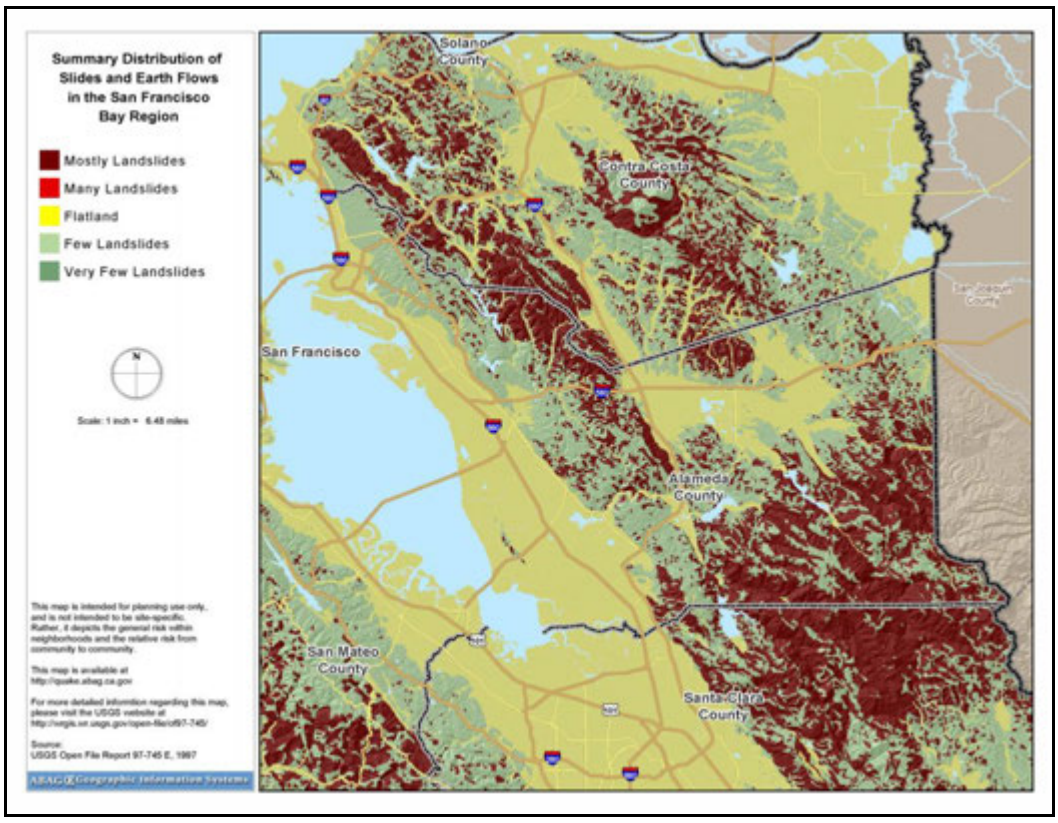
2.4.11.2 Previous Events

From January through March, 1998, rainstorms driven by El Niño triggered landslides throughout the Bay Area. The U.S. Geological Survey (USGS) conducted a study to access the landslide damages in Alameda County and documented 87 sites that sustained damaged 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 restore the road.

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 located in the Santa Cruz Mountains. However, landslides from this event were reported throughout the Bay Area.

Figure 2-5 illustrates where rainfall-induced landslides have previously occurred in Alameda County.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area.*

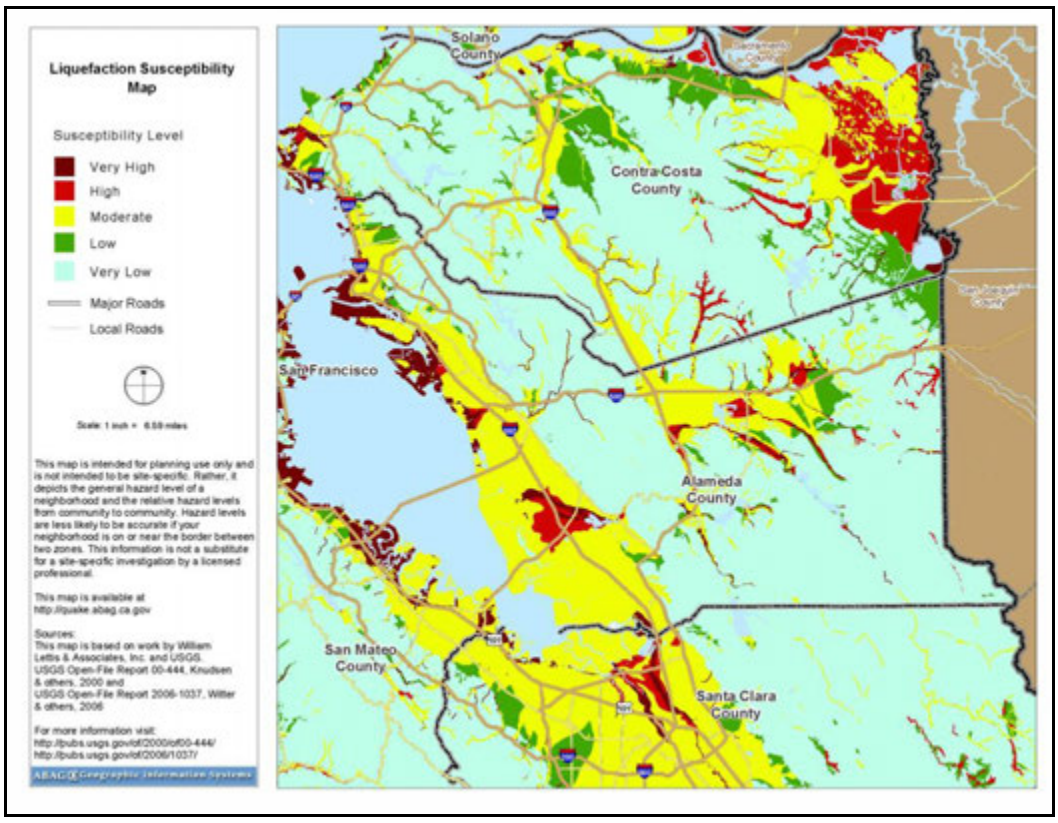
Figure 2-5. Alameda County rainfall-induced landslides.

2.4.12 Liquefaction

2.4.12.1 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 lateral displacement of the ground. This can lead to pipe leakage, building foundation damage, as well as buckling of roads and airport runways.

Figure 2-6 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.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area.*

Figure 2-6. Alameda County liquefaction susceptibility.

2.4.12.2 Previous Events

The USGS has mapped liquefaction occurrences for parts of the Bay Area for earthquakes occurring in the following years: 1838, 1852, 1865, 1868, 1906, 1957, and 1989. Past history has shown that the Oakland coast, Alameda, Oakland International Airport, and Alameda Creek near Fremont are the areas most affected by liquefaction.

Additionally, **Table 2-5** illustrates the Northern California earthquakes that have caused liquefaction in the San Francisco Bay Area.

Table 2-5. Northern California earthquakes associated with liquefaction.

Year	Date	Epicentral Area	Maximum Modified Mercalli intensity	Magnitude	Severity of Ground Failure
1800	Oct 11 (?)	San Juan Bautista	—	—	Moderate (?)
1836	Jun 10	San Francisco Bay	IX–X	—	Moderate (?)
1838	Jun	San Francisco Bay Area	X	—	Moderate to severe (?)
1852	Nov 22–24	San Francisco Peninsula	VIII	—	Moderate (?)

Table 2-5. Northern California earthquakes associated with liquefaction.

Year	Date	Epicentral Area	Maximum Modified Mercalli intensity	Magnitude	Severity of Ground Failure
1861	Jul 3	Contra Costa, Alameda Counties	VIII	—	Very slight
1865	Oct 8	Santa Cruz Mountains	VIII–IX	—	Moderate
1868	Oct 21	Hayward	IX–X	—	Moderate
1885	Mar 30	Southeast of Hollister	VII	—	Very slight
1890	Apr 24	Monterey Bay Region	VII	—	Slight
1892	Apr 19	Vacaville	IX	—	Slight
1892	Apr 21	Winters	IX	—	Slight
1898	Mar 30	Mare Island	VIII	—	Very slight
1906	Apr 18	San Francisco	XI	7.9	Severe
1954	Apr 25	East of Watsonville	VIII	5.2	Very slight
1957	Mar 22	West of Daly City	VII	5.3	Moderate
1958	Dec 11	Southwest of San Francisco	VI	4.7	Very slight
1962	Jun 6	Near Lakeport	—	—	Very slight
1963	Sep 14	East of Watsonville	VII	5.4	Very slight
1969	Oct 1	Santa Rosa	VII–VIII	5.7	Very slight
1989	Oct 17	Loma Prieta	—	6.9	Severe
1990	Apr 18	Chittenden	—	5.4	Very slight

— = Not available

Source: U.S. Geological Survey. (Modified from Youd and Hoose, 1978.)
http://geomaps.wr.usgs.gov/sfgeo/liquefaction/eq_caused.html.

2.4.13 Terrorism

2.4.13.1 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 seen as violence against civilians to achieve a political or ideological objective through fear.

Terrorism can occur in various forms: assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear, and radiological weapons. Concern is also growing about emerging infectious diseases and the possibility of a bioterrorism attack.

