

AGENDA BILL

Subject: Contra Costa County Local Hazard Mitigation Plan 2011

Initiated by: Michael J. Bond, Fire Marshal

BACKGROUND

Hazard Mitigation Planning for the Contra Costa County Operational Area: On October 10, 2000, Congress approved the Federal Disaster Mitigation Act of 2000. The Act requires local governments to adopt a comprehensive Hazard Mitigation Plan (HMP) to receive federal funding after a disaster. By law, a HMP must describe the type, location, and extent of all natural hazards that can affect a jurisdiction; describe the jurisdiction's vulnerability to these hazards; include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses; and include a plan maintenance process. Within the plan maintenance process the plan must be reviewed and updated to reflect the projects that have been completed, still relevant and to identify any new hazards that were not included in the previous plan.

Many of the counties, cities, and special districts within the nine bay area counties belonging to the Association of Bay Area Governments (ABAG) developed a HMP in 2005 which is required to be updated every five years. The current revision for 2011 is not being completed through ABAG. The County of Contra Costa, 12 cities and 26 special districts including the Kensington Fire Protection District have elected to develop a more localized and specific plan that directly relates to the Contra Costa County Operational Area and the cities and special districts within the operational area. Although this is an update for many of the partners, this will be the Kensington Fire Protection District's first Hazard Mitigation Plan adoption.

In August of 2008, the coalition of 39 planning partners within Contra Costa County embarked on a planning process to prepare for and lessen the impacts of specified natural hazards. Responding to federal mandates in the Disaster Mitigation Act of 2000 (Public Law 106-390), the partnership was formed to pool resources and create a uniform hazard mitigation strategy that can be consistently applied to the defined planning area and used to ensure eligibility for specified grant funding sources.

The 39-member Planning Partnership involved in this program includes Contra Costa County government, and the 12 cities and 26 special districts within the County. The planning area for the Hazard Mitigation Plan encompasses the Contra Costa County Operational area. The result of the organizational efforts has been to produce a Federal Emergency Management Agency (FEMA) and the California Emergency Management Agency (CalEMA)-approved multi-agency, multi-hazard mitigation plan.

Mitigation is defined in this context as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation planning is the systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions and following through with an effective mitigation strategy. Mitigation encourages long-term reduction of hazard vulnerability and can reduce the enormous cost of disasters to property owners and all levels of government. Mitigation can also protect critical community facilities, reduce exposure to liability, and minimize post-disaster community disruption.

The hazard identification and profiling in the Hazard Mitigation Plan addresses the following hazards considered to be of paramount importance within the Contra Costa County Operational Area:

1. Dam Failure
2. Drought
3. Earthquake
4. Flood
5. Landslide and Other Mass Movements
6. Severe Weather
7. Wildfire

Contra Costa County Department of Public Works and the Office of Emergency Services have shared the lead role in developing the Hazard Mitigation Plan. All participating local jurisdictions have been and are responsible for assisting in the development of the hazard and vulnerability assessments as well as the mitigation action strategies for our respective jurisdictions and organizations. The plan presents the accumulated information in a unified framework to ensure a comprehensive and coordinated plan covering all planning partners within the Contra Costa County Operational Area. Each jurisdiction is responsible for the review and approval of our individual sections of the plan.

The plan was prepared in accordance with the California Emergency Management Agency Local Hazard Mitigation Plan and Flood Mitigation Plan preparation guidelines. Additionally, the plan has been aligned with the goals, objectives and priorities of the State's Multi-Hazard Mitigation Plan and Flood Mitigation Plan.

A 14-member Hazard Mitigation Steering Committee (HMSC) composed of representative stakeholders was formed early in the planning process to guide the development of the Plan. B/C Michael Bond served as an alternate on the HMSC. In addition, citizens were asked to contribute by sharing local knowledge of how their individual area will affect the community, setting clear objectives based on past occurrences. Public involvement has been solicited via a multi-media campaign that included public meetings, web-based information, questionnaires and progress updates via the news media.

ANALYSIS/DISCUSSION

Once the Hazard Mitigation Plan is adopted by all of the jurisdictional partners and approved by FEMA, the partnership will collectively and individually become eligible to apply for hazard mitigation project funding from both the Pre-Disaster Mitigation Grant Program (PDM) and the Hazard Mitigation Grant Program (HMGP).

The PDM competitive grant program provides funds to state, tribal and local governments for pre-disaster mitigation planning and projects primarily addressing natural hazards. Cost effective pre-disaster mitigation activities reduce risk to life and property from natural hazard events before a natural disaster strikes, thus reducing overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. Funds will be awarded on a competitive basis for mitigation planning and project applications intended to make local governments more resistant to the impacts of future natural disasters (for more details on this program see Exhibit C).

Authorized under Section 404 of the Stafford Act, the HMGP administered by FEMA provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

Upon adoption of Volume 1 and our jurisdictional annex, Chapter 24, of Volume 2 of the Contra Costa County Hazard Mitigation Plan (CCCHMP), and subsequent approval of said plan by CalEMA and FEMA, the District will be eligible to apply for specified grants. The grant funds are made available to states and local governments and can be used to implement the long-term hazard mitigation measures specified within the District's annex of the CCCHMP before and after a major disaster declaration. The CCCHMP is considered a living document such that as awareness of additional hazards develop and new strategies and projects are conceived to offset or prevent losses due to natural disasters, the CCCHMP will be evaluated and revised on a continual five-year time frame.

FINANCIAL CONSIDERATIONS

The recommended action could have a potentially positive impact. The CCCHMP adoption will make the District eligible for competitive pre-disaster mitigation funds and post-disaster recovery grant funds that the District would not otherwise be eligible to receive.

LEGAL CONSIDERATIONS

The Fire District's Attorney has reviewed and approved the process.

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RECOMMENDATION

Staff recommends that the Kensington Fire Protection District authorize through the adoption of Resolution 12-01 accepting Volume 1 and Chapter 24 (KFPD local annex portion) and Appendices A-F of Volume 2 of the Contra Costa County Hazard Mitigation Plan.

Michael J. Bond, Fire Marshal

ATTACHMENTS

Resolution 12-01

Exhibit A: Volume 1 Contra Costa County Local Hazard Mitigation Plan

Exhibit B: Chapter 24 and Appendices A-F, Volume 2 Contra Costa County Local Hazard Mitigation Plan

Exhibit C: Hazard Mitigation Grant Program

RESOLUTION 12-01

RESOLUTION OF THE BOARD OF DIRECTORS OF THE KENSINGTON FIRE PROTECTION DISTRICT AUTHORIZING THE ADOPTION OF THE CONTRA COSTA COUNTY HAZARD MITIGATION PLAN, INCLUDING ALL OF VOLUME 1, AND CHAPTER 24 (THE KFPD LOCAL ANNEX) AND APPENDICES A – F OF VOLUME 2.

WHEREAS, all of Contra Costa County has exposure to natural hazards that increase the risk of harm to life, property, environment and the County's economy; and

WHEREAS, pro-active mitigation of known hazards before a disaster event can reduce or eliminate long-term risk to life and property; and

WHEREAS, The Disaster Mitigation Act of 2000 (Public Law 106-390) established new requirements for pre- and post-disaster hazard mitigation plans; and

WHEREAS, the District has not previously adopted a hazard mitigation plan; and

WHEREAS, the District has developed a Local Hazard Mitigation Plan that meets local, state and federal requirements; and

WHEREAS, in developing the 2011 Local Hazard Mitigation Plan, the Kensington Fire Protection District has partnered with a coalition of Contra Costa County stakeholders with like planning objectives to form and pool resources and create consistent mitigation strategies to be implemented within each partner's identified capabilities, within the Contra Costa County Operational Area (the "Planning Partnership"); and

WHEREAS, the Planning Partnership has completed a planning process that engaged the public, assessed the risk and vulnerability to the impacts of natural hazards, developed a mitigation strategy consistent with a set of uniform goals and objectives, and created a plan for implementing, evaluating and revising this strategy; and

WHEREAS, this planning process resulted in the creation of the Contra Costa County Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Kensington fire Protection District that the does hereby adopt in its entirety, Volume 1, and Volume 2, Chapter 24 (the Kensington Fire Protection District local annex) and appendices A – F of the Contra Costa County Hazard Mitigation Plan (CCCHMP).

BE IT FURTHER RESOLVED that the Kensington Fire Protection District will use the adopted and approved portions of the CCCHMP to guide pre- and post-disaster mitigation of the hazards identified.

BE IT FURTHER RESOLVED that the Kensington Fire Protection District will coordinate the strategies identified in the CCCHMP with other planning programs and mechanisms under its jurisdictional authority.

BE IT FURTHER RESOLVED that the Kensington Fire Protection District will continue its support of the CCCHMP Steering Committee and continue to participate in the Planning Partnership as described by the CCCHMP.

BE IT FURTHER RESOLVED that the Kensington Fire Protection District will help to promote and support the mitigation successes of all CCCHMP Planning Partners.

The foregoing resolution was duly and regularly adopted at a regular meeting of the Board of Directors of the Kensington Fire Protection District on the 11th day of January 2012, by the following vote of the Board:

AYES:	BOARD MEMBERS:
NOES:	BOARD MEMBERS:
ABSENT:	BOARD MEMBERS:

Janice E. Kosel, President

ATTEST:

Leslie Michael, Secretary

EXHIBIT A

Contra Costa County Local Hazard Mitigation Plan Volume 1

The documents is available for review at:

www.co.contra-costa.ca.us/index.aspx?nid=2302

EXHIBIT B

Contra Costa County Local Hazard Mitigation Plan Volume 2

Chapter 24, pages 24-1 through 24-9
Appendices A-F, pages through F-21

The documents is available for review in its entirety at:

www.co.contra-costa.ca.us/index.aspx?nid=2302

CHAPTER 24.

KENSINGTON FIRE PROTECTION DISTRICT ANNEX

24.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Michael J. Bond, Battalion Chief/Fire Marshal
10900 San Pablo Avenue
El Cerrito, CA 94530
Telephone: 510-215-4450
e-mail Address: mbond@ci.el-cerrito.ca.us

Alternate Point of Contact

Lance Maples, Fire Chief
10900 San Pablo Avenue
El Cerrito, CA 94530
Telephone: 510-215-4450
e-mail Address: lmaples@ci.el-cerrito.ca.us

24.2 JURISDICTION PROFILE

Kensington Fire Protection District is a relatively small fire district that serves the small unincorporated community of Kensington which is located in Western Contra Costa County. The community is neighbored by the City of El Cerrito on the west and north, the City of Berkeley on the south and East Bay Regional Parks open area on the east. The Kensington Fire Protection District serves approximately One point One square miles with about 2, 300 homes and businesses. The population of Kensington is approximately 5,250 people and has an assessed value of over \$1,650, 000,000.

The unincorporated town of Kensington began a volunteer fire department in 1928. Twenty-four years later, the Kensington Fire Protection District (formed in 1937) hired a staff of professional firefighters under the supervision of a fire chief. In 1995, the District entered into a contract with the City of El Cerrito whereby El Cerrito would provide all fire prevention, fire suppression and emergency services within Kensington for an annual fee. Currently, the Kensington Fire Protection District has one employee who serves as the Districts Administrator.

The early fire department was housed in a small, quaint English country-style building next to the Chevron Oil gas station on the Arlington. The current public safety building, owned by the District, was constructed in 1970 and substantially renovated in 1998-1999. In addition to seismic upgrading of the Public Safety Building, the Board of Directors works to enhance public safety. As a result, the District owns two fire engines. These fire engines are specifically engineered for the steep, narrow streets of Kensington and the urban interface fire situation that the community faces. One of these fire engines is a Type I engine for structural firefighting and the other engine is a "Type III" or wildland fire engine for use during high fire season.

The district initiated paramedic service in 2001. It offers the first engine-based Advanced Life Support service in West Contra Costa County, bringing medications and equipment to a patient's side in under five minutes on average. In addition to our paramedic service, we are able to provide a timely and appropriate level of response by active participation with other West Contra Costa County fire agencies in automatic response agreements that use the combined resources of all agencies to serve the area irrespective of jurisdictional lines.

To help ensure our communities safety, the District developed, operates a Community Emergency Response Team (CERT) training program. This program has been offered to the community since 1995 and has trained several hundred community members to be prepared and self sustaining for several days after a major disaster.

