



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

City of Healdsburg

December 2011



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Introduction

The City of Healdsburg is located in northern Sonoma County, California, as mapped in **Exhibit A**. The City has a population of 11,254 people based on the 2010 Census. Last year, the City's budget was \$82.4 million. The City employs 109 full-time people and an additional 145 part-time, contract or seasonal staff and provides local police and fire service. The fire department also contracts with the County of Sonoma to provide first responder service in the Dry Creek and Fitch Mountain areas. The City is divided in part by the Russian River which has flooded in numerous years the last being in 2007. The City is also unique in that it provides its own electric utility.

The Regional Planning Process

The City of Healdsburg submitted a letter of commitment to the Association of Bay Area Governments (ABAG) to participate in the process on May 26, 2009.

City representatives participated in the ABAG-led sub-regional workshop in Sonoma County on April 30, 2009 to review the list of mitigation strategies from the 2005 plan and recommend regional priorities for each strategy. At that meeting some of the strategies were modified or deleted and participants made recommendations on strategies that should be added to the list.

City staff also participated in a workshop for building officials on July 1, 2009 to discuss ways to better incorporate building department policies throughout the Bay Area into the regional planning mitigation process.

For more information on these meetings and for rosters of attendees, please see Appendix A and H in the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan 2010 (MJ-LHMP).

Finally, Healdsburg has provided information on facilities that are defined as "critical" to ABAG.

The Local Planning Process

Representatives from multiple City departments met on a regular basis to identify and prioritize appropriate mitigation strategies. Personnel involved in these meetings included senior management and staff from the Planning, Public Works, Electrical Utilities, Parks and Recreation and Finance Directors as well as the Police Chief, Fire Chief and City Manager.

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



Each person was responsible for communicating existing efforts and thoughts on appropriate future action in their area of expertise. Finally, the draft priorities listing was provided to the program team so that they could review the strategy priorities with the specific members of their department responsible for implementing them, as well as to review preliminary budgets and potential funding sources for strategies designated as “High” priority. The Planning staff, for example, discussed the strategies with staff responsible for implementing the strategies listed as being the responsibility of that department.

This process involved consideration of both the hazard and risk information developed by ABAG and discussed in the overall multi-jurisdictional Local Hazard Mitigation Plan, as well as the assessments of structures owned by the City and described on page 5-12. These meetings also discussed the Safety Element of the General Plan, Climate Action Plan and Capital Improvement Plan already in place at the City, as well how these plans could be best integrated with this Local Hazard Mitigation Plan Annex.

Process for Updating Plan Sections

The City of Healdsburg participated in the 2005 multi-jurisdictional Local Hazard Mitigation Plan, and this Annex is an update of the Annex prepared for the 2005 plan. The lead in updating this Annex was taken by the Management Analyst and the Fire Chief, based on feedback obtained from the staff who participated in the mitigation priority setting process.

The Planning Process section has been prepared to reflect the updated Annex. However, the process of assigning priorities was simplified because priorities had already been assigned in 2005.

The Hazard and Risk Assessment section has been updated to incorporate the new mapping compiled by ABAG for the overall multi-jurisdictional Local Hazard Mitigation Plan. The specific information for Healdsburg has also been updated to reflect additional mitigation activities that have occurred in the past five years.

The Mitigation Goals and Priorities section has been expanded to take a more comprehensive approach to mitigation.

The Plan Maintenance and Update section is essentially the same as the 2005 Annex, with the addition of some ideas for improving public participation in the process.

Review of Existing Reports, Studies, and Plans

The following documents were reviewed and incorporated into this annex in addition to those documents referenced in Appendix A of the regional plan.



Existing plans, studies, reports, and technical information	Method of incorporation into the jurisdiction annex
Healdsburg General Plan, Safety Element	Hazards Assessment and priority mitigation actions
Healdsburg Capital Improvements Plan	Priority mitigation actions and programs
Healdsburg Emergency Operations Plan	Priority mitigation actions and programs

Public Meetings

Opportunity for public comments on the DRAFT mitigation strategies was provided at a public meeting on Thursday, September 17, 2009 and were also available for public review and comment from August 24, 2009 to September 17, 2009 by appointment at the Healdsburg Fire Department, 601 Healdsburg Avenue, Healdsburg, California. A Copy of the newspaper posting of the meeting and the public review are included as **Exhibit B** to the City of Healdsburg 2010 Annex. Finally, the strategies were posted on the ABAG website. No comments were received as a result of that posting.

One public comment was received during this process. In summary, the comment suggested adding a specific strategy to add additional water suppression capability for residents living in the barrier zone or below Fitch Mountain Road during fires or extremely dry conditions by using existing water lines, extending them east along that road from wells at the Russian River that provided contaminated water free of charge to the existing golf course and other large greenbelt owners. Public works staff notes that the water currently does not meet state drinking water standards and is provided to the golf course in conjunction with the lease agreement between the City and the golf course operator. The water provides a tangential benefit in providing a well maintained green-belt between the urban and wild land interface. The City is developing a recycled water project that would potentially provide additional fire suppression capabilities in the golf course vicinity.

