



ALAMEDA COUNTY COMMUNITY DEVELOPMENT AGENCY
PLANNING DEPARTMENT

Chris Bazar
Agency Director

Agenda Item 8
February 4, 2014

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January 20, 2014

The Honorable Board of Supervisors
Alameda County Administration Building
1221 Oak Street, 5th Floor
Oakland, CA 94612

Dear Board Members:

SUBJECT: Proposed Amendments to the Alameda County Safety Element

RECOMMENDATION:

It is recommended that the Board of Supervisors approve the proposed amendments to the Alameda County Safety Element.

SUMMARY:

Introduction

In October 2007, Governor Schwarzenegger signed Assembly Bill (AB) 162, which strengthens flood protections in California by requiring jurisdictions to update, upon the next revision of the mandatory Housing Element, flood-related information in its General Plan, including but not limited to applicable sections of the Conservation Element, Housing Element, Safety Element, and the Land Use Element. Pursuant to AB 162 (2007) and Senate Bill (SB) 5 (2007), the California Department of Water Resources (DWR) and Central Valley Flood Protection Board (formerly State Reclamation Board) are required to prepare and adopt a Central Valley Flood Protection Plan (CVFPP) by 2012. The Board consists of seven members appointed by the Governor and confirmed by the State Senate, plus two ex-officio, non-voting members from the State legislature. The CVFPP only applies to those areas within the Sacramento-San Joaquin Valley. Those lands are further described in Section 9602(e) of the State Water Code. Upon adoption of the CVFPP, Alameda County has 24 months to incorporate CVFPP measures into the General Plan, and 36 months to include CVFPP measures into the Zoning Ordinance.

Overview of the Proposed Amendments

Chapter 4 contains all of the Element's information pertaining to Flood Hazards. At this time, staff has made all revisions necessary to incorporate CVFPP measures in Chapter 4 and no other chapter or section of the Element. Please note that only a small portion of the County is within the boundaries of the Sacramento-San Joaquin Valley, and as such these

measures only apply to the areas contained therein. In addition, the Safety Element, as amended in 2013, made reference to and included the Local Hazard Mitigation Plan as required by State law, however, a portion of that text was omitted in error, and will be added to the Element. No other changes are proposed.

Consultation with State Agencies

Under state law the County is required to consult with the California Geological Survey (CGS), the Central Valley Flood Protection Board (CVFPB) and the Governor's Office of Emergency Services for the purpose of obtaining information known by and available to these agencies. Prior to adopting the Safety Element, the County must refer the draft element to the CGS and the CVFPB, and must consider both agencies' findings prior to final adoption of the element. Staff has referred the document for comment, and has not received comments from either agency.

Environmental Analysis

The revisions to the adopted Safety Element are necessary to bring the document into compliance with AB 162; however, staff believes that these changes are within the scope of the Negative Declaration that was approved by the Board of Supervisors on January 8, 2013 and was prepared during the comprehensive update to the County's Safety Element. Furthermore, staff does not believe the draft revisions substantially modify or alter the goals, policies, programs, or implementation measures in the existing Safety Element. Therefore, no additional analysis is required.

Public Process

Amendments to the Safety Element update formally began in October 2013 with a hearing before the Planning Commission. To date, a total of 3 public meetings have been completed seeking input from members of the community, the Planning Commission, and members of your Board in order to develop the Safety Element amendments. At its December 2, 2013 meeting, the Planning Commission passed a motion recommending the transmittal of the draft amendments to the Board for adoption. In addition, the Board of Supervisors' - Transportation and Planning Committee discussed the item at its January 6, 2014 meeting and recommend that the item be transmitted to the full Board for adoption.

Recommended Findings

Based upon information contained in this staff report and/or testimony received at public hearings and meetings, staff recommends the following findings:

CEQA

The draft revisions do not substantially modify or alter the goals, policies, programs, or implementation measures in the Safety Element adopted by the Board of Supervisors on January 8, 2013. As a result, staff has determined that the proposed amendment would not create any new significant environmental impacts, nor would it increase the severity of any previously identified impacts. Moreover, staff has not received any new information of substantial importance that shows that the Safety Element could have additional significant effects that were not discussed as part of the adopted Negative Declaration.

Therefore, staff has concluded that the proposed amendment would not necessitate any revisions to the Initial Study/Negative Declaration that was prepared for this project. Staff requests that your Board find that no additional environmental review is required pursuant to the California Environmental Quality Act (CEQA), CEQA Guidelines Section 15162(a) as the proposed amendment is within the scope of the Negative Declaration approved by the Board on January 8, 2013.

General Plan

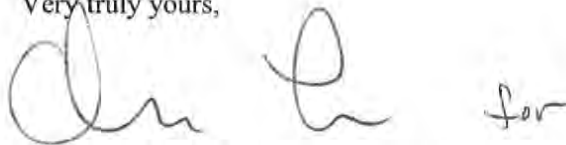
State law requires the elements of the General Plan to be consistent. The Safety Element goals should be interpreted and implemented consistent with those in other portions of the General Plan. As the General Plan may be amended over time, goals, policies, and implementing programs in other General Plan elements will be comprehensively reviewed for internal consistency.

The proposed amendments are limited to the East County area and as such the proposed amendments are consistent with the East County Area Plan as amended by Measure D.

CONCLUSION:

The focus of the Safety Element is to minimize human injury, loss of life, property damage, and economic and social dislocation due to natural and human-made hazards. The policies included in the Element set forth general and broad goals, policies and implementation actions that are intended to provide more specific direction to current and future actions undertaken by the public and private sectors.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Chris Bazar", followed by a small "for" written in the same style.

Chris Bazar, Director
Community Development Agency

ATTACHMENTS:

- A. Resolution to Approve the Draft Final Alameda County Safety Element Amendments
- B. Draft Final Alameda County Safety Element Amendments
- C. Resolution approved by the Planning Commission, December 2, 2013

REEL IMAGE

Approved as to Form
DONNA R. ZIEGLER, County Counsel

By Brian Washington, Chief Assistant County Counsel

**THE BOARD OF SUPERVISORS OF THE COUNTY OF ALAMEDA,
STATE OF CALIFORNIA**

On motion of Supervisor
Seconded by Supervisor

and approved by the following vote:

Ayes:

Noes:

Excused or Absent:

**THE FOLLOWING RESOLUTION WAS ADOPTED TBD, 2014:
NUMBER R- 2014-**

**GENERAL PLAN AMENDMENT (GPA 14-01)
REVISIONS TO THE ALAMEDA COUNTY SAFETY ELEMENT PURSUANT TO AB 162
(2007) AND THE CENTRAL VALLEY FLOOD PROTECTION PLAN**

WHEREAS the Alameda County Board of Supervisors did receive a petition initiated by Alameda County Planning Department to amend the Alameda County Safety Element; and

WHEREAS, draft amendments to the County's Safety Element address compliance with Assembly Bill (AB) 162 and the Central Valley Flood Protection Plan; and

WHEREAS the Alameda County Planning Commission did hold two public hearings on the proposed amendments to the Safety Element on the twenty-first day of October and the second day of December 2013 at the County of Alameda, 224 West Winton Avenue, Hayward, California, for which notice was given as required by law, and at which the Commission took public testimony; and

WHEREAS on the second day of December 2013 the Alameda County Planning Commission did review this general plan amendment in accordance with the provisions of the California Environmental Quality Act and recommended to the Board of Supervisors that the general plan amendment be approved; and

WHEREAS this Board did hold a public hearing on said proposed general plan amendment at the hour of 1:00 PM on Tuesday the fourth day of February 2014, in the Board Chambers, County Administration Building, 1221 Oak Street, Oakland, for which notice was given as required by law and at which the Board took public testimony; and

WHEREAS, on Tuesday the eighth day of January 2013 the Board adopted a Negative Declaration of Environmental Significance (State Clearinghouse No. 2012102044) that the Alameda County Safety Element will not result in any new significant environmental impacts and determined that this environmental review is adequate for consideration of the General Plan Amendment; and

WHEREAS, this Board did review this general plan amendment in accordance with the provisions of the California Environmental Quality Act; and

WHEREAS, the draft revisions do not substantially modify or alter the goals, policies, programs, or implementation measures in the Safety Element adopted by the Board of Supervisors on January 8, 2013; and

WHEREAS it is the finding of this Board that this amendment of the Alameda County General Plan is in the public interest as the Alameda County Safety Element would minimize human injury, loss of life, property damage, and economic and social dislocation due to natural and human-made hazards through policies that set forth general and broad goals, policies and implementation actions intended to provide more specific direction to current and future actions undertaken by the public and private sectors; and

WHEREAS it is the finding of this Board that an amendment of the Alameda County General Plan to adopt the Safety Element is consistent with other documents that comprise the County's General Plan.

NOW, THEREFORE,

BE IT RESOLVED, that the Board of Supervisors finds the draft revisions proposed for the Safety Element, as presented in Exhibit A does not substantially modify or alter the goals, policies, program, or implementation measures in the Safety Element adopted on Tuesday the eighth day of January, 2013, or conflict with the Negative Declaration (State Clearinghouse No. 2012102044) that was prepared for the project in compliance with the California Environmental Quality Act (CEQA); and

BE IT FURTHER RESOLVED, that this Board finds that this amendment would not require any additional environmental review, pursuant to CEQA Guidelines Section 15162(a) based upon the following findings: there are no substantial changes proposed within the project that would require a revision of the Negative Declaration adopted for the Safety Element due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (Guidelines Section 15162(a)(1)); no substantial changes have occurred with respect to the circumstances under which the project was undertaken that would require major revisions of the Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (Guidelines Section 15162(a)(2)); and no new information of substantial importance has been brought forth regarding previously unidentified significant effects, that were not known and could not have been known with the exercise of reasonable diligence at the time the Negative Declaration was adopted (Guidelines Section 15162(a)(3)(A)); and

BE IT FURTHER RESOLVED, that this Board adopts the draft amendments to the Safety Element, as presented in Exhibit A.

All new text has been underlined and italicized. New maps are marked with an *.

4.0 FLOOD HAZARDS

4.1. Flood Related Hazards

A flood plain is any area that is susceptible to being inundated by water from any source. Mostly, this is the area adjacent to a river, creek, lake, stream, or other waterway that is subject to flooding when there is a significant run-off event. When development brings pavement, roofs, and other hard surfaces, rainfall percolates less into the ground. *“Uncontrolled” development can cause increases in flooding, but Alameda County’s current development regulations will typically require on-site detention of runoff from a 100-year storm.*¹ Runoff to the nearby river or creek increases, and the development within the flood plain can be subject to flooding. Hazards often are the result of above average rainfall over a short duration, resulting in increased runoff and flooding along area creeks and areas with poor drainage. Flood prone areas are generally described as areas that have a one in a hundred (or 1%) chance of being inundated in any given year. Areas potentially subject to flooding from a 100-year event include various low-lying areas and areas adjacent to creek channels as mapped by the Federal Emergency Management Agency (FEMA). The County Floodplain Management Ordinance recognizes the following types of floodplains²:

- The Special Flood Hazard Areas (SFHA’s) shown on the FEMA Flood Insurance Rate Map (FIRM).
- Any outward adjustment of the SFHA’s caused by errors in mapping.
- Any area outside of a SFHA or an adjusted SFHA that has actually been flooded.
- The County floodplain regulations are based upon the “design flood,” which is always more severe (by a foot or more in depth) than the 100-year or base flood mapped by FEMA. Alameda County will apply the floodplain design regulations to any area theoretically wetted by the design flood.
- The County can also apply setbacks to certain floodplain areas where it establishes building limit lines outside of the floodplain.

In conjunction with FEMA’s effort, flood elevations and limits have been determined for the affected areas.

¹ Text derived from comments received from John Rogers, Alameda County Public Works Agency, Land Development Division, on October 2, 2013,
² Ibid.

A map of flood hazards is provided in Figure S-6. *Figure S-7 is a map of 100, 200 and 500 year floodplains based upon best available data from the Department of Water Resources (DWR). Figure S-7 shows not only those areas within the FEMA designated 100 and 500 year floodplains, but also includes additional data from the DWR and United States Army Corp of Engineers (USACE).*

Flooding occurring within the boundaries of the Planning Area is typically caused by heavy rainfall and runoff volumes that exceed the capacity of existing storm drainage and flood control systems. *The following watercourses pose a potential flooding risk in unincorporated Alameda County:*

- | | | |
|---|--------------------------------|--|
| ▪ <u>Alameda Creek</u> | ▪ <u>Bockman Canal</u> | ▪ <u>Estudillo Canal</u> |
| ▪ <u>Altamont Creek</u> | ▪ <u>Castro Creek (Line J)</u> | ▪ <u>Palomares Creek</u> |
| ▪ <u>Arroyo De La Laguna</u> | ▪ <u>Castro Creek (Line I)</u> | ▪ <u>San Antonio Reservoir and Creek</u> |
| ▪ <u>Arroyo Del Valle</u> | ▪ <u>Cayetano Creek</u> | ▪ <u>San Lorenzo Creek</u> |
| ▪ <u>Arroyo Las Positas</u> | ▪ <u>Chabot Creek (Line F)</u> | ▪ <u>Sulphur Creek</u> |
| ▪ <u>Arroyo Las Positas (relocated)</u> | ▪ <u>Chabot Creek (Line G)</u> | ▪ <u>Tassajara Creek</u> |
| ▪ <u>Arroyo Mocho</u> | ▪ <u>Collier Canyon Creek</u> | ▪ <u>Line N, San Lorenzo</u> |
| ▪ <u>Arroyo Seco</u> | ▪ <u>Crow Creek</u> | |
| | ▪ <u>Cull Creek</u> | |

Throughout the urbanized parts of the County, flood hazards have been greatly reduced through the efforts of the Alameda County Flood Control and Water Conservation District (ACFCWCD) and the Zone 7 Water Agency. Each of these entities designs, constructs and maintains flood protection facilities to meet existing and projected community needs. Their systems are adequate for most situations.