The District is governed by a five-person Board of Directors elected by the voters of Kensington and is funded by property tax revenues as well as a special tax approved by the voters in 1980.

The following is a summary of key information about the jurisdiction:

- **Population Served**—Approximately 5, 253 people with a median age of 47 years
- **Land Area Served**—1.1 square miles. The Kensington Fire Protection District is located atop the East Bay Hills. The district is bisected by the Hayward Fault and is surrounded by many active faults known as the Bay Area Dirty Dozen. These faults include but are not limited to; Hayward, San Andreas and the Rogers Faults.
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$1,650,000,000
- **Land Area Owned**—Approximately one half acre
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Two fire engines and associated equipment
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,500,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Public Safety Building (this structure houses the Fire Department and the Police Department)
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$5,500,000.
- **Current and Anticipated Service Trends**—The Kensington Fire Protection District provides all risk service, providing firefighting, paramedic, vehicle extrication, hazardous materials response and any other emergency perceived by the community. In addition to emergency response, the district provides a host of preventive and preparedness activities. These include fire safety inspections for all mercantile, educational, residential care facilities to name a few. In addition, home inspections are done on request as well as smoke detector installation/replacement for the elderly.

The district provides emergency preparedness training for residents as well. This training comes mainly in the form of CERT (Community Emergency Response Team) training, CPR and First Aid training.

The Kensington Fire Protection District is landlocked and has a very limited growth potential which is not likely to increase calls for service.

The jurisdiction's boundaries are shown on Figure 1-1.

24.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 24-1 lists all past occurrences of natural hazards within the jurisdiction.

24.4 HAZARD RISK RANKING

Table 24-2 presents the ranking of the hazards of concern.

24.5 APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- California Department of Public Health
- California and US Environmental Protection Agencies

- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- The Kensington Fire Protection District currently is subject to the California Building Codes and falls within the Very High Fire Severity Zone and all new building is subject to the California Wildland Urban Interface Codes.
- The district also has adopted “Vegetation Management Standards” that all property owners must comply with.
- The district also is bisected by the Hayward Fault and has been classified as a High Risk Seismic Zone (formerly Seismic Zone 4)
- Contra Costa County Operational Area Hazard Mitigation Plan
- Contra Costa County, Community Wildfire Protection Plan (CWPP)

24.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 24-3.

24.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 24-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 24-5 identifies the priority for each initiative. Table 24-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather	NA	2/17/2009	No estimates available
Severe Weather, Winter Storm	FEMA-1203-DR	2/9/1998	No estimates available
Earthquake	FEMA-845	10/17/1989	No estimates available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Wildfire	54
3	Landslide	54
4	Severe Weather	54
5	Dam Failure	0
6	Flood	0
7	Drought	0

	Participating?	Classification	Date Classified
Public Protection	Yes	ISO 3	June 2004
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 2 —Integrate Local Hazard Mitigation Plan into the Safety Plan						
New and existing	All Hazards	4, 5, 14	KFPD	Low	General Fund	Late 2010, Short Term
Initiative 3 —Continue working with the Fire Department and adjoining Fire Departments/Districts to keep open space fire breaks, enhance or create new fire breaks.						
New and existing	All Hazards	1, 4, 14, 16	KFPD	50,000, High	Potential sources General Fund, FEMA mitigation Grants	Long term

**TABLE 24-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 4 —Develop and conduct multi hazard seasonal public awareness program to include exercises						
Existing	All Hazards	2, 3, 6, 13, 16	KFPD	Low	Potential sources Citizen Prep-UASI	Late 2010, Short Term
Initiative 5 —Conduct a mass care and shelter Drill which involve; district, city, county, CERTs and NGOs						
New and Existing	All Hazards	2, 3, 6, 13, 16	KFPD	15,000 Low	Potential sources- Red Cross, UASI	Short Term, ongoing
Initiative 6 —Enhance/Improve District Code language and enforcement including: District Fire Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements within the City.						
New	Fire	4, 5, 11, 16	KFPD	Low	General Fund	Short Term, ongoing
Initiative 7 —Improve, expand and develop new programs that increase awareness of and reduce risk to wildfires including: Support Diablo Fire Safe Council & Fire Dept Chipper Program						
New Existing	Fire	3, 15, 16	KFPD	Low	General Fund, DFSC Grants	Long Term, depends on funding
Initiative 8 —Ensure that government-owned facilities are subject to the same or more stringent regulations as imposed on privately owned development						
Existing	All Hazards	1, 4, 5, 7, 8	KFPD	Low	Code Adoption	Long Term
Initiative 9 —Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant hazards						
Existing	All Hazards	1, 4, 5, 7, 8	KFPD	Low	Policy	Long Term
Initiative 10 —Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities for various departments within local government organization, and that outlines o structure and process for policy-making involving elected and appointed advisory committees						
Existing	All Hazards	2, 9, 15	KFPD	Medium	Grant, General Fund, 50,000	In Emergency Plan, Long Term
Initiative 11 —Establish a goal for the resumption of local government services that may vary from function to function						
Existing	All Hazards	2, 9, 15	KFPD	Medium	Grant, General Fund 50,000	In Emergency Plan, Long Term

**TABLE 24-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 12 —Maintain and update as necessary the local government’s Standardized Emergency Management System Plan						
Existing	All Hazards	2, 4, 15, 18	KFPD	Low	General Fund	In Emergency Plan Long Term,
Initiative 13 —Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate						
Existing	All Hazards	2, 4, 15	KFPD	Medium	General Fund, Grants	Long Term
Initiative 14 —Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to all hazards and disasters						
Existing	All Hazards	2, 4, 15	KFPD	Low	General fund	Long Term
Initiative 15 —Develop a business continuity plan that includes backup storage of vital records, such as essential medical records and financial information						
Existing	All Hazards	2, 4, 15	KFPD	High	General Fund, Grants	Long Term,
Initiative 16 —Increase efforts to reduce hazards in existing development in Very High Fire Hazard Fire Severity Zones (VHFHSZ) through improving engineering design and vegetation management standards for mitigation, appropriate code enforcement and public education on defensible space mitigation strategies.						
Existing	Wildfire	2, 4, 5, 16	KFPD	Low	Code Adoption	Long Term
Initiative 17 —Require new homes in Wildland-Urban-Interface and VHFHSZ threatened communities to be constructed of fire resistant building materials to increase structural survivability and reduce ignitability						
Existing	Wildfire	2, 4, 5, 16	KFPD	Low	Code Adoption	Long Term
Initiative 18 —Ensure new development provides required improvements to the storm drainage system necessary to accommodate increased flows from the development						
Existing	Flood	4, 5, 10	KFPD	Low	Code Adoption	Long Term
Initiative 19 —Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing

**TABLE 24-5.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority ^a
1	16	Medium	Low	Yes	Yes	No	High
2	3	Low	Low	Yes	No	Yes	High
3	3	High	High	Yes	No	Yes	Medium
4	5	High	Low	Yes	Yes	Yes	High
5	5	High	Low	Yes	Yes	Yes	High
6	4	Medium	Low	Yes	Yes	Yes	High
7	4	Low	Low	Yes	No	Yes	High
8	5	Low	Yes	No	Yes	Yes	High
9	5	Low	Low	Yes	No	Yes	High
10	3	Low	Low	Yes	No	No	Medium
11	3	Low	Low	Yes	No	No	Medium
12	4	Low	Low	Yes	No	Yes	High
13	3	Medium	Medium	Yes	Yes	Yes	High
14	3	Medium	Medium	Yes	Yes	Yes	High
15	3	Medium	Medium	Yes	Yes	No	Medium
16	4	High	Medium	Yes	Yes	No	Medium
17	3	High	Low	Yes	No	Yes	High
18	3	High	Low	Yes	No	Yes	High
19	16	Medium	Low	Yes	No	Yes	High

a. Explanation of priorities

- High Priority: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
- Medium Priority: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
- Low Priority: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

**TABLE 24-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	1, 2	NA	1, 19	NA	NA	
Earthquake	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16
Flood	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16, 18
Landslide	1, 2, 14, 19	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16, 18
Severe Weather	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 13, 14, 15	8, 16, 18
Dam Failure	1, 2	NA	1, 19	NA	NA	NA
Wild Fire	1, 2, 6, 14, 17, 19	1, 2, 10, 13, 17	1, 4, 5, 7, 19	9	3, 4, 5, 10, 13, 15	7, 8, 16, 17

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

Contra Costa County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX A.
PLANNING PARTNER EXPECTATIONS

May 2011

PLANNING PARTNER EXPECTATIONS

ACHIEVING DMA COMPLIANCE FOR ALL PLANNING PARTNERS

One of the goals of the multi-jurisdictional approach to hazard mitigation planning is to achieve compliance with the Disaster Mitigation Act (DMA) for all participating members in the planning effort. DMA compliance must be certified for each member in order to maintain eligibility for the benefits under the DMA. Whether our planning process generates 10 individual plans or 1 large plan that has a chapter for each partner jurisdiction, the following items must be addressed to achieve DMA compliance for each Coalition member:

- ✓ **Participate in the process.** It must be documented in the plan that each planning partner “participated” in the process that generated the plan. There is flexibility in defining “participation”. Participation can vary based on the type of planning partner (i.e.: City or County, vs. a Special Purpose District). However, the level of participation must be defined and the extent for which this level of participation has been met for each partner must be contained in the plan context.
- ✓ **Review of existing documents** pertinent to each jurisdiction to identify policies or recommendations that are not consistent with those documents reviewed in producing the “parent” plan or have policies and recommendations that compliment the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).
- ✓ **Personalize the Risk Assessment** for each jurisdiction. Remove hazards not associated with the defined jurisdictional area or redefine vulnerability based on a hazard’s impact to a jurisdiction. This phase will include:
 - A ranking of the risk
 - A description of the number and type of structures at risk
 - An estimate of the potential dollar losses to vulnerable structures
 - A general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
- ✓ **Capability assessment.** Each planning partner must identify and review their individual regulatory, technical and financial capabilities with regards to the implementation of hazard mitigation actions.
- ✓ **Personalize mitigation recommendations.** Identify and prioritize mitigation recommendations specific to the each jurisdiction’s defined area.
- ✓ **Create an Action Plan.**

Planning Partner Expectations
Contra Costa County Hazard Mitigation Plan-Update

- ✓ **Each jurisdiction must present the Plan to the public for comment at least once, within 2 weeks prior to adoption.**
- ✓ **Plan must be adopted**

One of the benefits to multi-jurisdictional planning is the ability to pool resources. This means more than monetary resources. Resources such as staff time, meeting locations, media resources, technical expertise will all need to be utilized to generate a successful plan. In addition, these resources can be pooled such that decisions can be made by a peer group applying to the whole and thus reducing the individual level of effort of each planning partner. This will be accomplished by the formation of a steering committee made up of planning partners and other "stakeholders" within the planning area. The size and makeup of this steering committee will be determined by the planning partnership. This body will assume the decision making responsibilities on behalf of the entire partnership. This will streamline the planning process by reducing the number of meetings that will need to be attended by each planning partner. The assembled Steering Committee for this effort will meet monthly on an as needed basis as determined by the planning team will provide guidance and decision making during all phases of the plan's development.

With the above participation requirements in mind, each partner is expected to aid this process by being prepared to develop its section of the plan. To be an eligible planning partner in this effort, each Planning Partner shall provide the following:

- A. A "Letter of Intent to participate" or Resolution to participate to the Humboldt County Planning Team (see exhibit A).
- B. Designate a lead point of contact for this effort. This designee will be listed as the Hazard mitigation point of contact for your jurisdiction in the plan.
- C. Support and participate in the selection and function of the Steering Committee selected to oversee the development of this plan.
- D. Provide support in the form of mailing list, possible meeting space, media such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy formed by the Steering Committee.
- E. Participate in the process. There will be many opportunities as this plan evolves to participate. Opportunities such as:
 - a. Steering Committee meetings.
 - b. Public meetings or open houses.
 - c. Workshops/ Planning Partner specific training sessions.
 - d. Public review and comment periods prior to adoption

Planning Partner Expectations
Contra Costa County Hazard Mitigation Plan-Update

At each and every one of these opportunities, attendance will be tracked. These attendance records will be used to track and document participation for each planning partner. No thresholds will be established as minimum levels of participation. However, each planning partner should attempt to attend all possible opportunities.