A bioterrorism attack is the deliberate release of viruses, bacteria, or other germs (agents) to cause illness or death in people, animals, or plants. These agents are typically found in nature, but it is possible that they can be modified to increase their ability to cause disease, make them resistant to current medicines, and/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 the possible terrorist strikes it views as 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. As such, places at risk in Alameda County may include the Federal Building in downtown Oakland; the Oakland Coliseum; the Oracle Arena; the Oakland Airport; and the Bay, San Mateo, and Dumbarton bridges.

2.4.13.2 Previous Events

Alameda County has had a 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 is the suspect and is on the FBI's 10 most wanted terrorist list. At the time of the bombings, he was living in Berkeley, California.

Over the past four years, the Alameda County Sheriff's Office, with the support of the Bay Area Urban Area Security Initiative, has conducted a Homeland Security training exercise called Urban Shield. Urban Shield is a real-time test of response capabilities and performance-based field tactical training, which incorporates Law Enforcement, Fire, Emergency Medical Services, and Explosive Ordinance Disposal teams. Urban Shield was designed to strengthen each agency's preparedness to respond to threats and domestic terrorist attacks, major disasters, and other emergencies.

2.4.14 Tornados and High Winds

2.4.14.1 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 in seconds. Damage paths from a tornado can be in excess of one mile wide and 50 miles long.

Tornadoes come in many shapes and sizes. 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.

Tornados in California are uncommon, 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 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.

2.4.14.2 Previous Events

As reported by the NCDC, Alameda County has experienced three tornados since 1950. The tornados are listed in **Table 2-6**. The largest tornado in the Alameda County area occurred in Santa Clara County in May 1998. The tornado was a magnitude F2 tornado, which caused one injury and $3.8 million worth of property damage. All tornados that have occurred in Alameda County have been magnitude F0 and have led to no injuries or death.

Table 2-6. Alameda County tornado history.

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

Source: National Climatic Data Center, 2011.

2.4.15 Train Derailment

2.4.15.1 Description of Hazard

The majority of railroad accidents in the United States are the result of train derailments, a problem that is typically track-related. Because of 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.

Train derailment affects not only those directly involved in the incident. Train derailment can lead to transportation issues by causing congestion and disruption of transportation circulation in the area. Should electrical lines be present in the derailment area, train derailment can lead to power failures. Trains also transport a variety of hazardous materials throughout Alameda County; train derailment can lead to the release of hazardous materials.

2.4.15.2 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 as follows:

- 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, 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.

2.4.16 Tsunami and Seiche

2.4.16.1 Description of Hazard

A tsunami is a series of waves generated in a body of water by an impulsive disturbance along the seafloor that vertically displaces the water. Subduction zone earthquakes at plate boundaries often cause tsunamis. However, tsunamis can be generated by submarine landslides, submarine volcanic eruptions, and the collapses of volcanic edifices. A single tsunami may involve a series of waves, known as a train, of varying heights. In open water, tsunamis exhibit long wave periods (up to several hours) and wavelengths that can extend up to several hundred miles, unlike typical wind-generated swells on the ocean, which might have a period of about 10 seconds and a wavelength of 300 feet.

The actual height of a tsunami wave in open water is generally only 1 to 3 feet and is often practically 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 700 miles per hour. As the wave approaches land, the sea shallows and the wave no longer travels as quickly, so the wave begins to

"pile up" as the wave-front becomes steeper and taller and less distance occurs between crests. Therefore, the wave can increase to a height of 90 feet or more as it approaches the coastline and compresses.

Tsunamis not only affect 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. However, tsunamis do propagate outward from their source, so coasts in the shadow of affected land masses are usually fairly safe.

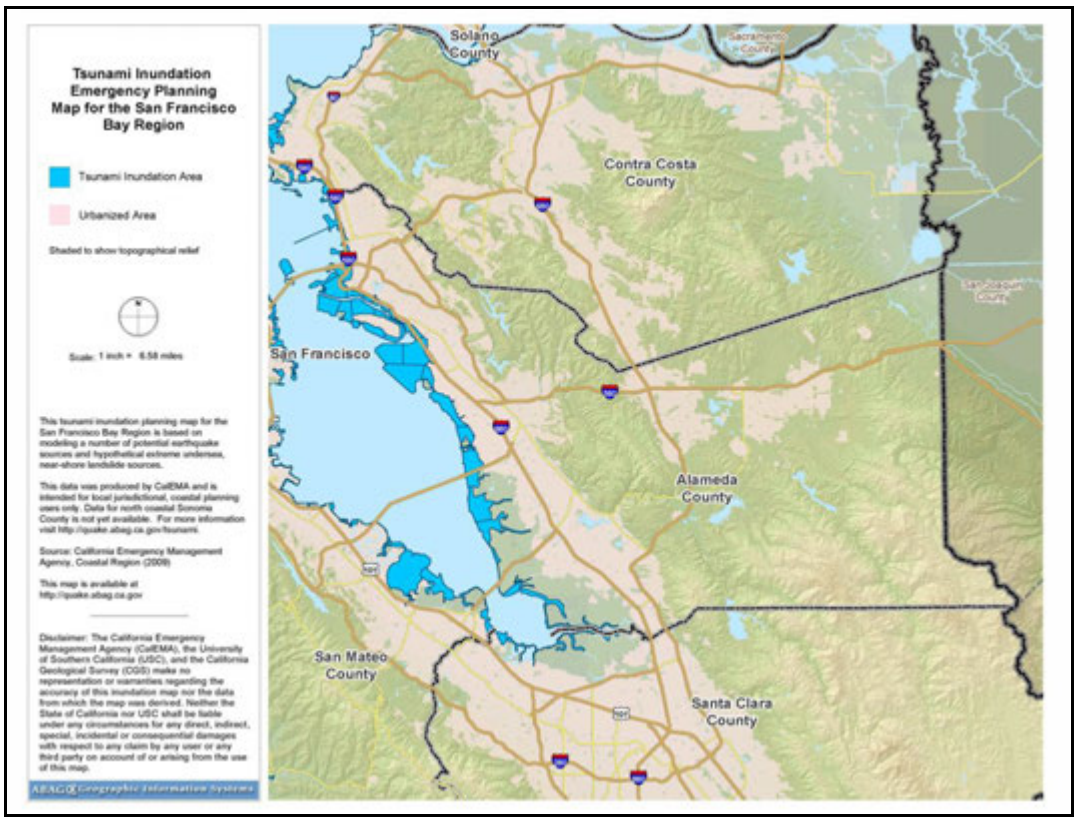
Tsunamis can result from off-shore earthquakes within the Bay Area, or from distant events. While it is most common for tsunamis to be generated by subduction faults such as those in Washington and Alaska, local tsunamis can be generated from strike-slip faults. The San Andreas Fault runs along the coast off the Peninsula, and the Hayward Fault runs partially through San Pablo Bay.

A seiche can be considered 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 (or other vibration) can result in large and destructive oscillations that produce waves tens of feet above normal lake (water) level. In harbors and closed or restricted bays, these waves can destroy harbor and shore facilities. Indirectly, tsunamis, by causing a rapid change in sea level or more commonly by the wave itself, can set up smaller internal oscillations in bays and harbors. These seiches are very similar to tsunamis, but the waves are usually smaller and of lower energy. The trigger mechanism for seiche waves is similar to tsunami wave generation.

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 wash out earth-filled dams, causing complete collapses.

Tsunamis have not been a major problem in the Bay Area, specifically in Alameda County. In the past two years Alameda has received two tsunami advisories; however, an advisory is the National Weather Service's lowest-level alert. This means there could be waves but inundation is not expected, and the main worry for the people is dangerous surges and currents in the bay.

The map shown in **Figure 2-7** illustrates the tsunami inundation area for Alameda County. This map does not represent inundation from a single scenario event but combines inundation results for a suite of scenarios.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-7. Alameda County tsunami inundation area.

2.4.16.2 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 of 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 an **M** 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. Eleven people were killed in Crescent City as a result of this tsunami. Along the coast of San Francisco, Marin, and Sonoma Counties, maximum wave heights of 1.1 meters were recorded, and no significant damage was experienced.

Most recently, in March 2011, an **M** 8.9 earthquake struck off the coast of Japan and in February 2010 an **M** 8.8 earthquake struck off the coast of Chile. While neither of

these events resulted in damage to Alameda County, the tsunami that resulted from the 2011 Japan earthquake hit the Northern California west coast, causing extensive damage to harbors and piers. Waves surging along the coast reached as high as 7 feet tall; the cities of Crescent City and Santa Cruz were hit the hardest. A complete historical list of tsunamis affecting the San Francisco Bay Area coastal cities is included in **Table 2-7**.

Table 2-7. Historical list of San Francisco Bay Area coastal tsunamis.

