County of Alameda

Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan

Taming Natural Disasters

County of Alameda

County of Alameda

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County of Alameda

Introduction

Alameda County, with its 14 cities and unincorporated areas, is comprised of 813 square miles and a population of 1,556,657. Located on the east side of San Francisco Bay, the County has experienced its share of disasters, including the Loma Prieta Earthquake of 1989 and the Oakland Hills Fire Storm of 1991. The County, with 8,700 employees and an annual operating budget of $2.39 billion, currently owns and occupies approximately 5.7 million square feet of office and institutional space, leases another 1.1 million, and also owns, operates, and maintains bridges, dams, and other infrastructure. A map of the County's jurisdictional boundaries is provided in Exhibit A.

The Regional Planning Process

The County participated in various ABAG workshops, conferences, and meetings, including:

- Sub-regional meetings to review draft priorities and reach consensus on priorities for mitigation;
- 14 ABAG Regional Planning Committee meetings;
- 2 ABAG Executive Board meeting;
- Wildfire Workshop, and;
- 4 County/City Workshops

For more information on these meetings and for rosters of attendees, please see Appendix A and H in the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan 2010 (MJ-LHMP). In addition, the County has provided written and oral comments on the multi-jurisdictional plan and provided information on facilities that are defined as "critical" to ABAG.

The Local Planning Process

Representatives from multiple County departments met on a regular basis to identify and prioritize appropriate mitigation strategies. Personnel involved in these meetings included senior management and staff from the General Services Agency (GSA), Community Development Agency (CDA), Public Works Agency (PWA), Health Care Services Agency (HCSA), Public Health Department (PHD), Office of Emergency Services (OES), Sheriff's Office (ACSO), and Fire Department (ACFD). The group was made up of architects, planners, building department officials, facility managers, civil engineers, public health specialists, emergency managers, and sheriff and fire officials.

At the first meeting, general priorities and appropriate County departments were identified. Subsequent meetings identified mitigation strategies, prioritized said strategies, and reviewed preliminary budgets and potential funding sources for strategies designated as "High" priority for County-owned-and-operated facilities

Public Meetings

Opportunity for public comments on the DRAFT mitigation strategies was provided at a public meeting at GSA headquarters on September 28 in Oakland from 6pm to 8 pm and advertised on the County website. The draft mitigation strategies were also published on the County website for public viewing. No public comments were received from either the meeting or the internet posting. Copies of the internet posting are included as Exhibit B to the Alameda County Annex.

The County Board of Supervisors will adopt the plan in a public meeting via an official Board Resolution upon approval by FEMA. The mitigation strategies will become an implementation appendix of the Safety Element of the County's General Plan.

Hazards Assessment

The ABAG multi-jurisdictional Local Hazard Mitigation Plan, to which this is an annex, lists nine hazards that impact the Bay Area, five related to earthquakes (faulting, shaking, earthquake-induced landslides, liquefaction, and tsunamis) and four related to weather (flooding, landslides, wildfires, and drought). Maps of these hazards and risks are shown on the ABAG website at http://quake.abag.ca.gov/mitigation/.

The County has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquakes (particularly shaking), flooding (including dam failure), wildfire, and landslides (including unstable earth) pose a significant risk for potential loss.

Alameda County does not face any natural disasters not listed in the ABAG multi-jurisdictional plan and no new hazards have been identified by the County since the original development of this plan in 2005.

While the County has undertaken a number of general hazard mapping activities since its first Safety Element was prepared, most of these maps are less detailed and are not as current as those shown on the ABAG website at http://quake.abag.ca.gov/mitigation/. However, some additional maps developed by the County for earthquakes and wildfires are included as Exhibit C.

Past Occurrences Of Disasters (natural and human-induced)

The County has experienced a number of different disasters over the last 50 years, including numerous earthquakes, floods, droughts, wildfires, energy shortages, civil disturbances, landslides, and severe storms. The Oakland Hills Firestorm of 1991, for example, ranks as one of the worst wildland-urban firestorm disasters to ever strike the United States with 25 deaths, 150 injuries, and the displacement of over 10,000 persons. With destruction and damage to over 3,400 residential units, losses were in excess of $1.5 Billion.

The Loma Prieta Earthquake of 1989 is another example of the kind of large scale disaster which can strike the Bay Area. It killed 63 persons, injured 3,757, and displaced over 12,000 persons. With over 20,000 homes and businesses damaged and over 1,100 destroyed, this quake caused approximately $6 Billion of damage. Reconstruction continues some two decades later as the replacement for Oakland-Bay Bridge is still several years from completion.

The County has had a number of landslides in the hills on the east side of the County, including one that damaged 12 homes in 1980.

More information on State and Federally declared disasters in Alameda County can be found at http://quake.abag.ca.gov/mitigation/ThePlan-D-Version-December09.pdf

In addition to the declared disasters noted in Appendix D, locally significant incidents that have also impacted Alameda County in the last several years include:

- November 2009 -Takeover of Wheeler Hall, UC Berkeley. Students protesting Increased Fees. Law Enforcement Mutual Aid from surrounding cities and Alameda County. UC Berkeley activated their EOC, Alameda County OES monitored situation.
- January 2009 – Mehserle Shooting. Civil Disturbance. City of Oakland activated their EOC. Alameda County monitored situation.
- Weather, Summer Heat and Winter Cold. During weather extremes Alameda county OES monitors situation with cities that are affected.
- May 2009 Vehicle vs Tanker truck. Gasoline spill in city of Dublin. City had partial activation. Alameda County OES monitoring situation.
- February 27, 2010 – Chile Earthquake/Tsunami. State EOC activated. Alameda County EOC monitored situation.
- July 8th 2010 – Mehserle Verdict. Civil Disturbance. City of Oakland activated its command post and main staging areas and requested mutual aid from other law enforcement agencies within Alameda County (including AC Sheriff's Office).

Risk Assessment

Urban Land Exposure

The County examined the hazard exposure of unincorporated Alameda County urban land based on information in ABAG's website at http://quake.abag.ca.gov/mitigation/pickdbh2.html. The "*2005 Existing Land Use with 2009 Mapping*" file was used for this evaluation (in the existing plan, the file used was "*Existing Land Use in 2000*").

In general, the hazard exposure of the county is increasing over time as the amount of urban land increases (In the last 5 years, 2,655 acres of land has become urban). Alameda County actually reduced the acres of urban land in the 100 year flood zone over the last 5 years due to certification of several levees in the County which removed those areas from

the flood plain. The following table described the exposure of urban land within the unincorporated County to the various hazards.

Exposure (acres of urban land)			
Hazard	**2005**	**2010**	**Change**
Total Acres of Urban Land	*33,366*	*36,021*	*2,655*
Earthquake Faulting (within CGS zone)	1,594	2,054	460
Earthquake Shaking (within highest two shaking categories)[1]	17,593	18,638	1,045
Earthquake-Induced Landslides (within CGS study zone)[2]	2,766	4,965	2,199
Liquefaction (within moderate, high, or very high liquefaction susceptibility	9,095	11,212	2,117
Flooding[3] (within 100 year floodplain)	1,010	984	(26)
Flooding (within 500 year floodplain)	900	1,430	530
Landslides (within areas of existing landslides)[4]	3,999	4,466	467
Wildfire (subject to high, very high, or extreme wildfire threat)[5]	15,686	13,981	(1,705)
Wildland-Urban Interface Fire Threat	10,178	11,100	922
Dam Inundation (within inundation zone)	4,334	4,597	263
Tsunamis[6] (within inundation area)	not applicable		
Drought[7]	33,366	36,021	2,655

[1] In large part because the Hayward, Greenville, and Calaveras fault systems run through the County.
[2] The California Geological Survey continues to map Alameda County and added the Livermore-Altamont area in late 2009. Though some areas of the County have not yet been completely mapped, the densely populated areas in Alameda County are mostly done.
[3] The decrease of 26 acres is due to better and more accurate mapping.
[4] The California Geological Survey continues to map Alameda County and added the Livermore-Altamont area in late 2009. Though some areas of the County have not yet been completely mapped, the densely populated areas in Alameda County are mostly done.
[5] The decrease is due to better and more accurate mapping.
[6] Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.
[7] The entire Alameda County unincorporated area is subject to drought.

Infrastructure Exposure

The County also examined the hazard exposure of infrastructure within the unincorporated County based on the information on ABAG's website at http://quake.abag.ca.gov/mitigation/pickdbh2.html. The *"Existing Infrastructure, 2004"* file was used for this evaluation. It was determined that the infrastructure data did not need to be updated for this plan, but the data was re-evaluated against the newest hazard maps available.

Exposure (miles of infrastructure)						
Hazard	**Roadway**		**Transit**		**Rail**	
	2005	**2010**	**2005**	**2010**	**2005**	**2010**
Total Miles of Infrastructure	*1,524*	*947*		*34*		*52*
Earthquake Shaking (within highest two shaking categories)		537		18		23
Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility		360		18		6
Liquefaction Hazard (within CGS study zone)[1]		222		8		11
Earthquake-Induced Landslides (within CGS study zone)[2]		61		4		6
Earthquake Faulting (within CGS zone)		59		2		2
Flooding (within 100 year floodplain)		10		0		1
Flooding (within 500 year floodplain)		46		0		1
Landslides (within areas of existing landslides)		116		5		7
Wildfires (subject to high, very high, or extreme wildfire threat)		359		16		30
Wildland-Urban Interface Fire Threat		283		7		12
Dam Inundation (within inundation zone)		123		9		21
Tsunamis[3] (within inundation area)	not applicable					
Drought[4]	not applicable					

[1] 1,083 miles of roadway, 3 miles of transit, and 21 miles of rail are outside the area that has been evaluated by CGS for this hazard
[2] The California Geological Survey continues to map Alameda County and added the Livermore-Altamont area in late 2009. Though some areas of the County have not yet been completely mapped, the densely populated areas in Alameda County are mostly done. 1,083 miles of roadway, 3 miles of transit, and 21 miles of rail are outside the area that has been evaluated by CGS for this hazard
[3] Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. Miles of exposed infrastructure is not an appropriate analysis for this hazard. This map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.
[4] Miles of exposed infrastructure is not an appropriate analysis for this hazard.

Exposure of County-Owned Buildings, Critical Healthcare Facilities, and Schools

Finally, the County examined the hazard exposure of critical health care facilities and schools located within the unincorporated County, and County-owned buildings based on the information on ABAG's website at http://quake.abag.ca.gov/mitigation/pickcrit2010.html and compared it to the data available from the 2005 plan year at http://quake.abag.ca.gov/mitigation/pickcrit.html. The County provided a list of the critical facilities it owns to ABAG. ABAG provided a detailed assessment of the hazard exposure of each of its facilities. The following number of facilities is exposed to the various hazards analyzed.

Exposure (number of facility types)								
Hazard	**Hospitals**		**Schools**		**Locally owned bridges and interchanges**		**Locally owned critical facilities**	
	Plan Year 2007	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**
Total Number of Facilities	*3*	*4*	*36*	*53*	*53*	*54*	*15*	*22*
Earthquake Shaking (within highest two shaking categories)	3	4	31	38	29	927	6	9
Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility	0	3	16	28	25	4	2	10
Liquefaction Hazard (within CGS study zone)[1]	2	2	15	23	15	17	2	5
Earthquake-Induced Landslides (within CGS study zone)[2]	0	4	0	43	2	34	6	11
Earthquake Faulting (within CGS zone)	0	1	0	0	2	2	0	5
Flooding (within 100 year floodplain)	1	0	1	0	3	3	0	1
Flooding (within 500 year floodplain)	1	1	0	7	0	2	0	0

[1] Two county-owned critical facilities are outside the area that has been evaluated by CGS for this hazard
[2] The California Geological Survey continues to map Alameda County and added the Livermore-Altamont area in late 2009. Though some areas of the County have not yet been completely mapped, the densely populated areas in Alameda County are mostly done.

Exposure (number of facility types)								
Hazard	**Hospitals**		**Schools**		**Locally owned bridges and interchanges**		**Locally owned critical facilities**	
	Plan Year 2007	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**	**Plan Year 2007**	**Plan Year 2010**
Landslides (within areas of existing landslides)	0	0	0	0	4	7	2	2
Wildfires (subject to high, very high, or extreme wildfire threat)	0	0	3	3	25	25	3	9
Wildland-Urban Interface Fire Threat	0	0	16	6	10	6	2	1
Dam Inundation	0	0	4	4	8	1	0	6
Sea Level Rise (within 16 in inundation zone)	-	0	-	0	-	0	-	0
Sea Level Rise (within 55 in inundation zone)	-	0	-	0	-	0	-	0
Tsunamis[3] (within inundation area)	-	0	-	0	-	0	-	0
Drought[4]	-	-	-	-	-	-	-	-

[3] Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.
[4] Drought will not affect locally owned facilities directly.

Repetitive Loss Properties

There are only two repetitive loss properties in the unincorporated areas of the County based on the information at http://quake.abag.ca.gov/mitigation/pickflood.html. In 2004 the County had one repetitive loss property that was outside the flood plain.

Other Risks

The County has used HAZUS to depict in map form several additional risks to the County, including Distribution of IHSS cases in Alameda County, estimated concrete, steel debris and highway damage in a Hayward fault earthquake scenario, estimated highway infrastructure damage in a Hayward fault earthquake scenario, estimated impaired hospitals in a Hayward fault earthquake based on hospital beds and highway functionality. These maps, attached as **Exhibit C**, are used by the Sheriff and Fire Departments for emergency planning purposes. ABAG has evaluated hospitals and infrastructure which are located in areas of high shaking and given that information to the county for each facility. The data is summarized in the Risk Assessment section of this annex.

The County plans to work with ABAG to develop specific information about the kind and level of damage to buildings, infrastructure, and critical facilities which might result from any of the hazards previously noted.

National Flood Insurance Program

The Alameda County Flood Control District has participated in the National Flood Insurance Program since 1981. Since 1992, the District has also participated in the Community Rating System and is currently class 7. The District continues to strive to reach the highest possible rating under the Community Rating System by complying with all FEMA NFIP requirements. The District's dedicated participation in the program beyond the standard requirements of NFIP's Floodplain Management means that Flood Hazard Area residents of the Unincorporated areas of the County have been qualified by FEMA for a reduction in their flood insurance premium. The District does not currently use any flood hazard maps to evaluate flood hazard other than FEMA digital flood insurance rate maps available on the ABAG website at http://www.abag.ca.gov/bayarea/eqmaps/eqfloods/floods.html.

Alameda County has several existing mitigation strategies aimed at reducing flood losses:

- Balance the housing needs of residents and the need for private commercial and industrial development against the risk from potential flood-related hazards. (HSNG-h-2, ECON-f-2)
- Ensure that new private development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, or does not increase runoff by draining water to pervious areas or detention facilities. (HSNG-h-3, ECON-f-3)
- Apply floodplain management regulations for private development in the floodplain and floodway. (HSNG-h-6, ECON-f-6)
- Ensure that new subdivisions are designed to reduce or eliminate flood damage by requiring lots and rights-of-way be laid out for the provision of approved sewer and drainage facilities, providing on-site detention facilities whenever practicable. (HSNG-h-7)
- Encourage home and apartment owners to participate in home elevation programs within flood hazard areas. (HSNG-h-8)
- Require an annual inspection of approved flood-proofed privately-owned buildings to ensure that (a) all flood-proofing components will operate properly under flood conditions and (b) all responsible personnel are aware of their duties and responsibilities as described in their building's Flood Emergency Operation Plan and Inspection & Maintenance Plan. (ECON-f-9)

Mitigation Goals and Objectives

The goal of the ABAG MJ-LHMP is to maintain and enhance a disaster-resistant region by reducing the potential for loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters. This goal remains unchanged for the 2010 plan.

In addition, the County has the specific objective of reducing the number of public and private buildings within the County that are vulnerable to the effects of earthquakes.

Mitigation Activities and Priorities

Evaluation of Progress from 2007 Plan

In 2006 and 2007, mitigation actions and priorities were identified. The attached list, Exhibit D in the Alameda County 2010 Annex, indicates each of the strategies identified, along with responsible party, action taken, and current status of progress.

Future Mitigation Actions and Priorities

As a participant in the 2010 ABAG multi-jurisdictional planning process, the staff of Alameda County helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan (Exhibit E). The decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage. Representatives from multiple County departments then met on a regular basis to review progress on the County's 2007 strategies, to identify and prioritize additional mitigation strategies to update the list (Exhibit D).

