

# Hazard Mitigation Plan 2015

(Updated from the 2004 adopted plan and 2009 update)



**CITY OF NAPA**



Updated and accurate date TBD

To: Officials, Employees, and Citizens of Napa City

RE: Commitment to creating a disaster-resistant City

The preservation of life, property and the environment is an important public safety objective for local, state, and federal government. The City of Napa has prepared this update to the Hazard Mitigation Plan (HMP) to ensure the most effective and economical allocation of resources for protection of people and property prior to the onset of a natural or technological disaster.

While no plan can completely prevent the possibility of injury, loss of life or property damage, good plans carried out by knowledgeable and well-trained personnel can and will minimize losses. This plan establishes the priorities for future mitigation actions to begin the process of making the City of Napa a disaster resistant community.

The objective of this plan is to incorporate and coordinate the best possible approaches to mitigation from our four major threats, flooding, wildfire, earthquakes and technological hazards, so these approaches can be rapidly and effectively applied as resources become available to conduct these mitigation programs and measures. By implementing, over time the process and programs outlined in this plan, the City will greatly enhance the survivability of key facilities and the ability of response personnel of the city in responding effectively to any emergency.

This mitigation plan is an extension of the *State Hazard Mitigation Plan*, and implements guidelines and requirements set forth in the federal Disaster Mitigation Act of 2000. It will be reviewed and exercised periodically and revised as necessary to meet changing conditions.

The Napa City Council gives its full support to this plan and urges all officials, employees, and the citizens, individually and collectively, to do their share in the total disaster mitigation effort of the City of Napa.

This letter promulgates the *City of Napa Hazard Mitigation Plan*, constitutes the adoption of the plan as a standing annex to the City of Napa Emergency Plan that repetitive and avoidable disaster loss must be prevented to make all communities disaster-resistant. This mitigation plan becomes effective on approval by the Napa City Council.

Sincerely,

Jill Techel  
Mayor

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**RESOLUTION R2015 insert after approved by FEMA \_\_\_\_\_**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY  
OF NAPA, STATE OF CALIFORNIA AUTHORIZING  
THE ADOPTION OF THE UPDATED CITY OF NAPA  
HAZARD MITIGATION PLAN**

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## CITY OF NAPA DISASTER MITIGATION TEAM

<b>Name</b>	<b>Agency</b>	<b>Address</b>	<b>Phone</b>	<b>Email</b>
Rick Tooker	Community Development Department	1600 First St. Napa, CA 94559	257-9530	rtooker@cityofnapa.org
Darren Drake	Fire Department	1600 First St. Napa, CA 94559	257-9597	ddrake@cityofnapa.org
Dan Kavarian	Building Department	1600 First St. Napa, CA 94559	257-9540	dkavarian@cityofnapa.org
Steve Brassfield	Fire Department	1539 First St. Napa, CA 94559	257-9589	sbrassfield@cityofnapa.org
Katy Wallis	GIS Coordinator	955 School St. Napa, CA 94559	257-9512	kwallis@cityofnapa.org
Karen Harnois	Public Works	1600 First St. Napa, CA 94559	257-9520	kharnois@cityofnapa.org
Ken MacNab	Community Development Department	1600 First St. Napa, CA 94559	257-9530	kmcnab@cityofnapa.org
Jennifer LaLiberte	Community Development Department	1600 First St. Napa, CA 94559	257-9502	jlaliberte@cityofnapa.org
Steve Potter	Police Department	1539 First St. Napa, CA 94559	258-7882	spotter@cityofnapa.org
Scott Nielsen	Information Technology	955 School St. Napa, CA 94559	257-9512	snielsen@cityofnapa.org
Joy Eldredge	Public Works Water Division	1340 Clay St. Napa, CA 94559	257-9521	jeldredge@cityofnapa.org
Mike Parness	City Manager	955 School St. Napa, CA 94559	257-9501	mparness@cityofnapa.org
Julie Lucido	Public Works	1600 First St. Napa, CA 94559	257-9520	jlucido@cityofnapa.org
Eric Whan	Public Works	1600 First St. Napa, CA 94559	257-9520	ewhan@cityofnapa.org
Mike Randolph	Fire Chief	1539 First St. Napa, CA 94559	257-9593	mrandolph@cityofnapa.org

## NAPA COUNTY OPERATIONAL AREA DISASTER COMMITTEE

Name	Agency	Address	Phone	Email
Kerry Whitney	Napa County Operational Area	1195 Third Street Room 310 Napa, CA 94559	253-4821	Kerry.Whitney@countyofnapa.org
Glen Weeks	American Canyon Fire Protection Dist. & City of American Canyon	225 James Road American Canyon, CA 94503	642-2747	GlenW@amcanfire.com
Steve Campbell	Calistoga F.D.	1232 Washington St. Calistoga, CA 94515	942-2822	scampbell@ci.calistoga.ca.us
Steve Brassfield	City of Napa	1539 First Street Napa, CA 94559	257-9589	sbrassfield@cityofnapa.org
Steve Rogers	Town of Yountville	6550 Yount Street Yountville, CA 94599	944-8851	stever@yville.com
Ken Arnold	Napa Valley College District	2277 Napa-Vallejo Hwy, Napa, CA 94559	253-3331	karnold@campus.nvc.cc.ca.us
Tim Healy	Napa Sanitation District	950 West Imola Ave. Napa, CA 94559	258-6000	Tim.Healy@countyofnapa.org
Leigh Sharp	Napa County Resource Conservation District	1303 Jefferson Street Napa, CA 94558	252-4189	leigh@naparcd.org
Kevin Twohey	Emergency Services Coordinator Volunteer Fire Department Liaison	County of Napa	Direct: 299-1892  Cell: 363-6221	kevin.twohey@countyofnapa.org
John Robertson	Sheriff	1535 Airport Blvd. Napa, CA 94559	253-4501	John.Robertson@countyofnapa.org
Lois Husted	Base Coordinator	1000 Trancas Street Napa, CA 94558	252-4411	Lois.Husted@stjoe.org
Dr. Karen Smith	Public Health Director	2344 Old Sonoma Rd. Napa, CA 94559	253-4270	

## SECTION 1: THE PLANNING PROCESS

### Preparing the Plan

Hazard mitigation planning in the City and County of Napa has been an ongoing process. Such plans are authorized under the state's Planning laws, and the federal Disaster Mitigation Act of 2000 requires the preparation of a Local Hazard Mitigation Plan in order for the City to be eligible for various types of federal disaster grants and assistance. The City of Napa adopted and FEMA approved its first written Hazard Mitigation Plan in 2004. This plan was reviewed and updated each year and progress was evaluated on each *action item*. In addition, each *action item* was reviewed to determine if these items needed to be re-prioritized. In July of 2009, City staff undertook a complete rewrite. Dan Hall, Battalion Chief with the Napa Fire Dept., was the lead staff in writing this plan. He worked closely with a team of City, County and Community members to complete this plan. For the 2014 plan update, Steve Brassfield, Battalion Chief with the Napa Fire Dept., was the lead staff person in updating this plan. Chief Brassfield scheduled the first meeting to begin review of the plan on June 10, 2013. The planning team met to review the previous plan together and then made decisions about any new hazards to add and discuss any changes in priorities, goals & objectives. Each team member tracked their revisions and updates to the plan. The final revisions from the team were due by April 11, 2014. Chief Brassfield met with Cal OES and FEMA in February 2015 to get direction regarding final edits and submit the plan by March 2015. A new city resolution will be adopted when the plan is finalized in the fall of 2015. Chief Brassfield met with the City of Napa's FEMA Region IX representative and Kevin Twohey from Napa County mid-March 2015. The goal is to finalize the City of Napa's HMP, seek final approval from FEMA and the Napa City Council and then have our HMP added as an "annex" to the Napa County HMP. In 2013 and 2014 city staff, internal and external stakeholders, listed on page 1 and 2 of this plan met multiple times to review and update this plan. The table in Appendix H shows the planning meeting dates and who attended the meetings.

Each section was reviewed with some sections requiring more changes than others. For example, the flood and fire hazard assessment received more updates due to progress in completing mitigation strategies and action items as compared to the earthquake and terrorism hazards. When reviewing the 2009 plan we found it necessary to add a section on becoming a drought tolerant community. The HAZUS data, which provides earthquake-loss estimates, changed little whereas the City's threat to fires in the wild-land urban interface changed significantly due to progress made by the Fire-safe Councils. Each draft and revision was reviewed by the City of Napa Hazard Mitigation Team and then posted on the City website for community review and comments. The City of Napa has, and will continue to have, public, private and governmental input into the City's threat assessment and mitigation strategies. Future updates to the plan will continue to be assessed as part of implementing and maintaining the plan and will include a table showing the status of the goals and objectives listed in this plan. This section describes this input and planning process.

## **Incorporating Existing Plans**

The City of Napa has a Safety Element within the General Plan and this section already identified our community's most likely hazards and listed mitigation strategies that were incorporated into this plan. In addition, the City had completed other reports such as the Seismic Vulnerability Study on (URM) Un-Reinforced Masonry buildings, the Storm Drain Improvement Plan, a Water Division Vulnerability Study and a Terrorism Vulnerability Report. These and other studies or plans have been incorporated into this document. The City of Napa has a FEMA-approved Flood Mitigation Plan at a cost estimated in 2009 to total approximately \$400,000,000. While the specifics are not included in here since that plan is a stand-alone mitigation document, it is a companion to this document and is available for public review. The City has an Emergency Plan that addresses a response to emergencies and disasters. The information in this document compliments the emergency plan but concentrates on mitigation strategies as compared to response or recovery. It is the intent that the (HMP) Hazard Mitigation Plan and the Emergency Plan will be companion documents.

## **The Process – Flood**

The planning process for this document began in the 90's after Napa suffered a significant flood in 1986. The community and civic leaders began the process of developing the Flood Mitigation Plan which was approved by FEMA in 1996. The process is described at length in the section below, titled *Major Threat: Flood*. It includes who was involved, how the public participated, the involvement of other agencies and the specific strategies used to obtain a FEMA-approved plan. The Flood Mitigation Plan was updated in November 2009 and 2014, and was adopted by the City Council.

## **The Process – Earthquake**

After Napa experienced a 5.1 earthquake on September 3, 2000 the community began the process of mitigating potential damage from future quakes. The Mayor convened a public workshop to address Napa's risk to future earthquakes and also invited experts to explore mitigation and planning activities designed to reduce these estimated future earthquake losses. The information from this workshop and the data offered by HAZAS continues to provide the City with the information needed to determine mitigation strategies in 2009. This process is described at length in the section below titled *Major Threat: Earthquake*. On August 24, 2014 Napa experienced another earthquake measuring 6.0 on the Moment Magnitude Scale (MMS). The South Napa Earthquake resulted in significant damage to homes and businesses, especially downtown and near the fault zone in the area of Browns Valley. The City immediately responded to the earthquake initiating its Emergency Plan calling on emergency responders in the field and in the emergency operations center (EOC) working together to ensure the safety of the public, restore power, water and other utilities, and conduct building safety assessments. The City also prepared an After Action Report (AAR) to identify strengths and areas for improvement observed during response and recovery efforts.

## **The Process – Terrorism**

The Napa Terrorism Working Group (TWG) was formed in 2001 in response to the events of 9/11 and the subsequent anthrax mailings. All emergency response agencies collaborated on a countywide protocol for response to terrorist incidents and began the process of exploring strategies to mitigate future terror attacks locally. This process is described in the section below titled *Major Threat: Terrorism*.

## **The Process – Fire**

The Napa County Firewise Conference that was held on June 4-6, 2003 generated ideas how to complete a hazard assessment and develop mitigation strategies. There were 81 participants in the process from a mix of disciplines. In breakout session, groups were tasked with developing strategies to become Firewise Communities. While this conference was a decade ago, it was a catalyst for the development of the City and County *Fire-wise* programs and Fire-safe Councils. The process that began years before continues today and has been enhanced because of the participation of our Fire Safe Councils comprised of local residents and professionals. The results of the breakout groups brainstorming can be found on page 11 – 12 under the title *Major Threat: Fire*.

## **Putting It All Together**

The Fire Department became the responsible City department for implementation of the plan; however a City Mitigation Team was formed to work on this project. The team met in August of 2009, developed goals and objectives, delegated tasks and responsibilities and agreed on a timetable. They regularly met to review progress and submit the information and documents they were responsible for. The members of this Team are listed on page 1. Each team member contributed in areas of their expertise. For example Cassandra Walker was the City's Redevelopment Director and she assisted in collecting and interpreting data regarding the City's seismically vulnerable buildings and together with Steve Jensen, the City's Chief Building Inspector, recommended mitigation actions. Again, this process was repeated in 2014 and 2015 to update and revise this plan.

It was determined early on that the City and County would collaborate, wherever we could, however, we would each produce our own stand-alone plans. The contact from the County was Kerry Whitney the OES Coordinator. In addition, various Community Groups participated in the process including the Montecito Fire Safe Council, the Napa Creek neighborhood group *In Harms Way* and *Lois Husted from Queen of the Valley hospital*.

Each City Department Head reviewed the plan as it progressed, utilized the talents within their department and recommended changes. In addition, after the hazard assessment was completed, they recommended mitigation action items. Each of these action items were evaluated, prioritized and collectively the Department Heads decided which ones were appropriate to recommend the Team review for final acceptance. After the Team made final changes, the City Manager approved the document and it was sent to City Council for Adoption. The updated Plan was formally adopted in December of

2009. This updated plan will be adopted by City Council after CAL-OES and FEMA approve this 5 year update in 2015. Future Hazard Mitigation Plan (HMP) reviews will occur on an annual basis, which will include the City of Napa Hazard Mitigation Team and input from the Napa County Operational Area Disaster Committee as well as public, private and governmental input. This process has been assigned to and will have oversight by Battalion Chief Steve Brassfield, Napa Fire Department.

### **Public Involvement in the Planning Process**

The following section describes the foundation of public support for preparedness in the City of Napa. The public provided input by participating in several forums. There were multiple public workshops during the period of building the FEMA-approved Flood Mitigation Plan as described in a previous section titled; *Major Threat: Flooding*. As noted on page 7, a multitude of different agencies, businesses groups, nonprofits, community leaders and government agencies attended the Flood Mitigation Workshops. Our citizens have made great strides in contributing in the direction and success of our *Fire Wise Program*. Napa Communities Firewise Foundation General Meetings and Board Meeting occur every third Thursday of each month. Their input is a significant reason the City has been so successful in meeting its goal of becoming fire safe. Beginning in August and ending in November 2009, the City conducted a series of public meetings to meet the guidance requirements and receive additional public input. On August 12<sup>th</sup>, the City held a public workshop relating to the revision of the FEMA flood maps and on Oct 7<sup>th</sup> and 8<sup>th</sup> a two day workshop was held relating to the Flood Mitigation Plan. On November 2<sup>nd</sup>, 2009 the City co-hosted a public workshop with Napa County at which information and input was solicited on all of the hazards confronting the City. Each meeting was announced several weeks before on the local radio, noticed in the local newspaper and the information placed on the City's web page. As a result the meetings were well attended; the participants demonstrated a high degree of awareness of the potential major threats and were very supportive of the plan. In addition, the City web site presented a link to the draft mitigation action items as well as providing a method for the public to comment via the web page. Again, in 2015 the process of allowing our public to access via the city website to provide input and ask questions specific to the 2015 HMP update occurred between the dates of February 20, 2015 to March 13, 2015. The City of Napa did not hold a specific public meeting for the update of the HMP because the plan is already established and there are no significant changes in our goals and project actions and no public comments were received. See web link as posted:

### **Public input sought for Hazard Mitigation Plan**

The City of Napa updates its Hazard Mitigation Plan periodically, and the latest update is now underway. Residents are invited to review the draft revised plan and provide input by contacting Steve Brassfield in the Fire Department by emailing [sbrassfield@cityofnapa.org](mailto:sbrassfield@cityofnapa.org) or by calling 707-257-9576. The deadline to submit comments is 5:00 p.m. Friday, March 13. [Follow this link to view or download the plan.](#)

## **Major Threat: Flooding**

Flood events in Napa have been recorded since 1892. Historically, the most significant flood events occurred in 1940, 1942, 1955, 1960, 1963, 1965, 1973, 1979, 1982, 1983, 1986, 1995, 1997, 1998, 2002, and 2005/2006. Major floods have resulted in damage to commercial, industrial, residential, and agricultural areas. Utilities, roads, bridges, and streets also are subject to damage and require repair and clean up after a flood event. Flooding causes business slow down or stoppage, wage loss, and interruptions to traffic and the flow of goods. Flooding also has significant effects on human life and health (both physical and mental). The 1986 flood, which was the result of a 50-year storm, inundated most of the land adjacent to the Napa River and caused \$100 million in property damage, killed 3 people, injured 27 people, destroyed 250 homes, and damaged 2,500 residences county-wide.

Since the 1930's, Napa City and County residents have made several concerted efforts to address flooding. The most recent effort began in 1965, when Congress authorized the development of a detailed project proposal for flood protection. In 1975, the U.S. Army Corps of Engineers submitted the first project proposal under the 1965 Authorization. Napa County voters rejected the proposal in referendum elections in both 1976 and 1977, and it was subsequently shelved. When the floods of 1986 hit the Napa Valley, the City of Napa requested that the project be reactivated. The Corps responded with a revised proposal in 1995. Again, it was deemed unacceptable.

As frustrating as the rejections were, not just for the Corps, but for all those who desperately wanted a solution, a new approach emerged which looked at flood control from a broader, more comprehensive perspective. Citizens for Napa River Flood Management was formed, bringing together a diverse group of local engineers, architects, aquatic ecologists, business and agricultural leaders, environmentalists, government officials, homeowners and renters, and numerous community organizations.

Through a series of public meetings and intensive debates over every aspect of Napa's flooding problems, the Citizens for Napa River Flood Management crafted a flood management plan offering a range of benefits for the entire Napa region. The U.S. Army Corps of Engineers served as a resource for the group, helping to evaluate their approach to flood management. The final plan produced by the Citizens for Napa River Flood Management was successfully evaluated through the research, experience, and state-of-the-art simulation tools developed by both the Army Corps of Engineers and numerous international experts in the field of hydrology and other related disciplines. The success of this collaboration serves as a model, not just for Napa, but also for the nation.

All phases of the flood mitigation project are presented to a Technical Advisory Plan (TAP). The members of TAP are appointed by the Napa County Flood Control and Water Conservation District and are responsible for holding public meetings and reviewing design plans to determine consistency with the Community Coalition's Plan.

As of November 2013, the flood mitigation project is approximately two-thirds complete with a cost of approximately \$400 million. The most recent projected cost for completion is estimated at \$560 million.

### **Establishing Goals: Blending Engineering and Ecology**

Citizens for Napa River Flood Management established the following agreed-upon set of goals, initially for the City of Napa, but quickly expanded to include all of Napa County:

- 100-year flood protection;
- An environmentally-restored, "living" Napa River;
- Enhanced opportunities for economic development;
- A local financing plan that the community could support; and
- A plan that addresses the entire watershed countywide.

### **Examining Potential Strategies**

Building on members' expertise, Citizens for Napa River Flood Management members examined the range of potential strategies that could achieve these goals. Some of the broad categories considered were:

- Existing Reservoir Strategies
  - Increasing the use of existing reservoirs for flood control purposes as well as water supply.
- Up-Valley Strategies
  - Holding more water upriver during potential flood events, reducing the flow through the City of Napa, then releasing the stored water as conditions permit.
- Down-River Strategies
  - Improving "drainage" at the mouth of the Napa River, thereby increasing the rate of flow through the City of Napa and preventing the accumulation of floodwaters.
- Watershed Protection Strategies
  - Improving the capacity of the entire watershed to control and direct flood flows by altering land-use practices.
- Risk Reduction Strategies
  - Elevating and/or relocating homes and businesses in the floodplain.

### **Evaluating Alternative Strategies**

As each of these strategies were examined, both individually and in combinations, some conclusions emerged:

- Configuration of new or expanded-capacity dams and reservoirs upriver by itself could not adequately reduce flood flows into Napa;

- Increasing the rate of flow through the City of Napa by improving “drainage” at the mouth of the Napa River would create erosion and would not significantly reduce flood levels;
- Improving the capacity of the entire watershed to control and direct flood flows is a desirable goal, but by itself cannot prevent major flood events, which occur naturally; and
- Elevating and/or relocating homes and businesses in the floodplain would be extremely costly and, in many cases, infeasible.

The current design evolved from a series of analyses and informed discussions about which strategies, or combination of strategies, best met the Project’s objectives. The U.S. Army Corps of Engineers, lead federal agency for the Project, was required to submit a detailed proposal describing the project and the rationale behind the proposed design. In addition, the Corps prepared a Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) detailing the environmental analyses and mitigation measures contained in the Project. These environmental documents are available in their entirety for public review at various locations throughout the County (see back cover for additional information).

The approach of Citizens for Napa River Flood Management is based on the natural processes and characteristics of the Napa River itself, incorporating the following principles of geomorphology:

- Maintaining the natural slope of the river—the slope should not be altered significantly by dredging or straightening;
- Maintaining the natural width of the river;
- Maintaining the natural width/depth ratio of the river;
- Maintaining or restoring the connection of the river to the floodplain;
- Allowing the river to meander as much as possible;
- Maintaining channel features such as mud flats, shallows, sandbars, and a naturally uneven bottom; and
- Maintaining a continuous fish and riparian corridor along the river.

The goal is to once again make the Napa River a living river by:

- Conveying variable flows and restoring habitat in the floodplain;
- Balancing sediment input with sediment transport;
- Providing natural fish and wildlife habitat;
- Maintaining high water quality and supply;
- Offering improved recreation opportunities;
- Maintaining its aesthetic qualities; and
- Generally enhancing the human environment.

