

**Sonoma County
Hazard Mitigation Plan**

MITIGATION STRATEGY

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MITIGATION STRATEGY

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MITIGATION STRATEGY

DMA 2000, Stafford Act, and Title 44 Code of Federal Regulations (CFR) §201.6. Requirements:

Mitigation Strategy

Requirement §201.6(c)(3): [The plan shall include the following:] A *mitigation strategy* that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Requirement §201.6(c)(3)(ii): [The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

Requirement §201.6(c)(3)(iii): [The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local government incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.

Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Source: FEMA, March 2011.

Introduction

This chapter includes mitigation actions developed to minimize the County's vulnerabilities to natural hazards. It sets forth the measures the County will pursue as part of 2016 - 2021 Mitigation Strategy, which is derived from:

- 1) The in-depth consideration of the County's existing hazard vulnerabilities and
- 2) The State and County goals and objectives to protect public health and safety, reducing injury, damage, and disruption from disaster events.

The Sonoma County Hazard Mitigation Plan is an extension of the General Plan Public Safety Element and is incorporated by reference and is implemented as a part of the Public Safety Element work program.

Goals

The goals and objectives outlined in this Hazard Mitigation Plan are consistent with the Sonoma County General Plan Public Safety Element Goals PS-1, 2 and 3 (General Plan 2020):

- A. GOAL PS-1: Prevent unnecessary exposure of people and property to risks of damage or injury from earthquakes, landslides and other geologic hazards.
- B. GOAL PS-2: Reduce existing flood hazards and prevent unnecessary exposure of people and property to risks of damage or injury from flood hazards
- C. GOAL PS-3: Prevent unnecessary exposure of people and property to risks of damage or injury from wildland and structural fires.
- D. General Plan Objective LU-7.1: seeks to “Restrict development in areas that are constrained by the natural limitations of the land, including but not limited to, flood, fire, geologic hazards...”

Objectives

Based on the above goals, the following objectives were used to identify and organize a range of mitigation actions.

- 1) Assure that sufficient and up-to-date natural hazard information and maps are available and utilized to guide decisions that impact risk.
- 2) Update and enforce County codes to minimize the risks of natural hazards.
- 3) Reduce vulnerability of public buildings at risk from natural hazards.
- 4) Improve the ability of County infrastructure to withstand natural hazard events.
- 5) Reduce natural hazard risk and increase the mitigation capability of Sonoma County residents, businesses and others who could be affected by hazards.
- 6) Increase the County capability to respond to and recover from emergencies and disasters caused by natural hazards.

Assumptions, Challenges, and Opportunities

Implicit in this plan is the assumption that the County will comply with applicable State and Federal laws. As described in Chapter 7, the County will comply with and enforce all applicable design and siting requirements established by County Codes to minimize exposure and vulnerabilities in high risk areas, and increase disaster resistance of new or existing buildings. It will consider available hazard information in the review of project applications and other decision-making that impact risk.

The County's land use, zoning, and building codes for new construction are robust, and in many cases exceed minimum state requirements. The County Codes require site specific hazard assessments to be conducted in the high hazard areas, regulations to govern development,

construction and land use activities on such sites. They include construction standards, siting restrictions, use limitations, study requirements, and mitigation requirements and disclosure requirements which minimize the exposure of people and property to loss or injury resulting from disasters. The County will continue to consider hazard vulnerabilities in the design and siting considerations on a case-by-case basis through discretionary permit approval process. The planning project review process, which provide important decision-making opportunities to reduce risk in hazard-prone areas include: 1) environmental review under CEQA; 2) general plan and zoning decisions; and 3) subdivision map approvals.

The County's legal authorities and responsibilities limit its ability to increase disaster resiliency. The County it is not responsible for specific districts such as: independent fire districts, sanitation districts, school districts, private utility infrastructure (i.e. electricity, natural gas) railroad lines, federal dams, private hospitals, state highways, or incorporated cities; all have specific authority to address their own risks and vulnerabilities. However, the County seeks to maintain cooperative working relationships with all these entities by encouraging and facilitating needed mitigations.

It must be recognized that increasing the disaster resiliency and sustainability of Sonoma County will require a substantial investment of resources. Improvements can continue to be made through traditional programs; however many of the mitigation objectives and actions included in this plan cannot be implemented without external funding sources as a lack of resources and funds may hamper the ability of the County to implement some mitigation actions. Implicit in this plan is the need for the County to maintain and augment internal budgeting mechanisms, aggressively pursue external state and federal grants, and develop financial incentives to encourage private sector support of mitigation activities.

2011 – 2016 Progress

The 2011 Sonoma County Local Hazard Mitigation Plan included adoption of an ambitious five-year Implementation Plan for the years 2011 through 2016 which sought to carry out 49 hazard mitigation actions. Table PM-2 provides a status report on the progress made under each mitigation tasks. In those cases where mitigations activities have not been fully completed, they may be carried forward to the next five-year Implementation Plan for 2016-2021.

The County made significant progress implementing of the 2011 Local Hazard Mitigation Plan however, resources available did not permit completion of every task. Despite budget and staff limitations, the County made progress implementing mitigation actions, in part by securing outside funding through grants, including:

- The Community Development Commission, elevated 46 additional homes in the flood plain since 2011, raising the total to 287. Grant funds have been applied for to continue the program.
- The Department of Transportation and Public Works completed three more seismic retrofits/replacements of county bridges since 2011 using Federal Highway Funds. Additional Bridges are scheduled to be completed in the next five-year implementation period.

- The Community Development Commission carried out the installation of earthquake resistant bracing installations and water heater strapping on 167 additional homes since 2011 raising the total to 1,309. Grant funds have been applied for to continue the program.
- Information Systems Department replaced all core communications infrastructure with modernized Cisco Unified Communications systems. The new system includes greater redundancy and rerouting features in the event of failure. Information Systems Department also completed replacement of phones and switches with Voice over Internet Protocol (VoIP) capable equipment, relocated the communications infrastructure to the Information Systems Department Data center, and entered into contracts with Alameda County to serve as a duplicate offsite IT infrastructure as a back-up system.
- Fire and Emergency Services purchased a new internet hosted system, SoCo Alert, that allows Sonoma County first responders to notify residents and businesses by telephone, mobile phone, text message, email, and social media regarding time-sensitive emergency notifications such as shelter-in-place, boil water advisories, tsunami warnings, and flood warnings.
- Risk Management carried out a more detailed comprehensive review of the hazard vulnerability of county facilities using GIS analysis for the County Facilities plan and the Continuing of Operations Plan, to aid decision making regarding risks.
- General Services has upgraded, including emergency power backup, seven of 11 radio tower sites. General services also installed two new fire garages, expanded the REDCOM dispatch center, developed emergency action plans for the La Plaza and Veterans buildings, and carried out seismic retrofit of the data processing building.

Increasing the disaster resilience of critical county buildings so they remain functional after an earthquake, facilitating disaster response and recovery, remains a high priority. However, progress on assessing and retrofitting existing County facilities has been slow due in part to limited budget and staff during the recession. Before physical improvements can be carried out, a number of steps must be taken to complete the County's Comprehensive Facilities Plan including prioritizing structures, conducting structural assessments, developing plans and work specifications, conducting cost/benefit analysis, and budget for the construction work in the Capital Improvements Plan. The County departments involved in the 2016 Local Hazard Mitigation Plan update found that the proposed mitigation actions are still appropriate and should be carried forward with renewed commitment into the next five-year plan.

Code Revisions

Building code revisions to include Very High Fire Severity Zones, State Responsibilities Areas and Wildland Urban Interface areas have been adopted. The County Building Code was also updated to include the latest seismic standards, Anot flood plain fill ordinance was adopted and adjustments to the flood damage prevention ordinance to comply with NFIP were completed.

Following the South Napa earthquake in 2014 PRMD reviewed the hazardous building inventory (SB 547 list) and worked with property owners to accurately document the status of unreinforced masonry buildings (URMs). Property owners were notified of the hazard poses by

URMs on their property and of their obligation under state law to post buildings with the following notice:

"Earthquake Warning. This is an unreinforced masonry building. You may not be safe inside or near unreinforced masonry buildings during an earthquake."

PRMD confirmed that more than 95 percent of buildings on the SB 547 list have posted required URM warning signage. The number of active URMs in the County has been reduced from an estimated 201 reported in the 2011 Local Hazard Mitigation Plan to the current 131 documented in 2016 (refer to the Seismic Safety Section above). In the five-year implementation period about 70 URMs were removed from "active" status. The County is currently reviewing a seismic retrofit ordinance, based on a model ordinance provide by the California Seismic Safety Commission, to reduce earthquake hazards and create incentives to encourage building owners to improve their structures.

Consistent with FEMA priorities, the Technical Advisory Committee finds that flood mitigation programs that focus on repetitive loss properties are appropriate. Flood mitigation actions from the 2011 Local Hazard Mitigation Plan will be carried forward into the 2016 Implementation Plan update.

Table MS-1: Implementation Plan Progress Report 2011 – 2016

#	Mitigation Action	Entity	Progress of March, 2016
1.	Develop and expand in-house County expertise to conduct loss analysis and risk assessment using HAZUS software program and GIS analysis; coordinate efforts between General Services, Risk Management, PRMD, and Fire and Emergency Services.	GS RM PRMD FES	FEMA HAZUS software has been installed and updated to the latest supported version at the County Information Systems Department and in the EOC. Several HAZUS-ArcGIS model run of earthquake scenarios have been made to aid logistical planning, provide damage assessments, support training , and aid development of the HMP
2.	Provide hazard information to building and design professionals, land developers, real estate professionals, land owners, prospective buyers and the general public so that they have access to all maps identifying high earthquake, flood, wildland fire and landslide hazards areas in Sonoma County and related information regarding regulations and restrictions that apply or are recommended and working with real estate agents to improve enforcement and education efforts.	PRMD FES	Completed installation of over 160 signs projecting tsunami run-up areas, evacuation routes and shelter areas in County, State and privately held property. Flood hazard tri-fold brochure developed, printed and distributed.
3.	Assist in ensuring adequate hazard disclosure by working with real estate disclosure requirements for residential properties with regard to seven official natural hazard zones: 1) 100-yr Flood Hazard Areas from FEMA, 2) Areas of Potential Flooding from dam failure ,	PRMD	To help facilitate compliance with the 1998 California Natural Hazards Disclosure Act, PRMD provides hazard information to realtors, owners on a parcel by parcel basis. PRMD provides GIS layers of hazard delineations to private firms specializing in hazard disclosure services. Notices of hazard