Historical data on flooding, areas that are vulnerable to flooding after wildfires, and information pertaining to sites that have been repeatedly damaged by flooding is available in the Alameda County Local Multi-Hazard Mitigation Plan.

4.2. Federal, State and Local Entities Responsible for Flood Protection

Federal Emergency Management Agency (FEMA)

FEMA is the Federal agency that oversees floodplains and manages the national flood insurance program. FEMA prepares Flood Insurance Rate Maps (FIRM) for communities participating in the Federal flood insurance program. The FIRM maps indicate the regulatory floodplain to assist communities with land use and floodplain management decisions so that the requirements of the National Flood Insurance Program (NFIP) are met in the event of damaging floods. Alameda County participates in the Federal flood insurance program and must meet FEMA standards for flood protection facilities and floodplain management.

U.S. Army Corps of Engineers (USACE)

The USACE is the Federal agency that studies, constructs, and operates regional-scale flood protection systems in partnership with State and local agencies. Specific agreements between the USACE and its State and local partners used to define shared financial responsibilities and regulations. The Sacramento District of the USACE is preparing a Delta Islands and Levees feasibility Study. According to the USACE, “The Delta Islands and Levees Feasibility Study (Delta Study) is the Corps’ mechanism to participate in a cost-shared solution to address ecosystem restoration, flood risk management, and related water resources in the Delta and Suisun Marsh area.”³ The study area includes a portion of the Mountain House area of Alameda County.

California Department of Water Resources, Division of Floodplain Management (DWR)

DWR is the State agency that studies, constructs, and operates regional-scale flood protection systems, in partnership with Federal and local agencies. DWR also provides technical, financial, and emergency response assistance to local agencies related to flooding.

Central Valley Flood Protection Board (formerly Reclamation Board)

In 2007, Assembly Bill 5 (AB 5) was adopted, which renamed the Reclamation Board as the Central Valley Flood Protection Board (CVFPB). AB 5 reconfigured the membership of the Board, and required the CVFPB to be independent of DWR. Senate Bill 17 (SB 17) was also adopted in 2007 and contained similar provisions to AB 5, renaming and reorganizing the Reclamation Board as the CVFPB and directing DWR to prepare and the CVFPB to adopt a State Plan of Flood Control. The mission of the CVFPB is to control flooding along the Sacramento and San Joaquin Rivers in cooperation with various agencies and to maintain the integrity of the existing flood control system and designated floodways via authority over encroachment permits.

California Building Standards Commission (BSC)

The BSC’s mission is to develop practical and sensible building standards and administrative regulations that implement or enforce those standards. All of the basic floodplain design standards for buildings and structures are now included in the various California building standards (i.e. Building Code, Residential Code, and Plumbing Code).

³ A fact sheet on the Delta Islands and Levees Feasibility Study may be obtained here: http://www.spk.usace.army.mil/Portals/12/documents/civil_works/Delta/DILFS/FactSheet_DeltaStudy_130131.pdf.

Alameda County

Within Alameda County, the Alameda County Flood Control and Water Conservation District (ACFCWCD), the Zone 7 Water Agency and Public Works Agency provide regulatory guidance and oversee the flood control system within unincorporated Alameda County. In addition, the Planning Department and PWA, Building Inspections Division oversees land use and development.

4.3. Assembly Bill 162 (Wolk)

Pursuant to Assembly Bill (AB) 162 (2007), the California Department of Water Resources (DWR) and Central Valley Flood Protection Board (CVFPB) has prepared and adopted a Central Valley Flood Protection Plan (CVFPP). The northeast corner of Alameda County is included within the Systemwide Planning Area (SPA) of the CVFPP; therefore, the policies contained therein shall apply to those lands within the plan's boundaries. The SPA includes lands subject to flooding under the current facilities and operation of the Sacramento-San Joaquin River Flood Management System (California Water Code Sections 9611, 9614(d,e)). Figure S-8 is a map of the SPA as provided in the CVFPP. Plan documents may be accessed here: <http://www.dwr.water.ca.gov/cvfmp/documents.cfm>.

AB 162 also establishes certain flood protection requirements for local land use decision-making based on the CVFPP. This law sets a higher standard for flood protection for the Sacramento-San Joaquin Valley area, which covers the entire Delta region. It sets an urban level of flood protection necessary to withstand a 1 in 200 chance of occurring in any given year (200-year flood) for areas developed or planned to have a population of at least 10,000. For areas with a population less than 10,000 residents, no new developments may be approved unless the area has made "adequate progress" in achieving 100 year flood protection.

Upon adoption of the CVFPP, Alameda County must incorporate CVFPP measures into its General Plan and Zoning Ordinance. On the effective date of those amendments, the County is prohibited from entering into a development agreement or approving a subdivision map within an identified flood hazard zone unless certain findings are made with substantial evidence. The County will include appropriate CVFPP measures within the comprehensive Zoning Ordinance update.

All of the land identified under the CVFPP lies within the boundaries of the East County Area Plan (ECAP) as amended by Measure D. Under ECAP, the lands have the following general plan designations, Large Parcel Agriculture, Water Management, Parklands, and Major Public Facilities. The Major Public Facilities designation is associated with the California Aqueduct and Clifton Court Forebay. The Parklands designation includes the Bethany Reservoir. The Water Management designation is

associated with portions of the California Aqueduct. The remaining land has the Large Parcel Agriculture designation.

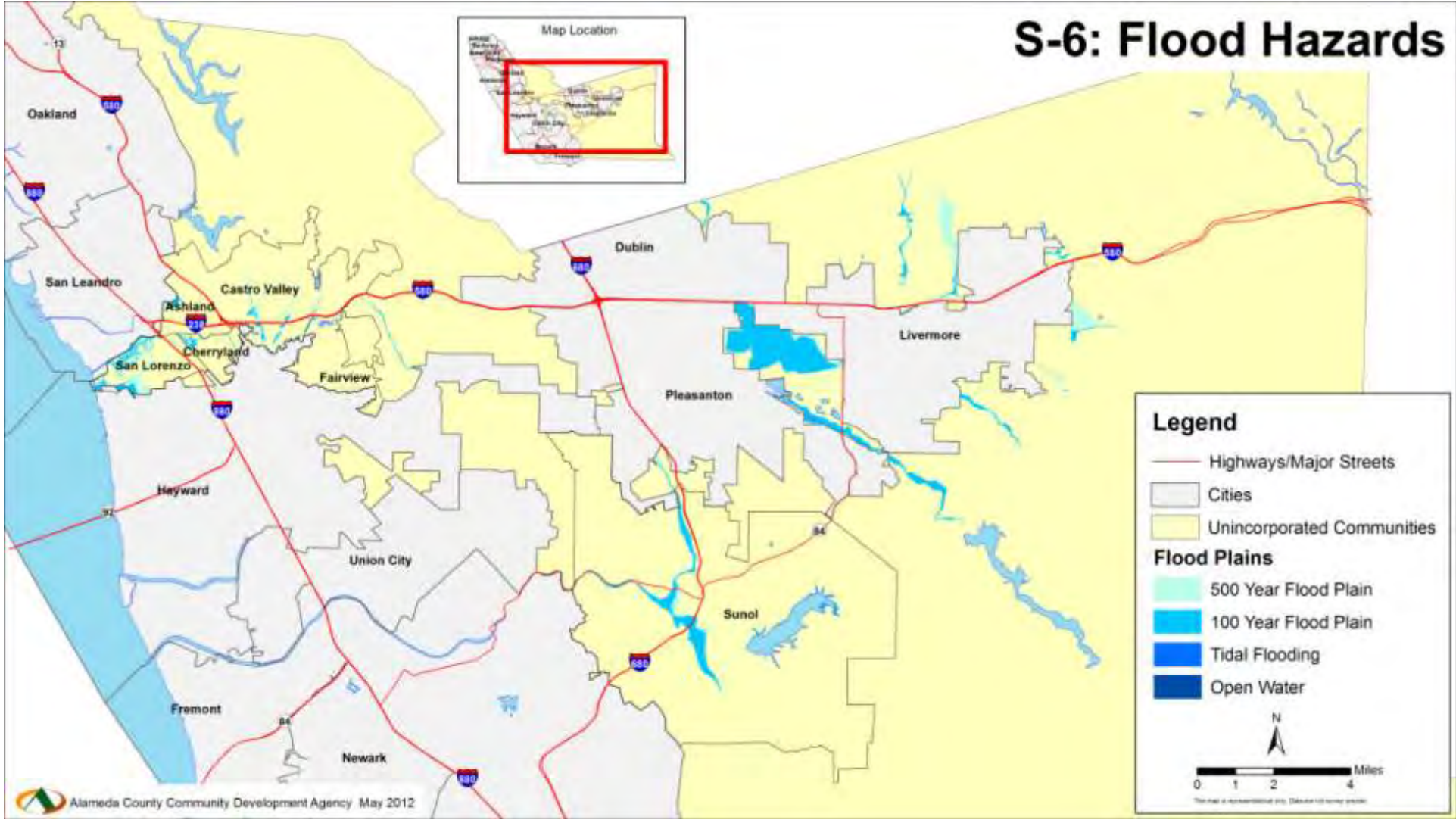
ECAP policies greatly limit development within these areas. Privately owned parcels must be a minimum of 100 acres in size. They are also subject to a maximum floor area ratio of 0.01, and residential and residential accessory structures shall not exceed 12,000 square feet in floor area.

4.4. Senate Bill 5 (Machado)

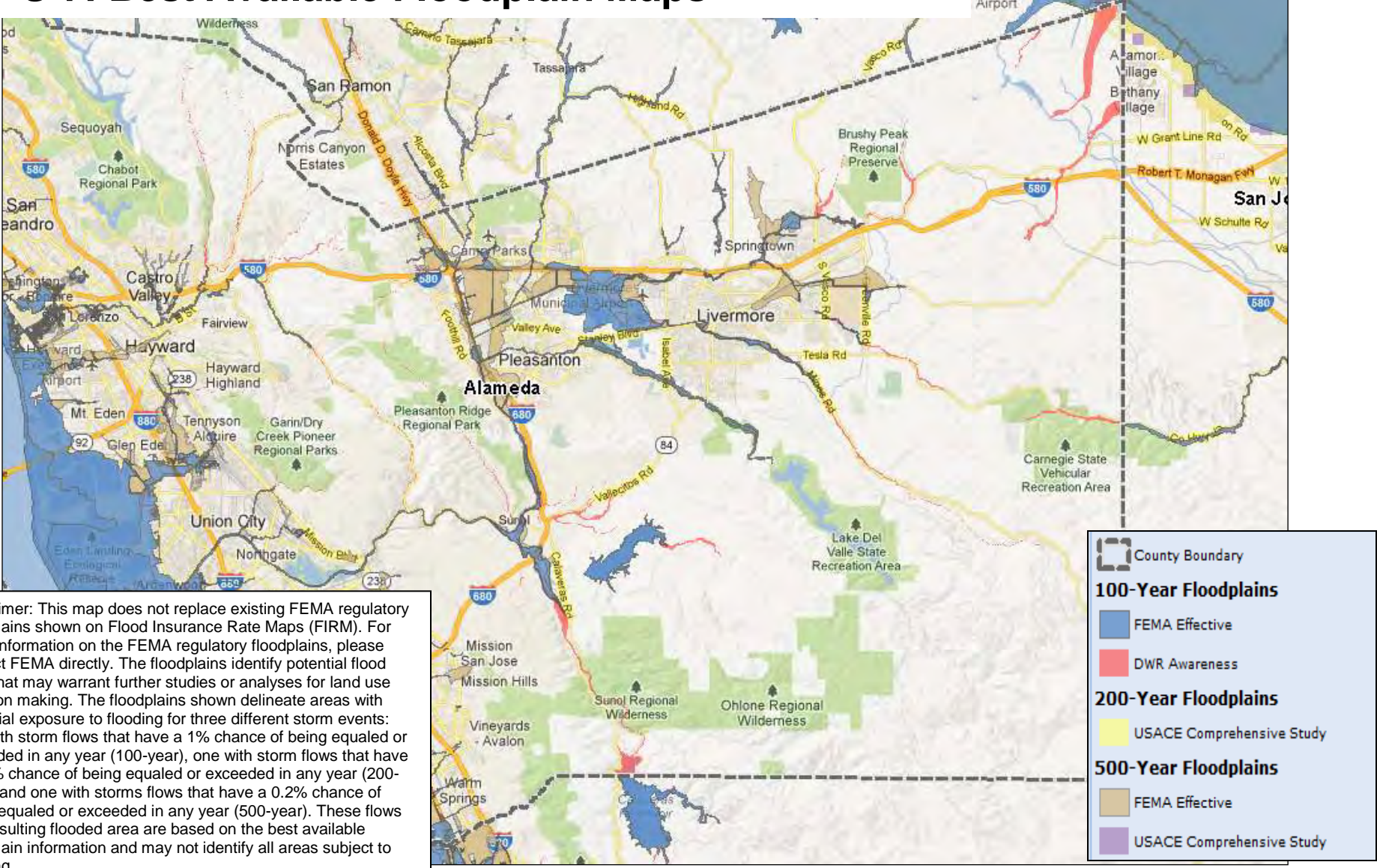
This bill requires each city and county within the Sacramento-San Joaquin Valley, within 24 months of the adoption of the CVFPP by the CVFPB (not later than July 1, 2012) is to amend its general plan to include data and analysis contained in that flood protection plan; goals and policies for the protection of lives and property that will reduce the risk of flood damage; and related feasible implementation measures. Each city and county, within 36 months of the adoption of the flood protection plan, but not more than 12 months after the amendment of the general plan, is to amend its zoning ordinance so that it is consistent with the general plan, as amended.