Year	Month	Day	Tsunami location in California	Height (meters)	Source location	Source event	Source magnitude
1859	9	24	Half Moon Bay	4.6	N. CA	—	—
1868	10	21	San Francisco Bay	4.5	SF area	—	6.8 $\mathbf{M}_S$
1896	6	15	Santa Cruz	1.5	Japan	Sanriku	7.6 $\mathbf{M}_S$
1946	4	1	Arena Cove	2.4	AK	E. Aleutian Islands	7.3 $\mathbf{M}_S$
1946	4	1	Drakes Bay	2.6	AK	E. Aleutian Islands	7.3 $\mathbf{M}_S$
1946	4	1	Half Moon Bay	2.6	AK	E. Aleutian Islands	7.3 $\mathbf{M}_S$
1946	4	1	Santa Cruz	1.5	AK	E. Aleutian Islands	7.3 $\mathbf{M}_S$
1960	5	22	Monterey	1.1	Chile	Central Chile	9.5 $\mathbf{M}_W$
1960	5	22	Pacifica	1.2	Chile	Central Chile	9.5 $\mathbf{M}_W$
1960	5	22	Stinson Beach	1.5	Chile	Central Chile	9.5 $\mathbf{M}_W$
1964	3	28	Arena Cove	1.8	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Capitola	2.1	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Martins Beach	3.0	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Monterey	1.4	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Moss Landing	1.4	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Pacifica	1.4	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	San Francisco	1.1	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	San Rafael	1.5	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Santa Cruz	1.5	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Sausalito	1.2	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1964	3	28	Tomales Bay	1.0	AK	Gulf of Alaska	9.2 $\mathbf{M}_W$
1989	10	18	Moss Landing	1.0	CA	Loma Prieta	7.1 $\mathbf{M}_S$
2011	3	11	Monterey	0.7	Japan	Honshu	9.0 $\mathbf{M}_W$
2011	3	11	Alameda	0.5	Japan	Honshu	9.0 $\mathbf{M}_W$

Source: http://www.consrv.ca.gov/cgs/geologic_hazards/tsunami/pages/about_tsunamis.aspx; additional analysis by URS Corporation, 2011.

— = Not available

$\mathbf{M}_S$ = Surface-wave magnitude

$\mathbf{M}_W$ = Moment magnitude

2.4.17 Wildland Fire

2.4.17.1 Description of Hazard

A wildfire is an uncontrolled fire spreading through vegetative fuels. Wildfires can be caused by human activities (such as arson or campfires) or by natural events (such as lightning). Wildfires often occur in forests or other areas with ample vegetation. In areas where structures and other human development meets or intermingles with wildland or vegetative fuels—which are referred to as the 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 slope increases, the rate of wildfire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildfire behavior. However, ridgetops may mark the end of wildfire spread, as 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 are more susceptible to burning or burn with greater intensity; and nonnative plants may be more susceptible to burning than native species. 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 important. The risk of fire increases significantly during periods of prolonged drought, as the moisture content of both living and dead plant matter decreases; it also increases when a disease or infestation has caused widespread damage. The fuel's continuity, both horizontally and vertically, is also an important factor.

Weather. The most variable factor affecting the behavior of wildfires is weather. Temperature, humidity, wind, and lightning can affect 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.

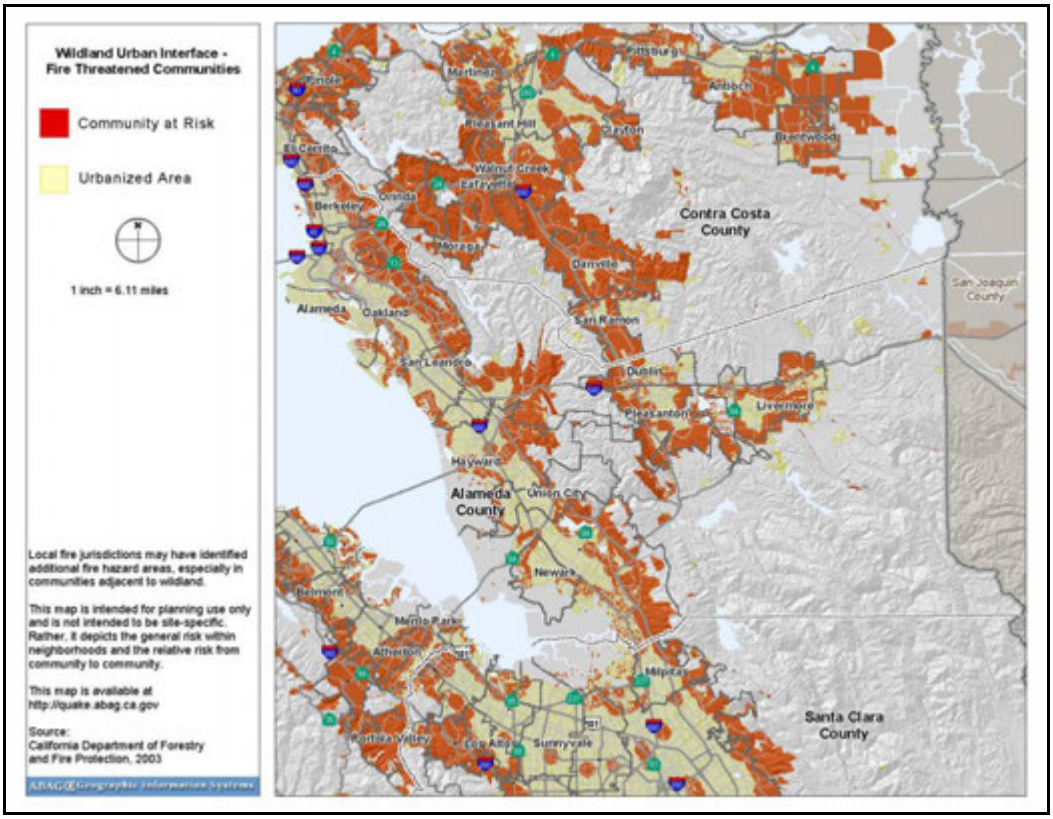
Even small fires can threaten lives and resources and destroy improved properties. If not promptly controlled, wildfires may grow into an emergency or disaster.

The indirect effects of wildfires can be catastrophic. Besides stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. 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, as described above.

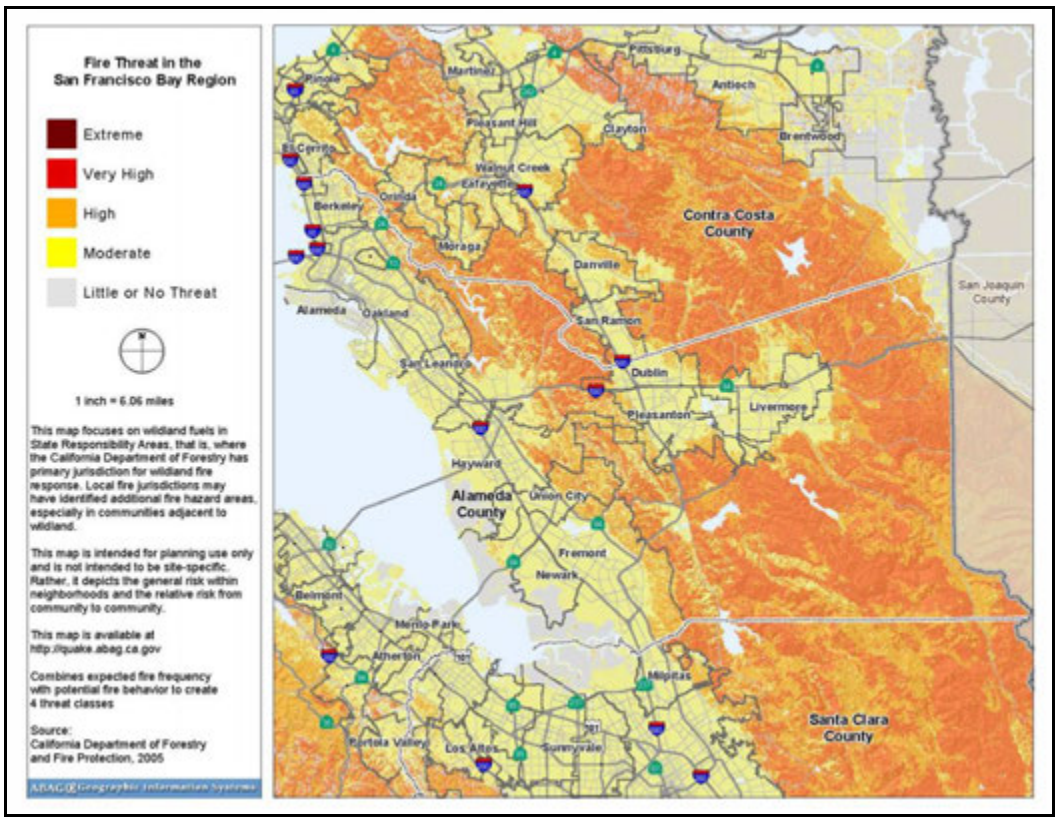
Residential and commercial encroachment into the WUI has increased the potential for disastrous fires in the County's lower hillside areas. In an effort to assist in alleviating fire dangers near the urban development interface, the construction of a fuel modification zone (firebreak, fuel break, or greenbelt) is applied. The continued application of this method does have 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 2-8**) and wildfire threat from wildland fuels in State Responsibility Areas (see **Figure 2-9**). The WUI map depicts communities within 1.5 miles of a potential wildfire source, as determined by CDF-Fire and Research Assessment Program fuel and hazard data.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-8. Alameda County wildland urban interface wildfire threat.