## **Community Partners “Citizens for Napa River Flood Management”**

- Friends of the Napa River
- Napa Valley Economic Development Corporation
- Napa County Resource Conservation District
- California Dept. of Fish & Game
- Napa Chamber of Commerce
- United Napa Valley Associates
- American Center for Wine, Food & Arts
- National Resource Conservation Service (NRCS)
- Homeowners: GSMOL & 1st St. Neighbors
- Napa County Landmarks
- Napa Valley Vintners Association
- Sierra Club
- Flood Plain Business Coalition
- Up Valley Chambers of Commerce
- Napa County Land Trust
- Napa-Solano Building Trades Council
- Napa Valley Fisherman’s Associations
- Napa Valley Conference & Visitors Bureau
- Napa Downtown Merchants
- Napa Valley Expo
- Napa County Farm Bureau
- Napa Valley Grape Growers Association
- Soscol Council
- Agricultural Commission
- U.S. Army Corps of Engineers
- Napa County Flood Control & Water Conservation District
- Napa County
- City of American Canyon
- City of Calistoga
- City of Napa
- City of St. Helena
- Town of Yountville

## **Major Threat: Earthquake**

Napa County faces a potential \$1 billion earthquake risk. This is an estimate for modeled losses due to building damages and business losses from a local earthquake caused by the West Napa Fault, running through Napa Valley. Earthquakes of two other nearby earthquake faults – the Rodgers Creek Fault and the Concord-Green Valley Fault – would cause estimated damages to Napa County in the \$.5 billion range.

On February 5, 2001, in a first-of-its-kind meeting, scientists and emergency managers from the United States Geological Survey, California Division of Mines and Geology, Federal Emergency Management Agency, and California Governor’s Office of Emergency Services gathered to present modeled building stock and business interruption loss-estimation figures for three potential earthquake threats to the 127,000 residents of Napa County. This public meeting, convened by City of Napa Mayor Ed Henderson, used FEMA’s National Risk Assessment System, called HAZUS. HAZUS is a sophisticated earthquake-loss estimation software tool based on a user-friendly geographic information system platform.

The three-earthquake scenario simulations affecting northern San Francisco Bay Area counties were presented to an audience over 75 Napa County public officials. Not only did the meeting address Napa County’s risk to future earthquakes, but the invited experts also emphasized mitigation and planning activities designed to reduce these estimated future earthquake losses.

To further its proactive mitigation posture, Napa County has joined FEMA’s Disaster Resistant Communities initiative, which is based on establishing public-private partnerships in order to leverage resources necessary to create a disaster-resistant community. The U.S. Geological Survey, California Division of Mines and Geology, California Governor’s Office of Emergency Services, and the Napa County Office of Emergency Services are all Disaster Resistant Communities program partners with FEMA.

Napa County residents and businesses experienced very strong shaking during the magnitude Richter 5.1 Napa Earthquake near Mt. Veeder on September 3, 2000, with an epicenter near the Town of Yountville, causing moderate damage throughout the southern Napa Valley. Total losses from this moderate earthquake were estimated at \$50 to \$65 million. On August 24 a 6.0 Moment Magnitude Scale (MMS) earthquake occurred in south Napa resulting in significant damage to homes and businesses across the City of Napa (City), especially downtown and near the fault zone in the area of Browns Valley. The South Napa Earthquake claimed the life of one victim and another 300 were taken to hospitals across the County for earthquake-related injuries. Total damage resulting from the quake was estimated to exceed \$363 million. The following exhibit illustrates the location of earthquake faults within Napa.

The process for the development of Earthquake related projects has used input from public meetings, the Local Assistance Center, individual exit surveys and our public-private partnership started by the Disaster Education Task Force.

## **Major Threat: Wildland Interface Fires**

A narrow valley floor surrounded and intermingled with steep, hilly, wooded terrain that contains areas that are very susceptible to wildland fires characterizes areas of the City and the County. Such fires expose residential and other development within the County to an increased risk of conflagration. The hilly/mountainous terrain on the east and west side of Napa Valley strongly influences both wildland fire behavior and the suppression capability of firefighters and their equipment.

Wind is a predominant factor in the spread of fire in that burning embers are carried with the wind to adjacent exposed areas. The Napa Valley has a characteristic southerly wind that originates from the San Francisco Bay and becomes a factor in fire suppression. Also, during the dry season the Valley experiences an occasional north wind of significant velocity that is recognized by fire fighters to be a significant factor in the spread of wildland fires.

### **Napa Firewise**

In response to the clear danger presented by a build-up of volatile fire fuels across Napa County, a group of senior fire professionals and concerned community leaders came together in 2003 to form Napa Firewise, a community-based fire awareness program designed to educate the public and encourage individuals to be proactive in preparing their property for greater fire protection.

In 2005, with a grant from the U.S. Forest Service and the Napa County Fire Department, Napa Firewise launched an aggressive identity-building program using free chipping services and defensible space inspections, plus community workshops and public relations media as the all-important links to the community. The core program National Firewise model continues today.

In 2007, Napa Firewise was incorporated under section 501(c)(3) as a non-profit Foundation. This restructuring allows the organization more direct access to grant funding as well as tax incentives for supporters.

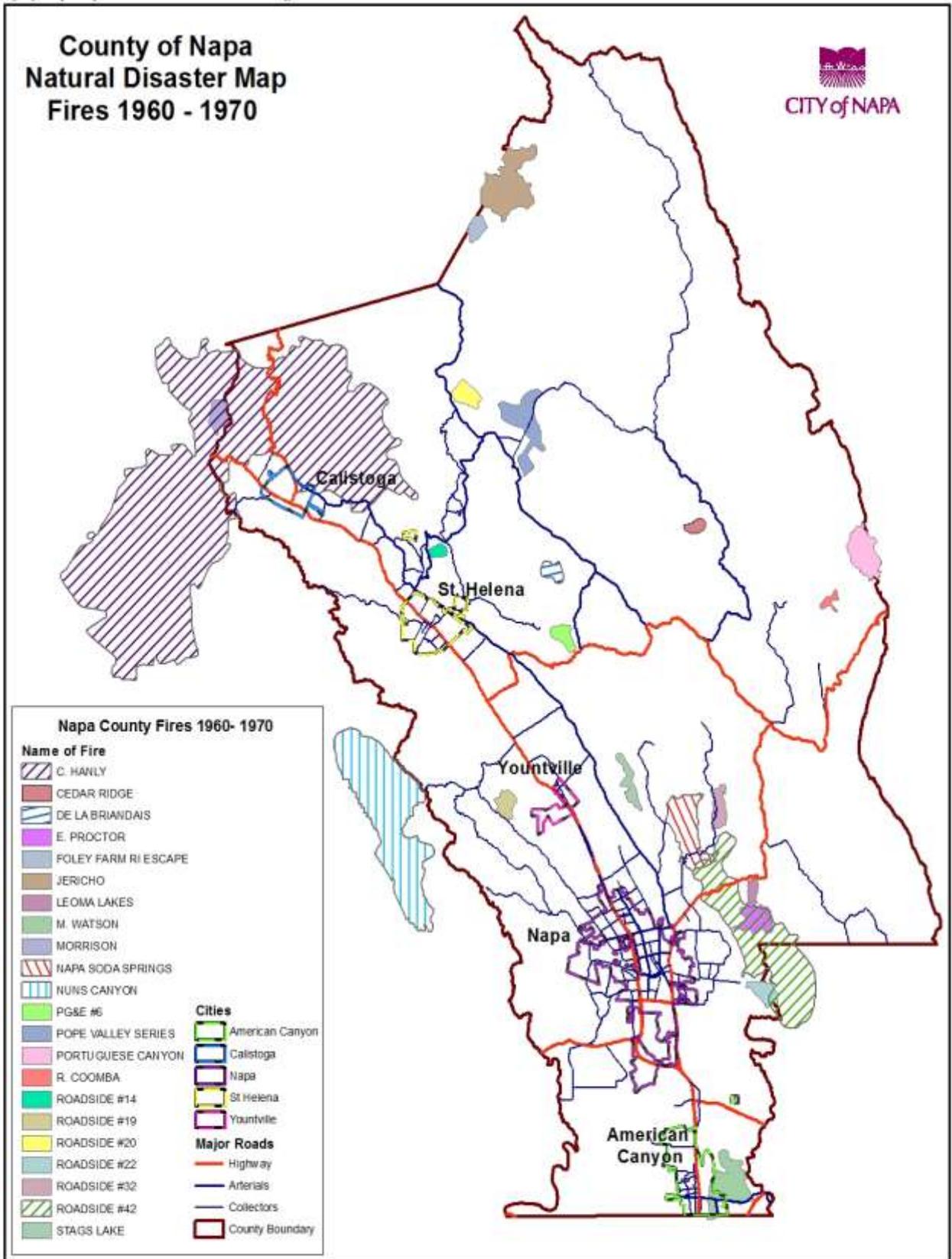
### **Goals and Objectives**

**Raise Awareness** - Make people aware of their environment and the natural and manmade risks that wildland fire poses to them, their family, their property, and/or their business.

**Create Action** - Provide the communities of Napa County with specific steps they can take to protect their families, property, and/or business in the event of a wildland fire. Educate citizens on the key aspects of fire behavior and how "fire-hardened" homes and buildings can survive, through defensible space planning and proper mitigation techniques.

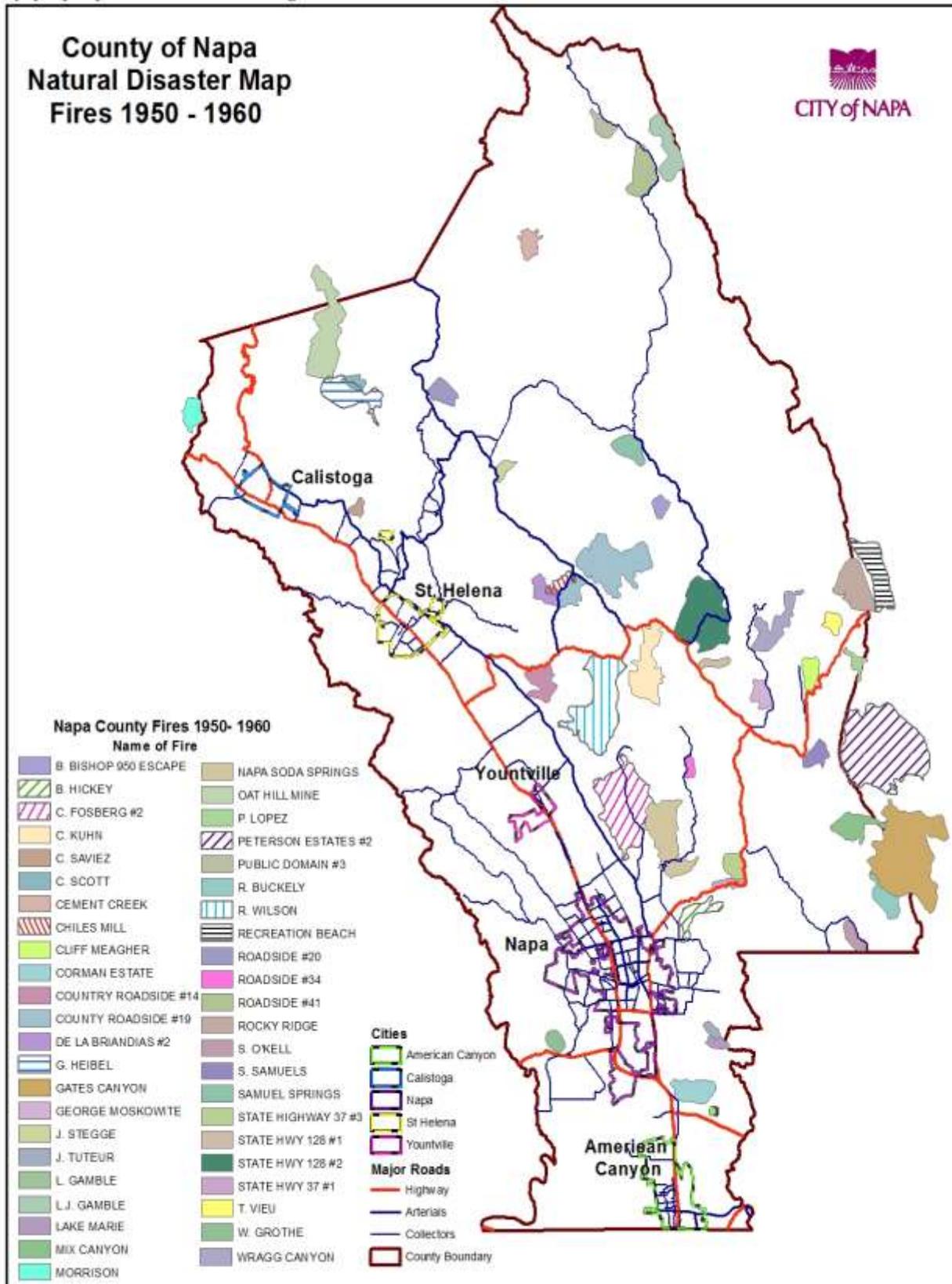
**Sustain Action** - Encourage defensible space practices as part of an ongoing fire prevention program. Include annual chipping program as an important community collaboration activity.

**Philosophy** - To create an atmosphere of sustained, shared responsibility helping the community help itself.



County of Napa GIS  
July 2013





### **Major Threat: Terrorism and Technological Hazards**

The Napa Terrorism Working Group (TWG) was formed in 2001 in response to the events of 9/11 and the subsequent anthrax mailings. All emergency response agencies collaborated on a countywide protocol for response to terrorist incidents

When Homeland Defense grants became available, the same agencies decided that the TWG was best positioned to do needs assessments related to terrorism and determine allocations of any monies received for homeland defense issues. It was agreed by the members that such monies would be pooled and used based on needs assessments conducted by the group. The group was instrumental in completing two countywide threat and vulnerability assessments that maintained our eligibility for these grant programs. The TWG group agreed that the money is to be shared as equitably as possible. The main concept of the TWG was to form a cooperative, interagency group to deal with a host of issues related to terrorism and funding. Pooling the monies received and dispensing them according to the agreed upon needs of the group was one of the goals.

At the beginning of F/Y 03-04, in order to meet the state requirements for the Homeland Defense grants, an executive committee was formed within the group. This executive committee consisted of the County Sheriff, the County Fire Chief (or their representatives), a representative from the city's Fire Chiefs, from the city's Police Chiefs, and the County Public Health Officer.

### **Major Threat: Drought and Climate Change**

**Drought:** is a period of time of unusually constant dry weather that persists long enough to cause deficiencies in water supply (surface or underground). Droughts are slow-onset hazards, but, overtime, they can severely affect crops, municipal water supplies, recreation resources, and wildlife. If drought conditions extend over a number of years, the direct and indirect economic impacts can be significant. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfires. In addition, human actions and demands for water resources can be accelerate drought-related impacts.

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disaster, such as, floods or forest fires, occur relatively rapidly and afford little time for preparing for a disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends.

Drought is a complex issue involving many factors, with differing conditions and drivers throughout the state making this more of a regional focus. Drought can be defined regionally based on the effects.

Meteorological – this type of drought is usually defined by a period of below average water supply.

Agricultural – this type of drought occurs when there is an inadequate water supply to meet the needs of the state’s crops and other agricultural operations such as livestock.

Hydrological – a hydrological drought is defined as deficiencies in surface or subsurface water supply. It is generally measured as stream flow, snowpack, and as lake, reservoir and groundwater levels.

Socioeconomic – occurs when the results of drought impacts health, well-being and quality of life, or when a drought starts to have an adverse economic impact on a region.

Recent History: The 1976-77 Drought was the last major drought to affect the area. Since then other droughts have affected the area but have been short in durations and little impact on the County.

1976-77	Extreme
2001-02	Severe
2007	Severe
2009	Severe
2012- Present	Extreme

The current drought may have an Extremely High impact on the Napa County due to the lack of rain and snowfall for the past three years in the Sierra water shed. With extremely low snowfall, the reservoirs in Northern CA are at their lowest ever. Population growth has been significant across Northern CA which has called for large water demands. Agriculture water allocations needed in late winter – early spring planting cycle have been cut to zero. Voluntary water restrictions have been recommended for residences. Conservation actions have been and are being taken by, residence, business, agriculture, and government. Wildland fires will significantly affect all of Northern CA with either Fire or Smoke, which causes health and medical issues for all residences. Fisheries are also affected. The major issue directly attributed to the Drought is the potential economic impacts that will affect everyone. All of this will have a significant impact on California’s Economy, which is one of the top 10 Economy’s in the World.

### **Climate Change:**

Climate Changes has already impacted California’s water resources. In the future, warmer temperatures, different patterns of precipitation and runoff, and rising sea levels will profoundly affect the ability to manage water supplies and other natural resources. Adapting California’s water management systems to climate change presents one of the most significant challenges for the 21<sup>st</sup> century.

## **Climate Changes Impacts to California's Water Resources**

Historical evidence and scientific studies have already uncovered distributing trends due to climate changes:

By 2006, scientist projected a loss of at least 25% of the Sierra's snowpack, an important source of urban, agricultural and environmental water.

Weather patterns are becoming more variable, causing more severe winter and spring flooding and longer drier droughts.

Since 1950's, flood flows on many California rivers have been largest on record. Levees, dams, and flood by-passes are forced to manage flows for which they weren't designed.

In the past century, sea levels have risen over one-half foot at the Golden Gate. It is projected; continued sea level rises will threaten many coastal communities as well as the sustainability of the Sacramento – San Joaquin Delta which supplies 25 million Californians with drinking water. Rising water temperatures and changes in runoff patterns may adversely impact salmon and other aquatic species.

Based on the Climate Change Impacts and Climate Predication Outlooks, it is high likely, that we will see additional Sever to Extremely Sever Droughts over the next 10-20 years.

### **Strategies to address impacts of climate changes**

Increase monitoring of climatological and water resources conditions.

Improve flood forecasting abilities and climate changes models to assess future flood protection needs.

Refine projections of climate changes consequences on water supply and reliability

Conduct system re-operation studies to improve reliability and maintain sufficient flood reservations

Assess climate change effects on hydropower production.

Reduce greenhouse gas emissions from water management activities

Study the combined effects of increased atmospheric carbon dioxide and increased temperature on crop water needs to predict future water needs.

Analyze the effects of the sea level rise on the Delta salinity levels

Adapt statewide water management systems by incorporating more flexibility

Improve interaction and coordination with local, state, federal and academic researchers.

## **Integrated Regional Water Management**

Integrated regional water management plans are the primary strategy to achieve reliable, high quality water supplies and protect and enhance the environment. Cooperation among communities and stakeholders benefit by resolving conflicts, leveraging existing infrastructure, and building a diversified portfolio of water supply alternatives. This approach will help regions find the best solutions to the effects of climate changes in local areas.

## **Groundwater and Surface Storage**

Climate change may cause core frequent and more severe winter storms, and longer drier periods of drought. New groundwater and surface and water storage will ensure a reliable water supply for California's future and provide vital flood protection by managing more variable precipitation and runoff.

## **Water and Energy**

Climate change may reduce hydropower generation production. At the same time, energy use may increase because of higher temperature and greater water demands. These conditions may force greater reliability on fossil fuels that produce greenhouse gases. Future water management activities must consider strategies to conserve energy and reduce greenhouse gases emissions.

## **Drought Mitigation Projects**

We have identified the following Drought Mitigation issues that we should be monitoring or assessing the status of to determine if we need to take action to mitigate the effects of the drought within our city and county. We will be working with Local Water Purveyors, City, County, State and Federal partners to coordinate our response to these issues that have been identified.

Identified mitigation drought actions are:

- Assess Vulnerability to Drought Risk
- Plan for Drought
- Monitor Drought Conditions
- Monitor Water Supply
- Require Water Conservation During Drought Conditions
- Prevent Overgrazing
- Retrofit Water Supply Systems
- Enhance Landscaping and Design Measures
- Educate Residents on Water Saving Techniques

# California Drought Map

## April 14, 2015

### U.S. Drought Monitor California



**April 14, 2015**

(Released Thursday, Apr. 16, 2015)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	Note	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>		0.14	99.88	88.11	93.44	88.08
<b>Last Week</b> 4/7/2015		0.15	99.85	88.11	93.44	88.08
<b>3 Months Ago</b> 1/13/2015		0.00	100.00	89.12	94.34	77.52
<b>Start of Calendar Year</b> 1/1/2015		0.00	100.00	89.12	94.34	77.94
<b>Start of Water Year</b> 9/30/2014		0.00	100.00	100.00	95.04	81.92
<b>One Year Ago</b> 4/15/2014		0.00	100.00	89.80	95.21	88.78

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**

Michael Brewer  
NCDC/NOAA



<http://droughtmonitor.unl.edu/>

## **SECTION 2: PLAN PURPOSE, VISION AND COMMUNITY PROFILE**

### **Plan Purpose and Vision**

This Plan is intended to be a roadmap towards a more disaster-resistant community. It is not intended as a regulatory document like the City's General Plan or Zoning Ordinance, but a living document that provides a background on the threats that are faced in Napa, identifies the critical paths to mitigate these threats and provides a list of action items that, when funding becomes available, will move the City of Napa closer to becoming a disaster-resistant community.

The list of action items is categorized by major threat, by time horizon from funding of the requirement to completion, and by the complexity of coordination (especially in regards to environmental coordination under the California Environmental Quality Act [CEQA] and the need for a detailed environmental impact report under federal statutes).

By building this modular approach to hazard mitigation, public policy officials can focus future limited mitigation dollars on where they can have the most impact in light of the threats that are faced. As mitigation funding increases there will be a list of action items from which to rapidly develop public policy.

The action item lists will be revised annually, and as technology and approaches to mitigation change or improve, so will the lists. This Plan is intended to be an evolving mitigation document. As hazards are largely mitigated (i.e. the 2011 completion of the living river project that will substantially reduce the flood threat), secondary hazards will increase in importance and require revision in the Plan and action item lists to address them.

The Plan's vision therefore is process and project oriented. Practical result-oriented action items with clear cost/risk benefit analysis are the building blocks of this Plan, laying the foundation for rapid action in the event that mitigation resource funding becomes available from whatever source. This Plan therefore is a mitigation toolkit that identifies hazards and risks, finds and defines prescriptive mitigation actions, and develops a framework for their implementation as public policy. This Plan is a call to action for hazard mitigation and moves the City of Napa towards being a more disaster resistant community.