- F. There will be 1 **mandatory** workshop that all planning partners will be required to attend. This workshop will cover the proper completion of the jurisdictional annex template which is the basis for each partner's jurisdictional chapter in the plan. Failure to have a representative at this workshop will disqualify the planning partner from participation in this effort. The schedule for this workshop will be such that all committed planning partners will be able to attend.
- G. After participation in the mandatory template workshop, each partner will be required to complete their template and provide it to the planning team in the time frame established by the Steering Committee.
- H. All technical studies, plans, ordinances specific to hazards identified within the defined planning area. Each partner will be expected to perform a "consistency review" of all such documents to determine the existence of plans, studies or ordinances not consistent with the same such documents reviewed in the preparation of the County (parent) Plan. For example: if your community has a floodplain management plan that makes recommendations that are not consistent with any of the County's Basin Plans, that plan will need to be reviewed for probable incorporation into the plan for your area.
- I. Each partner will be expected to review the Risk Assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide the jurisdiction specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.
- J. Each partner will be expected to review and determine if the mitigation recommendations chosen in the parent plan will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the parent plan recommendations will need to be identified and prioritized, and reviewed to determine their benefits vs. costs.
- K. Each partner will be required to create its own action plan that identifies each project, who will oversee the task, how it will be financed and when it is estimated to occur.
- L. Each partner will be required to sponsor at least one public meeting to present the draft plan at least 2 weeks prior to adoption.
- M. Each partner will be required to formally adopt the plan.

Templates and instructions to aid in the compilation of this information will be provided to all committed planning partners. Each Partner will be expected to complete their templates in a timely manner and according to the timeline specified by the Steering Committee.

Once this plan is completed, and DMA compliance has been determined for each partner, maintaining that eligibility will be dependant upon each partner implementing the plan implementation-maintenance protocol identified in the plan. At a minimum, this means completing the on-going plan maintenance protocol identified in the plan. Partners that do not participate in this plan maintenance strategy may be deemed ineligible by the partnership, and thus lose their DMA eligibility.

Exhibit A
Example Letter of Intent to Participate

Crescent City-Del Norte County Hazard Mitigation Planning Partnership
C/O Rob Flaner, Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616

Dear Contra Costa County Planning Partnership,

Please be advised that the _____ (*insert City or district name*) is committed to participating in the update to the Contra Costa County All Hazards Mitigation Plan. As the Chief Administrative Official for this jurisdiction, I certify that I will commit all necessary resources in order to meet Partnership expectations as outlined in the "Planning Partners expectations" document provided by the planning team, in order to obtain Disaster Mitigation Act (DMA) compliance for our jurisdiction.

Mr./Ms. _____ will be the district's point of contact for this process and they can be reached at (*insert: address, phone number and e-mail address*).

Sincerely,

Exhibit B

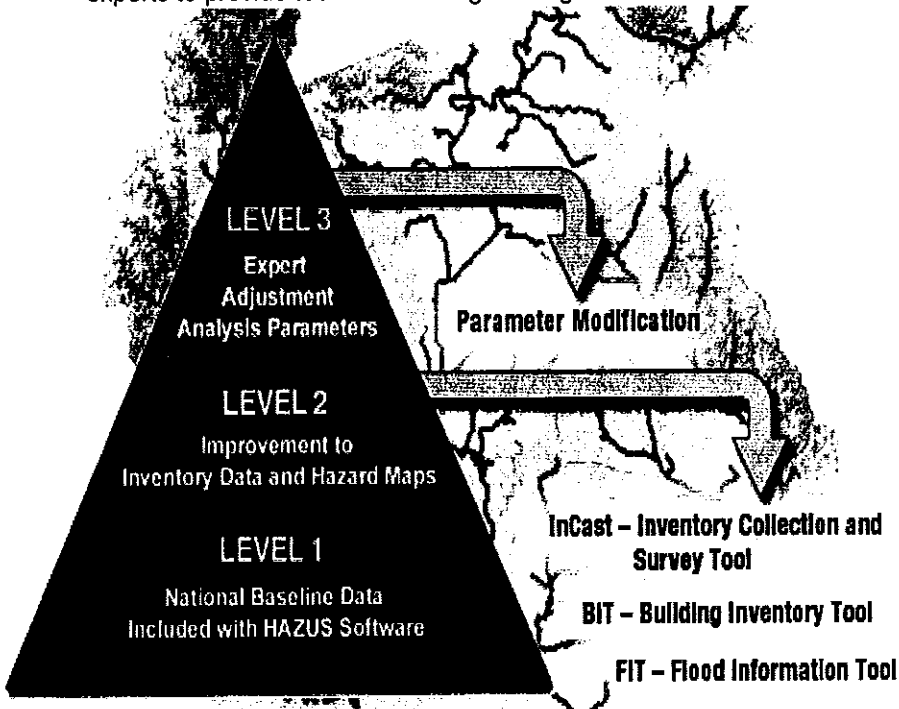
Planning Team Contact information

Name	Role	Representing	Address	Phone	e-mail
Rob Flaner	Project Manager	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetratech.com
Rich Lierly	County POC	Department of Public Works	Flood Control Division 255 Glacier Dr. Martinez, CA 94533-4825	(925)313-2348	rlier@pw.cccounty.us
Chris Boyer	Emergency Management Lead	OES	50 Glacier Dr. Martinez, CA 94553	(925)646-4461	cboye@so.cccounty.us
Ed Whitford	GIS/HAZUS	Tetra Tech, Inc.	10101 271st Street, Stanwood, WA. 98292	(360) 629-0242	Ed.whitford@tetratech.com

Exhibit C Overview of HAZUS

Overview of HAZUS-MH (Multi-Hazard)

HAZUS-MH, is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds. HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). NIBS maintains committees of wind, flood, earthquake and software experts to provide technical oversight and guidance to HAZUS-MH



development. Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.

HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results

of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations. The latest release, HAZUS-MH MR1, is an updated version of HAZUS-MH that incorporates many new features which improve both the speed and functionality of the models. For information on software and hardware requirements to run HAZUS-MH MR1, see HAZUS-MH Hardware and Software Requirements.

HAZUS-MH Analysis Levels

HAZUS-MH provides for three levels of analysis:

- A Level 1 analysis yields a rough estimate based on the nationwide database and is a great way to begin the risk assessment process and prioritize high-risk communities.

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- A Level 2 analysis requires the input of additional or refined data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.
- A Level 3 analysis yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on to the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.



Three data input tools have been developed to support data collection. The Inventory Collection Tool (InCAST) helps users collect and manage local building data for more refined analyses than are possible with the national level data sets that come with HAZUS. InCAST has expanded capabilities for multi-hazard data collection. HAZUS-MH includes an enhanced Building Inventory Tool (BIT) allows users to import building data and is most useful when handling large datasets, such as tax assessor records. The Flood Information Tool (FIT) helps users manipulate flood data into the format required by the HAZUS flood model. All Three tools are included in the HAZUS-MH MR1 Application DVD.

HAZUS-MH Models

The **HAZUS-MH Hurricane Wind Model** gives users in the Atlantic and Gulf Coast regions and Hawaii the ability to estimate potential damage and loss to residential, commercial, and industrial buildings. It also allows users to estimate direct economic loss, post-storm shelter needs and building debris. In the future, the model will include the capability to estimate wind effects in island territories, storm surge, indirect economic losses, casualties, and impacts to utility and transportation lifelines and agriculture. Loss models for other severe wind hazards will be included in the future. Details about the Hurricane Wind Model.

The **HAZUS-MH Flood Model** is capable of assessing riverine and coastal flooding. It estimates potential damage to all classes of buildings, essential facilities, transportation and utility lifelines, vehicles, and agricultural crops. The model addresses building debris generation and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, and building interiors. The effects of flood warning are taken into account, as are flow velocity effects. Details about the Flood Model.

The **HAZUS-MH Earthquake Model**, The HAZUS earthquake model provides loss estimates of damage and loss to buildings, essential facilities, transportation and utility lifelines, and population based on scenario or probabilistic earthquakes. The model addresses debris generation, fire-following, casualties, and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, inventory, and building interiors. The earthquake model also includes the Advanced Engineering Building Module for single- and group-building mitigation analysis. Details about the Earthquake Model.

The updated earthquake model released with HAZUS-MH includes:

- The (September 2002) National Hazard Maps

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 Contra Costa County Hazard Mitigation Plan-Update

- Project '02 attenuation functions
- Updated historical earthquake catalog (magnitude 5 or greater)
- Advanced Engineering Building Module for single and group building mitigation analysis

Additionally, HAZUS-MH can perform multi-hazard analysis by providing access to the average annualized loss and probabilistic results from the hurricane wind, flood, and earthquake models and combining them to provide integrated multi-hazard reports and graphs. HAZUS-MH also contains a third-party model integration capability that provides access and operational capability to a wide range of natural, man-made, and technological hazard models (nuclear and conventional blast, radiological, chemical, and biological) that will supplement the natural hazard loss estimation capability (hurricane wind, flood, and earthquake) in HAZUS-MH.

Find brochures, presentations, and additional information about HAZUS-MH at the HAZUS Library.

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APPENDIX B.
PROCEDURES FOR LINKING TO
THE HAZARD MITIGATION PLAN

May 2011

APPENDIX B. PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

Not all eligible local governments within Contra Costa County are included in the Contra Costa County Hazard Mitigation Plan. It is assumed that some or all of these non-participating local governments may chose to “link” to the Plan at some point to gain eligibility for programs under the DMA. In addition, some of the current partnership may not continue to meet eligibility requirements due to a lack of participation as prescribed by the plan. The following “linkage” procedures define the requirements established by the Plan’s Steering Committee and all planning partners for dealing with an increase or decrease in the number of planning partners linked to this plan. It should be noted that a currently non-participating jurisdiction within the defined planning area is not obligated to link to this plan. These jurisdictions can chose to do their own “complete” plan that addresses all required elements of section 201.6 of 44CFR.

INCREASING THE PARTNERSHIP THROUGH LINKAGE

The annual time period for the linkage process will be from February 1 to the last calendar work day of April during any year. Eligible linking jurisdictions are instructed to complete all of the following procedures during this time frame:

- The eligible jurisdiction requests a “Linkage Package” by contacting the Point of Contact (POC) for the plan:

Name
Title
Address
City, State ZIP
Phone
e-mail

The POC will provide a linkage packages that includes:

- Copy of Volume 1 and 2 of the plan
 - Planning partner’s expectations package.
 - A sample “letter of intent” to link to the Hazard Mitigation Plan.
 - A Special Purpose District or City template and instructions.
 - Catalog of Hazard Mitigation Alternatives
 - A “request for technical assistance” form.
 - A copy of Section 201.6 of Chapter 44, the Code of Federal Regulations (44CFR), which defines the federal requirements for a Local Hazard Mitigation Plan.
- The new jurisdiction will be required to review both volumes of the Hazard Mitigation Plan, which includes the following key components for the planning area:
 - The planning area risk assessment
 - Goals and objectives

- Plan implementation and maintenance procedures
- Comprehensive review of alternatives
- County-wide initiatives.

Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC. Technical assistance can be provided upon request by completing the request for technical assistance (TA) form provided in the linkage package. This TA may be provided by the POC or any other resource within the Planning Partnership such as a member of the Steering Committee or a currently participating City or Special Purposes District partner. The POC will determine who will provide the TA and the possible level of TA based on resources available at the time of the request.

- The new jurisdiction will be required to develop a public involvement strategy that ensures the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must make an attempt to solicit public opinion on hazard mitigation at the onset of this linkage process and a minimum of one public meeting to present their draft jurisdiction specific annex for comment, prior to adoption by the governing body. The Planning Partnership will have resources available to aid in the public involvement strategy such as the Plan website. However, it will be the new jurisdiction's responsibility to implement and document this strategy for incorporation into its annex. It should be noted that the Jurisdictional Annex templates *do not* include a section for the description of the public process. This is because the original partnership was covered under a uniform public involvement strategy that covered the planning area described in Volume 1 of the plan. Since new partners were not addressed by that strategy, they will have to initiate a new strategy, and add a description of that strategy to their annex. For consistency, new partners are encouraged to follow the public involvement format utilized by the initial planning effort as described in Volume 1 of the plan.
- Once their public involvement strategy is completed and they have completed their template, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the Regional plan format.
- The POC will review for the following:
 - Documentation of Public Involvement strategy
 - Conformance of template entries with guidelines outlined in instructions
 - Chosen initiatives are consistent with goals, objectives and mitigation catalog of the Planning Area hazard mitigation plan
 - A Designated point of contact
 - A ranking of risk specific to the jurisdiction.

