

## Appendix B: Status of 2011 Mitigation Strategy Programs

<b>Ongoing Programs - Economy</b>			
DEPT.		<i>Program</i>	<i>Status</i>
CDD	1	Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for commercial and industrial properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act). (ECON-a-1)	Ongoing
CDD	2	Require engineered plan sets for voluntary or mandatory soft-story seismic retrofits by private owners until a standard plan set and construction details become available. (ECON-b-1) - California Building Code	Addressed in new LHMP Strategy # 10
CDD	3	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform private property owners that they own this type of hazardous structure. (ECON-c-1)	Ongoing
CDD	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. (ECON-c-4)	Ongoing
CDD FIRE	5	Increase efforts to reduce hazards in existing private development in wildland-urban interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies. (ECON-e-1)	Ongoing
FIRE	6	Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement. (ECON-e-2)	
FIRE CDD	7	Require that new privately-owned business and office buildings in high fire hazard areas be constructed of fire-resistant building materials and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability. (ECON-e-3)	Ongoing – due to inadequate parcel/mapping resources this is an area for future improvement.
FIRE	8	Adopt and amend as needed updated versions of the	Ongoing

CDD		<i>California Building and Fire Codes</i> so that optimal fire-protection standards are used in construction and renovation projects of private buildings. (ECON-e-4)	
FIRE CDD	9	Create a mechanism to enforce provisions of the <i>California Building and Fire Codes</i> and other local codes that require the installation of smoke detectors and fire-extinguishing systems on existing privately-owned buildings by making installation a condition of (a) finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property. (ECON-e-5)	Ongoing
CDD FIRE	10	Compile a list of privately-owned high-rise and high-occupancy buildings that are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures. (ECON-e-9)	No structures in this category
FIRE	11	Conduct periodic fire-safety inspections of all privately-owned commercial and industrial buildings. (ECON-e-10)	Ongoing
CDD	12	Balance the needs for private commercial and industrial development against the risk from potential flood-related hazards. (ECON-f-2)	Ongoing through development review
PW	13	Ensure that new private development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, or does not increase runoff by draining water to pervious areas or detention facilities. (ECON-f-3)	Ongoing through development review and compliance with NPDES permit.
PW	14	Provide sandbags and plastic sheeting to private businesses in anticipation of rainstorms, and deliver those materials to vulnerable populations upon request. (ECON-f-4)	Ongoing - available during flood emergencies
PW	15	Provide information to private business on locations for obtaining sandbags and deliver those sandbags to those various locations throughout a city and/or county. (ECON-f-5)	Ongoing - available during flood emergencies. Will improve with new LHMP Mitigation #2
PW CDD	16	Apply floodplain management regulations for private development in the floodplain and floodway. (ECON-f-6)	City Floodplain Ordinance, Zoning Ordinance, General Plan
PW CDD	17	Encourage private business owners to participate in building elevation programs within flood hazard areas. (ECON-f-7)	Ongoing –as needed
CDD PW	18	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 <i>California Building Code</i> , <i>California Geological Survey Special Report 117 – Guidelines for Evaluating and</i>	Ongoing through development review – no major development on vulnerable sites during planning

		<i>Mitigating Seismic Hazards in California</i> , American Society of Civil Engineers (ASCE) report <i>Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California</i> , and the California Board for Geologists and Geophysicists <i>Guidelines for Engineering Geologic Reports</i> . 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. (ECONg-1)	period.
CDD	19	Continue to require that all new privately-owned commercial and industrial buildings be constructed in compliance with requirements of the most recently adopted version of the <i>California Building Code</i> . (ECON-h-1) - California Building Code	Ongoing
CDD	20	Conduct appropriate employee training and support continued education to ensure enforcement of construction standards for private development. (ECON-h-2)	Ongoing
CDD	21	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 <a href="http://quake.abag.ca.gov/recovery/info-repair-ord.html">http://quake.abag.ca.gov/recovery/info-repair-ord.html</a> . (ECON-i-5)	California Building Code, but could adopt the appendix separately. Carried over to 2016-2021 planning period.
CDD FIRE	22	Provide information to private business owners and their employees on the availability of interactive hazard maps on ABAG's web site. (ECON-j-1)	Addressed through new LHMP Strategy #20
CDD FIRE	23	Make use of the materials developed by others (such as found on ABAG's web site at <a href="http://quake.abag.ca.gov/business">http://quake.abag.ca.gov/business</a> ) to increase mitigation activities related to earthquakes by groups other than your own agency. ABAG plans to continue to improve the quality of those materials over time. (ECON-j-7)	Utilize City's website/Mitigation page, Facebook and Twitter
PW	24	Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging private businesses and residents to keep storm drains in their neighborhood free of debris. (ECON-j-8)	"Only Rain Down the Drain" campaign
FIRE	25	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	Addressed through new LHMP Strategy #20

		<a href="http://www.preparenow.org">http://www.preparenow.org</a> website and from non-governmental organizations that work with these communities on an on-going basis. (ECON-j-13)	
<b>Ongoing Programs - Education</b>			
FIRE BUSD	26	Work cooperatively with the American Red Cross, cities, counties, and non-profits to set up memoranda of understanding for use of education facilities as emergency shelters following disasters. (EDUC-b-1)	
FIRE BUSD	27	Work cooperatively to ensure that school district personnel and relevant staff understand and are trained that being designated by the American Red Cross or others as a potential emergency shelter does NOT mean that the school has had a hazard or structural evaluation to ensure that it can be used as a shelter following any specific disaster. (EDUC-b-2)	
FIRE BUSD	28	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. (EDUC-b-3)	
FIRE BUSD	29	Encourage employees of schools to have family disaster plans and conduct mitigation activities in their own homes. (EDUC-c-1)	
FIRE BUSD	30	Develop plans, in conjunction with fire jurisdictions, for evacuation or sheltering in place of school children during periods of high fire danger, thereby recognizing that overloading of streets near schools by parents attempting to pick up their children during these periods can restrict access by fire personnel and equipment. (EDUC-c-2)	
<b>Ongoing Programs - Environment</b>			
CDD FIRE  STATE & FED.	31	Continue to enforce State-mandated requirements, such as the <i>California Environmental Quality Act</i> , to ensure that mitigation activities for hazards, such as seismic retrofits and vegetation clearance programs for fire threat, are conducted in a way that reduces environmental degradation such as air quality impacts, noise during construction, and loss of sensitive habitats and species, while respecting the community value of historic preservation. (ENVI-a-1) State & Federal Resource Agencies.	Ongoing - Issues are addressed on a case-by-case basis as mitigation programs are designed and implemented.
CDD FIRE  STATE & FED	32	Encourage regulatory agencies to work collaboratively with safety professionals to develop creative mitigation strategies that effectively balance environmental and safety needs, particularly to meet critical wildfire, flood, and earthquake safety levels. (ENVI-a- 2)	Ongoing
CDD  STATE &	33	Continue to enforce and/or comply with State-mandated requirements, such as the <i>California Environmental Quality Act</i> and environmental regulations to ensure that	Ongoing through development review