#	Mitigation Action	Entity	Progress of March, 2016
	3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones, 6) Liquefaction and Landslide Hazard Zones.		map availability have been posted at the County Assessors and Recorders Office. Hazard maps may be viewed at the PRMD offices or on the PRMD webpage for the Hazard Mitigation Plan and the General Plan Safety Element.
4.	Consider and apply available hazard information on earthquakes, floods, wildland fires and landslides in the review of project applications and other decision-making that impact risk.	All Depts.	Hazard information is considered and applied to discretionary project applications through the CEQA process. PRMD's permit system provides a parcel report on each assessor's parcel number which flags if it includes areas in flood, wildland fire, landslide, fault rupture, liquefaction and seismic shaking zone for design purposes. The parcel report helps inform and assure the proper application of building codes and site restrictions where applicable. County General Services also considers hazard risks of sites when leasing, designing repairing or buying sites for county purposes. All of the above are done on an ongoing basis.
5.	Amend General Plan Safety Element Hazard maps to reflect revised updated mapping of hazard areas identified in this hazard mitigation plan or subsequently mapped and identified by FEMA, CalFire or the State's Seismic Hazards Mapping Program.	PRMD	DONE. The General Plan Safety Element was amended on September 9, 2014 to fully incorporate and update all the hazard maps to reflect those adopted in the HMP including hazard maps from FEMA, CALFire and the State Seismic Hazards Mapping Program.
6.	Enhance the appropriate websites to provide convenient public access to most current hazard maps with respect to earthquakes, floods, wildland fires and landslides.	PRMD FES	All hazard maps included in the 2011 update of the hazard mitigation plan may be viewed on the PRMD website. County Fire web site updated to the newest template for County Departments. Links and maps are available for earthquakes, floods wildland fires, landslides and tsunami hazards.
7.	Where needed to facilitate disaster recovery, adopt code regulations, policies and/or interagency memorandums of understanding to set forth the requirements and procedures applicable to the repair and reconstruction of structures damaged by natural and man-made disasters.	PRMD	Chapter 34 "Existing Structures" of the 2010 California Building Code was amended to add sections that would bring it into compliance with the Robert T. Stafford Act. Included with these amendments were provisions to include as adopted, various sections within Chapter 1 of the International Existing Building Code.
8.	Incorporate assessments of hazards, including earthquake, flood, landslides and wildland fires, into site selection and design for new buildings and when siting or leasing county facilities.	GS	Hazard exposure and building type are considered when leasing facilities. Since 2011 the following offices have been relocated to newer facilities with improved seismic resistance: Job Link, Child Support Services and Family, Youth and Children Division, and the Crisis Stabilization Unit
9.	Enhance appropriate County websites to	PRMD	See Mitigation 8

#	Mitigation Action	Entity	Progress of March, 2016
	provide convenient public access to earthquake, flood, wildland fire and landslide and tsunami hazard zones and educational mitigation materials that identify ways to reduce hazards.	FES	
10.	Evaluate existing emergency power systems at county facilities and provide emergency power generation capacity, or have rental/lease agreements for these generators, at county facilities critical for emergency response and recovery to ensure continuity of government services.	GS	<p>All the essential services buildings have emergency power.</p> <p>The county-owned Mt. Jackson, and at Siri radio tower sites have been upgraded to include emergency power generators. Construction at Moonraker and Meyers Grade Towers will add emergency power generators in September 2016.</p>
11.	<p>Improve county communications capacity, interoperability capabilities and disaster resilience to help maintain critical post disaster operability by:</p> <p>Transition from older PBX technology to network based Unified Communications to minimize single point of failure</p> <p>Enhancing radio network to utilize 700MHz.</p> <p>Incremental replacement of phones and telephone switches with Voice over Internet Protocol (VoIP) capable equipment as funding becomes available</p> <p>Move of voice services from 445 Fiscal to the ISD Data Center</p> <p>Provide duplicate IT infrastructure at an offsite data center where backup systems for public safety and financial systems are housed.</p> <p>Seek funding for a new communications facility in an alternate location that would provide better, more disaster resistant housing for existing and future communications and/or to further harden the existing facility to mitigate risks and improve the existing facility to an "Essential Services" designation.</p> <p>Upgrade the County's Telephone Emergency Notification System (TENS) to include cellular and texting to better provide alert and warning to the public.</p>	ISD GS	<p>ISD will have completely replaced all core communications infrastructure with modernized Cisco Unified Communications systems. The new system includes greater redundancy and rerouting features in the event of failure on some components and when completed the system also uses a full IP architecture with SIP trunking. County is in the process of installing a redundant wireless network that can still function in the event of wired infrastructure.</p> <p>Radio network has not yet been enhanced to utilize 700MHz.</p> <p>The County has completed replacement of phones and switches with Voice over Internet Protocol (VoIP) capable equipment</p> <p>All voice services and infrastructure have been relocated from 445 Fiscal to the ISD Data Center. MPOE move to data center part of VoIP project.</p> <p>Contracts in place with Alameda County to serve as a duplicate offsite IT infrastructure as a back-up system. Planning will begin once the VoIP project is completed, likely next fiscal year.</p> <p>ISD has requested a new better-designed communications facility in an alternate location and has requested that the Architect's Office include such in the Comprehensive County Facilities Plan (CCFP). A schedule for actual construction is unknown.</p>

#	Mitigation Action	Entity	Progress of March, 2016
			In lieu of upgrading the TENS, the Fire and emergency services has purchased a new system hosted through the internet called SoCo Alert. It provides Sonoma County first responders the ability to notify residents and businesses by telephone, mobile phone, text message, email, and social media regarding time-sensitive emergency notifications such as shelter-in-place, boil water advisories, tsunami warnings, and flood warnings.
12.	To qualify for greater monetary assistance from the State under the California Disaster Assistance Act for disaster recovery projects, assure that the FEMA-approved hazard mitigation plan is adopted into the General Plan's Safety Element by incorporation or reference and file necessary paperwork with CalOES to confirm	PRMD FES	The General Plan Safety Element was amended on September 9, 2014 to fully incorporate all the HMP. CALOES has confirmed the County's eligibility for greater disaster assistance.
13.	Continue to implement countywide road naming and addressing program in order to reduce emergency response times	PRMD	This is carried out by PRMD on an ongoing basis as standard procedure

Table MS-2: Implementation Plan Progress Report 2011 – 2016 Earthquake Mitigations

#	Mitigation Action	Entity	Progress of March, 2016
14.	Require all new construction and substantial renovations to comply with seismic building codes mandated California Building Code and Chapter 7 of the Sonoma County Code. Including those specified for site preparation, design, materials, and construction methods to minimize risk from earthquakes. Apply different building code, anchor bolts and wall bracing requirements in the higher risk areas with higher spectral response acceleration, expressed as a percent of gravity. Continue to require dynamic structural analysis for complex new structures.	PRMD	All new construction and substantial renovations are plan checked to comply with the currently adopted state building codes and Sonoma County Code with respect to all seismic design criteria, including those mentioned, as part of standard plan checking and building inspection procedures.
15.	Seek funding and authorization to include seismic upgrades to planned major repairs of county buildings to increase resistance to earthquake damage, especially buildings critical to emergency response and recovery. These include, but shall not be limited to, the buildings proposed for remodeling in the Capital Project Plan: <ul style="list-style-type: none"> • Agricultural Building • Human Services Building • North County Detention Facility 	GS	Essential services buildings owned by the County include Sheriff building, EOC, ISD Data Processing Center, Ag building, Guerneville Vets, Sonoma Sheriff Substation. All remodel work and new construction is designed to comply with current codes and carry out seismic upgrades were required and funding is available. Seismic improvements were included in structural

#	Mitigation Action	Entity	Progress of March, 2016
	<ul style="list-style-type: none"> • Health Services Administrative Building • Sierra Youth Center • Sebastopol Veterans Building • Santa Rosa Veterans Building, and • Guerneville Sheriff's Sub-station 		upgrades to Veterans buildings, and a seismic retrofit of the Data Processing building.
16.	Seek funding to engage an engineering consultant to conduct a seismic evaluation of facilities critical to emergency response or recovery operations and buildings with high occupancy. Incorporate seismic assessment upgrades in major remodel projects at existing buildings. All new construction shall conform to current codes at the time of the permit.	GS	<p>Consultants evaluated the following Essential Services buildings owned by the County: Sheriff building, EOC, ISD Data Processing Center, Ag building, Guerneville Vets, Sonoma Sheriff Substation. Seismic upgrade recommendations and cost estimates were provided. Recommendations included:</p> <ul style="list-style-type: none"> - Install seismic ceiling clips, compression struts and diagonal wires. - Strengthen connections between the walls and roof <p>As funding becomes available, evaluation of additional Critical to Emergency" facilities will be undertaken: the CMP, the main electric switchgear & the fuel station at the County Campus, the Public Health Clinic and the Morgue at Chanate.</p>
17.	Develop a strategy to strengthen or replace county owned and used emergency response facilities that have structural weaknesses as determined by the priorities identified through the engineering analysis.	GS	<p>"A new Fire Garage has been completed at Annapolis. A new fire garage is also being planned for Lakeville. Land has been donated and construction costs are being investigated. Both are essential services buildings.</p> <p>The REDCOM Dispatch Center is being expanded so it can be used in the event of an emergency."</p>
18.	For critical county leased facilities constructed before the current edition of the California Building Code, review seismic vulnerability prior to renewing leases, and consider not renewing leases on buildings that do not meet appropriate seismic safety standards for the use of such buildings.	GS	Hazard exposure and building type are considered when leasing facilities. Since 2011 the following offices have been relocated to newer facilities with improved seismic resistance: Job Link, Child Support Services and Family, Youth and Children Division, and the Crisis Stabilization Unit
19.	Work with the County Office of Education, Local school districts and others to develop seismic retrofit projects for existing school buildings on the State's AB300 list and seek funding through the state's School Facility	FES	The "Redwood Empire Schools' Insurance Group (RESIG), is included in the notification list for the emergency coordinators council where disaster preparation and response is discussed

#	Mitigation Action	Entity	Progress of March, 2016
	Program Seismic Mitigation Program and/or other sources for seismic retrofit of "Category Two" school structures in areas of potentially high seismic ground shaking.		and planned for. RESIG is dedicated to providing quality, cost effective risk management programs and services to the public school districts of Sonoma County. Some individual districts are considering preparation of their own individual HMP.
20.	Encourage all school facilities to review and assess their vulnerability from unsecured non-structural components that may fall during a quake increasing injury, property damage and recovery time and expense, and to undertake program to secure and modify nonstructural components to improve seismic safety.	FES	See response to 34. Some assessments have been done by individual districts. However, progress has been limited by available staff and budget.
21.	<p>Work with the following independent fire districts which have reported unreinforced masonry buildings to carry out necessary structure assessments and seek funding through grants, special assessments, development agreements, mitigation fees or other means for necessary retrofits or structure replacements to assure that the delivery and fire and emergency services is not degraded because of structural failure of URM's in an earthquake. Consider the potential for each site for liquefaction and ground-shaking and fault rupture when prioritizing sites:</p> <ul style="list-style-type: none"> • Monte Rio Fire Protection District • Kenwood Fire Protection District • Glen Ellen Fire Protection District • Rincon Valley Fire Protection District • Guerneville Fire Protection District • Geyserville Fire Protection District • Schell vista Fire Protection District • Roseland Fire Protection District • Valley of the Moon Fire Protection District 	FES	<p>"A new Fire Garage has been completed at Annapolis, with another one planned for Lakeville. Both are essential services buildings.</p> <p>Expanding REDCOM Dispatch Center, which now can be used in the event of an emergency."</p>
22.	Assess the earthquake, vulnerability of critical county infrastructure, including roads, bridges, pipelines, water treatment plants, culverts, and other important facilities.	DTPW	

