



## **ANNEX F**

# **HAZARD MITIGATION PLANNING GUIDE**



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## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

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# Multi-Hazard Mitigation Planning Guide

## Introduction

### Definition of Hazard Mitigation

*Hazard Mitigation* is any action taken to eliminate or reduce the risk to human life, property and the environment posed by a hazard. Hazard Mitigation may occur during any phase of a threat, emergency or disaster. Mitigation can and should take place during preparedness (before), response (during), and recovery (after) phases.

### Hazard Mitigation Plan

The purpose of a Hazard Mitigation Plan is to integrate Hazard Mitigation strategies into the activities and programs of the Federal, State, County, and City governments and to the extent practical, into the activities of private sector organizations.

The plan identifies and evaluates specific Hazard Mitigation strategies to be considered by City of Alameda agencies and organizations. The strategies presented are deemed appropriate and effective by recommendation of the City of Alameda Hazard Mitigation Plan Steering Committee and the City of Alameda Planning Team.

Upon acceptance by the City of Alameda City Council, the selected strategies will be further developed for funding and implementation by the lead agencies. The plan describes the potential sources of Hazard Mitigation Strategy funding, and general procedures to obtain that funding.

The plan is based upon a detailed City of Alameda Hazard Vulnerability Analysis (HVA) that considers the natural, technological, and human caused risks to which City of Alameda is vulnerable. The plan describes strategies that government and private sector may utilize as their capabilities to mitigate those hazards.

It is understood that the mitigation strategies adopted in this plan are recommendations only, and they must be approved and funded to be implemented as official Hazard Mitigation Strategies for the City of Alameda.

### Hazard Mitigation Planning

Hazard Mitigation Planning is a collaborative effort whereby:

- 9 Hazards are identified in the detailed Hazard Vulnerability Analysis
- 9 Vulnerabilities to the hazards are categorized and assessed
- 9 The steering committee works to reach “Consensus” on how to minimize or eliminate the hazards’ effects
- 9 The areas where consensus cannot be reached are noted as constraints



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

- 9 Major areas where consensus cannot be reached may have to be addressed at executive level

### **Federal Planning Instructions**

1. Section 322 of the Disaster Mitigation Act of 2000 instructed FEMA to establish criteria for mitigation plans.
2. Mitigation Plans are required of State and local governments as well as Tribal Governments.
3. February 26, 2002, FEMA published in the Federal Register 44 CFR Parts 201 and 206 – Hazard Mitigation Planning and Hazard Mitigation Grant Program: Interim Final Rule

### **Considerations**

- 9 The law specifically refers to “natural hazards”
- 9 Note: FEMA strongly recommends that State and local governments also consider technological and human caused hazards that may result in disasters, including Weapons of Mass Destruction (WMD).
- 9 Is FEMA willing to allow this round of funding for multi-hazard planning

### **State and Local Planning Requirements**

1. Outlines short- and long-range mitigation goals and objectives
2. Documents ongoing State/local mitigation activities.
3. Documents State and local commitment to mitigation - (needs to address level and ability)
4. Demonstrates how a jurisdiction will carry out mitigation
5. Special Districts are included as local governments in the planning requirements

### **State and Local Planning Requirements**

- 9 Plans must be completed and approved by FEMA no later than November 1, 2004
- 9 Jurisdictions without mitigation plans will be ineligible for future mitigation funding from FEMA (pre- and post-disaster) including certain non-emergency Public Assistance funding. Rules regarding Homeland Security Funding eligibility have yet to be developed.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **The Planning Process**

#### **How Do You Know Where To Begin?**

- 9 Open public involvement in the planning process is required
- 9 Opportunity for the public to comment during drafting and final approval
- 9 Opportunity for neighboring communities, businesses, academia etc. to provide comments

*Constraint – How to involve the public and protect post 9/11 (World Trade Center Disaster) sensitive information*

Involves jurisdictions and community representatives in the planning body

Review and incorporate existing plans, studies, reports, and technical information

- 9 All must be fully documented within plan
- 9 Reference or attach documents have been reviewed
- 9 Must include how plan was prepared – who participated and how the public was involved

### **Three Prerequisites for Review and Approval by State & FEMA**

Formal adoption documentation must be provided by the governing body

#### **For Multi-jurisdictional Plans:**

1. Each jurisdiction must formally adopt the plan
2. Multi-jurisdiction strategies must show that each jurisdiction has participated in the process and that the strategies are connected to their own risk analysis and mitigation agenda
3. Statewide plans are not accepted as multi-jurisdictional plans