As demonstrated in all City sponsored projects, the City of Healdsburg is committed to maintaining and improving the public participation at the five year plan update. To build on the current process the City will engage the editorial staff of the local newspaper, perform community out-reach through the numerous services clubs, provide a presentation to the Healdsburg Unified School District, and petition the Healdsburg Chamber of Commerce to relay the program update information to their members.

The City Council will adopt the plan in a public meeting via an official Resolution upon pre-approval by FEMA or upon recommendation of City staff. The mitigation strategies will become an implementation appendix of the Safety Element of the City of Healdsburg General Plan.



Hazards Assessment

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

The City of Healdsburg has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquake (particularly faulting, shaking and potential liquefaction), flooding (including dam failure), wildfire (including wildfire threat and wildland-urban interface fire threat), and landslides (including unstable earth) pose a significant risk for potential loss.

The City of Healdsburg does not face any natural disasters not listed in the ABAG multi-jurisdictional plan. As such, only climate change impacts due to flooding caused by increased precipitation and fire threat have been identified as new significant hazards by the City of Healdsburg since the original development of this plan in 2005. Sea level rise and issues with Delta area levees that have been identified in the multi-jurisdictional plan do not pose any risk to the City of Healdsburg due to geographical and topographical separation.

While the City of Healdsburg has undertaken a number of general hazard mapping activities since the first Safety Element was prepared by the City of Healdsburg, all of these maps are less detailed and are not as current as those shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/>.

This conclusion was based on the hazard exposure information for Healdsburg's facilities, as well as past occurrences of disasters impacting the City described in the following section.

Past Occurrences of Disasters (natural and human-induced)

The City of Healdsburg has experienced a number of different disasters over the last 50 years, including earthquakes, floods, droughts, wildfires, energy shortages, landslides, and severe storms.

The Loma Prieta Earthquake of 1989 is another example of the kind of large scale disaster which can strike the Bay Area. It killed 63 persons, injured 3,757, and displaced over 12,000 persons. With over 20,000 homes and businesses damaged and over 1,100 destroyed, this quake caused approximately \$6 Billion of damage. Reconstruction continues some two decades later as the replacement for Oakland-Bay Bridge is still several years from completion. While the City did experience ground shaking during this recent major seismic activity, the City of Healdsburg experienced no significant damages to its buildings, roadways, or infrastructure. In the past 5 years no other significant seismic events have reached similar levels in the area.



More information on State and Federally declared disasters in City of Healdsburg can be found at <http://quake.abag.ca.gov/mitigation/disaster-history.html>.

In addition to the declared disasters noted in Appendix D, locally significant incidents that have also impacted Healdsburg City in the last several years. The City was impacted by the 2005-2006 Winter storms (December 17, 2005 to January 12, 2006) and the 2006 Spring Storms. Downtown businesses flooded in 2007. While a vast area of Healdsburg is considered in a Very High Fire Hazard Severity Zone in the proximity of Fitch Mountain and open space, no significant fires have occurred in that area during the past few years.

Risk Assessment

Urban Land Exposure

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

In general, the earthquake shaking and liquefaction hazard exposure of the City of Healdsburg is influenced by three major faults all with different risks to the City. An extension of the Healdsburg-Rodgers Creek fault passes through the City. Even though this fault is not included in the mapping of the California Geological Survey or the U.S. Geological Survey, the hazard is considered significant in Healdsburg, particularly for critical and infrastructure facilities. The Russian River and Foss Creek traverse the town and bring potential of floods to approximately 317 urban acres in the 100 year flood plain (including approximately 40+ areas of urban that the City classifies as "open space," not urban). The land areas subject to flooding from the Russian River increased due to revisions to National Flood Insurance Program Rate Maps (FIRM) resulting from FEMA's restudy in 2006 of the Russian River watershed. The land areas subject to flooding adjacent to Foss Creek have decreased recently due to revisions to the National Flood Insurance Program Rate Maps based on detailed hydraulic and hydrographical analysis of the impacts from a 1 percent and a 0.2 percent annual chance flood. These analyses take into consideration the investments the City has made in detention facilities that regulate peak flows, improvements for increasing creek flow capacity, and a creek flow by-pass system. All analyses were conducted using actual topographical and watershed data, Sonoma County Water Agency Flood Control Design Criteria manual and HEC RAS II modeling. The following table describes the exposure of urban land within the City to the various hazards.



Exposure (acres of urban land)			
Hazard	Plan Year 2005	Plan Year 2010	Change
<i>Total Acres of Urban Land</i>	2,357	2,383	26
Earthquake Faulting (within CGS zone)	0	0	0
Earthquake Shaking (within highest two shaking categories) ¹	64	69	5
Earthquake-Induced Landslides (within CGS study zone) ²	-	-	-
Liquefaction (within moderate, high, or very high liquefaction susceptibility)	869	903	34
Flooding (within 100 year floodplain)	233	317	84
Flooding (within 500 year floodplain)	93	137	44
Landslides (within areas of existing landslides)	278	274	-4
Wildfire (subject to high, very high, or extreme wildfire threat)	213	226	13
Wildland-Urban Interface Fire Threat	1,682	1,706	24
Dam Inundation (within inundation zone)	805	844	39
Sea Level Rise ³	not applicable		
Tsunamis ⁴ (within inundation area)	not applicable		
Drought ³	2,357	2,383	26

Infrastructure Exposure

The City of Healdsburg also examined the hazard exposure of infrastructure within the City based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. The following table provides hazard information for the 60 miles of roads and highways, 5 miles of fixed rail, and 44 miles (each) of sewer and water lines in the City of Healdsburg. Again, while the infrastructure systems are not shown to cross faults mapped by CGS and USGS, the extension of the Healdsburg-Rodgers Creek fault is considered a significant risk for these facilities.