In addition, the bill mandates that DWR develop, for adoption and approval by the California Building Standards Commission, updated requirements to the California Building Standards Code for construction in areas protected by facilities of the CVFPP, where levels are anticipated to exceed 3 feet for the 200-year event.

Senate Bill 5 also prohibits cities and counties from entering into a development agreement for any property that is located within a flood hazard zone unless the city or county finds, based upon substantial evidence in the record, that the facilities of the State Plan of Flood Control or other flood management facilities protect the property to the urban level of flood protection in urban and urbanizing areas or the standard of flood protection of the FEMA National Flood Insurance Program (NFIP) in non-urbanized areas. These requirements are codified in Government Code Sections 65865.5, 65962, and 66474.5.

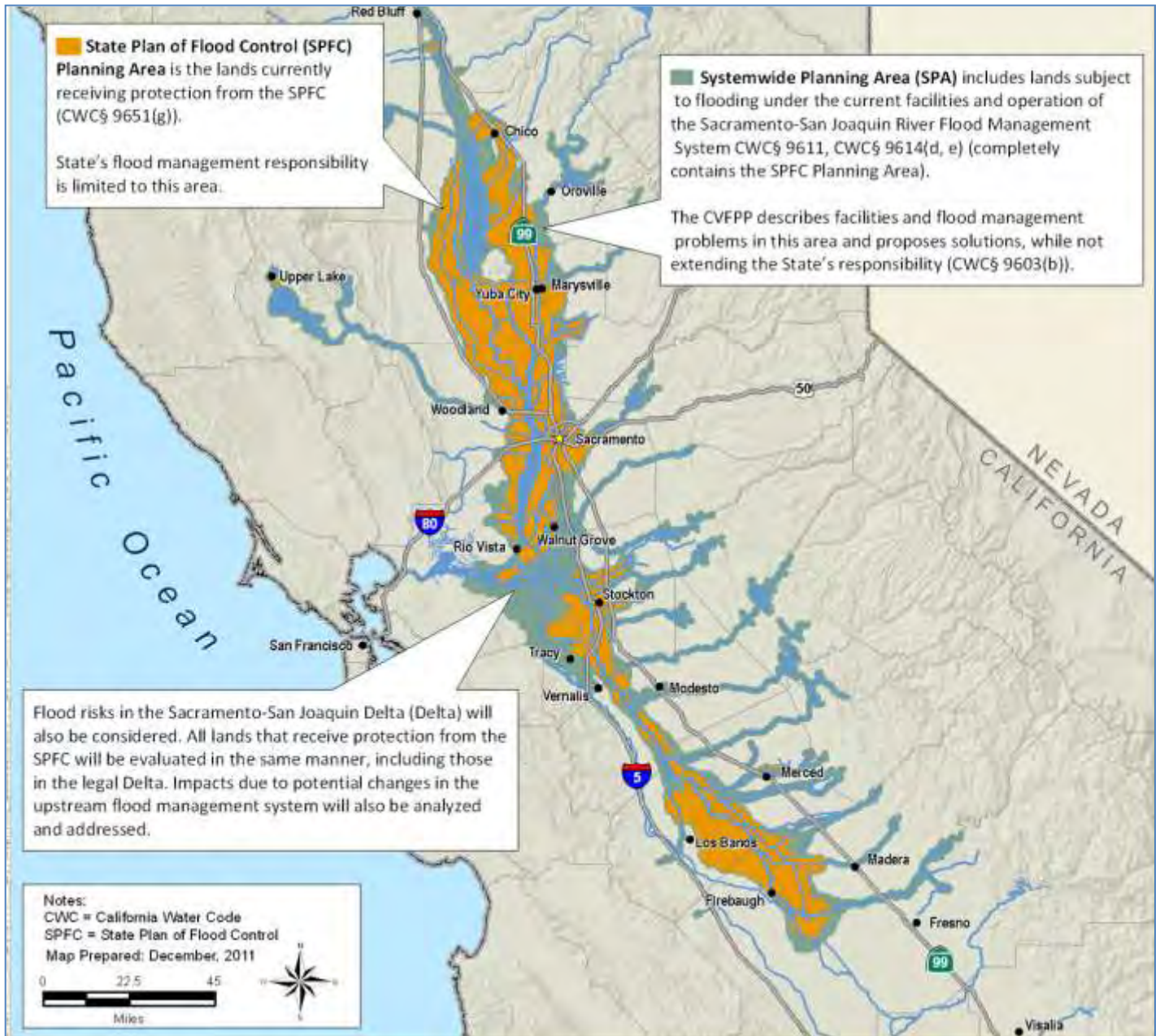


* S-7: Best Available Floodplain Maps



Disclaimer: This map does not replace existing FEMA regulatory floodplains shown on Flood Insurance Rate Maps (FIRM). For more information on the FEMA regulatory floodplains, please contact FEMA directly. The floodplains identify potential flood risks that may warrant further studies or analyses for land use decision making. The floodplains shown delineate areas with potential exposure to flooding for three different storm events: one with storm flows that have a 1% chance of being equaled or exceeded in any year (100-year), one with storm flows that have a 0.5% chance of being equaled or exceeded in any year (200-year), and one with storms flows that have a 0.2% chance of being equaled or exceeded in any year (500-year). These flows and resulting flooded area are based on the best available floodplain information and may not identify all areas subject to flooding.

*S-8: Central Valley Flood Protection Plan Map



4.5. Dam Inundation

In accordance with State law, the County has also evaluated possible flood risks arising from the failure of dams or reservoirs. Within the state of California, oversight of dams falls to the Department of Water Resources, Division of Safety of Dams (DOSD). Existing dams under DOSD jurisdiction are inspected annually to ensure adequate maintenance and to direct the dam owner to correct any known deficiencies. Regular inspections and routine maintenance of the dams substantially reduces the risk of catastrophic failure. Figure S-9 highlights those areas that within the Planning Area that might be affected by flooding in the event of a dam or reservoir failure. The depth of inundation would vary from zero in upland areas to many feet on low-lying areas and in creek channels. There are no State or local restrictions for development within dam failure inundation areas; however, the Emergency Services Act (Government Code Section 8589.5) requires that dam inundation maps be prepared to identify flood risk and that local jurisdictions prepare evacuation procedures in the event of a catastrophic dam failure.

The following table, Table S-5, lists all of the dams within or adjacent to the planning area.

Table S - 5: Dams within or Adjacent to the Planning Area⁴

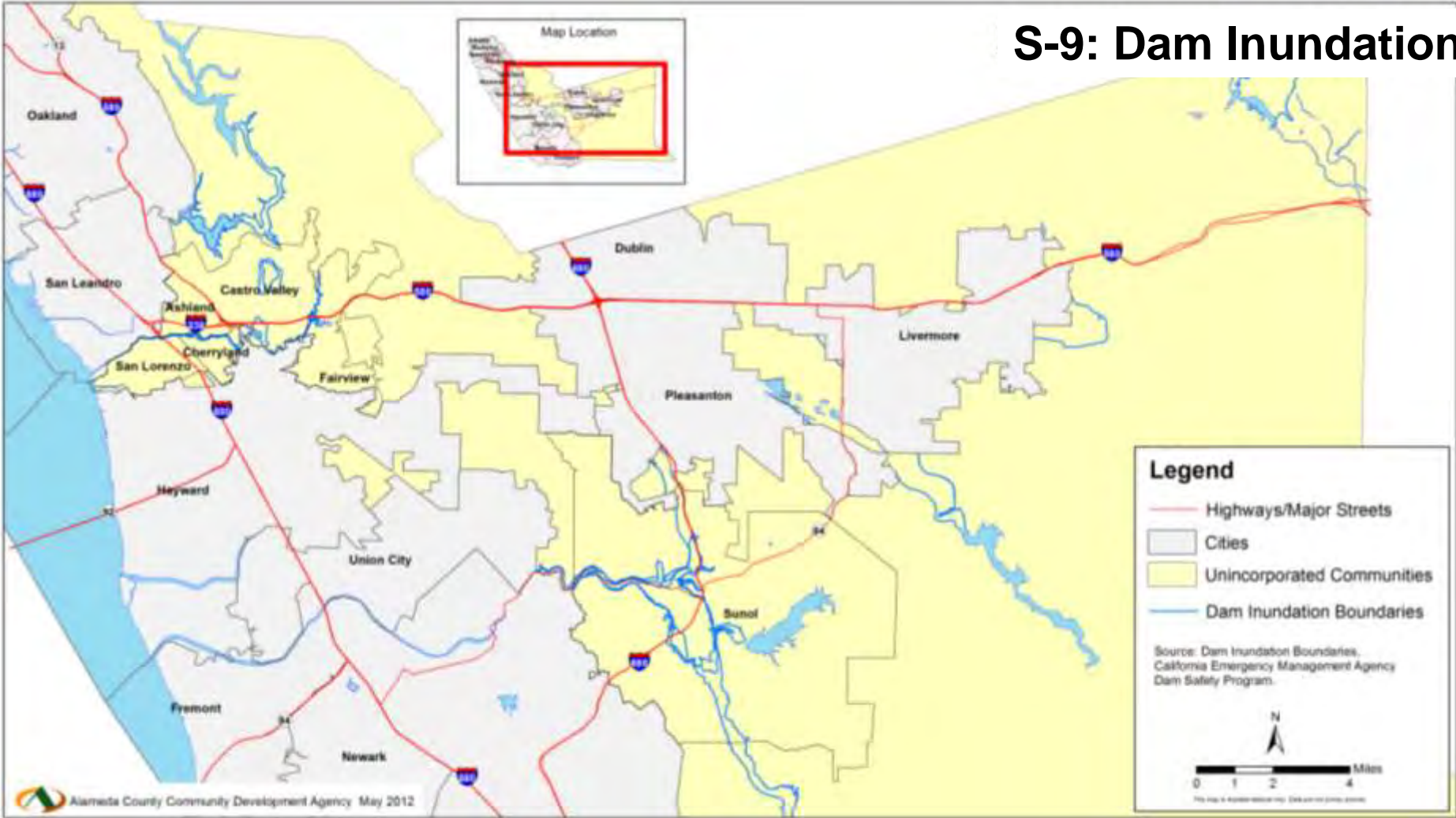
Name	Owner	Type	Capacity (acre/feet)
Almond	EBMUD	Earth	20
Bethany Forebay	CA Department of Water Resources (CADWR)	Earth	5,250
Calaveras	City/County of SF	Hydraulic Fill	100,000
Chabot	EBMUD	Hydraulic Fill	10,281
Cull Creek	ACFCWCD	Earth	310
Del Valle	CADWR	Earth	77,100
James H. Turner	City/County of SF	Earth	50,500
New Upper San Leandro	EBMUD	Earth	42,000
Patterson (1-062)	CADWR	Earth	98
San Lorenzo Creek	ACFCWCD	Earth	380
South	EBMUD	Earth	156
Ward Creek	ACFCWCD	Earth	130

In 2011, San Francisco Public Utilities Commission began construction on a replacement for the Calaveras Dam downstream from its current location. This project may result in a change to the dam

⁴ CA Department of Water Resources, Division of Safety of Dams, [Complete Listing of Dams within the Jurisdiction of the State of California in Alphabetically order by name of the Dam](#)

inundation areas as indicated on the map below. The County will continue to monitor the project and, if necessary, will revise its dam inundation map.

S-9: Dam Inundation



4.6. Development Standards for Areas at Risk of Flooding

The following is a summary of development guidelines and regulations pertaining to flood hazards.

Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP)

The County in conjunction with other local jurisdictions participates in the FEMA sponsored National Flood Insurance Program (NFIP). The NFIP provides flood insurance to businesses and individuals in known flood hazard areas. As a participant, the County must comply with FEMA's standards for the regulation of development in special flood hazard areas and conduct floodplain management activities not only to reduce or prevent the loss of life or property, but also preserve and protect the floodplain.

The California Environmental Quality Act (CEQA)

The Act includes several provisions that address flood prevention and loss caused by floods. Through the environmental review process authorized under the Act a project must declare if it would:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff (e.g., due to increased impervious surfaces) in a manner which would result in flooding on- or off-site (i.e. within a watershed);
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems due to changes in runoff flow rates or volumes;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows; and
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam

Projects that would result in one or more of these environmental effects would be required to consider an alternative to the particular project or to provide appropriate mitigations that either reduce or eliminate these hazards.

The Alameda County General Ordinance Code

The Alameda County Ordinance Code addresses flood hazard mitigation in the following documents:

- *The Watercourse Protection Ordinance (Chapter 13.12)*
- Section 15.08.230 of the Building Ordinance
- Grading Erosion and Sediment Control Ordinance (Chapter 15.36)
- Floodplain Management (Chapter 15.40)

New development within a floodplain is generally required to be at least one foot above the 100-year flood levels, or may be restricted completely within any designated floodway (i.e. the central portion of certain 100 year flows).

These documents are periodically reviewed and updated to ensure consistency with State law and/or NFIP requirements.