The County Planning team also prioritized specific mitigation tasks for the next 5 years. This list, Future Mitigation Projects (Exhibit F), includes implementation process, funding strategy, and approximate time frame. Prioritization of the specific mitigation tasks was done using the STAPLEE criteria and then submitted to County Agency Directors and the County Administrator's Office for review. The draft priorities will be provided to the County Board of Supervisors for adoption pending approval of this LHMP by FEMA.

On-Going Mitigation Strategy Programs

The County has many on-going mitigation programs which help create a more disaster-resistant region. The following list highlights those programs identified as *Existing Programs* in the mitigation strategy spreadsheet. Others are on-going programs that are currently underfunded. It is the County's priority to find additional funding to sustain these on-going programs over time.

- Vulnerability assessments of County facilities and infrastructure (GOVT-a-1) – Ongoing, but underfunded;
- Non-structural mitigation for building contents (GOVT-a-4) – Underfunded;

- Installation of micro and/or surveillance cameras at critical public assets tied to web-based software (GOVT-a-6), ongoing;
- The County continues to develop interoperability of communications for first responders via the East Bay Regional Communications Systems and the Communications Interoperability Plan, and coordinates these activities with the State of California. (GOVT-c-7) – ongoing;
- The County operates under the auspices of SEMS and provides ongoing training for staff when appropriate. (GOVT-c-12) – ongoing;
- The County operates under the auspices of the Mutual Aid Agreement. (GOVT-c-13);
- The County received a planning grant from FEMA to develop plans for upgrading its levees. The plans are complete and the County will start construction in August 2010.
- The County conducts watershed analysis of runoff and drainage systems to predict areas of insufficient capacity in the storm drain and natural creek systems (INFR-d-1, INFR-d-2, INFR-d-3).
- The County continues to make repairs and structural improvements to storm drains, pipelines, and channels to ensure their design capacity for handling water flows. (INFR-d-6, INFR-d-7
- Alameda County participates in FEMA's National Flood Insurance Program and works to reduce flood risk. (GOVT-d-5)
- The County has developed a new Grading Ordinance (HSNG-h-2, ECON-g-2).
- The County conducts training for Community Emergency Response Teams 3 times a year (GOVT-c-3, ECON-J-5, HSNG-K-6).
- The County has developed Family Plan Templates and posted information on the Public Health website for public and private preparedness for health emergencies (HEAL-a-7).

Incorporation into Existing Planning Mechanisms

The County has several planning mechanisms which

- General plan safety element
- Capital Improvements Plan
- Alameda County Community Climate Action Plan http://acgov.org/cda/planning/landuseprojects/climateaction/index.htm
- Alameda County Climate Action Plan http://acgov.org/sustain/next/plan.htm
- Alameda County Strategic Vision http://acgov.org/strategic.htm
- Multi-agency incorporation into day-to-day operations.

The County has a Safety Element in its General Plan that includes a discussion of fire, earthquake, flooding, and landslide hazards. This plan was adopted as an implementation appendix to the Safety Element. In addition, the County enforces the requirements of the

California Environmental Quality Act (CEQA), which, since 1988, requires mitigation for identified natural hazards. The County has used these pre-existing programs as a basis for identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Plan Update Process

As required Disaster Mitigation Act of 2000, the County of Alameda will update this plan annex at least once every five years, by participating in a multi-agency effort with ABAG and other agencies to develop a multi-jurisdictional plan.

The County General Services Agency will ensure that monitoring of this Annex will occur. The plan will be monitored on an on-going basis. However, the major disasters affecting our County, legal changes, notices from ABAG as the lead agency in this process, and other triggers will be used. Finally, the Annex will be a discussion item on the agenda of the meeting of Department leaders at least once a year in April. At that meeting, the department heads will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. The Department leaders will be responsible for determining if the plan should be updated.

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

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

Mitigation Plan Point of Contact

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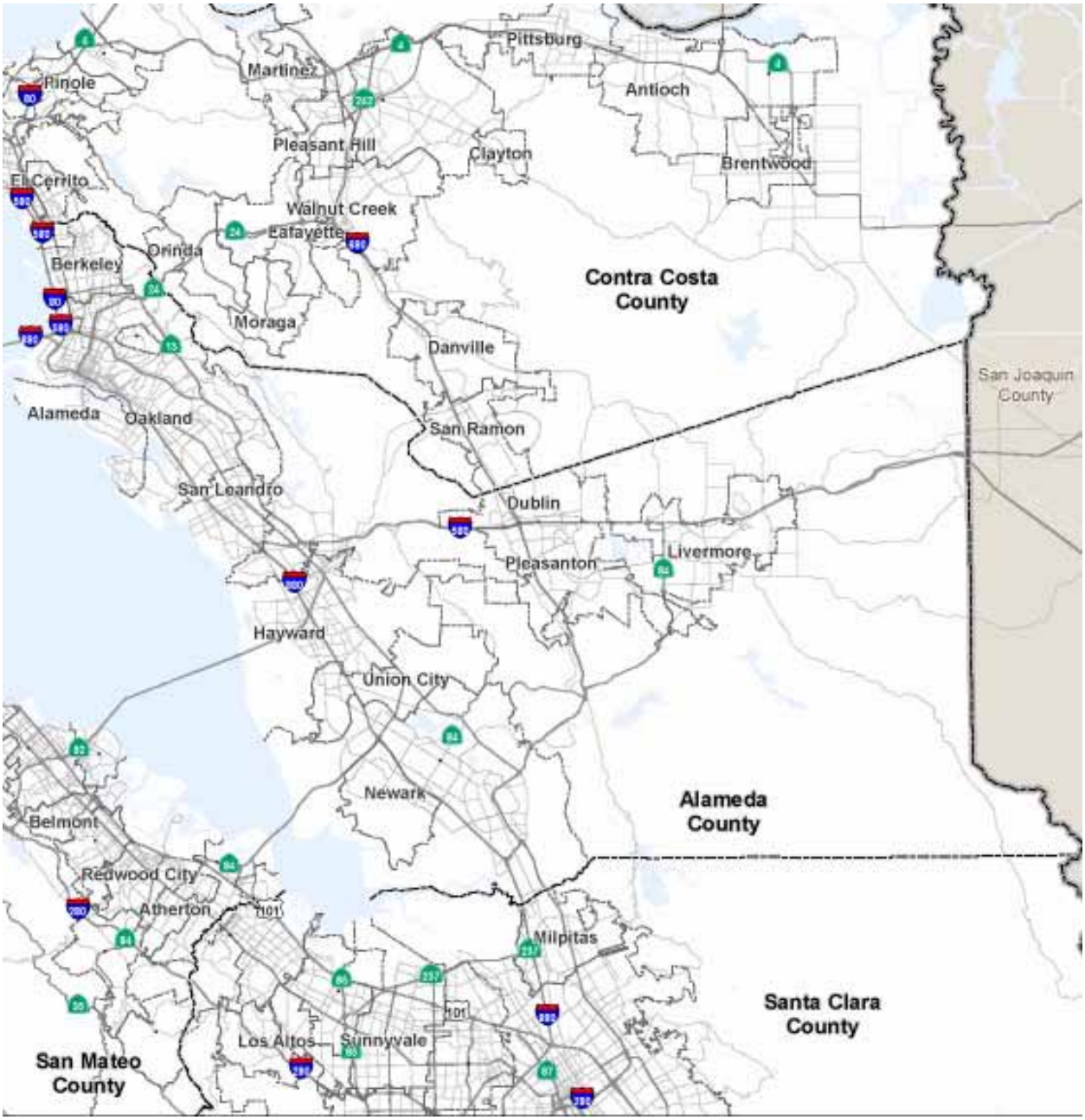
County of Alameda

Exhibit A – Jurisdiction Boundary Map



County of Alameda

Exhibit B – Public Meeting Announcements

LOCAL HAZARD MITIGATION PLAN

Major natural disasters strike the United States every year causing deaths and injuries to our citizens and billions of dollars in property damage. Hurricanes, tornadoes, wildfires, floods, and earthquakes are some of the most common natural disasters we face. We know that the Bay Area will most likely suffer the effects of a major disaster in the coming years.

Disasters are not just events in a single point of time either. Rebuilding and recovery efforts last for many years, sapping the vitality out of local economies by diverting resources from other public and private endeavors. Disasters also have significant impacts on landfills and the environment, as enormous amounts of energy and natural resources are required to rebuild. This in turn stretches our landfills to their limits with the extensive amounts of debris and reconstruction waste generated.

Given the trend towards ever-increasing impacts of natural and human-induced disasters, experts in both the public and private sectors began promoting the concept of *pre-disaster mitigation planning*. Defined as "sustained activities to reduce or eliminate long-term risk to people and property from hazards and their effects", its purpose is to reduce the potential loss of life, property damage, and environmental degradation from natural disasters and minimize the time and cost of response and recovery.

In light of these developments, the Disaster Mitigation Act of 2000 (Public Law 106-390) was signed into law by President Clinton in October of 2000. It reinforces the importance of mitigation activities at the local government level and emphasizes planning for disasters *before they occur*. As such, DMA 2000 enshrines pre-disaster hazard mitigation planning as its central core and has requirements for national post-disaster mitigation programs as well. The Act requires all state and local governments to develop a plan based on FEMA guidelines. Key components of a mitigation plan include hazard identification, asset inventory, risk analysis and loss estimation, and a plan to reduce the effects the identified hazards will have. In addition, these plans must be updated periodically with public input.

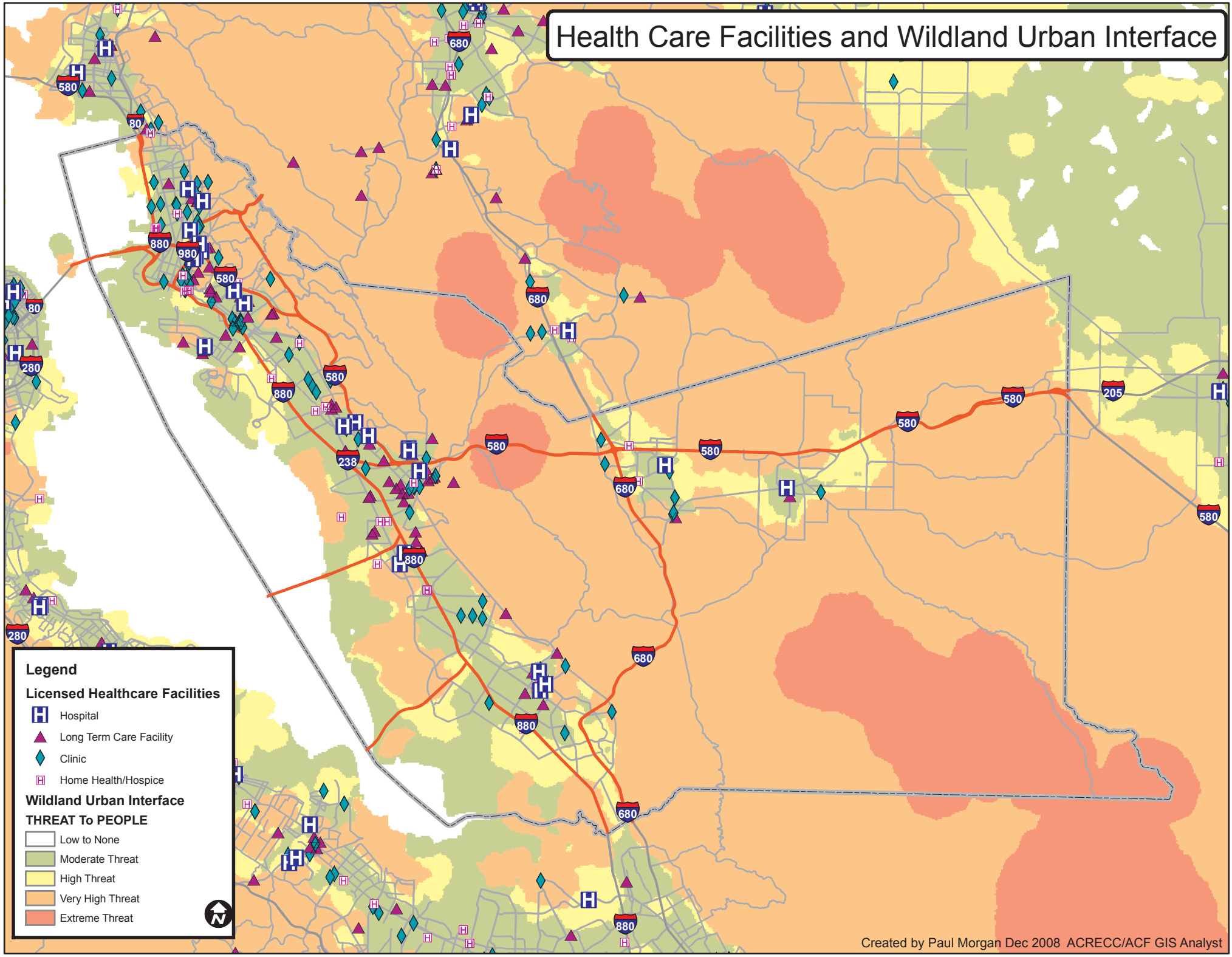
The following information and links show how Alameda County is working with the Association of Bay Area Governments (ABAG) and other local jurisdictions to update the current plan via ABAG's multi-Jurisdictional Local Hazard Mitigation Plan (MJ-LHMP) for the Bay Area.

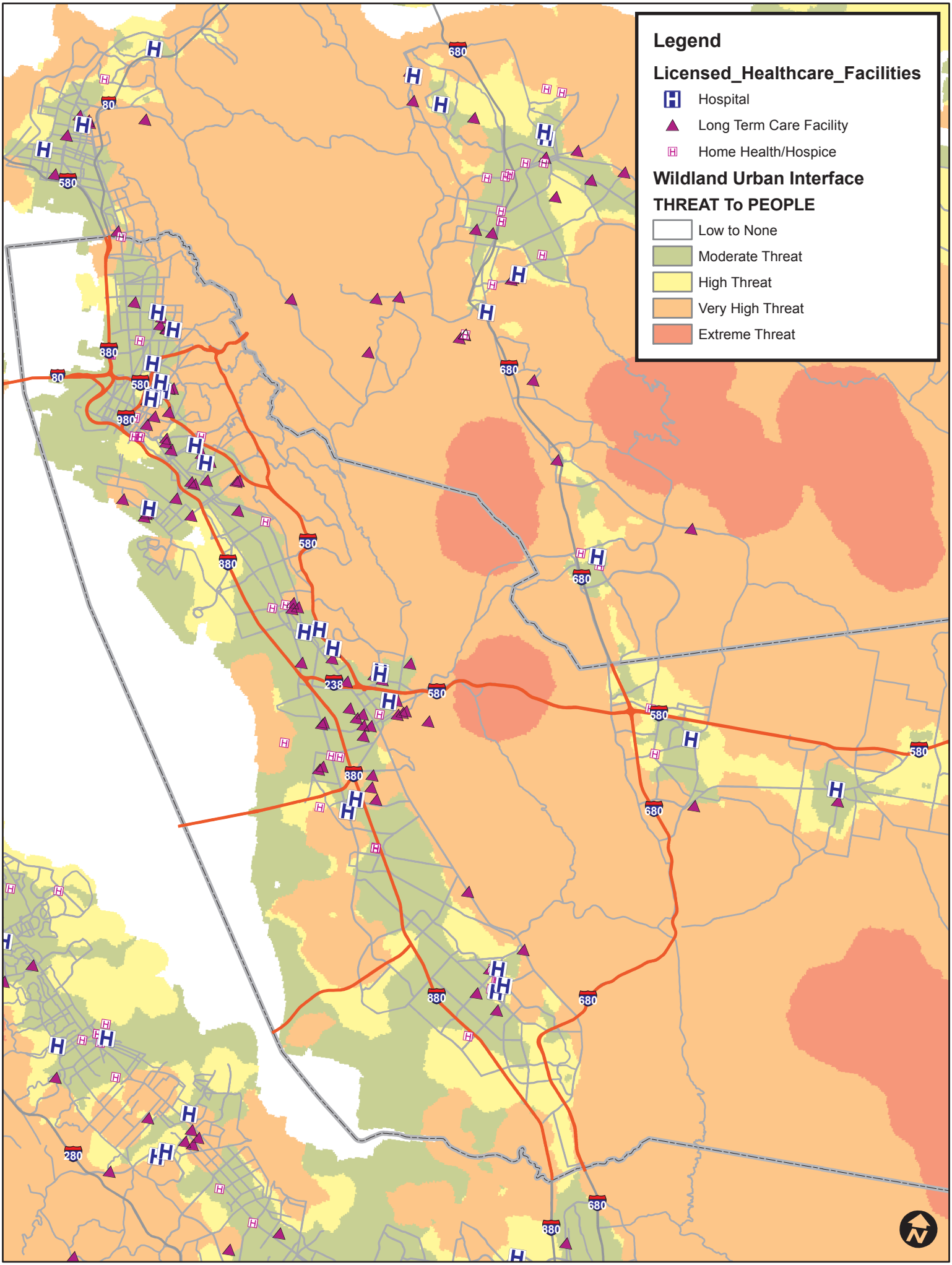
Public input for Alameda County's plan is encouraged. As such, a public meeting to discuss Alameda County's mitigation strategies will be held on **September 28** from 6pm to 8 pm at 1401 Lakeside Drive, Conference Room 1107, 11th Floor, in Oakland. Here is a map to the location: http://maps.yahoo.com/#mvt=m&lat=37.801157&lon=-122.262897&zoom=17&q1=1401%20Lakeside%20Drive%2C%20oakland%20ca.