Source: Association of Bay Area Governments, 2010. *Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area*.

Figure 2-9. Alameda County wildfire threat, State responsibility areas.

2.4.17.2 Previous Events

Wildfires are common in the Bay Area. Large historic wildfires occurred in 1961, 1962, 1964, 1965, 1970, 1981, 1985, 1988, and 1991. Additionally, CAL FIRE maintains information on a list of archived fires going back to 2003. The list includes six wildfires that occurred in Alameda County and is shown in **Table 2-8**.

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.

Table 2-8. Alameda County wildfires 2003–2011.

Name	Start Date	Acres Affected
Midway Fire	July 11, 2006	6,400
Corral Fire	August 13, 2009	12,500
Diablo Fire	June 18, 2010	475
Grant Fire	June 14, 2011	175
Flynn Fire	July 14, 2011	917
Patterson Fire	August 23, 2011	147

Source: California Department of Forestry and Fire Protection, 2011. Archived Fires.

2.5 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 described in detail below.

3.1.1 NIMS

NIMS provides a comprehensive approach to emergency management for all hazards. NIMS integrates existing best 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.

3.1.2.1 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.

3.1.2.2 Local Government

The Local Government level for Alameda County consists of the 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.

3.1.2.3 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 facilitates and/or 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.

3.1.2.4 Regional

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

3.1.2.5 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 any 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 within which people can work together effectively. Because 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 14 days, and terminate it as soon as possible.[4]

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 14 days, and terminate it as soon as possible.[5]

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/or 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 or supervisors' meetings until terminated. Emergency proclamations should be

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

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

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 EMA Region and provide a copy of the proclamation as soon as possible.
- The Cal EMA Region notifies the Cal EMA State level and is the primary contact between the Cal EMA State level, the Operational Area, and the Local Government(s) for updates or on any requests for assistance.
- The Cal EMA 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.[6]

3.3 Alert, Warning, and Notification

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

3.3.1 Capabilities

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

- The Emergency Alert System (EAS) may be used to alert and warn the public. Access is through the Alameda County EOC.
- The California Law Enforcement Teletype System (CLETS) may be used to contact any public safety agency in the county or state. Access is through public safety dispatch centers.
- The EDIS may be used to disseminate emergency information to the public. Access is through the EDIS website or any CLETS terminal.
- Amateur radio frequencies may be used to relay emergency information to other agencies—cities, counties, or state—using amateur radio operators (hams). The

[6] Emergency Proclamations: A quick reference guide for Local Government retrieved from http://www.calema.ca.gov/PlanningandPreparedness/Documents/Proc.pdf, on December 5, 2011.

Alameda County Sheriff's Communications Team (ACSCT) is a group of hams and is available through County OHSES.

- The Operational Area Satellite Information System (OASIS) may be used to exchange information between Operational Area EOCs and Cal EMA emergency centers.
- 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 plans to notify employees after an emergency or disaster. If typical communication resources are not available, then KCBS radio can be used via OHSES.

The Sheriff's Office has a predetermined plan in place for its employees and EOC staff if all communications systems are not working.

3.3.3 Public Notification/Alerts

Notifications to the public are completed by using standard media, the radio, and social media sites like Facebook and Twitter. OHSES has a Facebook account named "Prepare Now Alameda County" and a Twitter account "@Preparenowac." In addition to these outlets, the Public Information Officer (PIO) disseminates messages through KCBS radio 740 AM.

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.[7]

3.4.2 County Officials

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

[7] Government Code Section 8637–8641

3.4.3 Alternate Facilities

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

3.4.3.1 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

3.4.3.2 Emergency Operations Center

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

If the primary EOC is not functional, an alternate EOC is established at the Santa Rita Jail.

Primary EOC:	4985 Broder Boulevard Dublin, CA 94568
Alternate EOC:	5325 Broder Boulevard Dublin, CA 94568

The alternate EOC is in the CORE building behind the jail. To access that area, EOC staff should drive to the back of the jail, check in at the guard tower to get the gate open, and then drive to the building where the office is located. The main number is (925) 551-6758. The fax number is (925) 803-7123.

3.4.4 Succession

The EOP is designed so that anyone can step in and follow the action checklist for any emergency position, including the Director of Emergency Services; however, the County Administrative Code requires that the order of succession for the Director's position be as follows:

1. Sheriff, Director of Emergency Services (ex officio) and Operational Area Coordinator
2. Undersheriff, Assistant Director of Emergency Services
3. Captain, OHSES, Sheriff's Office

4. The County Official with the highest degree of expertise in the type of emergency at hand

3.4.5 Vital Records Protection

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

- Protect the rights and interests of individuals, corporations, or other entities. Examples include vital statistics, land and tax records, license registers, and articles of incorporation.
- Conduct emergency response and recovery operations. Records of this type include utility system maps, locations of emergency supplies and equipment, emergency operations plans, and personnel rosters.
- Re-establish 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 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, but are not necessarily limited to:

- Overhead sprinkler systems
- Fireproof containers
- Vault storage (both in and out of the jurisdiction)
- 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 our Emergency Management Program preparedness. 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

OHSES 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 as many County departments and agencies; relevant outside stakeholders; and SEMS level coordination points, to include Region II Mutual Aid Coordinators, the Cal EMA Administrative Region, and Operational Area member jurisdictions as possible.

3.5.3 After-Action Review

After an exercise or actual incident, an After-Action Review is conducted and an After-Action Report (AAR) developed identifying strengths and areas for improvement for plans or systems. Using the AAR, OHSES 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 with regard to an emergency response operation. The Concept of Operations describes how the emergency response organization accomplishes its mission. Ideally, it offers clear 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, NGOs, and private-sector partners are described in **Table 4-1**. **Table 4-2** presents Alameda County agencies and their primary and supporting roles.

Table 4-1. Agencies with roles supporting Alameda County's Emergency Management Program.

Agency	Responsibilities
Sheriff–Coroner	**Serves** as the lead agency for the management of fatalities[1] 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
Fire and Rescue	**Activates** USAR teams
	Provides search, rescue, and recovery operations
	Assists with decontamination operations
	Coordinates Fire and Rescue Mutual Aid
Hazardous Materials Response Teams	**Provides** expertise on hazardous materials
	Provides decontamination of people and resources
	Safely **disposes** of hazardous materials

Table 4-1. Agencies with roles supporting Alameda County's Emergency Management Program.

Agency	Responsibilities
Behavioral 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 Homeland Security and Emergency Services	**Oversees** the Alameda County Emergency Management Program
	Provides emergency management training to key stakeholders
	Coordinates the establishment of the JIC
	Initiates warnings and notifications
	Maintains the EOP and the Operational Area EOC
Board of Supervisors	**Approves** the EOP and any future revisions
	Makes, enforces, or **waives** County regulations to facilitate an effective emergency response
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
	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
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
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	**Coordinates** the activation of shelters for the Operational Area
	Provides support services at the Family Assistance Center when activated
	May support local governments by **providing** staff to operate disaster shelters.
	Provides programs for child care, General Assistance, Medi-Cal, Housing Assistance, Food Stamps, and Supplemental Security Income for disaster victims in need

Source: URS Analysis, 2011.

EOC = Emergency Operations Center

EOP = Emergency Operations Plan

JIC = Joint Information Center

USAR = Urban Search and Rescue

[1] Not all fatalities come under the jurisdiction of the Sheriff–Coroner. Exceptions are described the Alameda County Administrative Code, Title 2, Chapter 2.56.110.

Table 4-2. Agency primary and supporting roles.

ICS Functions	Management			Operations					Plans					Logistics					Finance			
	EOC Director	Command Staff	Board of Supervisors	Fire	Law Enforcement	Medical /Health	Human Services	Public Works	Situation Analysis	Documents Unit	Resource Status	Public Information Unit	EOC Coordinator	Resources Unit	Personnel and Volunteer Unit	Transportation Unit	Facilities Unit	Communications Unit	Timekeeping Unit	Compensation Unit	Costs Unit	Recovery Unit
Alameda County Fire		A		L	A	A			S			A						A				A
Assessor									S													A
Auditor/Controller									A					A						L	L	S
Board of Supervisors			L																			
Clerk of the Board			S																			
Community Dev.									S													A
Cooperative Ext.												S										
County Administrator		L										L							L	S	S	L
County Counsel		L																				
District Attorney					A																	
General Services		L							S		L			L		L	L	L			A	
Health Care Services					S	L			S			S										
Human Resources															L							A
Information Tech														S								
Library												A			S							
Municipal Courts					A																	
Probation					A		S															
Public Defender					A																	
Public Works				S	A			L	S								S					S
Registrar of Voters							A															
Retirement															A							
Sheriff	L	L		A	L				L			S	L					S				A
Social Services					A		L		S													
Superior Court					A				A													
Treasurer														A								A
Zone 7 Water								A														

L = Lead Agency: Responsible for overall management or coordination of a particular function.

S = Support Agency: Responsible for providing support to a particular function.

A = Assisting Agency: Responsible for assisting in a particular function as necessary to carry out response/recovery activities.

Source: Alameda County OHSES, 2011.

4.2 Emergency Operations Center

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. The activation level of the EOC and associated staffing needs also vary with the specific emergency situation.