#	Mitigation Action	Entity	Progress of March, 2016
23.	<p>Carry out seismic retrofitting or replacement of County owned bridges to make them more disaster resistant. Seek to fund and commence improvements and/or replacements on the following county bridges:</p> <ul style="list-style-type: none"> • Boyes Boulevard at Sonoma Creek- replace • King Ridge Rd. at Big Austin Creek – retrofit • Watmaugh Rd. at Sonoma Creek – replace • Geysers Rd. at Big Sulphur Creek – replace • Porter Creek Bridge at Porter Creek – replace • Brickway Blvd at Mark West Creek – replace and relocate 	DTPW	<p>\$25,850,000 was included in the in 2011-2016 Capital projects plan to fund bridge retrofit work.</p> <ul style="list-style-type: none"> • Boyes Boulevard at Sonoma Creek- replace – 65% complete - to be completed in 2016/17 • King Ridge Rd. at Big Austin Creek – removed from retrofit list • Watmaugh Rd. at Sonoma Creek – replace -65% complete – to be completed in 2017/18 • Geysers Rd. at Big Sulphur Creek – replace -30% complete – to be completed in 2016/17 • Porter Creek Bridge at Porter Creek – completed 2013 – replacement completed 2013 • Brickway Blvd at Mark West Creek – replace and relocate
24.	<p>Evaluate the earthquake ground shaking risks and vulnerabilities to the following radio communications tower sites and supporting infrastructure in the County's communications system and implement repairs, replacements and/or upgrades as necessary to better assure post disaster operability is maintained.</p> <ul style="list-style-type: none"> • Emergency Operations Center (EOC) • FishRock • Sheriff's Office • Sleepy • Bodega • Mount Jackson • Seaview • Siri (aka Pool Ridge) • Sonoma Mtn. • Communications Division at Fiscal • Salt Point 	Sheriff ISD	<p>All towers have had structural analyses done in the last five years as required by TIA-222. The only earthquake mitigation possible is redundancy, which involves building new/rebuilding old sites. Funding unavailable to construct new or replace old towers</p>
25.	<p>Encourage the cooperation of utility system providers and cities, counties, and special districts to develop strong and effective mitigation strategies for private infrastructure systems and facilities.</p>	FES	<p>Specific to gas and electric utilities, there has been increased outreach and collaboration between PG&E and local first responders. Examples include joint training and education, unified command implementation of "811" call before you dig program.</p>
26.	<p>Seek funding to continue and expand structural retrofit mitigation activities carried out by the Community Development Commission under their existing successful Earthquake Resistant Bracing Systems Program, such that structural retrofit activities to vulnerable buildings may be carried out or incentivized by the program. Such program</p>	CDC	<p>To date the CDC has assisted 1,030 units with Earthquake resistant Bracing installations and added an up graded water heater strapping system to many of those completions.</p> <p>CDC has applied for additional funding from CalOES to start a new program for</p>

#	Mitigation Action	Entity	Progress of March, 2016
	shall use adopted earthquake hazard maps to identify priority high risk areas for mitigation work. Retrofit activities would be focused on one or more of the following: <ul style="list-style-type: none"> • Non ductile concrete building/unreinforced masonry buildings in • Redevelopment areas or otherwise considered essential or critical facilities to emergency response and disaster recovery. • Single or multi-unit residential wood structures with inadequate foundation bracing, fire place bracing or cripple wall support • Mobile homes with inadequate foundation • Structures with inadequate water heater bracing 		the installation of additional ERBS systems throughout Sonoma County.
27.	Develop a strategy and secure funding to relocate critical Information Systems Department equipment and facilities from their current location to reduce their vulnerability to earthquake ground shaking	GS ISD	"Since 2012 the last update ISD has taken the following steps: <ul style="list-style-type: none"> • Work described in the 2012 update to upgrade ISD Data Center to an ""Essential Services"" designation was completed. • A backup data center exchange agreement between Alameda and Sonoma was approved by the Board of Supervisors and planning will start this fiscal year for moving redundant systems to their data center. • Additional redundant equipment for key systems has been moved into the Emergency Operations Center which runs off separate infrastructure in the event of a failure in other systems."
28.	Develop a strategic plan for damage assessment and recovery of essential public facilities following earthquakes, particularly those of high public occupancy,	FES GS PRMD	FES has Developed and continues to refine a "Continuity of Operations Plan (Coop) which includes a priority matrix for post incident recovery. FES has conducted exercises with General Services DOC and key County COOP Liaisons regarding procedures for reporting and assessing damages post incident virtually and manually. General Services has developed Emergency Action Plans for La Plaza A building, and for the Veterans buildings

#	Mitigation Action	Entity	Progress of March, 2016
			FES investigated emergency logistical support pre-event contract with appropriate vendors. Completed MOU with 2-1-1 Sonoma County for public information. FES has also entered into logistical pre-event support with consulting firm in 2014.

Table MS-3: Implementation Plan Progress Report 2011 – 2016 Flood Mitigations

#	Mitigation Action	Entity	Progress of March, 2016
29.	<p>Commit to improving flood mapping and topographic mapping along the Russian River. Actively participate in FEMA's Map Modernization Program to assure flood maps are based on accurate topographic maps and flood models. Incorporate and utilize up-to-date flood and/or topography data available from flood damage assessment reports, local surveys, repetitive loss studies, site specific flood evaluation determinations, and other local, regional, state or federal sources.</p> <p>Request that FEMA carry out flood studies to provide more accurate mapping of the floodway and floodplain boundaries and flood plain topography, or alternatively consider preparing such maps to FEMA standards locally through the Cooperating Technical Partners Program funding. Consider taking advantage of following programs, funding sources and technical resources to improve flood modeling and mapping along the Russian River</p> <ul style="list-style-type: none"> • FEMA's Risk Mapping, Assessment, and Planning • NOAA/NWS Flood Severity Inundation Mapping • NOAA Height Modernization Program • FEMA Cooperating Technical partner(CTP) • FEMA's Map Modernization program • CA Dept. of Water Resources Floodplain Mapping Program. • FEMA Cooperating Technical Partner (CTP) Program • Army Corps flood control and mapping 	FES PRMD ISD	<p>County has received grant from the Dept. of Water Resources (DWR) to update the topographic layer to include hydrological flood data. If approved, the grant will provide "foot" level visibility to potential flooding on the Russian River.</p> <p>In 2013-2014, ISD coordinated with the Agricultural Preservation and Open Space District and the Sonoma County Water Agency on the acquisition of high resolution, countywide LiDAR data set. ISD is currently working with County Fire/Emergency Services and PRMD to identify flood inundation areas for different size floods that potentially affect populations within the middle and lower reaches of the Russian River.</p> <p>The project deliverables will provide the Emergency Operations Center with improved GIS data including: high resolution stream centerlines, confluence points and watersheds, flow accumulation and flow direction, 2D and 3D inundation (flood area) polygons, and 3 D building polygons within the inundation area. These products will enable the Emergency Operations manager to accurately model and identify which areas may flood based on anticipated river height. The EOC manager can use this information to quickly identify, contact and advise (and potentially evacuate) citizens located within the anticipated flood areas, prior to or during an EOC activation.</p> <p>The scope of work is expected to be</p>

#	Mitigation Action	Entity	Progress of March, 2016
			completed by 2018
30.	Incorporate digital FIRM flood hazard maps when they become available from FEMA and maintain updated flood hazard maps in County GIS. Review and update the County F1 and F2 Combining District and make changes as appropriate if FIRM maps are amended.	PRMD	The location of the 100-year floodplain for Sonoma County and the F1 and F2 zoning districts are based on digital representations of the SFHAs shown on the FEMA DFIRM maps for Sonoma County
31.	Develop ongoing system to maintain more accurate data on status of repetitive loss properties and provide annual update to FEMA. Conduct a review and provide a correction list to FEMA by January 1, 2012 or prior to the next scheduled NFIP Community Assistance Visit (CAV). Corrections should clarify which properties have already been mitigated (elevated), correct errors in the occupancy type, identify properties located within the FEMA-designated floodway; and identify which ones are severe repetitive loss properties. Revise list periodically using updated loss information	CDC PRMD	As additional structures are elevated their addresses are provided to FEMA for incorporation into their data base of elevated/repetitive lose structures.
32.	Coordinate flood hazard analysis and management activities with the USACE, FEMA, DWR and other responsible agencies.	PRMD CDC FES	Participated in DWR pre-season flood planning meeting. Participated in Flood Safe California Recommendations for Managing the State's Flood Risk review. More progress could be made towards interagency coordination.
33.	Consider revisions to the County Code to address development on existing lots subject to flooding, including consideration of: <ul style="list-style-type: none"> • Limitations on rebuilding of legal nonconforming structures in the F-1 Zone • Limitations on expansion of legal nonconforming structures in the flood zone • Development criteria for parcels in the flood zone that will reduce flood risks. • Increasing the merger of existing substandard lots in the flood zones. • Increase potential properties qualifying for Increased Cost of Compliance (ICC) flood insurance reimbursements under the NFIP. 	PRMD	
34.	Consistent with Policy PS-2d of the GP2020 Safety Element, work with the County's Community Development Commission, Fire and Emergency Services Department, Permit and Resource Management Department and other responsible agencies, stakeholders and the general public to develop and implement a long term strategy for reducing repetitive	PRMD CDC FES	

#	Mitigation Action	Entity	Progress of March, 2016
	flood losses in the Russian River basin. This strategy shall be incorporated into future updates of the hazard mitigation plan.		
35.	Seek funding to continue and accelerate the flood elevation program to elevate qualifying flood damage prone properties. Consistent with FEMA/NFIP, give priority to the repetitive loss properties both within and outside the mapped flood zones.	CDC	To date it has elevated a total of 287 homes, approximately 82 of these have been elevated since 2006. CDC applies on an annual basis for additional FMA and SRL funding for additional elevations.
36.	Explore other means to reduce flood risks such as, but not limited to, public acquisition, flood proofing, and relocation of flood prone properties; give priority to the repetitive loss properties.	PRMD CDC	
37.	Encourage wider compliance with flood insurance requirements and provide more frequent verification of flood insurance coverage on parcels in the flood zones.	PRMD	Insurance is only mandated if mortgage is federally backed. County cannot require insurance as a precondition to any permit. County can educate public about flood risks and aid real estate disclosure of flood risks. County is investigating participation NFIP Community Rating system to reduce flood insurance premiums.
38.	Encourage and provide incentives for private landowners to consolidate undeveloped substandard lots in flood zones.	PRMD CDC FES	No progress made on this mitigation due to limited staff, budget and time. No additional incentives have been put in place.
39.	Identify possible ways and opportunities to reduce runoff and maintain and/or increase temporary stormwater retention to decrease downstream flooding. Consider increasing storm or flood water retention in the Laguna de Santa Rosa, terrace pits, flood plains, developed sites and development sites and off-channel agricultural reservoirs consistent with regulatory requirements and restrictions.	PRMD	Stormwater retention or detention basins are not mandated by code but are often proposed by developer or required by site-specific conditions as a means to satisfy the county's grading ordinance requirements of not increasing storm water runoff or volume for essentially the 85th percentile 24-hour event.