The POC may utilize members of the Steering Committee or other resources to complete this review. All proposed linked annexes will be submitted to the Steering Committee for review and comment prior to submittal to the California Office of Emergency Services (CAOES).

- Plans approved and accepted by the Steering Committee will be forwarded to the CAOES for review with a cover letter stating the forwarded plan meets local approved plan standards and whether the plan is submitted with local adoption or for criteria met/plan not adopted review.
- CAOES will reviews plans for federal compliance. Non-Compliant plans are returned to the Lead agency for correction. Compliant plans are forwarded to FEMA Region IX office for review with annotation as to the adoption status.

- FEMA Region IX reviews the new jurisdiction's plan in association with the approved plan to ensure DMA compliance. Region IX notifies new jurisdiction of results of review with copies to CAOES and approved planning authority.
- New jurisdiction corrects plans shortfalls (if necessary) and resubmits to CAOES through the approved plan lead agency.
- For plans with no shortfalls from the Region IX review that have not been adopted, the new jurisdiction governing authority adopts the plan (if not already accomplished) and forwards adoption resolution to Region IX with copies to lead agency and CAOES.
- Region IX Director notifies new jurisdiction governing authority of plan approval.

The new jurisdiction plan is then included with the Regional plan with the commitment from the new jurisdiction to participate in the ongoing plan implementation and maintenance.

DECREASING THE PARTNERSHIP

The eligibility afforded under this process to the planning partnership can be rescinded in two ways. First, a participating planning partner can ask to be removed from the partnership. This may be done because the partner has decided to develop its own plan or has identified a different planning process for which it can gain eligibility. A partner that wishes to voluntarily leave the partnership shall inform the POC of this desire in writing. This notification can occur any time during the calendar year. A jurisdiction wishing to pursue this avenue is advised to make sure that it is eligible under the new planning effort, to avoid any period of being out of compliance with the Disaster Mitigation Act.

After receiving this notification, the POC shall immediately notify both CAOES and FEMA Region IX in writing that the partner in question is no longer covered by the Hazard Mitigation Plan, and that the eligibility afforded that partner under this plan should be rescinded based on this notification.

The second way a partner can be removed from the partnership is by failure to meet the participation requirements specified in the "Planning Partner Expectations" package provided to each partner at the beginning of the process, or the plan maintenance and implementation procedures specified under chapter 7 in Volume 1 of the plan. It should be noted that each partner agreed to these terms by adopting the plan.

Eligibility status of the planning partnership will be monitored by the POC. The determination of whether a partner is meeting its participation requirements will be based on the following parameters:

- Are progress reports being submitted annually by the specified time frames?
- Are partners notifying the POC of changes in designated points of contact?
- Are the partners supporting the Steering Committee by attending designated meetings or responding to needs identified by the body?
- Are the partners continuing to be supportive as specified in the Planning Partners expectations package provided to them at the beginning of the process?

Participation in the plan does not end with plan approval. This partnership was formed on the premise that a group of planning partners would pool resources and work together to strive to reduce risk within the planning area. Failure to support this premise lessens the effectiveness of this effort. The following procedures will be followed to remove a partner due to the lack of participation:

- The POC will advise the Steering Committee of this pending action and provide evidence or justification for the action. Justification may include: multiple failures to submit annual

progress reports, failure to attend meetings determined to be mandatory by the Steering Committee, failure to act on the partner's action plan, or inability to reach designated point of contact after a minimum of 5 attempts.

- The Steering Committee will review information provided by POC, and determine action by a vote. The Steering Committee will invoke the voting process established in the ground rules established during the formation of this body.
- Once the Steering Committee has approved an action, the POC will notify the planning partner of the pending action in writing via certified mail. This notification will outline the grounds for the action, and ask the partner if it is their desire to remain as a partner. This notification shall also clearly identify the ramifications of removal from the partnership. The partner will be given 30 days to respond to the notification.
- Confirmation by the partner that they no longer wish to participate or failure to respond to the notification shall trigger the procedures for voluntary removal discussed above.
- Should the partner respond that they would like to continue participation in the partnership, they must clearly articulate an action plan to address the deficiencies identified by the POC. This action plan shall be reviewed by the Steering Committee to determine whether the actions are appropriate to rescind the action. Those partners that satisfy the Steering Committee's review will remain in the partnership, and no further action is required.
- Automatic removal from the partnership will be implemented for partners where these actions have to be initiated more than once in a 5 year planning cycle.

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APPENDIX C.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE
FOR MUNICIPALITIES

May 2011

INSTRUCTIONS FOR COMPLETING MUNICIPALITY ANNEX TEMPLATE

This document provides instructions for completing the annex template for city and county governments participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials *before* you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the municipal jurisdiction annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (The City of Metropolis, Jefferson County, etc.). At this time, also change the name in the “header” box on Page 3, using the same wording.

Note that the template is set up as Chapter “X.” Please leave all references to “X” in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Provide information specific to your jurisdiction as indicated, in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document. For population data, use the most current population figure for your jurisdiction based on an official means of tracking (e.g., the U.S. Census or state office of financial management).

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. Potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data
- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Citizen input.

Repetitive Loss Properties

A repetitive loss property is any property for which FEMA has paid two or more flood insurance claims in excess of \$1,000 in any rolling 10-year period since 1978. In the space provided in the text for Section X.3, indicate the number of any FEMA-identified Repetitive Flood Loss properties in your jurisdiction

Example Jurisdiction Profile:

- **Date of Incorporation**—1858
- **Current Population**—17,289 as of July 2006
- **Population Growth**—Based on the data tracked by the California Department of Finance, Arcata has experienced a relatively flat rate of growth. The overall population has increased only 3.4% since 2000 and has averaged 0.74% per year from 1990 to 2007
- **Location and Description**—The City of Arcata is located on California's redwood coast, approximately 760 miles north of Los Angeles and 275 miles north of San Francisco. The nearest seaport is Eureka, five miles south on Humboldt Bay. Arcata is the home of Humboldt State University and is situated between the communities of McKinleyville to the north and Blue Lake to the east. It sits at the intersection of US Highway 101 and State Route 299.
- **Brief History**—The Arcata area was settled during the California gold rush in the 1850s as a supply center for miners. As the gold rush died down, timber and fishing became the area's major economic resource. Arcata was incorporated in 1858 and by 1913 the Humboldt Teachers College, a predecessor to today's Humboldt State University was founded in Arcata. Recently, the presence of the college has come to shape Arcata's population into a young, liberal, and educated crowd. In 1981 Arcata developed the Arcata Marsh and Wildlife sanctuary, an innovative environmentally friendly, sewage treatment enhancement system.
- **Climate**—Arcata's weather is typical of the Northern California coast, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Annual average rainfall is over 40 inches, with 80% of that falling in the six-month period of November through April. The average year-round temperature is 59°F. Humidity averages between 72 and 87 percent. Prevailing winds are from the north, and average 5 mph.
- **Governing Body Format**—The City of Arcata is governed by a five-member City Council. The City consists of six departments: Finance, Environmental Services, Community Development, Public Works, Police and the City Manager's Office. The City has 13 Committees, Commissions and Task Forces, which report to the City Council.
- **Development Trends**—Anticipated development levels for Arcata are low to moderate, consisting primarily of residential development. The majority of recent development has been infill. Residentially, there has been a focus on affordable housing and a push for more secondary mother-in-law units on properties.

The City of Arcata adopted its general plan in July 2000. The plan focuses on issues of the greatest concern to the community. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with such a plan. Future growth and development in the City will be managed as identified in the general plan.

(your technical assistance provider will be able to help you confirm this information). If you have none, indicate "none" in the space provided.

Next, indicate the number (if any) of repetitive loss structures in your jurisdiction that have been mitigated. Mitigated for this exercise means that flood protection has been provided to the structure. If you do not know the answer to this question, the planning team will provide it for you.

HAZARD RISK RANKING

The risk ranking performed for the overall planning area is presented in the risk assessment section of the overall hazard mitigation plan. However, each jurisdiction has differing degrees of risk exposure and vulnerability and therefore needs to rank risk for its own area, using the same methodology as used for the overall planning area. The risk-ranking exercise assesses two variables for each hazard: its probability of occurrence; and its potential impact on people, property and the economy. A detailed discussion of the concepts associated with risk ranking is provided in the overall hazard mitigation plan. The instructions below outline steps for assessing risk in your jurisdiction to develop results that are to be included in the template.

Determine Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. In Table 1, list the probability of occurrence for each hazard as it pertains to your jurisdiction, along with its probability factor, as follows:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor = 2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor = 1)
- None—If there is no exposure to a hazard, there is no probability of occurrence (Probability Factor = 0)

Hazard Type	Probability	Probability Factor

The probability of occurrence of a hazard event is generally based on past hazard events in an area. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories were also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the economy was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on people, values are assigned based on the percentage of the total *population exposed* to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% or less of the population is exposed to the hazard (Impact Factor = 1)
- No impact—None of the population is exposed to a hazard (Impact Factor = 0)

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total *property value exposed* to the hazard event. In Table 3, enter the cost estimates for potential damage to exposed structures, taken from the “Summary of Loss” matrix provided with these instructions.

TABLE 3. COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES	
Hazard type	Estimate of Potential Dollar Losses to Exposed Structures

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—30% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)
- Medium Impact—15% to 29% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- Low Impact—14% or less of the total assessed property value is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value is exposed to a hazard (Impact Factor = 0)

TABLE 4. HAZARD IMPACT ON PROPERTY			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

- State Mandated—Enter “Yes” if state laws or other requirements enable or require the listed item to be implemented at the local level; otherwise, enter “No.”

Administrative and Technical Capability

This section requires you to take inventory of the staff/personnel resources available to your jurisdiction to help with hazard mitigation planning and implementation of specific mitigation actions.

Complete Table X-4 by indicating whether your jurisdiction has access to each of the listed personnel resources. Enter “Yes” or “No” in the column labeled “Available?”. If yes, then enter the department and position title in the right-hand column.

Financial Resources

Identify what financial resources (other than the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program) are available to your jurisdiction for implementing mitigation initiatives.

Complete Table X-5 by indicating whether each of the listed financial resources is accessible to your jurisdiction. Enter “Yes” if the resource is fully accessible to your jurisdiction. Enter “No” if there are limitations or prerequisites that may hinder your eligibility for this resource.

Community Mitigation Related Classifications

Complete Table X-6 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. For each program enter “Yes” or “No” in the second column to indicate whether your jurisdiction participates. If yes, then enter the classification that your jurisdiction has earned under the program in the third column and the date on which that classification was issued in the fourth column; enter “N/A” in these columns if your jurisdiction is not participating.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the HMGP and PDM (see fact sheet provided). Listing HMGP or PDM as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP or PDM grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Complete Table X-7 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment (Table X-5) to identify possible sources of funding.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).

Wording Your Initiative Descriptions:

Descriptions of your initiatives need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan initiative:

- **Initiative 1—Address Repetitive Loss properties.** Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Initiative 2—Perform a non-structural, seismic retrofit of City Hall.**
- **Initiative 3—Acquire floodplain property in the Smith subdivision.**
- **Initiative 4—Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.**

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-8 as follows:

- Initiative #—Indicate the initiative number from Table X-7.
- # of Objectives Met—Enter the number of objectives the initiative will meet.
- Benefits—Enter “High,” “Medium” or “Low” as follows:
 - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
 - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
 - Low: Long-term benefits of the project are difficult to quantify in the short term.
- Costs—Enter “High,” “Medium” or “Low” as follows:
 - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.
 - Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
 - Low: Possible to fund under existing budget. Project is part of, or can be part of an existing ongoing program.

If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.

- Do Benefits Exceed the Cost?—Enter “Yes” or “No.” This is a qualitative assessment. Enter “Yes” if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter “No” if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- Is the Project Grant-Eligible?—Enter “Yes” or “No.” Refer to the fact sheet on HMGP and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter “Yes” or “No.” In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter “High,” “Medium” or “Low” as follows:
 - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
 - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
 - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-9 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- Prevention—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- Property Protection—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- Public Education and Awareness—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- Natural Resource Protection—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X. [INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—[Insert Date of Incorporation]
- **Current Population**—[Insert Population] as of [Insert Date of Population Count]
- **Population Growth**—[Insert Discussion of Population Growth]
- **Location and Description**—[Insert Description of Location, Surroundings, Key Geographic Features]
- **Brief History**—[Insert Summary Discussion of Jurisdiction's History]
- **Climate**—[Insert Summary Discussion of Climate]
- **Governing Body Format**—[Insert Summary Description of Governing Body]
- **Development Trends**—[Insert Summary Description of Development]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: [Insert #]
- Number of Repetitive Flood Loss Properties that have been mitigated: [Insert #]

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table X-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table X-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table X-5. Classifications under various community mitigation programs are presented in Table X-6.