4.2.1 Levels of Emergencies

This section lists the levels of emergency and their relationship to EOC activation. It also addresses scenarios that may trigger a particular level of activation. The levels of emergency in California are:

Level I: Minor Emergency

- A minor to moderate emergency for which local resources are both adequate and available to respond
- May trigger Local governments' emergency plans and require partial or full activation of their EOC
- May have varying impacts on specific Local governments
- A city may activate its emergency plan, while surrounding cities and the County may not

Level II: Major Emergency

- A moderate to severe emergency for which Local resources are not adequate; assistance may be required across jurisdictional boundaries or on a Regional basis.
- Requires implementation of affected governments' emergency plans and activation of their EOCs as well as the activation of the Alameda County EOC. Cal EMA Coastal Region may activate its EOC.
- A Level II Emergency that impacts one city in Alameda County will, by definition, also impact the surrounding cities in Alameda County and neighboring counties. Alameda County activates and declares a Local Emergency.
- If resource assistance is required from outside Alameda County or if more than one Operational Area is affected, the Governor declares a State Emergency.

Level III: Catastrophic Emergency

- A major disaster for which resources in or near the affected areas are overwhelmed. Extensive State and/or Federal resources are required. Examples include a major earthquake; a large scale terrorist attack; or multiple, large, wildland fires.
- Requires activation of the Alameda County and State emergency plans and their EOCs.

- In order to ensure available resources are provided on a prioritized basis during Level III Emergencies, access to State and Federal resources is coordinated through the Alameda County Operational Area EOC. Also, other resources that would normally be provided through mutual aid—such as additional buses, heavy equipment, emergency medical response, engineering support, or hazardous spill response—are coordinated through the Alameda County Operational Area EOC during Level III Emergencies.

4.2.2 Activation

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

4.2.2.1 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 declared or proclaimed a local emergency.
- The county and one or more cities have declared or 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 does not include 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 this Operational Area.
- Cal EMA 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

4.2.2.2 Activation Levels

There are two types of activation:

- **Partial Activation.** 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.
- **Full Activation.** For a 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 then needs for outside assistance.

4.2.3 Organization Structure

The organizational structure for the EOC follows the standard ICS format, with a command or management section and four functional sections: Operations, Plans, Logistics, and Finance. **Figure 4-1** presents the standard EOC organization for Alameda County.

4.2.4 Position Roles and Responsibilities

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 and the Emergency Response Guides.

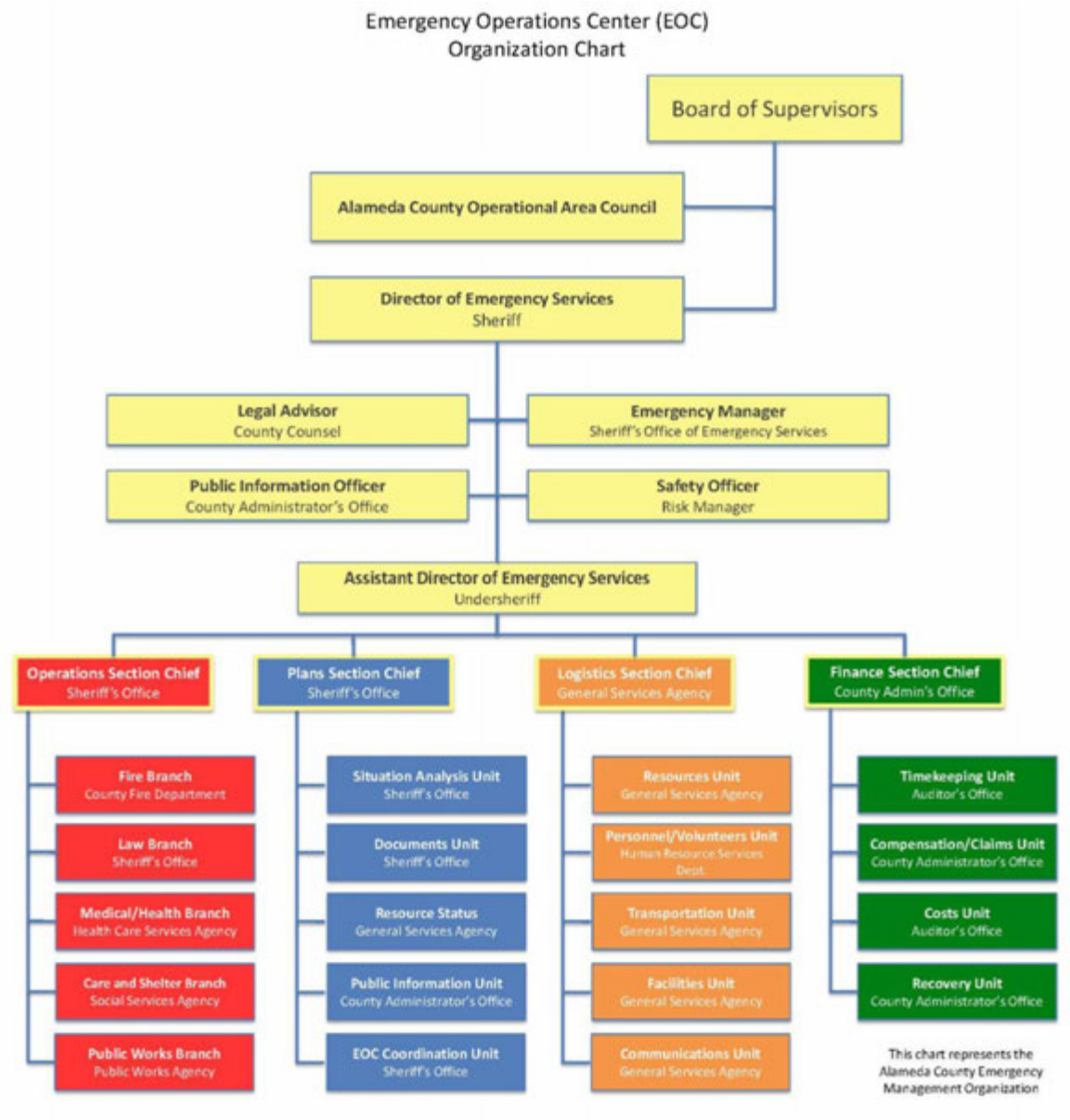


Figure 4-1. Emergency Operations Center organization chart**.**

4.3 Department Operations Centers

A Department Operations Center (DOC) is an operational and logistical entity that is designed to coordinate functional support for incident management. The role of a DOC typically involves two functions: continuing critical pre-disaster operations and providing functional support to field operations. DOCs can serve as extensions of the functional branches in the Operations and Logistics Sections of the EOC.

4.4 Mutual Aid System

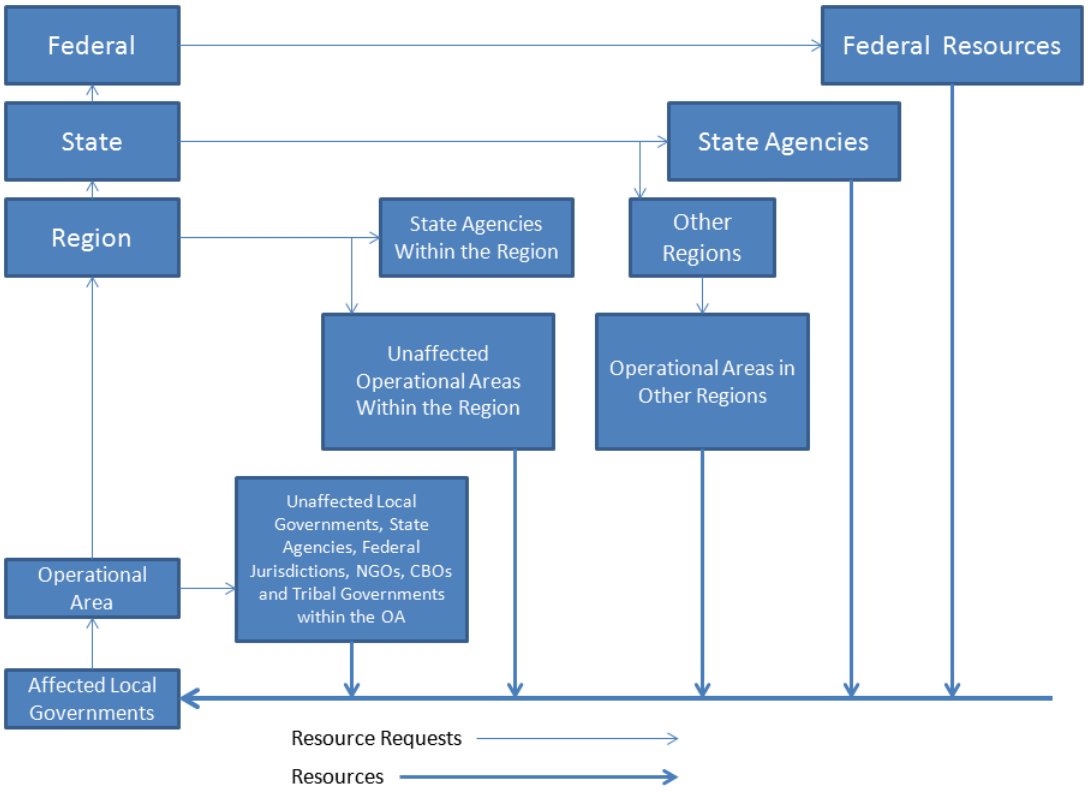
Emergency assistance for Alameda County is based on a statewide mutual aid system designed to ensure that additional resources are provided to the state's political subdivisions whenever their own resources are overwhelmed or inadequate. The basis for this system is the *California Disaster and Civil Defense 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 expectation of reimbursement. Under specific conditions, Federal and State monies may be appropriated to reimburse public agencies who aid other jurisdictions. If other agreements, memorandums, and contracts are used to provide assistance for consideration, 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 be filled from within Alameda County departments. Once internal resources have been exhausted (to include 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 source exists 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 services or supplies first from within existing Alameda County resources, and then from the private sector or other nongovernmental sources.