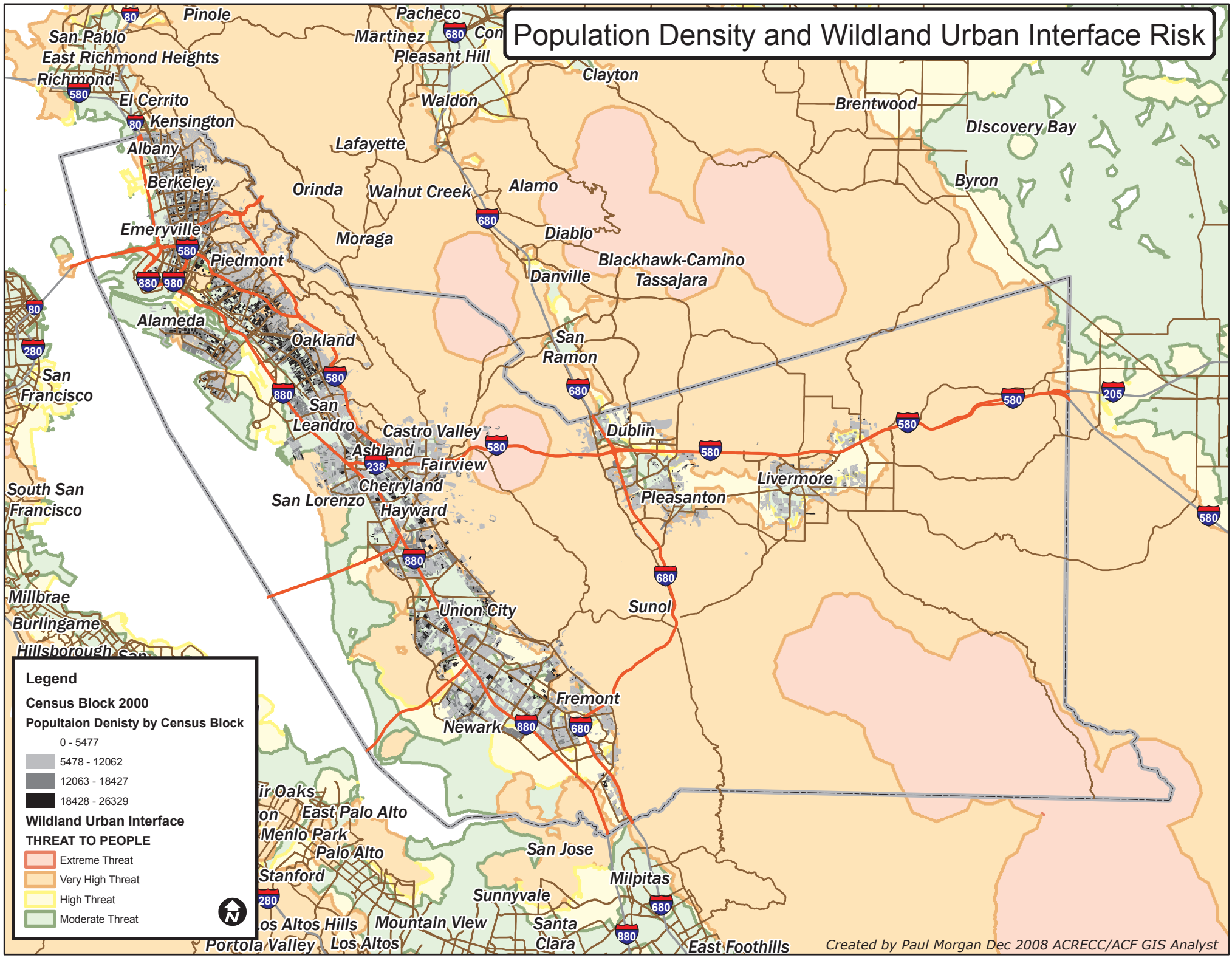
To view the mitigation strategy priorities Alameda County is considering, follow this link http://quake.abag.ca.gov/mitigation/resources.html and click on "New City and County Template.

- To learn more about pre-disaster mitigation planning, visit FEMA's website at http://www.fema.gov/plan/mitplanning/index.shtm
- To learn more about the State of California's FEMA-approved mitigation plan, see http://hazardmitigation.calema.ca.gov/plan/state_multi-hazard_mitigation_plan_shmp
- To see Alameda County's current FEMA-approved plan that was part of ABAG's multi-jurisdictional effort, see http://quake.abag.ca.gov/mitigation/plan.html . Scroll down to "Alameda County Local Governments" and click on Alameda County's "Annex" and "Resolution."
- To see ABAG's informative power point presentation on mitigation, click on this link: http://quake.abag.ca.gov/mitigation/resources.html and scroll down to **NEW** 2009 SAMPLE PowerPoint **Slide Show** on LHMP and Development of LOCAL Mitigation Strategy Priorities.

Exhibit C – Additional Maps


Health Care Facilities and Wildland Urban Interface
Legend
Licensed Healthcare Facilities
Hospital
Long Term Care Facility
Clinic
Home Health/Hospice
Wildland Urban Interface
THREAT To PEOPLE
Low to None
Moderate Threat
High Threat
Very High Threat
Extreme Threat
Created by Paul Morgan Dec 2008 ACRECC/ACF GIS Analyst


Legend
Licensed_Healthcare_Facilities
Hospital
Long Term Care Facility
Home Health/Hospice
Wildland Urban Interface
THREAT To PEOPLE
Low to None
Moderate Threat
High Threat
Very High Threat
Extreme Threat
80
580
680
880
980
238
280


Population Density and Wildland Urban Interface Risk
Pinole
Pacheco
Martinez
Pleasant Hill
San Pablo
East Richmond Heights
Richmond
El Cerrito
Kensington
Albany
Berkeley
Emeryville
Piedmont
Alameda
Oakland
San Francisco
South San Francisco
Millbrae
Burlingame
Hillsborough
San Leandro
Castro Valley
Ashland
Fairview
Cherryland
San Lorenzo
Hayward
Union City
Fremont
Newark
Sunol
Pleasanton
Livermore
Dublin
San Ramon
Danville
Blackhawk-Camino Tassajara
Diablo
Alamo
Walnut Creek
Orinda
Moraga
Lafayette
Waldon
Clayton
Brentwood
Discovery Bay
Byron
East Palo Alto
Menlo Park
Palo Alto
Stanford
San Jose
Milpitas
Sunnyvale
Mountain View
Los Altos Hills
Portola Valley
Los Altos
Santa Clara
East Foothills
Legend
Census Block 2000
Popultaion Denisty by Census Block
0 - 5477
5478 - 12062
12063 - 18427
18428 - 26329
Wildland Urban Interface
THREAT TO PEOPLE
Extreme Threat
Very High Threat
High Threat
Moderate Threat
Created by Paul Morgan Dec 2008 ACRECC/ACF GIS Analyst

County of Alameda

Exhibit D – Evaluation of Mitigation Progress from 2007 Plan

STATUS OF 2007 MITIGATION PROJECTS AND STRATEGIES

No.	Mitigation Project	2010 MJ-LHMP Strategy Number	Responsible Agency	Action Taken	Status	Comments
1	Seismically Retrofit 3 Fire Stations	GOVT-a-2	GSA and ACFD	Submitted NOI to apply for Pre-disaster Mitigation Grant July 2010 for FS 25.	PDM grant application not awarded in 2007.	Retrofit FS 24 (old #3), 25 (old #4), & 7 per Seismic Study dated September 2000.
2	Construct 4 new Replacement Fire Stations	GOVT-a-3	GSA and ACFD	Applied for AARA 2009 Federal Grant	Not funded	Replace FS 22 (old #1), 23 (old #2), & 26 (old #5), and 8 per Seismic Study dated September 2000
3	Pre-Disaster Planning	GOVT-b-2	All Departments	underway	Planning Phase	Develop pre-disaster plans such as COG / COOP Plans, and Post-Disaster Recovery plans.
4	Upgrade the levee system	INFR-b-2	PWA	Underway	Planning grant awarded for design, design complete	Upgrade to Alameda Creek levee system -- construction starts in early August 2010.
5	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-1, INFR-d-2, INFR-d-3	PWA Flood Control District	Underway	Awarded	Completed Zone Nos. 3A and 4; awarded contract for Zone No. 6; Zone Nos. 2, 2A, 5, 9, 12 & 13 still in planning stage.
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-6, INFR-d-7	PWA Flood Control District	underway	ongoing program	This is financed via County funding.
7	Conduct an inventory of existing or suspected soft-story residentia commercial and industrial structures	HSNG-c-4, ECON-b-4	PWA	On Hold	Awaiting for funding	Due to lack of funding and staff resource, this project has been put on hold.
8	Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally suspicious buildings	HSNG-e-2, ECON-d-1	PWA	On Hold	Awaiting for funding	Due to lack of funding and staff resource, this project has been put on hold. This item will be merged with Item #7 for 2010 project.
9	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 Nationa Flood Insurance Program	HSNG-h-1, ECON-f-1	PWA Flood Control District	Ongoing	Class 7.	At current class level, 15% reduction for area residents. Should reach Class 6 in the next year or two. Ongoing work in this area is a County standard operating procedure.
10	Increase efforts to reduce landslides and erosion in existing and future development through continuing education of design professionals on mitigation strategies	HSNG-i-2, ECON-g-2	CDA and PWA	Reviewed & enhenced development processes implementing State and Local Ordinances	Ongoing	Procedures are in place to enhanced the enforcement of Seismic Hazards Map Act, Alameda County Grading and Erosion Control, and watercourse protection ordinances in the development processes by coordinating with BID and CDA to advise developers and design professionals in the land use entitlement processes to evaluate developments in compliance with regulations. Staff completed the updated revisions to the 1978 Alameda County Grading Ordinance and is scheduling for the Board of Supervisor's adoption.
11	Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards	LAND-c-2	PWA Flood Control District	FEMA flood design guidelines has been incorporated into development process and building permit processes	Ongoing	Procdures are in place to track each building permit and development project in flood zone to ensure proposed project is in compliance with FEMA flood design guidelines and ASCE Standard 24-05 for flood design.

No.	Mitigation Project	2010 MJ-LHMP Strategy Number	Responsible Agency	Action Taken	Status	Comments
12	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	HSNG-h-7	PWA Flood Control District	FEMA flood design guidelines has been incorporated into development process and building permit processes	Ongoing	Procdures are in place to track each building permit and development project in flood zone to ensure proposed project is in compliance with FEMA flood design guidelines and ASCE Standard 24-05 for flood design. (Same as Item 11 above)
13	Sponsor the formation and training of Community Emergency Response Teams (CERT) through partnerships with local businesses	GOVT-c-3, ECON-j-5, HSNG-k-6	ACFD	CERT program established in 2007	ongoing program	Conduct on average 3 classes/year in district
14	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-e-1, HSNG-g-1, HSNG-g-4	ACFD		Deferred	
15	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	HEAL-a-7	PHD	Family plan templates developed and posted on PH website.	ongoing	PH website is being redesigned to included additional resources for public and private agencies. Public Health emergency preparedness program has moved to all hazards planning and response.
16	Continue to develop response plans, exercises, and tools for public and private stakeholders to respond to natural and man made disasters.	HEAL-a-7	PHD	Ongoing	ongoing program	Alameda County BT/Public Health Emergency Response Program is recognized by the CDC and state for its innovative ideas and tool development. Currently products are shared with other health departments in the region.

Exhibit E – Future Mitigation Projects

2010 - 2015 MITIGATION PROJECTS

No.	Mitigation Project	2010 MJ-LHMP Strategy Number	Applies to New or Existing Assets	Primary Hazard Mitigation Target	Responsible Agencies	Implementation	Estimated Cost	Anticipated Funding Sources	Anticipated Schedule	Comments
1	Seismically Retrofit 3 Fire Stations	GOVT-a-2	Existing	Earthquake	GSA and ACFD	Seismic study completed which identified those fire stations needing retrofit. Design and construction will occur when funding becomes available.		Submitted NOI to apply for Pre Disaster Mitigation Grant July 2010 for FS 25	Implementation will begin as soon as funding is awarded.	Retrofit FS 24 (old #3), 25 (old #4), & 7 per Seismic Study dated September 2000.
2	Construct 4 new Replacement Fire Stations	GOVT-a-2	New	Earthquakes	GSA and ACFD	Seismic study completed which identified those fire stations requiring replacement. Design and construction will occur when funding becomes available.		Applied for ARRA 2009 Federal Grant	Implementation will begin as soon as funding is awarded.	Replace FS 22 (old #1), 23 (old #2), & 26 (old #5), and 8 per Seismic Study dated September 2000
3	Pre-Disaster Planning	GOVT-b-2	New and Existing	All Hazards	All Departments	See attached heirarchy of mitigation and emergency plans for the County and identification of plans that still need to be completed. See Exhibit G of the Alameda County Annex		Various County agencies and departments will seek appropriate funding	Various plans are under way or planned for the near future.	Develop pre-disaster plans such as COG / COOP Plans, Post-Disaster Recovery, Medical and Health Disaster Ops Plan, PH DOC Plan, Surge/Alternate Care Site (ACS) Plan. In addition, develop Pediatric Disaster and ACS Regional Planning, training conferences, resources, and communications.
4	Conduct an inventory of existing or suspected soft-story, non-ductile concrete, tilt-up concrete, URM, and other publicly and privately-owned structurally suspicious buildings.	HSNG-c-4, ECON-b-4	Existing County-owned facilities and private-sector facilities in the unincorporated sections of Alameda County.	Earthquakes	PWA-BID	County has begun to identify multi-family buildings through Assessor's database and preparing list for buildings to investigate. County believes numbers of URM buildings still needing retrofit to be relatively small.	$200K to $300K	Plan to seek grant through FEMA or other appropriate sources	Implementation will begin as soon as funding is awarded.	County will seek ABAG assistance to identify potentially vulnerable structures and develop a plan for retrofitting them.
5	Conduct training for Community Emergency Response Teams (CERT) through partnerships with local community groups.	GOVT-c-3, ECON-j-5, HSNG-k-6	New and Existing	All Hazards	ACFD	CERT program established in 2007, additional funding needed for on-going training.		Plan to seek grant through FEMA or other appropriate sources	ongoing program	Conduct on average 3 classes/year in district
6	Adopt and enforec a repair and reconstruction ordinance to ensure that damaged buildings are repaired in an appropriate and timely manner and retrofitted concurrently.	HSNG-j-1, ECON-i-5, GOVT-a-13	Existing	All Hazards	PWA-BID	County in process of evaluating ordinance	no funding needed	no outside funding needed	Plan to adopt January 2011 with CVC adoption	
7	Alameda County Acute Care Hospital Tower	GOVT-a-3; HEAL-a-1	New Facility on existing hospital campus	Earthquakes	GSA and HCS	Design complete and construction contract awarded, start construction 2011	$475M	County funding	Construction duration from 2011 to 2015.	Per California State Assembly Bills 1953 and 306 -- replace existing Acute Care tower with seismically safe facility.