X.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-8 identifies the priority for each initiative. Table X-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.8 ADDITIONAL COMMENTS

[Insert text, if any]

**TABLE X-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code					
Zonings					
Subdivisions					
Stormwater Management					
Post Disaster Recovery					
Real Estate Disclosure					
Growth Management					
Site Plan Review					
Special Purpose (flood management, critical areas)					
Planning Documents					
General or Comprehensive Plan					
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
Habitat Conservation Plan					
Economic Development Plan					
Emergency Response Plan					
Shoreline Management Plan					
Post Disaster Recovery Plan					
Other					
Other					

**TABLE X-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices		
Engineers or professionals trained in building or infrastructure construction practices		
Planners or engineers with an understanding of natural hazards		
Staff with training in benefit/cost analysis		
Floodplain manager		
Surveyors		
Personnel skilled or trained in GIS applications		
Scientist familiar with natural hazards in local area		
Emergency manager		
Grant writers		

**TABLE X-5.
FISCAL CAPABILITY**

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	
Capital Improvements Project Funding	
Authority to Levy Taxes for Specific Purposes	
User Fees for Water, Sewer, Gas or Electric Service	
Incur Debt through General Obligation Bonds	
Incur Debt through Special Tax Bonds	
Incur Debt through Private Activity Bonds	
Withhold Public Expenditures in Hazard-Prone Areas	
State Sponsored Grant Programs	
Development Impact Fees for Homebuyers or Developers	
Other	

TABLE X-6. COMMUNITY CLASSIFICATIONS		
	Participating?	Date Classified
Community Rating System		
Building Code Effectiveness Grading Schedule		
Public Protection		
Storm Ready		
Firewise		
Tsunami Ready		

TABLE X-7. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

Contra Costa County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX D.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE
FOR MUNICIPALITY UPDATES

May 2011

INSTRUCTIONS FOR COMPLETING MUNICIPALITY UPDATE ANNEX TEMPLATE

This document provides instructions for completing the annex template for city and county governments participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials *before* you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the municipal jurisdiction annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (The City of Metropolis, Jefferson County, etc.). At this time, also change the name in the "header" box on Page 3, using the same wording.

Note that the template is set up as Chapter "X." Please leave all references to "X" in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Provide information specific to your jurisdiction as indicated, in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document. For population data, use the most current population figure for your jurisdiction based on an official means of tracking (e.g., the U.S. Census or state office of financial management).

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. Potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data
- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Citizen input.

Repetitive Loss Properties

A repetitive loss property is any property for which FEMA has paid two or more flood insurance claims in excess of \$1,000 in any rolling 10-year period since 1978. In the space provided in the text for Section X.3, indicate the number of any FEMA-identified Repetitive Flood Loss properties in your jurisdiction

Example Jurisdiction Profile:

- **Date of Incorporation**—1858
- **Current Population**—17,289 as of July 2006
- **Population Growth**—Based on the data tracked by the California Department of Finance, Arcata has experienced a relatively flat rate of growth. The overall population has increased only 3.4% since 2000 and has averaged 0.74% per year from 1990 to 2007
- **Location and Description**—The City of Arcata is located on California's redwood coast, approximately 760 miles north of Los Angeles and 275 miles north of San Francisco. The nearest seaport is Eureka, five miles south on Humboldt Bay. Arcata is the home of Humboldt State University and is situated between the communities of McKinleyville to the north and Blue Lake to the east. It sits at the intersection of US Highway 101 and State Route 299.
- **Brief History**—The Arcata area was settled during the California gold rush in the 1850s as a supply center for miners. As the gold rush died down, timber and fishing became the area's major economic resource. Arcata was incorporated in 1858 and by 1913 the Humboldt Teachers College, a predecessor to today's Humboldt State University was founded in Arcata. Recently, the presence of the college has come to shape Arcata's population into a young, liberal, and educated crowd. In 1981 Arcata developed the Arcata Marsh and Wildlife sanctuary, an innovative environmentally friendly, sewage treatment enhancement system.
- **Climate**—Arcata's weather is typical of the Northern California coast, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Annual average rainfall is over 40 inches, with 80% of that falling in the six-month period of November through April. The average year-round temperature is 59°F. Humidity averages between 72 and 87 percent. Prevailing winds are from the north, and average 5 mph.
- **Governing Body Format**—The City of Arcata is governed by a five-member City Council. The City consists of six departments: Finance, Environmental Services, Community Development, Public Works, Police and the City Manager's Office. The City has 13 Committees, Commissions and Task Forces, which report to the City Council.
- **Development Trends**—Anticipated development levels for Arcata are low to moderate, consisting primarily of residential development. The majority of recent development has been infill. Residentially, there has been a focus on affordable housing and a push for more secondary mother-in-law units on properties.

The City of Arcata adopted its general plan in July 2000. The plan focuses on issues of the greatest concern to the community. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with such a plan. Future growth and development in the City will be managed as identified in the general plan.

The probability of occurrence of a hazard event is generally based on past hazard events in an area. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories were also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the economy was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on people, values are assigned based on the percentage of the total *population exposed* to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% or less of the population is exposed to the hazard (Impact Factor = 1)
- No impact—None of the population is exposed to a hazard (Impact Factor = 0)

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total *property value exposed* to the hazard event. In Table 3, enter the cost estimates for potential damage to exposed structures, taken from the “Summary of Loss” matrix provided with these instructions.

TABLE 3. COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES	
Hazard type	Estimate of Potential Dollar Losses to Exposed Structures

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—30% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)
- Medium Impact—15% to 29% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- Low Impact—14% or less of the total assessed property value is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value is exposed to a hazard (Impact Factor = 0)

TABLE 4. HAZARD IMPACT ON PROPERTY			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Economy

To assess impacts on the economy, values are assigned based on the percentage of the total *property value vulnerable* to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total assessed value of property in the county. For some hazards, such as wildland fire, landslide and severe weather, vulnerability is the same as exposure due to the lack of loss estimation tools specific to those hazards. In Table 5, list the potential impact of each hazard on the economy in your jurisdiction, along with its impact factor, as follows:

- High Impact—Estimated loss from the hazard is 20% or more of the total assessed property value (Impact Factor = 3)
- Medium Impact—Estimated loss from the hazard is 10% to 19% of the total assessed property value (Impact Factor = 2)
- Low Impact—Estimated loss from the hazard is 8% or less of the total assessed property value (Impact Factor = 1)
- No impact—No loss is estimated from the hazard (Impact Factor = 0)

TABLE 5. HAZARD IMPACT ON THE ECONOMY			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 1)

Determine Risk Rating for Each Hazard

A risk rating for each hazard is determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and the economy:

- Risk Rating = Probability Factor x Weighted Impact Factor {people + property + economy}

Using the results developed in Tables 1, 2, 4 and 5, complete Table 6 to calculate a risk rating for each hazard of concern.

- State Mandated—Enter “Yes” if state laws or other requirements enable or require the listed item to be implemented at the local level; otherwise, enter “No.”

Administrative and Technical Capability

This section requires you to take inventory of the staff/personnel resources available to your jurisdiction to help with hazard mitigation planning and implementation of specific mitigation actions.

Complete Table X-4 by indicating whether your jurisdiction has access to each of the listed personnel resources. Enter “Yes” or “No” in the column labeled “Available?”. If yes, then enter the department and position title in the right-hand column.

Financial Resources

Identify what financial resources (other than the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program) are available to your jurisdiction for implementing mitigation initiatives.

Complete Table X-5 by indicating whether each of the listed financial resources is accessible to your jurisdiction. Enter “Yes” if the resource is fully accessible to your jurisdiction. Enter “No” if there are limitations or prerequisites that may hinder your eligibility for this resource.

Community Mitigation Related Classifications

Complete Table X-6 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. For each program enter “Yes” or “No” in the second column to indicate whether your jurisdiction participates. If yes, then enter the classification that your jurisdiction has earned under the program in the third column and the date on which that classification was issued in the fourth column; enter “N/A” in these columns if your jurisdiction is not participating.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the HMGP and PDM (see fact sheet provided). Listing HMGP or PDM as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP or PDM grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Complete Table X-7 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment (Table X-5) to identify possible sources of funding.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).
- Enter “Yes” or “No” to indicate whether this initiative was included in the previous version of this hazard mitigation plan.

Wording Your Initiative Descriptions:

Descriptions of your initiatives need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan initiative:

- **Initiative 1—Address Repetitive Loss properties.** Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Initiative 2—Perform a non-structural, seismic retrofit of City Hall.**
- **Initiative 3—Acquire floodplain property in the Smith subdivision.**
- **Initiative 4—Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.**

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-8 as follows:

- Initiative #—Indicate the initiative number from Table X-7.
- # of Objectives Met—Enter the number of objectives the initiative will meet.
- Benefits—Enter “High,” “Medium” or “Low” as follows:
 - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
 - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
 - Low: Long-term benefits of the project are difficult to quantify in the short term.
- Costs—Enter “High,” “Medium” or “Low” as follows:
 - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.
 - Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

- Low: Possible to fund under existing budget. Project is part of, or can be part of an existing ongoing program.

If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.

- Do Benefits Exceed the Cost?—Enter “Yes” or “No.” This is a qualitative assessment. Enter “Yes” if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter “No” if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- Is the Project Grant-Eligible?—Enter “Yes” or “No.” Refer to the fact sheet on HMGP and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter “Yes” or “No.” In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter “High,” “Medium” or “Low” as follows:
 - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
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This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-9 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- Prevention—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- Property Protection—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- Public Education and Awareness—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.

- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

STATUS OF PREVIOUS PLAN INITIATIVES

In this section, provide a status report of actions recommended in your previous hazard mitigation plan. You must be able to reconcile your original action plan to meet FEMA requirements for plan updates. Enter all the recommended actions from your previous plan in Table X-10 and put an X in one of the following three columns for each action to indicate its status:

- **Completed**—If the action has been completed, place a check mark in this column and enter a brief explanation in the “Comments” column (e.g., “Action #WC31 was completed by the Public Works Department on 3/12/2009”). Ongoing actions, such as annual outreach projects or maintenance activities, should also be indicated as “Completed,” with a statement about the ongoing nature of the action provided in the “Comments” column (e.g., “Ongoing action, implemented annually by Community Development Department”).
- **Carry Over to Plan Update**—If you did not complete an action and want to carry it over to your updated action plan, place a check mark in this column, and enter an explanatory statement in the comment section (e.g., “Action carried over as Action #WC14 in updated action plan”).
- **Removed; No Longer Feasible**—If you want to remove an action because you have determined that it is no longer feasible, place a check mark in this column. “No longer feasible” means that you have determined that you do not have the capability to implement the action or that the action does not serve the best interest of your jurisdiction. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., “Action no longer considered feasible due to lack of political support to complete it.”)

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates such as EPA’s Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X. [INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation**—[Insert Date of Incorporation]
- **Current Population**—[Insert Population] as of [Insert Date of Population Count]
- **Population Growth**—[Insert Discussion of Population Growth]
- **Location and Description**—[Insert Description of Location, Surroundings, Key Geographic Features]
- **Brief History**—[Insert Summary Discussion of Jurisdiction's History]
- **Climate**—[Insert Summary Discussion of Climate]
- **Governing Body Format**—[Insert Summary Description of Governing Body]
- **Development Trends**—[Insert Summary Description of Development]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: [Insert #]
- Number of Repetitive Flood Loss Properties that have been mitigated: [Insert #]

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table X-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table X-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table X-5. Classifications under various community mitigation programs are presented in Table X-6.