When Alameda County resources have been exhausted, resource requests are then routed to the EOCs of other local governments in the Operational Area. 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.



Source: State of California Emergency Plan, July, 2009.

Figure 4-2. Resource request flow**.**

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 resource(s) is providing
- Provide delivery location with a common 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 and/or Mutual Aid Coordinator
- Indicate the time the resource is needed and include an estimate of duration of use
- For resource requests involving personnel and/or equipment with operators, indicate if logistical support is required, (i.e., food, shelter, fuel, and reasonable maintenance).

4.6 Direction, Control, and Coordination

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

4.6.1 Direction and Control

The Director and the Assistant Director of OHSES have the power to direct staff and civilian responses in the unincorporated areas of the County and to settle questions of authority and responsibility.[8] 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.[9] In a proclaimed emergency, the Director may buy or commandeer supplies and/or equipment and may command the aid of citizens.[10]

Additionally, the Governor has the power to suspend State agency orders, rules, or regulations that may impede emergency responses. Local governments generally do not have this power, except by order of the Governor.[11]

4.6.2 Coordinating with Field-Level Incident Command Posts

Field-level responders organize under the Incident Command System and coordinate with local government DOCs or EOCs, depending on the jurisdiction. 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 Operational Area EOC coordinates with local governments through their activated EOC to facilitate the request and acquisition of resources and to share information. Contact information for each local government EOC can be found in **Appendix B**. When the Operational Area EOC is not activated, local governments coordinate through the Operational Area Mutual Aid Coordinators or through the Dispatch Center.

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[8] Alameda County Administrative Code, Title 2, Chapter 2.118, Section 2.118.110 and 2.118.140

[9] Alameda County Administrative Code, Title 2, Chapter 2.118, Section 2.118.120; California Government Code, Emergency Services Act, Section 8634

[10] Alameda County Administrative Code, Title 2, Chapter 2.118, Section 2.118.120

[11] California Government Code, Emergency Services Act, Sections 8571 and 8614c

4.6.4 Coordinating with the State of California

The Alameda Operational Area EOC coordinates with the State of California through the Cal EMA REOC or through the Regional Mutual Aid Coordinators when appropriate. When the REOC is not activated, coordination occurs through Region's Duty Officer by way of the State Warning Center.

4.6.5 Coordinating with NGOs/Private-Sector Organizations

NGOs and private-sector businesses that provide resources and services in response to a disaster are encouraged to provide liaisons to the EOC. The Alameda County EOC has designated space to facilitate the support of these liaisons.

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5. Information Collection, Analysis, and Dissemination

Obtaining situational awareness is one of the most critical tasks following an incident or catastrophic disaster. Information collection consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident's cause, size, and current situation to the public, responders, and additional stakeholders (both directly affected 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.

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 inspections of infrastructure and facilities, windshield surveys to acquire damage assessments and the potential for human causalities, and status calls and situation reports from other agencies at all levels of government.

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 Dissemination

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

5.3.1 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.

5.3.2 JIS

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.

5.3.3 JIC

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

5.3.4 Message Development and Approval

Messages intended to be disseminated to the public or to other agencies or organizations may be developed by subject matter experts working in support the County's response efforts. These messages are reviewed by the PIOs at the JIC to correct inaccuracies and to maintain consistency in messaging. Approval of the messages is in most cases granted to the head of the agency that is claiming responsibility for the release of the message.

5.3.5 Methods of Dissemination

Alameda County uses various mechanisms to disseminate public information. Among them are: social media, standard media, radio, and the Emergency Alert System. Additional methods are used for those with access and functional needs.

6. Recovery Operations

Although no single definition fits all situations, successful recoveries do share conditions in which the community:

- Successfully overcomes the physical, emotional, and environmental impacts of the disaster
- Reestablishes an economic and social base that instills confidence in the community members and businesses regarding community viability
- Rebuilds by integrating the functional needs of all residents and reducing its vulnerability to all hazards facing it
- Demonstrates a capability to be prepared, responsive, and resilient in dealing with the consequences of disasters

In order to achieve these conditions, Alameda County has adopted the following recovery objectives from the Regional Emergency Coordination Plan Recovery Subsidiary Plan:

- Restoration of basic hospital services and other facilities that provide medical care to the community, together with necessary supplies
- Facilitation of the transition of displaced populations from shelters to interim and long-term housing arrangements and ensuring social services, as necessary
- Facilitation of the resumption of employment and economic activity of small businesses in neighborhoods and downtowns and of national and international businesses located in the region
- Identification of repairs that can be implemented immediately as well as 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 such sectors as financial services, shipping, and manufacturing[12]

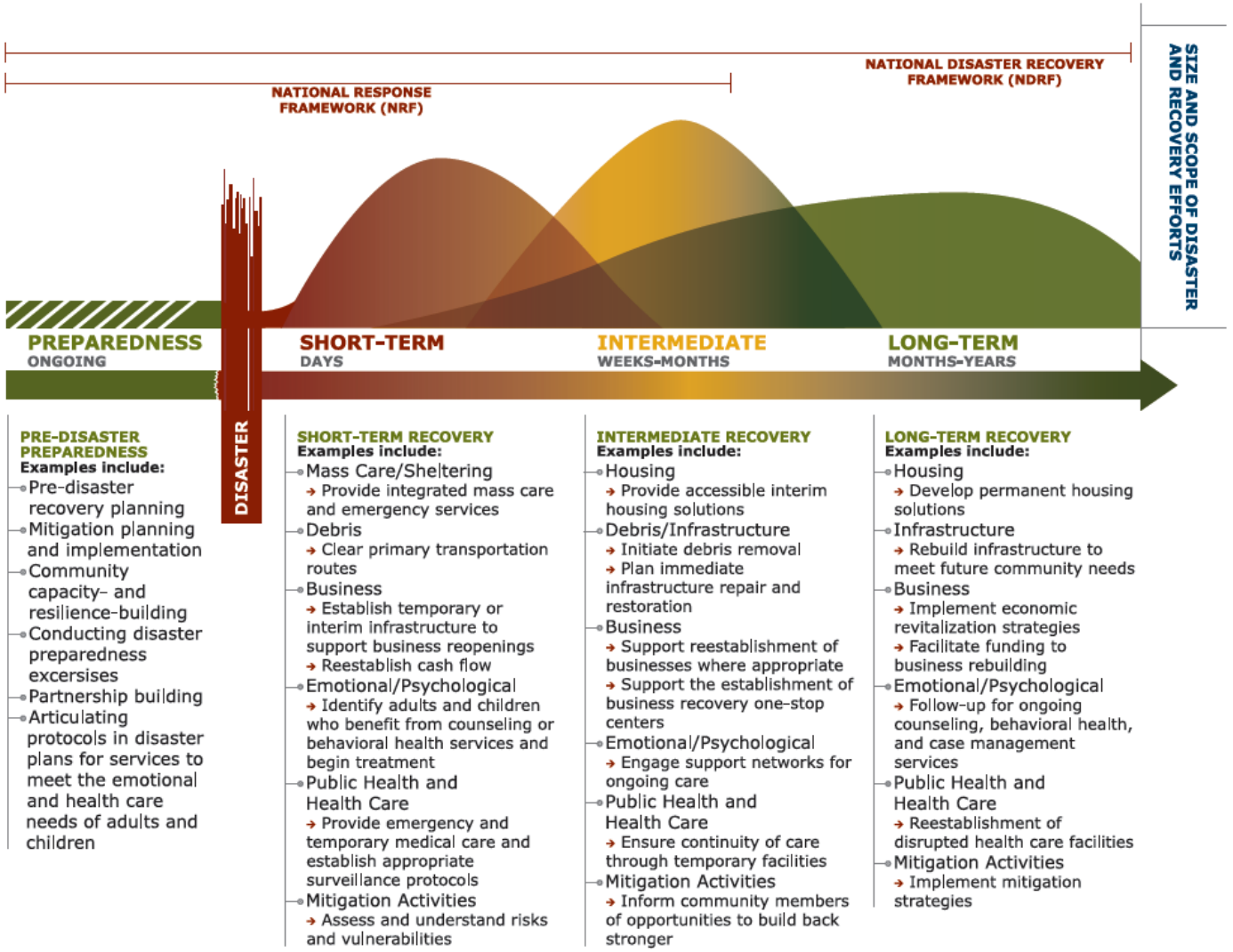
[12] Regional Emergency Coordination Plan, 2008.