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Where to Begin**

#### **Select and brief participants to a planning group or steering committee.**

Decide whether the plan will be multi-jurisdictional and be sure to provide adequate representation on the committee for all jurisdictions involved

#### **Develop goals**

Goals may change during the process but start with those goals initially identified

- 9 Investigate existing documents and information
- 9 Research community Master Plan Goals
- 9 Describe the basis for each goal

#### **Select Planning Group**

Select a facilitator and chair

Be sure that participants are willing to participate (the process is labor-intensive)

Participants must:

- 9 Represent community interests
- 9 Have specific knowledge to contribute to the Plan

Begin developing a detailed Hazard Vulnerability Analysis

#### **Support**

FEMA provides technical assistance to local governments for planning and project implementation/. The support may or may not be funded.

- 9 Insurance, construction and utility industries have key roles
- 9 Determine stakeholders and who they serve
- 9 Prioritize importance of the services they provide
- 9 Include broad representation base on the committee



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Local Hazard Mitigation Team**

1. Membership must span multi-agency and multi-disciplinary facets.
2. The team must meet regularly to review changes in statewide hazard vulnerabilities and mitigation priorities.
3. They must review and update the Plan to rank potential Hazard Mitigation Grant Program projects.
4. The Group must reflect the political will of the community and/or organization.
5. The Group will address politically sensitive areas.
  - 9 Land use planning
  - 9 Building Codes
  - 9 Integration with master planning
  - 9 State and Federal requirements/community services
6. Group requires the support of elected officials
7. Need to connect with special need populations

### **Full Time Members/ Adjunct Members (Planning Resources)**

Some jurisdictions have appointed a small core of Hazard Mitigation Committee Members. As adjunct members, they brought on additional expertise as needed. Other committee options include:

- 9 May have Committee advisors
- 9 May have Committee Liaisons
- 9 May have Committee legal advisors
- 9 May have Technical Expertise

### **Planning Process Interim Rule**

“...the planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs.”



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **How does this apply to a local governmental level?**

Local governments must coordinate with local agencies, local groups State and Federal agencies, interested citizens and special Districts. Special Districts are considered to be a local government entity.

### **Hazard Vulnerability Analysis**

44 CFR 201.6(c)(2) requires specific information sufficient to identify risks & prioritize actions such as:

- 9 Detailed description of hazards
- 9 Analysis of vulnerability
- 9 Structures, dollar losses and land use trends should be included
- 9 Multi-jurisdiction plans – address specific risks separately
- 9 Identify data information sources – list in the plan
- 9 Provide information for hazard rating or elimination: (for example if radon gas exists but it's not an issue then document that fact).
- 9 Relationship to land-use and development

### **Hazard Identification & Risk Assessment**

#### **Hazard Identification**

1. Must specifically identify and prioritize hazards by affect on the community
2. Must develop a composite map of hazards
  - 9 Not geologic – identify risk intensity and potential effects
3. Describe the analysis process used
  - 9 Historic occurrences
  - 9 Technical geologic Identification
  - 9 Potential based on growth and changes

#### **Risk Assessment**

4. How will a District's and/or a community's assets be affected by the hazard?
5. How will the region's assets be affected?



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

6. How will the State's assets be affected?
  - 9 Tax base
  - 9 Services
  - 9 Resources
7. Transportation Links
8. Assessment of hazards apparent to the community on the current and future built environment
  - 9 Type, location, and extent of all hazards that can affect the community
  - 9 Vulnerability to these hazard, including types and numbers of buildings (current and future), infrastructure, and critical facilities
  - 9 Estimate of potential dollar losses of those structures considered vulnerable
  - 9 Description of land uses and development trends for future land use and decisions

### **Forecast Impact Effects**

How the risks impact existing and future housing and development in your service area.

List information based on an "inventory of existing and proposed."

- 9 Include Critical Facilities ...those areas and facilities that are critical to the health and welfare of the population and are especially important post-disaster
  - Shelter, police, fire, hospitals, water, waste water treatment.
- 9 Critical Service Areas
  - Shelters, hospitals, schools, utilities, roadways, communication, emergency response capabilities, water and wastewater treatment, local services, jails

### **Forecasting and Analysis**

If this information is not currently available what are your options?