¹ An extension of the Rogers Creek Fault segment of Hayward Fault runs through the eastern portion of the City.

² The California Geological Survey (CGS) has not completed hazard maps for the City.

³ The Sea Level rise data was not available in 2005

⁴ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005.

³ The entire City of Healdsburg is subject to drought.



Exposure (miles of infrastructure)						
Hazard	Roadway		Rail		Pipelines	
	Plan Year 2005	Plan Year 2010	Plan Year 2005	Plan Year 2010	Plan Year 2005	Plan Year 2010
<i>Total Miles of Infrastructure</i>	58	60	5	5	51	44
Earthquake Shaking (within highest two shaking categories)	1	1	0	0	1	1
Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility)	23	25	3	3	19	16
Liquefaction Hazard (within CGS study zone) ⁴	-	-	-	-	-	-
Earthquake-Induced Landslides (within CGS study zone) ⁵	-	-	-	-	-	-
Earthquake Faulting (within CGS zone)	0	0	0	0	0	0
Flooding (within 100 year floodplain)	3	6	1	2	3	3
Flooding (within 500 year floodplain)	2	3	0	0	2	2
Landslides (within areas of existing landslides)	4	4	0	0	4	3
Wildfires (subject to high, very high, or extreme wildfire threat)	6	4	0	0	4	2
Wildland-Urban Interface Fire Threat	41	42	2	3	36	32
Dam Inundation (within inundation zone)	24	25	2	2	20	16
Sea Level Rise ⁶	not applicable					
Tsunamis ⁷	not applicable					
Drought ⁸	not applicable					

⁴ The California Geological Survey (CGS) has not completed hazard maps for the City.

⁵ The California Geological Survey (CGS) has not completed hazard maps for the City.

⁶ The sea level rise map is not a hazard map. It is not appropriate to assess infrastructure exposure to sea level rise.

⁷ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. Miles of exposed infrastructure is not an appropriate analysis for this hazard. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.

⁸ Drought is not a hazard for roadways.

Exposure of City-Owned Buildings, Plus Critical Healthcare Facilities and Schools

The City examined the hazard exposure of critical health care facilities and schools located within the City and City-owned buildings based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickcrit2010.html>. The City of Healdsburg provided a list of the critical facilities it owns to ABAG. ABAG provided a detailed assessment of the hazard exposure of each of its facilities. The following number of facilities is exposed to the various hazards analyzed. Note that the City was more selective in designating critical facilities in 2009.



Exposure (number of facility types)								
Hazard	Hospitals		Schools		Locally owned critical facilities		Locally owned bridges and interchanges	
	Plan Year 2005	Plan Year 2010	Plan Year 2005	Plan Year 2010	Plan Year 2005	Plan Year 2010	Plan Year 2005	Plan Year 2010
<i>Total Number of Facilities</i>	2	3	6	8	66	28	4	6
Earthquake Shaking (within highest two shaking categories)	0	0	0	0	2	2	0	0
Liquefaction Susceptibility (within moderate, high, or very high liquefaction susceptibility)	0	1	3	1	34	14	4	5
Liquefaction Hazard (within CGS study zone) ¹	-	-	-	-	-	-	-	-
Earthquake-Induced Landslides (within CGS study zone) ²	-	-	-	-	-	-	-	-
Earthquake Faulting (within CGS zone)	0	0	0	0	0	0	0	0
Flooding (within 100 year floodplain)	0	0	0	0	6	9	2	3
Flooding (within 500 year floodplain)	0	0	0	0	8	0	0	1
Landslides (within areas of existing landslides)	0	0	0	0	8	4	0	0
Wildfires (subject to high, very high, or extreme wildfire threat)	0	0	0	0	12	1	0	0
Wildland-Urban Interface Fire Threat	2	3	2	4	44	23	1	3
Dam Inundation	0	0	2	3	42	18	3	5
Sea Level Rise (exposed to 16in sea level rise) ³	-	0	-	0	-	0	-	0
Sea Level Rise (exposed to 55in sea level rise) ⁴	-	0	-	0	-	0	-	0

¹ The California Geological Survey (CGS) has not completed hazard maps for the City.

² The California Geological Survey (CGS) has not completed hazard maps for the City.

³ Sea level rise data was not available in 2005

⁴ Sea level rise data was not available in 2005



Tsunamis ⁵ (within inundation area)	-	0	-	0	-	0	-	0
Drought ⁶	Not Applicable							

⁵ Tsunami evacuation planning maps were not available inside the San Francisco Bay in 2005. This map became available in December 2009. It should be noted that this map is not a hazard map and should be used for evacuation planning purposes only. The inundation line represents the highest inundation at any particular location from a suite of tsunami sources. It is not representative of any single tsunami.