- 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[13]

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 in example sectors.

[13] Governor's Office of Emergency Services. 2008. *RECP Recovery Subsidiary Plan*.



Source: National Disaster Recovery Framework, FEMA, September 2011

Figure 6-1. Recovery continuum.

6.1.1 Short Term

Recovery operations begin concurrently with or shortly after the commencement of response operations. Short-term recovery activities occur within 90 days of the incident, but may continue beyond that point. Short-term recovery includes actions required to:

- Stabilize the situation
- Restore essential services
- Begin the process of restoring 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 missions or functions. Recovery activities typically include:

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

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.

6.1.3 Long Term

Long-term recovery includes those activities necessary to restore a community to its pre-disaster state, given the inevitable changes that result from 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

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. Recovery for Alameda County is complex in that 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 EMA Recovery Branch

The Cal EMA Recovery Branch is responsible for managing disaster recovery and providing assistance to local governments and individuals impacted by disasters. The Recovery Branch ensures that 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 general 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 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 as needed to improve future operations.

- Coordinates 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 (incident and permanent), large displacements of individuals including those with special 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, taking into account 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 may transition recovery planning out of the Advanced Planning Unit of the EOC to an Operational Area Recovery Task Force. Consequently, the OHSES 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 offer assistance, they typically do so through the following assistance programs:

6.5.1 LAC

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 EMA Recovery, the County assesses the need for LACs and establishes them. Cal EMA Recovery ensures that an appropriate number of LACs are established, based on assessed needs, and coordinates the participation of State and Federal agencies at the centers. Not all areas affected by an incident require LACs. Cal EMA Recovery may provide financial support to the County for the operation of LACs through the California Disaster Assistance Act.

6.5.2 Federal Assistance Programs

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

6.5.2.1 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 EMA 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, as appropriate. 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 EMA identifies communities for which this mechanism is necessary.

6.5.2.2 Recovery Programs

Under the Stafford Act, FEMA also 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 the Public Assistance Program
- Assistance to State and local governments through the Hazard Mitigation Grant Program for measures to reduce damage from future disasters

6.5.2.3 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 repairs to damaged homes and for damage to businesses

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

6.5.2.4 Delivery of Federal Assistance Programs

FEMA coordinates Stafford Act programs, such as the Public Assistance Program, with Cal EMA 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 with assistance to individuals 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 EMA to FEMA and works directly with Cal EMA 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 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

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

7.2 Development Process

The initial development and the development of new material follow basic guidelines for strategic planning. The process is led by OHSES using stakeholders to assist in the development of the EOP. Stakeholders participate in functional work groups to generate material for the EOP. OHSES combines the contributions of the stakeholders and other subject matter experts to develop the draft EOP. The stakeholders review the draft EOP and provide comments to OHSES. OHSES addresses the comments, making edits to the draft EOP as necessary, and produces the final EOP. Stakeholder involvement is key to developing a comprehensive EOP that is useful, applicable, and supported by all County departments/agencies and local governments in the Operational Area.

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. Similar to the development process, each responsible department/agency reviews and updates its portion of the EOP and/or modifies its standard operating procedures as required 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.

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Appendices

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APPENDIX A:

GLOSSARY

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Acronyms

BART ..... Bay Area Rapid Transit

Cal EMA ..... California Emergency Management Agency

CAL FIRE ..... California Department of Forestry and Fire Protection

CFR ..... Code of Federal Regulations

DOC ..... Department Operations Center

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 ..... California Disaster and Civil Defense Master Mutual Aid Agreement

NGO ..... nongovernmental organization

NIMS ..... National Incident Management System

NRC ..... National Response Center

OHSES ..... Alameda County Sheriff's Office of Homeland Security and Emergency Services

PGA ..... peak ground acceleration

PIO ..... Public Information Officer

REOC ..... Regional Emergency Operations Center

SEMS ..... Standardized Emergency Management System

SOC ..... State Operations Center

USC ..... United States Code

USGS ..... U.S. Geological Survey

WUI ..... wildland/urban interface

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APPENDIX B:

ALAMEDA COUNTY EMERGENCY PREPAREDNESS PROGRAM PLANNING PRODUCTS

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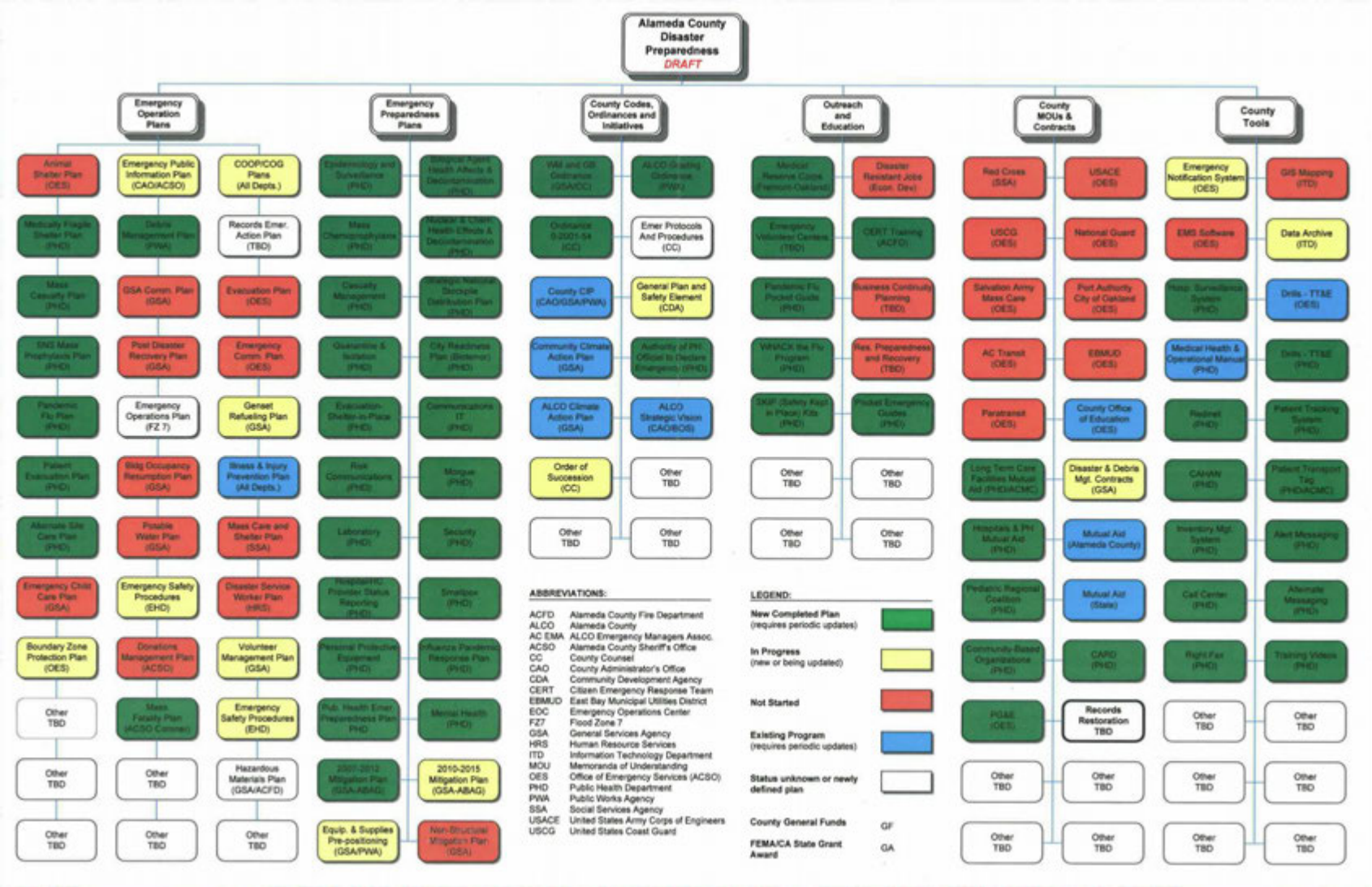
Alameda County Disaster Preparedness
DRAFT
Emergency Operation Plans
Emergency Preparedness Plans
County Codes, Ordinances and Initiatives
Outreach and Education
County MOUs & Contracts
County Tools
Animal Shelter Plan (OES)
Emergency Public Information Plan (CAO/ACSO)
COOP/COG Plans (All Depts.)
Medically Fragile Shelter Plan (PHD)
Debris Management Plan (PWA)
Records Emer. Action Plan (TBD)
Mass Casualty Plan (PHD)
GSA Comm. Plan (GSA)
Evacuation Plan (OES)
SNS Mass Prophylaxis Plan (PHD)
Post Disaster Recovery Plan (GSA)
Emergency Comm. Plan (OES)
Pandemic Flu Plan (PHD)
Emergency Operations Plan (FZ 7)
Genset Refueling Plan (GSA)
Patient Evacuation Plan (PHD)
Bldg Occupancy Resumption Plan (GSA)
Illness & Injury Prevention Plan (All Depts.)
Alternate Site Care Plan (PHD)
Potable Water Plan (GSA)
Mass Care and Shelter Plan (SSA)
Emergency Child Care Plan (GSA)
Emergency Safety Procedures (EHD)
Disaster Service Worker Plan (HRS)
Boundary Zone Protection Plan (OES)
Donations Management Plan (ACSO)
Volunteer Management Plan (GSA)
Other TBD
Mass Fatality Plan (ACSO Coroner)
Emergency Safety Procedures (EHD)
Other TBD
Other TBD
Hazardous Materials Plan (GSA/ACFD)
Other TBD
Epidemiology and Surveillance (PHD)
Biological Agent Health Affects & Decontamination (PHD)
Mass Chemoprophylaxis (PHD)
Nuclear & Chem. Health Effects & Decontamination (PHD)
Casualty Management (PHD)
Strategic National Stockpile Distribution Plan (PHD)
Quarantine & Isolation (PHD)
City Readiness Plan (Botemer)
Evacuation-Shelter-in-Place (PHD)
Communications IT (PHD)
Risk Communications (PHD)
Morgue (PHD)
Laboratory (PHD)
Security (PHD)
Hospital/HC Provider Status Reporting (EHD)
Smallpox (PHD)
Personal Protective Equipment (PHD)
Influenza Pandemic Response Plan (PHD)
Pub. Health Emer. Preparedness Plan PHD
Mental Health (PHD)
2007-2012 Mitigation Plan (GSA-ABAG)
2010-2015 Mitigation Plan (GSA-ABAG)
Equip. & Supplies Pre-positioning (GSA/PWA)
Non-Structural Mitigation Plan (GSA)
WM and GB Ordinance (GSA/DC)
ALCO Grading Ordinance (PWA)
Ordinance 0-2001-54 (CC)
Emer Protocols And Procedures (DC)
County CIP (CAO/GSA/PWA)
General Plan and Safety Element (CDA)
Community Climate Action Plan (GSA)
Authority of PH Official to Declare Emergency (PHD)
ALCO Climate Action Plan (GSA)
ALCO Strategic Vision (CAO/BOS)
Order of Succession (OC)
Other TBD
Other TBD
Other TBD
Medical Reserve Corps (Fremont-Oakland)
Disaster Resistant Jobs (Econ. Dev)
Emergency Volunteer Centers (TBD)
CERT Training (ACFD)
Pandemic Flu Pocket Guide (PHD)
Business Continuity Planning (TBD)
WAHCX the Flu Program (PHD)
Res. Preparedness and Recovery (TBD)
SNAP (Safety Kept in Place) Kits (PHD)
Pocket Emergency Guides (PHD)
Other TBD
Other TBD
Other TBD
Other TBD
Red Cross (SSA)
USACE (OES)
USCG (OES)
National Guard (OES)
Salvation Army Mass Care (OES)
Port Authority City of Oakland (OES)
AC Transit (OES)
EBMUD (OES)
Paratransit (OES)
County Office of Education (OES)
Long Term Care Facilities Mutual Aid (PHD/ACMC)
Disaster & Debris Mgt. Contracts (GSA)
Hospitals & PH Mutual Aid (PHD)
Mutual Aid (Alameda County)
Pediatric Regional Coalition (PHD)
Mutual Aid (State)
Community Based Organizations (PHD)
CARD (PHD)
PG&E (OES)
Records Restoration TBD
Other TBD
Other TBD
Other TBD
Other TBD
Emergency Notification System (OES)
GIS Mapping (ITD)
EMS Software (OES)
Data Archive (ITD)
Drills - TT&E (OES)
Medical Health & Operational Manual (PHD)
Drills - TT&E (PHD)
ReDiNet (PHD)
Patient Tracking System (PHD)
CAHAN (PHD)
Patient Transport Trig (PHD/ACMC)
Inventory Mgt. System (PHD)
Alert Messaging (PHD)
Call Center (PHD)
Alternate Messaging (PHD)
Right Fax (PHD)
Training Videos (PHD)
Other TBD
Other TBD
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ABBREVIATIONS:
ACFD Alameda County Fire Department
ALCO Alameda County
AC EMA ALCO Emergency Managers Assoc.
ACSO Alameda County Sheriff's Office
CC County Counsel
CAO County Administrator's Office
CDA Community Development Agency
CERT Citizen Emergency Response Team
EBMUD East Bay Municipal Utilities District
EOC Emergency Operations Center
FZ7 Flood Zone 7
GSA General Services Agency
HRS Human Resource Services
ITD Information Technology Department
MOU Memoranda of Understanding
OES Office of Emergency Services (ACSO)
PHD Public Health Department
PWA Public Works Agency
SSA Social Services Agency
USACE United States Army Corps of Engineers
USCG United States Coast Guard
LEGEND:
New Completed Plan (requires periodic updates)
In Progress (new or being updated)
Not Started
Existing Program (requires periodic updates)
Status unknown or newly defined plan
County General Funds GF
FEMA/CA State Grant Award GA