X.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-8 identifies the priority for each initiative. Table X-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table X-10 summarizes the initiatives that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

X.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.9 ADDITIONAL COMMENTS

[Insert text, if any]

**TABLE X-3.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code					
Zoning Code					
Subdivisions					
Stormwater Management					
Post Disaster Recovery					
Real Estate Disclosure					
Growth Management					
Site Plan Review					
Special Purpose (flood management, critical areas)					
Planning Documents					
General or Comprehensive Plan					
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
Habitat Conservation Plan					
Economic Development Plan					
Emergency Response Plan					
Shoreline Management Plan					
Post Disaster Recovery Plan					
Other					
Other					

TABLE X-4. ADMINISTRATIVE AND TECHNICAL CAPABILITY	
Staff/Personnel Resources	Available? Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	
Engineers or professionals trained in building or infrastructure construction practices	
Planners or engineers with an understanding of natural hazards	
Staff with training in benefit/cost analysis	
Floodplain manager	
Surveyors	
Personnel skilled or trained in GIS applications	
Scientist familiar with natural hazards in local area	
Emergency manager	
Grant writers	

TABLE X-5. FISCAL CAPABILITY	
Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	
Capital Improvements Project Funding	
Authority to Levy Taxes for Specific Purposes	
User Fees for Water, Sewer, Gas or Electric Service	
Incur Debt through General Obligation Bonds	
Incur Debt through Special Tax Bonds	
Incur Debt through Private Activity Bonds	
Withhold Public Expenditures in Hazard-Prone Areas	
State Sponsored Grant Programs	
Development Impact Fees for Homebuyers or Developers	
Other	

TABLE X-6. COMMUNITY CLASSIFICATIONS		
	Participating?	Date Classified
Community Rating System		
Building Code Effectiveness Grading Schedule		
Public Protection		
Storm Ready		
Firewise		
Tsunami Ready		

TABLE X-7. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							
Initiative # —Description							

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APPENDIX E.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE
FOR SPECIAL-PURPOSE DISTRICTS

May 2011

INSTRUCTIONS FOR COMPLETING SPECIAL-PURPOSE DISTRICT ANNEX TEMPLATE

This document provides instructions for completing the annex template for special-purpose districts participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials **before** you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the special-purpose district annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (West County Fire Protection District #1, Burgville Flood Protection District, etc.). At this time, also change the name in the "header" box on Page 3, using the same wording.

Note that the template is set up as Chapter "X." Please leave all references to "X" in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Narrative Profile

Please provide a brief summary to profile your jurisdiction. Include the purpose of the jurisdiction, the date of inception, the type of organization, the number of employees, the mode of operation (i.e., how operations are funded), the type of governing body, and who has adoptive authority. Describe who the jurisdiction's customers are (if applicable, include number of users or subscribers). Include a geographical description of the service area.

Provide information in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document.

Example Jurisdiction Narrative Profile:

Humboldt Community Services District is a special-purpose district created in 1952 to provide water, sewer, and street lighting to the unincorporated area surrounding the City of Eureka known as Pine Hill & Cutten. The District's designated service areas expanded throughout the years to include other unincorporated areas of Humboldt County known as Myrtle town, Humboldt Hill, Fields Landing, King Salmon, and Freshwater. A five-member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of April 30, 2007, the District serves 7,305 water connections and 6,108 sewer connections, with a current staff of 21. Funding comes primarily through rates and revenue bonds..

Summary Information

Complete the bulleted list of summary information as follows:

- **Population Served**—List the estimated population that your jurisdiction provides services to. If you do not know this number directly, create an estimate (e.g., the number of service connections times the average household size for the service area based on Census data).
- **Land Area Served**—Enter the service area of your jurisdiction in acres or square miles.
- **Value of Area Served**—Enter the approximate assessed value of your service area. If you do not have this information, the County should be able to provide a number using the County Assessor's database.
- **Land Area Owned**—Enter the area of property owned by the jurisdiction in acres or square miles.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction**—List all infrastructure and equipment that is critical to your jurisdiction's operations and is located in a natural hazard risk zone. Briefly describe the item and give its estimated replacement-cost value. Examples are as follows:
 - **Fire Districts**—Apparatus and equipment housed in a facility that is located in a natural hazard risk zone. This is the equipment that is essential for you to deliver services to this area should a natural hazard occur. It is not necessary to provide a detailed inventory of each engine and truck and its contents. A summary will suffice, such as "5 Engines, 2 ladders, and their contents". Do not list reserve equipment.
 - **Dike/Flood Control Districts**—Miles of levees, pump stations, retention/detention ponds, tide gates, miles of ditches, etc., within natural hazard risk zones.
 - **Water Districts**—Total length of pipe (it is not necessary to specify size and type), pump stations, treatment facilities, dams and reservoirs, within natural hazard risk zones.

- Public Utility Districts—Miles of power line (above ground and underground), generators, power generating sub-stations, miles of pipeline, etc., within natural hazard risk zones.
- School Districts—Anything within natural hazard risk zones, besides school buildings, that is critical for you to operate (e.g., school buses if you own a fleet of school buses).
- **Total Value of Critical Infrastructure/Equipment**—Enter total replacement-cost value of the critical infrastructure and equipment listed above.
- **List of Critical Facilities Owned by the Jurisdiction**—List all buildings and other facilities that are critical to your jurisdiction’s operations and are located in a natural hazard risk zone. Briefly describe the facility and give its estimated replacement-cost value.
- **Total Value of Critical Facilities**—Enter total replacement-cost value of the critical facilities listed above.
- **Current and Anticipated Service Trends**—Enter a brief description on how your jurisdiction’s services are projected to expand in the foreseeable future and why. Note any identified capital improvements needed to meet the projected expansion. Examples are as follows:
 - For a Fire District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land uses will represent an increase in population and thus a projected increase in call volume. Our District is experiencing an average annual increase in call volume of 13 percent.
 - For Dike/Drainage/Flood Control District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will result in an increase in impermeable surface within our service area and thus increase the demand on control facilities.
 - For a Water District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will represent an increase in the number of housing units within the service area and thus represent an expansion of the district’s delivery network.

Boundary Map

Maps that illustrate the service area boundary for all special-purpose district partners will be provided at the workshop. Please confirm that the boundaries reflected on the maps are current and accurate for your jurisdiction. In the box for this section, include a reference to the map that includes your jurisdiction’s boundaries.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. Potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data

The probability of occurrence of a hazard event is generally based on past hazard events in an area. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on your jurisdiction’s operations. These categories were also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on operations was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on people, values are assigned based on the percentage of the total *population exposed* to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% or less of the population is exposed to the hazard (Impact Factor = 1)
- No impact—None of the population is exposed to a hazard (Impact Factor = 0)

TABLE 2. HAZARD IMPACT ON PEOPLE			
Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total *value of buildings, equipment and infrastructure that is exposed* to the hazard event. In Table 3, enter the cost estimates for potential damage to the jurisdiction’s exposed buildings, equipment and infrastructure , taken from the “Summary of Loss” matrix provided with these instructions.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the HMGP and PDM (see fact sheet provided). Listing HMGP or PDM as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP or PDM grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Complete Table X-4 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share.
- Indicate the time line as "short term" (1 to 5 years) or "long term" (5 years or greater).

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-5 as follows:

Wording Your Initiative Descriptions:

Descriptions of your initiatives need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan initiative:

- **Initiative 1**—Address Repetitive Loss properties. Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Initiative 2**—Perform a non-structural, seismic retrofit of City Hall.
- **Initiative 3**—Acquire floodplain property in the Smith subdivision.
- **Initiative 4**—Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.

- Initiative #—Indicate the initiative number from Table X-4.
- # of Objectives Met—Enter the number of objectives the initiative will meet.
- Benefits—Enter “High,” “Medium” or “Low” as follows:
 - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
 - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
 - Low: Long-term benefits of the project are difficult to quantify in the short term.
- Costs—Enter “High,” “Medium” or “Low” as follows:
 - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.
 - Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
 - Low: Possible to fund under existing budget. Project is part of, or can be part of an existing ongoing program.

If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.

- Do Benefits Exceed the Cost?—Enter “Yes” or “No.” This is a qualitative assessment. Enter “Yes” if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter “No” if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- Is the Project Grant-Eligible?—Enter “Yes” or “No.” Refer to the fact sheet on HMGP and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter “Yes” or “No.” In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter “High,” “Medium” or “Low” as follows:
 - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
 - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
 - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for

HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-6 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X. [INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

[Insert Narrative Profile Information, per Instructions]

The following is a summary of key information about the jurisdiction:

- **Population Served**—[Insert Population] as of [Insert Date of Population Count]
- **Land Area Served**—[Insert Area]
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is [Insert Total Value]
- **Land Area Owned**—[Insert Area]
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is [Insert Total Value]
- **List of Critical Facilities Owned by the Jurisdiction:**
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
 - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is [Insert Total Value]
- **Current and Anticipated Service Trends**—[Insert Summary Description of Service Trends]

The jurisdiction's boundaries are shown on Figure [Insert # of Figure Showing Jurisdiction Boundaries]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction.

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]

X.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table X-3.

X.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-5 identifies the priority for each initiative. Table X-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.9 ADDITIONAL COMMENTS

[Insert text, if any]

TABLE X-3. COMMUNITY CLASSIFICATIONS		
	Participating?	Date Classified
Public Protection		
Storm Ready		
Firewise		
Tsunami Ready		

TABLE X-4. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

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APPENDIX F.
STRATEGY LIST FROM ASSOCIATION OF BAY AREA
GOVERNMENTS LOCAL HAZARD MITIGATION PLAN

May 2011

APPENDIX F.

STRATEGY LIST FROM ASSOCIATION OF BAY AREA GOVERNMENTS LOCAL HAZARD MITIGATION PLAN

Number Specific Mitigation Strategy

Infrastructure: Multi-Hazard

- INFR-a-1 Assess the vulnerability of critical facilities designated by lifeline operators to damage in natural disasters or security threats, including facilities owned outside of the Bay Area that can impact service delivery within the region. **Note** - Lifeline agencies, departments, and districts are those that operate transportation and utility facilities and networks.
- INFR-a-2 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 other special districts to develop strong and effective mitigation strategies for infrastructure systems and facilities.
- INFR-a-4 Retrofit or replace critical lifeline facilities and/or their backup facilities that are shown to be vulnerable to damage in natural disasters.
- INFR-a-5 Support and encourage efforts of *other* (lifeline) 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 Plan for speeding the repair and functional restoration of lifeline systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water Agency Response Network (WARN).
- INFR-a-7 Engage in, support, and/or encourage research by others 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 Have back-up emergency power available for critical intersection traffic lights.
- 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 Coordinate with PG&E and others to investigate ways of minimizing the likelihood that power interruptions will adversely impact vulnerable communities, such as the disabled and the elderly.
- INFR-a-12 Encourage replacing aboveground 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 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.
- INFR-a-14 Encourage communication between State OES, 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.

Number Specific Mitigation Strategy

INFR-a-16 Effectively utilize the Transportation Management Center (TMC), 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.

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.
- 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.
- 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 Examine the feasibility of developing a water-borne transportation "system" -- comprised mainly of relatively inexpensive barges -- 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.
- 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 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 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.

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- 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 look at 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 three years.
- 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.
- 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, (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 removal as one way to increase storage for both flood control and water supply.
- INFR-d-11 Elevate critical bridges affected by flooding to increase stream flow and maintain critical access and egress routes.
- INFR-d-12 Provide a 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 increasing 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.

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- INFR-d-16 Work for better cooperation among the patchwork of agencies managing flood control issues.
- INFR-d-17 Work cooperatively with upstream communities to monitor creek and watercourse flows to predict potential for flooding downstream.

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 structural engineers[1] 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 structural engineer is a California licensed structural 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.
- INFR-g-3 Provide materials to the public related to coping with reductions in water supply or contamination of that supply.
- INFR-g-4 Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment.
- INFR-g-5 Facilitate and/or coordinate the distribution of materials that are prepared by others, such as by placing materials in city or utility newsletters, or on community access channels, as appropriate.

Health: Hospitals and Other Critical Health Care Facilities

- HEAL-a-1 Work with critical health care facilities operators to ensure that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters (as required for acute-care hospitals for earthquakes by State law).
- HEAL-a-2 Encourage hospitals to work with the California Office of Statewide Health Planning and Development (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.
- 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.
- HEAL-a-4 Ensure these health care facilities have the capacity to shut off outside air and be self-contained.
- HEAL-a-5 Ensure that hospitals and other major health care facilities have auxiliary water and power sources.

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- HEAL-a-6 Work with health care facilities to institute isolation capacity should a need for them arise following a communicable disease epidemic.
- HEAL-a-7 Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), 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.