4.7. Goals, Policies and Implementing Actions

Goal 1.	To reduce hazards related to flooding and inundation.
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Policies

- P1. *“Within flood hazard areas, all new construction of buildings, structures, and portions of buildings and structures, including substantial improvement and restoration of substantial damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads.”*
- P2. Surface runoff from new development shall be controlled by on-site measures including, but not limited to structural controls and restrictions regarding changes in topography, removal of vegetation, creation of impervious surfaces, and periods of construction such that the need for off-site flood and drainage control improvements is minimized and such that runoff from development will not result in downstream flood hazards. (Source: Seismic Safety and Safety Element, pg. 8)

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- P3. Structures shall generally be located away from shoreline areas subject to tsunami inundation, except where they can be feasibly designed to withstand the effects of inundation. (Source: Seismic Safety and Safety Element, pg. 8)
- P4. Development shall only be allowed on lands within the 100-year flood zone if it will not:
- Create danger to life and property due to increased flood heights or velocities caused by excavation, fill, roads and intended use.
 - Impede access of emergency vehicles during a flood.
 - Create a safety hazard due to the expected heights, velocity, duration, rate of rise and sediment transport of the flood waters at the site.
 - Exacerbate costs of providing governmental services during and after flooding, including increased maintenance and repair of public utilities and facilities.
 - Interfere with the existing water flow capacity of the floodway.
 - Substantially increase erosion and/or sedimentation.
 - Contribute to the deterioration of any watercourse or the quality of water in any body of water. (Source: Eden Area Plan, pg. 8-19)
- P5. Both public and private service facilities and utilities in existing 100-year flood zones, shall be flood-proofed to a point at, or above, the base flood elevation. (Source: Eden Area Plan, pg. 8-19)
- P6. The County shall prevent the construction of flood barriers within the 100-year flood zone that will divert flood water or increase flooding in other areas. (Source: Eden Area Plan, pg. 8-19)
- P7. To the extent feasible, the County shall continue to improve its rating under the National Flood Insurance Program so that flood insurance premiums for residents in flood prone areas may be reduced. (Source: Eden Area Plan, pg. 8-20, with minor revision)
- P8. Property owners should be informed of the National Flood Insurance Program, which is intended to reduce the financial risk from flooding.

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- P9. Development shall comply with applicable NPDES requirements. (Source: Eden Area Plan, pg. 8-20)
- P10. The County shall work with the Alameda County Flood Control and Water Conservation District and Zone 7 Water Agency to provide for development of adequate storm drainage and flood control systems to serve existing and future development. (Source: ECAP, pg. 67, with minor revision)
- P11. The County shall promote flood control measures that advance the goals of recreation, resource conservation (including water quality and soil conservation), groundwater recharge, preservation of natural riparian vegetation and habitat, and the preservation of scenic values of the county's arroyos and creeks. (Source: ECAP, pg. 67)
- P12. The County shall require new development to pay their fair share of storm drainage and flood control improvements. (Source: ECAP, pg. 67)
- P13. The County shall regulate new development on a case-by-case basis to ensure that project storm drainage facilities shall be designed so that peak rate flow of storm water from new development will not exceed the rate of runoff from the site in its undeveloped state. (Source: ECAP, pg. 67, *with minor revision*)
- P14. The County shall ensure that development proposals within designated dam inundation areas are referred to the Office of Emergency Services and to appropriate local police departments for evaluation and updating of emergency response and evacuation plans. (Source: ECAP, pg. 67)
- P15. All development proposals shall comply with all County ordinances and State Codes that include flood-related design requirements
- P16. The County shall not approve any new development⁵ on lands within the Sacramento - San Joaquin Valley (SSJV) as defined by the California Department of Water Resources unless the findings contained within Government Code Section 65865.5, 65962, or 66474.5 have been made.

⁵ Development includes all of the following: development agreements, discretionary permit, discretionary entitlement, ministerial permit for a project, or a tentative map/parcel map for a subdivision.

Actions

- A1. Enforce applicable provisions of the Building Code (Source: Seismic Safety and Safety Element, pg. 8)
- A2. Require environmental assessment of project impacts. (Source: Seismic Safety and Safety Element, pg. 8)
- A3. Utilize site development and planned development district review. (Source: Seismic Safety and Safety Element, pg. 8)
- A4. Require studies where development is proposed in areas designated by FEMA as a having a potential flood risk and that any resulting development conform to the study findings.
- A5. Ensure that all construction and development activities obtain all applicable federal, state, regional, and County permits and approvals related to grading and erosion control, stormwater management and discharge control, and watercourse protection. (Source: Castro Valley Plan, pg. 10-18)
- A6. Require new development to comply with the requirements and criteria for stormwater quantity controls established in the Alameda County Hydrology and Hydraulics Criteria Summary (HHCS) to control surface runoff from new development. (Source: Castro Valley Plan, pg. 10-19)
- A7. Dedicate adequate resources to ensure effective and timely monitoring and maintenance of public drainage facilities, including storm drains, to maintain adequate capacity for peak flows in the area. (Source: Castro Valley Plan, pg. 10-19)
- A8. Use the Alameda County Flood Plain Management Ordinance (Chapter 15.40) and Section 15.08.230 of the Alameda County Building Code when assessing flood risk prior to project completion, as well as ongoing risk after flood control and improvement projects are implemented.
- A9. Work with ACFCWCD, and other agencies and jurisdictions to conduct feasibility studies, and implement flood control improvement projects, including, but not limited to: creek restoration, regional detention facilities in existing or proposed open space areas and/or parks, dredging; existing area dams that are silted-up, dredging existing facilities for increased capacity and recreation. (Source: Castro Valley Plan, pg. 10-20)

- A10. Establish design standards, guidelines and setback requirements for development on properties that abut creeks and waterways, and require the replanting and restoration of riparian vegetation as part of any discretionary permit. Implement and enforce creek setback requirements for development for properties that abut creeks in coordination with the ACFCWCD and Zone 7 Water Agency. (Source: Castro Valley Plan, pg. 10-20, with minor revision)
- A11. Continue to participate in activities that prevent or reduce flood impacts to existing and future development as described under the Community Rating System program developed by FEMA's National Flood Insurance Program. (Source: Eden Area Plan, pg. 8-20)
- A12. Monitor potential changes in information regarding tsunami hazards for the unincorporated area. (Source: Eden Area Plan, pg. 8-20)
- A13. Review and revise Chapters 13.08 (Stormwater Management and Discharge Control), 13.12 (Watercourse Ordinance), 15.36 (Grading Erosion and Sediment Control), Title 16 (Subdivision Ordinance), and Section 15.08.230 of the Building Code as needed to minimize flood risks within the County and to comply with State and Federal flood control requirements.
- A14. Amend the Zoning Ordinance as needed to comply with the Central Valley Flood Protection Plan.

List of Mitigation Strategies

Number	Specific Mitigation Strategy
<u>Infrastructure: Multi-Hazard</u>	
INFR-a-1	Assess the vulnerability of critical facilities owned by infrastructure operators subject to damage in natural disasters or security threats, including fuel tanks and facilities owned outside of the Bay Area that can impact service delivery within the region. Note - Infrastructure agencies, departments, and districts are those that operate transportation and utility facilities and networks.
INFR-a-2	If a dam owner, comply with State of California and federal requirements to assess the vulnerability of dams to damage from earthquakes, seiches, landslides, liquefaction, or security threats.
INFR-a-3	Encourage the cooperation of utility system providers and cities, counties, and special districts, and PG&E to develop strong and effective mitigation strategies for infrastructure systems and facilities.
INFR-a-4	Encourage the cooperation of utility system providers and cities, counties, and special districts, and PG&E to develop strong and effective mitigation strategies for infrastructure systems and facilities.
INFR-a-5	Support and encourage efforts of other (lifeline infrastructure) agencies as they plan for and arrange financing for seismic retrofits and other disaster mitigation strategies. (For example, a city might pass a resolution in support of a transit agency's retrofit program.)
INFR-a-6	Develop a plan for speeding the repair and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water/Wastewater Agency Response Network (WARN). Communicate that plan to local governments and critical facility operators.
INFR-a-7	Engage in, support, and/or encourage research by others (such as USGS, universities, or Pacific Earthquake Engineering Research Center-PEER) on measures to further strengthen transportation, water, sewer, and power systems so that they are less vulnerable to damage in disasters.
INFR-a-8	Pre-position emergency power generation capacity (or have rental/lease agreements for these generators) in critical buildings of cities, counties, and special districts to maintain continuity of government and services.
INFR-a-9	Ensure that critical intersection traffic lights function following loss of power by installing battery back-ups, emergency generators, or lights powered by alternative energy sources such as solar. Proper functioning of these lights is essential for rapid evacuation, such as with hazmat releases resulting from natural disasters.
INFR-a-10	Develop unused or new pedestrian rights-of-way as walkways to serve as additional evacuation routes (such as fire roads in park lands).
INFR-a-11	Minimize the likelihood that power interruptions will adversely impact lifeline utility systems or critical facilities by ensuring that they have adequate back-up power.
INFR-a-12	Encourage replacing above ground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new phone and electrical utility lines are installed underground.
INFR-a-13	If you own a dam, coordinate with the State Division of Safety of Dams to ensure an adequate timeline for the maintenance and inspection of dams, as required of dam owners by State law, and communicate this information to local governments and the public.
INFR-a-14	Encourage communication between State Emergency Management Agency (CalEMA), FEMA, and utilities related to emergencies occurring outside of the Bay Area that can affect service delivery in the region.
INFR-a-15	Ensure that transit operators, private ambulance companies, cities, and/or counties have mechanisms in place for medical transport during and after disasters that take into

- consideration the potential for reduced capabilities of roads following these same disasters.
- INFR-a-16 Recognize that heat emergencies produce the need for non-medical transport of people to cooling centers by ensuring that (1) transit operators have plans for non-medical transport of people during and after such emergencies including the use of paratransit and (2) cities, counties, and transit agencies have developed ways to communicate the plan to the public.
 - INFR-a-17 Effectively utilize the Regional Transportation Management Center (TMC) in Oakland, the staffing of which is provided by Caltrans, the CHP and MTC. The TMC is designed to maximize safety and efficiency throughout the highway system. It includes the Emergency Resource Center (ERC) which was created specifically for primary planning and procedural disaster management. RESPONSIBLE AGENCY: MTC only.
 - INFR-a-18 Develop (with the participation of paratransit providers, emergency responders, and public health professionals) plans and procedures for paratransit system response and recovery from disasters.
 - INFR-a-19 Coordinate with other critical infrastructure facilities to establish plans for delivery of water and wastewater treatment chemicals.
 - INFR-a-20 Establish plans for delivery of fuel to critical infrastructure providers.
 - INFR-a-21 As an infrastructure operator, designate a back-up Emergency Operations Center with redundant communications systems.
 - INFR-a-22 Monitor scientific studies of the Sacramento-San Joaquin Delta and policy decisions related to the long-term disaster resistance of that Delta system to ensure that decisions are made based on comprehensive analysis and in a scientifically-defensible manner. Levee failure due to earthquakes, flooding, and climate change (including sea level rise and more frequent and more severe flooding) are all of concern. The long-term health of the Delta area is critical to the Bay Area's water supply, is essential for the San Francisco Bay and estuary's environmental health, provides recreation opportunities for Bay Area residents, and provides the long-term sustainability of Delta communities. While only part of the Delta is within the nine Bay Area counties covered by this multi-jurisdictional LHMP, the Delta is tied to the infrastructure, water supply, and economy of the Bay Area.

Infrastructure: Earthquakes

- INFR-b-1 Expedite the funding and retrofit of seismically-deficient city- and county-owned bridges and road structures by working with Caltrans and other appropriate governmental agencies.
- INFR-b-2 Establish a higher priority for funding seismic retrofit of existing transportation and infrastructure systems (such as BART) than for expansion of those systems.
- INFR-b-3 Include "areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture" in the list of criteria used for determining a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).
- INFR-b-4 Install specially-engineered pipelines in areas subject to faulting, liquefaction, earthquake-induced landsliding, or other earthquake hazard.
- INFR-b-5 Replace or retrofit water-retention structures that are determined to be structurally deficient, including levees, dams, reservoirs and tanks.
- INFR-b-6 Install portable facilities (such as hoses, pumps, emergency generators, or other equipment) to allow pipelines to bypass failure zones such as fault rupture areas, areas of liquefaction, and other ground failure areas (using a priority scheme if funds are not available for installation at all needed locations).
- INFR-b-7 Install earthquake-resistant connections when pipes enter and exit bridges and work with bridge owners to encourage retrofit of these structures.
- INFR-b-8 Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities.
- INFR-b-9 Clarify to workers in critical facilities and emergency personnel, as well as to elected officials

and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake.

- INFR-b-10 Develop a water-based transportation “system” across the Bay for use in the event of major earthquakes. Implementation of such a system could prove extremely useful in the event of structural failure of either the road-bridge systems or BART and might serve as an adjunct to existing transportation system elements in the movement of large numbers of people and/or goods.

Infrastructure: Wildfire

- INFR-c-1 Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development.
- INFR-c-2 Develop a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard (including wildfire threat areas and in wildland-urban-interface areas).
- INFR-c-3 Develop a defensible space vegetation program that includes the clearing or thinning of (a) non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, or (b) all non-native species (such as eucalyptus and pine, but not necessarily oaks) within 30 feet of access and evacuation roads and routes to critical facilities.
- INFR-c-4 For new development, ensure all dead-end segments of public roads in high hazard areas have at least a “T” intersection turn-around sufficient for typical wildland fire equipment.
- INFR-c-5 For new development, enforce minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on all driveways and road segments greater than 50 feet in length in wildfire hazard areas.
- INFR-c-6 Require that development in high fire hazard areas provide adequate access roads (with width and vertical clearance that meet the minimum standards of the *Fire Code* or relevant local ordinance), onsite fire protection systems, evacuation signage, and fire breaks.
- INFR-c-7 Ensure adequate fire equipment road or fire road access to developed and open space areas.
- INFR-c-8 Maintain fire roads and/or public right-of-way roads and keep them passable at all times.