Table MS-4: Implementation Plan Progress Report 2011 – 2016 Wildland Fire Mitigations

#	Mitigation Action	Entity	Progress of March, 2016
40.	Increase Fire Marshal capacity to periodically inspect properties for compliance with vegetation management standards.	FES	The Board of Supervisors adopted County Ordinance Chapter 13A into the County Code Requiring the Abatement of Hazardous Vegetation and Combustible Material.
41.	Coordinate code enforcement for vegetation management between fire districts and CalFire to ensure consistency and frequency of inspections in the highest fire hazard zones.	FES	The Board of Supervisors adopted County Ordinance Chapter 13A into the County Code Requiring the Abatement of Hazardous Vegetation and Combustible

#	Mitigation Action	Entity	Progress of March, 2016
			Material.
42.	Create a "Roadside Hazard Abatement Program" to ensure that the required access clearances for vehicles and defensible space along roadway infrastructure is maintained.	FES DTPW	The Board of Supervisors adopted County Ordinance Chapter 13A into the County Code Requiring the Abatement of Hazardous Vegetation and Combustible Material.
43.	Work with the CalFIRE and local fire districts to improve vegetation management utilizing Public Resources, County Codes and scenic resource policies. Support hazardous fuel reduction programs developed through "Community Wildland fire Protection Plans" within the fire districts and in County Service Area 40.	FES	The Board of Supervisors adopted County Ordinance Chapter 13A into the County Code Requiring the Abatement of Hazardous Vegetation and Combustible Material.
44.	Acquire a wood chipper that may be loaned to agencies, community groups to help residents reduce wildland fire fuels and aid implementation of Community Wildland fire Protection Plans, Sudden Oak Death Fuels Mitigation and Defensible Space Project.	FES	<p>Sonoma County Fire and Emergency Services has purchased a wood chipper to help residents create a defensible space around occupied homes and reduce vegetation along access routes at no charge to residents. The program runs throughout fire season from June to October, or as long as funds are available.</p> <p>In 2016 the wood chipper program has conducted over 100 jobs, clearing over 250 acres of dead vegetation.</p>
45.	Develop strategies and incentives that may be implemented by the county and/or independent districts to encourage voluntary improvements and upgrades to existing structures and or facilities to bring them into compliance with current fire safety regulations. Give priority to areas designated as "Very High" or "High" fire hazard severity zones.	FES	<p>The Fuel Reduction/Vegetation Management Pilot Program was implemented by Fire and Emergency Services to support the most hazardous unincorporated areas in the County by enforcing the recently adopted ordinance, Chapter 13A to the Sonoma County Code "Requiring the Abatement of Hazardous Vegetation and Combustible Material," in only the Fitch Mountain and Camp Meeker areas for the first two years after the effective date of the ordinance.</p> <p>Fitch Mountain includes 709 parcels and Camp Meeker includes 660 parcels to be inspected. The inspection of improved and unimproved properties provides a proactive inspection program to identify areas within Sonoma County which are high fire severity zones.</p>
46.	To aid fire-fighting response and limit property damage from wildland fire, seek funding to maintain the "Countywide Digital Fire Run Book Project". This projects maps accessible	FES	<p>Ongoing.</p> <p>Work on the project has begun including the GIS mapping. The Countywide</p>

#	Mitigation Action	Entity	Progress of March, 2016
	private roads, ranch and timber roads, driveways, and water bodies such as ponds and reservoirs that may be used for fighting wildland fires		Digital Fire Run Book Project was completed. began some GIS mapping, run books completed.
47.	Encourage and facilitate district consolidation recommendations of LAFCO Municipal Service Reviews of fire districts and support implementation of any recommendations which would improve fire services, response and readiness, including possible consolidation of fire service districts.	FES	<p>In progress.</p> <p>Representatives of the Cloverdale Fire Protection District, the Geyserville Fire Protection District (“the Districts”), the City of Healdsburg (“the City”), and the County of Sonoma Fire and Emergency Services Department have been meeting to discuss issues associated with delivery of fire protection and emergency services in the northeastern section of the County.</p> <p>Known as Zone 6, the area covers 505.2 square miles. Each agency provides fire and emergency medical services in certain portions of the Zone, with the County, operating as County Service Area No. 40 (“CSA 40”), providing oversight for the Knights Valley Volunteer Fire Company and Sotoyome Fire Service Area. The Dry Creek Rancheria Fire Department provides fire protection to its casino located in the Zone, and CAL FIRE provides wildland fire protection for State Responsibility Areas (“SRAs”) within Zone 6.</p> <p>In June 2013, authorized representatives of the two Districts, the City, and CSA 40 signed a Memorandum of Understanding agreeing that “...efficiency in delivering fire services would benefit all parties and better serve the community” and stating that “...the Municipal Service Review is an appropriate vehicle to accomplish this goal.”</p> <p>The parties requested that LAFCO conduct a Municipal Service Review and recommend actions for consolidation or reorganized fire services in Zone 6. The Cloverdale Fire Protection District requested and received from the County Board of Supervisors \$180,000 to fund its operations for 2013-14, to allow the District to continue to provide services within its service area and to provide mutual aid to other providers in Zone 6</p>

#	Mitigation Action	Entity	Progress of March, 2016
			while the MSR was being conducted.
48.	Consider additional impact or mitigation fees, or a benefit assessment, to offset the impact of new development on fire services.	FES	Ongoing. California Assembly Bill No. 8: Alternative fuel and vehicle technologies: funding programs. Requires further study analysis and justification.

Mitigation Priorities

Potential mitigation actions and opportunities were suggested by the County Departments responsible for implementing the Hazard Mitigation Plan. The public was given an opportunity to suggest mitigation actions for consideration. Past mitigation actions from the 2006 and 2011 Sonoma County Hazard Mitigation Plan were either 1) carried forward to be continued during the next 5-year implementation period or 2) have become a part of the County's regular operations.

Multiple factors were considered to determine the mitigation priorities for the next five-year implementation period and which mitigation actions should be given highest priority for implementation. Criteria considered included:

- Greatest potential for protecting life and property in areas of highest risk or vulnerability,
- The amount of vulnerability and the frequency of potential hazard occurrence,
- Greatest potential to help assure critical county infrastructure, structures and government services remain functional following a disaster,
- Cost/benefit assessments or considerations where available,
- Compatibility with goals and objectives in the County General Plan Public Safety Element and Hazard Mitigation Plan,
- Degree to which mitigation strategies help reduce repetitive flood loss properties and or help assure continued compliance with the NFIP,
- Compatibility with goals, and funding priorities of the State Hazard Mitigation Plan, the California Earthquake Loss Reduction Plan and the State Flood Hazard Mitigation Plan
- Achievability of social acceptance, technical feasibility, administrative, political, legal, economic and environmental considerations,
- Representatives from County departments participated in the Hazard Mitigation Plan Technical Advisory Committee for the Plan Update. Upon conferring, it was concluded that past history, future probabilities, degree of risk and vulnerabilities to the County and its residents that the Plan should remain focused on earthquakes floods, landslide and wildland fires is appropriate. These priorities are consistent with the State Hazard Mitigation Plan in order to achieve an integrated approach. The Technical Team agreed that it was pertinent and necessary to consider new information regarding climate change such as sea level rise, tsunamis, and drought. The Technical Team provided justifications for high priority mitigation actions below.

Continuity of Operations / Continuity of Government

Given the importance of maintaining critical government functions in times of disaster and the large number of the population who depend and rely on government services and infrastructure, those mitigation measures that improve government disaster resistance, readiness, or recovery capacity are given high priority.

Seismic Mitigation

Seismic mitigations for the general public and the county facilities and infrastructure are given high priority because earthquakes have the potential to affect the largest number of people, critical facilities, and buildings and to cause the greatest economic losses and disruption of government functions and commerce. The relatively high probability of an earthquake occurrence in the next several decades makes increasing disaster resistance and readiness to earthquakes a high priority.

Flood Mitigation

Flood mitigations are given high priority as they have caused the most disaster proclamations in the County and the greatest economic losses since 1990. Consistent with State and Federal goals, particular emphasis was placed on reducing the number of repetitive flood losses since the County has the highest amount of repetitive losses in the state.

Wildland Fire Mitigation

Wildland fire mitigations are given high priority considering the County wildland fire history, vegetation composition, and changing climate. State wide fire behavior trends suggest fire risk is increasing due to drier conditions and longer fire seasons resulting from climate change as well as increased residential development in wildland areas. Costs of firefighting have been increasing over the last decade severely straining state and local firefighting agencies.

Existing Developments

Identifying and implementing ways to reduce the hazard vulnerability of existing development was given high priority since such development is generally at greater risk than more recent development, as the older development was established before current day construction requirements and siting restrictions were in effect.

Cost-Benefit Considerations

Cost-benefit considerations were incorporated into the prioritizing process in a number of ways. GIS mapping was used to identify the areas at greatest risk from earthquakes, floods, wildland fires, and landslides. Risk and vulnerability assessments identify certain types of buildings which are more vulnerable. Focusing mitigations actions on the most vulnerable buildings in the highest risk areas provides a greater cost benefit return.

Cost-benefit considerations determine whether to replace or retrofit existing buildings and bridges, or to relocate County operations.

FEMA's HAZUS loss estimation program provided cost estimates of the County structures potentially at risk from the different types of hazards again allowing the County to prioritize those areas and types of hazards that face the greatest potential losses.

Repetitive Loss Properties

Repetitive loss property mitigation actions were given higher priority considering the disproportionate share of flood insurance payouts, which provides a much greater cost-benefit than lower risk properties. Emphasizing home elevation rather than buyout and acquisition, allows more homes to be mitigated as a home elevation costs only about one third to one quarter of the cost of an acquisition.

Mitigation Actions

DMA 2000, Stafford Act, and Title 44 Code of Federal Regulations (CFR) §201.6.

Requirements:

Mitigation Strategy

***Requirement §201.6(c)(3)(ii):** [The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.*

***Requirement §201.6(c)(3)(iii):** [The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

Source: FEMA, March 2011.