FED		urban development is conducted in a way to minimize air pollution. For example, air pollution levels can lead to global warming, and then to drought, increased vegetation susceptibility to disease (such as pine bark beetle infestations), and associated increased fire hazard. (ENVI-a-3)	
PW STATE & FED	34	Balance the need for the smooth flow of storm waters versus the need to maintain wildlife habitat by developing and implementing a comprehensive Streambed Vegetation Management Plan that ensures the efficacy of flood control efforts, mitigates wildfires and maintains the viability of living rivers. (ENVI-a-5)	Ongoing - issues are addressed on a case-by-case basis as mitigation programs are designed and implemented
PW STATE & FED	35	Comply with applicable performance standards of any <i>National Pollutant Discharge Elimination System</i> municipal stormwater permit that seeks to manage increases in stormwater run-off flows from new development and redevelopment construction projects. (ENVI-a-6)	Ongoing through development review
PW	36	Enforce and/or comply with the grading, erosion, and sedimentation requirements by prohibiting the discharge of concentrated stormwater flows by other than approved methods that seek to minimize associated pollution. (ENVI-a-7)	Ongoing through development review
CDD FIRE	37	Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters. (ENVI-a-8)	Ongoing through permits and inspections
ALL DEPTS	38	Provide information on hazardous waste disposal and/or drop off locations. (ENVI-a-10)	Ongoing
P&CS CDD	39	When remodeling existing government and infrastructure buildings and facilities, remove asbestos to speed up cleanup of buildings so that they can be reoccupied more quickly. (ENVI-a-11)	Ongoing where applicable.
CDD	40	Stay informed of scientific information compiled by regional and state sources on the subject of rising sea levels and global warming, especially on additional actions that local governments can take to mitigate this hazard including special design and engineering of government-owned facilities in low-lying areas, such as wastewater treatment plants, ports, and airports. (ENVI-b-1)	Ongoing – Climate Adaptation Plan
CDD	41	Inventory global warming emissions in your own local government's operations and in the community, set reduction targets and create an action plan. (ENVI-b-2) – Reduction targets adopted in September 2008.	Ongoing – Climate Action Plan
<b>Ongoing Programs - Government</b>			
FIRE PD	43	Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public,	Ongoing - training programs (classes,

CMO		the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake. (GOVT-a-3)	seminars, ed. materials)
FIRE PD CMO	44	Encourage joint meetings of security and operations personnel at critical facilities to develop innovative ways for these personnel to work together to increase safety and security. (GOVT-a-5)	Ongoing- training, drills, cooperative planning
P&CS CDD FIRE	45	Ensure that new government-owned facilities comply with and are subject to the same or more stringent regulations as imposed on privately-owned development. (GOVT-a-10)	Ongoing – no new government facilities built or planned
P&CS CDD FIRE	46	Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling government-owned facilities. (GOVT-a-11)	Ongoing as needed
P&CS CDD FIRE	47	Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant structural hazards and hazards associated with the building site. (GOVT-a-12)	Ongoing – no new critical facility acquired or planned
P&CS CDD FIRE	48	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. (GOVT-a-13)	Ongoing
FIRE POLICE SO. CTY.	49	Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to fires, floods, earthquakes, and other disasters. (GOVT-c-13)	Mutual Aid agreements in place
FIRE PD	50	Install alert and warning systems for rapid evacuation or shelter-in-place. Such systems include outdoor sirens and/or reverse-911 calling systems. (GOVT-c-14)	Seven sirens in place. Cable TV and AM radio used for notification. Will improve with implementation of new LHMP Mitigation #2
CDD FIRE	51	Regulate and enforce the location and design of street-address numbers on buildings and minimize the naming of short streets (that are actually driveways) to single homes. (GOVT-c-16) –Building Code, Fire Code	Ongoing
FIRE	52	Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers. (GOVT-c-17)	Ongoing monitoring by 911 Dispatch and Patrol. Weather stations at fire stations.
ALL DEPTS	53	Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities. (GOVT-d-1)	Ongoing - includes cooperation with ABAG and State agencies

ALL DEPTS	54	Recognize that emergency services is more than the coordination of police and fire response; it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services. (GOVT-d-2)	Ongoing - includes cooperation with ABAG and State agencies
CDD PW FIRE	55	As new flood-control projects are completed, request that FEMA revise its flood insurance rate maps and digital Geographic Information System (GIS) data to reflect flood risks as accurately as possible. (GOVT-d-4)	New FIRMs expected to become effective summer 2016
CDD PW FIRE	56	Participate in FEMA's National Flood Insurance Program. (GOVT-d-5)	Ongoing
FIRE	57	Work with major employers and agencies that handle hazardous materials to coordinate mitigation efforts for the possible release of these materials due to a natural disaster such as an earthquake, flood, fire, or landslide. (GOVT-d-7)	Emergency Response Plan at major sources
CDD FIRE	58	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. (GOVT-d-10)	Done, if applicable
<b>Ongoing Programs - Health</b>			
FIRE	59	Ensure health care facilities are adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation. (HEAL-a-3)	
FIRE	60	Ensure these health care facilities have the capacity to shut off outside air and be self-contained (HEAL-a-4)	
<b>Ongoing Programs - Housing</b>			
FIRE	61	Develop a plan for short-term sheltering of residents of your community in conjunction with the American Red Cross. (HSNG-a-3)	
CDD	62	Utilize or recommend adoption of a retrofit standard that includes standard plan sets and construction details for voluntary bolting of homes to their foundations and bracing of outside walls of crawl spaces ("cripple" walls), such as Plan Set A developed by a committee representing the East Bay-Peninsula-Monterey Chapters of the International Code Council (ICC), California Building Officials (CALBO), the Structural Engineers Association of Northern California (SEAONC), the Northern California Chapter of the Earthquake Engineering Research Institute (EERI-NC), and ABAG's Earthquake Program. (HSNG-b-1) –Minimum standards in Construction Framing provisions of California Building	Addressed in new LHMP Strategy # 10