Health: Ancillary Health-Related Facilities

- HEAL-b-1 Work with State of California licensing agencies to identify these ancillary facilities in your community.
- HEAL-b-2 Encourage these facility operators to develop disaster mitigation plans.
- HEAL-b-3 Encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and recovery plans.

Health: Interface with National and State Health Care 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.
- HEAL-c-2 Ensure that you know the Metropolitan Medical Response System (MMRS) cities in your area. For example, Oakland and Fremont are the MMRS cities in Alameda County. MMRS cities are those cities that are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel.
- HEAL-c-3 Know if any 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.
- HEAL-c-4 Plan to utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agencies and Department of Defense laboratories in Berkeley (Lawrence Berkeley National Laboratory) or Livermore (Lawrence Livermore National Laboratory and Sandia) for confirmation of radiological agents.

Health: Environmental Health

- HEAL-d-1 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.
- HEAL-d-2 Train appropriate personnel to understand that the Metropolitan Medical Response System (MMRS) cities in your area. For example, Oakland and Fremont are the MMRS cities in Alameda County. MMRS cities are those cities that are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel.
- HEAL-d-3 Train appropriate personnel to know if any 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.
- HEAL-d-4 Train appropriate personnel to know to utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Department of Defense laboratories in Berkeley (Lawrence Berkeley National Laboratory) or Livermore (Lawrence Livermore National Laboratory and Sandia) for confirmation of radiological agents.

Housing: Multi-Hazard

- HSNG-a-1 Be aware of past problems of inadequate hazard disclosure and work with real estate agents to improve enforcement of real estate disclosure requirements for those hazards covered by this plan, for example, by making those agents and the disclosure firms aware of the hazard maps incorporated in this plan and available on the ABAG web site at <http://quake.abag.ca.gov/mitigation/>, as well as locally developed maps.

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- HSNG-a-2 Create incentives for 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*.

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 that being 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 retrofitting of heavy two-story homes with living areas over garages, as well as for split level homes, until standard plan sets and construction details become available.
- HSNG-b-3 Require engineered plan sets for retrofitting of homes on steep hillsides.
- 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.
- 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) 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.
- 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 applicable homes to retrofit.

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

- HSNG-c-1 Require engineered plan sets for voluntary or mandatory soft-story retrofits until a standard plan set and construction details become available.
- HSNG-c-2 Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory soft-story building retrofits.
- HSNG-c-3 Work to educate condominium and apartment owners, local government staff, engineers, and contractors on soft-story retrofit procedures and incentives using materials such as those developed by ABAG (see <http://quake.abag.ca.gov/fixit/>) and the City of San Jose.
- HSNG-c-4 Conduct an inventory of existing or suspected soft-story residential structures.
- HSNG-c-5 Use the soft-story inventory to require owners to inform all existing tenants that they live in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will live in this type of building prior to signing a lease.
- HSNG-c-6 Use the soft-story inventory to require owners to inform all existing tenants that they should 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 for owners of soft-story buildings to facilitate retrofit such as those developed by ABAG (see <http://quake.abag.ca.gov/fixit/>).
- HSNG-c-8 Explore development of local ordinances or State regulations to require or encourage owners of soft-story structures to strengthen them.
- HSNG-c-9 Provide technical assistance in seismically strengthening soft-story structures.

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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 property owners that they own this type of hazardous structure.
- HSNG-d-2 Accelerate retrofitting of 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 owners to inform all existing tenants that they live in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will live in this type of building prior to signing a lease.
- HSNG-d-4 Require owners to inform all existing tenants that they should be prepared to live elsewhere following an earthquake even if the building has been retrofitted, for 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 Suspicious 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, and other privately-owned structurally suspicious residential buildings.
- HSNG-e-3 Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory retrofit of seismically vulnerable buildings.
- HSNG-e-4 Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned structurally deficient 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 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 structural 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 development in high wildfire hazard areas (identified as 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>.

- | Number | Specific Mitigation Strategy |
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| HSNG-g-4 | Develop financial incentives for homeowners to be "model" defensible space homes 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/or amend, as needed, updated versions of the <i>California Building and Fire Codes</i> so that optimal fire-protection standards are used in construction and renovation projects. |
| HSNG-g-7 | Create a mechanism to enforce provisions of the <i>California Building and Fire Codes</i> and local housing codes that require the installation of smoke detectors and/or fire-extinguishing systems by making installation a condition of (a) finalizing a permit for any work on existing properties valued at over a fixed amount, such as \$500 or \$1000, and/or (b) a condition for the transfer of property if these changes are determined cost-effective strategies. |
| 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 | Promote the installation of early warning fire alarm systems in homes wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat connected to fire department communication systems. |
| HSNG-g-11 | Establish a Fire Hazard Abatement District 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-12 | Work with residents in rural-residential areas to ensure adequate access and evacuation in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. |
| HSNG-g-13 | 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-14 | Require fire sprinklers in all new or substantially remodeled multifamily housing, regardless of distance from a fire station. |
| HSNG-g-15 | Require sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas. |
| HSNG-g-16 | Compile a list of 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-17 | Conduct periodic fire-safety inspections of all multi-family buildings, as required by State law. |
| HSNG-g-18 | Ensure that fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard. |
| HSNG-g-19 | Create a mechanism to require the bracing of water heaters and flexible couplings on gas appliances, and/or (as specified under "a. 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. |

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HSNG-g-20 Work with the State Fire Marshall, the California Seismic Safety, 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).

Housing: Flooding

- HSNG-h-1 To reduce flood risk, and thereby reduce the cost of flood insurance to 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 development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development.
- HSNG-h-4 Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, and deliver those materials to the disabled and elderly 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 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 are 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.
- 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, 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 development through continuing education of design professionals on mitigation strategies.

Housing: Building Reoccupancy

- HSNG-j-1 Develop and enforce an ordinance for disaster-damaged structures to ensure that residential buildings are repaired in an appropriate and timely manner and retrofitted concurrently to avoid a recurrence.

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.

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- 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 Better 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.
- HSNG-k-5 Use disaster anniversaries, such as April (Earthquake Month and the 1906 earthquake), September (9/11), and October (Loma Prieta earthquake and Oakland Hills fire), to remind the public on safety and security mitigation activities.
- HSNG-k-6 Sponsor the formation and training of Community Emergency Response Teams (CERT) training. [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 Distribute NOAA weather radios to high-risk, limited-income families living in flood hazard areas.
- HSNG-k-12 Develop a program to provide at-cost NOAA weather radios to residents of flood hazard areas.
- HSNG-k-13 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-14 Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging businesses and residents to keep storm drains in their neighborhood free of debris.
- HSNG-k-15 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*.
- HSNG-k-16 Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
- HSNG-k-17 Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparenow.org> web site.

Economy: Multi-Hazard

- ECON-a-1 Be aware of past problems of inadequate hazard disclosure and work with real estate agents to improve enforcement of real estate disclosure requirements for those hazards covered by this plan, for example, by making those agents and the disclosure firms aware of the hazard maps incorporated in this plan and available on the ABAG web site at <http://quake.abag.ca.gov/mitigation/>, as well as locally developed maps.
- ECON-a-2 Create incentives for owners of historic or architecturally significant 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*.

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Economy: Soft-Story Commercial Buildings Vulnerable to Earthquakes

- ECON-b-1 Require engineered plan sets for voluntary or mandatory soft-story retrofits until a standard plan set and construction details become available.
- ECON-b-2 Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory soft-story building retrofits.
- ECON-b-3 Work to educate building owners, local government staff, engineers, and contractors on soft-story retrofit procedures and incentives using materials such as those developed by ABAG (see <http://quake.abag.ca.gov/fixit/>) and the City of San Jose.
- ECON-b-4 Conduct an inventory of existing or suspected soft-story commercial and industrial structures.
- ECON-b-5 Use the soft-story inventory to require owners to inform all existing tenants that they work in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will work in this type of building prior to signing a lease.
- ECON-b-6 Use the soft-story inventory to require owners to inform all existing tenants that they should 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 for owners of soft-story buildings to facilitate retrofit.
- ECON-b-8 Explore development of local ordinances or State regulations to require or encourage owners of soft-story structures to strengthen them.
- ECON-b-9 Provide technical assistance in seismically strengthening 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 property owners that they own this type of hazardous structure.
- ECON-c-2 Accelerate retrofitting of 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.
- ECON-c-3 Require owners to inform all existing tenants that they work in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will work in this type of building prior to signing a lease.
- ECON-c-4 Require owners to inform all existing tenants that they should be prepared to work elsewhere following an earthquake even if the building has been retrofitted, for 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 Suspicious Buildings

- ECON-d-1 Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally suspicious buildings.
- ECON-d-2 Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory retrofit of seismically vulnerable buildings.
- ECON-d-3 Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned structurally suspicious 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 and procedural incentives, or (f) technical assistance.

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Economy: Wildfire and Structural Fires

- ECON-e-1 Increase efforts to reduce fire in existing development through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on mitigation strategies.
- ECON-e-2 Require that new 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-3 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.
- ECON-e-4 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 by making installation a condition of (a) finalizing a permit for any work on existing properties valued at over a fixed amount, such as \$500 or \$1000, and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.
- ECON-e-5 Expand existing vegetation management programs in commercial and/or industrial areas.
- ECON-e-6 Establish a Fire Hazard Abatement District 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-7 Establish a Fire Hazard Abatement District to fund fire-safety inspections of private properties, roving firefighter patrols on high fire-hazard days, and public education efforts.
- ECON-e-8 Compile a list of 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-9 Conduct periodic fire-safety inspections of all commercial and institutional buildings.
- ECON-e-10 Work with the State Fire Marshall, the California Seismic Safety, PEER, and other experts to identify and manage gas-related fire risks of 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-11 Ensure that 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-12 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.

Economy: Flooding

- ECON-f-1 To reduce flood risk, thereby reducing the cost of flood insurance to 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 commercial and industrial development against the risk from potential flood-related hazards.
- ECON-f-3 Ensure that new 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 businesses in anticipation of rainstorms, and deliver those materials to the disabled and elderly upon request.
- ECON-f-5 Provide public information on locations for obtaining sandbags and deliver those sandbags to those various locations throughout a city and/or county.

Number Specific Mitigation Strategy

- ECON-f-6 Apply floodplain management regulations for development in the floodplain and floodway.
- ECON-f-7 Encourage business owners to participate in building elevation programs.
- ECON-f-8 Encourage business owners to participate in acquisition and relocation programs for areas within floodways.
- ECON-f-9 Require an annual inspection of approved flood-proofed 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, 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 development through continuing education of design professionals on mitigation strategies.

Economy: Construction

- ECON-h-1 Continue to require that all new commercial and industrial buildings be constructed in compliance with structural 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.
- ECON-h-3 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 an aggressive 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 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 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 an ordinance for disaster-damaged structures to ensure that damaged buildings are repaired in an appropriate and timely manner.

Number Specific Mitigation Strategy

ECON-i-6 Establish preservation-sensitive measures for the repair and reoccupancy of historically significant 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 business owners and 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 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 printed materials, conduct workshops, and provide outreach to Bay Area businesses focusing on business continuity planning.
- ECON-j-4 Better inform Bay Area 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 through partnerships with local businesses. [Note - these programs go by a variety of names in various cities and areas.]
- ECON-j-6 Assist 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. 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 businesses and residents to keep storm drains in their neighborhood free of debris.
- ECON-j-9 Encourage the formation of a community-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program*.
- ECON-j-10 Encourage 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 employers to develop innovative ways for these personnel to work together to increase safety and security.
- ECON-j-12 Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
- ECON-j-13 Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparenow.org> web site.

Government: Focus on Critical Facilities

- GOVT-a-1 Assess the vulnerability of critical facilities (such as city halls, fire stations, 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.