### **Napa's History**

The word *Napa* was probably derived from the name given to a southern Wappo Indian Village whose people shared the area with elk, deer, grizzlies and panthers for many centuries. At the time of the first recorded exploration into Napa Valley in 1823, the population consisted of hundreds of Indians. Padre Jose Altimira, founder of the mission at Sonoma, led the expedition. Spanish and Mexican control remained until the Bear Flag Revolution, and the valley became one of the first in California to be settled by American farmers, who started arriving in the 1830s.

When California was granted statehood, Napa Valley was in the Territory of California, District of Sonoma. In 1850 when counties were first organized, Napa became one of the original counties of California, and in 1851 the first courthouse was erected. By 1870 most of the Indians who had inhabited the valley were wiped out by smallpox and other diseases brought by the white man. The few that remained finally were taken into Alexander Valley, where a few descendants now reside on government reservations.

The City of Napa was laid out in 1848 by Nathan Coombs on property he had received from Nicolas Higuerra, holder of the original Spanish Grant. The first business establishment was opened in the new city in 1849.

It was the gold rush of the late 1850s that really built Napa City. After the first severe winter in the gold fields, miners sought refuge in the young city from snow, cold, floods and disease. A tent city was erected along Main Street. There was plenty of work in the valley for disillusioned miners. Many cattle ranches were maintained and the lumber industry had mushroomed. Sawmills in the valley were in operation cutting up timber that was hauled by team to Napa City, then shipped out on the river to Benicia and San Francisco.

In the mid-1850s, Napa Main Street rivaled that of many larger cities, with as many as 100 saddle horses tied to the fences on an average afternoon. Hotels were crowded, cash slugs and California coinage were plentiful. Saloons and gambling emporiums were numerous, but culture had also made its debut. There was a lyceum and reading room, an opera house, an agricultural society and other evidences of a maturing community.

In 1858 the great silver rush began in Napa Valley, and miners eagerly flocked to the eastern hills. In the sixties, mining was carried on, on a large scale, with quicksilver mines operating in many areas of Napa County. The most noted mine was the Silverado Mine, located on the slope of Mt. St. Helena, which was immortalized by Robert Louis Stevenson in his classic *The Silverado Squatters*.

In the Twentieth Century, the City of Napa became the primary business and economic center for the Napa Valley. As agricultural and wine interests developed north of the City boundary, much of the light industry, banking, commercial and retail activity in the county evolved within the City of Napa and in earlier times along the Napa River through the Historic Downtown. Even today the bulk of the county population lives in the City of Napa. The active economic development program has continued to support the wine and agricultural activities of the Napa Valley to this day.

## **Napa Community Profile**

### **Population and Location**

The City of Napa, incorporated in 1872, is located at the base of the world-famous Napa Valley wine-producing region, approximately 50 miles northeast of San Francisco. It has a land area of 18.34 square miles and a population of 76,915. A 1975 Citizens Initiative established a Rural Urban Line around the City that limits the City's outward growth.

**Economic Trends**

	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010**</b>
Population	59,523	62,776	74,666	76,824	76,915
Average Income/Household*	\$16,247	\$23,200	\$25,655	\$27,711	\$62,642
* In constant 1995 dollars					
**2010 US Census					

**Climate**

Strongly influenced by the built-in air conditioning of San Francisco Bay, Napa enjoys a moderate climate. Representative temperatures for the City of Napa in January are 37.4° minimum and 57.7° maximum. For July, they are 52.2° and 82.1°, respectively. Average rainfall is 23.88" per year, with the majority occurring from November to March.

**Transportation**

**Highways**

Highway 29 runs north-south through the City.  
 Highway 12 (east-west) intersects at the southern part of Napa County and Interstate 80 is six miles east of this point.  
 Highway 121 runs through the southern and eastern sides of the City of Napa.  
 Highway 221 extends south of Imola to the southern City limits.

**Rail**

California Northern and Union Pacific Railroads provide freight service to an area just south of the City limits.

**Air**

The Napa Airport is located south of the city limits. On-call charter service is available 24 hours a day. Major airports (Sacramento, Oakland, San Francisco) are within one hour's drive. Evans Transportation provides shuttle service to and from San Francisco and Oakland airports.

**Bus**

Napa Valley Transit & the VINE provide service north to Calistoga and south to Vallejo; there is connecting ferry service from Vallejo to San Francisco.

**Truck**

Several companies serve Napa with overnight service throughout California; a UPS depot is in the Napa Valley Corporate Park.

## **Water Supply**

The City of Napa is committed to providing a safe and reliable supply of quality drinking water. Water is provided by three city-owned and operated, state-of-the-art, treatment plants: Hennessey, Barwick-Jamieson terminal of the State Water Project and Milliken. The Barwick Jamieson Canyon water treatment plant had major improvements expected to last forty years completed in 2010 including the addition of ozone treatment, new conventional treatment basins, two new filters as well as washwater recovery facilities. The facility capacity was increased from 12MGD to 20MGD.

## **Sewer Service**

The Napa Sanitation District serves the City of Napa and adjacent unincorporated areas. Existing users pay an annual sewer service charge that is based on flow and strength. New connectors pay a connection fee, also based on flow and strength.

## **Solid Waste Disposal**

The Napa-Vallejo Waste Management Authority provides support services for a joint powers agency between Napa City, Napa County, American Canyon, and Vallejo City for economical waste disposal facilities and activities. It is the owner of the Devlin Road Recycling and Transfer Station, including the Hazardous Waste Collection Facility for households and small quantity business generators.

## **Storm Drainage**

The City adopted a Storm Drainage Master Plan in 2006 that identifies and prioritizes a community wide list of storm drainage improvements. March 2005 costs were 22.6 million. The City continues to collect a citywide storm water system service (SWSS) fee that is used to complete various storm drain capital improvements identified in the plan. The SWSS fee also pays for a portion of the costs associated with implementation of requirements specified in the City's Municipal Stormwater Permit. This permit specifies certain policies and practices the City must carryout in order to comply with the Federal National Pollutant Discharge Elimination System (NPDES) program. The SWSS fee sunsets in 2016. One option is to bring the fee back before the voters for approval. Another option includes forming a Special Financing District to replace the fee. The level of revenue should be increased to pay for needed capital improvements and increased costs associated with the NPDES program.

## **Electricity and Natural Gas**

Pacific Gas and Electric (PG&E) supplies electricity and natural gas to the City of Napa.

## **Telephone**

SBC provides a variety of services to the City of Napa.

## **Recent Major Projects**

Recently completed Downtown projects include, but are not limited to the Riverfront mixed-use retail, office and residential project, Napa Square mixed-use retail and office development a 5-story 142 room Andaz hotel; the 160-room Westin Hotel; the Oxbow Public Market; Main Street West mixed-use retail and office development; and the Zeller Building with a mix of new retail and office building.

Outside of the Downtown core, other private projects completed since 2005 include, but are not limited to a new CVS pharmacy on South Coombs; the Bel Aire Plaza façade improvements including new tenants such as Whole Food, Pier One Imports and other retailers; the Blue Oak School; the Tom Foolery office remodel; a new Toyota dealership and relocated Ford dealership; the 200+ room Meritage Hotel and time shares; several new facilities at Queen of the Valley Hospital, Jasna Commons, a smaller residential/commercial mixed-use project on California; Merryvale Winery; Mi Favorita Market; two banks on Trancas, a Walgreens and a commercial shopping Center called Napa Crossings; Century Theater, and several industrial buildings. Although not a private development, the Napa County Transportation and Planning Agency's intermodal station was also recently completed moving the central bus hub in Downtown to Burnell Street.

Numerous subdivisions and apartments have also been constructed since 2005 including, but not limited to Sheveland Ranch; Oak Leaf; Hidden Glen; Terrace Drive Estates, Silverado Villa; Walden Glen, Coffield, Appella, Napa Terrace, Valley Oak Villas, Christensen and Mayfield; Hawthorne Village Phase 2; Hidden Hills, Alexander Crossings, and the Brown Subdivision.

In addition, the City is being transformed by a \$560 million Napa River Flood Protection Project. To date, about two-thirds of the project is completed, including construction of five roadway bridges at Imola, First Street (2) Third Street and Soscol Avenue; three pedestrian/bicycle bridges at Coombs Street and Behrens Street across Napa Creek and at Old Tulocay Creek west of the Railroad, and two Railroad bridges crossing the Napa River and the future Oxbow Bypass Channel. The project has also constructed the expansion of flood plain terraces south of the city and up to Downtown;; completion of the Napa Creek bypass culverts and channel widening through Downtown; and levees east of the River south of Third Street and Downtown and floodwalls west of the River from the historic Hatt Building to First Street. The next major segment includes the Oxbow Bypass in the Downtown area. The City has worked to design a riverfront promenade; redesigned parks and the new Oxbow Preserve open space. Another significant public project completed in the past several years is the Highway 29/Trancas interchange.

## **City Government**

Napa operates under the council-manager form of government. Policy-making and legislative authority are vested in the governing council, which consists of a mayor and four council members. Council members are elected to four-year staggered terms with two council members elected every two years, and they also hire the City Manager, City Attorney and City Clerk. The City Manager is responsible for carrying out the policies of the City Council, overseeing the day-to-day operations of the City and for appointing the directors of the City departments.

## **Police**

The Police Department provides policing services to the residents and visitors of Napa by providing contemporary law enforcement services and by addressing quality of life issues. The departments also provides a variety of youth programs; provides dispatch services for City and County law enforcement, American Canyon, City of Napa Fire and emergency ambulance calls; handles various city governed permits; and works with a wide spectrum of agencies to address social and criminal issues.

## **Major Accomplishments in Fiscal Years 2011-2013**

Fourteen members of the Police Department completed the Leadership in Police Organizations training; the Department received two OTS grants; COPS grants funding; a JAG grant; and Domestic Violence grant; dispatching services for American Medical Response were implemented; parking citation processing and fine collection efficiencies were accomplished; a Volunteer Program was implemented; modifications were made to the Law Enforcement Alarm System Response Program to reduce officer response to alarm calls and to reduce administrative staff time to handle false alarms; and the Police Department conducted a Citywide survey to assist with the implementation of the Neighborhood Based Policing philosophy. The Department has initiated a restructure and reorganization of the department to provide better service to the community and to provide for internal succession planning; addressed homelessness issues; thereby reducing homeless victimization and calls for service involving the homeless; enhances customer service by providing citizen generated on-line crime reporting; implemented the first stage of the Department Strategic Plan; and has implemented the Intergraph Public Safety Computer Aided Dispatch and Records Management System (CAD/RMS).

## **Fire**

The Fire Department is a multi-hazard emergency response agency that provides service to the citizens and visitors of the community. Its primary responsibility is to provide an effective means of protecting life, property and the environment while being a productive member of the municipal team and contributing to the realization of the City's overall goals. The department is divided into three functional divisions: Administration, Operations, and Prevention.

### **Major Accomplishments in Fiscal Years 2007-2009**

Property has been purchased for the future site of Fire Station No. 5, the department succeeded in getting a Fire and Paramedic Development Fee for Fire Station No. 5 adopted by City Council, received a FEMA grant for a type 3 Wildland Engine, adopted new California Fire and Building Code, Developed specifications and bids, and purchased one technical Rescue Unit and one Engine, and responded to more than 7,000 calls for service, which is an all-time high.

### **Public Works**

The Public Works Department's core objectives are to design, construct, operate and maintain the City's public infrastructure and services generally consisting of streets, storm drains, sidewalks, bridges, electrical, water, materials diversion and fleet. The department is divided into two functional areas, operations and engineering, with eight divisions providing a diverse array of services, including, construction inspection, development engineering, real property management, special projects, water operations, street maintenance, trash collection and recycling, and capital project design, among others. The department interfaces daily with the Economic Development, Community Development and Parks and Recreation Services Departments regarding physical changes in Napa.

### **Major Accomplishments in Fiscal Years 2007-2009**

The department completed the First Street Bridge over the Napa River, the Barwick Jamieson Canyon Water Treatment Plant Improvement Project, Enhanced regular interaction and improved coordination with the Napa County Flood Control District, and reorganized and restructured the department to provide better management oversight and greater efficiencies and production.

### **Community Development**

The Community Development Department provides both regulatory and strategic visioning relating to the planning and developments of the physical environments, neighborhood quality of life, and management of Federal grants promoting affordable housing and support for key non-profit agencies. The department is divided into five divisions: Economic Development, Planning, Building, Code Enforcement, and Housing. Key responsibilities of the divisions include preparing studies and documentation to address future planning needs, administering and maintaining the General Plan and Municipal Ordinances, permitting development, providing building inspection services, responding to violations of the City Municipal Code, processing entitlements, and financing affordable housing.

### **Major Accomplishments in Fiscal Years 2007-2009:**

The departments have completed the Draft Housing Element, implemented the first phase of the Green Building Ordinance, facilitated major developments such as the Hyatt Andaz Hotel, The Riverfront, South Napa Century Center, and Napa Crossings, and

have adopted a Vacation Rental Ordinance, initiated Special Multi –agency Resource Team (SMART) for neighborhood improvement, and improved working relations with HUD through increased performance on Federal programs.

### **Park and Recreation**

The Parks and Recreation Department provides recreational opportunities for the community; provides for maintenance and management of public parks, trails, civic plazas and open spaces; manages a municipal golf course at Kennedy Park; maintains and manages the approval process for private events on public streets, public squares or in recreations facilities; supports the Tree Advisory, the senior Advisory, and the Park and Recreation Advisory commissions; supports the efforts of the foundation for Napa Recreation to augments public recreation.

### **Major Accomplishments in Fiscal Years 2007-2009**

The Department began a development of a 15-year park and Recreational Facility Master Plan, collaborated with City Attorney staff in revising the Park Use and Special Event Ordinance, successfully transitioned the City’s Facility Maintenance into a new Division of the Parks and Recreation Services Department, completed a number of previously deferred facility maintenance projects, and implemented a Facility Attendant program that provides additional staffing in facilities during off-hours and weekend events.

### **Community Facilities**

#### **Health**

The City of Napa has excellent medical facilities: Queen of the Valley Hospital, Kaiser Permanente Clinic and Napa State Hospital. Nearby are also the St. Helena Hospital and Health Care Center and the Veterans Home of California. Paramedic service and the REACH emergency rescue program are in place as well.

#### **Education**

Napa Valley Unified School District has 21 elementary schools, three middle schools, and three high schools including the New Technology High School in the city of Napa. Napa is also served by private and parochial schools including Justin Siena High School and the new Blue Oak School, an independent elementary school. Eighty percent of public and ninety percent of private high school students go on to college. Local higher education facilities include: Napa Valley College, 180-acre campus serving 11,000 students and Pacific Union College, 2,000 acre campus serving 1,600 students. University of California Berkeley, University of California Davis and Sonoma State University are all within 40 minutes.

## **Culture and Recreation**

Napa's mild climate encourages year-round outdoor activity. The City of Napa offers numerous neighborhood, community, and regional parks, wetlands and natural open areas, and hiking and river trails. Recreation and leisure facilities include three community swimming pools, a public golf course and public tennis courts. There are weekly Farmers' Markets from April through October. The preservation of historic neighborhoods and buildings is balanced with a dynamic mix of retail, fine dining and professional offices. The former COPIA property, American Center for Wine, and the Arts recently opened is also undergoing repurposing. The arts further enrich downtown with studios, theaters and galleries.

## **Housing Availability, Pricing and Rentals**

Napa is a city known for its quality lifestyle. There are many neighborhoods, each with its own distinct character. In 2013, fair market rents ranged from \$800 to \$1,910 per month for two and three bedroom units. The rental market is tight with a 2.4% vacancy rate (City of Napa 2012 vacancy survey). The median sales price of homes was \$401,500 in May 2013, an increase of 25% from 2012 levels. There are 13 mobile home parks with approximately 1,500 spaces located in the community area.

## **Industrial Sites**

Within the City of Napa and south to American Canyon, there are several business/industrial parks that offer sites for purchase, space in existing buildings for lease, and build-to-suit arrangements. The types of uses allowed cover the spectrum from office to R&D, from light to general manufacturing, and from warehouse to distribution. Examples include the Napa Valley Corporate Park (now called Napa Valley Commons), which comprises 246 acres and is located in the southern part of the City, the Napa Valley Gateway Business Park, a 386-acre master planned development, and the Napa Airport Center, both within close proximity to the City of Napa.

## **Economic Outlook**

The City of Napa has a strong balanced economy, diversified labor force, and competitive land values, all good reasons to do business in the City of Napa. With access to transportation routes and its convenient location at the base of the Napa Valley, the City of Napa is the economic hub for the region. Private investment is on the rise, particularly with the easing of the Great Recession. The business climate is expanding in its agriculture and tourism base to include a growing market related to wine technologies and specialty food production. Retail and service industries are also experiencing growth.

## **Napa's Economical Demographics**

Napa County is centrally located in the North Bay Area of California. The county remains primarily agricultural, confining most commercial and residential development to the existing cities. Its most prominent graphic feature is the Napa Valley, which is one of the

most famous and productive wine regions in the world and a very convenient place to do business. State highways include 29, 121, 221, 12 and 128 allow the residents to travel to other cities. The Interstate 80 connection is six miles east of Napa. Highway 101 is 18 miles west of Napa. Napa also has rail, truck and barge service from the Port of San Francisco and the Port of Oakland. In early 2013, the boundary of the Port of San Francisco Foreign Trade Zone No. 3 was expanded to include Napa, which will provide numerous incentives and benefits for companies here that conduct business internationally, as well as attract new business to the area.

Service is the largest industry in the county, accounting for 27.8% of total employment. Another significant industry, retail trade, accounts for 17% of employment, with numerous jobs available in the eating and drinking sectors. Manufacturing makes up 16.3% of the total followed by government at 15.6%.

Demographic trends, shifts in demands for products or services, technological innovations and the way business is conducted are some of the variables that drive employment in an occupation up or down. Also, occupations which have large employment and have high turnover rates generally provide the most job openings. Napa County is projected to have many employment opportunities in the high turnover occupations.

<b>Napa General Information 2013</b>	
County Seat	Napa County
Napa County Incorporated	February 18, 1850
Napa Town Site Founded	1847
Incorporated as City of Napa	1872
Napa City Size	17.84 square miles
Napa County Size	748.36 square miles
City of Napa Population, 2010 Census	76,915
Napa County Population, 2010 Census	136,848
Number of County Households	49,640
Number of City Households	28,779
Median Household Income	\$62,642
Average Income per Household	\$72,688
Per Capita Income per County Household	\$35,309
Percentage Owner Occupied City Units	59
Percentage Renter Occupied City Units	41
Average Persons per Household	2.6
Mobile Home Parks, City	13
Median Home Cost 2012	\$372,500
Home Cost Range	\$190,000-\$1,000,000
Avg. Travel Time to Work	22 min.
City Departments	12
City Employees	428
Government	Manager/Council
Official Sister Cities (2001)	(1) Casablanca Valley, Chile (2) Iwanuma, Japan (3) Launceston, Australia
Official Friendship Cities (2001)	(1) Jerez, Mexico (2) Nakaizu City, Japan
Residential Land	67%
Commercial Land	8%
Industrial Land	4%
Public Parks and Quasi	12%
Undeveloped/Agricultural	9%
2003 Taxable Sales Transactions	Add info here

Sales Tax for State and Local	8.0007.75%
<b>2008 Average Rental Prices in Napa</b>	
<b>TYPE</b>	<b>PER MONTH COST</b>
Rental Units Rent Ranges	\$800 - \$1,910/month
Apartments	\$850 - \$1,700/month
One Bedroom & One Bathroom	\$1,145/month
Two bedroom & One Bathroom	\$1,216/month
Three Bedroom	\$1,692 - \$2,800/month

<b>2011 City of Napa Marital Status</b>		
<b>STATUS</b>	<b>AMOUNT</b>	<b>PERCENT</b>
Single never married	18,053	23.1%
Married, excluding separated	31,448	40.3%
Widowed	3,506	4.5%
Divorced	7,468	9.5%

Source: -U.S. Census Bureau 2007-2011 American Community Survey

<b>2010 City of Napa Population by Age</b>	
<b>AGE CATEGORY</b>	<b>AGE IN YEARS</b>
Median Age	37.4 years
Average Age	37.47

Source: U.S. Census Bureau

<b>2010 Napa County Population by Cities/Towns vs. Unincorporated (estimate)</b>		
<b>AREA TYPE</b>	<b>POPULATION</b>	<b>PERCENT</b>
Incorporated Cities/Towns (including City of Napa)	108,989	80%
Unincorporated	26,388	20%

Source: 2011 Census Bureau Updated Estimates

<b>2010 City of Napa Population by Household</b>		
<b>HOUSEHOLD TYPE</b>	<b>POPULATION</b>	<b>PERCENT</b>
Total Households	28,779	100%
Family Households	18,965	65.8%
Non-Family Households	9,814	34.1%
Individuals in Group Quarters	1,237	

Source: 2010 Census

<b>What the City of Napa Provides</b>	
Neighborhood Recreational Parks	35
Community Parks	4
City Wide Open Space Parks	4
Total Acres of Park Land	748 acres
Softball and Baseball Fields	13
18-Hole Municipal Golf Courses	1
Tennis Courts	48
Swimming Pools	4
State Parks	1
Community Centers	1
Senior Centers	1

<b>The Infrastructure of Napa City</b>	
Miles of Streets	219
City Street Lights	4780
Signalized Intersections	47
Miles of Water Mains	340
Water Treatment Plants	3
Miles of Storm Drainage	90
Average Water Consumption	15Million Gallons/Day
Water Tanks	14
Parking Garages	4

<b>Available Education and Day Care in Napa</b>	
Public Elementary Schools	16
Public Middle Schools	5
Public High Schools	4
Charter Schools	5
Student/Teacher Ratio	30:1
Expenditures Per Pupil	\$7,806
Private Elementary/Middle Schools	8
Private High Schools / Semester Programs	3
Accredited Day Care Facilities	11
Licensed Day Care Facilities	39
Percentage of Public School Students Continuing to College	70%
Percentage of Private School Students Continuing to College	90%
Colleges in Napa County	2
Colleges Within 50 miles of Napa	20