		Code	
CDD	63	Require engineered plan sets for seismic retrofitting of heavy two-story homes with living areas over garages, as well as for split level homes (that is, homes not covered by Plan Set A), until standard plan sets and construction details become available. (HSNG-b- 2) –California Building Code	Addressed in new LHMP Strategy # 10
CDD	64	Require engineered plan sets for seismic retrofitting of homes on steep hillsides (because these homes are not covered by Plan Set A). (HSNG-b-3) –California Building Code	Addressed in new LHMP Strategy # 10
CDD	65	Encourage local government building inspectors to take classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG) on retrofitting of single family homes, including application of Plan Set A. (HSNG-b-4) –California Building Code	Ongoing
CDD	66	Encourage private retrofit contractors and home inspectors doing work in your area to take retrofit classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG or additional classes that might be offered by the CALBO Training Institute) on retrofitting of single-family homes. (HSNG-b-5)	Partially addressed in new LHMP Strategy #5
CDD	67	Require engineered plan sets for voluntary or mandatory soft-story seismic retrofits by private owners until a standard plan set and construction details become available. (HSNG-c-1) –California Building Code	Addressed in new LHMP Strategy # 10
CDD	68	Provide technical assistance in seismically strengthening privately-owned soft-story structures. (HSNG-c-9)	Ongoing through property owner coordination
CDD	69	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform private property owners that they own this type of hazardous structure. (HSNG-d-1)	Ongoing – prior list currently being digitized
CDD	70	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. (HSNG-d-4)	Ongoing
CDD	71	Continue to require that all new housing be constructed in compliance with requirements of the most recently adopted version of the <i>California Building Code</i> . (HSNG-f-1)	Ongoing
CDD	72	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. (HSNG-f-2)	Ongoing

FIRE	73	Increase efforts to reduce hazards in existing private development in wildland-urban interface fire-threatened communities or in areas exposed to high-to-extreme fire threat through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies. (HSNG-g-1)	Ongoing
FIRE	74	Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement. (HSNG-g-2)	Partially addressed through new LHMP Strategy #11
FIRE	75	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 <a href="http://osfm.fire.ca.gov/structural.html">http://osfm.fire.ca.gov/structural.html</a> . (HSNG-g-3)	Ongoing – due to inadequate parcel/mapping resources this is an area for future improvement.
FIRE CDD	76	Consider fire safety, evacuation, and emergency vehicle access when reviewing proposals to add secondary units or additional residential units in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. (HSNG-g-5)	Ongoing through development review.
CDD FIRE	77	Adopt and amend as needed updated versions of the <i>California Building and Fire Codes</i> so that optimal fire-protection standards are used in construction and renovation projects of private buildings. (HSNG-g-6)	Ongoing
CDD FIRE	78	Create a mechanism to enforce provisions of the <i>California Building and Fire Codes</i> and other local codes that require the installation of smoke detectors and fire-extinguishing systems on existing residential buildings by making installation a condition of (a) finalizing a permit for any work valued at over a fixed amount and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property. (HSNG-g-7)	Ongoing
CDD FIRE	79	Require fire sprinklers in new homes located more than 1.5 miles or a 5-minute response time from a fire station or in an identified high hazard wildland-urban-interface wildfire area. (HSNG-g-12)	Ongoing
CDD FIRE	80	Require fire sprinklers in all new or substantially remodeled multifamily housing, regardless of distance from a fire station. (HSNG-g-13)	Ongoing
CDD FIRE	81	Require sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas. (HSNG-g-14) –California Building Code	California Building Code
FIRE	82	Conduct periodic fire-safety inspections of all multi-family	Ongoing

		buildings, as required by State law. (HSNG-g-16)	
CDD	83	Create a mechanism to require the bracing of water heaters and flexible couplings on gas appliances, and/or (as specified under "b. Single-family homes vulnerable to earthquakes" above) the bolting of homes to their foundations and strengthening of cripple walls to reduce fire ignitions due to earthquakes. (HSNG-g-18)	California Building Code
PW CDD	84	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)	Ongoing through development review.
PW	85	Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, and deliver those materials to vulnerable populations upon request. (HSNG-h-4)	Corporation Yard provides sandbags during an event
PW FIRE	86	Provide public information on locations for obtaining sandbags and/or deliver those sandbags to those various locations throughout a city and/or county prior to and/or during the rainy season. (HSNG-h-5)	Corporation Yard provides sandbags during an event
CDD PW	87	Apply floodplain management regulations for private development in the floodplain and floodway. (HSNG-h-6)	Ongoing through development review. New floodplain ordinance scheduled for 2016
CDD PW	88	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)	Ongoing through development review.
CDD	89	Encourage home and apartment owners to participate in home elevation programs within flood hazard areas. (HSNG-h-8)	Ongoing
CDD	90	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. (HSNG-h-10)	Ongoing
CDD PW	91	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 <i>Special Report 117 – Guidelines for Evaluating and Mitigating Seismic Hazards in California</i> , American Society of Civil Engineers (ASCE) report <i>Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California</i> , and the California Board for Geologists and Geophysicists <i>Guidelines for Engineering Geologic Reports</i> . Such standards should cover excavation, fill placement, cut-fill transitions, slope	Ongoing through development review.

		stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance. (HSNG i-1)	
CDD	92	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 <a href="http://quake.abag.ca.gov/recovery/info-repair-ord.html">http://quake.abag.ca.gov/recovery/info-repair-ord.html</a> . (HSNG-j-1) –California Building Code	Addressed in new LHMP Strategy # 5, #10
CMO FIRE	93	Use disaster anniversaries, such as April (the 1906 earthquake), September (9/11), and October (Loma Prieta earthquake and Oakland Hills fire), to remind the public of safety and security mitigation activities. (HSNG-k-5) – City of Benicia City Manager, Fire	Addressed in new LHMP Strategy #20
CMO FIRE PG&E	94	Train homeowners to locate and shut off gas valves if they smell or hear gas leaking. (HSNG-k-10) – Educational materials available	Shut-off valve ordinance scheduled for 2016-2021 planning period
CDD FIRE	95	Make use of the materials on the ABAG web site at <a href="http://quake.abag.ca.gov/fixit">http://quake.abag.ca.gov/fixit</a> and other web sites to increase residential mitigation activities related to earthquakes. (ABAG plans to continue to improve the quality of those materials over time.) (HSNG-k-12)	Ongoing through CERT, social media, and city website
PW	96	Develop a “Maintain-a-Drain” campaign, similar to that of the City of Oakland, encouraging private businesses and residents to keep storm drains in their neighborhood free of debris. (HSNG-k-13)	Ongoing - "Only Rain Down the Drain" campaign
CDD FIRE	97	Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels. (HSNG-k-15)	Ongoing – Climate Adaptation Plan
FIRE	98	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 <a href="http://www.preparenow.org">http://www.preparenow.org</a> website and from non-governmental organizations that work with these communities on an on-going basis. (HSNG-k-16)	Addressed in new LHMP Strategy #20
<b>Ongoing Programs - Infrastructure</b>			
PW	99	If a dam owner, comply with State of California and federal requirements to assess the vulnerability of dams to damage from earthquakes, seiches, landslides, liquefaction, or security threats. (INFR-a-2)	N/A
PW	100	Encourage the cooperation of utility system providers and cities, counties, and special districts, and PG&E to	Ongoing