County of Alameda

Exhibit F – Regional Mitigation Strategies

[Included on Multi-Jurisdictional Plan CD and at
http://quake.abag.ca.gov/mitigation/strategy.html

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Priority (CHECK ONLY ONE): Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
HSNG - a - Multi-Hazard													
a-1	a-1	Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements **for residential properties** with regard to seven official natural hazard zones: **1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).**	EQ LS WF FL SEC					x				PWA-BID, CDA-Planning	Standard Practice
a-2	a-2	Create incentives for **private** owners of historic or architecturally significant residential buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation.*	EQ LS WF FL SEC				x					PWA-BID Assisting CDA-Planning	The County is in the process of developing a historic preservation program which includes the identification and potential registration of historically and architecturally significant structures. Once the program has been established, the County will consider how it might provide financial incentives for hazard mitigation.
a-3	NEW Was GOV T b-4	Develop a plan for short-term sheltering of residents **of your community in conjunction with the American Red Cross.**	EQ LS WF FL SEC	x								OES	
a-4	NEW Was GOV T b-4	**Develop a plan for interim housing for those displaced by working with the Regional Catastrophic Planning Grant Program (CPGP) that funded this effort in 2009. (Estimated completion is 2011.)**	EQ LS WF FL SEC						x			OES	

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
HSNG - b - Single-Family Homes Vulnerable to Earthquakes													
b-1	b-1	Utilize or recommend adoption of a retrofit standard that includes standard plan sets and construction details for voluntary bolting of homes to their foundations and bracing of outside walls of crawl spaces ("cripple" walls), such as **Plan Set A** developed by a committee representing the East Bay-Peninsula-Monterey Chapters of the International Code Council (ICC), California Building Officials (CALBO), the Structural Engineers Association of Northern California (SEAONC), the Northern California Chapter of the Earthquake Engineering Research Institute (EERI-NC), and ABAG's Earthquake Program.	EQ		x							PWA-BID	Building Ordinance, PWA-BID Need additional funds and resources for staff training and orders materials for distribution.
b-2	b-2	Require engineered plan sets for **seismic** retrofitting of heavy two-story homes with living areas over garages, as well as for split level homes **(that is, homes not covered by Plan Set A)**, until standard plan sets and construction details become available.	EQ	x								PWA-BID	Building Ordinance, PWA-BID Standard practice to enforce Building Ordinance required by State Law.
b-3	b-3	Require engineered plan sets for **seismic** retrofitting of homes on steep hillsides **(because these homes are not covered by Plan Set A)**.	EQ	x								PWA-BID	Building Ordinance, PWA-BID Standard practice to enforce Building Ordinance required by State Law.
b-4	b-4	Encourage local government building inspectors to take classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG) on retrofitting of single-family homes, **including application of Plan Set A.**	EQ	x								PWA-BID	Building Ordinance, PWA-BID Standard Practices if classes are offered.
b-5	b-5	Encourage private retrofit contractors and home inspectors doing work in your area to take retrofit classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG **or additional classes that might be offered by the CALBO Training Institute**) on retrofitting of single-family homes.	EQ	x								PWA-BID	PWA-BID Standard Practices if classes are offered.
b-6	b-6	Conduct demonstration projects on common existing housing types demonstrating structural and nonstructural mitigation techniques as community models for earthquake mitigation.	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
b-7	b-7	Provide retrofit classes or workshops for homeowners in your community**, or help promote utilization of subregional workshops in the South Bay, East Bay, Peninsula, and North Bay as such workshops become available through outreach using existing community education programs.**	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
b-8	b-8	Establish tool-lending libraries with common tools needed for retrofitting for use by homeowners with appropriate training.	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
b-9	b-9	**(reworded) Provide financial incentives to owners of single-family homes to retrofit if those retrofits comply with Plan Set A or IEBC 2006 in addition to that provided by existing state law State law that makes such retrofits exempt from increases in property taxes.**	EQ		x							CDA, PWA-BID	Program funding is provided by the federal Community Development Block Grant (CDBG) and is subject to federal HUD guidelines. PWA-BID Assisting CDA to issue permits.
HSNG - c - Soft-Story Multifamily Residential Structures Vulnerable to Earthquakes													
c-1	c-1	Require engineered plan sets for voluntary or mandatory soft-story **seismic** retrofits **by private owners** until a standard plan set and construction details become available.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance. Note that Soft Story Mandatory program is not adopted by CBC.
c-2	c-2	Adopt the 2009 **(changed date)** International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory soft-story building retrofits **for use in city/county building department regulations. In addition, allow use of changes to that standard recommended by SEAOC for the 2012 IEBC.**	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance. Note that 2009 IEBC soft story provisions are not adopted by CBC.
c-3	c-3	Work to educate building owners, local government staff, engineers, and contractors on **privately-owned** soft-story retrofit procedures and incentives using materials such as those developed by ABAG and the City of San Jose (see **http://quake.abag.ca.gov/eqhouse.html**.)	EQ				x					PWA-BID	Building Ordinance, PWA-BID Need additional funds and resources to implement this mitigation strategy.
c-4	c-4	Conduct an inventory of **privately-owned** existing or suspected soft-story residential structures **as a first step in establishing voluntary or mandatory programs for retrofitting these buildings.**	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy $200K to $300K
c-5	c-5	Use the soft-story inventory to require **private** owners to inform all existing tenants (and **prospective** tenants prior to signing a lease agreement) that they **may** live in this type of building.	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
c-6	c-6	Use the soft-story inventory to require **private** owners to inform all existing **and prospective** tenants that they **may** need to be prepared to live elsewhere following an earthquake if the building has not been retrofitted.	EQ				x					PWA-BID	PWA-BID Need additional funds ($100K) and resources to implement this mitigation strategy.

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
c-7	c-7	Investigate and adopt appropriate financial, procedural, and land use incentives (such as parking waivers) for **private** owners of soft-story buildings to facilitate retrofit such as those **described** by ABAG (see ***http://quake.abag.ca.gov/fixit***) .	EQ	x								PWA-BID assisting CDA	PWA-BID Assisting CDA to process permits. The County will investigate mitigation programs as a part of its revised Safety Element that will be completed in 2010.
c-8	c-8	(reworded) Explore development of State regulations or legislation to require or encourage **private** owners of soft-story structures to strengthen them.	EQ					x				PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
c-9	c-9	Provide technical assistance in seismically strengthening **privately-owned** soft-story structures.	EQ						x			PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
HSNG - d - Unreinforced Masonry Housing Stock													
d-1	d-1	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform **private** property owners that they own this type of hazardous structure.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
d-2	d-2	Accelerate retrofitting of **privately-owned** unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory versus voluntary, retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.	EQ						x			PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.
d-3	d-3	Require **private** owners to inform all existing **tenants (and prospective** tenants prior to signing a lease agreement) that they live in **an unreinforced masonry** building and the standard to which it may have been retrofitted.	EQ			x						PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.
d-4	d-4	As required by State law**,** require **private** owners to inform all existing tenants that they may need to be prepared to live elsewhere following an earthquake even if the building has been retrofitted, **because** it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.	EQ		x							PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
HSNG - e - Other Privately-Owned Structurally Vulnerable Residential Buildings and Earthquakes													
e-1	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).	EQ				x					PWA-BID; CDA	PWA-BID Need additional funds and resources to implement this mitigation strategy.
e-2	e-2	Inventory non-ductile concrete, tilt-up concrete **(such as converted lofts)**, and other privately-owned potentially structurally **vulnerable** residential buildings.	EQ				x					PWA-BID	PWA-BID Need additional funds ($100K) and resources to implement this mitigation strategy.
e-3	e-3	Adopt the **2009** International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory retrofit of **privately-owned** seismically vulnerable buildings.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
e-4	e-4	Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned **seismically vulnerable** residential buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use **(such as parking requirement waivers)** and procedural incentives, or (f) technical assistance.	EQ				x					PWA-BID; CDA	PWA-BID Need additional funds ($200K) and resources to implement this mitigation strategy. CDA will investigate mitigation programs as a part of its revised Safety Element that will be completed in 2010.
HSNG - f - New Construction and Earthquakes													
f-1	f-1	Continue to require that all new housing be constructed in compliance with **(deleted "structural")** requirements of the most recently adopted version of the *California Building Code* .	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
f-2	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.	EQ	x								PWA-BID	PWA-BID Standard practice training staff to enforce Building Ordinance required by State Law.
HSNG - g - Wildfire and Structural Fires													
g-1	g-1	Increase efforts to reduce hazards in existing **private** development in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.	WF	x								ACFD, CDA, PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
g-2	g-2	Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.	WF	x								ACFD (CDA-Planning assisting in a secondary role)	Standard Practice, as CDA Planning reports on site conditions observed during plan check and code enforcement.

Housing Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
g-3	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.	WF	X								PWA-BID; ACFD in supporting role	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
g-4	g-4	Create or identify "model" **properties showing defensible space and structural survivability** in neighborhoods that are wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.	WF					X				PWA-BID Assist other agencies.	
g-5	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.	WF	X								CDA (Planning), PWA-BID Assists	Standard Practice
g-6	g-6	Adopt and amend as needed updated versions of the *California Building and Fire Codes* so that optimal fire-protection standards are used in construction and renovation projects **of private buildings.**	WF	X								PWA	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
g-7	g-7	Create a mechanism to enforce provisions of the *California Building and Fire Codes* and other local codes that require the installation of smoke detectors and fire-extinguishing systems **on existing residential buildings** by making installation a condition of (a) finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.	WF	X								ACFD, PWA	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
g-8	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.	WF	X								ACFD	

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g-9	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.	WF	x								ACFD	
g-10	g-11	Establish **special funding mechanisms** (such as Fire Hazard Abatement Districts **or regional bond funding**) to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.	WF	x						x		ACFD	
g-11	g-12	Work with residents in rural-residential areas to ensure adequate **plans are developed for appropriate** access and evacuation in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. **For example, in some areas, additional roads can be created, and in other areas, the communities will need to focus on early warning and evacuation because additional roads are not feasible.**	WF		x							ACFD, PWA-BID	PWA-BID Assist other agencies
g-12	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.	WF	x								ACFD, PWA-BID	PWA-BID Assist other agencies
g-13	g-14	Require fire sprinklers in all new or substantially remodeled multifamily housing, regardless of distance from a fire station.	WF	x								ACFD, PWA-BID	PWA-BID Assist other agencies
g-14	g-15	Require sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas.	WF	x								ACFD, PWA-BID	PWA-BID Assist other agencies
g-15	g-16	Compile a list of **privately-owned** high-rise and high-occupancy buildings which are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.	WF	x								ACFD	PWA-BID Assist other agencies
g-16	g-17	Conduct periodic fire-safety inspections of all multi-family buildings, as required by State law.	WF	x								ACFD	

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g-17	g-18	Ensure that **city/county-initiated** fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard. **For example, vegetation in these sensitive areas could be thinned, rather than removed, or replanted with less flammable materials. When thinning, the non-native species should be removed first. Other options would be to use structural mitigation, rather than vegetation management in the most sensitive areas.**	WF LS	X								ACFD	
g-18	g-19	Create a mechanism to require the bracing of water heaters and flexible couplings on gas appliances, and/or (as specified under "**b.** Single-family homes vulnerable to earthquakes" above) the bolting of homes to their foundations and strengthening of cripple walls to reduce fire ignitions due to earthquakes.	EQ WF		X							ACFD, PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy. ACFD provides education and awareness training for the general public.
g-19	g-20	Work with the State Fire Marshall, the California Seismic Safety **Commission, Pacific Earthquake Engineering Research Center** (PEER), and other experts to identify and manage gas-related fire risks of soft-story residential or mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. **Note** - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. **Also note** - any values that are installed may need to have both excess flow and seismic triggers ("hybrid" valves).	EQ WF					X				PWA	PWA-BID Need additional funds and resources to implement this mitigation strategy.
g-20	new	**Work with insurance companies to create a public/private partnership to give a discount on fire insurance premiums to "Forester Certified" *Fire Wise* landscaping and fire-resistant building materials on private property.**	WF						X			PWA	PWA-BID Need additional funds and resources to implement this mitigation strategy.
HSNG - h - Flooding													
h-1	h-1	To reduce flood risk, thereby reducing the cost of flood insurance to **private** property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.	FL	X								PWA and ACFC&WCD	Federal Regs; General Plan; Alameda County is NFIP/CRS Class 7. $200K to $400K annually.
h-2	h-2	Balance the housing needs of residents against the risk from potential flood-related hazards.	FL	X								CDA Planning	General Plan

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h-3	h-3	Ensure that new **private** development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, ***or*** does not increase runoff by draining water to pervious areas or detention facilities.	FL	X								PWA and ACFC&WCD	Subdivision Ordinance, Floodplain Management Ordinance.
h-4	h-4	Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, and deliver those materials to **vulnerable populations** upon request.	FL		X							PWA	Existing Program, Under-Funded. Additional funds are needed to expand the program.
h-5	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.	FL		X							PWA	Existing program, Under-Funded. Additional funds are needed to expand the program.
h-6	h-6	Apply floodplain management regulations for **private** development in the floodplain and floodway.	FL	X								PWA and ACFC&WCD	PWA-BID Assist other agencies
h-7	h-7	Ensure that new subdivisions are designed to reduce or eliminate flood damage by requiring lots and rights-of-way **be** laid out for the provision of approved sewer and drainage facilities, providing on-site detention facilities whenever practicable.	FL	X								PWA	PWA-BID Assist other agencies
h-8	h-8	Encourage home and apartment owners to participate in home elevation programs **within flood hazard areas.**	FL	X								PWA	NFIP/CRS activities.
h-9	h-9	As funding opportunities become available, encourage home and apartment owners to participate in acquisition and relocation programs for areas within floodways.	FL					X				PWA and ACFC&WCD	Need Funding
h-10	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.	FL		X							PWA	Existing program, Under-Funded. Additional funds are needed to expand the Public Outreach activity.

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

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HSNG - j - Building Reoccupancy													
j-1	j-1 same as econ i-5	Develop and enforce a **repair and reconstruction** ordinance to ensure that **damaged** buildings are repaired in an appropriate and timely manner and retrofitted concurrently. **This repair and reconstruction ordinance should apply to all public and private buildings, and also apply to repair of all damage, regardless of cause. See http://quake.abag.ca.gov/recovery/info-repair-ord.html.**	EQ LS WF FL SEC			x						PWA-BID	Plan to adopt January 2001 with CBC adoption
j-2	NEW same as econ i-6	Establish preservation-sensitive measures for the repair and reoccupancy of historically significant **privately-owned** structures, including requirements for temporary shoring or stabilization where needed, arrangements for consulting with preservationists, and expedited permit procedures for suitable repair or rebuilding of historically or architecturally valuable structures.	EQ LS WF FL SEC		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
HSNG - k - Public Education													
k-1	k-1	Provide information to residents of your community on the availability of interactive hazard maps showing your community on ABAG's web site.	EQ LS WF FL SEC							x		CAO and ITD	
k-2	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.	EQ LS WF FL SEC	x								Public Health, OES, ACFD	
k-3	k-3	Inform residents of comprehensive mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.	EQ LS WF FL SEC		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
k-4	k-4	Develop a public education campaign on the cost, risk, and benefits of earthquake, flood, and other hazard insurance **as compared to mitigation.**	EQ LS FL SEC						x			ABAG	

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k-5	k-5	Use disaster anniversaries, such as April (the 1906 earthquake), September (9/11), and October (Loma Prieta earthquake and Oakland Hills fire), to remind the public **of** safety and security mitigation activities.	EQ LS WF FL SEC			X						ACFC&WCD	
k-6	k-6	Sponsor the formation and training of Community Emergency Response Teams (CERT) **for residents in your community.** [Note – these programs go by a variety of names in various cities and areas.]	EQ LS WF FL SEC				X					ACFD - underfunded by $100K per year, currently operating with $15K per year.	
k-7	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.	FL					X				PWA, ACFC & WCD	
k-8	k-8	Institute the neighborhood watch block captain and team programs outlined in the Citizen Corps program guide.	EQ LS WF FL SEC							X		ACSO	
k-9	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.	WF				X					ACFD	
k-10	k-10	Train homeowners to locate and shut off gas valves if they smell or hear gas leaking.	EQ LS WF FL SEC				X					ACFD	
k-11	k-12	Develop a program to provide at-cost NOAA weather radios to residents of flood hazard areas **that request them, with priority to neighborhood watch captains and others trained in their use.**	FL								X		
k-12	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.)	EQ				X					ACFD	
k-13	k-14	Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging **private** businesses and residents to keep storm drains in their neighborhood free of debris.	FL	X								ACFD, PWA, ACFC&WCD	Existing Program

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k-14	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* . **This effort is important because grant funds are currently available to offset costs of specific council-supported projects.**	WF		X							PWA, ACFD	Existing Program
k-15	k-16	Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.	FL						X			ACFD, ACFC&WCD	
k-16	k-17	Distribute appropriate materials related to disaster mitigation and preparedness **to residents. Appropriate materials are (1) culturally appropriate and (2) suitable for special needs populations. For example, such materials are available on the** http://www.preparenow.org website **and from non-governmental organizations that work with these communities on an on-going basis.**	EQ LS WF FL SEC	X								PWA, ACFC&WCD	
deleted	g-10	DELETED - REPLACED BY DISCUSSION OF REVERSE 911 in GOVT c-14.										PWA and Alameda County Flood Control and Water Control District	Additional funds and resources are needed to establish a program for this mitigation strategy.
deleted	k-11												