Mitigation actions have been identified for the purpose of reducing the effects of each hazard. The actions outlined below were developed with specific, measurable, achievable, relevant, and time-oriented considerations. Table MS-1 sets forth a range of different mitigation strategies identified for each hazard assessed. Subsequent updates to this hazard mitigation implementation plan may identify other priorities as mitigations are completed or priorities and needs shift and/or funding becomes available.

Table MS-5: Hazard Mitigation Strategies Key

Category	Description	Abbreviation	Denotation
Priority Ranking	The mitigation goals, objectives, priorities and criteria were used to assign each mitigation action a priority ranking of either:	(A)	High Priority
		(B)	Important Priority
Agency Responsibilities	The entities responsible for implementing each task are identified in the Tables MS-2 through MS-7 by the following acronyms:	PRMD	Permit and Resource Management Dept.
		ISD	Information Systems Dept.
		FES	Fire and Emergency Services
		DTPW	Dept. of Transportation and Public Works
		GS	General Services Dept.
		CDC	Community Development Commission
		SCTA	Sonoma County Transit Authority
		RM	Risk Management
		RCPA	Regional Climate Protection Authority
Sheriff	Sheriff's Office		

The mitigation strategies identified under each objective are prioritized and those considered the highest priority are identified as priority "A". The priority "A" mitigation actions identified under each objective are proposed to be included in the 2016-2021 Mitigation Strategy which the County will pursue over the next five years.

Although the Mitigation Strategy addresses only the highest ranking mitigation actions based on the criteria outlined above, all mitigation actions listed will provide meaningful mitigation benefit to the County. The County considers implementation of all mitigations as feasible over time. However, in some cases the priority rankings identified in the plan may change in subsequent years due to the availability of funding, disaster occurrences, or changes in information. Consistent with the State Hazard Mitigation Plan goals, flexibility is incorporated into the plan, such that unforeseen secondary hazards may be considered high priority on an as-needed basis.

This Mitigation Strategy identifies a total of 49 "high priority" mitigation actions to be carried out between 2016 and 2021. To the degree possible, the entities responsible for implementing the mitigation action, the estimated timeframe for completion, and estimated funding and/or funding sources to support implementation have been identified. All stated funding amounts were preliminary estimates as of 2016 and actual costs may be different due to inflation, design changes, detailed cost estimates, and the availability of funding.

Tables MS-6 through MS-11 show the Mitigation Actions for 2016-2021 SCHMP Mitigation Strategy.

Table MS-6: Objective 1 – Assure that Up-To-Date Hazard Information and Maps are Available to Guide Decisions that Impact Risk

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
1.	Multi-Hazard	Amend General Plan Safety Element Hazard maps to reflect updated mapping of hazard areas identified by this Hazard Mitigation Plan, FEMA, CAL FIRE, or the CA Seismic Hazards Mapping Program.	A	PRMD	2016-2021	Annual Dept. Budget
2.	Multi-Hazard	Update County websites to provide public access to parcel specific natural hazard information and educational materials that identify ways to reduce hazards.	A	PRMD CDC FES Assessors	2016-2021	Annual Dept. Budget
3.	Multi-Hazard	Utilize hazard mitigation information presented in the Sonoma County Climate Action Plan 2020 and Local Climate Adaptation Policy Guide for Local Governments (CalOES) to reduce risks exacerbated by climate change and to adapt to climate change impacts. Integrate climate adaptation actions across regional and local General Plan Public Safety Elements, Coastal Plans, mitigation planning efforts, and infrastructure planning and development. Support Countywide greenhouse gas reduction initiatives outlined in the Community Climate Action Plan and led by the Regional Climate Protection Authority.	B	RCPA PRMD	2016-2021	Annual Dept. Budget
4.	Flood	Incorporate digital FEMA Flood Insurance Rate Maps (FIRMS) and maintain updated flood hazard maps in County GIS. Review and update the County F1 (Floodway) and F2 (Floodplain) Zoning Combining Districts accordingly. Incorporate the most current FEMA mapping, including: <ul style="list-style-type: none"> • Open Pacific Coast Study coastal high hazard and flood areas • Todd, Mooreland and Hunter Lane Creeks revision • Colgan, Naval, and Roseland Creeks Physical Map Revision 	A	PRMD	Ongoing	Annual Dept. Budget

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		<ul style="list-style-type: none"> • Santa Rosa and Matanzas Creeks Physical Map Revision • San Pablo Bay Watershed Discover project 				
5.	Flood	Request a FEMA prepared updated flood insurance study analysis of the Russian River flood plain. Utilize an in-depth record of USGS flow data and LIDAR-generated topographical base tied to the NAD88 vertical datum and other sources of information as available.	A	PRMD	2016-2021	TBD
6.	Flood	Improve flood and topographic mapping along the Russian River. Re-evaluate hydrologic floodways and recurrence levels.	A	PRMD	2016-2021	DWR Flood Grant
7.	Flood	Work with stakeholders and the general public to develop and implement a long term strategy, consistent with Policy PS-2d of the GP2020 Safety Element, to reduce repetitive flood losses in the Russian River basin. This strategy shall be incorporated into future updates of the Local Hazard Mitigation Plan.	A	PRMD CDC FES Other	2016-2021	General funding

Table MS-7: Objective 2 – Update and Enforce County Codes to Minimize the Risks of Natural Hazards

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
8.	Multi-Hazard	Consider the adoption of code regulations, policies, procedures or interagency Memorandums of Understanding to set forth requirements and procedures applicable to the repair and reconstruction of structures damaged by natural and man-made disasters which will facilitate disaster recovery.	A	PRMD FES GS	2016 -2021	Annual Dept. Budget
9.	Multi-Hazard	Expand the "Geologic Hazard" Combining District, or develop a new Combining District(s) to incorporate all types of geological hazards including areas of high ground-shaking, landslide and liquefaction, and coastal bluff hazards.	B	PRMD	2016-2021	TBD
10.	Multi-Hazard	Incorporate land uses, zoning, and other measures to minimize risks along transmission pipeline rights-of-way recommendations and guidelines from the U.S. Department of Transportation's (DOT) Office of Pipeline Safety (OPS), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Federal Energy Regulatory Commission (FERC).	B	PRMD DTPW FES	2016-2021	TBD
11.	Earthquake	Adopt an ordinance requiring strengthening and/or reinforcement of unreinforced masonry buildings, except residential structures, considering the cost of the work and the value, frequency of use, and level of occupancy.	A	PRMD	2016 - 2018	Annual Dept. Budget
12.	Flood	Revise the County Code to address development on existing lots subject to flooding, including consideration of: <ul style="list-style-type: none"> • Limitations on rebuilding of legal nonconforming structures in the F-1 Zone • Limitations on expansion of legal nonconforming structures in the flood zone • Development criteria for parcels in the flood zone that will reduce flood risks. • Increasing the merger of existing substandard lots in the flood zones. • Increase potential properties qualifying for Increased Cost of Compliance (ICC) flood insurance 	A	PRMD	2016 -2021	Annual Dept. Budget

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		reimbursements under the NFIP. <ul style="list-style-type: none"> Establish a minimum parcel size of five acres in the flood zone Incorporate higher performance and technical standards for onsite wastewater treatment systems Provide incentives for private landowners to consolidate undeveloped substandard lots in flood zones. Expand definition of substantial damage to include 2 floods in 10 years with average damage at 25 percent of the building's value. 				
13.	Wildland fire	Periodically inspect properties for compliance with vegetation management standards. Coordinate code enforcement for vegetation management between fire districts and CAL FIRE to ensure consistency and frequency of inspections in the highest fire hazard zones.	A	FES	2012-2017	External funding req.
14.	Landslide	Work with the appropriate local, state and federal agencies to assure that post fire reports include an assessment of secondary landslide or mudslide risks in the burned over areas and erosion and landslide control measures that can be taken. Consider adoption of post-fire erosion and sediment control requirements to mitigate the secondary impacts in burned areas arising from storm runoff, erosion, mudflows and landslides	B	FEES PRMD	2016-2021	TBD
15.	Landslide	Adopt County Code amendments or develop a departmental policy to require residential structures in landslide risk zones to conduct geologic soil investigation, prepared by a California licensed Civil or Geotechnical Engineer, to evaluate the proposed unit's landslide risks, prior to permit or construction approval.	B		2016-2021	TBD
16.	Sea Level Rise	The Coastal Zoning Ordinance and Sonoma County Building Code should regulate new development and redevelopment on coastal bluffs Regulations should require new development to be set back a sufficient distance or otherwise sited, and	B	PRMD	2017-2019	Annual Dept. Budget

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		designed to eliminate or minimize inundation, flooding, and/or coastal erosion resulting from projected future sea level rise and other coastal hazards over a 100-year economic life of the development (Coastal Plan Policy C-PS-4j).				
17.	Sea Level Rise	Develop a model ordinance which would provide for the orderly regulation of land uses in areas which may be affected by sea level rise.	A	PRMD	2016 -2021	OPC grant
18.	Sea Level Rise	Require Coastal Permits for new development and improvements to existing or new public facilities and infrastructure.	A	PRMD	2018-2019	Annual Department Budget

Table MS-8: Objective 3 – Reduce Vulnerability of Public Buildings and Critical Facilities at Risk from Natural Hazards

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
19.	Multi-Hazard	Continue to incorporate hazard assessments during site selection, design, siting or leasing county facilities.	A	GS	Ongoing	Annual Dept. Budget
20.	Multi-Hazard	Conduct a natural hazard risk and vulnerability assessment of all County emergency response and critical facilities to identify site-specific improvements to increase resiliency to hazard events and their post disaster functionality.	A	GS	2016-2021	TBD
21.	Earthquake	Work with independent fire districts to prioritize necessary structure assessments of unreinforced masonry buildings and seek funding for seismic retrofits or structure replacements to ensure that fire and emergency services are not degraded. Consider potential liquefaction, ground-shaking, and fault rupture when prioritizing sites.	A	FES	2016-2021	District funding FEMA grants
22.	Earthquake	Conduct seismic upgrades to planned major repairs of county buildings to increase resistance to earthquake damage, especially buildings critical to emergency response and recovery. These include buildings proposed for remodelling in the Capital Project Plan (CPP): <ul style="list-style-type: none"> • Law Library • Human Services Building • North County Detention Facility • Health Services Administrative Building • Sierra Youth Center • Sebastopol Veterans Building • Santa Rosa Veterans Building, and • Guerneville Sheriff's Sub-station 	A	GS	Ongoing	Annual CPP and external funding

Table MS-9: Objective 4 – Improve the Ability of County Infrastructure to Withstand and Remain Functional After Natural Hazard Events