Infrastructure: Flooding

- INFR-d-1 Conduct a watershed analysis of runoff and drainage systems to predict areas of insufficient capacity in the storm drain and natural creek system.
- INFR-d-2 Develop procedures for performing a watershed analysis to examine the impact of development on flooding potential downstream, including communities outside of the jurisdiction of proposed projects.
- INFR-d-3 Conduct a watershed analysis at least once every ten years unless there is a major development in the watershed or a major change in the Land Use Element of the General Plan of the cities or counties within the watershed.
- INFR-d-4 Assist, support, and/or encourage the U.S. Army Corp of Engineers, various Flood Control and Water Conservation Districts, and other responsible agencies to locate and maintain funding for the development of flood control projects that have high cost-benefit ratios (such as through the writing of letters of support and/or passing resolutions in support of these efforts).
- INFR-d-5 Pursue funding for the design and construction of storm drainage projects to protect vulnerable properties, including property acquisitions, upstream storage such as detention basins, and channel widening with the associated right-of-way acquisitions, relocations, and environmental mitigations.
- INFR-d-6 Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities. (This strategy has the secondary benefit of addressing fuel,

chemical, and cleaning product issues.)

- INFR-d-7 Continue maintenance efforts to keep storm drains and creeks free of obstructions, while retaining vegetation in the channel (as appropriate) to allow for the free flow of water.
- INFR-d-8 Enforce provisions under creek protection, stormwater management, and discharge control ordinances designed to keep watercourses free of obstructions and to protect drainage facilities to conform with the Regional Water Quality Control Board's Best Management Practices.
- INFR-d-9 Develop an approach and locations for various watercourse bank protection strategies, including for example, (1) an assessment of banks to inventory areas that appear prone to failure, (2) bank stabilization, including installation of rip rap, or whatever regulatory agencies allow (3) stream bed depth management using dredging, and (4) removal of out-of-date coffer dams in rivers and tributary streams.
- INFR-d-10 Use reservoir sediment or reed removal as one way to increase storage for both flood control and water supply.
- INFR-d-11 Identify critical locally-owned bridges affected by flooding and either elevate them to increase stream flow and maintain critical ingress and egress routes or modify the channel to achieve equivalent objectives.
- INFR-d-12 Provide or support the mechanism to expedite the repair or replacement of levees that are vulnerable to collapse from earthquake-induced shaking or liquefaction, rodents, and other concerns, particularly those protecting critical infrastructure.
- INFR-d-13 Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage.
- INFR-d-14 Determine whether or not wastewater treatment plants are protected from floods, and if not, investigate the use of flood-control berms to not only protect from stream or river flooding, but also increase plant security.
- INFR-d-15 Work cooperatively with water agencies, flood control districts, Caltrans, and local transportation agencies to determine appropriate performance criteria for watershed analysis.
- INFR-d-16 Work for better cooperation among the patchwork of agencies managing flood control issues.
- INFR-d-17 Improve monitoring of creek and watercourse flows to predict potential for flooding downstream by working cooperatively with land owners and the cities and counties in the watershed.
- INFR-d-18 Using criteria developed by EPA for asset management, inventory existing assets, the condition of those assets, and improvements needed to protect and maintain those assets. Capture this information in a Geographic Information System (GIS) and use it to select locations for creek monitoring gauges.

Infrastructure: Landslides

- INFR-e-1 Include "areas subject to ground failure" in the list of criteria used for determining a replacement schedule (along with importance, age, type of construction material, size, condition, and maintenance or repair history) for pipelines.
- INFR-e-2 Establish requirements in zoning ordinances to address hillside development constraints in areas of steep slopes that are likely to lead to excessive road maintenance or where roads will be difficult to maintain during winter storms due to landsliding.

Infrastructure: Building Reoccupancy

- INFR-f-1 Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. Note - A qualified (deleted structural) engineer is a California licensed engineer with relevant experience.

Infrastructure: Public Education

- INFR-g-1 Provide materials to the public related to planning for power outages.
- INFR-g-2 Provide materials to the public related to family and personal planning for delays due to traffic or road closures, or due to transit system disruption caused by disasters.
- INFR-g-3 Provide materials to the public related to coping with reductions in water supply or contamination of that supply BEYOND regulatory notification requirements.
- INFR-g-4 Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment (such as materials developed by ABAG's Sewer Smart Program).
- INFR-g-5 Facilitate and/or coordinate the distribution of emergency preparedness or mitigation materials that are prepared by others, such as by making the use of the internet or other electronic means, or placing materials on community access channels or in city or utility newsletters, as appropriate.
- INFR-g-6 Sponsor the formation and training of Community Emergency Response Teams (CERT) for the employees of your agency. [Note – these programs go by a variety of names in various cities and areas.]
- INFR-g-7 Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparenow.org> website related to infrastructure issues.

Health: Hospitals and Other Critical Health Care Facilities

- HEAL-a-1 Work to ensure that cities, counties, county health departments, and hospital operators coordinate with each other (and that hospitals cooperate with the California Office of Statewide Health Planning and Development - OSHPD) to comply with current state law that mandates that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters by 2013. In particular, this coordination should include understanding any problems with obtaining needed funding. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-a-2 Encourage hospitals in your community to work with OSHPD to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco's Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-a-3 Ensure health care facilities are adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-a-4 Ensure these health care facilities have the capacity to shut off outside air and be self-contained. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-a-5 Ensure that hospitals and other major health care facilities have auxiliary water and power sources. RESPONSIBLE AGENCIES: Cities, counties, county health departments, water suppliers, and hospitals
- HEAL-a-6 Work to ensure that county health departments work with health care facilities to institute isolation capacity should a need for them arise following a communicable disease epidemic. Isolation capacity varies from a section of the hospital for most communicable diseases to the entire hospital for a major pandemic flu. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-a-7 Develop printed materials, utilize existing materials (such as developed by FEMA, the American Red Cross, and others, including non-profit organizations), conduct workshops, and/or provide outreach encouraging employees of these critical health care facilities to have

family disaster plans and conduct mitigation activities in their own homes. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals

Health: Ancillary Health-Related Facilities

- HEAL-b-1 Identify these ancillary facilities in your community. These facilities are not regulated by OSHPD in the same way as hospitals. RESPONSIBLE AGENCIES: Cities, counties, and county health departments
- HEAL-b-2 Encourage these facility operators to develop disaster mitigation plans. RESPONSIBLE AGENCIES: Cities, counties, and county health departments
- HEAL-b-3 Encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and business continuity plans for recovery. RESPONSIBLE AGENCIES: Cities, counties, and county health departments

Health: Coordination Initiatives

- HEAL-c-1 Designate locations for the distribution of antibiotics to large numbers of people should the need arise, as required to be included in each county's Strategic National Stockpile Plan. RESPONSIBLE AGENCIES: County Health Departments
- HEAL-c-2 Ensure that you know the Metropolitan Medical Response System (MMRS) cities in your area. Fremont, Oakland, San Francisco, and San Jose (plus Sacramento and Stockton) are the MMRS cities in or near the Bay Area. MMRS cities are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel to respond to a mass casualty event. (The coordination among public health, medical, emergency management, coroner, EMS, fire, and law enforcement is a model for all cities and counties.) RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-c-3 Know that National Disaster Medical System (NDMS) uniformed or non-uniformed personnel are within one-to-four hours of your community. These federal resources include veterinary, mortuary, and medical personnel. Teams in or near the Bay Area are headquartered in the cities of Santa Clara and Sacramento. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals
- HEAL-c-4 Plan for hazmat related-issues due to a natural or technological disaster. Hazmat teams should utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Lawrence Livermore National Laboratory or Sandia (both in Livermore) for confirmation of radiological agents. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals.
- HEAL-c-5 Create discussion forums for food and health personnel (including, for example, medical professionals, veterinarians, and plant pathologists) to develop safety, security, and response strategies for food supply contamination (at the source, in processing facilities, in distribution centers, and in grocery stores). RESPONSIBLE AGENCIES: County environmental health departments
- HEAL-c-6 Ensure mental health continuity of operations and disaster planning is coordinated among county departments, (including Public Health and Emergency Services), private sector mental health organizations, professional associations, and national and community-based non-profit agencies involved in supporting community mental health programs. First, such planning should ensure that the capability exists to provide both immediate on-site mental health support at facilities such as evacuation centers, emergency shelters, and local assistance centers, as well as to coordinate on-going mental health support during the long-term recovery process. Second, this planning should ensure that mental health providers, in collaboration with the county agencies responsible for providing public information, are prepared to provide consistent post-disaster stress and other mental health guidance to the public impacted by the disaster.

Housing: Multi-Hazard

- HSNG-a-1 Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for residential properties with regard to

seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).

- HSNG-a-2 Create incentives for private owners of historic or architecturally significant residential buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation*.
- HSNG-a-3 Develop a plan for short-term sheltering of residents of your community in conjunction with the American Red Cross.
- HSNG-a-4 Develop a plan for interim housing for those displaced by working with the Regional Catastrophic Planning Grant Program (CPGP) that funded this effort in 2009. (Estimated completion is 2011.)

Housing: Single-Family Homes Vulnerable to Earthquakes

- HSNG-b-1 Utilize or recommend adoption of a retrofit standard that includes standard plan sets and construction details for voluntary bolting of homes to their foundations and bracing of outside walls of crawl spaces ("cripple" walls), such as Plan Set A developed by a committee representing the East Bay-Peninsula-Monterey Chapters of the International Code Council (ICC), California Building Officials (CALBO), the Structural Engineers Association of Northern California (SEAONC), the Northern California Chapter of the Earthquake Engineering Research Institute (EERI-NC), and ABAG's Earthquake Program.
- HSNG-b-2 Require engineered plan sets for seismic retrofitting of heavy two-story homes with living areas over garages, as well as for split level homes (that is, homes not covered by Plan Set A), until standard plan sets and construction details become available.
- HSNG-b-3 Require engineered plan sets for seismic retrofitting of homes on steep hillsides (because these homes are not covered by Plan Set A).
- HSNG-b-4 Encourage local government building inspectors to take classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG) on retrofitting of single-family homes, including application of Plan Set A.
- HSNG-b-5 Encourage private retrofit contractors and home inspectors doing work in your area to take retrofit classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG or additional classes that might be offered by the CALBO Training Institute) on retrofitting of single-family homes.
- HSNG-b-6 Conduct demonstration projects on common existing housing types demonstrating structural and nonstructural mitigation techniques as community models for earthquake mitigation.
- HSNG-b-7 Provide retrofit classes or workshops for homeowners in your community, or help promote utilization of subregional workshops in the South Bay, East Bay, Peninsula, and North Bay as such workshops become available through outreach using existing community education programs.
- HSNG-b-8 Establish tool-lending libraries with common tools needed for retrofitting for use by homeowners with appropriate training.
- HSNG-b-9 Provide financial incentives to owners of single-family homes to retrofit if those retrofits comply with Plan Set A or IEBC 2006 in addition to that provided by existing State law that makes such retrofits exempt from increases in property taxes.

Housing: Soft-Story Multi-Family Residential Structures Vulnerable to Earthquakes

- HSNG-c-1 Require engineered plan sets for voluntary or mandatory soft-story seismic retrofits by private owners until a standard plan set and construction details become available.
- HSNG-c-2 Adopt the 2009 International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory soft-story building retrofits for use in city/county building department regulations. In addition, allow use of changes to that standard recommended by

SEAOC for the 2012 IEBC.

- HSNG-c-3 Work to educate building owners, local government staff, engineers, and contractors on privately-owned soft-story retrofit procedures and incentives using materials such as those developed by ABAG and the City of San Jose (see <http://quake.abag.ca.gov/eqhouse.html>.)
- HSNG-c-4 Conduct an inventory of privately-owned existing or suspected soft-story residential structures as a first step in establishing voluntary or mandatory programs for retrofitting these buildings.
- HSNG-c-5 Use the soft-story inventory to require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they may live in this type of building.
- HSNG-c-6 Use the soft-story inventory to require private owners to inform all existing and prospective tenants that they may need to be prepared to live elsewhere following an earthquake if the building has not been retrofitted.
- HSNG-c-7 Investigate and adopt appropriate financial, procedural, and land use incentives (such as parking waivers) for private owners of soft-story buildings to facilitate retrofit such as those described by ABAG (see <http://quake.abag.ca.gov/fixit/>).
- HSNG-c-8 Explore development of State regulations or legislation to require or encourage private owners of soft-story structures to strengthen them.
- HSNG-c-9 Provide technical assistance in seismically strengthening privately-owned soft-story structures.

Housing: Unreinforced Masonry Housing Stock

- HSNG-d-1 Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform private property owners that they own this type of hazardous structure.
- HSNG-d-2 Accelerate retrofitting of privately-owned unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory versus voluntary, retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.
- HSNG-d-3 Require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they live in an unreinforced masonry building and the standard to which it may have been retrofitted.
- HSNG-d-4 As required by State law, require private owners to inform all existing tenants that they may need to be prepared to live elsewhere following an earthquake even if the building has been retrofitted, because it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.

Housing: Other Privately-Owned Structurally Vulnerable Residential Buildings and Earthquakes

- HSNG-e-1 Identify and work toward tying down mobile homes used as year-round permanent residences using an appropriate cost-sharing basis (for example, 75% grant, 25% owner).
- HSNG-e-2 Inventory non-ductile concrete, tilt-up concrete (such as converted lofts), and other privately-owned potentially structurally vulnerable residential buildings.
- HSNG-e-3 Adopt the 2009 International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory retrofit of privately-owned seismically vulnerable buildings.
- HSNG-e-4 Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned seismically vulnerable residential buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use (such as parking requirement waivers) and procedural incentives, or (f) technical assistance.

Housing: New Construction and Earthquakes

- HSNG-f-1 Continue to require that all new housing be constructed in compliance with requirements of the most recently adopted version of the *California Building Code*.

HSNG-f-2 Conduct appropriate employee training and support continued education to ensure enforcement of building codes and construction standards, as well as identification of typical design inadequacies of housing and recommended improvements.