<b>2013 Napa Crime Rate (Annualized Per 100,000)</b>	
<b>CRIME</b>	<b>ANNUALIZED</b>
Robberies	47
Rapes	26
Homicides	2
Aggravated Assaults	180
Motor Vehicle Thefts	130

*Source: Napa Chamber of Commerce*

<b>2012 Unemployment</b>	
Napa Unemployment Rate: Average 2012	8.2%

*Source: State of California Employment Development Department*

<b>Health Care</b>	
Number of Hospitals	2
Number of Physicians	317
County's Citizens/Physician Ratio	399.3/1

<b>Elder Care</b>	
Skilled Nursing Facilities	8
Total Number of Beds	562

<b>Napa Media</b>	
<b>NAME</b>	<b>TYPE OF MEDIA</b>
Napa Valley Register	Newspaper
Weekly Calistogan	Newspaper
St. Helena Star	Newspaper
KVON/KVYN	Local AM/FM Radio Stations

**Tourism Information**

The tourism and the hospitality sectors area is a key component of the local economy which attracts an estimated 4.9 million in total person-days in Napa Valley a year. Tourism rates in terms of occupancy and TOT have rebounded since the recession began in 2008, and with the creation of the Napa Valley Tourism Improvement District (TID) in 2010, numbers continue to rise. In the City of Napa alone, lodging establishments have collected over \$45 million in TOT in the last four years, 2% of which goes to the local Napa TID to continue marketing and promotions. With 23 hotels/motels, 18 B&Bs, and 44 vacation rentals in the City of Napa, there are 2,375 rooms and over 93,000 square feet of conference and meeting space. New and expanding hotel projects are anticipated to continue as the economy improves, including two new hotels in the Downtown, and a new hotel at Century Center / South Napa Marketplace, near the new Century Theater. In 2012, Visit Napa Valley conducted a visitor profile study for the Napa Valley lodging and hospitality community; below are highlights of their findings:

- Annual Visitor Volume: 2.94 million visitors
- Visitor Days: 4.9 million total person-days, or 13,409 visitors on an average day
- Visitor Spending: \$1.4 billion in 2012, or \$355 per person/per day
- Visitor Spending by Hotel Guests: \$1.03 billion
- Group Meeting & Events Spending: \$187.7 million
- Spending by Visitors for Food and Restaurants: \$301 million
- Annual Visitor Spending per Napa County Resident: \$10,027

Jobs Supported by Hospitality Industry: 10,498  
Restaurants – 3,800  
Lodging – 3,006  
Retail Stores – 1,591  
Meeting-Related Services – 1,041  
Entertainment and Sightseeing – 756  
Local Transportation - 304  
Estimated Visitor Industry Payroll: \$300 million

*Napa Visitor Industry, 2012 Economic Impact Report, prepared by Destination Analysts*

**VISIT NAPA VALLEY 2012 VISITOR PROFILE**, Destination Analysts, June 2013 Report

<b>VISITOR VOLUME</b>	<b>TOTAL 2,962,535</b>
Day Trip Visitors	1,962,299 66.2%
Lodging Guests	875,650 29.6%
Visitors Staying with Friends & Relatives	124,585 4.25%

<b>AGE</b>	<b>PERCENT</b>
20-34	26.8%
35-44	19.0%
45-54	18.9%
55-64	20.3%
Over 65	9.1%

<b>ANNUAL HOUSEHOLD INCOME</b>	<b>AMOUNT IN DOLLARS</b>
Average Valley Lodging Guest	\$195,000
Average Napa Valley Day Trip Visitor	\$154,000
Average of Visitor Staying with Friends or Relatives	\$145,000

<b>EDUCATION LEVEL</b>	<b>PERCENT</b>
Some College	16%
Under-Graduate Degree	39%
Graduate Degree	33%

<b>POINT OF ORIGIN</b>	<b>PERCENT</b>
United States	92%
Canada	2.8%
United Kingdom	1.2%
Australia	1%
<b>Top States/Feeder Markets</b>	
California	58%
Texas	3.7%
Florida	2.9%
New York	2.5%
Illinois	2.1%

## **Napa Land Use**

### **Regional Setting**

The City of Napa is located along the Napa River in the southern portion of the Napa Valley, 52 miles northeast of San Francisco and 61 miles west of Sacramento. Most of the City is on relatively level ground, except the eastern and western edges which extend into brush and oak-covered foothills. The City's northern edge abuts agricultural lands, primarily vineyards. To the south lies agricultural and marsh lands and the Napa County Airport. Regional access to Napa is primarily via State Highways 12, 29, 121, 128, and 221.

The City of Napa straddles the Napa River and occupies the level valley floor between the Howell Mountains to the east and the Mayacamas to the west. Napa is the largest city in Napa County, with approximately 75,000 residents in 2009. The city is primarily residential in character with general commercial and tourist commercial areas located downtown and along major roadways. There is a corporate business park at the southeastern end of the City and two other light industrial areas. Community and neighborhood parks are located throughout the city, and larger city-wide recreational areas are found at city boundaries to the west and south.

### **Geographic Areas**

#### **City Limits**

As of 2009, Napa's city limits encompass about 18.1 square miles of incorporated territory. Within the boundaries of the city limits, there are several unincorporated islands which remain under County jurisdiction particularly in the Terrace Shurtleff and Pueblo planning area.

#### **Rural Urban Limit**

The planning boundary for the General Plan is the Rural Urban Limit (RUL), encompassing approximately 18.2 square miles. The RUL represents the city's planned ultimate boundary for urban development, based on a 1975 advisory measure since included in the City's General Plan. A 1999 Charter Amendment requires a vote of the people to change the RUL.

#### **Planning Areas**

The RUL is divided into 12 planning areas of generally related neighborhoods and commercial and industrial areas, for purposes of more localized planning. They include:

1. Linda Vista
2. Vintage
3. Browns Valley
4. Pueblo
7. Westwood
8. Central Napa
9. Soscol
10. Terrace/Shurtleff

- 5. Beard
- 6. Alta Heights

- 11. River East
- 12. Stanly Ranch

## City of Napa History

The original town site was laid out at the headwaters of the Napa River in 1848. River trade soon helped Napa City become a center of valley commerce. The city's population swelled from 159 in 1850 to nearly 3,500 in its first 30 years. Consumer goods from San Francisco were unloaded from river barges at the wharf located at the foot of Third Street. Agricultural products, timber from the valley's hills, and fine tanned leather were loaded for transport downriver.

By the turn of the century, Napa boasted several fine hotels and a beautiful opera house in its bustling downtown. Vineyards and orchards had been planted during the mid-nineteenth century and the area was well known for its fine wines and brandies.

Some of the original wineries are still in operation and have been joined by over 200 more. Today, Napa Valley's agricultural industry is more than simply a source of local employment. The wine industry has virtually become a local *raison d'être*; wine production and its most important spin-off industry, tourism, extend south to the City.

Following a long period of slow growth, the city grew rapidly between 1940 and 1950. Much of the growth was a result of war-industry-related operations in nearby Solano County and created the first signs that Napa was becoming a bedroom community within the San Francisco Bay Area.

Early plans envisioned a future in which the city of Napa would become a full-scale urban center. The City's 1969 General Plan forecast a population of 150,000 by 1990 with an extensive urbanized area and major transportation improvements. However, the 1969 General Plan was never realized. Portions of the plan, and the rapid growth it seemed to be promoting, alarmed many residents. Citizens mobilized and began calling for a new plan that would slow the city's growth rate. In 1973, the City Council placed questions on population growth on the ballot. The option with the least population increase (75,000) was selected by voters. The City Council adopted a new general plan in 1975. Consistent with the ballot measure, the plan projected a Year 2000 population of up to 75,000 and contained urban development within an urban growth boundary dubbed the Residential Urban Limit Line (RUL).

The 1975 General Plan expanded the RUL concept into a growth control mechanism. Urban uses were planned within the RUL. Napa County cooperated by requiring annexation of lands within the RUL before urbanization. During the 1970s, Napa County was also engaged in growth policy discussions. As a result of passage of voter-initiated Measure A, which went into effect in 1980, county lands outside the RUL were planned for resource use, agriculture, or very low density residential development.

In 1980 the city was developed at a typical suburban density of about four units per acre. The 1982 General Plan reasserted the importance of the downtown as the county's primary retail and government center. The Napa Town Center project was designed and

three downtown parking garages were constructed on cleared land. The building demolitions associated with redevelopment galvanized a local historic preservation movement, which has led to preservation of most “Old Town” buildings.

The Napa River became a focus for planning efforts after a disastrous flood in 1986. Public interest in flood control provided the impetus for the Army Corps of Engineers' Napa River Flood Control Project. Extensive community participation in the development of the Flood Project led to approval of an innovative “Living River” concept. A local sales tax measure to support this Project was approved in 1999, and construction of the Project is currently ongoing.

**Existing Land Use**

In 2003, the city was characterized as a low rise (one to two story building heights) community dominated by low density, detached single family housing in relatively distinct neighborhoods, with low intensity commercial uses along major arterials and generally one story industrial buildings. The following table provides generalized breakdowns of the land use categories by acreage in the early 1990’s.

<b>Existing Land Area in RUL –1992</b>		
General Land Use Categories	Acres	% of RUL
Residential	7,856	67%
Commercial	963	8%
Industrial	454	4%
Parks and Public Quasi-Public	1,343	12%
Undeveloped/Agricultural	1,037	9%
<b>Total</b>	<b>11,653</b>	<b>100%</b>

*Source: City of Napa Planning Department based on 1986 General Plan land use categories*

**Residential Development**

Napa includes a diverse housing stock. Of the City’s 30,232 homes in 2009, 60 percent were single family detached homes, 27 percent were multiple family rentals, 8 percent attached single family homes and another 5 percent mobile homes (California Department of Finance, January 1, 2009). The city’s housing stock ranges from the merchant mansions built in the late 1800’s in the “Old Town” area near downtown, to the working class cottages of the early 1900’s, to the traditional ranch style subdivisions of the 1950’s and 60’s to the large custom homes and subdivisions of the 1990’s. Subdivisions are typically developed at between 3-6 units per acre. Multi-family housing (occurring at about 9-40 units per acre) is found throughout the City, ranging from duplexes and triplexes, older homes which have been converted to multi-family use, small apartment complexes often in the City’s historic neighborhoods, and larger apartments and condominiums which tend to be concentrated along major streets.

Mobile home parks and a variety of residential care facilities are also located throughout the City.

### **Commercial Development**

While downtown functions as the City's commercial center, other general commercial and tourist commercial areas are located along major arterials, including Trancas Street, Soscol Avenue, Lincoln Avenue, Imola Avenue West and parts of Jefferson Street. These areas include several community shopping centers as well as older "strip commercial" buildings, and an auto row on Soscol Avenue. Most development is one story, but parts of Downtown have 2-5 story buildings.

### **Industrial Development**

Most industrial development in Napa is in the southern part of the city, in or near the Napa Valley Commons. Other concentrations of light industrial uses are found along California Blvd. and Industrial Way; in the vicinity of Jackson, Iroquois and Tannen Streets; in the Tannery Bend Area east of Coombs Street. An undeveloped area designated "Corporate Park" is located in the southwestern entrance to the city.

### **Park Lands**

City parks and recreation facilities are located throughout the city, with the larger citywide recreational areas found at the city boundaries to the west and south. Existing regional parks in the city include Alston, Kennedy, and Westwood Hills and Timber Hill, totaling approximately 630 total acres. Four community parks include Century Oaks, Fuller, Garfield, and Las Flores, totaling approximately 46 acres. Neighborhood parks comprise the balance of parkland within the city. The park system is augmented by the developing Napa River Trail which will provide an expanding major north-south bicycle pedestrian "spine" along the River, a new open oxbow open space preserve, and Trancas Crossing Park.

### **Vacant and Underused Lands**

Vacant land comprised nine percent of the city's RUL, according to a 1994 survey of vacant parcels, about half of which was considered generally developable. Usable acreage did not include environmentally sensitive areas or bodies of water since those areas were generally not considered suitable for development. This reduced the amount of vacant, usable land to less than five percent of the total RUL. The City has designated many of the environmentally constrained sites as "Resource Area", including steep hillsides in Browns Valley, Westwood and Alta Heights, and wetland areas on Stanly Ranch.

Overall, the City is largely urbanized, although land used for agricultural production is found to the south in the Stanly Ranch and in the Westwood Planning Area. Pockets of intensive agricultural use also remain in the Vintage, Beard, and Terrace Shurtleff.

In 2009, vacant usable low density residential acreage is concentrated in the Vintage Planning Area in north Napa, Westwood, and Terrace Shurtleff. Planning Area. Development in other Planning Areas will primarily be the result of infill and re-use over time. Increasing opportunities for development and redevelopment are along the Napa River, particularly in the Soscol Corridor, Downtown and Tannery Bend as the Napa River Flood Protection Project continues to be completed and added areas are re-mapped out of the floodplain.

## **City Land Use and Development Trends and Hazard Areas**

### **Overview**

Over the past 15 years, the City has averaged fewer than 300 residential units per year, and there is political and policy support for continuing this “even rate of growth” through 2020. In terms of types of residential development, the City anticipates more mixed use and infill housing as remaining vacant land tracts are used.

Development interest in the Downtown and in the Soscol Corridor have increased in recent years with the ongoing construction of the Flood Protection Project, and catalysts such as the former Copia development and the renovation and re-opening of the historic Opera House. New restaurants and retail shops are opening. Over the next 10 years, the City expects to see substantial reinvestment in these two areas, with residential mixed use projects and more 2-4 story developments. The City completed its Downtown Specific Plan in May 2012 to refine land use, circulation, design, infrastructure, and finance mechanisms for this area. As the City is largely built out, with limited remaining vacant lands within the RUL, and a City Charter provision that requires a vote of the people to change the RUL, new development in the future is likely to include greater reuse of existing sites in certain parts of the City, including in the Napa Pipe area south of the existing City limits.

The City and County have generally cooperated since the early 1980’s to ensure that urban development occurs within the City’s Rural Urban Limit. Between 2003 and 2014, the City of Napa and Napa County agreed to shift portions of the County’s regional housing need to the City and jointly decided to consider a proposal to redevelop a 150-acre vacant Napa Pipe property on the City’s south border to mixed-use housing, commercial, office and industrial use, to include a hotel, continuum care facility, and open space and trails.. That proposal has completed its environmental review and received County approval of a General Plan and Zoning Amendment; the site-specific development plans, design guidelines, form-based codes and an associated development agreement, and a Local Agency Formation Commission application for a Sphere of Influence expansion, extension of municipal water service to the site and a possible RUL expansion with voter approval required, are currently in preparation for future consideration before development of the site can occur.

Following is a general description of land use and development trends as they relate to various hazards.

## **Flooding**

The ongoing Napa Flood Protection Project's major improvements that have been completed to date include the South Wetlands Opportunity Area; a railroad realignment from Kennedy Park to Eight Street; completion of the Imola (Maxwell) Bridge, the Third and First Street Bridges over the Napa River and Napa Creek; replacement of the railroad bridge over the Napa River, floodplain terracing along the eastside of the Napa River from south of the City through to Third Street, the Napa Creek bypass culverts and terracing project through downtown and the Soscol Avenue/ Oxbow Bypass Bridge and sections of the Napa River Trail. These improvements have generally reduced flood levels in the lower reaches of the river and have filled several properties so that they are out of the floodplain. In 2007-08, FEMA requested that the Napa County Flood Control District document these changes as a result of improvements completed to date.

In mid-2008, the District submitted a Letter of Map Revision, or LOMR documenting the 100 year flood plain and floodway under these interim conditions. The interim conditions also incorporate new information from more recent flood events and local flood information. The updated map substantially takes other land out of the flood plain.

In September, 2008, FEMA agreed the submitted Letter of Map Revision is technically adequate. It has incorporated the revisions in its preliminary FIS report and DFIRM panels provided in June, 2009 beginning a community review time, followed by publication in the Federal Register and local newspapers for a 90-day appeal period. FEMA issued a Letter of Final Determination and the modified maps became effective on September 29, 2010.

In May, 2013 the Napa Creek portion of the Flood Protection project was complete and the corresponding Flood Insurance Rate Map (FIRM) 06055C0516F dated September 29, 2010 was revised by Letter of Map Revision (LOMR) Case No. 14-09-2231P dated 6/30/14

In remapped areas where land has been removed from the floodway and/or floodplain, which include parts of Downtown and the Soscol corridor, new development of currently vacant or underutilized lands is anticipated within the next decade depending on economic conditions. Within the next 5 years, potential development includes:

### **Downtown, including Oxbow**

Multi-story mixed residential office and commercial uses on seven or more sites, some of which until recently have been in the floodplain. Permitted densities in the Downtown currently range from 20-60 units per acre, while non-residential intensities are between 3.0 and 5.0 Floor Area Ratios (FAR) as provided in the 2012 Downtown Specific Plan. In the Oxbow District east of Soscol Avenue the former Copia Building and surrounding site will be master planned to include a mix of residential and commercial uses, and the Ritz property where a resort use was approved to include 351 rooms will be redesigned to possibly include the former JV Liquor site on the south side of First Street.

### **Tannery Bend South of Downtown and Imola, west side of the Napa River**

Multi-story mixed residential/office/commercial/light industrial uses in Tannery Bend on about 3 sites which are currently in the floodplain toward the south end of the area. Planned residential densities are 20-40 units per acre while nonresidential intensities are 0.4 FAR. In addition, the River Place Shopping Center is expected to be renovated, in part with retail and residential mixed use.

### **Soscol Corridor on the East side of the River**

In the Gasser Master Plan area is about 48 acres of developable vacant land proposed to include 380-500 homes at about 25 units/acre, offices and several commercial buildings, including in the South Gasser area adjacent to the new Century Theater. In addition to this area, 3-4 sites are expected to redevelop with commercial buildings and at least another 2 sites with multi-story residential/commercial/office mixed uses. Planned residential densities are 20-40 units per acre while nonresidential intensities are 0.4 FAR. The South Napa Crossings site on the northeast corner of Kansas and Soscol is already under development and is expected to be completed in 2014/15.

### **River Corridor north of Downtown**

Several smaller sites south of Lincoln Avenue may redevelop with commercial/office uses. North of Lincoln, 4 or 5 vacant or highly underutilized multi-family sites are planned to be developed at densities of 22-30 units/acre once flooding constraints are removed in the latter part of the planning period.

### **Other Areas**

A small amount of infill residential development (fewer than 30 units) at low densities (1-8 units/acre) may occur on other floodplain-designated lands throughout the city.

## **Seismic Hazards**

The City of Napa lies in a seismically active region; consequently, any development in the City is subject to a certain level of seismic risk and development regulations and practices reflect this fact. The City enforces strict building codes, requirements for geotechnical studies, and other requirements that must be complied within for any development in the City.

Portions of the City with the greatest earthquake shaking intensity (from the West Napa Fault) are found in a north-south band running along the western edge of the City and through Browns Valley where there is very limited residential development potential (an estimated 200 units) in the next 15 years on infill sites at low densities (up to 6 units/acre). Any sites with hillside slopes have even lower densities: generally 0-2 units/acre. Property zoned for corporate park use south of the existing city limits on Golden Gate Drive (with an FAR of 0.4) is also in the highest earthquake shaking intensity area. An area of the City with highest shaking risk, the 900 acre Stanly Ranch in the very southernmost part of the city, was re-designated in 2003 from "Study Area" to a "Resource Area" agricultural land use classification that allows wineries and extremely limited residential uses (up to 18 homes). In 2010 a General Plan Amendment was approved for a resort hotel on a portion of the Stanly Ranch property.

## **Wildland Interface Fire Hazards**

The wildland urban interface fire hazard areas shown on p. 111 of this Plan are found primarily on the City's hilly edges (Areas 1,2,3,4,5,6,7,8) where added residential development at very low densities (0-2 units/acre) is extremely limited (estimated fewer than 100 units). These areas have an increased threat of a wildfire or are have an increased impact to wildfire due to the vegetation, the terrain or topography, limited access or limited water supply.

## **Hazardous Materials**

Sources of hazardous materials in the City include 21 businesses ranging from major medical facilities and paint companies to PG&E. Hazardous materials are also found in agricultural facilities around the City. Major new sources of hazardous materials are not anticipated.

## **Dam Failure**

The dam failure map on page 95 shows potential inundation areas from various dams. Anticipated land use changes in areas affected by potential dam failure would be similar to that described in the flooding section.

## **Terrorism**

No planned land use changes are expected to increase vulnerability to terrorism hazards.

## SECTION 3: RISK ASSESSMENT

### Hazard Identification

#### **Explaining the Threat Analysis. Where does the rating come from?**

The planning process used the FEMA Hazus and other tools such as historical, predicted, and probable occurrences, statistical compilations, expert opinion and past documentation to evaluate all the possible threats faced. In some cases historical data were difficult to find. While the City has kept records for disasters that have occurred since the 1960's, detailed information prior to that has been sketchy. Information was researched from the local newspaper, searching the Internet and interviewing employees and citizens with knowledge of the City. An attempt was made to collect data for the past 100 years. This information was compiled and a graph created that depicts possible hazards the community faces and how often (frequency) and the impact of each of those hazards (severity). Through the threat analysis process the most probable threats, the most devastating threats and the most significant threats to the City of Napa were identified. The four most significant hazards faced are: floods, earthquakes, wildland interface fires, and terrorism and technological hazards. The values in the graph shown with the subsequent rating were obtained using the following variables.

#### Determining Frequency of Occurrence

##### Historic Ratings

- 0 = No occurrence in the last 100 years
- 1 = 1 occurrence in the last 100 years
- 2 = 2 occurrences in the last 100 years
- 3 = 3-10 occurrences in the last 100 years
- 4 = 11-25 occurrences in the last 100 years

##### Probability Ratings (in chances per year)

- 0 = less than 1 in 10,000
- 1 = 1 in 10,000
- 2 = 1 in 1,000
- 3 = 1 in 100
- 4 = 1 in 10
- 5 = greater than 1 in 10

Determining Severity Potential – a vulnerability rating in % of affected people and property including a worst-case scenario.