⁶ Drought will not affect locally owned facilities directly.

Repetitive Loss Properties

There are 10 repetitive loss properties in the City based on the information at <http://quake.abag.ca.gov/mitigation/pickflood.html>. Data for 2004 indicated that the City had 14 repetitive loss properties, including three repetitive loss properties that were outside the flood plain. It is currently unknown if any of the current repetitive loss properties are outside the flood plain. However, it is known that 7 of the properties are residential and three are commercial.

Other risks

The City of Healdsburg plans to continue to work with ABAG to improve the risk assessment information being compiled by ABAG.

Unreinforced Masonry Buildings - City Ordinance #968, adopted October 2, 2002, requires that plans be submitted, a seismic retrofit permit issued by September 21, 2002, and the work completed by September 21, 2004. There were ten buildings on the Unreinforced Masonry Buildings (URM) list at the time of the adoption of the ordinance. 112 Matheson (Healdsburg Inn on the Plaza) was added to the list after the adoption of the ordinance. The following eleven buildings were subject to the seismic retrofit requirements of the ordinance. 243 Center St., 310-316 Center St., 225 Healdsburg Ave. 328/330 Healdsburg Ave., 420 Hudson Street, 412 Healdsburg Ave., 425 Healdsburg Ave., 845 Healdsburg Ave., 107 Plaza St., and 112 Matheson St.

Since the adoption of the ordinance, four buildings have had an engineer's analysis performed, which showed that they did not fall within the scope of the ordinance. (225, 412 and 425 Healdsburg Avenue and 310 Center Street).

- 845 Healdsburg Avenue (the Gallo Building was formerly a storage warehouse that was determined not be within the scope of the ordinance. It has recently been converted to an office building and has completed a seismic retrofit.
- 107 Plaza (Cubby House) and 420 Hudson Street (Old Roma Station) have completed seismic retrofits and have been taken off the URM list.

There were four buildings that remained on the URM list. The status of these buildings is:



- 243 Center Street: Seismic retrofit permit issued August 28, 2003. This permit was for an occupancy change from a B (Office Use) Occupancy Classification to an R-3 (Residence). By converting this building to a residence, the owners are not required to seismically retrofit. An occupancy change permit was issued and finalized by the Building Department. And the building is being used as a residence at this time,
- 328 - 330 Healdsburg Ave: Seismic retrofit permit issued June 2, 2003. The owners began the retrofit construction process on June 2, 2003 and the seismic retrofit has been completed.
- 112 Matheson Street: Seismic retrofit permit was issued on November 7, 2003 and the seismic retrofit has been completed.
- Recently the old Bank of America building at 320 Healdsburg Avenue/105 Plaza Street was determined to be an Unreinforced Masonry Building. A seismic Retrofit permit was issued in December 2011 and work has commenced.

Soft-Story Residential Structures - Soft-story buildings, or buildings with open parking on the first floor that are prone to collapse in an earthquake, are not considered a significant hazard. Of the 4,794 housing units in the City, 85.2% are in buildings containing only one or two units. However, 13.2% of the units are in buildings containing more than two units. While some of these buildings may have parking underneath the structure, Healdsburg is not a dense city and thus a relatively small percentage of the structures have a potential problem. Healdsburg has not conducted a formal soft-story inventory.

Mobile Homes - The City contains an estimated 78 mobile homes, based on the 2010 Census, or only 1.6% of the housing stock. However, the City currently has no program to encouraging retrofitting of these structures. Most of the mobile homes within the City limits are located in mobile home parks and are under the jurisdiction of the State of California Department of Housing and Community Development). Manufactured homes not in mobile home parks are required to installed on permanent foundations per the requirements of the California Building Code or California Residential Code.

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

National Flood Insurance Program

The City of Healdsburg has participated in the National Flood Insurance Program since March 3, 1980. The City does not participate in the Community Rating System due to the lack of resources required. The City implements the NFIP requirements pursuant to Chapter 17.28 of the Healdsburg Municipal Code. Sections in the Chapter include:

Article I. Statutory Authorization, Findings of Fact, Purpose and Methods
17.28.010 Statutory authorization.



- 17.28.020 Findings of fact.
- 17.28.030 Statement of purpose.
- 17.28.040 Methods of reducing flood losses.

Article II. Definitions

- 17.28.050 Definitions.

Article III. General Provisions

- 17.28.060 Lands to which this chapter applies.
- 17.28.070 Basis for establishing the areas of special flood hazard.
- 17.28.080 Compliance.
- 17.28.090 Abrogation and greater restrictions.
- 17.28.100 Interpretation.
- 17.28.110 Warning and disclaimer of liability.

Article IV. Administration

- 17.28.120 Designation of the floodplain administrator.
- 17.28.130 Duties and responsibilities of the floodplain administrator.
- 17.28.140 Development permit.
- 17.28.150 Appeals.

Article V. Provisions for Flood Hazard Reduction

- 17.28.160 Standards of construction.
- 17.28.170 Standards for utilities.
- 17.28.180 Standards for subdivisions and other proposed development.
- 17.28.190 Standards for manufactured homes within manufactured home parks or subdivisions.
- 17.28.200 Standards for recreational vehicles.
- 17.28.210 Floodways.