		develop strong and effective mitigation strategies for infrastructure systems and facilities. (INFR-a-3)	
PW FIRE	101	Support and encourage efforts of other (lifeline infrastructure) agencies as they plan for and arrange financing for seismic retrofits and other disaster mitigation strategies. (For example, a city might pass a resolution in support of a transit agency's retrofit program.) (INFR-a-5)	City owns water utility and works with Solano County, WARN, and other cities on water supply. Fire has hoses available for bridging pipeline gaps in potable water supply.
PW FIRE	102	Develop a plan for speeding the repair and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water /Wastewater Agency Response Network (WARN). Communicate that plan to local governments and critical facility operators. (INFR-a-6)	City owns water utility and works with Solano County and other cities on water supply. Fire has hoses available for bridging pipeline gaps in potable water supply.
PW FIRE	103	Engage in, support, and/or encourage research by others (such as USGS, universities, or Pacific Earthquake Engineering Research Center-PEER) on measures to further strengthen transportation, water, sewer, and power systems so that they are less vulnerable to damage in disasters. (INFR-a-7)	
PW FIRE	104	Encourage replacing above ground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new phone and electrical utility lines are installed underground. (INFR-a-12)	BMC requires underground utilities in all new projects. City works with PG&E to underground facilities when possible
PW	105	If you own a dam, coordinate with the State Division of Safety of Dams to ensure an adequate timeline for the maintenance and inspection of dams, as required of dam owners by State law, and communicate this information to local governments and the public. (INFR-a-13)	One dam in community. Regular inspections conducted by DOSD and City staff
PW FIRE PD	106	Encourage communication between State Emergency Management Agency (CalEMA), FEMA, and utilities related to emergencies occurring outside of the Bay Area that can affect service delivery in the region. (INFR-a-14)	Ongoing - training and communications
FIRE POLICE SO. CTY.	107	Ensure that transit operators, private ambulance companies, cities, and/or counties have mechanisms in place for medical transport during and after disasters that take into consideration the potential for reduced capabilities of roads following these same disasters. (INFR-a-15)	Part of Solano County EMS and Fire Plan

PW	108	Coordinate with other critical infrastructure facilities to establish plans for delivery of water and wastewater treatment chemicals. (INFR-a-19)	Member of North Bay Agency Chemical Pool
PW	109	Include “areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture” in the list of criteria used for determining a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history). (INFR-b-3)	Partially addressed in new LHMP Strategy #6
CDD PW FIRE	110	Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities. (INFR-b-8).	City facilities comply with CBSC
CMO FIRE PD	111	Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake. (INFR-b-9)	Ongoing – training (classes, seminars, educational materials)
PW FIRE	112	For new development, ensure all dead-end segments of public roads in high hazard areas have at least a “T” intersection turn-around sufficient for typical wildland fire equipment. (INFR-c-4)	Dead end streets are not typically permitted - particularly in high hazard areas. All cul-de-sacs have adequate turning radii
PW FIRE	113	For new development, enforce minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on all driveways and road segments greater than 50 feet in length in wildfire hazard areas. (INFR-c-5)	Ongoing through development review - adequate access roads, including alternative fire access routes when needed
PW FIRE	114	Require that development in high fire hazard areas provide adequate access roads (with width and vertical clearance that meet the minimum standards of the <i>Fire Code</i> or relevant local ordinance), onsite fire protection systems, evacuation signage, and fire breaks. (INFR-c-6)	Ongoing through development review
PW FIRE	115	Ensure adequate fire equipment road or fire road access to developed and open space areas. (INFR-c-7)	Ongoing through development review
PW	116	Assist, support, and/or encourage the U.S. Army Corp of Engineers, various Flood Control and Water Conservation Districts, and other responsible agencies to locate and maintain funding for the development of flood	

		control projects that have high cost-benefit ratios (such as through the writing of letters of support and/or passing resolutions in support of these efforts). (INFR-d-4)	
PW	117	Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage. (INFR-d-13)	Ongoing through development review
PW	118	Work for better cooperation among the patchwork of agencies managing flood control issues. (INFR-d-16)	Ongoing
PW	119	Include “areas subject to ground failure” in the list of criteria used for determining a replacement schedule (along with importance, age, type of construction material, size, condition, and maintenance or repair history) for pipelines. (INFR-e-1)	City avoids, wherever possible, locating facilities in areas subject to ground failure
CDD	120	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. (INFR-e-2)	Ongoing - Zoning Ordinance regulates hillside development
CDD PW	121	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 re-occupancy of the buildings. Note - A qualified (deleted structural) engineer is a California licensed engineer with relevant experience. (INFR-f-1)	Addressed in new LHMP Strategy #3, #5
CDD FIRE  PG&E	122	Provide materials to the public related to planning for power outages. (INFR-g-1)	Ongoing – media channels
PW FIRE	123	Provide materials to the public related to family and personal planning for delays due to traffic or road closures, or due to transit system disruption caused by disasters. (INFR-g- 2)	Ongoing – media channels
FIRE	124	Sponsor the formation and training of Community Emergency Response Teams (CERT) for the employees of your agency. [Note – these programs go by a variety of names in various cities and areas.] (INFR-g-6)	Ongoing –CERT founded in 2002
<b>Ongoing Programs - Land Use</b>			
CDD	125	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. (LAND-a-1)	Ongoing – Benicia Municipal Code, Building Code, development review
CDD	126	Require preparation of site-specific geologic or	Standard