- 9 Provide the best analysis with existing data

Identify a mitigation strategy to develop a better forecasting ability

Prioritize areas where forecasting is the most important vs. the hazard and concentrate efforts on those priorities

Explain limitations and constraints



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Example Prioritization of Hazards for Consideration**

1. Potential Deaths/injuries
2. Property Damage
3. Disruption of Critical Services
4. Future Development and Planning
5. Political Impact and Agenda
  - Public Safety
  - Prevention
  - Environmental
  - Economic
  - Community Cultural Considerations

### **Examples Mitigation Strategy Development**

1. Development of blueprint/strategies for reducing the potential losses identified in the Risk Assessment.
  2. Description of mitigation goals.
  3. Identification and analysis of a comprehensive range of actions and projects.
  4. Have an “Action Plan” describing how the mitigation actions and projects will be prioritized, implemented, and administered.
- Look at existing documents that have already identified goals and strategies

### **Mitigation Factors to Consider and Apply to Vulnerability Study**

#### **Individual Disaster Risks**

- Magnitude
- Duration
- Distribution
- Area Affected
- Frequency
- Probability
- Degree of Vulnerability
- Community Priorities



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Types of Regulatory Resource Examples for Hazard Mitigation Strategies**

- Plans
- Zoning
- Regulations
- Codes
- Disclosure
- Moratoria
- Financing/Insurance requirements-ever changing market
- Taxation measures
- Open Space Planning
- Federal ID of Hazard Zones
- Flood Mapping
- Land Slide Mapping
- Fire Mapping

### **Types of Mitigation Strategies to Consider**

#### Altering Hazard

- Berms
- Create buffer zones
- Sandbagging

#### Averting Hazard

- Redirecting Impact
- Channel Flow
- Structural-Terrace
- Land Treatment
- Vegetation

#### “Public Works Measures” - Adapting to Hazard

- Seismic retrofit
- New construction
- Anchoring homes
- Site Modification
- Drainage Systems
- Terraces

#### Avoiding Hazard

- Fault/Flood Setbacks
- Regulations
- Acquisition
- Relocation

### **Other Strategies**

- Public education
- Public information
- Public hearings on risks
- Surveys and polls
- Public incentives
- Tax breaks for mitigation implementation
- Interest breaks for mitigation implementation
- Loans for mitigation implementation



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

- Community action to implement strategies
- Volunteer programs
- Private funding and donations

### **PLAN Development Considerations**

1. Plans may be written at a multi-jurisdictional level.
2. County-wide, Watersheds, River Authorities, Planning Districts, etc.
3. Plan should include a specific annex for each participating jurisdiction.
4. Must be adopted by all jurisdictions sited in the plan.

### **Additional Planning Resources**

- Local Planning Departments
- Regional Planning Councils
- Universities
- Individual Contractors
- State Department of Natural Resources
- Conservation Service
- Insurance Companies
- Others

### **Cohesive, Ongoing Planning Means**

Create an integrated State and local mitigation process.

Keep the State Plan current by frequently updating results of local hazard and risk assessments and mitigation priorities.

Identify potential mitigation actions the State would support at the local level.

Document the mitigation activities taking place Statewide and link activities to maximize resources and results.

Conduct planning “throughout the year” including planning for post-disaster recovery.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **State, Local & Special District Plans Should Be Comprehensive**

#### **How do the risks and services needs affect the following:**

- Housing
- Land Use
- Economic Development
- Capital Improvements
- Historic Preservation
- Cultural Preservation
- Environment
- Natural Hazards

### **Plan Maintenance**

- Plans must be monitored, evaluated, and updated every 3 years for State plans and every 5 years for local plans.
- Include a review for incorporating the plan into comprehensive or capital improvement plans.
- Public participation in the plan maintenance process is mandatory.

### **Adoption by Local Governing Body and Submission**

Formal adoption and codification by appropriate governing board is required.

- Commissioners, Court, Quorum, Police, Jury, City Council, School Board, Special Districts etc.

Formal submission of plan to the State for review and coordination is required.

Formal submission of the plan to FEMA Regional office for review and approval completes the initial process.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Hazard Mitigation Annex - Association of Bay Area Governments' Plan**

#### **Introduction**

The City of Alameda is a moderately sized city in Alameda County, California. The City has a population of 72,259 people, based on the 2000 census<sup>1</sup>. The City's budget for 2004-2005 is \$266,413,862. The City employs 647 full time people.