##### Vulnerability List Ratings

- 0 = 0%
- 1 = 1%
- 2 = 1 – 5%
- 3 = 6 – 10%
- 4 = 10 – 20%
- 5 = greater than 20%

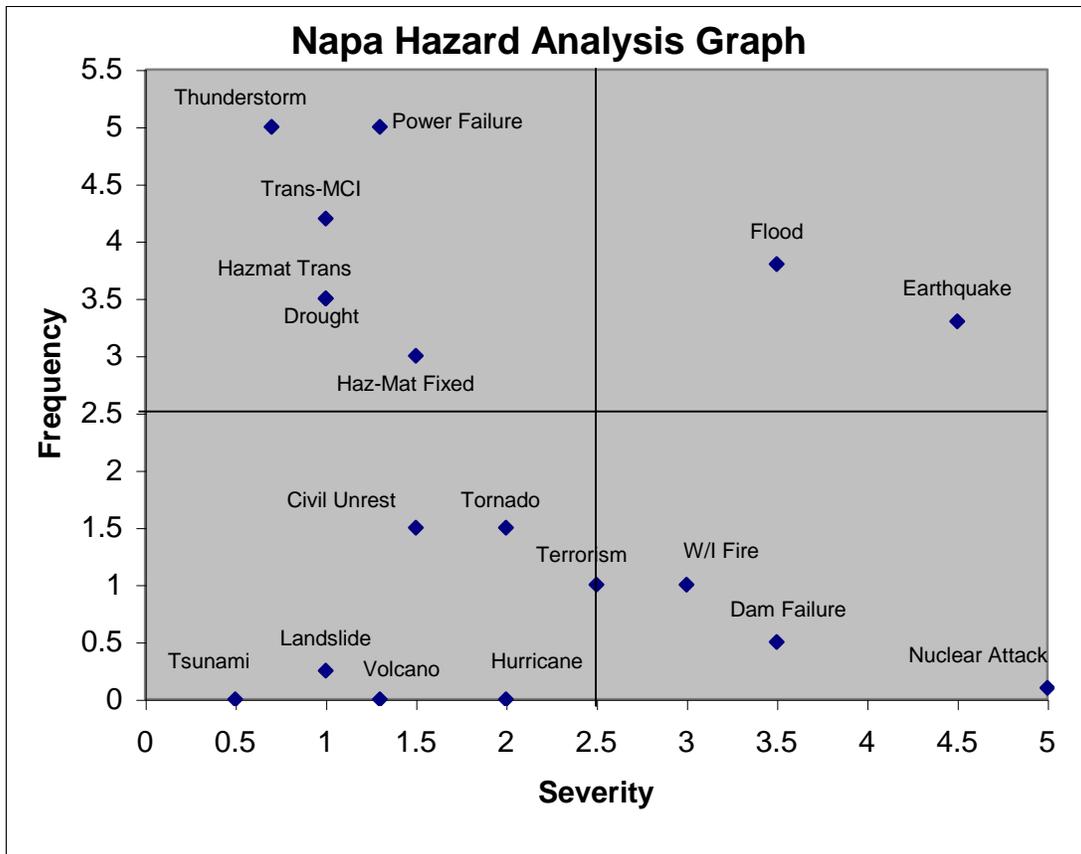
**Worst-Case Scenario Ratings**

- 0 = 0%
- 1 = 1 - 5%
- 2 = 6 – 10%
- 3 = 11 – 20%
- 4 = 21 – 40%
- = greater than 40%

The graph depicts the end result of a process that identified and analyzed specific anticipated hazards and the chances of future occurrences. In addition it shows the potential vulnerability to people and property. The hazards depicted in the lower right hand quadrant rarely if at all will occur, however if they did, they could affect many with high severity. An example is a hurricane or nuclear war. The bottom hazards should not be given much consideration. In contrast, the hazards listed in the right upper box reflect those that occur with the highest frequency and most severe causing the most damage to people and property. It is these hazards that the City must address.

<b>NAPA HAZARD ANALYSIS DATA</b>						
<b>Hazard</b>	<b>Frequency</b>			<b>Severity</b>		
	History	Probability	Rating	Vulnerability	Worst Case	Rating
Civil Unrest	1	2	1.5	1	2	1.5
Dam Failure	0	1	0.5	3	4	3.5
Drought	3	4	3.5	1	1	1
Earthquake	3	3.5	3.3	4	5	4.5
Fire-W/I Interface	0	2	1	2.5	3.5	3
Flood	4	3.5	3.8	4	3	3.5
Hazmat-Fixed Facility	3	3	3	1	2	1.5
Hazmat-Transportation	4	3	3.5	1	1	1
Hurricane	0	0	0	2	2	2
Landslide	0	0.5	0.25	1	1	1
Nuclear Attack	0	0.1	0.1	5	5	5
Power Failure	5	5	5	0.5	2	1.3
Terrorism	0	2	1	2	3	2.5
Tornado	2	1	1.5	2	2	2
Transportation-MCI	4	4.3	4.2	1	1	1
Tsunami	0	0	0	0	1	0.5
Thunderstorm	5	5	5	1	0.5	0.7
Volcano	0	0	0	0.5	2	1.3

Plotting the threats on a Cartesian plane gives a graphical view of the true magnitude, potential, probability and significance of the threats. The following graph demonstrates this analysis.



Mitigation of these significant hazards has the side benefit of appreciably enhancing the overall disaster resistance in the community from related threats. For example, the clearing of roads of intrusive vegetation eliminating a wildfire hazard will also speed the restoration of the road after an earthquake. The effect of mitigation actions carried out is recognized as a synergistic effect.

In the raw data as displayed, nuclear attack is, as it has been historically, the greatest potential threat. However planning for this threat is a matter of national security. It involves every level of government, and any planning that is being conducted will not appear in public documents due to its sensitive nature.

The following Section will explore the major hazards that the City of Napa currently faces.

## **Repetitive Losses for Each of Our Hazards**

### **Flood**

The City of Napa is the fifth most prone community in California in terms of flood damage payments from the Federal Emergency Management Agency. There are 2672 properties in the flood plain and more than 60 have made more than one flood damage claim to FEMA. The following map and chart catalogue these properties.

### **Fire**

The city has been fortunate to have not suffered a significant loss to date from wildfires in the urban setting; consequently there is not a case for repetitive losses. It should be noted however, that there is a significant potential as described in the fire hazard section for a devastating loss. It is the City's hope that through mitigation efforts outlined in this plan that the City can prevent these losses.

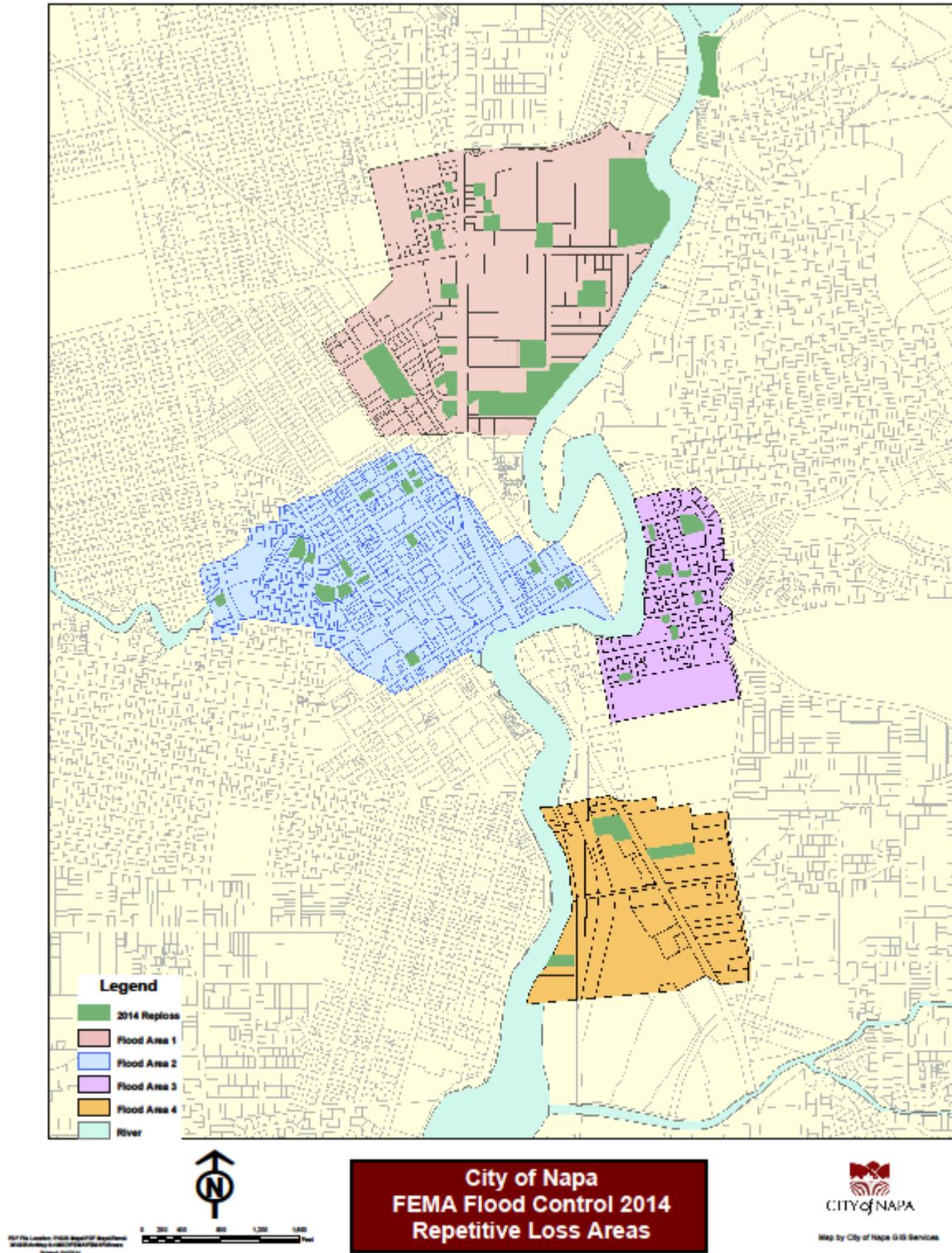
### **Earthquake**

The last significant earthquake in Napa was in September of 2000. The total damage for the City was approximately 65 million with 40 injuries and the City issued a total of 2,300 building permits to repair damage. The only other earthquake that caused significant damage was the 1906 earthquake that affected the entire greater Bay Area. There is limited official information that documents the damage.

### **Terror/Technology**

The City's greatest potential in this hazard is in regards to a release of hazardous materials. The City has been fortunate to have not suffered any significant losses due to hazardous materials releases. In addition the City has not experienced significant losses due to terrorism.

### Map Depicting Repetitive Losses due to Flooding



### Properties That Are Repetitive Losses

#### ADDRESS

1316	ARROYO	DR
1540	BEHRENS	ST
1323	BROWN	ST
706	CAROLINA	ST
927	CAYMUS	ST
645	FIRST	ST
605	FIRST	ST
419	FIRST	ST
301	FIRST	ST
600	FOURTH	ST
2027	IDA	ST
2022	IDA	ST
2010	IDA	ST
620	IMPERIAL	WAY
625	IMPERIAL	WAY
849	JACKSON	ST
1333	JEFFERSON	ST
1098	JORDAN	LN
1017	JUAREZ	ST
1015	JUAREZ	ST
1004	JUAREZ	ST
602	LINCOLN	AVE
500	LINCOLN	AVE
505	LINCOLN	AVE
1542	MAIN	ST
670	MAPLEWOOD	AVE
665	MAPLEWOOD	AVE
669	MAPLEWOOD	AVE
1031	MCKINSTRY	ST
904	NAPA	ST
880	NAPA	ST
510	NORTH BAY	DR
1537	SEMINARY	ST
1821	SILVERADO	TRL
1815	SILVERADO	TRL
1835	SOSCOL	AVE

1745	SOSCOL	AVE
583	SOSCOL	AVE
2134	SOSCOL	AVE
1710	SOSCOL	AVE
536	SOSCOL	AVE
222	SOSCOL	AVE
1746	TANEN	ST
1701	TANEN	ST
431	TAYLOR	ST
390	TAYLOR	ST
1038	VALLEJO	ST
900	VALLEJO	ST
1546	YAJOME	ST

## **Flood Hazard**

Flooding in the Napa Valley results from heavy rainfall and drainage into the Napa River, mainly from December through March, and can result in major damage to urban areas and farmlands. Historically, more than ten damaging valley floods have occurred since 1940, with damage to commercial, industrial, residential, and agricultural areas. Utilities, roads, bridges, and streets also are subject to damage and require repair and clean up. Since the early 1960's Napa County residents and businesses have suffered over \$500 million in property damages.

## **Regional Setting**

Napa County is located in the Central Coast Range of northern California. The major surface hydrologic feature of this area is the Napa River, which flows from Mount St. Helena to San Pablo Bay. The river runs approximately 40 miles in length through mountains, vineyards, pastures, urban and industrial development, and marshlands. All but the southern 3.4 miles of the river lie in Napa County.

In 1950, the U.S. Army Corps of Engineers (COE) completed a navigation channel, making the river navigable from San Pablo Bay to Third Street in Downtown Napa. The natural siltation process necessitates periodic dredging of the lower reaches of the river in the navigation channel. Since completion of the channel in 1950, the COE has dredged the river more than four times.

## **Napa River Watershed**

The Napa River drains a watershed encompassing approximately 426 square miles. Eight tributaries feed the Napa River, with five of these tributaries (Napa Creek, Redwood Creek, Browns Valley Creek, Camille Creek, Tulocay Creek and Salvador Creek) lying in the City of Napa. The most significant of these tributaries is Napa Creek, which drains approximately 15 square miles of watershed before merging with the Napa River at the First Street Bridge.

## **Tidal Influence**

Within the City of Napa, the Napa River can be characterized as a tidal influenced estuarine system. Upstream of Trancas Street, the Napa River is largely freshwater. As the river proceeds through the city, the water quality transitions to a brackish marsh. Tidal influences on the river affect both discharges to San Pablo Bay and water surface elevations extending upstream approximately 0.5 mile north of the City.

## **Stream Flows**

Stream flows within the Napa River vary significantly from season to season and from year to year depending upon total rainfall. The average annual rainfall in the City of Napa is 24 inches (based on data recorded from 1877 to 1980), with total rainfall varying between 10 and 48 inches per year. Snowfall is rare within Napa County, and snowmelt does not contribute significantly to total runoff or streamflows. Prior to the

start of the Flood Project construction, the “normal” Napa River channel capacity through the City of Napa was 12,000 cubic feet per second (cfs), although this varied throughout the length of the river depending on vegetation and debris, tidal conditions, and sediment deposits. The channel capacity has been increased significantly downstream of Oxbow due to Flood Project improvements. Once the Flood Project is constructed, the channel will be able to carry 37,000 to 44,000. The highest streamflows occur from December to March, while the lowest flows occur in the summer and early fall. During dry years, the river recharges the groundwater in the upper reaches of the river, resulting in intermittent streamflow in the upper and middle reaches. The groundwater discharges to the river farther downstream, maintain streamflows in the lower reaches of the Napa River throughout the year.

### **History of Flooding in the Napa River Basin**

Flooding occurs in the Napa Valley due to heavy rainfall, which occurs predominantly from December through March resulting in major damage to urban areas and farmland. Streamflow of flood-producing magnitude is the result of precipitation over the entire river basin for a period in excess of 12 hours. After the periods of most intense rainfall, maximum river stages and discharges in the City can be expected from 13 to 14 hours later. Streamflow in the southern part of the Napa River is also affected by tide conditions, which can affect the River as far upstream as Trancas Street.

Flood events in Napa have been recorded since 1892. Historically, the most significant flood events occurred in 1940, 1942, 1955, 1960, 1963, 1965, 1967, 1973, 1979, 1982, 1983, 1986, 1995, 1997, 1998, 2002 and 2005/2006. Major floods have resulted in damage to commercial, industrial, residential, and agricultural areas. Utilities, roads, bridges, and streets also are subject to damage and require repair and clean up after a flood event. Flooding causes business slow down or stoppage, wage loss, and interruptions to traffic and the flow of goods. Flooding also has significant effects on human life and health (both physical and mental). The 1986 flood, which was the result of a 35 to 50-year storm, inundated most of the land adjacent to the Napa River and caused \$100 million (1986 dollars) in property damage, killed 3 people, injured 27 people, destroyed 250 homes, and damaged 2,500 residences county-wide.

Flooding in the City has occurred when the Napa River’s flow at Oak Knoll Avenue (just north of the City limits) exceeded about 15,000 cubic feet per second. Some areas (typically agricultural land) remain flooded for several weeks due to inadequate drainage, but one to three days under water is more typical. Flood hazard conditions can exist along the entire length of the Napa River as it flows through the City as well as along the course of several tributary creeks. The portions of the Flood Project that have been constructed to date have increased the channel capacity and reduced the flood risk. However, the Flood Project components were designed to operate as a system and the full Project must be completed for the channel and levee system to have adequate capacity to carry the 100-year (0.01% chance occurrence) flood flows.

In particular, Napa Creek floodwaters have had a major impact on the City’s core. For example, during the 1986 flood, Napa Creek overflowed on the south side of its banks, flooding areas along Coombs Street and the parkway Plaza Mall as the floodwaters

coursed through the downtown, a replay of the February 1942 flood. However, with the completion of the Napa Creek Flood Protection Project this threat should be significantly reduced or eliminated depending on the size of the storm event. The project was designed to handle a 100-year storm event. Two other main tributaries, Milliken and Tulocay Creeks, add to the Napa River’s flood flows within the City, but do not themselves cause significant flooding in the heavily developed parts of the city.

**Floodplain and Floodway**

The 100-year floodplain boundary defines the geographic area having a 1 percent chance of being in a flood in any given year. The boundary of the 100-year floodplain is typically used as the basic planning criterion to demarcate areas of unacceptable public safety hazards. Outside the floodplain boundary, the degree of flooding risk is not considered sufficient to justify the imposition of floodplain management regulations, while inside the 100-year floodplain, some level of regulation is desired to protect public health, safety, and welfare.

The 100-year floodplain is divided into a floodway and floodway fringe. The floodway is defined as the channel of a stream, plus any adjacent floodplain areas that must be kept free of development so that a 100-year flood can be carried away without substantial increases in flood heights. (FEMA defines “substantial increase” as 1.0 foot above the normal 100-year flood elevation.) The area between the floodway and the boundary of the 100-year floodplain is known as the floodway fringe. This portion of the floodplain could be used for development, as fill within this area will not increase the surface elevation of the 100-year flood more than 1.0 foot at any point.

<b>Relationship of Flood Water Depth to Property Damage</b>		
<b>Depth (feet)</b>	<b>Percent of Damage to Structure</b>	<b>Percent of Damage to Contents</b>
1	8	0
2	26	35
3	45	60
4	60	70
5	70	75
6	80	80
7	85	90
8	100	100
9	100	100

*Source: U.S. Army Corps of Engineers 1989*

## Flood Damage Statistics

In 1986, flooding along the Napa River reached the 35 to 50-year frequency level, or approximately 2-3% chance of occurrence per year. Twenty (20) inches of rain fell on Atlas Peak in two days. Thirty (30) inches of rain fell over ten days in Calistoga. Throughout Napa County there were three deaths, 27 injuries, 250 destroyed homes, 2,500 damaged residences and over \$100 million in damage. There was also an unknown amount of un-reimbursed damages such as reduced tourism, personal hardships, and delayed public projects.

Between 1961 and 1997, flooding has caused \$587 million (dollars unadjusted for time) of property damage in Napa County. Since 1862, twenty-eight major floods have struck the Napa Valley. Major flood events occurred in 1940, 1942, 1955, 1960, 1963, 1965, 1967, 1973, 1979, 1982, 1983, 1986, 1993, 1995 and 1997, 1998, 2002 and 2005/2006.

In January and March of 1995, the City of Napa was flooded by two 10-year frequency floods, which have a 10% chance of occurrence every year and a 65% chance of occurrence every decade. The City of Napa requested \$8 million to pay for damage to City property. FEMA also paid individual property owners separately.

If someone lives in Napa for thirty years, they have a 26% chance of seeing a 100-year flood which would probably last several days and flood the City from Silverado Trail to Soscol Avenue in the north half of the City and from Silverado Trail to Coombs Street in the south half of the City.

During a 100-year flood, more than 325,000 gallons of floodwater per second would flow through the City of Napa, or five times the volume of Lake Hennessey, over the span of the flood. More than 3,500 people and 2 million square feet of business and office space would be inundated. Between 1989 and 1994, the President of the United States declared 291 federal disasters and 80% was flood related. Floods cause an average of \$4 billion in property damage a year.