PW		geotechnical reports for development and redevelopment proposals in areas subject to earthquake-induced landslides or liquefaction as mandated by the State Seismic Hazard Mapping Act in selected portions of the Bay Area where these maps have been completed, and condition project approval on the incorporation of necessary mitigation measures related to site remediation, structure and foundation design, and/or avoidance. (LAND-a-2)	requirement for applications in seismic areas, per the Health and Safety Element of the General Plan and standard City procedures
CDD PW	127	Recognizing that some faults may be a hazard for surface rupture, even though they do not meet the strict criteria imposed by the Alquist-Priolo Earthquake Fault Zoning Act, identify and require geologic reports in areas adjacent to locally-significant faults. (LAND-a-3)	Applicants must provide adequate information to assess geological risk
CDD PW	128	Recognizing that the California Geological Survey has not completed earthquake-induced landslide and liquefaction mapping for much of the Bay Area, identify and require geologic reports in areas mapped by others as having significant liquefaction or landslide hazards. (LAND-a-6)	Applicants must provide adequate information to assess geological risk
CDD PW	129	Support and/or facilitate efforts by the California Geological Survey to complete the earthquake-induced landslide and liquefaction mapping for the Bay Area. (LAND-a-7)	City supports efforts to improve information about hazard risks.
CDD PW	130	Require that local government reviews of geologic and engineering studies are conducted by appropriately trained and credentialed personnel. (LAND-a-8)	City requires third party geotechnical review
CDD FIRE	131	Review new development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation and access by emergency response personnel and equipment. (LAND-b-1) - Fire Code	Ongoing through development review
PW	132	Establish and enforce requirements for new development so that site-specific designs and source-control techniques are used to manage peak stormwater runoff flows and impacts from increased runoff volumes. (LAND-c-1)	Ongoing through development review
PW	133	Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards. (LAND-c-2) - State and Federal Agencies; General Plan, Sewer Master Plan	Ongoing – update to floodplain ordinance scheduled for 2016
PW	134	Provide an institutional mechanism to ensure that development proposals adjacent to floodways and in floodplains are referred to flood control districts and wastewater agencies for review and comment (consistent with the NPDES program). (LAND-c-3)	Ongoing through development review
CDD PW	135	Establish and enforce regulations concerning new construction (and major improvements to existing	Ongoing

		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 <i>National Flood Insurance Program</i> . (LAND-c-4)	
PW	136	Establish and enforce provisions (under subdivision ordinances or other means) that geotechnical and soil-hazard investigations be conducted and filed to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken prior to development approval. (LAND-d-1)	Ongoing – General Plan Health and Safety Element, Hillside Development Guidelines, development review
PW	137	Require that local government reviews of these investigations are conducted by appropriately trained and credentialed personnel. (LAND-d-2)	Ongoing - third party review for geologically sensitive development
PW	138	Establish and enforce grading, erosion, and sedimentation ordinances by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation prior to development approval. (LAND-d-3)	Ongoing through development review, city ordinances
PW	139	Establish and enforce provisions under the creek protection, storm water management, and discharge control ordinances designed to control erosion and sedimentation. (LANDd- 4)	Ongoing through development review, city ordinances
PW	140	Establish requirements in zoning ordinances to address hillside development constraints, especially in areas of existing landslides. (LAND-d-5)	Ongoing through development review, city ordinances
CDD FIRE PW	141	For new development, require a buffer zone between residential properties and landslide or wildfire hazard areas. (LAND-e-1)	Ongoing through development review - buffer strips and focused weed abatement
CDD FIRE	142	Discourage, add additional mitigation strategies, or prevent new construction or major remodels on slopes greater than a set percentage, such as 15%, due to landslide or wildfire hazard concerns. (LAND-e-2)	Ongoing through development review - buffer strips and focused weed abatement
PW FINANCE	143	Prioritize retrofit of infrastructure that serves urban areas (or urban services areas) over constructing new infrastructure to serve outlying areas. (LAND-f-1)	City uses a balanced approach to infrastructure investments, with ongoing upgrades to existing facilities along with adequate infrastructure, funded through impact fees, in new areas
PW CDD FIRE	144	Strive to provide and preserve existing buffers between development and existing users of large amounts of hazardous materials, such as major industry, due to the	Ongoing

		potential for catastrophic releases or fires due to an earthquake, accident, or terrorism. (Flooding might also result in release or spread of these materials; however, it is unlikely.) In areas where buffers do not exist or cannot be created, provide alternative mitigation. (LAND-f- 5)	
<b>Unfunded/Partially Funded Ongoing Programs - Economy</b>			
CDD	145	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. (ECON-a-2)	Mills Act Program
CDD	146	Accelerate retrofitting of privately-owned unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory (rather than voluntary) retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings. (ECON-c-2)	Addressed in new LHMP Strategy # 10
CDD	147	Require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they work in an unreinforced masonry building and the standard to which it may have been retrofitted. (ECON-c-3)	Ongoing
CDD	148	Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally vulnerable buildings. (ECON-d-1)	This strategy is identified in the 2016-2021 planning cycle
CDD	149	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. (ECON-d-3)	Addressed in new LHMP Strategy # 10
FIRE	150	Expand vegetation management programs in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning. (ECON-e-6)	Weed Abatement Program
FIRE	151	Establish special funding mechanisms (such as Fire	

		Hazard Abatement Districts or regional bond funding) to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks. (ECON-e-7)	
FIRE	152	Establish special funding mechanisms (such as Fire Hazard Abatement Districts or regional bond funding) to fund fire-safety inspections of private properties, roving firefighter patrols on high fire-hazard days, and public education efforts. (ECON-e-8)	
PW	153	Ensure that city/county-initiated fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard. (ECON-e-12)	Urban Interface Ordinance LHMP Strategy #17; Defensible Space Program LHMP Strategy #11
FIRE	154	Work with insurance companies to create a public/private partnership to give a discount on fire insurance premiums to Forester Certified <i>Fire Wise</i> landscaping and fire-resistant building materials on private property. (ECON-e-13)	
CDD PW	155	Increase efforts to reduce landslides and erosion in existing and future private development through continuing education of design professionals on mitigation strategies. (ECON-g-2)	Ongoing through development review
CDD	156	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. (ECON-h-3)	Partially addressed in new LHMP Strategy # 6
CDD	157	Institute a program to encourage owners of private buildings to participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). This program permits owners of private buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. (ECON-i-1)	Self-certification permitted by ordinance
CDD	158	Establish preservation-sensitive measures for the repair and re-occupancy 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. (ECON-i-6)	Addressed in new LHMP Strategy # 5
FIRE	159	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross),	Ongoing – City website, Facebook

		conduct workshops, and/or provide outreach encouraging private businesses' employees to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines. (ECON-j-2)	and Twitter
FIRE ED	160	Develop and print materials, conduct workshops, and provide outreach to Bay Area private businesses focusing on business continuity planning. (ECON-j-3)	New LHMP Strategy #18
CDD FIRE	161	Inform Bay Area private business owners of mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat, structural retrofitting techniques for older buildings, and use of intelligent grading practices through workshops, publications, and media announcements and events. (ECON-j-4)	Ongoing
FIRE	162	Sponsor the formation and training of Community Emergency Response Teams (CERT) training for other than your own employees through partnerships with local private businesses. [Note – these programs go by a variety of names in various cities and areas.] (ECON-j-5)	CERT program started in 2002
FIRE	163	Assist private businesses in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. (ECON-j-6)	Weed abatement program in place
FIRE POLICE	164	Encourage joint meetings of security and operations personnel at major private employers to develop innovative ways for these personnel to work together to increase safety and security. (ECON-j-11)	
<b>Unfunded/Partially Funded Ongoing Programs - Education</b>			
BUSD FIRE	165	Assess the vulnerability of critical public education facilities to damage in natural disasters and make recommendations for appropriate mitigation. (EDUC-a-1)	New LHMP Strategy #6
BUSD FIRE	166	Offer the 20-hour basic Student Emergency Response Training (SERT, rather than CERT) training to middle school and/or high school students as a part of the basic science or civics curriculum, as an after school club, or as a way to earn public service hours.. (EDUC-c-4)	
BUSD FIRE	167	Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system (either using instructors with teaching credentials or by making facilities available for classes not run by school personnel themselves). (EDUC-c-5)	