#### **The Planning Process**

The City of Alameda has a Health and Safety Element to its General Plan that establishes development policies for the period 1990-2010. Included are a discussion of seismic, geologic, and soils hazards, fire hazards, and flooding. In addition, the City routinely enforces the requirements of the California Environmental Quality Act (CEQA) requirements (which, since 1988, have required mitigation for identified natural hazards). The City's effort has focused on building on these pre-existing programs and identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Many of the activities conducted by the City were fed into the planning process for the multi-jurisdictional plan. The City participated in various ABAG workshops and meetings, including the general "kick-off" meeting and the soft-story forum. In addition, the City has provided written and oral comments on the multi-jurisdictional plan. Finally, the City provided information on facilities that are viewed as "critical" to ABAG.

Key City staff met at regular intervals in 2004 to identify and prioritize mitigation strategies appropriate for the City. Staff involved in these meetings included the Planning Manager, Finance Director, Development Services Director, Public Works Director, OES Manager, Environmental Health and Safety Coordinator, Police Captain and Emergency Planning Consultants. The general priorities, appropriate City departments and planning milestones were identified. Preliminary budgets and potential funding sources for strategies designated as "High" priority were identified. The City provided the opportunity for the public to comment on the DRAFT mitigation strategies at the Alameda Disaster Council meeting in December 2004. The resolution adopting this Annex will be on the City Council agenda for late April, 2005. Once adopted, the resolution will add this Annex to the ABAG multi-jurisdictional plan.

Separately in 2005, the Disaster Mitigation Plan for the City of Alameda will be completed, presented for public comment, submitted for FEMA approval and presented to the Alameda City Council for approval as an Amendment to the City's General Plan.

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<sup>1</sup> For complete Census information on this city, see <http://www.bayareacensus.ca.gov/>.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Hazard and Risk Assessment**

The ABAG multi-jurisdictional Local Hazard Mitigation Plan, to which this is an Annex, lists nine hazards that impact the Bay Area, five related to earthquakes (faulting, shaking, earthquake-induced landslides, liquefaction, and tsunamis) and four related to weather (flooding, landslides, wildfires, and drought). These hazards also impact this community, except for landslides. Landslides do not impact the City of Alameda because of the flat terrain.

The impact of tsunamis is currently unknown. While the current Tsunami Evacuation Planning Maps do not show a hazard in the City, this is because the area has not been mapped. Researchers are currently examining the impact of tsunamis in the East Bay. Preliminary work, as indicated in the ABAG multi-jurisdictional plan, appears to show that the run-up elevation would be up to 50% of that at Ocean Beach in San Francisco. If so, many areas of the City with elevations of less than 21 feet would be inundated by water. However, the research is not published and is extremely preliminary. No further work on the tsunami hazard is possible in Alameda until the maps are completed and published.

While the City has undertaken a number of general hazard mapping activities since the first Health and Safety Element was prepared, all of these maps are less detailed and are not as current as those shown on the ABAG website at: <http://quake.abag.ca.gov/mitigation/>.

Information on disasters declared in Alameda County is at:  
<http://quake.abag.ca.gov/mitigation/disaster-history.html>.

The City examined the hazard exposure of City of Alameda urban land based on the information on ABAG's website at: <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 6,452 urban acres in the City,

- ◆ 536 acres are in the 100-year flood plain, while an additional 75 acres are in other flood-prone areas;
- ◆ 0 acres are subject to dam inundation;
- ◆ 0 acres are in areas of existing landslides;
- ◆ 6,403 acres are in areas of moderate, high, or very high liquefaction susceptibility;
- ◆ 6,104 acres are in the highest two categories of shaking potential, due to Alameda's proximity to the Hayward fault;
- ◆ 7 acres are subject to very high wildfire threat;
- ◆ 1,379 acres are in wildland-urban interface fire threat areas;

Drought, though a potential problem in the City of Alameda, is not fully assessed. The City will be working with ABAG and the various water supply agencies on this issue.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

The City also examined the hazard exposure of infrastructure based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 176 miles of roadway, nine miles of railroads, and 175 miles of underground pipeline in the City,

Two miles of roadway and two miles of underground pipeline are in the 100-year flood plain, while an additional one mile of roadway and one mile of pipeline is in other flood-prone areas;

No roads are in an area subject to dam inundation;

No roads are in areas of existing landslides;

176 miles of roadway, nine miles of railroads, and 175 miles of underground pipeline are in areas of moderate, high, or very high liquefaction susceptibility;

164 miles of roadway, five miles of railroads, and 163 miles of underground pipeline are in the highest category of shaking potential;

No miles of roadway, railroads, or underground pipeline are subject to wildfire threat;

38 miles of roads, one mile of railroad, and 38 miles of underground pipeline are in wildland-urban interface fire threat areas.