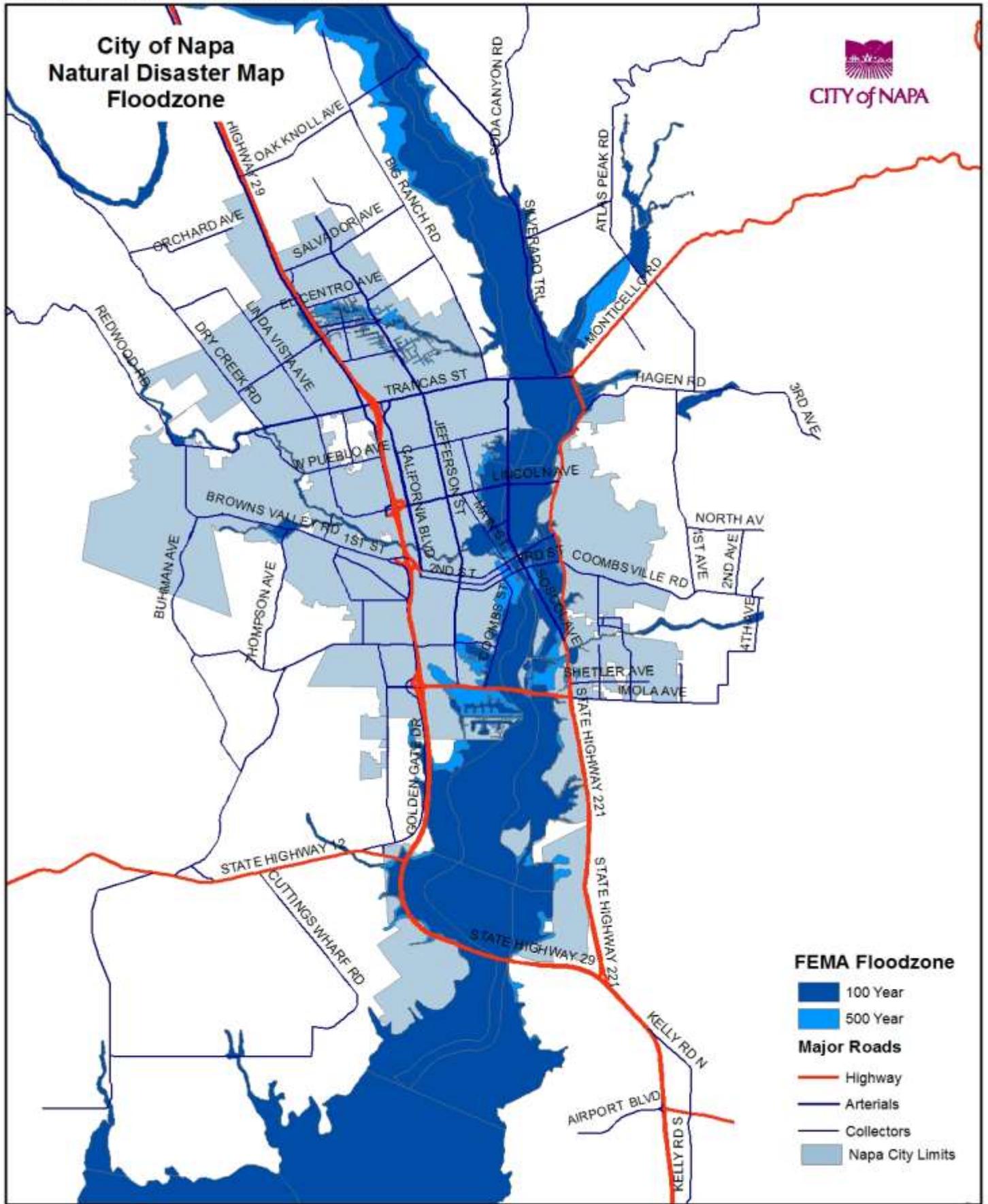
Six inches of fast moving floodwater can knock a person off their feet. Water moving at six feet per second or four miles per hour and only one foot deep has a drag force of 63 pounds on a person. Two feet of fast moving floodwater can float a car down the river. The ground under the floodwaters is usually covered with mud, so it is slippery, which makes it even harder to resist the drag force of the moving water.

To reduce flood damages and insurance rates, the City participates in the National Flood Insurance Program, acquired and elevated homes with FEMA Hazard Mitigation Grant Funds, participated in the design of the Napa River/Napa Creek Flood Reduction Project, created an Emergency Plan, constructed drainage system improvement projects, and monitors rainfall and stream level gauges to give more flood preparation time. The City has the "Citizen's Guide to Flooding and Flood Recovery" available and provides free sandbags and sand on the first Saturday of November through March.

## **Flood Hazard Area**

As part of the National Flood Insurance Program, the Federal Emergency Management Agency (FEMA) issues Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies (FIS) of Special Flood hazard Areas to determine insurance rates and to assist local communities in developing sound floodplain management policies. On September 5, 1979, FEMA issued the first FIRM and FIS to establish local flood insurance rates and promote sound floodplain and floodway management. The FIRM showed the flood hazard area (the area inundated by a 100-year flood), the floodway, the floodplain, and other flood-related information. This map was revised in 1988 to include data from the 1986 flood and was made available with a Flood Insurance Study publication explaining the floodway concept. New Digital Flood Insurance Rate Maps were issued and became effective September 26, 2008. The process to revise the Flood Insurance Rate Maps began again in August of 2009 and the revised maps became effective September 29, 2010. The current maps include the improvements of the Napa River Flood Protection Project that have been completed up to Third Street and a newly mapped floodplain for Salvador Creek. The FIRM for the Napa Creek floodplain/floodway has been updated as a result of the Flood Project improvements completed for this area. The city of Napa continues to participate in the National Flood Insurance Program and maintains a Class 6 CRS Rating. All new development in the Special Flood Hazard Area is subject to compliance with the City of Napa Municipal Code Section 17.38. Appendix J. The most recent CRS verification visit was conducted by the City of Napa Floodplain Manager, Karen Harnois and ISO\CRS Specialist, Gina Gabriel on November 18, 2014. CC-230 Verification Form, Appendix K.

The floodway and floodplain boundaries are shown on the following page.  
(Page 57)



## **Flood Losses and Methodology Used to Determine Amounts**

The following graph provides a variety of statistics on the documented floods in Napa's past. They include: severity, water levels, and chance of occurrence and dollar losses. Dollar losses are difficult to accurately determine and are usually estimated on the lower scale due to the difficulty in obtaining information. The figures shown are from FEMA and reflect the amounts paid to property owners from individual assistance, public assistance and monies not reimbursed. Not included are the losses sustained by those who did not have insurance and who did not report the damage. FEMA has paid out a total of \$8.5 million in flood damage since 1979. There have been 10 different flood years since 1979 giving an average of \$850,000 per flood. Each flood caused different amounts of damage due to differing water levels, subsequently causing a different dollar amount. There are approximately 3010 residential units and 704 commercial structures in the 100 year flood zone. While the risk of flooding continues to occur the potential damage that will occur continues to decrease each year due to the flood control project. Projects such as home elevations, rebuilding infrastructure such as the City's bridges, ordinances requiring property owners to remodel or build new structures meeting updated standards all lessen potential damage to the City.

## City of Napa Record of Historic Floods

DATE	FLOOD FREQUENCY IN NAPA (YEAR)	CHANCE OF OCCURRENCE (%/YEAR)	DAYS OF RAIN	TOTAL RAIN AT CONN & MILLIKEN (INCHES)	DAILY RAINFALL AT DAMS (INCHES)	PEAK STAGE AT LINCOLN AVE. (FEET)	PEAK STAGE AT THIRD ST. (FEET)	COST (IN \$ MILLIONS)	PEAK FLOW RATE AT OAK KNOLL (CFS)	PEAK STAGE AT OAK KNOLL (FEET)
12/31/1996	1.1 - 1.5	66 - 91	2	3.6 & 4.4	1.7 & 2.1	Local (11.8)	?	0	10,376	20.51
11/21/1977	1.1 - 1.5	66 - 91	2	5.0 & 8.0	3.5 & 6.6	Creeks(<18)	?	?	< 4,700	<13.0
3/12/1983	1.1 - 1.5	66 - 91	2	3.0 & 4.5	2.6 & 4.5	Creeks(<18)	?	?	17,100	23.4
1/20/1993	1.1 - 1.5	66 - 91	3	4.4. & 5.1	1.9 & 2.5	Creeks (16.5)	?	(0.15)	19,300	24.7
1/22/1997	1.1 - 1.5	66 - 91	3	4.5 & 4.6	3.2 & 3.8	Creeks (16.9)	?	(0.3)	19,089	24.60
1/5/1965	1.5 - 2	50 - 66	4	4.9 & 5.1	2.5 & 2.1	Creeks (18.3)	9	?	18,100	25.1 to 25.9
12/16/2002	1.5 - 2	50 - 66	4	10.2 & 6.5	4.3 & 2.1	Creeks (18.2)	?	1.0	18,400	26.47
1/31/1963	1.5 - 2	50 - 66	3	7.9 & ?	3.0 & ?	19.8 to 20.5	13	0.5	25,000	27.59
2/3/1998	2 - 5	20 - 50	3	5.9 & 5.7	4.8 & 4.3	20.2	12.5	(0.3)	21,000	26.72
1/9/1995	2 - 5	20 - 50	4	11.9 & 8.0	5.5 & 3.7	20.5	?	5.5 (2)	22,000	26.8
12/22/1955	2 - 5	20 - 50	5	16 & ?	4.8 & ?	20.6	13.7	1?	25,000?	27.5 to 28.2
1/1/1997	5 - 10	10 - 20	3	7.6 & 9.1	4.0 & 4.7	21.4	13.5	3.5 (1.5 )	26,722	28.07
2/27/1940	10 - 25	4 - 10	3	10 & ?	5.6 & ?	22.3	15.4	0.15	26,400 ?	28 ?
1/21/1967	10 - 25	4 - 10	3	6.8 & 5.8	4.0 & 3.3	22.7 to 23.2	13.6	?	21,400	26.47
3/9/1995	10 - 25	4 - 10	2	7.6 & 6.1	4.4 & 3.8	22.8	<18	10.5 (6)	32,600	30.50
12/31/05	25- 50	2- 4	2	6.6 & 8.9	6.4 & 8.7	23.04	<15	47(4)	29,400	29.85
2/17&18/86	50	2	7	14.2 & 16.5	3.6 & 4.9	24.2	17.9	50 (1.5)	37,100	30.20
?	100	1	?	?	?	25.0	19	140?	48,500	32.0
?	500	0.2	?	?	?	27.5	21.5	150?	50,300?	33.0 ?

NOTE: The Napa River flooded in Napa to unknown depths in 2/24/1902, 3/18/1907, 12/31/1913, 1/3/1916, 2/12/1925, 2/6/1942, 2/24/1958, and 1/16/1973.

The Napa River flooded in Napa with depths at Oak Knoll of 23.10 on 2/8/1960, 21.54 on 1/16/1978, 25.65 on 1/4/1982, and 24.73 on 3/1/1983

CFS = Cubic Feet Per Second = 450 gallons per minute. 37,000 CFS = 16.6 million gallons per minute. Lake Hennessey has a volume of 31,000 acre feet or 10 billion gallons of water.

Costs are only what FEMA and OES were asked to pay (in the year of the flood dollars) and does not include intangible costs. Costs in ( ) exclude private property losses in City.

Time from the peak stage at Oak Knoll to Lincoln Avenue is 1 to 3 hours. Time from peak rainfall up-valley to peak flood at Lincoln is 13 to 15 hours.

The maximum recorded 24-hour rainfall for the Napa Valley was 15.3 inches on Atlas Peak on February 17, 1986 where the mean annual rainfall is 32 inches.

Localized street flooding and Creek flash floods are more dependent on the location, duration and intensity of the storm. Three inches in six hours will usually cause flooding.

Stage elevations are in 1929 National Geodetic Vertical Datum.

Prepared by: Graham Wadsworth, Department of Public Works, Bridge and Urban Drainage Division.

G:PUBWKS/BUD/GRAHAM/STORMWATCH/STORM2.DOC

Revised 10/18/06

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## **Napa River Flood Management Project**

The Federal Government first became involved with the Napa River in 1938 when “preliminary examinations and surveys” were authorized by the Secretary of War. Six years later, House Document 626 of the 78th Congress was released. The report recommended channel improvements for reaches of the Napa River and Conn Creek and construction of a dam to create a 37,000 acre-foot flood damage reduction and water conservation reservoir on Conn Creek. Although these features were authorized by the Flood Control Act of 1944, Congress never appropriated construction funds. So, during 1948, the City of Napa built a dam on Conn Creek to establish a 31,000 acre-foot water conservation reservoir.

The flood of 1955 compelled the Committee on Public Works of the House of Representatives to request the Board of Rivers and Harbors “to review reports on Napa River and its tributaries” and “determine the need for modification of the recommendations in such reports and the advisability of adopting further improvements for flood control and allied purposes in view of the heavy damages caused by recent floods.” The Committee’s request was fulfilled in 1963 by the “Review Report for Flood Control and Allied Purposes” which recommends that previously authorized flood control improvements above Soscol Avenue in Napa, California, be rescinded and that the Federal Government should “adopt a project in the basin below Trancas Street for flood control and recreation purposes.”

Construction of flood protection measures along the Napa River was authorized by the Flood Control Act of 1965 (Public Law 89-298). Recreation features were included as an allied purpose in the authorizing document, House Document 222, 89<sup>th</sup> Cong., 1<sup>st</sup> Sess. and is also an authorized purpose for this Project. Napa Creek was added to the Project authorization by the Flood Control Act of 1976, (Public Law 94-587).

Three years passed before funding for “Advanced Engineering and Design (FY67)” was provided, and in September of 1975, a General Design Memorandum (GDM) and an Environmental Impact Statement (EIS) were completed. The 1975 plan included recreation features that were requested by the Napa County Flood Control and Water Conservation District (NCFCWCD). The 1975 plan was opposed by voters by referendum election in 1976 and again in 1977. After its second defeat, the Project was placed on inactive status at the request of the Napa County Flood Control District.

The devastating flood of February 1986 revived public interest in flood damage reduction. Subsequently, in letters dated February 9, 1987 and April 9, 1987, the Napa County Flood Control District requested the Project be reactivated. The Project was reactivated in October 1988 and Preconstruction, Engineering and Design (PED) activities were initiated. This effort led to preparation of an initial draft Supplemental General Design Memorandum (SGDM) and its accompanying draft Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR). The plan in those documents was a levee and channel modification project which optimized at the 100-year flood level. These documents underwent public review in April 1995 and received numerous comments. The major concerns expressed in those comments dealt with salinity intrusion due to channel deepening, degradation of water quality in the

river oxbow due to construction of a "wet" bypass channel, and disposal of contaminated dredge material. Because of these concerns, resource agencies and several local groups requested modifications to the plan. The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), which must provide a Section 401 Water Quality Certification, stated, "Without major improvements in the Project and Draft SEIS/EIR as currently submitted, approval of this project will be difficult."

In response to public concern about the project's design, visual impacts, loss of recreational opportunities, and other environmental impacts, the Corps' flood control project's executive committee agreed to investigate a "Two Track Design Concept." Track 1, the primary track proposed that the Corps revise the construction plans and respond to the concerns raised during public review of the DEIR. Track 2 proposed the establishment of a Technical Design Committee to study alternatives such as watershed management, dams, alternatives to flood walls, and opportunities for river restoration under the guidance of a Community Coalition, which would formulate a community consensus of alternatives to the Corps' flood control project design.

By June 1996, the Community Coalition completed a lengthy set of workshops and public meetings, and proposed a plan for both flood protection and watershed management. Key features included: 1) land acquisition for river widening; 2) business and home relocation assistance; 3) recreational facilities and open space; 4) toxic cleanup; 5) an Oxbow "dry bypass;" 6) utility relocations and pumping plants; 7) levee and floodwall construction; and 8) bridge improvements.

In December 1997, using the Community Coalition's conceptual plan for a "Flood Management Project", the Corps reissued a General Design Memorandum (GDM) and Supplemental Environmental Impact Statement/Report (SEIS/SEIR). In March 1998, a ½-cent sales tax ballot initiative passed by a 68% vote, allowing the District to provide the required 50% local share of funding to implement the project.

The project has been named the "Napa River/Napa Creek Flood Protection Plan". The project design covers a 6.9-mile stretch of the Napa River, primarily in the City of Napa. It is comprised of four basic components: the widening of the river channel through the creation of both marsh plain and flood plain terraces; the replacement of a series of bridges; the creation of a "dry-bypass" overflow channel in downtown Napa, and the use of a series of floodwalls and levees where necessary. Approximately 300 parcels will be acquired and 109 buildings will be removed in order to facilitate the project design. Construction began in 2000, and will be complete sometime around 2019, dependent on federal funding allocations.

## Flood Hazard Areas Inventory

The table below is based on the 2012 Census information & the City of Napa’s GIS information as of June 25, 2014.

FLOOD HAZARD AREAS INVENTORY					
	PERMANENT POPULATION	YEAR-ROUND	1-4 STRUCTURES	FAMILY	ALL OTHER STRUCTURES INCLUDING COMMERCIAL
ENTIRE COMMUNITY	78,340		-		-
FLOOD HAZARD AREAS	17,497		3010		704

### Methodology Used to Determine Inventory

The total number of structures in the flood zone was determined by using the roof line layer within the boundary of the flood zone.

The analysis determined how many residential and commercial buildings are in the City of Napa Floodplain using the following steps:

1. The City\_FEMA\_Fldzn GIS shape file was overlaid with the GIS layer of building outlines then queried for any buildings that intersected the City\_FEMA\_Fldzn. The results of this query were put into a new GIS layer called Buildings in Flood zone.
2. The data from the GEO\_Ownership table was then joined with the City’s SQL database to the Parcels layer in order to determine the zoning for each parcel. The ownership table is the data that is entered in the City’s Trak-it database system.
3. The parcel and zoning code data was then joined to the buildings in the Buildings in Flood zone shape file.
4. The resulting shape file from step 3 was then queried for the number of buildings with a commercial zoning code and the number of buildings with a residential zoning code. These zoning codes are shown in the Zoning Codes spreadsheet.

Below are the results:

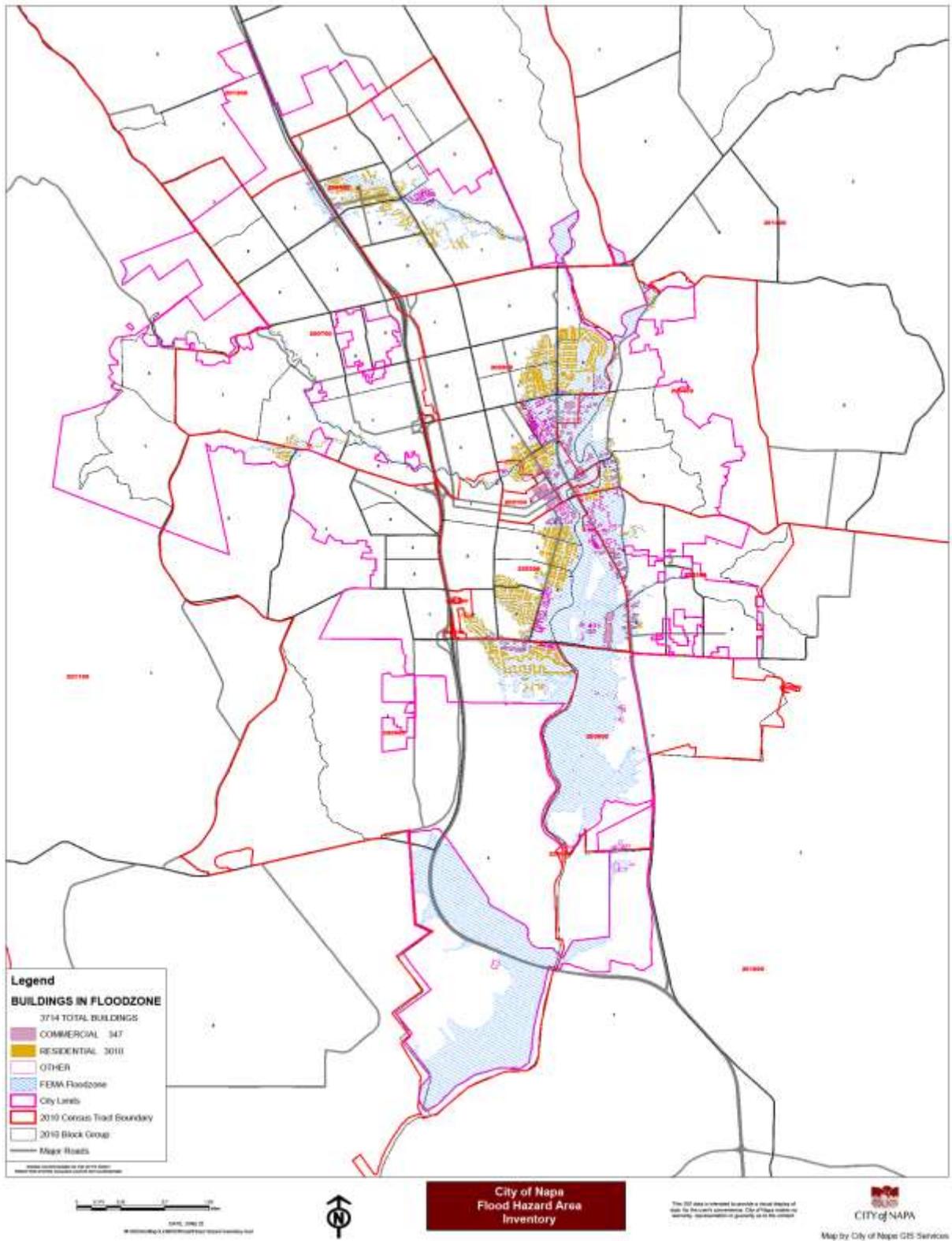
Total buildings in Floodplain	3,714 buildings
Total residential buildings in Floodplain	3,010
Total commercial/other buildings in Floodplain	704

Zoning Code	definition
AR	Agricultural Resource
CC	Community Commercial
CL	Local Commercial
CT	Tourist Commercial