Article VI. Variance Procedure

- 17.28.220 Nature of variances.
- 17.28.230 Conditions for variances.
- 17.28.240 Appeal board.

The City faced some opposition from homeowners in 2006 when FEMA revised the flood maps when several homes were brought into the 100 year floodplain. The added costs associated with the floodplain management requirements for homeowners or development is the biggest issue for them to overcome.

The City continues to require all new development and substantial property improvement to comply with the City Municipal Code and FEMA regulations that regulate development in the designated 100-year floodplain and encouraging buffer/setback area from waterways. After the FEMA initiated revisions to the Flood Insurance Rate Map based on their 2006 restudy of the Russian River, the City embarked on a program assist owners of properties that were brought



into 100-year floodplain as a result of the restudy. The City's assistance measures included hosting a public meeting with FEMA officials and property owners, paying for the preparation of FEMA Elevation Certificates and providing staff support to answer questions through the process. Of the 137 residential properties impacted by the flood zones change, 118 participated in the City sponsored program for the FEMA Elevation Certificates to identify the true elevation of the homes relative to the 100-year flood elevation necessary for property owners to secure reduced flood insurance rates or eliminate the requirement for flood insurance altogether.

Mitigation Goals and Objectives

The goal of the ABAG MJ-LHMP is to maintain and enhance a disaster-resistant region by reducing the potential for loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters. This goal is unchanged from the 2005 plan and continues to be the goal of The City of Healdsburg in designing its mitigation program.

Additional, the City has the specific objective of reducing the number of public and private buildings within the City that are vulnerable to the effects of earthquakes, flooding, wildfire, and landslides.

Mitigation Activities and Priorities

Evaluation of Progress from 2005 Plan

In 2005, mitigation actions and priorities were identified. The attached list indicates each of the strategies identified, along with responsible party, action taken, and current status of progress.

Economic Mitigation Strategies: The City's Zoning Ordinance has provisions for the protection of historic structures and encourages the preservation of historic resources. The City currently has adopted the California Fire Codes that require sprinklers for all new construction or Change of Occupancy. The City's departments and divisions work closely in reviewing plans for compliance with current code requirements to reduce the risk of damage due to earthquakes, flooding and fires.

Education Mitigation Strategies: Education facilities are under the various School Districts and the Sonoma County Office of Education. However, the City does have a close working relationship with the School District.

Environmental Mitigation Strategies: The City continues to enforce the California Environmental Quality Act (CEQA) requirements for all development. The City encourage regulatory agencies to work collaboratively with safety professionals to develop creative



mitigation strategies that effectively balance environmental and safety needs, particularly to meet critical wildfire, flood, and earthquake safety levels. Currently, under study is a comprehensive program for watershed management optimizing ecosystem health with water yield to balance water supply, flooding, fire, and erosion/landslide concerns. The City has adopted the California Green Building Code and requires compliance in all construction and development projects. The City has recently (2009) upgraded its wastewater treatment plant to provide advanced tertiary treatment. This \$32 million dollar investment will provide measurable benefits to the environment.

Government Mitigation Strategies: The City is currently updating its Emergency Operations Center and Plan. The City’s Development Review Committee (DRC) meets as needed to review development projects. The DRC includes representatives from fire and police.

Health Mitigation Strategies: Sonoma County is the responsible agency for these strategies. The County would be notified of any health related facility construction within the City’s boundaries.

Housing Mitigation Strategies: The City continues to review and adopt current building codes. The City uses the California Historical Building Code for historically significant structures. The City currently has adopted the California Fire Codes that require sprinklers for all new construction or Change of Occupancy.

Infrastructure Mitigation Strategies: The City requires compliance with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities.

The City includes “areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture” in the list of criteria used for determining a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history). Where active faults are identified based on geologic investigations, public water mains will include additional valves and fire hydrants placed on each side of the fault, which in the event of pipeline rupture will allow the rupture to be isolated limiting water loss and damage. Temporary water lines can then be run overland to “shunt” water between fire hydrants and thereby maintain service for domestic water and fire protection. Design of sewer mains will similarly include an additional manhole on each side of the fault, which in the event of pipeline rupture, would allow the pipelines nearest to the break to be plugged from inside the manholes and prevent or minimize the spread of environment damage, and also allow installing a temporary “shunt” between these manholes using portable pumps so that sewer service can continue during the emergency.

The City is currently in the process of rehabilitating the 90-year Healdsburg Avenue Bridge over the Russian River. This rehabilitation will include protection against scour resulting from high flood flows and seismic activities. The bridge will be rehabilitated to meet all current bridge



standards with the exception of lane widths. Until such time that the Bridge is fully rehabilitated, immediately following a significant seismic or flooding event City staff will evaluate the structure to determine if it has experienced any displacement as a result of such event. In 2006 the City developed a plan of action for the Bridge in the event of measurable displacement due to catastrophic events. A series of surveyor targets were installed along the Bridge structure and on to of both ends of the center pier. A high-precision baseline survey then was performed to record the exact X, Y, Z coordinate location of each surveyor target. If any appreciable displacement is noted from any of three baseline coordinates of any target, the Bridge will be closed using barricaded at both ends until further detailed evaluations are performed.