Infrastructure Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Priority (CHECK ONLY ONE): Existing Program	Existing Program, underfunded	Very High - Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
INFR - a - Multi-Hazard (**owned by the infrastructure provider filling out this form, including a city, county, or special district)**													
a-1	a-1	Assess the vulnerability of critical facilities **owned** by **infrastructure** operators subject to damage in natural disasters or security threats, including **fuel tanks and** facilities owned outside of the Bay Area that can impact service delivery within the region. **Note** - **Infrastructure** agencies, departments, and districts are those that operate transportation and utility facilities and networks.	EQ LS WF FL SEC		X							Alameda County	Multiple County agencies based on Role and Responsibilities
a-2	a-2	**If a dam owner,** comply with State of California and federal requirements to assess the vulnerability of dams to damage from earthquakes, seiches, landslides, liquefaction, or security threats.	EQ LS WF FL SEC		X							Alameda County Flood Control and Water Control District	State law.
a-3	a-3	Encourage the cooperation of utility system providers and cities, counties, and special districts, **and PG&E** to develop strong and effective mitigation strategies for infrastructure systems and facilities.	EQ LS WF FL DR SEC	X								Alameda County	Supports the development of mitigation strategies.
a-4	a-4	Retrofit or replace critical lifeline **infrastructure** facilities and/or their backup facilities that are shown to be vulnerable to damage in natural disasters.	EQ LS WF FL SEC		X							PWA, ACFC&WCD	Existing Program, Under-Funded. $52M to $78M are needed to expand the current program.
a-5	a-5	Support and encourage efforts of ***other*** (lifeline **infrastructure**) agencies as they plan for and arrange financing for seismic retrofits and other disaster mitigation strategies. (For example, a city might pass a resolution in support of a transit agency's retrofit program.)	EQ LS WF FL DR SEC	X								Alameda County	

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a-6	a-6	Develop a plan for speeding the repair and functional restoration of **water and wastewater** systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water **/Wastewater** Agency Response Network (WARN). **Communicate that plan to local governments and critical facility operators.**	EQ LS WF FL DR SEC								X		
a-7	a-7	Engage in, support, and/or encourage research by others **(such as USGS, universities, or Pacific Earthquake Engineering Research Center-PEER)** on measures to further strengthen transportation, water, sewer, and power systems so that they are less vulnerable to damage in disasters.	EQ LS WF FL DR SEC	X								Alameda County	
a-8	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.	EQ LS WF FL SEC		X							PWA	$900K to $1M to pre-position equipment in County-owned and operated facilities.
a-9	a-9	(REWORDED) **Ensure that critical intersection traffic lights function following loss of power by installing battery back-ups, emergency generators, or lights powered by alternative energy sources such as solar. Proper functioning of these lights is essential for rapid evacuation, such as with hazmat releases resulting from natural disasters.**	EQ LS WF FL SEC		X							PWA	
a-10	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).	EQ LS WF FL SEC						X			PWA, ACFC&WCD	Additional funds and resources are needed to develop a plan for this mitigation.
a-11	a-11	Minimize the likelihood that power interruptions **will adversely impact lifeline utility systems or critical facilities by ensuring that they have adequate back-up power.**	EQ LS WF FL SEC						X			PHD	

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a-12	a-12	Encourage replacing above ground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new phone and electrical utility lines are installed underground.	EQ LS WF FL SEC		X							PWA	Work with CDA to set conditions for NEW developments per Subdivision Ordinance
a-13	a-13	**If you own a dam,** coordinate with the State Division of Safety of Dams to ensure an adequate timeline for the maintenance and inspection of dams, as required of dam owners by State law, **and communicate this information to local governments and the public.**	EQ LS WF FL SEC	X								ACFC&WCD	State law.
a-14	a-14	Encourage communication between State **Emergency Management Agency (CalEMA)**, FEMA, and utilities related to emergencies occurring outside of the Bay Area that can affect service delivery in the region.	EQ LS WF FL DR SEC	X								OES; PWA and ACFC&WCD	
a-15	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.	EQ LS WF FL SEC		X							EMS, ACFD, OES	The County has mutual aid agreements / contracts in place for ground ambulance providers, as well as access to roto-wing air ambulances
a-16	new	**Recognize that heat emergencies produce the need for non-medical transport of people to cooling centers by ensuring that (1) transit operators have plans for non-medical transport of people during and after such emergencies including the use of paratransit and (2) cities, counties, and transit agencies have developed ways to communicate the plan to the public.**	Heat		x							EMS, ACFD, ACSO, PHD, OES	
a-17	a-16	Effectively utilize the **Regional** Transportation Management Center (TMC) **in Oakland**, the staffing of which is provided by Caltrans, the CHP and MTC. The TMC is designed to maximize safety and efficiency throughout the highway system. It includes the Emergency Resource Center (ERC) which was created specifically for primary planning and procedural disaster management. **RESPONSIBLE AGENCY: MTC only.**	EQ LS WF FL SEC			X						PWA	

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a-18	new	**Develop (with the participation of paratransit providers, emergency responders, and public health professionals) plans and procedures for parasit system response and recovery from disasters.**	EQ LS WF FL Heat SEC		X							ACSO-OES	
a-19	new	**Coordinate with other critical infrastructure facilities to establish plans for delivery of water and wastewater treatment chemicals.**	EQ LS WF FL SEC							X			
a-20	new	**Establish plans for delivery of fuel to critical infrastructure providers.**	EQ LS WF FL SEC							X			
a-21	new	**As an infrastructure operator, designate a back-up Emergency Operations Center with redundant communications systems.**	EQ LS WF FL SEC		X							PWA; ACSO-OES	Standard Practice - ACSO and OES have back-up sites for dispatch and OES operations
a-22	new	**Monitor scientific studies of the Sacramento-San Joaquin Delta and policy decisions related to the long-term disaster resistance of that Delta system to ensure that decisions are made based on comprehensive analysis and in a scientifically-defensible manner. Levee failure due to earthquakes, flooding, and climate change (including sea level rise and more frequent and more severe flooding) are all of concern. The long-term health of the Delta area is critical to the Bay Area's water supply, is essential for the San Francisco Bay and estuary's environmental health, provides recreation opportunities for Bay Area residents, and provides the long-term sustainability of Delta communities. While only part of the Delta is within the nine Bay Area counties covered by this multi-jurisdictional LHMP, the Delta is tied to the infrastructure, water supply, and economy of the Bay Area.**	EQ FL		X							PWA	
INFR - b - Earthquakes													

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b-1	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.	EQ	X								PWA	An Additional $40M to $50M is needed to expand this existing program.
b-2	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.	EQ							X			
b-3	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).	EQ							X		ACFC&WCD	
b-4	b-4	Install specially-engineered pipelines in areas subject to faulting, liquefaction, earthquake-induced landsliding, or other earthquake hazard.	EQ							X		ACFC&WCD	
b-5	b-5	Replace or retrofit water-retention structures that are determined to be structurally deficient, **including levees, dams, reservoirs and tanks.**	EQ		X							ACFC&WCD	FEMA Levee Certification
b-6	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).	EQ		X							ACFC&WCD	Standard Practice
b-7	b-7	Install earthquake-resistant connections when pipes enter and exit bridges **and work with bridge owners to encourage retrofit of these structures.**	EQ						X			PWA	Working with utility agencies to encourage the installation of earthquake-resistant connections to protect county bridges
b-8	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.	EQ	X								PWA	State law.
b-9	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.	EQ						X			CAO and BOS	

Infrastructure Mitigation Strategies

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

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INFR - c - Wildfire													
c-1	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.	WF	X								ACFD	
c-2	c-2	Develop a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard **(including wildfire threat areas and in wildland-urban-interface areas).**	WF	X								ACFD	
c-3	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.	WF		X							GSA, PWA: ACFD; CDA	GSA performs vegetation mgt w/ goats; PWA has a Spray and Weed Abatement Program in coordination with ACFD and others
c-4	c-4	**For new development,** ensure all dead-end segments of public roads in high hazard areas have at least a "T" intersection turn-around sufficient for typical wildland fire equipment.	WF	X								ACFD, CDA, PWA	PWA in in supporting role. ACFD and CDA set conditions for NEW developments.
c-5	c-5	**For new development,** enforce minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on all driveways and road segments greater than 50 feet in length in wildfire hazard areas.	WF	X								CDA; PWA, ACFD	PWA is in supporting role.
c-6	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.	WF	X								CDA; PWA, ACFD	PWA is in supporting role.
c-7	c-7	Ensure adequate fire equipment road or fire road access to developed and open space areas.	WF	X								ACFD; CDA; PWA; GSA;	PWA is in supporting role.
c-8	c-8	Maintain fire roads and/or public right-of-way roads and keep them passable at all times.	WF	X								ACFD; CDA; PWA; GSA;	PWA maintains public roadways, CSA EVAE.
INFR - d - Flooding													
d-1	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.	FL		x							PWA, ACFC&WCD	Existing Program, Under-Funded. $6M to $11M in additional funds are needed to expand the current program.
d-2	d-2	Develop procedures for performing a watershed analysis to **examine** the impact of development on flooding potential downstream, including communities outside of the jurisdiction of proposed projects.	FL	x								PWA, ACFC&WCD	Developing.

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d-3	d-3	Conduct a watershed analysis at least once every **ten** years **unless there is a major development in the watershed or a major change in the Land Use Element of the General Plan of the cities or counties within the watershed.**	FL		x							PWA, ACFC&WCD	Additional funds and resources are needed to develop a plan for conducting systematic watershed studies.
d-4	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).	FL	x								PWA, ACFC&WCD	In general, support, assit and encourage efforts by others within current budget, resources and capability.
d-5	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.	FL		x							PWA, ACFC&WCD	Additional funds and resources are needed to establish a program for this mitigation strategy.
d-6	d-6	Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities. **(This strategy has the secondary benefit of addressing fuel, chemical, and cleaning product issues.)**	FL		x							PWA, ACFC&WCD	$20M to $25M.
d-7	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.	FL		x							PWA, ACFC&WCD	Existing Program, Under-Funded. Additional funds and resources are needed to expand the current program.
d-8	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.	FL		x							PWA, ACFC&WCD	Federal and State laws. County Ordinances.
d-9	d-9	Develop an approach and locations for various watercourse bank protection strategies, including for example, (1) an assessment of banks to inventory areas that appear prone to failure, (2) bank stabilization, including installation of rip rap, **or whatever regulatory agencies allow** (3) stream bed depth management using dredging, and (4) removal of out-of-date coffer dams in rivers and tributary streams.	FL		x							PWA, ACFC&WCD	Additional funds and resources are needed to develop a plan for implementing this mitigation strategy.

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d-10	d-10	Use **reservoir** sediment **or reed** removal as one way to increase storage for both flood control and water supply.	FL		x							PWA, ACFC&WCD	$20M to $25M
d-11	d-11	**Identify** critical **locally-owned** bridges affected by flooding and either **elevate them** to increase stream flow and maintain critical **ingress** and egress routes **or modify the channel to achieve equivalent objectives.**	FL		x							PWA, ACFC&WCD	
d-12	d-12	Provide **or support the** mechanism to expedite the repair or replacement of levees that are vulnerable to collapse from earthquake-induced shaking or liquefaction, rodents, and other concerns, particularly those protecting critical infrastructure.	FL		x							PWA, ACFC&WCD	Additional funds and resources are needed to develop a plan for this mitigation strategy.
d-13	d-13	Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage.	FL	x								PWA, ACFC&WCD	Subdivision Ordinance, Floodplain Management Ordinance.
d-14	d-14	Determine whether or not wastewater treatment plants are protected from floods, and if not, investigate the use of flood-control berms to not only protect from stream or river flooding, but also **increase** plant security.	FL							x		Sanitary Sewer Districts	
d-15	d-15	Work cooperatively with water agencies, flood control districts, Caltrans, and local transportation agencies to determine appropriate performance criteria for watershed analysis.	FL	X								ACFC&WCD	Standard Practice.
d-16	d-16	Work for better cooperation among the patchwork of agencies managing flood control issues.	FL	X								ACFC&WCD	Standard Practice.
d-17	d-17	**Improve monitoring of** creek and watercourse flows to predict potential for flooding downstream **by working cooperatively with land owners and the cities and counties in the watershed.**	FL		X							ACFC&WCD	On-going cooperation and discussion.
d-18	new	**Using criteria developed by EPA for asset management, inventory existing assets, the condition of those assets, and improvements needed to protect and maintain those assets. Capture this information in a Geographic Information System (GIS) and use it to select locations for creek monitoring gauges.**	FL						x			ACFC&WCD	

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INFR - e - Landslides													
e-1	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.	LS							x		Utility agencies	Utility agencies
e-2	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.	LS	x								CDA	General Plan; Subdivision Ordinance. PWA is in a supporting role.
INFR - f - Building Reoccupancy													
f-1	f-1	Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified **engineers** to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. **Note** - A qualified **(deleted structural)** engineer is a California licensed **engineer** with relevant experience.	EQ LS WF FL SEC						X			PWA-BID	Building Inspection Department ongoing evaluating the similar program in San Leandro
INFR - g - Public Education													
g-1	g-1	Provide materials to the public related to planning for power outages.	EQ LS WF FL SEC	x								OES, HCS, PWA	Provide power outage information to be put on PWA/AC website.
g-2	g-2	Provide materials to the public related to family and personal planning for delays due to traffic or road closures, **or due to transit system disruption caused by disasters.**	EQ LS WF FL SEC	x								PWA	Provide road closure information to be put on PWA/AC website.

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g-3	g-3	Provide materials to the public related to coping with reductions in water supply or contamination of that supply **BEYOND regulatory notification requirements.**	EQ LS WF FL DR SEC							x		EHS, PH	
g-4	g-4	Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment **(such as that developed by ABAG's Sewer Smart Program).**	EQ LS WF FL DR SEC	x								PWA	Provide Sandbag Information on how to locate materials.
g-5	g-5	Facilitate and/or coordinate the distribution of **emergency preparedness or mitigation** materials that are prepared by others, such as by **making the use of the internet or other electronic means,** or placing materials on community access channels or in city or utility newsletters, as appropriate.	EQ LS WF FL DR SEC						x			PWA	
g-6	**new**	Sponsor the formation **and training** of Community Emergency Response Teams (CERT) **for the employees of your agency.** [Note – these programs go by a variety of names in various cities and areas.]	EQ LS WF FL DR SEC						x			PWA	
g-7	**new**	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the http://www.preparenow.org website **related to infrastructure issues.**	EQ LS WF FL DR SEC		X							OES	

Health Mitigation Strategies

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HEAL - a - Hospitals and Other Critical Health Care Facilities (including those facilities licensed by OSHPD, as well as water agencies, public & private hospitals as noted).													
To be filled out by cities, counties, and county health departments.													
a-1	a-1	**Work to ensure that cities, counties,** county health departments, and hospital operators **coordinate with each other (and that hospitals cooperate with the California Office of Statewide Health Planning and Development - OSHPD) to comply with current state law** that mandates that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters **by 2013. In particular, this coordination should include understanding any problems with obtaining needed funding. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ LS WF FL SEC		x							California DHS; EMS; PHD	SB1953
a-2	a-2	Encourage hospitals in your community to work with OSHPD to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco's Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ LS WF FL SEC			x						PHD; EMS	
a-3	a-3	Ensure health care facilities are adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ WF SEC	x								PHD	
a-4	a-4	Ensure these health care facilities have the capacity to shut off outside air and be self-contained. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ WF SEC	x								PHD	