Housing: Wildfire and Structural Fires

- HSNG-g-1 Increase efforts to reduce hazards in existing private development in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.
- HSNG-g-2 Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.
- HSNG-g-3 Require that new homes in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat be constructed of fire-resistant building materials (including roofing and exterior walls) and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability. Note - See Structural Fire Prevention Field Guide for Mitigation of Wildfires at <http://osfm.fire.ca.gov/structural.html>.
- HSNG-g-4 Create or identify "model" properties showing defensible space and structural survivability in neighborhoods that are wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
- HSNG-g-5 Consider fire safety, evacuation, and emergency vehicle access when reviewing proposals to add secondary units or additional residential units in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
- HSNG-g-6 Adopt and amend as needed updated versions of the *California Building and Fire Codes* so that optimal fire-protection standards are used in construction and renovation projects of private buildings.
- HSNG-g-7 Create a mechanism to enforce provisions of the *California Building and Fire Codes* and other local codes that require the installation of smoke detectors and fire-extinguishing systems on existing residential buildings by making installation a condition of (a) finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.
- HSNG-g-8 Work to ensure a reliable source of water for fire suppression in rural-residential areas through the cooperative efforts of water districts, fire districts, and residents.
- HSNG-g-9 Expand vegetation management programs in wildland-urban- interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning.
- HSNG-g-10 Establish special funding mechanisms (such as Fire Hazard Abatement Districts or regional bond funding) to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.
- HSNG-g-11 Work with residents in rural-residential areas to ensure adequate plans are developed for appropriate access and evacuation in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. For example, in some areas, additional roads can be created, and in other areas, the communities will need to focus on early warning and evacuation because additional roads are not feasible.
- HSNG-g-12 Require fire sprinklers in new homes located more than 1.5 miles or a 5-minute response time from a fire station or in an identified high hazard wildland-urban-interface wildfire area.
- HSNG-g-13 Require fire sprinklers in all new or substantially remodeled multifamily housing, regardless of distance from a fire station.
- HSNG-g-14 Require sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas.

- HSNG-g-15 Compile a list of privately-owned high-rise and high-occupancy buildings which are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.
- HSNG-g-16 Conduct periodic fire-safety inspections of all multi-family buildings, as required by State law.
- HSNG-g-17 Ensure that city/county-initiated fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard. For example, vegetation in these sensitive areas could be thinned, rather than removed, or replanted with less flammable materials. When thinning, the non-native species should be removed first. Other options would be to use structural mitigation, rather than vegetation management in the most sensitive areas.
- HSNG-g-18 Create a mechanism to require the bracing of water heaters and flexible couplings on gas appliances, and/or (as specified under "**b. Single-family homes vulnerable to earthquakes**" above) the bolting of homes to their foundations and strengthening of cripple walls to reduce fire ignitions due to earthquakes.
- HSNG-g-19 Work with the State Fire Marshall, the California Seismic Safety Commission, Pacific Earthquake Engineering Research Center (PEER), and other experts to identify and manage gas-related fire risks of soft-story residential or mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. **Note** - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. **Also note** - any valves that are installed may need to have both excess flow and seismic triggers (hybrid valves).
- HSNG-g-20 Work with insurance companies to create a public/private partnership to give a discount on fire insurance premiums to Forester Certified Fire Wise landscaping and fire-resistant building materials on private property.

Housing: Flooding

- HSNG-h-1 To reduce flood risk, thereby reducing the cost of flood insurance to private property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.
- HSNG-h-2 Balance the housing needs of residents against the risk from potential flood-related hazards.
- HSNG-h-3 Ensure that new private development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, or does not increase runoff by draining water to pervious areas or detention facilities.
- HSNG-h-4 Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, and deliver those materials to vulnerable populations upon request.
- HSNG-h-5 Provide public information on locations for obtaining sandbags and/or deliver those sandbags to those various locations throughout a city and/or county prior to and/or during the rainy season.
- HSNG-h-6 Apply floodplain management regulations for private development in the floodplain and floodway.
- HSNG-h-7 Ensure that new subdivisions are designed to reduce or eliminate flood damage by requiring lots and rights-of-way be laid out for the provision of approved sewer and drainage facilities, providing on-site detention facilities whenever practicable.
- HSNG-h-8 Encourage home and apartment owners to participate in home elevation programs within flood hazard areas.
- HSNG-h-9 As funding opportunities become available, encourage home and apartment owners to participate in acquisition and relocation programs for areas within floodways.
- HSNG-h-10 Encourage owners of properties in a floodplain to consider purchasing flood insurance. For example, point out that most homeowners' insurance policies do not cover a property for flood damage.

Housing: Landslides and Erosion

- HSNG-i-1 Increase efforts to reduce landslides and erosion in existing and future development by improving appropriate code enforcement and use of applicable standards for private property, such as those appearing in the California Building Code, California Geological Survey *Special Report 117 – Guidelines for Evaluating and Mitigating Seismic Hazards in California*, American Society of Civil Engineers (ASCE) report *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California*, and the California Board for Geologists and Geophysicists *Guidelines for Engineering Geologic Reports*. Such standards should cover excavation, fill placement, cut-fill transitions, slope stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance.
- HSNG-i-2 Increase efforts to reduce landslides and erosion in existing and future private development through continuing education of design professionals on mitigation strategies.

Housing: Building Reoccupancy

- HSNG-j-1 Develop and enforce a repair and reconstruction ordinance to ensure that damaged buildings are repaired in an appropriate and timely manner and retrofitted concurrently. This repair and reconstruction ordinance should apply to all public and private buildings, and also apply to repair of all damage, regardless of cause. See <http://quake.abag.ca.gov/recovery/info-repair-ord.html>.
- HSNG-j-2 Establish preservation-sensitive measures for the repair and reoccupancy of historically significant privately-owned structures, including requirements for temporary shoring or stabilization where needed, arrangements for consulting with preservationists, and expedited permit procedures for suitable repair or rebuilding of historically or architecturally valuable structures.

Housing: Public Education

- HSNG-k-1 Provide information to residents of your community on the availability of interactive hazard maps showing your community on ABAG's web site.
- HSNG-k-2 Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging residents to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines.
- HSNG-k-3 Inform residents of comprehensive mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.
- HSNG-k-4 Develop a public education campaign on the cost, risk, and benefits of earthquake, flood, and other hazard insurance as compared to mitigation.
- HSNG-k-5 Use disaster anniversaries, such as April (the 1906 earthquake), September (9/11), and October (Loma Prieta earthquake and Oakland Hills fire), to remind the public of safety and security mitigation activities.
- HSNG-k-6 Sponsor the formation and training of Community Emergency Response Teams (CERT) for residents in your community. [Note – these programs go by a variety of names in various cities and areas.]
- HSNG-k-7 Include flood fighting technique session based on California Department of Water Resources training to the list of available public training classes offered by CERT.
- HSNG-k-8 Institute the neighborhood watch block captain and team programs outlined in the Citizen Corps program guide.
- HSNG-k-9 Assist residents in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in

areas exposed to high-to-extreme fire threat.

- HSNG-k-10 Train homeowners to locate and shut off gas valves if they smell or hear gas leaking.
- HSNG-k-11 Develop a program to provide at-cost NOAA weather radios to residents of flood hazard areas that request them, with priority to neighborhood watch captains and others trained in their use.
- HSNG-k-12 Make use of the materials on the ABAG web site at <http://quake.abag.ca.gov/fixit> and other web sites to increase residential mitigation activities related to earthquakes. (ABAG plans to continue to improve the quality of those materials over time.)
- HSNG-k-13 Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging private businesses and residents to keep storm drains in their neighborhood free of debris.
- HSNG-k-14 Encourage the formation of a community- and neighborhood-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program*. This effort is important because grant funds are currently available to offset costs of specific council-supported projects.
- HSNG-k-15 Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
- HSNG-k-16 Distribute appropriate materials related to disaster mitigation and preparedness to residents. Appropriate materials are (1) culturally appropriate and (2) suitable for special needs populations. For example, such materials are available on the <http://www.preparenow.org> website and from non-governmental organizations that work with these communities on an on-going basis.

Economy: Multi-Hazard

- ECON-a-1 Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for commercial and industrial properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).
- ECON-a-2 Create incentives for private owners of historic or architecturally significant commercial and industrial buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation*.

Economy: Soft-Story Commercial Buildings Vulnerable to Earthquakes

- ECON-b-1 Require engineered plan sets for voluntary or mandatory soft-story seismic retrofits by private owners until a standard plan set and construction details become available.
- ECON-b-2 Adopt the 2009 International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory soft-story building retrofits for use in city/county building department regulations. In addition, allow use of changes to that standard recommended by SEAOC for the 2012 IEBC.
- ECON-b-3 Work to educate building owners, local government staff, engineers, and contractors on privately-owned soft-story retrofit procedures and incentives using materials such as those developed by ABAG and the City of San Jose (see <http://quake.abag.ca.gov/eqhouse.html>.)
- ECON-b-4 Conduct an inventory of privately-owned existing or suspected soft-story commercial or industrial structures as a first step in establishing voluntary or mandatory programs for retrofitting these buildings.
- ECON-b-5 Use the soft-story inventory to require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they may work in this type of building.
- ECON-b-6 Use the soft-story inventory to require private owners to inform all existing and prospective tenants that they may need to be prepared to work elsewhere following an earthquake if the

building has not been retrofitted.

- ECON-b-7 Investigate and adopt appropriate financial, procedural, and land use incentives (such as parking waivers) for private owners of soft-story buildings to facilitate retrofit such as those described by ABAG (see <http://quake.abag.ca.gov/fixit>).
- ECON-b-8 Explore development of State regulations or legislation to require or encourage private owners of soft-story structures to strengthen them.
- ECON-b-9 Provide technical assistance in seismically strengthening privately-owned soft-story structures.

Economy: Unreinforced Masonry Buildings in Older Downtown Areas

- ECON-c-1 Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform private property owners that they own this type of hazardous structure.
- ECON-c-2 Accelerate retrofitting of privately-owned unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory (rather than voluntary) retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.
- ECON-c-3 Require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they work in an unreinforced masonry building and the standard to which it may have been retrofitted.
- ECON-c-4 As required by State law, require private owners to inform all existing tenants that they may need to be prepared to work elsewhere following an earthquake even if the building has been retrofitted, because it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.

Economy: Privately-Owned Structurally Vulnerable Buildings

- ECON-d-1 Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally vulnerable buildings.
- ECON-d-2 Adopt the 2009 International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory retrofit of privately-owned seismically vulnerable buildings.
- ECON-d-3 Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned seismically vulnerable commercial and industrial buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use (such as parking requirement waivers) and procedural incentives, or (f) technical assistance.

Economy: Wildfire and Structural Fires

- ECON-e-1 Increase efforts to reduce hazards in existing private development in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.
- ECON-e-2 Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.
- ECON-e-3 Require that new privately-owned business and office buildings in high fire hazard areas be constructed of fire-resistant building materials and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability.
- ECON-e-4 Adopt and amend as needed updated versions of the *California Building and Fire Codes* so that optimal fire-protection standards are used in construction and renovation projects of private buildings.
- ECON-e-5 Create a mechanism to enforce provisions of the *California Building and Fire Codes* and other local codes that require the installation of smoke detectors and fire-extinguishing systems on existing privately-owned buildings by making installation a condition of (a)

finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.

- ECON-e-6 Expand vegetation management programs in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning.
- ECON-e-7 Establish special funding mechanisms (such as Fire Hazard Abatement Districts or regional bond funding) to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.
- ECON-e-8 Establish special funding mechanisms (such as Fire Hazard Abatement Districts or regional bond funding) to fund fire-safety inspections of private properties, roving firefighter patrols on high fire-hazard days, and public education efforts.
- ECON-e-9 Compile a list of privately-owned high-rise and high-occupancy buildings that are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.
- ECON-e-10 Conduct periodic fire-safety inspections of all privately-owned commercial and industrial buildings.
- ECON-e-11 Work with the State Fire Marshall, the California Seismic Safety Commission, Pacific Earthquake Engineering Research Center (PEER), and other experts to identify and manage gas-related fire risks of privately-owned soft-story mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. Note - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. Also note - any valves that are installed may need to have both excess flow and seismic triggers (hybrid valves).
- ECON-e-12 Ensure that city/county-initiated fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard.
- ECON-e-13 Work with insurance companies to create a public/private partnership to give a discount on fire insurance premiums to Forester Certified *Fire Wise* landscaping and fire-resistant building materials on private property.

Economy: Flooding

- ECON-f-1 To reduce flood risk, thereby reducing the cost of flood insurance to private property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.
- ECON-f-2 Balance the needs for private commercial and industrial development against the risk from potential flood-related hazards.
- ECON-f-3 Ensure that new private development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, or does not increase runoff by draining water to pervious areas or detention facilities.
- ECON-f-4 Provide sandbags and plastic sheeting to private businesses in anticipation of rainstorms, and deliver those materials to vulnerable populations upon request.
- ECON-f-5 Provide information to private business on locations for obtaining sandbags and deliver those sandbags to those various locations throughout a city and/or county.
- ECON-f-6 Apply floodplain management regulations for private development in the floodplain and floodway.
- ECON-f-7 Encourage private business owners to participate in building elevation programs within flood hazard areas.
- ECON-f-8 As funding becomes available, encourage private business owners to participate in acquisition and relocation programs for areas within floodways.

ECON-f-9 Require an annual inspection of approved flood-proofed privately-owned buildings to ensure that (a) all flood-proofing components will operate properly under flood conditions and (b) all responsible personnel are aware of their duties and responsibilities as described in their building's *Flood Emergency Operation Plan* and *Inspection & Maintenance Plan*.

Economy: Landslides and Erosion

ECON-g-1 Increase efforts to reduce landslides and erosion in existing and future development by improving appropriate code enforcement and use of applicable standards for private property, such as those appearing in the California Building Code, California Geological Survey *Special Report 117 – Guidelines for Evaluating and Mitigating Seismic Hazards in California*, American Society of Civil Engineers (ASCE) report *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California*, and the California Board for Geologists and Geophysicists *Guidelines for Engineering Geologic Reports*. Such standards should cover excavation, fill placement, cut-fill transitions, slope stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance.