Land Use Mitigation Strategies: The City continues to enforce requirements of new development in floodplains, encouraging buffer/setback area from waterways. Site-specific designs are used to mitigate significant impacts from increased runoff volumes. The City incorporates Best Management Practices for all development projects and requires the installation of erosion control measures prior to the start of construction. These measures are monitored during the rainy season to ensure that they are in good repair and in place during the course of construction.

Future Mitigation Actions and Priorities

As a participant in the 2010 ABAG multi-Jurisdictional planning process, the staff of Healdsburg helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-Jurisdictional plan. The decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage. Representatives from multiple departments then met on a regular basis to review progress on the Healdsburg's 2005 strategies, to identify and prioritize additional mitigation strategies to update the list.

These draft priorities were submitted to City Agency Directors and the City Administrator's Office for review. The draft priorities will be provided to the City Council for adoption pending pre-approval of this LHMP by FEMA or upon recommendation of City staff.

Based on the hazard exposure information described above, the principal effort for the next five years will be associated with the following six activities. These mitigation strategies have been ranked as a "high" priority or "existing priority – underfunded":

The full list of mitigation strategies can be found at:
<http://www.abag.ca.gov/bayarea/egmaps/mitigation/strategy.html>.

INFR b-3 - Include "areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture" in the list of criteria used for determining a replacement schedule for



pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).

Responsible Agency – Public Works

Action – Where active faults are found based on geologic investigations, public water mains will include additional valves and fire hydrants placed on each side of the fault, which in the event of pipeline rupture will allow the rupture to be isolated limiting water loss and damage. Temporary water lines can then be run overland to “shunt” water between fire hydrants and thereby maintain service for domestic water and fire protection. Design of sewer mains will include an additional manhole on each side of the fault, which in the event of pipeline rupture, would allow the pipelines nearest to the break to be plugged from inside the manholes and prevent or minimize the spread of environment damage, and also allow installing a temporary “shunt” between these manholes using portable pumps so that sewer service can continue during the emergency.

Comments – The rehabilitation is currently in the Capital Improvements budget as funding is being finalized. The estimated cost of the project is \$25,000 per year over the next 5-10 years.

Status – Design on-going. Construction or retrofit planned during the next five years, but dependent on adequate funding from the redevelopment agency or Capital Improvements Fund.

INFR a-4 and INFR b-1 - Retrofit or replace critical lifeline infrastructure facilities and/or their backup facilities that are shown to be vulnerable to damage in natural disasters. Expedite the funding and retrofit of seismically-deficient City- and County-owned bridges and road structures by working with Caltrans and other appropriate governmental agencies.

Responsible Agency – Public Works

Action – The City is currently in the process of rehabilitating the 90-year Healdsburg Avenue Bridge over the Russian River. This rehabilitation will include protection against scour resulting from high flood flows and seismic activities. In addition to mitigation of these hazards, the functioning of the bridge is critical for evacuation in case of severe flooding, dam failure or any disaster that might close Highway 101 over the Russian River.

Comments – The rehabilitation is currently in the Capital Improvements budget as funding is being finalized. The estimated cost of the project is \$12-15 million.

Status – Design on-going. Construction or retrofit planned during the next five years, but dependent on adequate funding from the redevelopment agency, Capital Improvements Fund, and any State or Federal funds.

HSNG a-1 – Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for residential properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and 7) Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).

Responsible Agency – Planning and Building Departments



Action – Work more effectively with real estate agents

Comments – Earlier adoption was delayed due to staffing reductions.

Status – Currently a high priority as adequate staffing is being sought.

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

Responsible Agency – Planning and Building Departments

Action – Develop, adopt and enforce a repair and reconstruction ordinance

Comments – Earlier adoption was delayed due to staffing reductions.

Status – Currently a high priority as adequate staffing is being sought.

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

Responsible Agency – Fire (with assistance from Police)

Action – Maintain cots, food, and water at the Fire Station.

Comments – Earlier adoption was delayed due to staffing reductions. Such sheltering may be needed for employees stranded due to severe flooding or other disasters. In addition, staff may be needed on site to best deal with recovery of critical City functions.

Status – Currently in the process of implementation.

HEAL b-2 - Encourage ancillary facilities medical offices, pharmacies, free or specialty clinics, etc. facility operators to develop disaster mitigation plans.

Responsible Agency – Fire

Action – Encourage health care facilities to develop disaster mitigation plans.

Comments – Earlier adoption was delayed due to staffing reductions.

Status – The City has advised local hospitals and clinics that receive public monies to begin development of these plans. Funds for adequate staffing are being sought.

On-Going Mitigation Strategy Programs

The City of Healdsburg has many on-going mitigation programs that help create a more disaster-resistant region. The following list highlights some of those programs identified as *Existing Programs* in the mitigation strategy spreadsheet. Others are on-going programs that are currently underfunded. It is the City's priority to find additional funding to sustain these on-going programs over time. NOTE: This is not a complete list of existing programs. Those are referenced in **Exhibit C**. In that document, the agency or department in charge is also identified. As a group, these programs address all of the hazards identified earlier, that is: earthquakes, flooding, wildfires, and landslides.