<b>Unfunded/Partially Funded Ongoing Programs - Environment</b>			
P&CS	168	Develop and implement a program to control invasive and exotic species that contribute to fire and flooding hazards (such as eucalyptus, cattails, and cordgrass). This program could include vegetation removal, thinning, or replacement in hazard areas where there is a direct threat to structures. (ENVI-a-12)	Tree Ordinance adopted. Further steps could be assessed when the Parks, Trails, and Open Space Master Plan is updated.
PW	169	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. (ENVI-a-13)	Ongoing through development review
CDD	170	Adopt and enforce land-use policies that reduce sprawl, preserve open space, and create compact, walkable urban communities. (ENVI-b-3)	Ongoing through General Plan, Zoning Ordinance, development review.
CDD	171	Promote transportation options such as bicycle trails, commute trip reduction programs, incentives for carpooling and public transit. (ENVI-b-4)	Ongoing - implementation of Climate Action Plan
CDD	172	Increase the use of clean, alternative energy by, for example, investing in "green tags", advocating for the development of renewable energy resources, recovering landfill methane for energy production, and supporting the use of waste to energy technology. (ENVI-b-5)	Ongoing - implementation of Climate Action Plan
CDD	173	Make energy efficiency a priority through building code improvements, retrofitting city facilities with energy efficient lighting and urging employees to conserve energy and save money. (ENVI-b-6)	Ongoing - implementation of Climate Action Plan
ALL DEPTS.	174	Purchase only Energy Star equipment and appliances for local government use. (ENVI-b-7)	Ongoing - implementation of Climate Action Plan
CDD P&CS	175	Practice and promote sustainable building practices using the U.S. Green Building Council's LEED program or a similar system. (ENVI-b-8)	Ongoing - implementation of Climate Action Plan. Benicia Community Center was awarded LEED Gold.
PW P&CS POLICE FIRE	176	Increase the average fuel efficiency of municipal fleet vehicles; reduce the number of vehicles; launch an employee education program including anti-idling messages; convert diesel vehicles to bio-diesel. (ENVI-b-9)	Ongoing - implementation of Climate Action Plan
PW	177	Evaluate opportunities to increase pump efficiency in water and wastewater systems; recover wastewater treatment methane for energy production. (ENVI-b-10)	
ALL DEPTS.	178	Increase recycling rates in local government operations and in the community. (ENVI-b-11)	Ongoing - implementation of

			Climate Action Plan
CDD P&CS	179	Maintain healthy urban forests; promote tree planting to increase shading and to absorb CO2. ( ENVI-b-12)	Ongoing - implementation of Climate Action Plan
CDD	180	Help educate the public, schools, other jurisdictions, professional associations, business and industry about reducing global warming pollution. (ENVI-b-13)	Ongoing - implementation of Climate Action Plan
<b>Unfunded/Partially Funded Ongoing Programs - Government</b>			
FIRE POLICE PW P&CS	181	Assess the vulnerability of critical facilities (such as city halls, fire stations, operations and communications headquarters, community service centers, seaports, and airports) to damage in natural disasters and make recommendations for appropriate mitigation. (GOVT-a-1)	Ongoing assessment programs
FIRE POLICE	182	Retrofit or replace critical facilities that are shown to be vulnerable to damage in natural disasters. (GOVT-a-2)	Recent update to Police Station and Emergency Dispatch Center
PW FIRE	183	Coordinate with the State Division of Safety of Dams to ensure that cities and counties are aware of the timeline for the maintenance and inspection of dams whose failure would impact their jurisdiction. (GOVT-a-8)	N/A
CMO FIRE	184	Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities of various departments within the local government organization, and that outlines a structure and process for policy-making involving elected officials and appointed advisory committees. (GOVT-b-1) - City of Benicia City Manager, Fire.	Ongoing - Additional funding needed for expansion or enhancement
CMO FIRE	185	Prepare a basic Recovery Plan that outlines the major issues and tasks that are likely to be the key elements of community recovery, as well as integrate this planning into response planning (such as with continuity of operations plans). (GOVT-b-2)	Ongoing - Additional funding needed for expansion or enhancement
CMO FIRE	186	Establish a goal for the resumption of local government services that may vary from function to function. (GOVT-b-3)	City EOP and Department operations
CMO FIRE FINANCE	187	Develop a continuity of operations plan that includes back-up storage of vital records, such as plans and back-up procedures to pay employees and vendors if normal finance department operations are disrupted, as well as other essential electronic files. (GOVT-b-4)	Ongoing. Additional funding needed for expansion or enhancement
CMO FIRE	188	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. (GOVT-b-5)	Ongoing. Additional funding needed for expansion or enhancement
ALL DEPTS.	189	Develop a plan for short-term and intermediate-term sheltering of your employees. (GOVT-c-1)	Sites identified in City's Emergency

			Response Plan
ALL DEPTS.	190	Encourage your employees to have a family disaster plan. (GOVT-c-2)	Ongoing
FIRE	191	Offer CERT/NERT-type training to your employees. (GOVT-c-3)	Ongoing
FIRE POLICE	192	Periodically assess the need for new or relocated fire or police stations and other emergency facilities. (GOVT-c-4)	Ongoing
FIRE POLICE	193	Periodically assess the need for changes in staffing levels, as well as for additional or updated supplies, equipment, technologies, and in-service training classes. (GOVT-c-5)	Ongoing. Additional funding needed for expansion or enhancement
FIRE POLICE SO. CTY.	194	Ensure that fire, police, and other emergency personnel have adequate radios, breathing apparatuses, protective gear, and other equipment to respond to a major disaster. (GOVTc- 6)	Ongoing. Additional funding needed for expansion or enhancement
FIRE POLICE SO. CTY.	195	Participate in developing and maintaining a system of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies.(GOVT-c-7)	The City is cooperating with Solano County and other jurisdictions to improve coordination
FIRE POLICE SO. CTY.	196	Harden emergency response communications, including, for example, building redundant capacity into public safety alerting and/or answering points, replacing or hardening microwave and simulcast systems, adding digital encryption for programmable radios, and ensuring a plug-and-play capability for amateur radio. (GOVT-c-8)	Ongoing. Additional funding needed for expansion or enhancement
FIRE POLICE SO. CTY.	197	Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate. (GOVT-c-9)	Ongoing. County command vehicle available at any time. Additional funding needed for expansion or enhancement
FIRE POLICE SO. CTY.	198	Maintain the local government's emergency operations center in a fully functional state of readiness. (GOVT-c-10)	Ongoing. Additional funding needed for expansion or enhancement
FIRE POLICE SO. CTY.	199	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. (GOVTc- 11)	Ongoing. Additional funding needed for expansion or enhancement
CMO FIRE POLICE	200	Maintain and update as necessary the local government's Standardized Emergency Management System (SEMS) Plan and the National Incident Management System (NIMS) Plan, and submit an appropriate NIMSCAST report. (GOVT-c-12)	NIMS system in place
FIRE POLICE	201	Conduct periodic tests of the alerting and warning system. (GOVT-c-15)	Monthly testing is ongoing