Drought, though a potential problem in the City of Alameda, is not fully assessed. The City will be working with ABAG and the various water supply agencies on this issue.

Finally, the City examined the hazard exposure of critical health care facilities, schools, and city-owned facilities, and bridges/interchanges based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickcrit.html>. Of the critical facilities in the City,

- ◆ No critical health care facilities, schools, city-owned facilities, or bridges/interchanges are in the 100-year flood plain; one bridge/interchange is in another flood-prone area;
- ◆ No critical health care facilities, schools, city-owned facilities, or bridges/interchanges are in an area subject to dam inundation;
- ◆ No critical health care facilities, schools, city-owned facilities, or bridges/interchanges are in areas of existing landslides;
- ◆ All critical facilities are in areas of moderate, high, or very high liquefaction susceptibility – eight critical health care facilities, 24 schools, 48 city-owned critical facilities, and six locally or state owned bridges/interchanges;
- ◆ All critical facilities are in the highest two categories of shaking potential - eight critical health care facilities, 24 schools, 48 city-owned critical facilities, and six locally-or-state-owned bridges/interchanges;
- ◆ All critical facilities are in the low threat for wildfire;



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

Drought, though a potential problem in the City of Alameda, is not fully assessed. The City will be working with ABAG and the various water supply agencies on this issue.

Although areas of the City are located in flood-prone areas, there is no repetitive loss properties in the City based on the information at <http://quake.abag.ca.gov/mitigation/pickflood.html>.

The City plans to work with ABAG during 2005 to improve the risk assessment information being compiled by ABAG by providing information on unreinforced masonry buildings, tilt up's, and soft-story apartments located in the City.

The City of Alameda plans to work with ABAG in developing each hazard's impact and the potential level of damage to buildings, infrastructure, and critical facilities. ABAG's Annex specifically states ABAG's plans for 2005-2006.

As these impacts are not fully developed, the City has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquakes (particularly shaking), liquefaction, and flooding are more important than landslides, tsunamis, and droughts.

The City of Alameda is situated parallel to the Hayward fault, which is approximately four miles away. ABAG and the U. S. Geological Survey have estimated that within this region there is a 62% potential of a magnitude 6.7 or greater earthquake occurring within the next 30 years. Based upon the modified mercalli scale, the City of Alameda sits in the red zone showing a potential of IX-Violent Shaking that will produce heavy damage such as destroying buildings of Masonry D construction. Masonry C type buildings will be heavily damaged, sometimes with complete collapse. Masonry B type buildings will be seriously damaged, underground pipes will be broken and there will be conspicuous cracks in the ground.

The 1989 Loma Prieta Earthquake caused \$2.1 million in damages to City of Alameda properties. Damages included broken water main lines in three locations, broken sewer lines in various locations, street collapse and sand boils on numerous streets, curbs/gutters, and bulkhead damage. In addition, the dollar amount of losses to private properties is not included here. However, there was private property damage such as fuel tank displacement, water service line displacement, bulkhead/rip-rap damage, private road/sand boils, and chimney and foundation damage. Also, there was full displacement of the military runway at Alameda Point.

### **Mitigation Activities and Priorities**



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

As participants in the ABAG multi-jurisdictional planning process, City of Alameda staff helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. The list was discussed at a meeting of the Planning Manager, Finance Director, Development Services Director, Public Works Director, OES Manager, Environmental Health and Safety Coordinator, Police Captain and Emergency Planning Consultants in January, 2004.

During 2004, the mitigation strategies were reviewed and decisions made on each strategy's priority based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage.

Over time, we are committed to developing better hazard and risk information to use in making those trade-offs. We are not trying to create a disaster-proof region, but a disaster-resistant one.

In the City of Alameda, many of the mitigation strategies are existing programs already a part of the planning and review process, building and fire code enforcement, and development of the City's General Plan. Any new activities identified as part of this Annex will be incorporated into these existing mechanisms. Other activities will require funds that have not been identified. The City will be working to identify potential funding sources, including capital improvement budgets, bond issues, and federal or state grants.