ECON-g-2 Increase efforts to reduce landslides and erosion in existing and future private development through continuing education of design professionals on mitigation strategies.

Economy: Construction

ECON-h-1 Continue to require that all new privately-owned commercial and industrial buildings be constructed in compliance with requirements of the most recently adopted version of the *California Building Code*.

ECON-h-2 Conduct appropriate employee training and support continued education to ensure enforcement of construction standards for private development.

ECON-h-3 Work with private building owners to help them recognize that many strategies that increase earthquake resistance also decrease damage in an explosion. In addition, recognize that ventilation systems can be designed to contain airborne biological agents.

Economy: Building Reoccupancy

ECON-i-1 Institute a program to encourage owners of private buildings to participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). This program permits owners of private buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster.

ECON-i-2 Actively notify private owners of historic or architecturally significant buildings of the availability of the local BORP-type program and encourage them to participate to ensure that appropriately qualified structural engineers are inspecting their buildings, thus reducing the likelihood that the buildings will be inappropriately evaluated following a disaster.

ECON-i-3 Actively notify owners of educational facility buildings of the availability of the local BORP-type program and encourage them to participate to ensure that appropriately qualified structural engineers are inspecting their buildings, thus reducing the likelihood that the buildings will be inappropriately evaluated following a disaster.

ECON-i-4 Allow private building owners to participate in a BORP-type program as described above, but not actively encourage them to do so.

ECON-i-5 Develop and enforce a repair and reconstruction ordinance to ensure that damaged buildings are repaired in an appropriate and timely manner and retrofitted concurrently. This repair and reconstruction ordinance should apply to all public and private buildings, and also apply to repair of all damage, regardless of cause. See <http://quake.abag.ca.gov/recovery/info-repair-ord.html>.

ECON-i-6 Establish preservation-sensitive measures for the repair and reoccupancy of historically significant privately-owned structures, including requirements for temporary shoring or

stabilization where needed, arrangements for consulting with preservationists, and expedited permit procedures for suitable repair or rebuilding of historically or architecturally valuable structures.

Economy: Public Education

- ECON-j-1 Provide information to private business owners and their employees on the availability of interactive hazard maps on ABAG's web site.
- ECON-j-2 Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging private businesses' employees to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines.
- ECON-j-3 Develop and print materials, conduct workshops, and provide outreach to Bay Area private businesses focusing on business continuity planning.
- ECON-j-4 Inform Bay Area private business owners of mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat, structural retrofitting techniques for older buildings, and use of intelligent grading practices through workshops, publications, and media announcements and events.
- ECON-j-5 Sponsor the formation and training of Community Emergency Response Teams (CERT) training for other than your own employees through partnerships with local private businesses. [Note – these programs go by a variety of names in various cities and areas.]
- ECON-j-6 Assist private businesses in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
- ECON-j-7 Make use of the materials developed by others (such as found on ABAG's web site at <http://quake.abag.ca.gov/business>) to increase mitigation activities related to earthquakes by groups other than your own agency. ABAG plans to continue to improve the quality of those materials over time.
- ECON-j-8 Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging private businesses and residents to keep storm drains in their neighborhood free of debris.
- ECON-j-9 Encourage the formation of a community- and neighborhood-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program*. This effort is important because grant funds are currently available to offset costs of specific council-supported projects.
- ECON-j-10 Encourage private businesses and laboratories handling hazardous materials or pathogens increase security to a level high enough to create a deterrent to crime and terrorism, including active implementation of "cradle-to-grave" tracking systems.
- ECON-j-11 Encourage joint meetings of security and operations personnel at major private employers to develop innovative ways for these personnel to work together to increase safety and security.
- ECON-j-12 Inform private shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
- ECON-j-13 Distribute appropriate materials related to disaster mitigation and preparedness to private business owners. Appropriate materials are (1) culturally appropriate and (2) suitable for special needs populations. For example, such materials are available on the <http://www.preparenow.org> website and from non-governmental organizations that work with these communities on an on-going basis.

Government: Focus on Critical Facilities

- GOVT-a-1 Assess the vulnerability of critical facilities (such as city halls, fire stations, operations and communications headquarters, community service centers, seaports, and airports) to damage in natural disasters and make recommendations for appropriate mitigation.
- GOVT-a-2 Retrofit or replace critical facilities that are shown to be vulnerable to damage in natural

disasters.

- GOVT-a-3 Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake.
- GOVT-a-4 Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major natural disasters. Such contents and equipment includes computers and servers, phones, files, and other tools used by staff to conduct daily business.
- GOVT-a-5 Encourage joint meetings of security and operations personnel at critical facilities to develop innovative ways for these personnel to work together to increase safety and security.
- GOVT-a-6 When installing micro and/or surveillance cameras around critical public assets tied to web-based software, and developing a surveillance protocol to monitor these cameras, investigate the possibility of using the cameras for the secondary purpose of post-disaster damage assessment.
- GOVT-a-7 Identify and undertake cost-effective retrofit measures related to security on critical facilities (such as moving and redesigning air intake vents and installing blast-resistant features) when these buildings undergo major renovations related to other natural hazards.
- GOVT-a-8 Coordinate with the State Division of Safety of Dams to ensure that cities and counties are aware of the timeline for the maintenance and inspection of dams whose failure would impact their jurisdiction.
- GOVT-a-9 As a secondary focus, assess the vulnerability of non-critical facilities to damage in natural disasters based on occupancy and structural type, make recommendations on priorities for structural improvements or occupancy reductions, and identify potential funding mechanisms.
- GOVT-a-10 Ensure that new government-owned facilities comply with and are subject to the same or more stringent regulations as imposed on privately-owned development.
- GOVT-a-11 Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling government-owned facilities.
- GOVT-a-12 Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant structural hazards and hazards associated with the building site.
- GOVT-a-13 Ensure that any regulations imposed on private-owned businesses related to repair and reconstruction (see Economy Section) are enforced and imposed on local government's own buildings and structures.

Government: Maintain and Enhance Local Government's Emergency Recovery Planning

- GOVT-b-1 Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities of various departments within the local government organization, and that outlines a structure and process for policy-making involving elected officials and appointed advisory committees.
- GOVT-b-2 Prepare a basic Recovery Plan that outlines the major issues and tasks that are likely to be the key elements of community recovery, as well as integrate this planning into response planning (such as with continuity of operations plans).
- GOVT-b-3 Establish a goal for the resumption of local government services that may vary from function to function.
- GOVT-b-4 Develop a continuity of operations plan that includes back-up storage of vital records, such as plans and back-up procedures to pay employees and vendors if normal finance department operations are disrupted, as well as other essential electronic files.
- GOVT-b-5 Plan for the emergency relocation of government-owned facilities critical to recovery, as well as any facilities with known structural deficiencies or in hazardous areas.

Government: Maintain and Enhance Local Government's Emergency Response Capability

- GOVT-c-1 Develop a plan for short-term and intermediate-term sheltering of your employees.

- GOVT-c-2 Encourage your employees to have a family disaster plan.
- GOVT-c-3 Offer CERT/NERT-type training to your employees.
- GOVT-c-4 Periodically assess the need for new or relocated fire or police stations and other emergency facilities.
- GOVT-c-5 Periodically assess the need for changes in staffing levels, as well as for additional or updated supplies, equipment, technologies, and in-service training classes.
- GOVT-c-6 Ensure that fire, police, and other emergency personnel have adequate radios, breathing apparatuses, protective gear, and other equipment to respond to a major disaster.
- GOVT-c-7 Participate in developing and maintaining a system of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies.
- GOVT-c-8 Harden emergency response communications, including, for example, building redundant capacity into public safety alerting and/or answering points, replacing or hardening microwave and simulcast systems, adding digital encryption for programmable radios, and ensuring a plug-and-play capability for amateur radio.
- GOVT-c-9 Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate.
- GOVT-c-10 Maintain the local government's emergency operations center in a fully functional state of readiness.
- GOVT-c-11 Expand or participate in expanding traditional disaster exercises involving city and county emergency personnel to include airport and port personnel, transit and infrastructure providers, hospitals, schools, park districts, and major employers.
- GOVT-c-12 Maintain and update as necessary the local government's Standardized Emergency Management System (SEMS) Plan and the National Incident Management System (NIMS) Plan, and submit an appropriate NIMSCAST report.
- GOVT-c-13 Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to fires, floods, earthquakes, and other disasters.
- GOVT-c-14 Install alert and warning systems for rapid evacuation or shelter-in-place. Such systems include outdoor sirens and/or reverse-911 calling systems.
- GOVT-c-15 Conduct periodic tests of the alerting and warning system.
- GOVT-c-16 Regulate and enforce the location and design of street-address numbers on buildings and minimize the naming of short streets (that are actually driveways) to single homes.
- GOVT-c-17 Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers.
- GOVT-c-18 Establish regional protocols on how to respond to the NOAA Monterey weather forecasts, such as the identifying types of closures, limits on work that could cause ignitions, and repositioning of suppression forces. A multi-agency coordination of response also helps provide unified messages to the public about how they should respond to these periods of increased fire danger. Response should also be modified based on knowledge of local micro-climates. Local agencies with less risk then may be available for mutual aid.
- GOVT-c-19 Increase local patrolling during periods of high fire weather.
- GOVT-c-20 Create and maintain an automated system of rain and flood gauges that is web enabled and publicly-accessible. Work toward creating a coordinated regional system.
- GOVT-c-21 Place remote sensors in strategic locations for early warning of hazmat releases or use of weapons of mass destruction, understanding that the appropriate early warning strategy depends on the type of problem.
- GOVT-c-22 Review and update, as necessary, procedures pursuant to the State Dam Safety Act for the emergency evacuation of areas located below major water-storage facilities.
- GOVT-c-23 Improve coordination among cities, counties, and dam owners so that cities and counties can better plan for evacuation of areas that could be inundated if a dam failed, impacting their

jurisdiction.

- GOVT-c-24 Develop procedures for the emergency evacuation of areas identified on tsunami evacuation maps as these maps become available.
- GOVT-c-25 Support and encourage planning and identification of facilities for the coordination of distribution of water, food, blankets, and other supplies, coordinating this effort with the American Red Cross.

Government: Participate in National, State, Multi-Jurisdictional and Professional Society Efforts to Identify and Mitigate Hazards

- GOVT-d-1 Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities.
- GOVT-d-2 Recognize that emergency services is more than the coordination of police and fire response; it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services.
- GOVT-d-3 Recognize that a multi-agency approach is needed to mitigate flooding by having flood control districts, cities, counties, and utilities meet at least annually to jointly discuss their capital improvement programs for most effectively reducing the threat of flooding. Work toward making this process more formal to insure that flooding is considered at existing joint-agency meetings.
- GOVT-d-4 As new flood-control projects are completed, request that FEMA revise its flood-insurance rate maps and digital Geographic Information System (GIS) data to reflect flood risks as accurately as possible.
- GOVT-d-5 Participate in FEMA's National Flood Insurance Program.
- GOVT-d-6 Participate in multi-agency efforts to mitigate fire threat, such as the Hills Emergency Forum (in the East Bay), various FireSafe Council programs, and city-utility task forces. Such participation increases a jurisdiction's competitiveness in obtaining grants.
- GOVT-d-7 Work with major employers and agencies that handle hazardous materials to coordinate mitigation efforts for the possible release of these materials due to a natural disaster such as an earthquake, flood, fire, or landslide.
- GOVT-d-8 Encourage staff to participate in efforts by professional organizations to mitigate earthquake and landslide disaster losses, such as the efforts of the Northern California Chapter of the Earthquake Engineering Research Institute, the East Bay-Peninsula Chapter of the International Code Council, the Structural Engineers Association of Northern California, and the American Society of Grading Officials.
- GOVT-d-9 Conduct and/or promote attendance at local or regional hazard conferences and workshops for elected officials and staff to educate them on the critical need for programs in mitigating earthquake, wildfire, flood, and landslide hazards.
- GOVT-d-10 Cooperate with researchers working on government-funded projects to refine information on hazards, for example, by expediting the permit and approval process for installation of seismic arrays, gravity survey instruments, borehole drilling, fault trenching, landslide mapping, flood modeling, and/or damage data collection.

Government: Take a Lead in Loss and Risk Assessment Activities

- GOVT-e-1 Work with the cities, counties, and special districts in the Bay Area to encourage them to adopt a Local Hazard Mitigation Plan and to assist them in integrating it into their overall planning process. **RESPONSIBILITY:** ABAG only; all others are "not applicable."
- GOVT-e-2 Improve the risk assessment and loss estimation work in the Taming Natural Disasters report and multi-jurisdictional plan related to natural disasters. **RESPONSIBILITY:** ABAG only; all others are "not applicable."

Education: Focus on Critical Facilities

- EDUC-a-1 Assess the vulnerability of critical public education facilities to damage in natural disasters and make recommendations for appropriate mitigation.
- EDUC-a-2 Retrofit or replace critical public education facilities that are shown to be vulnerable to

damage in natural disasters.

- EDUC-a-3 Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical public education buildings from being functional after major disasters.
- EDUC-a-4 As a secondary focus, assess the vulnerability of non-critical educational facilities (that is, those that do not house students) to damage in natural disasters based on occupancy and structural type, make recommendations on priorities for structural improvements or occupancy reductions, and identify potential funding mechanisms.
- EDUC-a-5 Assess the vulnerability of critical private education, pre-school, and day care facilities to damage in natural disasters and make recommendations for appropriate mitigation.
- EDUC-a-6 Work with CalEMA and the Division of the State Architect to ensure that there will be an adequate group of Safety Assessment Program (SAP) inspectors trained and deployed by CalEMA to schools for post-disaster inspection. In addition, if a school district is uncomfortable with delays in inspection due to too few SAP inspectors available in catastrophic disasters, formalized arrangements can also be created with those inspectors certified by the Division of the State Architect as construction inspectors to report to the district, assess damage, and determine if the buildings can be reoccupied.