ALL DEPTS.	202	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. (GOVT-c-25)	Ongoing
PW CDD FIRE	203	Encourage staff to participate in efforts by professional organizations to mitigate earthquake and landslide disaster losses, such as the efforts of the Northern California Chapter of the Earthquake Engineering Research Institute, the East Bay-Peninsula Chapter of the International Code Council, the Structural Engineers Association of Northern California, and the American Society of Grading Officials. (GOVT-d-8)	Ongoing. Additional funding needed for expansion or enhancement
CMO PW CDD FIRE	204	Conduct and/or promote attendance at local or regional hazard conferences and workshops for elected officials and staff to educate them on the critical need for programs in mitigating earthquake, wildfire, flood, and landslide hazards. (GOVT-d-9)	Ongoing. Additional funding needed for expansion or enhancement
<b>Unfunded/Partially Funded Ongoing Programs - Health</b>			
ALL DEPTS.  SO. CTY.	205	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. (HEAL-c-4)	
<b>Unfunded/Partially Funded Ongoing Programs - Housing</b>			
CDD	206	Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for residential properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act). (HSNG-a-1)	Ongoing
CDD	207	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 <i>Guidelines for Rehabilitation</i> . (HSNGa- 2).	Mills Act Program ongoing –presently 39 properties under contract
CDD	208	Accelerate retrofitting of privately-owned unreinforced masonry structures that have not been retrofitted, for	Addressed in new LHMP Strategy # 10

		example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory versus voluntary, retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings. (HSNG-d-2)	
CDD	209	Require private owners to inform all existing tenants (and prospective tenants prior to signing a lease agreement) that they live in an unreinforced masonry building and the standard to which it may have been retrofitted. (HSNG-d-3)	Ongoing
STATE OF CA	210	Identify and work toward tying down mobile homes used as year-round permanent residences using an appropriate cost-sharing basis (for example, 75% grant, 25% owner). (HSNG-e-1) - City of Benicia State jurisdiction over mobile homes	State maintains permitting jurisdiction for mobile homes.
CDD	211	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. (HSNG-e-4)	Addressed in new LHMP Strategy # 10
PW FIRE	212	Work to ensure a reliable source of water for fire suppression in rural-residential areas through the cooperative efforts of water districts, fire districts, and residents. (HSNG-g-8)	
FIRE	213	Expand vegetation management programs in wildland-urban- interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning. (HSNG-g-9)	Weed abatement program
FIRE	214	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. (HSNGg- 11)	Benicia does not have rural-residential areas. Urban-Interface Ordinance is LHMP Strategy #17
FIRE	215	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	See LHMP Strategy #11

		removed, or replanted with less flammable materials. When thinning, the non-native species should be removed first. Other options would be to use structural mitigation, rather than vegetation management in the most sensitive areas. (HSNG-g-17)	
FIRE	216	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. (HSNG-g-20)	
PW CDD	217	Increase efforts to reduce landslides and erosion in existing and future private development through continuing education of design professionals on mitigation strategies. (HSNG-i-2)	Development conditions require mitigation of potential landslides (or address buffering of landslide-prone areas)
CDD	218	Establish preservation-sensitive measures for the repair and re-occupancy 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. (HSNG-j-2)	This item is carried forward for the 2016-2021 planning period. See LHMP Strategy #5
CDD FIRE	219	Provide information to residents of your community on the availability of interactive hazard maps showing your community on ABAG's web site. (HSNG-k-1) - City of Benicia Planning, Fire	Some hazard maps currently available online; addressed in LHMP Strategies #6, 20
FIRE	220	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging residents to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines. (HSNG-k- 2)	Ongoing – City's website and Facebook/Twitter
CDD FIRE	221	Inform residents of comprehensive mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events. (HSNG-k-3)	Ongoing
FIRE	222	Sponsor the formation and training of Community Emergency Response Teams (CERT) for residents in your community. [Note – these programs go by a variety of names in various cities and areas.] (HSNG-k-6) - CERT started in 2002	Benicia has local emergency response team, BERT

FIRE	223	Include flood fighting technique session based on California Department of Water Resources training to the list of available public training classes offered by CERT. (HSNG-k-7)	Addressed in new LHMP Strategy # 15
POLICE	224	Institute the neighborhood watch block captain and team programs outlined in the Citizen Corps program guide. (HSNG-k-8)	In place, with primary focus on crime prevention
FIRE	225	Assist residents in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat. (HSNG-k-9)	Clean-up weed program for residents
<b>Unfunded/Partially Funded Ongoing Programs – Infrastructure</b>			
PW FIRE POLICE	226	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. <b>Note</b> - Infrastructure agencies, departments, and districts are those that operate transportation and utility facilities and networks. (INFR-a-1)	Ongoing assessment programs. Upgrade of PD, Security Vulnerability Assessment of water and wastewater facilities have been completed and updated as appropriate
PW FIRE POLICE	227	Encourage the cooperation of utility system providers and cities, counties, and special districts, and PG&E to develop strong and effective mitigation strategies for infrastructure systems and facilities. (INFR-a-4)	Recent upgrade and retrofit of Police/Dispatch center
PW FIRE POLICE	228	Pre-position emergency power generation capacity (or have rental/lease agreements for these generators) in critical buildings of cities, counties, and special districts to maintain continuity of government and services. (INFR-a-8)	Fire and Police Stations, water and wastewater plans, radio communication locations, City Hall equipped with backup generation; portable equipment available for pump and lift stations
PW FIRE	229	Ensure that critical intersection traffic lights function following loss of power by installing battery back-ups, emergency generators, or lights powered by alternative energy sources such as solar. Proper functioning of these lights is essential for rapid evacuation, such as with hazmat releases resulting from natural disasters. (INFR-a-9)	
PW FIRE	230	Minimize the likelihood that power interruptions will adversely impact lifeline utility systems or critical facilities	