- Vulnerability assessments of City facilities and infrastructure (GOVT-a-1).
- Non-structural mitigation for building contents for earthquake shaking (GOVT-a-4).



- Installation of micro and/or surveillance cameras at critical public assets tied to web-based software (GOVT-a-6).
- Management with the State Division of Safety of Dams to ensure that cities and counties are aware of the timeline for the maintenance and inspection of dams whose failure would impact this jurisdiction; (GOVT-a-8).
- Development of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies. (GOVT-c-7). The City currently operates on a radio plan that is approved by CalEMA for Fire and EMS Agencies locally, state and federal.
- Maintain and update Healdsburg City's Standardized Emergency Management System Plan (GOVT-c-12). The Emergency Operations Plan is being updated in 2011-2012.
- Continue to participate not only in general mutual-aid agreements but with adjoining Agencies for cooperative response to fires, floods, earthquakes, and other disasters (GOVT-c-13).
- Continued participation in FEMA's National Flood Insurance Program (GOVT-d-5).
- Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging employees of these critical health care facilities to have family disaster plans and conduct mitigation activities in their own homes (HEAL-a-7). The City has conducted classes for both the Hospital and schools in the within the past year and a half.
- Sponsor the formation and training of Community Emergency Response Teams (CERT) through partnerships with local businesses (GOVT-c-3, ECON-j-5, HWNG-k-6).
- Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards (LAND-c-2).
- Increase efforts to reduce landslides and erosion in existing and future development through continuing education of design professionals on mitigation strategies (HSNG—i-2, ECON-g-2).
- Conduct an inventory of existing or suspected soft-story residential, commercial and industrial structures (HSNG-c-4, ECON-b-4).
- Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities (INFR—d-6, INFR-d-7).
- The City requires new construction in High Fire Severity Zones or Wildland Urban Interface (WUI) areas to comply with the Building Code use of ignition resistant materials. These materials are designed to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure). In conjunction with fire resistive building materials, the Fire Department requires a vegetation management plan and annual maintenance agreement from property owners to provide a defensible space for structures located in these designated areas (HSNG - g-1 and HSNG - g-6).
- The Fire Department enforces an annual weed abatement program. The purpose of the program is to minimize the danger of vegetation fires through the removal and abatement of noxious or dangerous weeds, rubbish, refuse, and other combustible materials that are considered a nuisance under the Government and City Codes (HSNG – g-9).



Incorporation into Existing Planning Mechanisms

The City has several planning mechanisms which include:

- ◆ Healdsburg General Plan Policy Document Safety Element (Chapter)
- ◆ Healdsburg Capital Improvement Projects budgeting process
- ◆ Sonoma County Transportation Authority/Regional Climate Protection Authority (which includes the City of Healdsburg) activities

The City has a Safety Element in its General Plan that includes a discussion of fire, earthquake, flooding, and landslide hazards. This plan is being adopted as an implementation appendix to that policy document. In addition, the City enforces the requirements of the California Environmental Quality Act (CEQA), which, since 1988, requires mitigation for identified natural hazards. The City has used these pre-existing programs as a basis for identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

Thus, for example, some mitigation strategies listed relate to retrofitting or replacing facilities or infrastructure. These retrofit activities are a priority for mitigation consistent with the Safety Element and this LHMP Annex being implemented by Public Works through the Capital Improvement budgeting process.

There are no other planning mechanisms available to Healdsburg that are appropriate to incorporate this plan.

Plan Update Process

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

The Fire Department will ensure that monitoring of this Annex will occur. The plan will be monitored on an on-going basis. However, the major disasters affecting our City, legal changes, notices from ABAG as the lead agency in this process, and other triggers will be used. For example, if a structural engineer determines that a major risk exists at one or more buildings or structures owned by the City of Healdsburg, the priority associated with upgrading those facilities will be re-evaluated. Finally, the Annex will be a discussion item on the agenda of the meeting of Department leaders at least once a year in April. At that meeting, the department heads will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. The Department leaders will be responsible for determining if the plan should be updated.



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

Healdsburg is committed to public participation. All Council meetings are open to the public and the public is invited to comment on items on the Agenda. The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the City will provide the opportunity for the public to comment on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics. Healdsburg is committed to improving public participation in the update process over the next five years. To improve this process, Healdsburg will consider writing letters to the editor of local newspapers in its service area to promote wider public knowledge of the issues related to disaster mitigation and the planning process.