- | Number | Specific Mitigation Strategy |
|---------------|---|
| 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. |
| 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 | Install micro and/or surveillance cameras around critical public assets tied to web-based software, and develop a surveillance protocol to monitor these cameras. |
| GOVT-a-7 | Identify and undertake cost-effective retrofit measures on critical facilities (such as moving and redesigning air intake vents and installing blast-resistant features) when these buildings undergo major renovations. |
| 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 government-owned facilities 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 hazards. |

Government: Maintain and Enhance Local Government's Emergency Response and Recovery Capacity

- | | |
|----------|---|
| 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. |
| 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 plan for short-term and intermediate-term sheltering of impacted residents. |
| GOVT-b-5 | Periodically assess the need for new or relocated fire or police stations and other emergency facilities, changes in staffing levels, and additional or updated supplies, equipment, technologies, and in-service training classes. |
| GOVT-b-6 | Ensure that fire and police department personnel have adequate radios, breathing apparatuses, protective gear, and other equipment to respond to a major disaster. |
| GOVT-b-7 | Develop and maintain a system of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies. |
| GOVT-b-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. |

Number Specific Mitigation Strategy

- GOVT-b-9 Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate.
- GOVT-b-10 Maintain the local government's emergency operations center in a fully functional state of readiness.
- GOVT-b-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-b-12 Maintain and update as necessary the local government's Standardized Emergency Management System Plan.
- GOVT-b-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-b-14 Install an alert and warning system with outdoor sirens, coordinating them, to the extent possible, with those of neighboring jurisdictions.
- GOVT-b-15 Conduct periodic tests of the alerting and warning system's outdoor sirens no less frequently than once per month.
- GOVT-b-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-b-17 Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers.
- GOVT-b-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 prepositioning 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.
- GOVT-b-19 Increase local patrolling during periods of high fire weather.
- GOVT-b-20 Create and maintain an automated system of rain and flood gauges that is web enabled and publicly accessible.
- GOVT-b-21 Place remote sensors in strategic locations for early warning of hazmat releases or use of weapons of mass destruction.
- GOVT-b-22 Investigate the use of phone-based warning systems for selected geographic areas.
- GOVT-b-23 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-b-24 Develop procedures for the emergency evacuation of areas identified on tsunami evacuation maps as these maps become available.
- GOVT-b-25 Develop a business continuity plan that includes back-up storage of vital records, such as essential medical records and financial information.

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

- GOVT-c-1 Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities.
- GOVT-c-2 Recognize that emergency services is more than the coordination of police and fire response, for it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services.
- GOVT-c-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 a capital improvement programs for most effectively reducing the threat of storm-induced flooding.

Number Specific Mitigation Strategy

- GOVT-c-4 As new flood-control projects are completed, request that FEMA revise its flood-insurance rate maps and digital geographic information system data to reflect flood risks as accurately as possible.
- GOVT-c-5 Participate in FEMA's National Flood Insurance Program.
- GOVT-c-6 Participate in multi-agency efforts to mitigate fire threat, such as the Hills Emergency Forum (in the east Bay), various *Fire Safe Council* programs, and city-utility task forces.
- GOVT-c-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-c-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-c-9 Conduct and/or promote attendance at local or regional hazard conferences and workshops for elected officials to educate the officials on the critical need for programs in mitigating earthquake, wildfire, flood, and landslide hazards.
- GOVT-c-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.

Education: Focus on Critical Facilities

- EDUC-a-1 Assess the vulnerability of critical education facilities to damage in natural disasters and make recommendations for appropriate mitigation.
- EDUC-a-2 Retrofit or replace critical 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 buildings from being functional after major disasters.
- EDUC-a-4 As a secondary focus, assess the vulnerability of non-critical educational 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.
- EDUC-a-5 Participate in or facilitate adoption of a program to formalize arrangements with structural engineers to report to the district, 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. Unlike the buildings of most special districts, however, these plans should be developed with the review and guidance of the Division of the State Architect because this agency has the authority and responsibility for the structural integrity of these structures.

Education: Use of Educational Facilities as Emergency Shelters

- EDUC-b-1 Work cooperatively with the American Red Cross and others 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.

Number Specific Mitigation Strategy

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

EDUC-c-1 Work on and/or support efforts by schools, local governments, and other agencies to utilize their unique ability 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.

EDUC-c-2 Work on and/or support joint efforts of schools and fire jurisdictions to develop plans 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 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.

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 and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparesnow.org> web site.

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 vegetation clearance programs for fire threat and seismic retrofits, 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 maintenance, optimizing forest 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 and maintains the viability of living rivers.

ENVI-a-6 Stay informed of emerging scientific information on the subject of rising sea levels, especially on additional actions that local governments can take to mitigate this hazard.

ENVI-a-7 Monitor the science associated with global warming to be able to act promptly when data become available to warrant special design and engineering of government-owned facilities located in low-lying areas, such as wastewater treatment plants, ports, and airports.

Number Specific Mitigation Strategy

- ENVI-a-8 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-9 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-10 Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters.
- ENVI-a-11 Enforce and/or comply with the hazardous materials requirements of the State of California Certified Unified Program Agency (CUPA).
- ENVI-a-12 Provide information on hazardous waste disposal and/or drop off locations.
- ENVI-a-13 Develop and implement a program to control invasive and exotic species that contribute to fire and flooding hazards (such as eucalyptus, cattails, and cordgrass).
- ENVI-a-14 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: Agricultural and Aquaculture Resilience

- ENVI-b-1 Maintain a variety of crops in rural areas of the region to increase agricultural diversity and crop resiliency.
- ENVI-b-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.
- ENVI-b-3 Remove septic tanks and other sources of contamination adjacent to economically-significant aquacultural and agricultural resources.
- ENVI-b-4 Encourage livestock operators to develop an early-warning system to detect animals with communicable diseases (due to natural causes or bioterrorism).

Land Use: Earthquake Hazard Studies for New 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 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-5 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-6 Require that local government reviews of geologic and engineering studies are conducted by appropriately trained and credentialed personnel.

Number Specific Mitigation Strategy

Land Use: Wildfire and Structural Fires

- LAND-b-1 Review 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 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: Hillside - Multi-hazard

- LAND-e-1 Establish a buffer zone between residential properties and landslide or wildfire hazard areas.
- LAND-e-2 Discourage, add additional mitigation strategies, or prevent construction 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 over constructing new infrastructure to serve outlying areas.
- LAND-f-2 Work to retrofit homes in older areas to provide safe housing close to job centers.
- LAND-f-3 Work to retrofit older downtown areas to protect architectural diversity and promote disaster-resistance.
- LAND-f-4 Protect as open space areas susceptible to extreme hazards.

Number	Specific Mitigation Strategy
LAND-f-5	Provide new buffers 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 due to an earthquake or terrorism. (Flooding might also result in release or spread of these materials, however it is unlikely.)

Exhibit C
Hazard Mitigation Grant Program (HMGP)
Pre-Disaster Mitigation Grant Program (PDM)

FACT SHEET

I. HAZARD MITIGATION GRANT PROGRAM (HMGP)

What is the Hazard Mitigation Grant Program?

Authorized under Section 404 of the Stafford Act, the Hazard Mitigation Grant Program (HMGP) administered by the Federal Emergency Management Agency (FEMA) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

Who is eligible to apply?

Hazard Mitigation Grant Program funding is only available to applicants that reside within a Presidentially declared disaster area. Eligible applicants are

- State and local governments
- Indian tribes or other tribal organizations
- Certain non-profit organizations

What types of projects can be funded by the HMGP?

HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. Examples of projects include, but are not limited to:

- Acquisition of real property for willing sellers and demolition or relocation of buildings to convert the property to open space use
- Retrofitting structures and facilities to minimize damages from high winds, earthquake, flood, wildfire, or other natural hazards
- Elevation of flood prone structures
- Development and initial implementation of vegetative management programs
- Minor flood control projects that do not duplicate the flood prevention activities of other Federal agencies
- Localized flood control projects, such as certain ring levees and floodwall systems, that are designed specifically to protect critical facilities
- Post-disaster building code related activities that support building code officials during the reconstruction process

What are the minimum project criteria?

There are five issues you must consider when determining the eligibility of a proposed project.

- Does your project conform to your State's Hazard Mitigation Plan?

- Does your project provide a beneficial impact on the disaster area i.e. the State?
- Does your application meet the environmental requirements?
- Does your project solve a problem independently?
- Is your project cost-effective?

II. **PRE-DISASTER MITIGATION GRANT PROGRAM (PDM)**

What is the Pre-Disaster Mitigation competitive grant program?

The Pre-Disaster Mitigation (PDM) competitive grant program provides funds to State, Tribal, and local governments for pre-disaster mitigation planning and projects primarily addressing natural hazards. Cost-Effective pre-disaster mitigation activities reduce risk to life and property from natural hazard events before a natural disaster strikes, thus reducing overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. Funds will be awarded on a competitive basis to successful Applicants for mitigation planning and project applications intended to make local governments more resistant to the pacts of future natural disasters.

Who can apply for a PDM competitive grant?

Eligible PDM competitive grant Applicants include State and Territorial emergency management agencies, or a similar office of the State, District of Columbia, U.S. Virgin Islands, Commonwealth of Puerto Rico, Guam, American Samoa, Commonwealth of the Northern Mariana Islands, and Federally-recognized Indian Tribal governments.

- ✓ Eligible Sub-applicants include State agencies; Federally-recognized Indian Tribal governments; and local governments (including State recognized Indian Tribal governments and Alaska native villages).
- ✓ Applicants can apply for PDM competitive grant funds directly to FEMA, while Sub-applicants must apply for funds through an eligible Applicant.
- ✓ Private non-profit organizations are not eligible to apply for PDM but may ask the appropriate local government to submit an application for the proposed activity on their behalf.

What are eligible PDM projects?

Multi-hazard mitigation projects must primarily focus on natural hazards but also may address hazards caused by non-natural forces. **Funding is restricted to a maximum of \$3M Federal share per project.** The following are eligible mitigation projects:

- ✓ Acquisition or relocation of hazard-prone property for conversion to open space in perpetuity;
- ✓ Structural and non-structural retrofitting of existing buildings and facilities (including designs and feasibility studies when included as part of the construction project) for wildfire, seismic, wind or flood hazards (e.g., elevation, flood proofing, storm shutters, hurricane clips);
- ✓ Minor structural hazard control or protection projects that may include vegetation management, Stormwater management (e.g., culverts, floodgates, retention basins), or shoreline/landslide stabilization; and,
- ✓ Localized flood control projects, such as certain ring levees and floodwall systems, that are designed specifically to protect critical facilities and that do not constitute a section of a larger flood control system.

Mitigation Project Requirements

Projects should be technically feasible (see Section XII. Engineering Feasibility) and ready to implement. Engineering designs for projects must be included in the application to allow FEMA to assess the effectiveness and feasibility of the proposed project. The project cost estimate should complement the engineering design, including all anticipated costs. FEMA has several formats that it uses in cost estimating for projects. Additionally, other Federal agencies' approaches to project cost estimating can be used as long as the method provides for a complete and accurate estimate. FEMA can provide technical assistance on engineering documentation and cost estimation (see Section XIII.D. Engineering Feasibility).

Mitigation projects also must meet the following criteria:

1. Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster, consistent with 44 CFR 206.434(c)(5) and related guidance, and have a Benefit-Cost Analysis that results in a benefit-cost ratio of 1.0 or greater (see Section X. Benefit-Cost Analysis). **Mitigation projects with a benefit-cost ratio less than 1.0 will not be considered for the PDM competitive grant program;**
2. Be in conformance with the current FEMA-approved State hazard mitigation plan;
3. Solve a problem independently or constitute a functional portion of a solution where there is assurance that the project as a whole will be completed, consistent with 44 CFR 206.434(b)(4);
4. Be in conformance with 44 CFR Part 9, Floodplain Management and Protection of Wetlands, and 44 CFR Part 10, consistent with 44 CFR 206.434(c)(3);
5. Not duplicate benefits available from another source for the same purpose, including assistance that another Federal agency or program has the primary authority to provide (see Section VII.C. Duplication of Benefits and Programs);
6. Be located in a community that is participating in the NFIP if they have been identified through the NFIP as having a Special Flood Hazard Area (a FHBM or FIRM has been issued). In addition, the community must not be on probation, suspended or withdrawn from the NFIP; and,
7. Meet the requirements of Federal, State, and local laws.

What are examples of Ineligible PDM Projects?

The following mitigation projects are ***not*** eligible for the PDM program:

- ✓ Major flood control projects such as dikes, levees, floodwalls, seawalls, groins, jetties, dams, waterway channelization, beach nourishment or re-nourishment;
- ✓ Warning systems;
- ✓ Engineering designs that are not integral to a proposed project;
- ✓ Feasibility studies that are not integral to a proposed project;
- ✓ Drainage studies that are not integral to a proposed project;
- ✓ Generators that are not integral to a proposed project;
- ✓ Phased or partial projects;
- ✓ Flood studies or flood mapping; and,

✓ Response and communication equipment.