POLICE		by ensuring that they have adequate back-up power. (INFRa- 11)	
FIRE SO.CTY.	231	Recognize that heat emergencies produce the need for non-medical transport of people to cooling centers by ensuring that (1) transit operators have plans for non-medical transport of people during and after such emergencies including the use of paratransit and (2) cities, counties, and transit agencies have developed ways to communicate the plan to the public. (INFR-a-16)	Addressed in new LHMP Strategy # 16
FIRE SO. CTY.	232	Develop (with the participation of paratransit providers, emergency responders, and public health professionals) plans and procedures for paratransit system response and recovery from disasters. (INFR-a-18)	
PW	233	Establish plans for delivery of fuel to critical infrastructure providers. (INFR-a-20)	
PW	234	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. (INFR-a-22)	
PW	235	Expedite the funding and retrofit of seismically-deficient city- and county-owned bridges and road structures by working with Caltrans and other appropriate governmental agencies. (INFR-b-1)	
PW	236	Install specially-engineered pipelines in areas subject to faulting, liquefaction, earthquake-induced landsliding, or other earthquake hazard. (INFR-b-4)	Inspections as needed
PW FIRE	237	Install portable facilities (such as hoses, pumps, emergency generators, or other equipment) to allow pipelines to bypass failure zones such as fault rupture areas, areas of liquefaction, and other ground failure areas (using a priority scheme if funds are not available for installation at all needed locations). (INFR-b-6)	Potential failure zones are identified. Fire Department can provide hoses to connect water mains across fault lines through fire hydrants. Portable PRV
PW	238	Install earthquake-resistant connections when pipes enter	Needs assessment

		and exit bridges and work with bridge owners to encourage retrofit of these structures. (INFR-b-7)	
CDD PW FIRE	239	Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development. (INFR-c-1)	City's development review standards and process address water supply, hydrant location, and fire access
PW FIRE	240	Develop a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard (including wildfire threat areas and in wildland-urban-interface areas). (INFR-c-2)	Standard City policy includes periodic review of firefighting water capacity
CDD FIRE P&CS	241	Develop a defensible space vegetation program that includes the clearing or thinning of (a) non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, or (b) all non-native species (such as eucalyptus and pine, but not necessarily oaks) within 30 feet of access and evacuation roads and routes to critical facilities. (INFR-c-3)	Chapter 8 of the Benicia Municipal code requires weed abatement. The Fire Department also requires maintenance of a firebreak in City open space areas near development
PW FIRE	242	Maintain fire roads and/or public right-of-way roads and keep them passable at all times. (INFR-c-8)	Standard City policy
PW	243	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)	Specifically relates to transportation issues, and watershed analysis criteria is formed by other agencies. This refers to the appropriate performance criteria used in the development of a watershed analysis
PW	244	Develop procedures for performing a watershed analysis to examine the impact of development on flooding potential downstream, including communities outside of the jurisdiction of proposed projects. (INFR-d-2)	Standard CEQA review addresses this during the development review process
PW	245	Conduct a watershed analysis at least once every ten years unless there is a major development in the watershed or a major change in the Land Use Element of the General Plan of the cities or counties within the watershed. (INFR-d-3)	
PW	246	Pursue funding for the design and construction of storm drainage projects to protect vulnerable properties,	Ongoing

		including property acquisitions, upstream storage such as detention basins, and channel widening with the associated right-of-way acquisitions, relocations, and environmental mitigations. (INFR-d-5)	
PW	247	Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities. (This strategy has the secondary benefit of addressing fuel, chemical, and cleaning product issues.) (INFR-d-6)	Ongoing maintenance and upgrading programs in place. Upgrades to upstream facilities required during development review
PW	248	Continue maintenance efforts to keep storm drains and creeks free of obstructions, while retaining vegetation in the channel (as appropriate) to allow for the free flow of water. (INFR-d-7)	Ongoing
PW	249	Enforce provisions under creek protection, stormwater management, and discharge control ordinances designed to keep watercourses free of obstructions and to protect drainage facilities to conform with the Regional Water Quality Control Board's Best Management Practices. (INFR-d-8)	Zoning Ordinance requires creek setbacks; city has adopted stormwater ordinance that conforms to NPDES permit.
PW	250	Use reservoir sediment or reed removal as one way to increase storage for both flood control and water supply. (INFR-d-10)	
PW	251	Determine whether or not wastewater treatment plants are protected from floods, and if not, investigate the use of flood-control berms to not only protect from stream or river flooding, but also increase plant security. (INFR-d-14)	City owns the wastewater utility. The plant is designed to minimize flooding from marsh-related tides
PW	252	Work cooperatively with water agencies, flood control districts, Caltrans, and local transportation agencies to determine appropriate performance criteria for watershed analysis. (INFR-d-15)	
PW	253	Improve monitoring of creek and watercourse flows to predict potential for flooding downstream by working cooperatively with land owners and the cities and counties in the watershed. (INFR-d-17 )	Ongoing through development review
PW	254	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. (INFR-d-18 )	Ongoing through development review
PW	255	Provide materials to the public related to coping with reductions in water supply or contamination of that supply BEYOND regulatory notification requirements. (INFR-g-3)	Addressed in new LHMP Strategy # 20
PW	256	Provide materials to the public related to coping with	

		disrupted storm drains, sewage lines, and wastewater treatment (such as materials developed by ABAG's Sewer Smart Program). (INFR-g-4 )	
ALL DEPTS.	257	Facilitate and/or coordinate the distribution of emergency preparedness or mitigation materials that are prepared by others, such as by making the use of the internet or other electronic means, or placing materials on community access channels or in city or utility newsletters, as appropriate. (INFR-g-5 )	City website – Mitigation page, Facebook, Twitter
CDD FIRE	258	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <a href="http://www.preparenow.org">http://www.preparenow.org</a> website related to infrastructure issues. (INFR-g-7 )	Addressed in new LHMP Strategy # 18
<b>Unfunded/Partially Funded Ongoing Programs – Land Use</b>			
CDD	259	Work to retrofit homes in older urban neighborhoods to provide safe housing close to job centers. (LAND-f-2)	Ongoing through CDBG
CDD	260	Work to retrofit older downtown areas and redevelopment districts to protect architectural diversity and promote disaster-resistance. (LAND-f-3)	City encourages the use of rehabilitation loans and grants.
CDD	261	Work with non-profits and through other mechanisms to protect as open space those areas susceptible to extreme hazards (such as through land acquisition, zoning, and designation as priority conservation areas). (LAND-f-4)	Ongoing process through Sky Valley Open Space Committee.