Mitigation Plan Point of Contact

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Alternate Point of Contact

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Email: dnelson@ci.healdsburg.ca.us



Exhibit A - Healdsburg Boundary Map

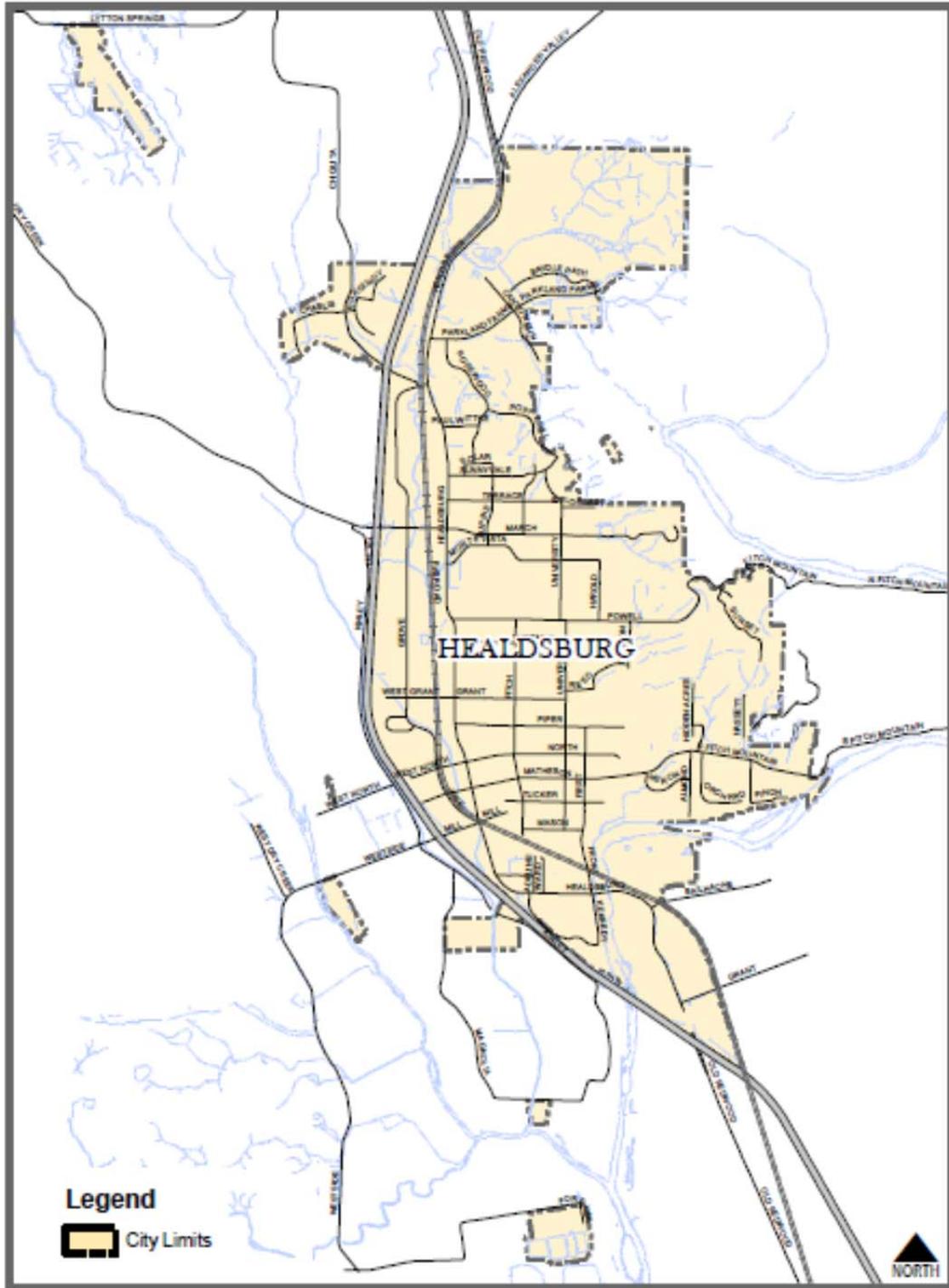




Exhibit B - Public Meeting Announcement

No. 17640

**CITY OF HEALDSBURG
OFFICE OF THE CITY CLERK
PUBLIC NOTICE**

NOTICE IS HEREBY GIVEN in accordance with the Disaster Mitigation Act of 2000 (public Law 106-390), that in order to be eligible to receive pre- and post-disaster Federal Funding, a local government must have a Local Hazard Mitigation Plan (LHMP) approved by the Federal Emergency Management Agency (FEMA). TO meet this requirement, the City is participating with the Association of Bay Area Governments (ABAG) to develop a LHMP annex under the "umbrella" LHMP ABAG is preparing.

As part of the public participation process the draft Annex and Mitigation Strategies will be available for public review and comment from August 24, 2009 to September 17, 2009 by appointment at the Healdsburg Fire Department, 601 Healdsburg Avenue, Healdsburg, California. Please call the Fire Department at (707) 431-3360 for a reservation to review the documents. In addition, a public meeting on the LHMP process will be held on Thursday, September 17, 2009 at 7 P.M. at the Healdsburg Fire Department to solicit input.

Public comments will be accepted through September 17, 2009 and can be delivered or mailed to the City Clerk's Office, Attn: Randy Collins, 401 Grove Street, Healdsburg, CA 95446.

Dated: August 17, 2009

/s/Maria Curiel, City Clerk

PUBLISH: Aug. 20, 2009
The Healdsburg Tribune



Exhibit C - Healdsburg Mitigation Strategy Spreadsheet

[Available on LHMP CD or at <http://www.abag.ca.gov/bayarea/eqmaps/mitigation/strategy.html>]