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a-5	a-5	Ensure that hospitals and other major health care facilities have auxiliary water and power sources. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, water suppliers, and hospitals**	EQ LS WF FL SEC		x							PHD; EMS	
a-6	a-6	Work to ensure that county health departments work with health care facilities to institute isolation capacity should a need for them arise following a communicable disease epidemic. **Isolation capacity varies from a section of the hospital for most communicable diseases to the entire hospital for a major pandemic flu.** **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ WF FL SEC		x							PHD, EMS	Funding source is HRSA but it is currently underfunded.
a-7	a-7	Develop printed materials, utilize existing materials (such as developed by FEMA, the American Red Cross, **and others, including non-profit organizations**), conduct workshops, and/or provide outreach encouraging employees of these critical health care facilities to have family disaster plans and conduct mitigation activities in their own homes. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ LS WF FL SEC		x							PHD, EMS, community-based organizations	$500,000 to $1,000,000
HEAL - b - Ancillary Health-Related Facilities **(including medical offices, pharmacies, free-standing or specialy clinics, etc.)**													
b-1	b-1	Identify these ancillary facilities in your community. **These facilities are not regulated by OSHPD in the same way as hospitals.** **RESPONSIBLE AGENCIES: Cities, counties, and county health departments**	EQ LS WF FL SEC				x					OSHPD, PWA-BID; PHD, EMS	PWA-BID is conducting a study ($20,000) to identify assisted living facilities, convalesents, mental hospitals, clinics, detoxification facilities, nursing homes, etc.
b-2	b-2	Encourage these facility operators to develop disaster mitigation plans. **RESPONSIBLE AGENCIES: Cities, counties, and county health departments**	EQ LS WF FL SEC				x					PHD, EMS	
b-3	b-3	Encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and **business continuity** plans **for** recovery. **RESPONSIBLE AGENCIES: Cities, counties, and county health departments**	EQ LS WF FL SEC				x					PHD, EMS	
HEAL - c - Coordination Initiatives													

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c-1	c-1	Designate locations for the distribution of antibiotics to large numbers of people should the need arise, as required to be included in each county's Strategic National Stockpile Plan. **RESPONSIBLE AGENCIES: County Health Departments**	FLU SEC		X							PH, EMS	Training, equipment, and supplies for the distribution of antibiotics is serverly underfunded. The Cities Readiness Initiative is the current source of funding but an additional $1,000,000 is needed annually for 2 to 3 years.
c-2	c-2	Ensure that you know the Metropolitan Medical Response System (MMRS) cities in your area. Fremont, Oakland, **San Francisco, and San Jose (plus Sacramento and Stockton)** are the MMRS cities **in or near the Bay Area.** MMRS cities are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel **to respond to a mass casualty event. (The coordination among public health, medical, emergency management, coroner, EMS, fire, and law enforcement is a model for all cities and counties.)** **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ LS WF FL SEC	X								PH, EMS, PWA, ACFC&WCD	Federal DHS federal grant program
c-3	c-3	Know **that** National Disaster Medical System (NDMS) uniformed or non-uniformed personnel are within one-to-four hours of your community. These federal resources include veterinary, mortuary, and medical personnel. **Teams in or near the Bay Area are headquartered in the cities of Santa Clara and Sacramento. RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals**	EQ LS WF FL SEC	X								OES Medical Ops, PWA, ACFC&WCD; PHD	Standard Practice
c-4	c-4	**Plan for hazmat related-issues due to a natural or technological disaster. Hazmat teams should** utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Lawrence Livermore National Laboratory or Sandia (both in Livermore) for confirmation of radiological agents. **RESPONSIBLE AGENCIES: Cities, counties, county health departments, and hospitals.**	EQ WF FL SEC	X								OES Medical Ops, ACFC&WCD; PHD; and ACSO Explosive Ordinance Commission	Standard Practice

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c-5	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 **(at the source, in processing facilities, in distribution centers, and in grocery stores).** **RESPONSIBLE AGENCIES: County environmental health departments**	FL SEC	x								ALCO Enviromental Health; PHD	
c-6	**new**	Ensure mental health continuity of operations and disaster planning is coordinated among county departments, (including Public Health and Emergency Services), private sector mental health organizations, professional associations, and national and community-based non-profit agencies involved in supporting community mental health programs. **First**, such planning should ensure that the capability exists to provide both immediate on-site mental health support at facilities such as evacuation centers, emergency shelters, and local assistance centers, as well as to coordinate on-going mental health support during the long-term recovery process. **Second**, this planning should ensure that mental health providers, in collaboration with the county agencies responsible for providing public information, are prepared to provide consistent post-disaster stress and other mental health guidance to the public impacted by the disaster.	EQ LS WF FL SEC	x								PHD; Behavioral Health / Mental Health Unit	
deleted	d-2	(duplicate information to c-2)											
deleted	d-3	(duplicate information to c-3)											
deleted	d-4	(duplicate information to c-4)											

Economy Mitigation Strategies

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ECON - a - Multi-Hazard													
a-1	a-1	Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements **for commercial and industrial properties** with regard to seven official natural hazard zones: **1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).**	EQ LS WF FL SEC	x								ABAG and other agencies.	PWA provides FIRM information and other pertinent flood related information as requested. Disclosures are required per State law.
a-2	a-2	Create incentives for **private** owners of historic or architecturally significant **commercial and industrial** buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation.*	EQ LS WF FL SEC				x					PWA-BID assisting CDA	The County is in the process of developing a Historic Preservation Ordinance and program that would include incentives for the preservation and rehabilitation of historic or architecurally siginifcant structures.
ECON - b - Soft-Story Commercial Buildings Vulnerable to Earthquakes													
b-1	b-1	Require engineered plan sets for voluntary or mandatory soft-story **seismic** retrofits **by private owners** until a standard plan set and construction details become available.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance. Note that Soft Story Mandatory program is not adopted by CBC.
b-2	b-2	Adopt the 2009 **(changed date)** International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory soft-story building retrofits **for use in city/county building department regulations. In addition, allow use of changes to that standard recommended by SEAOC for the 2012 IEBC.**	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance. Note that 2009 IEBC soft story provisions are not adopted by CBC.
b-3	b-3	Work to educate building owners, local government staff, engineers, and contractors on **privately-owned** soft-story retrofit procedures and incentives using materials such as those developed by ABAG and the City of San Jose (see **http://quake.abag.ca.gov/eqhouse.html**.)	EQ					x				PWA-BID	PWA-BID Standard practice to enforce Building Ordinance. Note that Soft Story Mandatory program is not adopted by CBC.

Economy Mitigation Strategies

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b-4	b-4	Conduct an inventory of **privately-owned** existing or suspected soft-story commercial or industrial structures **as a first step in establishing voluntary or mandatory programs for retrofitting these buildings.**	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy $300K to $600K
b-5	b-5	Use the soft-story inventory to require **private** owners to inform all existing tenants (and **prospective** tenants prior to signing a lease agreement) that they **may** work in this type of building.	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
b-6	b-6	Use the soft-story inventory to require **private** owners to inform all existing **and prospective** tenants that they **may** need to be prepared to work elsewhere following an earthquake if the building has not been retrofitted.	EQ					x				PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
b-7	b-7	Investigate and adopt appropriate financial, procedural, and land use incentives (such as parking waivers) for **private** owners of soft-story buildings to facilitate retrofit such as those **described** by ABAG (see ***http://quake.abag.ca.gov/fixit***).	EQ				x					PWA-BID Assisting CDA	PWA-BID Assisting CDA to process permits. CDA will investigate mitigation programs as a part of its revised Safety Element that will be completed in 2010.
b-8	b-8	(reworded) Explore development of State regulations or legislation to require or encourage **private** owners of soft-story structures to strengthen them.	EQ					x				PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
b-9	b-9	Provide technical assistance in seismically strengthening **privately-owned** soft-story structures.	EQ						x			PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation

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ECON - c - Unreinforced Masonry Buildings in Older Downtown Areas													
c-1	c-1	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform **private** property owners that they own this type of hazardous structure.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
c-2	c-2	Accelerate retrofitting of **privately-owned** unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory (**rather than** voluntary) retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.	EQ		x							PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.
c-3	c-3	Require **private** owners to inform all existing **tenants (and prospective** tenants prior to signing a lease agreement) that they work in **an unreinforced masonry** building and the standard to which it may have been retrofitted.	EQ		x							PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.
c-4	c-4	As required by State law**,** require **private** owners to inform all existing tenants that they may need to be prepared to work elsewhere following an earthquake even if the building has been retrofitted, **because** it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.	EQ	x								PWA and County Counsel Office	PWA-BID Need additional funds and resources to work with County Counsel to follow up with property owners.
ECON - d - Privately-Owned Structurally **Vulnerable** Buildings													
d-1	d-1	Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally **vulnerable** buildings.	EQ				x					PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
d-2	d-2	Adopt the **2009** International Existing Building Code or the latest applicable standard for the design of voluntary or mandatory retrofit of **privately-owned** seismically vulnerable buildings.	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance per CBC adopted Sections.
d-3	d-3	Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned **seismically vulnerable** commercial and industrial buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use **(such as parking requirement waivers)** and procedural incentives, or (f) technical assistance.	EQ		x							PWA-BID; CDA	PWA-BID Need additional funds and resources to implement this mitigation strategy. CDA will investigate mitigation programs as a part of its revised Safety Element that will be completed in 2010.
ECON - e - Wildfire and Structural Fires													

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e-1	e-1	Increase efforts to reduce hazards in existing **private** development in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.	WF	x								PWA-BID, ACFD, and other agencies	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
e-2	new	**Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.**	WF							x			
e-3	e-2	Require that new **privately-owned** business and office buildings in high fire hazard areas be constructed of fire-resistant building materials and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability.	WF	x								PWA-BID and other agencies	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
e-4	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 **of private buildings.**	WF	x								PWA-BID and other agencies	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
e-5	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 **on existing privately-owned buildings** by making installation a condition of (a) finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.	WF	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
e-6	e-5	(reworded to more closely match the HSNG strategy) 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.	WF				x					ACFD currently looking for grant funds	
e-7	e-6	Establish **special funding mechanisms (such as** Fire Hazard Abatement Districts **or regional bond funding**) to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.	WF					x				ACFD	

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e-8	e-7	Establish **special funding mechanisms (such as** Fire Hazard Abatement Districts **or regional bond funding**) to fund fire-safety inspections of private properties, roving firefighter patrols on high fire-hazard days, and public education efforts.	WF							x		ACFD	
e-9	e-8	Compile a list of **privately-owned** high-rise and high-occupancy buildings that are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.	WF	x								PWA-BID Assist other agencies to compile the list.	
e-10	e-9	Conduct periodic fire-safety inspections of all **privately-owned** commercial and **industrial** buildings.	WF	x								ACFD	
e-11	e-10	Work with the State Fire Marshall, the California Seismic Safety **Commission, Pacific Earthquake Engineering Research Center** (PEER), and other experts to identify and manage gas-related fire risks of **privately-owned** soft-story mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. **Note** - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. **Also note** - any values that are installed may need to have both	EQ WF					x				PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
e-12	e-11	Ensure that **city/county-initiated** fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard.	WF					x				ACFD	
e-13	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 **on private property.**	WF		x							PWA-BID	PWA-BID Need additional funds and resources to implement this mitigation strategy.
ECON - f - Flooding													
f-1	f-1	To reduce flood risk, thereby reducing the cost of flood insurance to **private** property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.	FL		x							PWA and ACFC&WCD	Alameda County is NFIP/CRS Class 7. $200K to $400K are needed to achieve the highest-feasible CRS rating.
f-2	f-2	Balance the needs for **private** commercial and industrial development against the risk from potential flood-related hazards.	FL	x								CDA (Planning)	The General Plan establishes those areas that are suitable for commercial/industrial development

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f-3	f-3	Ensure that new **private** development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, ***or*** does not increase runoff by draining water to pervious areas or detention facilities.	FL	X								PWA and ACFC&WCD	Subdivision Ordinance, Floodplain Management Ordinance.
f-4	f-4	Provide sandbags and plastic sheeting to **private** businesses in anticipation of rainstorms, and deliver those materials to **vulnerable populations** upon request.	FL		X							PWA	Existing Program, Under-Funded. Additional funds are needed to expand the program.
f-5	f-5	Provide information **to private business** on locations for obtaining sandbags and deliver those sandbags to those various locations throughout a city and/or county.	FL		X							PWA	Existing program, Under-Funded. Additional funds are needed to expand the program.
f-6	f-6	Apply floodplain management regulations for **private** development in the floodplain and floodway.	FL	X								PWA-BID Assist other agencies	PWA-BID Assist other agencies to enforce regulations
f-7	f-7	Encourage **private** business owners to participate in building elevation programs **within flood hazard areas.**	FL	X								PWA-BID Assist other agencies	PWA-BID Assist other agencies to enforce regulations. NFIP/CRS activities.
f-8	f-8	As funding becomes available, encourage **private** business owners to participate in acquisition and relocation programs for areas within floodways.	FL					X				PWA and ACFC&WCD	
f-9	f-9	Require an annual inspection of approved flood-proofed **privately-owned** buildings to ensure that (a) all flood-proofing components will operate properly under flood conditions and (b) all responsible personnel are aware of their duties and responsibilities as described in their building's *Flood Emergency Operation Plan* and *Inspection & Maintenance Plan* .	FL	X								PWA-BID Assist other agencies	PWA-BID Assist other agencies to enforce Flood Design regulations.

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ECON - g - Landslides and Erosion													
g-1	g-1	Increase efforts to reduce landslides and erosion in existing and future development by improving appropriate code enforcement and use of applicable standards **for private property**, such as those appearing in the *California Building Code* , California Geological Survey *Special Report 117 – Guidelines for Evaluating and Mitigating Seismic Hazards in California,* American Society of Civil Engineers (ASCE) report *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California,* and the California Board for Geologists and Geophysicists *Guidelines for Engineering Geologic Reports.* Such standards should cover excavation, fill placement, cut-fill transitions, slope stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance.	LS	X								PWA-BID and other agencies	PWA-BID Standard practice to enforce Building Ordinance for special hazard studies.
g-2	g-2	Increase efforts to reduce landslides and erosion in existing and future **private** development through continuing education of design professionals on mitigation strategies.	LS		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
ECON - h - **New** Construction **and Earthquakes**													
h-1	h-1	Continue to require that all new **privately-owned** commercial and industrial buildings be constructed in compliance with **(deleted "structural")** requirements of the most recently adopted version of the *California Building Code* .	EQ	x								PWA-BID	PWA-BID Standard practice to enforce Building Ordinance required by State Law.
h-2	h-2	Conduct appropriate employee training and support continued education to ensure enforcement of construction standards **for private development.**	EQ	x								PWA-BID	PWA-BID Standard practice training staff to enforce Building Ordinance required by State Law.
h-3	h-3	**Work with private building owners to help them** recognize that many strategies that increase earthquake resistance also decrease damage in an explosion. In addition, recognize that ventilation systems can be designed to contain airborne biological agents.	EQ SEC		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.

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ECON - i - Building Reoccupancy													
i-1	i-1	Institute a program **to encourage owners of private builldings to participate in a program** similar to San Francisco's Building Occupancy Resumption Program (BORP). This program permits owners of private buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster.	EQ LS WF FL SEC						X			PWA-BID and other agencies	PWA-BID On-going evaluating the similar program in San Leandro.
i-2	i-2	Actively notify **private** owners of historic or architecturally significant buildings of the availability of the local BORP-type program and encourage them to participate to ensure that appropriately qualified structural engineers are inspecting their buildings, thus reducing the likelihood that the buildings will be inappropriately evaluated following a disaster.	EQ LS WF FL SEC		X							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
i-3	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.	EQ LS WF FL SEC						X			PWA-BID and other agencies	PWA-BID On-going evaluating the similar program in San Leandro.
i-4	i-4	Allow **private building** owners to participate in a BORP-type program as described above, but not actively encourage them to do so.	EQ LS WF FL SEC						X			PWA-BID and other agencies	PWA-BID On-going evaluating the similar program in San Leandro.
i-5	i-5	Develop and enforce a **repair and reconstruction** ordinance to ensure that damaged buildings are repaired in an appropriate and timely manner and retrofitted concurrently**. This repair and**	EQ LS WF FL SEC			X						PWA-BID	Plan to adopt January 2001 with CBC adoption
i-6	i-6	Establish preservation-sensitive measures for the repair and reoccupancy of historically significant **privately-owned** structures, including requirements for temporary shoring or stabilization where needed, arrangements for consulting with preservationists, and expedited permit procedures for suitable repair or rebuilding of historically or architecturally valuable structures.	EQ LS WF FL SEC		X							CDA Planning, PWA-BID and other agencies	The County is in the process of developing a Historic Preservation Ordinance that would include procedures for the repair of historic or architecurally siginifcant structures.; PWA-BID Need additional funds and resources to implement this mitigation strategy.
ECON - j - Public Education													

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j-1	j-1	Provide information to **private** business owners and **their** employees on the availability of interactive hazard maps on ABAG's web site.	EQ LS WF FL SEC							x		GSA	
j-2	j-2	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging **private** businesses' employees to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines.	EQ LS WF FL SEC		x							PHD, OES, and ACFD	
j-3	j-3	Develop **and** print materials, conduct workshops, and provide outreach to Bay Area **private** businesses focusing on business continuity planning.	EQ LS WF FL SEC							x		Alameda County	
j-4	j-4	Inform Bay Area **private** business owners of mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat, structural retrofitting techniques for older buildings, and use of intelligent grading practices through workshops, publications, and media announcements and events.	WF FL		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
j-5	j-5	Sponsor the formation and training of Community Emergency Response Teams (CERT) training **for other than your own employees** through partnerships with local **private** businesses. [Note – these programs go by a variety of names in various cities and areas.]	EQ LS WF FL SEC		x							ACFD	$8K to $10K per training.
j-6	j-6	Assist **private** businesses in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.	WF							x		Alameda County.	Cost unknown at this time.
j-7	j-7	Make use of the materials developed by others (such as found on ABAG's web site at ***http://quake.abag.ca.gov/business***) to increase mitigation activities related to earthquakes **by groups other than your own agency.** ABAG plans to continue to improve the quality of those materials over time.	EQ							x		CAO	

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j-8	j-8	Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging **private** businesses and residents to keep storm drains in their neighborhood free of debris.	FL	X								PWA, ACFC&WCD	Existing Program.
j-9	j-9	Encourage the formation of a community- and neighborhood-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program* . **This effort is important because grant funds are currently available to offset costs of specific council-supported projects.**	WF				X					ACFD	
j-10	j-10	Encourage **private** businesses and laboratories handling hazardous materials or pathogens increase security to a level high enough to create a deterrent to crime and terrorism, including active implementation of "cradle-to-grave" tracking systems.	SEC EQ							X		PHD	
j-11	j-11	Encourage joint meetings of security and operations personnel at major **private** employers to develop innovative ways for these personnel to work together to increase safety and security.	SEC EQ							X			
j-12	j-12	Inform **private** shoreline-property owners of the possible long-term economic threat posed by rising sea levels.	FL						X				
j-13	j-13	Distribute appropriate materials related to disaster mitigation and preparedness **to private business owners. Appropriate materials are (1) culturally appropriate and (2) suitable for special needs populations. For example, such materials are available on the** http://www.preparenow.org website **and from non-governmental organizations that work with these communities on an on-going basis.**	EQ LS WF FL SEC		X							ACFC&WCD	Additional funds and resources are needed to establish a program for this mitigation strategy.