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
23.	Multi-Hazard	Selectively remove or trim trees in Right-of Ways that pose a risk to traffic circulation and impeding disaster response and recovery. Partner with utility companies to facilitate the work. Provide offsetting plantings elsewhere. Seek to include vegetation management requirements in franchise agreements for utilities	B	DTPW	2016-2021	TBD
24.	Multi-Hazard	Request a vulnerability report from PG&E on gas pipelines in Sonoma County. Obtain updated natural gas safety training for firefighters. Encourage the use of the Underground Service Alert (USA) Program by contractors and property owners to locate and avoid underground utilities.	B	FES PRMD	2018	Annual Dept. Budget & PG&E
25.	Earthquake	Assess the vulnerability of critical county infrastructure, including roads, bridges, pipelines, water treatment plants, culverts, and other important facilities.	A	DTPW	2016 -2021	TBD
26.	Earthquake	Perform seismic retrofitting or replacement of the following County owned bridges: <ul style="list-style-type: none"> • Boyes Boulevard at Sonoma Creek- replace • Watmaugh Rd. at Sonoma Creek – replace • Geysers Rd. at Big Sulphur Creek – replace • Big Wohler Bridge – retrofit • Chalk Hill Bridge - replacement • Lambert Bridge - replacement • Little Wohler Bridge - replacement • Monte Rio Bridge - replacement • Pena Bridge - replacement 	A	DTPW	2016/17 2017/18 2016/17 2016/17 2021/22 2018/19 2016/17 2019/20 2017/18	Funded in CPP
27.	Flood	Strengthen/ retrofit critical county infrastructure to increase ability to convey or store flood waters, remain operable during floods, and reduce the potential for flood damage, including:	A	DTPW	2016-2021	TBD External funding

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		<ul style="list-style-type: none"> • Enlarge undersized drainage channels, culverts, ditches, storm sewers and other runoff conduits which cause localized flood hazards and damage. • Elevate critical sections of county road subject to flooding to allow access and egress during periods of flooding. • Decrease the potential for road damage resulting from flood related stream bank erosion by installing rip rap or other bank stabilization measures. • Install scour protection on bridge piers to prevent structural damage in floods • Construct stormwater detention basins. 				
28.	Flood	Identify possible opportunities to: reduce runoff; maintain and/or increase temporary stormwater retention; decrease downstream flooding; increasing water retention in the Laguna de Santa Rosa, terrace pits, flood plains, developed sites and development sites and off-channel agricultural reservoirs, consistent with regulatory requirements and restrictions.	B	DTPW PRMD	2016-2021	Dept. funding & Project fees
29.	Wildland Fire	Conduct a systematic fire safety analysis of all County owned assets that are known to be in wildland fire zones and identify site-specific mitigation actions to improve wildland fire resistance.	A	FES	2016-2021	TBD

Table MS-10: Objective 5 – Reduce the Hazard Vulnerability and Increase the Mitigation Capability of County Residents and Businesses

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
30.	Multi-Hazard	<p>Initiate targeted outreach, education, preparedness, and mitigation initiatives to better prepare the County's vulnerable populations, especially in high hazard areas, to include:</p> <ul style="list-style-type: none"> • Non-English speaking populations • Low-income residents • Elderly / aging population • Residents with additional access and functional needs • Homeless / displaced 	A	FES RM		TBD
31.	Earthquake	<p>Continue and expand structural retrofit mitigation activities carried out by the Community Development Commission under their existing Earthquake Resistant Bracing Systems Program. Structural retrofit activities to vulnerable buildings may be carried out or incentivized by the program. Retrofit activities would be focused on:</p> <ul style="list-style-type: none"> • Non ductile concrete building/unreinforced masonry buildings in • Areas considered critical facilities to emergency response and disaster recovery. • Single or multi-unit residential wood structures with inadequate foundation bracing, fire place bracing or cripple wall support • Mobile homes with inadequate foundation • Structures with inadequate water heater bracing 	A	CDC	2016-2021	External funding required
32.	Earthquake	<p>Adopt pre-approved standard plans for seismic retrofits of existing residences to improve the home's chances of surviving an earthquake. The plan will set forth standard prescriptive measures recommended to home owners and contractors in accordance with building codes. Once approved, the plan will allow for a simple, low cost permitting process.</p>	A	PRMD	2016-2018	Annual Dept. Budget

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
33.	Earthquake	<p>Provide materials to educate and inform owners of the potentially greater risks associated with the following building types in the highest earthquake hazard zones in the County, as well as voluntary mitigations and retrofit options available to strengthen and reduce the vulnerability of such structures.</p> <ul style="list-style-type: none"> • Pre-1980 concrete frame buildings • Pre-1980 concrete tilt-up buildings • Pre-1980 soft story buildings • Residential structures with inadequate foundations and cripple walls located on hillsides • Mobile Homes 	B	PRMD	Ongoing	Annual Dept. Budget
34.	Flood	Continue the flood elevation program to elevate qualifying flood damage prone properties. Consistent with FEMA/NFIP and give priority to the repetitive loss properties both within and outside the mapped flood zones.	A	CDC	Ongoing	External funding
35.	Flood	Identify means to reduce flood risks such as public acquisition, flood proofing, relocation of flood prone properties; and give priority to the repetitive loss properties.	A	CDC PRMD	2016 -2021	TBD
36.	Flood	Initiate Sonoma County's participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS) to qualify area residents for flood insurance premium discounts to help offset increases in flood insurance.	A	PRMD	2016-2021	Annual Dept. Budget
37.	Flood	Update the Russian River Response Plan to map inundation areas associated with different size floods. A digital terrain model should be made available on an interactive web viewer. The plan will include the minimum content requirements of California Water Code Section 9650. The response plan shall be integrated into any other local agency emergency plan, coordinated with the State emergency plan, and be consistent with AB 156 Guidelines.	A	FES, PRMD	2016-2018	DWR grant Annual Dept. Budgets

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
38.	Flood	Implement education and awareness programs via community outreach, information kiosks, media and County websites. Notify owners of properties in the flood zones and/or on the repetitive loss list of the applicable regulations and mitigation programs.	B	FES PRMD CDC	2012-2017	Annual dept funding
39.	Flood	Work with the Chamber of Commerce and others to identify strategies for reduce the level of flood damage to commercial properties and multi-family housing where structure elevation is not feasible. Give priority to the repetitive loss properties.	B	CDC FES PRMD	2012-2017	TBD
40.	Flood	Cooperate with the City of Petaluma to preserve and enhance natural flood water retention in the headwaters of the Petaluma River Basin, the confluence of the Willow and Lichau Creeks and the Liberty and Wiggins Creeks, to reduce downstream flooding in Petaluma.	B	PRMD FES City of Petaluma	2016-2021	TBD
41.	Flood	Monitor and evaluate repetitive loss property mitigation initiatives. Report updates to appropriate federal and state agencies.	A	CDC PRMD	Ongoing	Annual Dept. Budget
42.	Sea Level Rise	Prepare Sea Level Rise and Coastal Hazards Risk and Vulnerability Assessments, focused on the highest risk of sea level rise as provided by the best available science, on the Sonoma County Coast.	B	PRMD	2016-2019	Same as Mitigation #10
43.	Sea Level Rise	Develop a Sea Level Rise and Coastal Hazards Adaptation Plan for the Sonoma County Coast. Plan to include a geologic/flood hazards report, prepared by a licensed Geotechnical Engineer or a certified Engineering Geologist, to evaluate the risk and vulnerability of development and infrastructure to sea level rise and other coastal hazards over the economic life of the development. The Plan and report should address tools for adapting to sea level rise and costal hazards; standards for siting, design, and construction of new development and infrastructure; and	B	PRMD	2016-2018	Ocean Protection Council NOAA Center for Ocean Solutions

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		focus on public facilities and infrastructure.				
44.	Sea Level Rise	Analyse and identify green infrastructure actions which may be taken to increase coastal resiliency to climate change. These adaptation actions may include, planned retreat, land preservation, habitat conservation, and habitat restoration, etc.	B	PRMD		TBD
45.	Wildland fire	Work with CAL FIRE and local fire districts to improve vegetation management consistent with the Public Resources and County Codes and scenic resource policies. Support hazardous fuel reduction programs developed through "Sonoma County Community Wildland fire Protection Plans" within the fire districts included in County Service Area 40.	A	FES	2012-2017	External funding required
46.	Wildland fire	Carry out a public education program to increase risk awareness and promote implementation of fire safe practices by residents in wildland urban interface areas, such as vegetation management, fire resistant construction, onsite water storage, adequate access and other fire prevention measures.	B	FES	2012-2017	Dept. budget and grant funding
47.	Wildland fire	Provide fire hazard information signs identifying areas or time periods of high wildland fire risk.	B	FES	TBD	TBD
48.	Wildland fire	Develop strategies and incentives that may be implemented by the County or independent districts to encourage voluntary improvements and upgrades to existing structures and or facilities to bring them more into compliance with current fire safety regulations. Give priority to areas designated as "Very High" or "High" fire hazard severity zones.	B	FES	2016-2021	TBD
49.	Wildland fire	Increase Fire Marshal capacity to periodically inspect properties for compliance with vegetation management standards.	B	FES	2016-2021	TBD

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
50.	Wildland Fire	Partner with special districts, state, and federal partners to identify and mitigate natural hazard threats that pose a risk to water systems infrastructure.	B	SCWA FES	2016-2021	TBD

Table MS-11: Objective 6 – Increase the County Capability to Respond and Recover from Emergencies and Natural Disasters

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
51.	Multi-Hazard	Evaluate existing emergency power systems at county facilities and provide emergency power generation capacity, or have rental/lease agreements for these generators, at county facilities critical for emergency response and recovery to ensure continuity of government services.	A	GS	2016-2021	External funding Required
52.	Multi-Hazard	Create a "Roadside Hazard Abatement Program" to monitor access clearances for vehicles and defensible space along roadway infrastructure.	B	FES	2016-2021	TBD
53.	Multi-Hazard	Improve county communications capacity, interoperability capabilities, and disaster resilience to help maintain critical post disaster operability by: <ul style="list-style-type: none"> Develop a strategy to relocate critical Information Systems Department equipment and facilities from their current location to reduce their vulnerability to natural hazards. 	A	ISD FES	2016 -2021	TBD
54.	Multi-Hazard	Develop a strategy to strengthen or replace county owned and emergency response facilities that have structural weaknesses as determined by the priorities identified through an engineering analysis.	A		2016-2021	TBD
55.	Multi-Hazard	Continue to develop and improve the County's Continuity of Operations Plans (COOP) to ensure the performance of essential functions under a broad range of natural hazards and disaster events. This mitigation action includes the central coordination of departmental plans, coordination with the EOC logistics section, and the performance of periodic functional drills and exercises. It will also include a strategic plan for damage assessment and recovery of essential public facilities following earthquakes, particularly those of high public occupancy,	A	GS RM ISD PRMD CAO FES CC	2016-2021	Annual Dept. Budgets