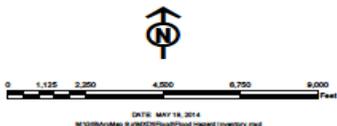
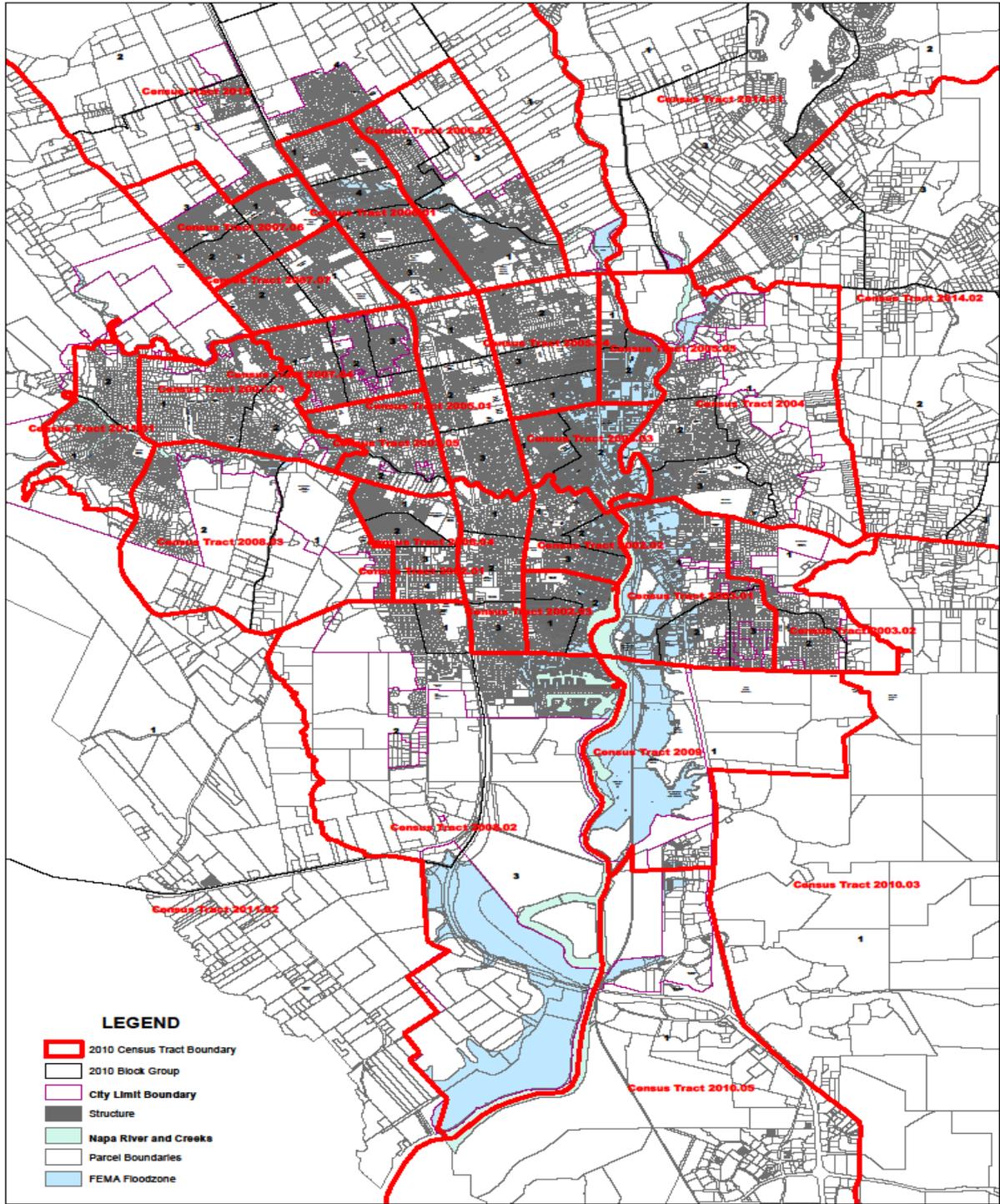
DCC	Downtown Core Commercial
DMU	Downtown Mixed Use Commercial
DN	Downtown Commercial
DP	Downtown Public
DPOS	Downtown Parks and Open Space
IL	Light Industrial
IP-A	Industrial Park - Area A
IP-B	Industrial Park - Area B
IP-C	Industrial Park - Area C
MP	Master Plan
MP-G1	South River Place
MP-G2	Creekside
MP-G3	Tulocay Place
MP-G4	Tulocay Village
MP-S	Stanly Ranch Resort
MU-G	Gateway Mixed Use
MU-T	Tannery Bend Mixed Use
OBC	Oxbow Commercial
OC	Commercial Office
OM	Medical Office
POS	Park and Open Space
PQ	Public-Quasi Public Schools and Health Facilities
PQ-P	Public-Quasi Public
RI 10	Single-Family Infill, Minimum lot size 10,000 sq. ft.
RI 4	Single-Family Infill, Minimum lot size 4,000 sq. ft.
RI 5	Single-Family Infill, Minimum lot size 5,000 sq. ft.
RI 7	Single-Family Infill, Minimum lot size 7,000 sq. ft.
RM	Multi-Family Residential
RO	Residential Office
RS 10	Single-Family Residential, Minimum lot size 10,000 sq. ft.
RS 20	Single-Family Residential, Minimum lot size 20,000 sq. ft.
RS 4	Single-Family Residential, Minimum lot size 4,000 sq. ft.
RS 40	Single-Family Residential, Minimum lot size 40,000 sq. ft.
RS 5	Single-Family Residential, Minimum lot size 5,000 sq. ft.
RS 7	Single-Family Residential, Minimum lot

	size 7,000 sq. ft.
RT 4	Traditional Residential Infill, Minimum lot size 4,000 sq. ft.
RT 5	Traditional Residential Infill, Minimum lot size 5,000 sq. ft.

See City of Napa Flood Hazard Inventory Map dated June 25, 2014 below:



The 2010 Census Tract layer is shown on the map below.



### City of Napa Flood Hazard Area Inventory

## **Hazard Mitigation Activities since 1995 Flood**

There have been 20 floods in Napa County over the past 56 years, and the County has suffered over \$550 million in damages between 1960 and 2006. The city of Napa is the fifth most flood prone community among about 500 communities in California. In 1998, two thirds of Napa County voters passed a half-cent sales tax to fund flood protection in each community in Napa County. Hazard mitigation funds have been an important component toward achieving flood protection in Napa County.

The City of Napa, County of Napa, and Town of Yountville have received several FEMA Hazard Mitigation Grants, FEMA flood Mitigation Grants and NRCS Emergency Watershed Protection Program Grants. The largest Hazard Mitigation project has been the Napa River Flood Management Plan, which is funded by a Napa County half-cent sales tax and U.S. Army Corps of Engineers funding. The projects are broken down by jurisdiction below.

### **Prior Mitigation Efforts by Napa County**

#### **Napa River Flood Management Plan**

Subsequent to a significant flood in 1986, local officials throughout Napa County began efforts to reactivate previous failed flood control efforts in conjunction with the U.S. Army Corps of Engineers. (There were two failed elections during the mid-1970s.) By 1995, this resulted in a design released by the corps that was ultimately rejected by the local communities due to its adverse environmental impacts.

The Corps then agreed to participate in a newly-established "Community Coalition for Flood Management" of 400 people and 24 agencies to redesign the project in such a way that it would provide both 100-year flood protection to the city of Napa as well as environmental benefits. Over a 2-year period, this broad-based process resulted in a new design that would essentially widen the river channel rather than deepen it, along with several other significant changes.

In 1997, the Napa County Flood Control and Water Conservation District (District) and the Corps jointly prepared several documents that would be used to define and describe the project including an Environmental Impact Report/Statement (EIR/EIS) and the "Citizen's Guide to the Napa River / Napa Creek Flood Protection Project." The latter was primarily intended as a simplified description of the Napa Flood Project and its impacts for the general public, since the public was going to vote on a proposed ½-cent sales tax which was required to provide the local share (50%) of the project cost, with the remainder to be paid for by the Federal government.

These documents were released in late 1997 and early 1998 in anticipation of this election on March 3, 1998. However, since the primary project being funded by the sales tax was for the benefit of the City of Napa – but a countywide vote was necessary – an agreement was executed with all of the cities in the County that provided proportional return to source of the sales tax revenue to each of the cities, along with proposed flood control projects in each of the jurisdictions. Due to financing requirements and the sheer

size and cost of the Napa project, it was necessary for the other cities to defer their own projects for several years, although Yountville's (mobile home park flood wall) has been completed and St. Helena's is getting underway, after multiple years of design and litigation. A total of more than \$2.3 million of local sales tax revenues has already been expended on these two projects.



The required 2/3 majority was accomplished, thereby signifying the broad-based support for this project throughout the County. The Napa Flood Project cost-sharing arrangement provided for the "local sponsor" (District) to acquire all the necessary property and relocate and/or replace all utilities and 10 bridges. The federal funds were to be spent doing all the excavation work and flood wall and levee construction which, by their very nature, has to be accomplished subsequent to the District's work. Approximately \$142 million of local sales tax revenues has already been expended on the project.



Although the sales tax revenue generated to pay for the local share of the cost has accrued in excess of expectations – thereby allowing all the bridge replacements to have

already been completed and much of the land acquisition, the federal budgetary process has not provided the anticipated funding thus far. This has slowed the progress of the \$250 to \$300 million Napa Flood Project, which was originally anticipated to be completed during the coming year, but was only halfway completed.

### **Hazard Mitigation Projects**

On a parallel track, beginning in 1996, the City of Napa, Town of Yountville, and Napa County applied for and received grant funds from the FEMA/OES Hazard Mitigation Grant Program. These funds were used to acquire property that was at risk of residential development to be used for disposal of soil being excavated for the project, for the acquisition of 7 homes along Napa Creek (in an area to be utilized for the Napa Project), as well as for the elevation of homes that would not otherwise be protected from flooding in both the city and the unincorporated County, emanating from the disaster declaration from the 1995 flood event.

The County was able to pre-qualify 30 homes in the unincorporated area (based upon cost-benefit analysis) that would be eligible for 75% reimbursement in the event that they would elevate their homes to a level whereby their first floor would be at least one foot above the local Base Flood Elevation. However, after several extensions in order to expand the program (between 1998 and 2004), only 9 homeowners took advantage of this offer, quite possibly due to the significant upfront payment required on their part (these elevations tend to cost a minimum of \$40,000). The County – and, ultimately, the homeowners – received reimbursement from the Hazard Mitigation Grant Program in the amount of \$310,646, with an additional \$160,000 (approximately) in cost absorbed by the homeowners themselves. Additional information is included in Attachment A, "Project Accomplishments and Results Statement" and Attachment B, "Project Budget Summary".



HMGP ELEVATION PROGRAM  
GLAZIER-1964 SILVERADO TRAIL

## Prior Mitigation Efforts by the City of Napa

### Napa River/Napa Creek Flood Protection Project

There are 2,672 properties in the one percent per year base floodplain and 1,333 policyholders pay about \$1.4 million in flood insurance premiums per year. Between 1979 and 2000, over \$16 million in individual claims and \$8 million in public assistance have been paid out by FEMA. The City of Napa now has a Class 6 rating in the FEMA Community Rating System, which reduces most flood insurance rates by 20 percent. Before the 2005 flood, the City demolished six of 66 repetitive loss structures. The Napa Flood Project will remove over 90% of the 2,672 properties from the base floodplain and create an annual savings of \$21 million in avoided property damages.

The NCFWCWD and the City entered agreements for the City to administer about \$90 million in bridge, property acquisition, and recreation work as part of the Flood Project. The City used Federal Highway Administration (FHWA), and Measure A half-cent sales tax funds to construct the Third Street Bridge over the Napa River, Soscol Avenue Bridge over the Napa River Bypass and the First Street Bridge over Napa Creek and Bypass. The City also administered the design of the Maxwell Bridge Replacement Project on Imola Avenue, and Caltrans is scheduled to complete the construction in the summer of 2006.



Old Maxwell Bridge prior to Replacement



New Maxwell Bridge currently under Construction

About 50 homes and businesses have been acquired and relocated as part of the Flood Project, and did not suffer damages in 2005. The longer and higher bridges and terrace excavation by the Corps reduced the depth of the 2005 flood. Even though the peak stage at the Lincoln Avenue gauge was slightly higher in 2005 than in March 1995, about 100 structures were outside of the 2005 flood inundation area and more than 100 structures had a lower depth of flooding.

### Hazard Mitigation Projects

The City of Napa used \$3.3 million of FEMA HMGP funding to acquire a 58 acre part of the Ghisletta property at the south end of Jefferson Street as a soil disposal site for the

Napa / River Napa Creek Flood Protection Project. The \$1.1 million local share was paid by the Measure A half-cent sales tax for Flood Protection. The removal of agricultural levees and excavation in the "South Wetland Opportunity Area" reduced the depth flooding in parts of Napa during the 2005 flood.

The City used \$1.12 million of FEMA HMGP funding to acquire and demolish five single family homes 1305, 1315, 1325, and 1335 Arroyo Drive and 1325 Brown Street for the Napa / River Napa Creek Flood Protection Project. About \$250,000 in Flood Mitigation Assistance Grant funding was spent to acquire 1345 Arroyo Drive. The 25% local share was paid by the half-cent sales tax for Flood Protection. It is estimated that there would have been an average of three feet of flooding in these houses, which prevented about \$130,000 in repetitive flood damage.



The City used \$2.12 million of FEMA HMGP funding and about \$150,000 in Flood Mitigation Assistance Grant funding to administer the elevation of the following single-family homes, the 25% local share was paid by the property owner. The primary focus was to elevate homes that will not be protected by the flood project. The secondary focus was to elevate homes in the Napa Creek floodplain, which flooded in 2002 and floods more frequently than the Napa River. The other property owners did not want to wait for flood protection from the Flood Project. It is estimated that the elevation projects prevented about \$420, 000 in flood damage. The following is a list of elevated homes:

- (1) 1552 Behrens
- (2) 245 Brown street
- (3) 255 Brown Street
- (4) 293 Brown Street
- (5) 349 Brown Street
- (6) 705 Carolina
- (7) 722 Carolina
- (8) 404 Cross

- (9) 1153 Eggleston
- (10) 1175-1181 Eggleston
- (11) 2002 Ida
- (12) 2006 Ida
- (13) 2007 Ida
- (14) 682 Maplewood
- (15) 1520 seminary
- (16) 1543 Seminary
- (17) 1625 Silverado Trail
- (18) 1916 Silverado Trail
- (19) 444 Taylor

The City used \$366,525 of FEMA HMGP funding to design and construct the Shetler-Harding – Imola Drainage Intercept Project to protect Highway 121/ Soscol Avenue between Shetler Avenue and Kansas Avenue from flooding. The 25% local share was paid by the City’s Storm Water System Service Fee. Even though Tulocay Creek flooded businesses along Soscol Avenue, the flooding would have been worse if interior drainage was not diverted to another watershed downstream of Imola Avenue.

### **Public Assistance Projects**

The City received funding from FEMA, FHWA, and the Natural Resources Conservation Service (NRCS) after the 1995 and 1997 floods repair damages to current standards. The scour repair at the \$106,000 First Street Bridge over the Napa River, the \$570,000 replacement of the 12-foot diameter Robinson Lane Culvert, replacement of the \$310,000 12-foot diameter McCormick Lane Culvert, The \$84,000 Fourth Street Boat Dock Replacement, and the \$390,000 Conn Creek bank stabilization next to the 36” water transmission line prevented damages in 2005. If the 650 feet of Conn pipeline was not protected by the NRCS Emergency Watershed Protection Program project and failed, it would have cut off the only water source for the City of Calistoga, cost about \$500,000 per day in losses, and cost about \$400,000 to repair.



Streambank protection for City’s water pipeline was overtopped by record high flow

**Attachment A – Project Accomplishments & Results**

Subgrantee: County of Napa  
 HMGP Project No: FEMA- 1203- DR-CA; OES Project #154C 4442  
 Project Name: Home Evaluation Program

In March 1998, the voters of Napa county passed “Measure A”, in order to approve a half-cent tax for 20 years for the purpose of providing flood protection from the Napa River and its tributaries, The primary project, in partnership with the U.S. Army Corps of Engineers, intended to provide flood protection along a 6 to 7 mile stretch of the Napa River and a ½ - mile stretch of Napa Creek.

Additional Flood protection projects in the smaller cities and towns of Napa County are also being funded by these revenues. However, there is a large portion of unincorporated Napa County that has not yet – and in some cases, will not – receive sufficient flood protection benefits from these projects to protect them from the 100-year flood event.

In 1997 and 1998, FEMA and OES authorized up to 30 such homes, primarily along the Napa River for eligibility in the Hazard Mitigation Grant Program Home Elevation Program. This program would reimburse eligible homeowners for up to 75% of their costs, if they resulted in the home’s first floor being elevated to one foot above the Base Flood Elevation. Unfortunately, only nine (9) of those homeowners chose to participate, perhaps due to the front-end investment that was required of them.

The total cost to elevate those nine homes was approximately \$469,000, with the reimbursement formula providing them an aggregate total of \$310,646 In HMGP Grant Funds (approximately 66%)

**Attachment B – Project Budget Summary**

Subgrantee: County of Napa  
 HMGP Project No. FEMA-1203-DR-CA; OES Project #154C 4442  
 Project Name: Home Elevation Program

Item	Description	Total Project Cost	Street Address	Total OES Cost
1		Gordon - \$70,000	1006 Bale Lane (SH)	
		Holder - \$61,500	953 Galleron (SH)	
		Goldberg- \$58,602	1146 Ragatz (Y’ville)	
		Durrance - \$48,000	149 Silverado	

	Reimbursement (@75%) of 9 Home Elevations	Threadgall - \$34,000  Galusha - \$35,540  Rippey - \$50,000  Lang - \$65,042  <u>Glazier - \$46,656</u> <b>Total - \$469,338</b>	Trail (SH) 3785 Silv. Trl.  201 Silv. Trl. (SH)  1839 Silv. Trl. (Napa)  5265 Silv. Trl.  1954 Silv. Trl. (Napa)	*Note: each Reimbursement would be 74% of the Total Project Cost listed in the Prior column, up to a maximum of \$37,500 per.          <b>\$310,646</b>
2	Administration	\$ 25,000		\$ - 0 -
3	<b>Total Project Cost</b>	<b>\$ 494,338</b>		<b>\$310,646</b>
4	<b>OES Funds Received</b>			<b>\$271,500</b>
5	<b>OES Funds Due</b>			<b>\$39,146</b>

Note: All Sites are located in the unincorporated area (with nearby cities included in parenthesis).

## **Seismic Hazards**

Earthquakes occur along fault lines. They occur infrequently, but can inflict major damage. Faults within and outside the County could affect the City of Napa in the event of an earthquake. These include two active fault zones in the region outside the county: the San Andreas and Hayward faults. Three active faults within Napa County -- the Rodgers Creek, the Concord/Green Valley and the West Napa faults -- also pose a risk to Napa residents and property. In addition, on September 3, 2000 an earthquake registering 5.1 occurred on a previously unknown and unmapped fault 10 miles northwest of the City of Napa. A second, larger earthquake registering 6.0 struck Napa on August 24, 2014 creating surface ruptures in the same general vicinity of Browns Valley, although in areas that were not specifically mapped. There are four principle seismic hazards: earthquake-induced ground rupture, ground shaking, liquefaction, or water movement. The active faults running directly through the City of Napa are currently being mapped to address hazards based on scientific data.

### **Ground Shaking**

The primary seismic concern is ground shaking associated with regional and local faults. A large area south of Napa is subject to very strong to very violent ground shaking.

Earthquake-generated ground shaking can cause both structural and nonstructural hazards, such as falling ceilings and light fixtures, toppling exterior parapets, shattered glass, and the dislodging of furniture and equipment. As with most communities in the San Francisco Bay Area near active earthquake faults, much of Napa would be susceptible to violent ground shaking.

### **Liquefaction**

Another earthquake-induced hazard, liquefaction, occurs when water-saturated, cohesion less soil loses its strength and liquefies during intense and prolonged ground shaking. Areas that have the greatest potential for liquefaction are those areas where the water table is less than 50 feet below the surface and soils are predominantly clean, composed of relatively uniform sands, and are of loose-to-medium density. The poorly consolidated younger alluvium that occupies areas south of the City and along the Napa River are considered to have high to very high potential for liquefaction. The younger soils found on the valley floor in the western part of the City are also subject to moderate to high potential for liquefaction.

### **Dam Failure**

Another hazard associated with major earthquakes is the collapse or failure of dams. Because dams can fail for reasons other than seismic activity, and the resultant hazard is from flooding, dam inundation hazards are described in the Technology Hazards section of this Plan.

## Regional and Local Fault Zones in the Napa Vicinity

### Regional Faults

The Coast Range, which traverses northern California in a northwest to southwest direction, is characterized by numerous active faults. The active regional fault zones that have the potential to affect the Napa area include the San Andreas, the Hayward, the Calaveras, and the Rodgers Creek faults. A fault zone is an area of crustal weakness characterized by a series of faults across which there has been relative displacement of the two sides parallel to the zone. An active fault is one that has shown movement during the last 10,000 years, based on documented, geologic evidence.

- **San Andreas Fault Zone**

This fault zone is located approximately 33 miles southeast of Napa. The maximum credible earthquake (MCE) capable of being generated along this system, which was responsible for the 1989 Loma Prieta earthquake Moment Magnitude Scale (MMS) 7.1, is 8.3 on the MMS. The United States Geological Survey (USGS) has estimated a relatively low probability of 2 percent that an earthquake of MMS 8.0 would occur along the North Coast segment (USGS 1990).

- **Hayward Fault Zone**

This fault zone is located approximately 21 miles southeast of Napa. According to the Working Group on California Earthquake Probabilities, as cited by the California Division of Mines and Geology (CDMG) (1990), this fault has a 25 percent chance of producing an earthquake of magnitude 7.0 or greater within the next 30 years.

- **Calaveras Fault Zone**

This fault zone is located approximately 18 miles southeast of Napa. The northern segment of this fault from the Calaveras Reservoir to Danville has an estimated 200-year recurrence time. At least 160 years have passed since the last earthquake of Richter magnitude 7.0 (Applied Technology Council 1994). The southern segment of the fault between the Calaveras Reservoir and Hollister was responsible for the 1984 Morgan Hill magnitude 6.2 earthquake.