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GOVT - a - Focus on Critical Facilities **(...Owned by the Local Government Filling Out This Form)**														
a-1	a-1	Assess the vulnerability of critical facilities (such as city halls, fire stations, **operations and communications headquarters,** community service centers, seaports, and airports) to damage in **natural disasters** and make recommendations for appropriate mitigation.	EQ LS WF FL		x							ACFD; GSA, PWA	CIP; ACFD Facilities Study completed in January 2005; Existing Program in PWA, Under-Funded. Additional funds and resources are needed	
a-2	a-2	Retrofit or replace critical facilities that are shown to be vulnerable to damage in natural disasters.	EQ LS WF FL SEC				x					ACFD; GSA, PWA, ACFC&WCD	ACFD: 7 projects @ $30M to $40M; ACFD, submitted predisaster mit grant in 2007 (not funded) submitted fire station construction grant in 2009 (not funded)	
a-3	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.	EQ	x								GSA		
a-4	a-4	Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major natural disasters. **Such contents and equipment includes computers and servers, phones, files, and other tools used by staff to conduct daily business.**	EQ LS WF FL SEC		x							GSA		
a-5	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.	EQ LS WF FL SEC	x								GSA	PWA is in supporting role.	
a-6	a-6	**When** Installing micro and/or surveillance cameras around critical public assets tied to web-based software, and develop a surveillance protocol to monitor these cameras, **investigate the possiblility of using the cameras for the secondary purpose of post-disaster damage assessment.**	EQ LS WF FL SEC					x				Existing in Court Bldgs; PWA and Alameda County Flood Control and Water Control District	PWA Installed cameras for bridges.	
a-7	a-7	Identify and undertake cost-effective retrofit measures **related to security** on critical facilities (such as moving and redesigning air intake vents and installing blast-resistant features) when these buildings undergo major renovations **related to other natural hazards.**	EQ LS WF FL SEC					x				GSA		

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a-8	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.	EQ LS WF FL SEC		x							Alameda County Flood Control and Water Control District	Federal and State laws and regulations.	
a-9	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.	EQ LS WF FL SEC					x				GSA		
a-10	a-10	Ensure that **new** government-owned facilities **comply with and** are subject to the same or more stringent regulations as imposed on privately-owned development.	EQ LS WF FL SEC	x								GSA		
a-11	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.	EQ LS WF FL SEC	x								GSA; PWA; CDA	Federal and State laws and regulations.	
a-12	a-12	Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant **structural** hazards **and hazards associated with the building site.**	EQ LS WF FL SEC	x								GSA		
a-13	**new**	**Ensure that any regulations imposed on private-owned businesses related to repair and reconstruction (see "Economy Section") are enforced and imposed on local government's own buildings and structures.**	EQ LS WF FL SEC	x										
GOVT - b - Maintain and Enhance Local Government's Emergency Recovery Planning														
b-1	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.	EQ LS WF FL SEC	x								CAO, BOS	PWA is in supporting role. Cost may range from $100K to $200K.	
b-2	b-2	Prepare a basic Recovery Plan that outlines the major issues and tasks that are likely to be the key elements of community recovery, as well as integrate this planning into response planning **(such as with continuity of operations plans).**	EQ LS WF FL SEC		x							CAO; BOS; PWA and Alameda County Flood Control and Water Control District; ACFD will develop a department COOP in 2010	$250K to $500K.	

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b-3	b-3	Establish a goal for the resumption of local government services that may vary from function to function.	EQ LS WF FL SEC	x								CAO, BOS, multiple County agencies		
b-4	b-25	Develop a **continuity of operations** plan that includes back-up storage of vital records, such as **plans and back-up procedures to pay employees and vendors if normal finance department operations are disrupted, as well as other essential electronic files.**	EQ LS WF FL SEC						x			CAO; All Agencies	$300K to $200,000.	
b-5	new	**Plan for the emergency relocation of government-owned facilities critical to recovery, as well as any facilities with known structural deficiencies or in hazardous areas.**	EQ LS WF FL SEC						x			PWA		
GOVT - c - Maintain and Enhance Local Government's Emergency Response Capacity														
c-1	new (old b-4 moved to HSNG a-3)	Develop a plan for short-term and intermediate-term sheltering of **your employees.**	EQ LS WF FL SEC	x								OES, PWA		
c-2	new	**Encourage your employees to have a family disaster plan.**	EQ LS WF FL SEC	x								PWA, ACFD		
c-3	new	**Offer CERT/NERT-type training to your employees.**	EQ LS WF FL SEC		x							Under study at PWA, ACFD already provides for its employees		
c-4	b-5 (a)	Periodically assess the need for new or relocated fire or police stations and other emergency facilities.	EQ LS WF FL SEC	x								ACFD; ACSO, OES		
c-5	b-5 (b)	Periodically assess the need for changes in staffing levels, **as well as for** additional or updated supplies, equipment, technologies, and in-service training classes.	EQ LS WF FL SEC	x								ACFD; ACSO, PWA		
c-6	b-6	Ensure that **fire, police, and other emergency** personnel have adequate radios, breathing apparatuses, protective gear, and other equipment to respond to a major disaster.	EQ LS WF FL SEC		x							ACFD; ACSO; EMS, PHD		

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c-7	b-7	**Participate in** developing and maintaining a system of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies.	EQ LS WF FL SEC		x							ACFD; ACSO; OES, EMS, PHD, GSA, PWA		
c-8	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.	EQ LS WF FL SEC		x							GSA-Comm		
c-9	b-9	Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate.	EQ LS WF FL SEC		x							ACSO		
c-10	b-10	Maintain the local government's emergency operations center in a fully functional state of readiness.	EQ LS WF FL SEC		x							OES		
c-11	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.	EQ LS WF FL SEC		x							OES, ACFD partners with other agencies	Additional funds and resources are needed to expand or participate in expanding these disaster exercises.	
c-12	b-12	Maintain and update as necessary the local government's Standardized Emergency Management System (SEMS) Plan **and the National Incident Management System (NIMS) Plan, and submit an appropriate NIMSCAST report.**	EQ LS WF FL SEC	x								All agencies	Federal and State regulations; PWA is in supporting role.	
c-13	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.	EQ LS WF FL SEC	x								ACFD; ACSO	PWA is in supporting role.	
c-14	b-14 & b-22	Install alert and warning systems for **rapid evacuation or shelter-in-place. Such systems include** outdoor sirens **and/or reverse-911 calling systems.**	EQ LS WF FL SEC						x			ACSO Dispatch, GSA-Comm, ACFC&WCD		
c-15	b-15	Conduct periodic tests of the alerting and warning system. **(deleted some wording)**	EQ LS WF FL SEC	x								OES		
c-16	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.	EQ LS WF FL SEC	x								CDA, PWA-BID	PWA-BID Assigns street address numbers for buildings per County Ordinance. CDA reviews	

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c-17	b-17	Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers.	WF	x								ACFD, ACSO, OES		
c-18	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. **Response should also be modified based on knowledge of local micro-climates. Local agencies with less risk then may be available for mutual aid.**	WF	x								ACFD, ACSO, OES		
c-19	b-19	Increase local patrolling during periods of high fire weather.	WF		x							ACFD; ACSO		
c-20	b-20	Create and maintain an automated system of rain and flood gauges that is web enabled and publicly-accessible. **Work toward creating a coordinated regional system.**	FL LS		x							ACFC&WCD	Existing Program, Under-Funded. Additional funds and resources are needed to expand the current program.	
c-21	b-21	Place remote sensors in strategic locations for early warning of hazmat releases or use of weapons of mass destruction, **understanding that the appropriate early warning strategy depends on the type of problem.**	EQ LS WF FL SEC						x			ACFD; ACSO		
c-22	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.	EQ LS FL SEC		x							ACSO-OES; ACFC&WCD	PWA requires additional funds and resources to develop this mitigation strategy.	
c-23	a-8	**Improve coordination among cities, counties, and dam owners so that cities and counties can better plan for evacuation of areas the could be inundated if a dam failed, impacting** their jurisdiction.	EQ LS FL SEC		x							ACFC&WCD	Federal and State laws and regulations.	
c-24	b-24	Develop procedures for the emergency evacuation of areas identified on tsunami evacuation maps as these maps become available.	EQ (TS)						x			Alameda County OES	See Appendix C of ABAG's Multi-Jurisdictional Local Hazard Mitigation Plan	
c-25	**new**	**Support and encourage planning and identification of facilities for the coordination of distribution of water, food, blankets, and other supplies, coordinating this effort with the American Red Cross.**	EQ LS WF FL SEC		x							ACFC&WCD, OES		
GOVT - d - Participate in National, State, Multi-Jurisdictional and Professional Society Efforts to Identify and Mitigate Hazards														
d-1	c-1	Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities.	EQ LS WF FL SEC	x								PWA, ACFC&WCD, OES		

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d-2	c-2	Recognize that emergency services is more than the coordination of police and fire response; it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services.	EQ LS WF FL SEC	x								OES		
d-3	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 capital improvement programs for most effectively reducing the threat of flooding. **Work toward making this process more formal to insure that flooding is considered at existing joint-agency meetings.**	FL			x						ACFC&WCD	On-going discussions.	
d-4	c-4	As new flood-control projects are completed, request that FEMA revise its flood-insurance rate maps and digital Geographic Information System **(GIS)** data to reflect flood risks as accurately as possible.	FL	x								Alameda County Flood Control and Water Control District	Federal and State laws and regulations.	
d-5	c-5	Participate in FEMA's National Flood Insurance Program.	FL	x								Alameda County Flood Control and Water Control District	Already participating.	
d-6	c-6	Participate in multi-agency efforts to mitigate fire threat, such as the Hills Emergency Forum (in the East Bay), various *FireSafe* Council programs, and city-utility task forces. **Such participation increases a jurisidiction's competitiveness in obtaining grants.**	WF		x							OES, ACFD partners where appropriate	PWA is in a supporting role.	
d-7	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.	EQ LS WF FL SEC		x							EH; ACFD will assist businesses per required need	PWA is in a supporting role.	
d-8	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.	EQ LS	x								PWA and ACFC&WCD	PWA-BID Standard practices to join professiona organization related to building codes.	
d-9	c-9	Conduct and/or promote attendance at local or regional hazard conferences and workshops for elected officials **and staff** to educate **them** on the critical need for programs in mitigating earthquake, wildfire, flood, and landslide hazards.	EQ LS WF FL SEC		x							GSA;PWA;CDA;EH; ACFD; OES; ACFC&WCD; ACFD will participates as needed.	Standard Practices.	

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d-10	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.	EQ LS WF FL SEC	x								PWA; CDA; ACFD; ACFC&WCD	PWA-BID Standard practices to expedite permit process.	
GOVT - d - Take a Lead in Loss and Risk Assessment Activities														
e-1	e-1	Work with the cities, counties, and special districts in the Bay Area to encourage them to adopt a Local Hazard Mitigation Plan and to assist them in integrating it into their overall planning process. **RESPONSIBILITY: ABAG only; all others are "not applicable."**	EQ LS WF FL DR TS SEC Flu Ag Heat							x				
e-2	e-2	Improve the risk assessment and loss estimation work in the ***Taming Natural Disasters*** report and multi-jurisdictional plan related to natural disasters. **RESPONSIBILITY: ABAG only; all others are "not applicable."**	EQ LS WF FL DR TS Flu Ag Heat							x				

Education Mitigation Strategies

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EDUC - a - Focus on Critical Facilities **(...Owned by School Districts)**													
a-1	a-1	Assess the vulnerability of critical **public** education facilities to damage in natural disasters and make recommendations for appropriate mitigation.	EQ LS WF FL SEC							x			
a-2	a-2	Retrofit or replace critical **public** education facilities that are shown to be vulnerable to damage in natural disasters.	EQ LS WF FL SEC							x			
a-3	a-3	Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical **public education** buildings from being functional after major disasters.	EQ LS WF FL SEC							x			
a-4	a-4	As a secondary focus, assess the vulnerability of non-critical educational facilities **(that is, those that do not house students)** to damage in natural disasters based on occupancy and structural type, make recommendations on priorities for structural improvements or occupancy reductions, and identify potential funding mechanisms.	EQ LS WF FL SEC							x			
a-5	new	Assess the vulnerability of critical private education, pre-school, and day care facilities to damage in natural disasters and make recommendations for appropriate mitigation.	EQ LS WF FL SEC					x				PWA-BID Assist other agencies	PWA-BID Assist other agencies to identify these facilities.
a-6	a-5	(Major Rewording) **Work with CalEMA and the Division of the State Architect to ensure that there will be an adequate group of Safety Assessment Program (SAP) inspectors trained and deployed by CalEMA to schools for post-disaster inspection. In addition, if a school district is uncomfortable with delays in inspection due to too few SAP inspectors available in catastrophic disasters, formalized arrangements can also be created with those inspectors certified by the Division of the State Architect as construction inspectors to report to the district, assess damage, and determine if the buildings can be reoccupied.**	EQ LS WF FL SEC		x							PWA-BID and other agencies	PWA-BID Need additional funds and resources to implement this mitigation strategy.
EDUC - b - Use of Educational Facilities as Emergency Shelters													

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b-1	b-1	Work cooperatively with the American Red Cross, **cities, counties, and non-profits** to set up memoranda of understanding for use of education facilities as emergency shelters following disasters.	EQ LS WF FL SEC							x			
b-2	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.	EQ LS WF FL SEC							x			
b-3	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.	EQ LS WF FL SEC							x			
EDUC - c - Actions Related to Disaster Preparedness and Recovery Planning													
c-1	new	Encourage employees of schools to have family disaster plans and conduct mitigation activities in their own homes.	EQ LS WF FL SEC							x			
c-2	c-2	Develop plans, in conjunction with fire jurisdictions, for evacuation or sheltering in place of school children during periods of high fire danger, thereby recognizing that overloading of streets near schools by parents attempting to pick up their children during these periods can restrict access by fire personnel and equipment.	EQ LS WF FL SEC							x			
c-3	c-3	Offer the 20-hour basic CERT training to teachers and after-school personnel.	EQ LS WF FL SEC							x			
c-4	c-4	Offer the 20-hour basic **Student Emergency Response Training (SERT, rather than** CERT) training to middle school and/or high school students as a part of the basic science or civics curriculum, as an after school club, or as a way to earn public service hours.	EQ LS WF FL SEC							x			
c-5	c-5	Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system **(either using instructors with teaching credentials or by making facilities available for classes not run by school personnel themselves).**	EQ LS WF FL SEC							x			