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APPENDIX C:

MAP OF ALAMEDA COUNTY

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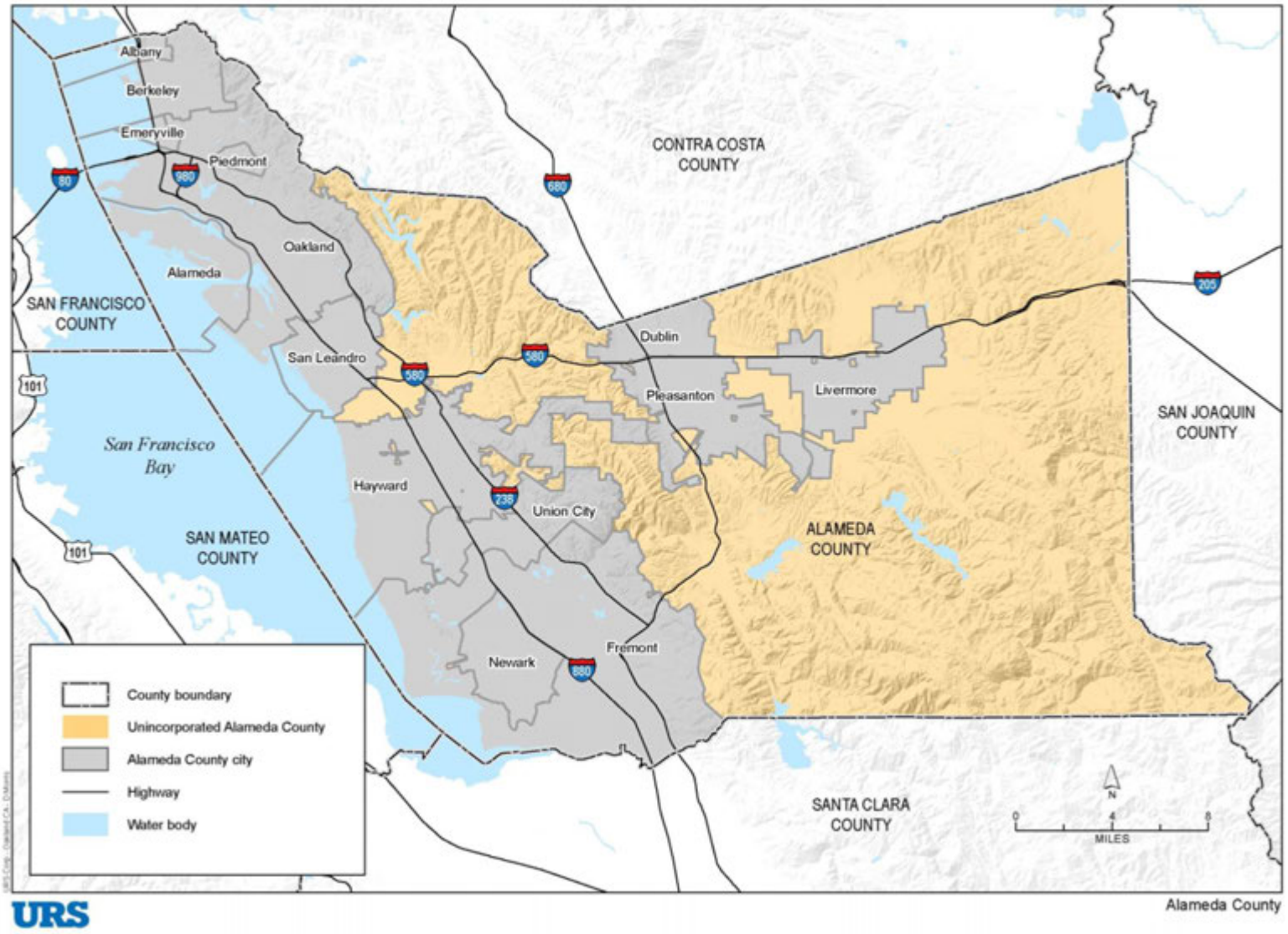
Albany
Berkeley
Emeryville
Piedmont
Oakland
Alameda
SAN FRANCISCO COUNTY
San Leandro
Hayward
Union City
Fremont
Newark
Dublin
Pleasanton
Livermore
CONTRA COSTA COUNTY
SAN JOAQUIN COUNTY
ALAMEDA COUNTY
SAN MATEO COUNTY
SANTA CLARA COUNTY
San Francisco Bay
80
980
680
580
238
880
205
101
County boundary
Unincorporated Alameda County
Alameda County city
Highway
Water body
N
0
4
8
MILES
URS
Alameda County

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