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
		<p>Promote Operational Area Continuity of Operation initiatives to include programs aimed at:</p> <ul style="list-style-type: none"> • Life safety and protection of property, and EOC activation • The continuity of governance • Emergency health and welfare systems meeting emergency needs for food, care, and shelter • Emergency, non-public safety communication systems and services • Custodial and residential services • Supporting criminal justice and court services • Supporting welfare assistance and fiscal systems • Protecting the County from severe financial loss • Directly supporting county and community economic recovery and reimbursement 				
56.	Multi-Hazard	Continue to develop and fund the Comprehensive Community County Facilities Plan (CCFP) which, in addition to other goals, seeks to increase the resiliency of county facilities to natural hazards and disaster events in order to maintain essential services and critical government functions.	A	GS RM CAO	2016-2021	TBD
57.	Multi-Hazard	Require annual department budgets and work programs to allocate funds and staff for HMP implementation work. Funding to update the Sonoma County Hazard Mitigation Plan should be incorporated into the 2020/21 budget.	A	All Depts.	2016-2021	TBD
58.	Earthquake	Develop a strategic plan for damage assessment and recovery of essential public facilities following earthquakes, prioritize areas of high public occupancy.	A	GS FES PRMD	2016-2021	Annual Dept. Budget
59.	Earthquake	Seek funding to engage an engineering consultant to conduct a seismic evaluation of facilities critical to emergency response or recovery operations and buildings with high occupancy. Incorporate seismic assessment upgrades in major remodel projects at existing buildings. All new construction shall conform to current codes at the time of the permit.	B	GS	2016-2021	TBD

#	Hazard Type	Mitigation Action	Priority	Responsible Departments	Completion Timeline	Potential Funding Sources
60.	Wildland fire	Encourage and facilitate Fire District consolidation recommendations of LAFCO Municipal Service Reviews and support implementation of any recommendations which would improve fire services, response and readiness, including possible consolidation of fire service districts.	B	PRMD FES	2016-2021	TBD

Implementation Plan

The Implementation Plan identifies governance structures that are used to manage local land use development and community decision-making platforms for integrating the data, information, and mitigation strategy. The purpose of which is to assist the County in capitalizing on available mechanisms that are currently in place to accomplish hazard mitigation and further reduce risks. This section identifies:

- Mechanisms for implementing the mitigation strategies identified in Tables MS-6 through MS-11; and
- Plan for continued public involvement.

Implementation of each mitigation task is the responsibility of the responsible entities identified in Table MS-12. The implementation progress may be limited by available funding and staff constraints. The tasks in the implementation plan should be given high priority by the departments so they can monitor and evaluate significant progress made during the 5-year cycle. Each department should allocate staff and budget to the goal of increasing disaster mitigation and applying for funding. The key County agencies involved in disaster mitigation and their role in managing disasters are presented in Table MS-12.

Table MS-12: County Departments Involved in Emergency Management

Department	Role in Hazard Mitigation and Emergency Management
Permit & Resource Management Department (PRMD)	<p>Verifies compliance with Uniform Building Code through checking plans, issuing permits, and conducting field inspections.</p> <p>Conducts comprehensive planning activities, including preparation of the General Plan Safety Element and the Hazard Mitigation Plan</p> <p>Develops zoning regulations</p> <p>Prepares CEQA documents and General Plan consistency determinations</p> <p>Maintains GIS capability for County planning activities</p> <p>Conducts site inspections to enforce permit and code requirements</p> <p>Floodplain Manager oversees floodplain management and makes flood elevation determinations</p> <p>Participates in disaster response Emergency Operations Center operations as Planning Section Chief, leading the situation analysis, damage assessments and documentation.</p>
Fire and Emergency Services Department (FES)	<p>Lead agency for emergency management in the County/OP Area, including:</p> <p>Plans and coordinates response, recovery, and mitigation activities</p> <p>Emergency response, rescues, fire suppression and hazardous materials regulation and response.</p> <p>Communicates with federal, state, city, and other local agencies</p> <p>Develops and coordinates emergency operation plans for the County, cities, and districts</p> <p>Maintains County/Op Area Emergency Operations Center</p> <p>Conducts emergency management trainings and exercises</p> <p>Enforces the California Fire Code and other fire-related codes</p> <p>Conducts plan check and inspection services for fire code compliance</p> <p>Trains and oversees volunteer fire agencies</p>
Sheriff's Office	<p>Performs emergency response activities, including police actions, evacuation, security and coroner functions</p> <p>Participates in Operations Section In the County/Op AREA EOC</p> <p>Responsible for engineering and maintenance of the County two-way radio system</p>
Department of Transportation and Public Works	<p>Provides road construction and maintenance services for the unincorporated road system,</p> <p>Maintains the County airport, which has commercial and emergency uses</p> <p>Conducts emergency repair services to transportation and public works systems</p> <p>Conducts seismic retrofits of bridges and landslide repairs</p> <p>Maintains some drainage infrastructure</p>
General Services Department	<p>Designs, constructs, and maintains County owned buildings</p> <p>Leads Logistics Section in County/Op Area EOC</p> <p>Prepares Comprehensive County Facilities Plan & Capital Project Plan</p>
Human Resources Department	<p>Risk Management Division conducts risk analysis on county facilities to assess vulnerabilities and determine insurance levels</p> <p>Leads Safety Committee and Department Emergency Action Plans</p> <p>Participates in Logistics Section in the County/Op Area EOC</p>
Community Development Commission	<p>Operates the County Housing Authority to provide affordable housing</p> <p>Coordinates flood elevation programs in Russian River area</p> <p>Coordinates Community Development Block Grants for low-income housing renovation</p>

Department	Role in Hazard Mitigation and Emergency Management
	Administers Earthquake Resistant Bracing System program
Human Services Department	Coordinates care and shelter needs in emergencies Participates in Logistics Section in the County/Op Area EOC
Department of Health Services	Coordinates health and medical functions during disasters Participates in Operations Section in the County/Op Area EOC Develops and distributes emergency preparedness and health risk information before and after floods, landslides and other emergencies
Information Systems Department	Maintains network backup systems and leads electronic recovery efforts Manages internal County communications and the fiber-optic cabling for the wide area network Responsible for engineering and maintenance of the 9-1-1 emergency and other specialized electronic systems at County facilities.
County Administrator's Office	Acts as the EOC Director in the County Op/Area EOC Supports departmental mitigation efforts in budget process

Compliance

The cornerstone of mitigation in Sonoma County is to ensure all development including construction, meets the most current County land use, zoning, and building code requirements. County codes for new construction are stringent and require specific hazard assessments, studies as part of the building and planning review and approval process.,. Codes include construction standards, siting requirements, use limitations, study requirements, mitigation requirements, and disclosure requirements which minimize the exposure and loss of life, property, and economy resulting from disasters.

The Code's discretionary permit approval and environmental review process allows site-specific hazards to be assessed, avoided or mitigated. The decision-making process with respect to environmental findings under the California Environmental Quality Act (CEQA), general plan policy and zoning code, and subdivision map approvals provide opportunities to reduce risk in hazard-prone areas.

The County will comply with applicable State and Federal laws and enforce design and siting requirements established by County Codes to increase the safety and disaster resistance of new or existing buildings, whether private or public. It will also consider available hazard information in the review of project applications and other decision-making that impact risk.

California Emergency Services Act

The California Emergency Services Act (Title 2, Division 1, Chapter 7 of the Government Code) requires plans to be prepared and carried out for the protection of persons and property within the Sonoma County Operational Area in the event of an emergency; to provide for the mitigation of the effects of natural, man-made, or war-caused emergencies which result in conditions of disaster or extreme peril to life, property, or the resources of the County of Sonoma; and to create an organization based on the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) to coordinate the efforts of the various emergency services agencies, both public and private.

The Chapter 10 of the County Code complies with the above mandates and sets forth the regulations guiding Sonoma County's civil defense and disaster response activities, including the conservation, control and distribution of resources which are essential to survival and recovery of individuals, government and the business economy of the County during and following a local emergency or a state of emergency, as defined in the California Emergency Services Act. The Code also provides for the preservation and continuation of County government in times of disaster. Provisions include the establishment of an Emergency Council to review and make recommendations for emergency planning, mutual aid agreements, and determine emergency management goals and objectives for the Operational Area. The Hazard Mitigation Plan is consistent with these goals and is the backbone of Operational Area hazard mitigation planning.

Hazard Disclosure Laws

The County implementation effort includes facilitating hazard awareness and compliance with Hazard disclosure laws by making maps and parcel specific information regarding hazards zones available to the real estate agents sellers and the general public. The Natural Hazards Disclosure Act, effective June 1, 1998 requires that sellers of real property and their agents provide prospective buyers with a "Natural Hazard Disclosure Statement" when the property being sold lies within one or more state-mapped hazard areas, including a Seismic Hazard Zone. Seismic Hazard Zones are zones identified by the California Geological Survey that encompass areas prone to earthquake induced ground-shaking, liquefaction and landslides. Information shown on Official Maps of Earthquake Fault Zones and other state and federal maps of natural hazards also must be disclosed.

In an earthquake, properties in these zones may be subject to strong ground shaking, liquefaction, or landslide. The California Business and Professional Code requires the seller or seller's agent during a real estate transaction disclose actual knowledge that the property is within a delineated seismic hazard zone. Disclosure is also required if the county has received or prepared a map or list, and has made this information available by posting at the county recorder, county assessor, and county planning offices a notice that identifies the location of the map and or list. Unless the transfer of the property is subject to an exemption from this disclosure, the seller or the seller's agent must disclose if the property is in one or more of the following zones or areas:

- An earthquake fault zone
- A seismic hazard zone (i.e. liquefaction, ground shaking, landslide)
- Zone A or Zone V (special flood hazard area) as designated by the Federal Emergency Management Agency
- An area of potential flooding shown on a map as an area which will be inundated from dam failure A designated Very High Fire Hazard Severity Zones
- A designated wildland area ("State Responsibility Area") that may contain substantial forest fire risks and hazards

Incorporation

Since the first iteration of the SCHMP in 2006, the County has taken note of the success of integrating the Plan into other planning mechanisms. The purpose of integrating the Plan into

other initiatives is to mainstream and standardize hazard mitigation best practices. Incorporation of the Plan and mitigation actions has guided County wide growth and redevelopment to encompass the guiding principles of hazard mitigation plans and minimize exposure to hazards. The result of which has recently become more apparent as projects are completed and return on investments come to fruition; thus strengthening critical facilities through long-term recovery and reinvestment initiatives.

Incorporation into General Plan

The primary planning document for the County is the Sonoma County General Plan 2020. California State law requires the County to prepare a Comprehensive General Plan to establish policies to guide development and the distribution of future land uses. The policies of the General Plan underlie most land use decisions and all zoning codes, specific plans, subdivisions, capital improvements, and development agreements, must be consistent with the general plan. State law (GC65302) mandates that each general plan include a Safety Element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards and other geologic hazards known to the legislative body; flooding; and wildland / urban fires. The primary aim of the Safety Element is to establish goals, objectives and policies to guide land use and development to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from such events.