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c-6	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.	EQ LS WF FL SEC							x			
c-7	new	**Develop a continuity of operations and disaster recovery plan using models such as that developed by the University of California Berkeley. (The American Red Cross has a role in promoting this activity, as well, in schools that they plan to use as shelters.)**	EQ LS WF FL SEC							x			
EDUC - d- Actions Related to Schools as Conduits for Information to Families About Emergencies													
d-1	c-1	Utilize the unique ability of schools to reach families through educational materials on hazards, mitigation, and preparedness, particularly after disasters and at the beginning of the school year. These efforts will not only make the entire community more disaster-resistant, but speed the return of schools from use as shelters to use as teaching facilities, **particularly if coordinated with cities, counties, the American Red Cross and others.**	EQ LS WF FL SEC							x			
d-2	c-7	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the http://www.preparenow.org website.	EQ LS WF FL SEC							x			

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ENVI - a - Environmental Sustainability and Pollution Reduction													
a-1	a-1	Continue to enforce State-mandated requirements, such as the *California Environmental Quality Act* , to ensure that mitigation activities for hazards, such as seismic retrofits and vegetation clearance programs for fire threat, are conducted in a way that reduces environmental degradation such as air quality impacts, noise during construction, and loss of sensitive habitats and species, while respecting the community value of historic preservation.	EQ LS WF FL DR SEC	x								CDA	CEQA, County Ordinance, State Law
a-2	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.	EQ WF FL SEC	x								PWA, CDA, GSA; PWA and ACFC&WCD; ACFD	Standard Practice
a-3	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.	LS WF FL DR SEC	x								CDA Planning (Code Enforcement), PWA	CEQA, General Plan, County Ordinance, State Law
a-4	a-4	Develop and implement a comprehensive program for watershed **management** optimizing **ecosystem** health with water yield to balance water supply, flooding, fire, and erosion concerns.	LS WF FL DR SEC		x							PWA, PWA and ACFC&WCD	County Ordinance, CEQA, more funding needed to implement
a-5	a-5	Balance the need for the smooth flow of storm waters versus the need to maintain wildlife habitat by developing and implementing a comprehensive Streambed Vegetation Management Plan that ensures the efficacy of flood control efforts, **mitigates wildfires** and maintains the viability of living rivers.	LS WF FL DR		x							PWA, PWA and ACFC&WCD	County Ordinance, more funds needed to implement
a-6	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.	FL	x								PWA, CDA	PWA-BID Assist other agencies to enforce stormwater management plan, General Plan, County Ordinance, Grading and Stormwater Ordinance, CEQA/NEPA; Federal and State Laws.

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a-7	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.	LS FL		x							PWA, CDA	General Plan, County Ordinance, CEQA/NEPA; Grading Ordinance, Watercourse Ordinance. PWA-BID Enforce
a-8	a-10	Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters.	FL	x								PWA, Environmental Health	New hazardous Materials. PWA-BID Enforce Flood Design provisions in County Building Ordinance.
a-9	a-11	Enforce and/or comply with the hazardous materials requirements of the State of California Certified Unified Program Agency (CUPA).	EQ LS WF FL SEC	x								PWA, CDA, Envi. Health	General Plan, County Ordinance; State Law
a-10	a-12	Provide information on hazardous waste disposal and/or drop off locations.	EQ LS WF FL SEC	x								PWA, Env. Health	Federal and State Law
a-11	new	**When remodeling existing government and infrastructure buildings and facilities, remove asbestos to speed up clean up of buildings so that they can be reoccupied more quickly.**	EQ LS WF FL SEC							x			
a-12	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). **This program could include vegetation removal, thinning, or replacement in hazard areas where there is a direct threat to structures.**	WF FL		x							CDA (Ag.), ACFC&WCD	The Pest Prevention program is a cooperative effort between the CFDA and counties which focuses on keeping out invasive non-native plants, pests, and diseases. There is an project with other groups such as Save the Bay to eradicate non-native cordgrass and to encourage native plant species in the wetlands. Additional funds are needed to develop a plan for this mitigation strategy.
a-13	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.	FL		x							PWA, CDA, ACFC&WCD	General Plan, County Ordinance; Federal and State laws. Grading Ordinance, Watercourse Ordinance.
ENVI - b - Climate Change													

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b-1	a-6 + a-7	**Stay informed of scientific information compiled by regional and state sources on the subject of rising sea levels and global warming, especially on additional actions that local governments can take to mitigate this hazard including special design and engineering of government-owned facilities in low-lying areas, such as wastewater treatment plants, ports, and airports.**	LS WF FL DR	x								ACFC&WCD; CDA	The County is developing both internal and external programs to address climate change. The County hopes to complete its Climate Action Plan in 2010.
b-2	new	**Inventory global warming emissions in your own local government's operations and in the community, set reduction targets and create an action plan.**	LS WF FL DR		x							PWA, CDA	The County is currently investigating emissions as a part of its Climate Action Plan.
b-3	new	**Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities.**	LS WF FL DR		x							CDA Planning, PWA-BID Assist other agencies	PWA-BID Assist other agencies to enforce land-use policies; Alameda County Gen'l Plan
b-4	new	**Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for car pooling and public transit.**	LS WF FL DR		x							PWA, CDA Planning	Alameda County Gen'l Plan
b-5	new	**Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology.**	LS WF FL DR		x							PWA, CDA	The County is developing both internal and external programs to address climate change. The County hopes to complete its Climate Action Plan in 2010.
b-6	new	**Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money.**	LS WF FL DR		x							PWA-BID and other agencies	PWA-BID Enforce the County Green Building & C&D Debris Ordinance through building permit process for private development.
b-7	new	**Purchase only Energy Star equipment and appliances for local government use.**	LS WF FL DR	x								GSA	Governed by Alameda County's Green Building and Waste Diversion Ordinance, and the green procurement program
b-8	new	**Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system.**	LS WF FL DR		x							CDA, PWA-BID and other agencies	PWA-BID Enforce the County Green Building & C&D Debris Ordinance through building permit process for private development.

Environment Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program-Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
b-9	new	**Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel.**	LS WF FL DR							x		PWA	
b-10	new	**Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production.**	LS WF FL DR						x			ACFC&WCD	
b-11	new	**Increase recycling rates in local government operations and in the community.**	LS WF FL DR		x							PWA	The County is developing both internal and external programs to address climate change. The County hopes to complete its Climate Action Plan in 2010. The County is also considering a curbside recycling program for the East County area.
b-12	new	**Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2.**	LS WF FL DR		x							PWA, CDA	The County is developing both internal and external programs to address climate change. The County hopes to complete its Climate Action Plan in 2010.
b-13	new	**Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution.**	LS WF FL DR						x			CDA	The County is developing both internal and external programs to address climate change. The County hopes to complete its Climate Action Plan in 2010.
ENVI - c - Agricultural and Aquaculture Resilience													
c-1	b-1	Maintain a variety of crops in rural areas of the region to increase agricultural diversity and crop resiliency. **RESPONSIBLE AGENCIES: County Offices of the Agricultural Commissioner.**	Ag DR SEC	x								CDA-Agriculture	Standard Practice
c-2	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. **RESPONSIBLE AGENCIES: County Offices of the Agricultural Commissioner.**	Ag DR SEC		x							CDA-Agriculture	Pest Mitigation regulation, CDFA (Cal Dept of Food and Agriculture)

Environment Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Very High - Unofficial Program-Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
c-3	b-4	Encourage livestock operators to develop an early-warning system to detect animals with communicable diseases (due to natural causes or bioterrorism). **RESPONSIBLE AGENCIES: County Health Department and Office of the County Agricultural Commissioner.**	Ag Flu SEC	x								CDA-Agriculture	Quarantine regulation, CDFA (Cal Dept of Food and Agriculture)
deleted	b-3	(deleted since not a disaster-related strategy)											

Land Use Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Priority (CHECK ONLY ONE): Existing Program	Existing Program, underfunded	Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
LAND - a - Earthquake Hazard Studies for New **Private** Developments													
a-1	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.)	EQ	x								PWA, CDA (Planning and Redevelopment Agency)	Public Development: State Law, County Ordinance, CEQA; Private Development: State law, PWA-BID Standard practice to enforce Building ordinance related to soils and foundation provisions, Grading Ordinance, Subdivision Ordinance. SHMA;CEQA; Alameda County Building, Grading, and Subdivision Ordinances.
a-2	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.	EQ	x								PWA, CDA (Planning and Redevelopment Agency)	Public Development: State Law, County Ordinance, CEQA; Private Development: State law, PWA-BID Standard practice to enforce Building ordinance related to soils and foundation provisions, Grading Ordinance, Subdivision Ordinance. SHMA;CEQA; Alameda County Building, Grading, and Subdivision Ordinances.
a-3	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.	EQ	x								PWA, GSA, CDA-Planning	Public Development: State Law, County Ordinance, CEQA; Private Development: State law, PWA-BID Standard practice to enforce Building ordinance related to soils and foundation provisions, Grading Ordinance, Subdivision Ordinance.

Land Use Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
a-4	new	**Ensure that development proposed near faults with a history of complex surface rupture (multiple traces, warping, thrusting, etc.) has larger setbacks than the minimum fifty feet.**	EQ						x			PWA-BID, CDA Planning	PWA-BID Need further study on regulations beyond current CBC requirements.
a-5	new	**Consider imposing requirements similar to the Alquist-Priolo Earthquake Fault Zoning Act for structures without human occupancy if these buildings are still essential for the economic recovery of the community or region.**	EQ						x			PWA-BID, CDA Planning	PWA-BID Need further study on regulations beyond current CBC requirements.
a-6	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.	EQ	x								PWA, GSA, CDA-Planning	Not Formally Recognized - Standard Practice. PWA-BID Continue monitoring updated mapped area.
a-7	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.	EQ	x								All Agencies	PWA-BID Cooperative with Requests for Information; Standard Practices. Support
a-8	a-6	Require that local government reviews of geologic and engineering studies are conducted by appropriately trained and credentialed personnel.	EQ	x								PWA-BID, CDA Planning	PWA-BID Peer Review; (Private Developments) Standard Practices
LAND - b - Wildland and Structural Fires													
b-1	b-1	Review **new** development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation and access by emergency response personnel and equipment.	WF	x								ACFD, CDA, PWA-BID	In Alameda County General Plan; ACFD and CDA set conditions and PWA reviews to ensure conditions are met. PWA-BID Standard practice to enforce. Ordinance Practices for wildland
b-2	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.	WF	x								AFCD, PWA-BID	PWA-BID Standard practice to enforce Ordinance Practices for wildland Fire design requirements.
LAND - c - Flooding													

Land Use Mitigation Strategies

2009-2010 Strategy Number	2005 Original Strategy Number	Specific Mitigation Strategy	Applicable Hazards	Existing Program	Existing Program, underfunded	Unofficial Program- Becomes Official on Plan Adoption, no funding needed	High - Actively Looking for Funding	Moderate	Under Study	Not Applicable, Not Appropriate, or Not Cost Effective	Not Yet Considered	Responsible Agency or Department (Required if Existing Program, Existing Program under funded, Very High, High, or Under Study)	Ordinance or Resolution # (if existing program), Estimated Cost and Possible Funding Agency (if high priority), Estimated Date of Completion (if study), WHY if not same as regional priority, OR Other Comments
c-1	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.	FL	x								PWA and AC Flood Control and Water Control District; CDA Planning	NPDES, Subdivision Ordinance; CEQA; and General Plan; Provide comments to CDA to set conditions prior to CDA's approval. PWA-BID Standard practice to enforce Building Ordinance for Flood Design.
c-2	c-2	Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards.	FL		x							CDA Planning, PWA and AC Flood Control and Water Control District	General Plan, CEQA, PWA-BID Standard practice to enforce Building Ordinance for Flood Design.; Existing program underfunded. Additional funds and resources are needed to expand the current program
c-3	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).	FL	x								PWA, CDA Planning	County Ordinance; PWA-BID Standard practice to enforce Building Ordinance for Flood Design, Subdivision Ordinance, Floodplain Management Ordinance, Stormwater Management Ordinance, NFIP/CRS regulations.
c-4	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* .	FL		x							PSA, CDA Planning; PWA and ACFC&WCD	PWA-BID Standard practice to enforce Building Ordinance for Flood Design. Alameda County is NFIP/CRS Class 7. $200K to $400K
c-5	new	**Encourage new development near floodways to incorporate a buffer zone or setback from that floodway to allow for changes in stormwater flows in the watershed over time.**	FL			x						ACFC&WCD; CDA Planning	Standard Practice

Land Use Mitigation Strategies

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c-6	new	**For purposes of creating an improved hazard mitigation plan for the region as a whole, ABAG, and Bay Area cities and counties, jointly request geographically defined repetitive flooding loss data from FEMA for their own jurisdictions.**	FL			x						ACFC&WCD	
LAND - d - Landslides and Erosion													
d-1	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.	LS	x								PWA, CDA Planning	County Ordinance; Private Development: Grading Ordinance, Subdivision Ordinance. PWA-BID Standard practice to enforce Building ordinance related to soils and foundation provisions.
d-2	d-2	Require that local government reviews of these investigations are conducted by appropriately trained and credentialed personnel.	LS	x								PWA, CDA Planning	Peer Review; Private Developments: Standard Practices. PWA-BID Standard practice to enforce Building ordinance related to soils and foundation provisions.
d-3	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.	LS	x								PWA, CDA Planning	Peer Review; Private Developments: Grading Ordinance, Watercourse Ordinance. PWA-BID Standard practice to enforce Building ordinance related to erosion control.
d-4	d-4	Establish and enforce provisions under the creek protection, storm water management, and discharge control ordinances designed to control erosion and sedimentation.	LS	x								PWA, CDA Planning	Federal and State Laws; Storm Water Ordinance. PWA-BID Standard practice to enforce Building ordinance related to erosion control.
d-5	d-5	Establish requirements in zoning ordinances to address hillside development constraints, especially in areas of existing landslides.	LS	x								PWA, CDA Planning	General Plan, Zoning Ordinance. PWA-BID Assist other agencies to implement this strategy.
LAND - e - Hillside - Multi-Hazard													

Land Use Mitigation Strategies

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e-1	e-1	For new development, require a buffer zone between residential properties and landslide or wildfire hazard areas.	LS WF	x								CDA Planning, ACFD, PWA-BID assist other agencies	General Plan, Zoning Ordinance
e-2	e-2	Discourage, add additional mitigation strategies, or prevent **new** construction **or major remodels** on slopes greater than a set percentage, such as 15%, due to landslide or wildfire hazard concerns.	LS WF	x								CDA Planning, ACFD, PWA-BID assist other agencies	Zoning Ordinance and the General Plan. PWA provides technical recommendations when consulted.
LAND - f - Smart Growth to Revitalize Urban Areas and Promote Sustainability													
f-1	f-1	Prioritize retrofit of infrastructure that serves urban areas **(or urban services areas)** over constructing new infrastructure to serve outlying areas.	EQ LS WF FL DR SEC	x								PWA, ACFC&WCD	
f-2	f-2	Work to retrofit homes in older **urban neighborhoods** to provide safe housing close to job centers.	EQ LS WF FL DR SEC		x							CDA-Housing and Community Development and Redevelopment, PWA-BID assist other agencies	PWA-BID Assist other agencies to process retrofit permits.
f-3	f-3	Work to retrofit older downtown areas **and redevelopment districts** to protect architectural diversity and promote disaster-resistance.	EQ LS WF FL SEC		x							CDA-Housing and Community Development and Redevelopment, PWA-BID assist other agencies	PWA-BID Assist other agencies to process retrofit permits.
f-4	f-4	Work with non-profits and through other mechanisms to protect as open space **those** areas susceptible to extreme hazards **(such as through land acquisition, zoning, and designation as priority conservation areas).**	EQ LS WF FL SEC		x							CDA Planning, ACFD, ACFC&WCD	General Plan, Zoning Ordinance; PWA is in a supporting role, flood plain acquisition needs further study.
f-5	f-5	Strive to preserve existing buffers between development and existing users of large amounts of hazardous materials, such as major industry, due to the potential for catastrophic releases **or fires** due to an earthquake, **accident,** or terrorism. (Flooding might also result in release or spread of these materials; however, it is unlikely.) **In areas where buffers do not exist or cannot be created, provide alternative mitigation.**	EQ LS WF FL SEC	x								ACFD, CDA and Env . Health	General Plan; Zoning Ordinance
LAND - g - Hazard Abatement Districts													
g-1	new	**Use hazard abatement districts as a funding mechanism to ensure that mitigation strategies are implemented and enforced over time.**	EQ LS WF FL							x			