Education: Use of Educational Facilities as Emergency Shelters

- EDUC-b-1 Work cooperatively with the American Red Cross, cities, counties, and non-profits to set up memoranda of understanding for use of education facilities as emergency shelters following disasters.
- EDUC-b-2 Work cooperatively to ensure that school district personnel and relevant staff understand and are trained that being designated by the American Red Cross or others as a potential emergency shelter does NOT mean that the school has had a hazard or structural evaluation to ensure that it can be used as a shelter following any specific disaster.
- EDUC-b-3 Work cooperatively to ensure that school district personnel understand and are trained that they are designated as disaster service workers and must remain at the school until released.

Education: Actions Related to Disaster Preparedness and Recovery Planning

- EDUC-c-1 Encourage employees of schools to have family disaster plans and conduct mitigation activities in their own homes.
- EDUC-c-2 Develop plans, in conjunction with fire jurisdictions, for evacuation or sheltering in place of school children during periods of high fire danger, thereby recognizing that overloading of streets near schools by parents attempting to pick up their children during these periods can restrict access by fire personnel and equipment.
- EDUC-c-3 Offer the 20-hour basic CERT training to teachers and after-school personnel.
- EDUC-c-4 Offer the 20-hour basic Student Emergency Response Training (SERT, rather than CERT) training to middle school and/or high school students as a part of the basic science or civics curriculum, as an after school club, or as a way to earn public service hours.
- EDUC-c-5 Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system (either using instructors with teaching credentials or by making facilities available for classes not run by school personnel themselves).
- EDUC-c-6 Develop and maintain the capacity for schools to take care of the students for the first 48 hours after a disaster, and notify parents that this capacity exists.
- EDUC-c-7 Develop a continuity of operations and disaster recovery plan using models such as that developed by the University of California Berkeley. (The American Red Cross has a role in promoting this activity, as well, in schools that they plan to use as shelters.)

Education: Use of Schools as Conduits for Information to Families About Emergencies

- EDUC-d-1 Utilize the unique ability of schools to reach families through educational materials on hazards, mitigation, and preparedness, particularly after disasters and at the beginning of the school year. These efforts will not only make the entire community more disaster-resistant,

but speed the return of schools from use as shelters to use as teaching facilities, particularly if coordinated with cities, counties, the American Red Cross and others.

- EDUC-d-2 Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparenow.org> website.

Environment: Environmental Sustainability and Pollution Reduction

- ENVI-a-1 Continue to enforce State-mandated requirements, such as the *California Environmental Quality Act*, to ensure that mitigation activities for hazards, such as seismic retrofits and vegetation clearance programs for fire threat, are conducted in a way that reduces environmental degradation such as air quality impacts, noise during construction, and loss of sensitive habitats and species, while respecting the community value of historic preservation.
- ENVI-a-2 Encourage regulatory agencies to work collaboratively with safety professionals to develop creative mitigation strategies that effectively balance environmental and safety needs, particularly to meet critical wildfire, flood, and earthquake safety levels.
- ENVI-a-3 Continue to enforce and/or comply with State-mandated requirements, such as the *California Environmental Quality Act* and environmental regulations to ensure that urban development is conducted in a way to minimize air pollution. For example, air pollution levels can lead to global warming, and then to drought, increased vegetation susceptibility to disease (such as pine bark beetle infestations), and associated increased fire hazard.
- ENVI-a-4 Develop and implement a comprehensive program for watershed management optimizing ecosystem health with water yield to balance water supply, flooding, fire, and erosion concerns.
- ENVI-a-5 Balance the need for the smooth flow of storm waters versus the need to maintain wildlife habitat by developing and implementing a comprehensive Streambed Vegetation Management Plan that ensures the efficacy of flood control efforts, mitigates wildfires and maintains the viability of living rivers.
- ENVI-a-6 Comply with applicable performance standards of any *National Pollutant Discharge Elimination System* municipal stormwater permit that seeks to manage increases in stormwater run-off flows from new development and redevelopment construction projects.
- ENVI-a-7 Enforce and/or comply with the grading, erosion, and sedimentation requirements by prohibiting the discharge of concentrated stormwater flows by other than approved methods that seek to minimize associated pollution.
- ENVI-a-8 Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters.
- ENVI-a-9 Enforce and/or comply with the hazardous materials requirements of the State of California Certified Unified Program Agency (CUPA).
- ENVI-a-10 Provide information on hazardous waste disposal and/or drop off locations.
- ENVI-a-11 When remodeling existing government and infrastructure buildings and facilities, remove asbestos to speed up clean up of buildings so that they can be reoccupied more quickly.
- ENVI-a-12 Develop and implement a program to control invasive and exotic species that contribute to fire and flooding hazards (such as eucalyptus, cattails, and cordgrass). This program could include vegetation removal, thinning, or replacement in hazard areas where there is a direct threat to structures.
- ENVI-a-13 Enforce provisions under creek protection, stormwater management, and discharge control ordinances designed to keep watercourses free of obstructions and to protect drainage facilities to conform with the Regional Water Quality Control Board's Best Management Practices.

Environment: Climate Change

- ENVI-b-1 Stay informed of scientific information compiled by regional and state sources on the subject of rising sea levels and global warming, especially on additional actions that local governments can take to mitigate this hazard including special design and engineering of government-owned facilities in low-lying areas, such as wastewater treatment plants, ports,

and airports.

- ENVI-b-2 Inventory global warming emissions in your own local government's operations and in the community, set reduction targets and create an action plan.
- ENVI-b-3 Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.
- ENVI-b-4 Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.
- ENVI-b-5 Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology.
- ENVI-b-6 Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money.
- ENVI-b-7 Purchase only Energy Star equipment and appliances for local government use.
- ENVI-b-8 Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system.
- ENVI-b-9 Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel.
- ENVI-b-10 Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production.
- ENVI-b-11 Increase recycling rates in local government operations and in the community.
- ENVI-b-12 Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO₂.
- ENVI-b-13 Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.

Environment: Agricultural and Aquaculture Resilience

- ENVI-c-1 Maintain a variety of crops in rural areas of the region to increase agricultural diversity and crop resiliency. RESPONSIBLE AGENCIES: County Offices of the Agricultural Commissioner.
- ENVI-c-2 Promote and maintain the public-private partnerships dedicated to preventing the introduction of agricultural pests into regionally-significant crops, such as the glassy-winged sharpshooter into vineyards. RESPONSIBLE AGENCIES: County Offices of the Agricultural Commissioner.
- ENVI-c-3 Encourage livestock operators to develop an early-warning system to detect animals with communicable diseases (due to natural causes or bioterrorism). RESPONSIBLE AGENCIES: County Health Department and Office of the County Agricultural Commissioner.

Land Use: Earthquake Hazard Studies for New Private Developments

- LAND-a-1 Enforce and/or comply with the State-mandated requirement that site-specific geologic reports be prepared for development proposals within Alquist-Priolo Earthquake Fault Zones, and restrict the placement of structures for human occupancy. (This Act is intended to deal with the **specific** hazard of active faults that extend to the earth's surface, creating a surface rupture hazard.)
- LAND-a-2 Require preparation of site-specific geologic or geotechnical reports for development and redevelopment proposals in areas subject to earthquake-induced landslides or liquefaction as mandated by the State Seismic Hazard Mapping Act in selected portions of the Bay Area where these maps have been completed, and condition project approval on the incorporation of necessary mitigation measures related to site remediation, structure and foundation design, and/or avoidance.
- LAND-a-3 Recognizing that some faults may be a hazard for surface rupture, even though they do not

meet the strict criteria imposed by the Alquist-Priolo Earthquake Fault Zoning Act, identify and require geologic reports in areas adjacent to locally-significant faults.

- LAND-a-4 Ensure that development proposed near faults with a history of complex surface rupture (multiple traces, warping, thrusting, etc.) has larger setbacks than the minimum fifty feet.
- LAND-a-5 Consider imposing requirements similar to the Alquist-Priolo Earthquake Fault Zoning Act for structures without human occupancy if these buildings are still essential for the economic recovery of the community or region.
- LAND-a-6 Recognizing that the California Geological Survey has not completed earthquake-induced landslide and liquefaction mapping for much of the Bay Area, identify and require geologic reports in areas mapped by others as having significant liquefaction or landslide hazards.
- LAND-a-7 Support and/or facilitate efforts by the California Geological Survey to complete the earthquake-induced landslide and liquefaction mapping for the Bay Area.
- LAND-a-8 Require that local government reviews of geologic and engineering studies are conducted by appropriately trained and credentialed personnel.

Land Use: Wildfire and Structural Fires

- LAND-b-1 Review new development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation and access by emergency response personnel and equipment.
- LAND-b-2 Develop a clear legislative and regulatory framework at both the state and local levels to manage the wildland-urban-interface consistent with Fire Wise and sustainable community principles.

Land Use: Flooding

- LAND-c-1 Establish and enforce requirements for new development so that site-specific designs and source-control techniques are used to manage peak stormwater runoff flows and impacts from increased runoff volumes.
- LAND-c-2 Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards.
- LAND-c-3 Provide an institutional mechanism to ensure that development proposals adjacent to floodways and in floodplains are referred to flood control districts and wastewater agencies for review and comment (consistent with the NPDES program).
- LAND-c-4 Establish and enforce regulations concerning new construction (and major improvements to existing structures) within flood zones in order to be in compliance with federal requirements and, thus, be a participant in the Community Rating System of the *National Flood Insurance Program*.
- LAND-c-5 Encourage new development near floodways to incorporate a buffer zone or setback from that floodway to allow for changes in stormwater flows in the watershed over time.
- LAND-c-6 For purposes of creating an improved hazard mitigation plan for the region as a whole, ABAG, and Bay Area cities and counties, jointly request geographically defined repetitive flooding loss data from FEMA for their own jurisdictions.

Land Use: Landslides and Erosion

- LAND-d-1 Establish and enforce provisions (under subdivision ordinances or other means) that geotechnical and soil-hazard investigations be conducted and filed to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken prior to development approval.
- LAND-d-2 Require that local government reviews of these investigations are conducted by appropriately trained and credentialed personnel.
- LAND-d-3 Establish and enforce grading, erosion, and sedimentation ordinances by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation prior to development approval.
- LAND-d-4 Establish and enforce provisions under the creek protection, storm water management, and

discharge control ordinances designed to control erosion and sedimentation.

LAND-d-5 Establish requirements in zoning ordinances to address hillside development constraints, especially in areas of existing landslides.

Land Use: Hillsides - Multi-hazard

LAND-e-1 For new development, require a buffer zone between residential properties and landslide or wildfire hazard areas.

LAND-e-2 Discourage, add additional mitigation strategies, or prevent new construction or major remodels on slopes greater than a set percentage, such as 15%, due to landslide or wildfire hazard concerns.

Land Use: Smart Growth to Revitalize Urban Areas and Promote Sustainability

LAND-f-1 Prioritize retrofit of infrastructure that serves urban areas (or urban services areas) over constructing new infrastructure to serve outlying areas.

LAND-f-2 Work to retrofit homes in older urban neighborhoods to provide safe housing close to job centers.

LAND-f-3 Work to retrofit older downtown areas and redevelopment districts to protect architectural diversity and promote disaster-resistance.

LAND-f-4 Work with non-profits and through other mechanisms to protect as open space those areas susceptible to extreme hazards (such as through land acquisition, zoning, and designation as priority conservation areas).

LAND-f-5 Strive to provide and preserve existing buffers between development and existing users of large amounts of hazardous materials, such as major industry, due to the potential for catastrophic releases or fires due to an earthquake, accident, or terrorism. (Flooding might also result in release or spread of these materials; however, it is unlikely.) In areas where buffers do not exist or cannot be created, provide alternative mitigation.

Land Use: Hazard Abatement Districts

LAND-g-1 Use hazard abatement districts as a funding mechanism to ensure that mitigation strategies are implemented and enforced over time.

Source: Association of Bay Area Governments, 2009-2010.

**THE COUNTY PLANNING COMMISSION OF ALAMEDA COUNTY
HAYWARD, CALIFORNIA**

RESOLUTION NO. 13-23 AT MEETING HELD DECEMBER 2, 2013

SAFETY ELEMENT AMENDMENTS

**Introduced by Commissioner Jacob
Seconded by Commissioner Moore**

WHEREAS the Planning Commission did hold public hearings on the Safety Element Amendment on October 21, 2013 and December 2, 2013; and

WHEREAS the proposed amendment has been reviewed in accordance with the provisions of the California Environmental Quality Act; and

WHEREAS the Planning Commission is authorized and obligated to make recommendations to the Board of Supervisors on matters related to planning and zoning; and

WHEREAS the testimony submitted in writing and at the public hearing and items in the public record have been considered by the Planning Commission prior to this action; and

WHEREAS the complete record for this process is in the custody of the Alameda County Planning Department, and may be found at Room 111, 224 West Winton Avenue, Hayward, California 94544.

NOW, THEREFORE,

BE IT RESOLVED that this Planning Commission accepts and approves the proposed Safety Element amendments; and

BE IT FURTHER RESOLVED that this Planning Commission does hereby recommend that the Board of Supervisors adopt the Safety Element Amendments

ADOPTED BY THE FOLLOWING VOTE:

AYES: Chair Ready; Vice-Chair Ratto; Commissioners Jacob, Moore, and Rhodes

NOE:

EXCUSED: Commissioners Imhof and Loisel

ABSENT:

ABSTAINED:

ALBERT LOPEZ, PLANNING DIRECTOR AND SECRETARY,
ALAMEDA COUNTY PLANNING COMMISSION