In addition, through examination of the hazard exposure information to City-owned critical facilities supplied by ABAG, the City determined that the combination of construction type, age, and shaking exposure to Fire Station No. 3 is significant. Therefore, the City has applied for a Pre-Disaster Mitigation grant to retrofit this fire station.

Fire Station No. 3 serves 20% of the City's population, or 14,452 residents, and its mutual aid neighbors in the City of Oakland, the City of San Leandro, and the U. S. Coast Guard Island when marine emergencies occur.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### **Plan Monitoring, Evaluation, and Updating Process**

The City of Alameda is committed to reviewing and **updating** this plan annex at least once every five years, as required by the Disaster Mitigation Act of 2000. The City Planning Director will contact ABAG four years after this plan is approved to ensure that ABAG plans to undertake the plan update process. If so, the City again plans to participate in the multi-jurisdictional plan. If ABAG is unwilling or unable to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including the County's Office of Emergency Services. Counties should then work together to identify another regional forum for developing a multi-jurisdictional plan.

The City Planning Director will ensure that **monitoring** of this Annex will occur. The plan will be monitored on an on-going basis. Also, any major disasters affecting the City, legal and regulatory mandates, notices from ABAG as the lead agency in this process, and other triggers will be used to initiate monitoring, evaluation, and updating. Finally, the Annex will be a discussion item on the agenda of the meeting of City department heads at least once a year in April. At that meeting, the department heads will focus on **evaluating** the Annex in light of technological and political changes during the past year, or other significant events. This group will be responsible for determining if the plan should be updated.

The **public** will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics.



## **COMPREHENSIVE EMERGENCY MANAGEMENT PLAN**

### GLOSSARY OF TERMS

|  |  |
|--|--|
| <b>Critical Areas</b>  | Environmentally sensitive areas which include wetlands fish and wildlife habitat conservation areas; geologically hazardous areas; areas with a critical recharging effect on aquifers used for potable water; and frequently flooded areas. Critical areas have measurable characteristics which, when combined, create a value for or potential risk to public health, safety and welfare. |
| <b>Erosion</b>   | The process whereby the land surface is worn away by the action of water, wind, ice or other processes, and by geologic events such as gravitational creep or landslides.  |
| <b>Federal Emergency Management Agency Hazard Mitigation Grant Program</b> | Authorized Under Section 404 of the Stafford Act. Provides funding for Hazard Mitigation projects that are cost-effective and comply with existing post-disaster mitigation programs and activities. These projects cannot be funded through other programs to be eligible   |
| <b>Floodplain</b>  | Areas inundated with water that are typically adjacent to streams, rivers, lakes, and coastlines and are susceptible to strong winds.  |
| <b>Floodplain (100 Year)</b>   | Floodplains that have the potential to flood once every 100 years, or that have a one percent chance of flooding equal to or in excess of that in any given year.  |
| <b>Flood Way</b>   | An area of land immediately adjacent to a stream or river channel that, in times of flooding, becomes an enlarged stream or river channel and carries the floodwater with the highest velocity.  |
| <b>Hazard Mitigation</b>   | Any action taken to reduce or permanently eliminate the long-term risk to human life and property and the environment posed by a hazard.   |
| <b>Hazard Mitigation Plan</b>  | The plan resulting from a systematic evaluation of the nature and extent of vulnerabilities posed by a hazard present in society that includes the strategies needed to minimize future vulnerability to hazards.  |
| <b>Landslide Hazard Areas</b>  | Areas potentially subject to landslides, based on a combination of geologic, topographic, and hydrologic factors. This includes areas with any combination of bedrock, soil, slope, structure, and hydrology.  |
| <b>LIDAR</b>   | Light Detection and Ranging Airborne Laser Mapping. LIDAR compliments other remote sensing such as orthophotography and traditional topographic mapping. LIDAR is able to sense through vegetation (remove the trees) and produce a map of the actual topography.  |
| <b>Liquefaction</b>  | Liquefaction occurs in areas that have certain soils which lack cohesion and where the water table is close to the surface. Such soils can lose shear strength and flow like a liquid even during earthquakes originating beyond City of Alameda.  |
| <b>Seismic Hazard Areas</b>  | Areas subject to severe risk of damage because of earthquake-induced ground shake, slope failure, settlement, soil liquefaction, or surface faulting. Settlement can occur in areas with loose, unconsolidated soil, which can either slide or suddenly drop when shaken.  |
| <b>Wildfire Urban Interface</b>  | Wildland vegetation and forest areas adjacent to or intermingled with residential developments.  |