The Hazard Mitigation Plan is consistent with the goals and objectives of the Sonoma County General Plan. The Public Safety Element was updated in 2015 to incorporate the Hazard Mitigation Plan by reference. The implementation of the Hazard Mitigation Plan is identified as one of the work programs of the Safety Element. Furthermore, a discretionary project may not be approved unless it is found to be consistent with the General Plan (including its safety element policies) prior to approval. Since the Hazard Mitigation Plan is incorporated by reference into the General Plan Safety Element, a project may not be considered consistent with the General Plan unless it is also consistent with the Hazard Mitigation Plan.

The hazard maps in the Hazard Mitigation Plan have been incorporated into the Safety Element. The Hazard Mitigation Plan's hazard analysis and hazard mapping was fully considered and informed the General Plan's policies with respect to land use, open space, resource conservation, housing, public facilities, circulation and transit.

The County's General Plan does not designate additional development potential in high hazard areas. The land use designations of the General Plan limit the development densities and allowed land uses in hazardous areas to reduce the number of people and buildings exposed to risk. Since locating rural and urban growth development in parts of Sonoma County could result in exposure of people and property to flooding, fire and seismic hazards, landslides, and erosion, the County General Plan set forth the following goals, objectives and policies:

- Prevent unnecessary exposure of people and property to environmental risks and hazards. Limit development on lands that are especially vulnerable (GOAL LU-7)

- Restrict development in areas that are constrained by the natural limitations of the land, including but not limited to, flood, fire, geologic hazards, groundwater availability and septic suitability (Objective LU-7.1)
- Avoid General Plan amendments that would allow additional development in flood plains, unless such development is of low intensity and does not include large permanent structures (Policy LU-7a)
- Prohibit new permanent structures within any floodway. Require that any development that may be permitted within the flood plain to be raised above the 100 year flood elevation (Policy LU-7c)
- Avoid new commercial, industrial, and residential land use designations in areas subject to "high" or "very high" fire hazards (Policy LU-7d).

The County's General Plan does not allow new lands to be pre-designated as urban residential or industrial if they are subject to unacceptable risks such as flooding, geologic, noise, or other hazards.

Numerous hazard mitigation initiatives identified in the 2011 Hazard Mitigation Plan are also reflected in the County's General Plan policies. For example, the Hazard Mitigation Plan calls for the adoption of an ordinance to require strengthening of unreinforced masonry buildings is reflected in General Plan Policy PS-1o and the adoption of a zero net fill ordinance is reflected in General Plan Policy PS-2f.

The awareness raised in the Hazard Mitigation Plan is reflected in other Elements as well. For example, the Land Use Element limits the range of land uses allowed in hazardous areas in order to reduce the number of people and buildings exposed to risk. Similar to the Hazard Mitigation Plan, the General Plan calls for a program to reduce Russian River flood damage and repetitive losses.

Incorporation into Plans and Policies

The 2011 Sonoma County Hazard Mitigation Plan mitigation analysis, goals, and strategies were incorporated into several other County planning documents and mechanisms. Examples of this include but are not limited to the following:

- **Building Codes:** The building code was amended to establish new seismic construction standards (anchor bolts and wall bracing and site studies) for development within certain designated areas subject to high earthquake ground shaking. Other building code amendments were made to comply with Robert T. Stafford Disaster Relief and Emergency Assistance Act. Geologic hazard information is applied to current building plan check practices with respect to determination of correct seismic design requirements of engineered and non-engineered structures. The building code was amended to incorporate Wildland Urban Interface building construction standards in all State Responsibility Area (SRA) consistent with the 2010 California Residential Code Chapter 3, Section 327 and the 2010 California Building Code, Chapter 7A.

- **Capital Projects Plans:** The County's Capital Projects Plans (CPP's) from 2016 to 2021 includes several bridge retrofit projects, seismic retrofit of several buildings and radio towers. The physical improvement hazard mitigation projects identified in the implementation plan for county facilities and infrastructure considered essential services will continue to be given high priority. The County has undertaken numerous capital improvement projects since 1989 for buildings, bridges, fuel tanks, and other structures. All of these improvements meet disaster-resistant code standards of the time of improvement.
- **Comprehensive County Facilities Plan:** The Comprehensive County Facilities Plan under development considers hazard vulnerability and retrofits needs in the development of the comprehensive facilities plan.
- **General Plan Public Safety Element:** In 2014, PRMD completed a General Plan amendment to incorporate the Hazard Mitigation Plan into its General Plan Public Safety Element to be eligible for greater disaster assistance under the California Disaster Assistance Act.
- **Improvement Programs:** Improvement Programs carried out by the Community Development Commission include seismic and flood mitigation work.
- **Integrated Development Code and the Housing Element Update:** The County's Integrated Development Code and the Housing Element Update, incorporate hazard information and policies into the planning documents and code.
- **Local Coastal Plan and Zoning Ordinance:** The Local Coastal Plan and Zoning Ordinance establishes allowable land uses and densities and sets site development standards and restrictions for high risk flood, landslide and earthquake and tsunami hazards and areas of severe fire hazard. It addresses additional hazards associated with the above hazards, such as sea level rise and coastal bluff erosion.
- **Residential Construction Manual:** The Sonoma County Residential Construction manual has been updated to include the special building code requirements that apply within flood zones, Wildland Urban Interface zones, and seismic hazard areas.
- **Risk Management:** County's Risk Management uses HMP hazard mapping and building construction information to determine levels of vulnerability of different county facilities and helps to establish appropriate insurance levels.
- **Zoning Maps:** The Zoning maps were amended to reflect current Alquist Priolo fault zones identified by California Geological Survey and Special Flood Hazard Areas identified by FEMA.

Incorporation of Hazard Assessments into Consideration of Project Applications

Discretionary projects are subject to the California Environmental Quality Act (CEQA). Prior to the approval of discretionary projects, the CEQA Act requires an assessment be made and disclosed as to whether a project would expose people or structures to adverse effects or loss, injury, or death from hazards related to earthquakes, landslides, ground shaking flooding, wildland fires. The hazard severity zone mapping included in the General Plan and the Hazard Mitigation Plan are routinely utilized on a case-by-case, site-specific basis to identify when such projects may be exposed to hazard risks or vulnerabilities and when such exposure constitutes a significant impact which must be mitigated or avoided.

Projects that are not discretionary are considered ministerial. Ministerial permits have established code requirements that must be met and often include hazard exposure considerations. For instance, building permits are ministerial but the building codes are more stringent in areas with geologic instability, seismic hazards, flooding or wildland fire risks. When ministerial codes are adopted, they must be consistent with the General Plan and the Public Safety Element.

Incorporation into Ongoing Government Day-to-Day Operations

Hazard mitigation is fully consistent with overarching public agency goals to protect and foster public safety and the general welfare. The Hazard Mitigation Plan's mitigation goals, objectives and actions are carried out through the County's ongoing operations in the performance of its day to day duties and responsibilities. The following measures initially identified as mitigation actions in the 2006 Hazard Mitigation Plan have now been implemented and integrated as part of routine governmental procedures. Some examples are:

- Disseminate current hazard information and earthquake, flood, wildland fire and landslide maps to building and design professionals, land developers, real estate professionals, land owners, prospective buyers and the general public to consider hazard vulnerability, land use restrictions, and design requirements.
- Comply with and enforce all applicable design and siting requirements established by County Codes to increase the safety and disaster resistance of new or existing buildings whether private or public. For instance, the building code requirements applicable to building permit applications is determined in part by whether or not they are in a designated flood, earthquake or fire hazard zone where more stringent or additional requirements or restrictions apply.
- Require all new construction and substantial renovations to comply with seismic building codes mandated California Building Code and Chapter 7 of the Sonoma County Code. Including those specified for site preparation, design, materials, and construction methods to minimize risk from earthquakes. Apply different building code, anchor bolts and wall bracing requirements in the higher risk areas with higher spectral response acceleration, expressed as a percent of gravity. Continue to require dynamic structural analysis for complex new structures.
- Log and maintain records of all site-specific mapping and reports regarding earthquake, landslide geologic hazards and flood elevation information prepared for specific project site applications and by other sources.
- Consider and apply available hazard information on earthquakes, floods, wildland fires and landslides in the review of project applications and other decision-making that impact risk.
- Incorporate assessments of hazards, including earthquake, flood, landslides and wildland fires, into site selection and design for new buildings and when siting or leasing county facilities. For instance, the old County Hospital on Chanate Road was decommissioned and replaced with a newly constructed hospital in a less sensitive seismic zone in conformance with the seismic performance standards specified by the Alfred E. Alquist Hospital Seismic Safety Act of 1983.

- Incorporate earthquake, flood, wildland fire and landslide vulnerability assessment and mitigation into all infrastructure repair, maintenance or improvement projects to the extent feasible. For instance, a major landslide repair on River Road was designed to minimize the risk of future recurrent slides by including added design features such as subsurface drains and barriers.
- Assess the vulnerability of critical county infrastructure, including roads, bridges, pipelines, water treatment plants, and other important facilities.
- The Hazard Mitigation Plan, and the public process for consideration and adoption of the Plan, will be distributed and made available on-line to other cities, agencies, departments and stakeholder organizations as well as design and engineering professionals and the general public.

Continued Public Involvement

Updates of the Hazard Mitigation Plan will receive public input and review consistent with all legal requirements and County policies for plan development and adoption. Sonoma County values input from the community in the plan development process and the contributions made in support of in the Hazard Mitigation Plan Update. A public review draft document was posted on the PRMD website and a noticed public of availability of the draft and public workshop in August 2016 was published in the Press Democrat. The Hazard Mitigation Plan was available for a 30 day comment period prior to finalizing the document for FEMA review. After public input and FEMA comments are incorporated into the Hazard Mitigation Plan a public hearing before the County Board of Supervisors will be held to consider Plan adoption.

The County maintains a Hazard Mitigation Plan e-mail notification list and a mailing list that provides updates and an opportunities to be involved in the planning process. The County will continue to post the adopted Hazard Mitigation Plan and hazard maps on the County website where the general public can continue to submit comments or inquiries. The next 5-year update of the Hazard Mitigation Plan will be commenced in 2020 and will be announced on the website and other mailed or posted public notices.

County Fire and Emergency Services Department will also identify opportunities to raise community awareness about the Hazard Mitigation Plan and hazard preparedness, including attendance at both County and City-sponsored events and public mailings, disaster preparation and fire awareness week events, community markets and festivals, and similar events. County Fire also prepares and distributes pamphlets and web based hazard prevention and preparedness information.

During the five-year implementation period, the public will have numerous opportunities to submit comments regarding hazard mitigation issues or to attend public meetings. All Board of Supervisor hearings provide time for public comments. The County's websites allows access to draft documents and a forum for public comment. The semi-annual meetings of the Sonoma County Operational Area Emergency Council are noticed and open to the public. Quarterly meetings of the Sonoma County Emergency Coordinator's Forum and annual Russian River Flood Planning meetings are also open to the public.