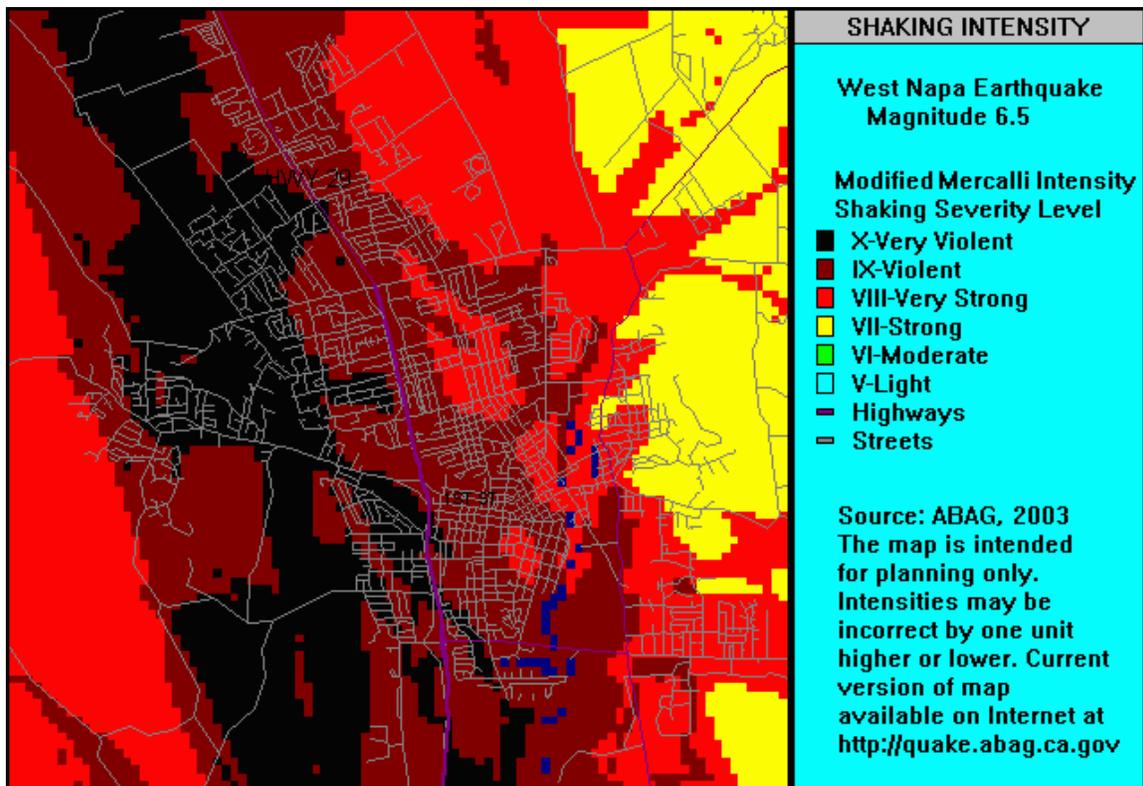
- **Rodgers Creek Fault Zone**

This fault zone lies 12 miles to the west of Napa and is part of the San Andreas Fault system; it may also be the northward continuation of the Hayward fault. Trenching studies across the fault by the USGS have resulted in an estimated 250-year recurrence interval for magnitude 7.0 earthquakes (Budding et al 1989, as cited by CDMG 1991). The last major earthquake along this fault was in 1808, and the USGS considers this fault a prime potential for future large earthquakes (CDMG 1991). ABAG estimates a 22 percent chance of a 7.0 magnitude earthquake on this fault in the next 25 years (ABAG 1992).

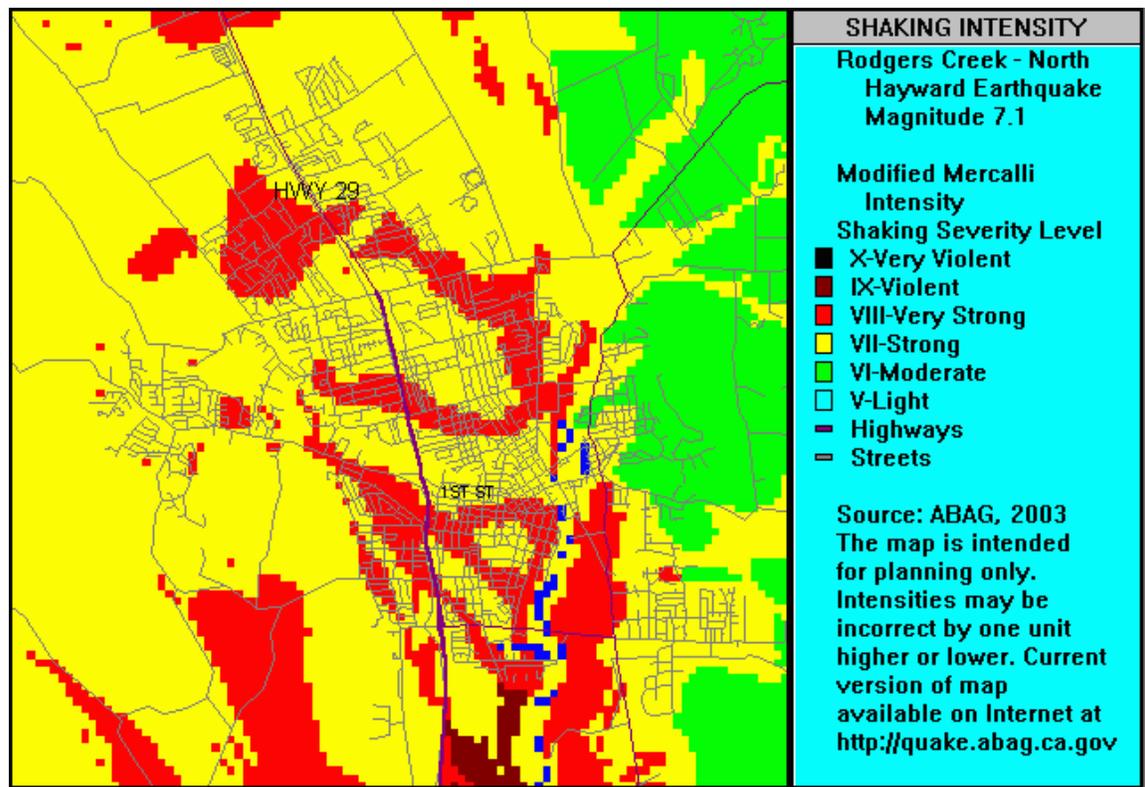
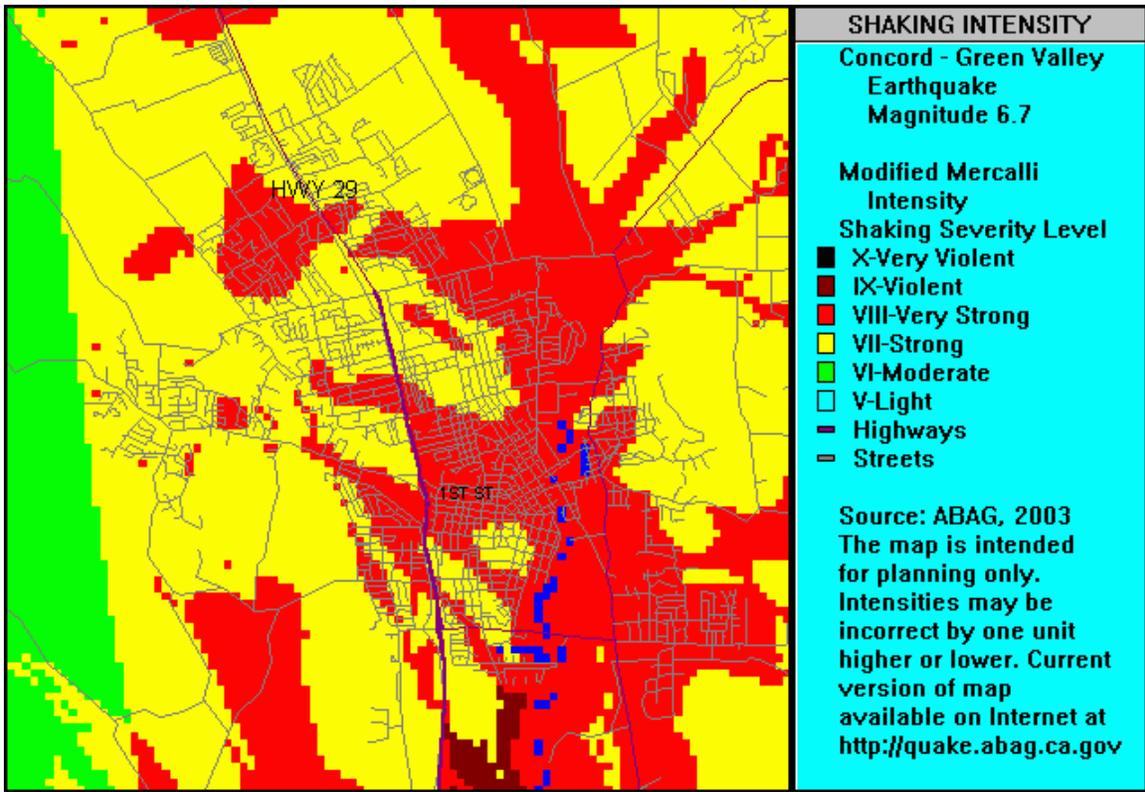
## Local Faults

There are three active faults within Napa County that are known at this time. They are the Cordelia, the Green Valley, and the West Napa faults. It is estimated that these faults are capable of producing earthquakes with a MMS magnitude of up to 6.75. A fourth local fault, the Soda Creek fault, lies east of the West Napa fault and is considered potentially active with a predicted maximum MMS magnitude of 6.25 (Wills 1994). This fault displays evidence of displacement during the late Quaternary period (7000,000 to 10,000 years ago) but has not been active during the Holocene period (10,000 years ago to present) (Bryant 1982). Other less significant faults in the Napa area include the Carneros, Mill Valley, and Browns Valley faults. As a result of the 2014 South Napa Earthquake, efforts to map faults in the Browns Valley area are expected to be completed in 2016.

The following maps show the potential shaking intensity for the West Napa Fault zone, the Concord-Green Valley Fault and the Rodgers Creek Fault, and include preliminary mapping of the faults in the Browns Valley area.



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## **Special Studies Zones**

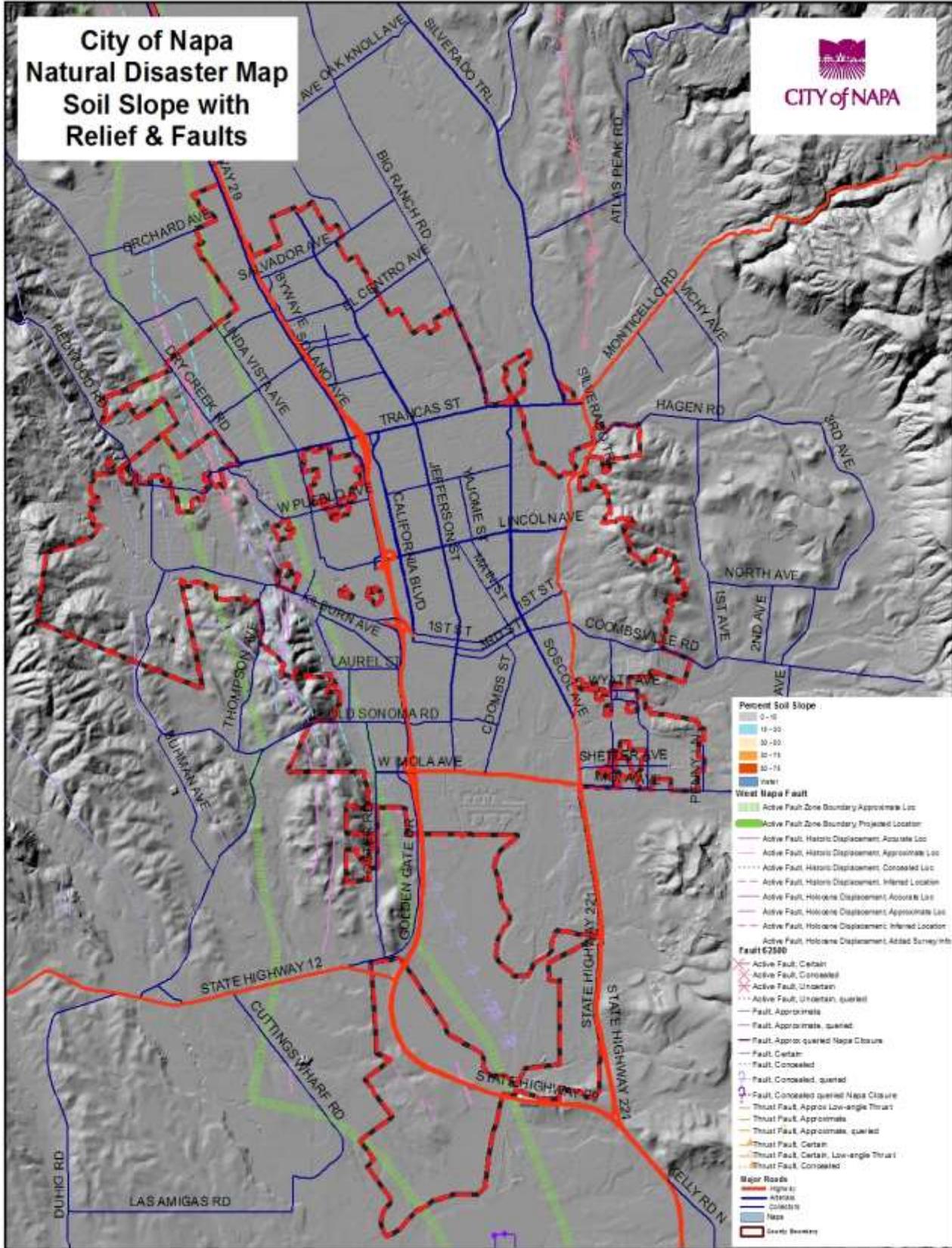
California Division of Mines and Geology (CDMG) classify faults as either active or potentially active according to the Alquist-Priolo Special Studies Zone Act of 1972 (CDMG 1972). A fault that has exhibited surface displacement (movement) within the Holocene Epoch (the last 10,000 years) is defined as active by the CDMG. The CDMG suggests that this definition be used to evaluate faults located within a 60-mile radius of a project site. A fault that has exhibited surface displacement during the Pleistocene Epoch (1.6 million years ago to 10,000 years ago) is defined as potentially active.

The State of California enacted the Alquist-Priolo Special Studies Zone Act in 1972 to assure that homes, offices, hospitals, public buildings, and other structures for human occupancy are not built on active faults, thereby preventing or avoiding potential damage resulting from fault surface rupture. Surface rupture is a break in the ground surface and associated deformation resulting from fault movement. The act requires a geological investigation before a local government can approve most development projects in special studies zones.

In the Napa County area, Alquist-Priolo Special Studies Zones have been established for the Rodgers Creek, the southern portion of the West Napa and the Green Valley faults. The portion of the West Napa fault that is within the City of Napa is not included in the Alquist-Priolo Special Studies Zone.

## **Earthquake Maps**

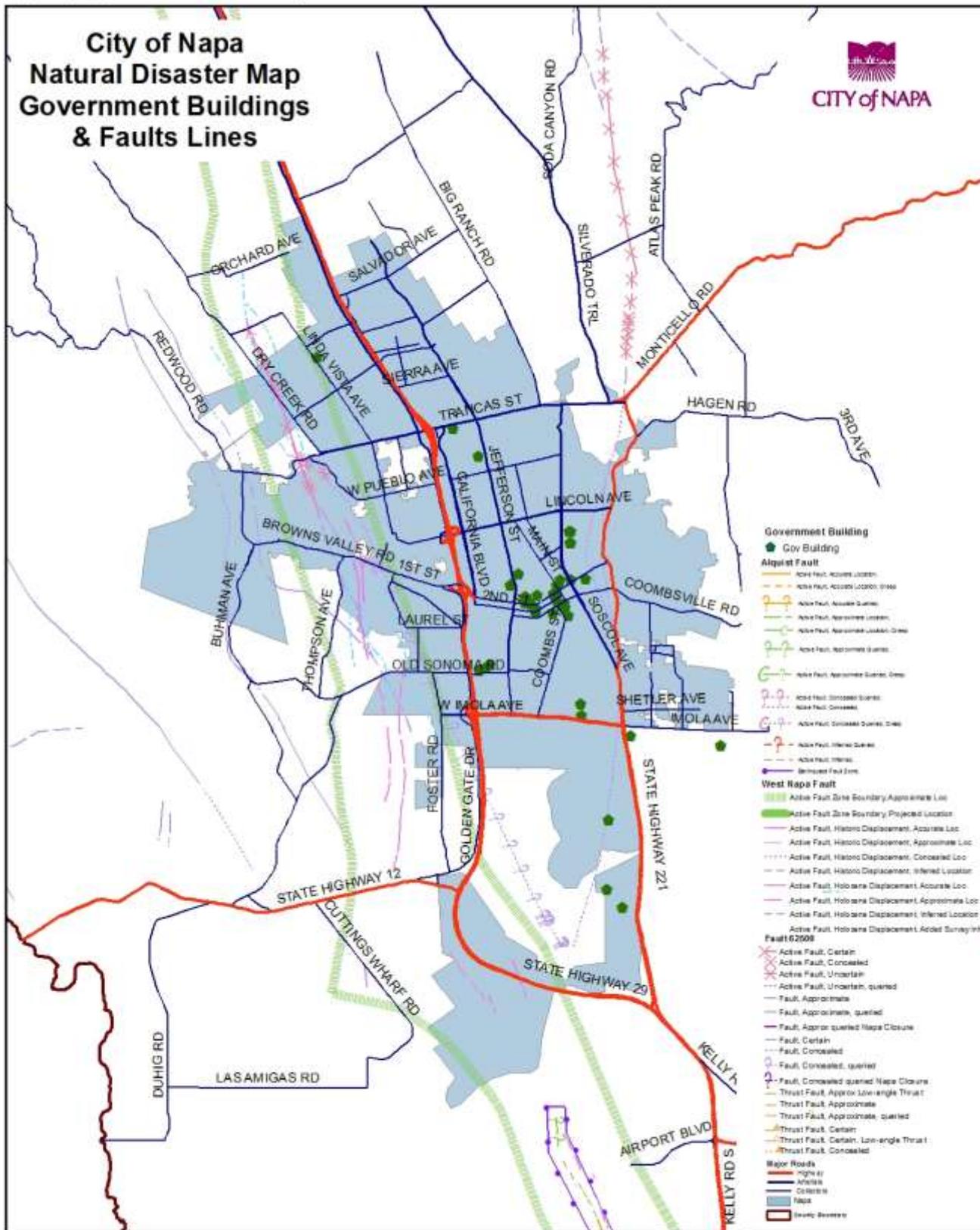
On the following pages are maps showing the faults and soil conditions in relationship to critical facilities in the City of Napa. A complete list of critical facilities can be found in Appendix A.



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July 2013



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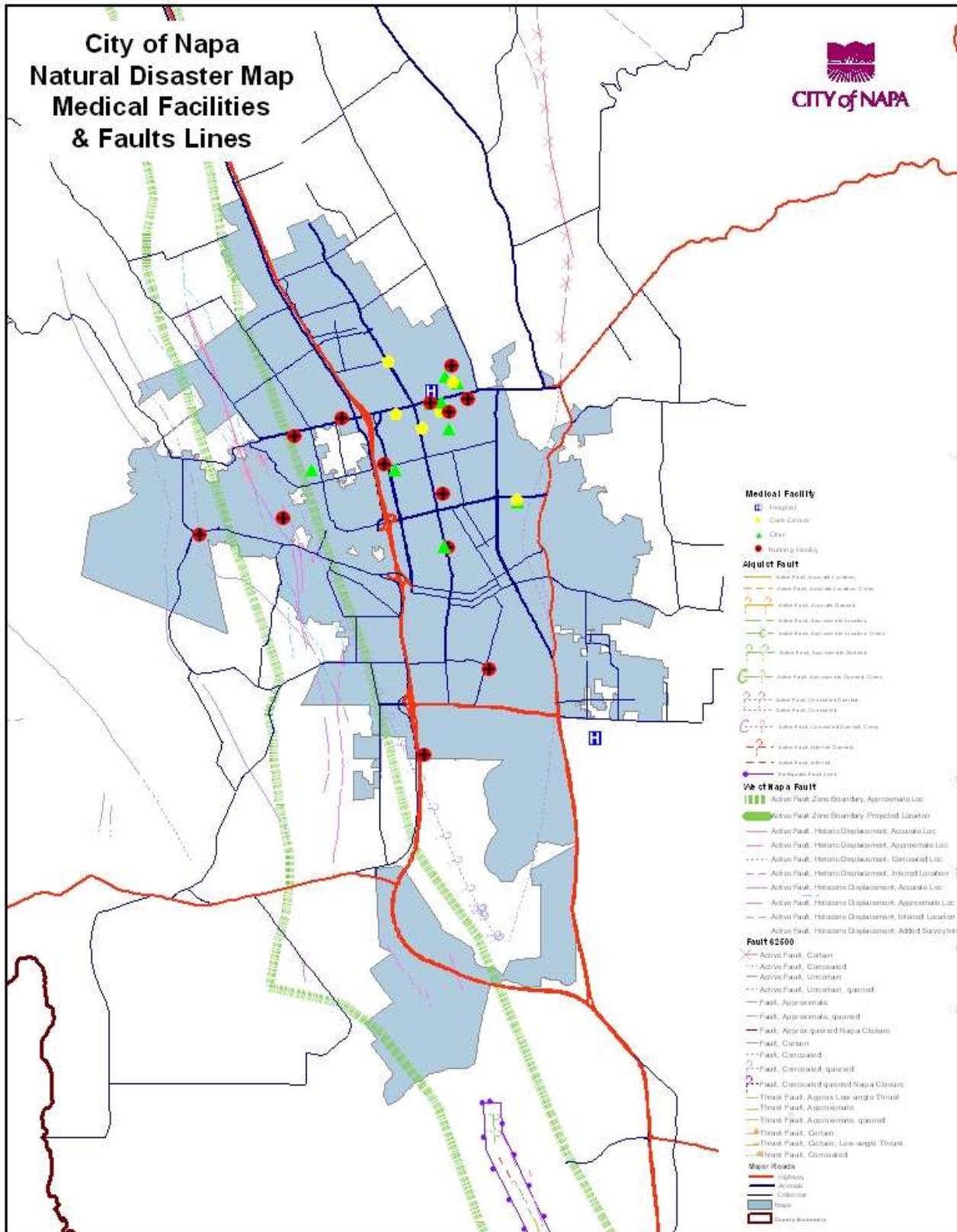
County of Napa GIS  
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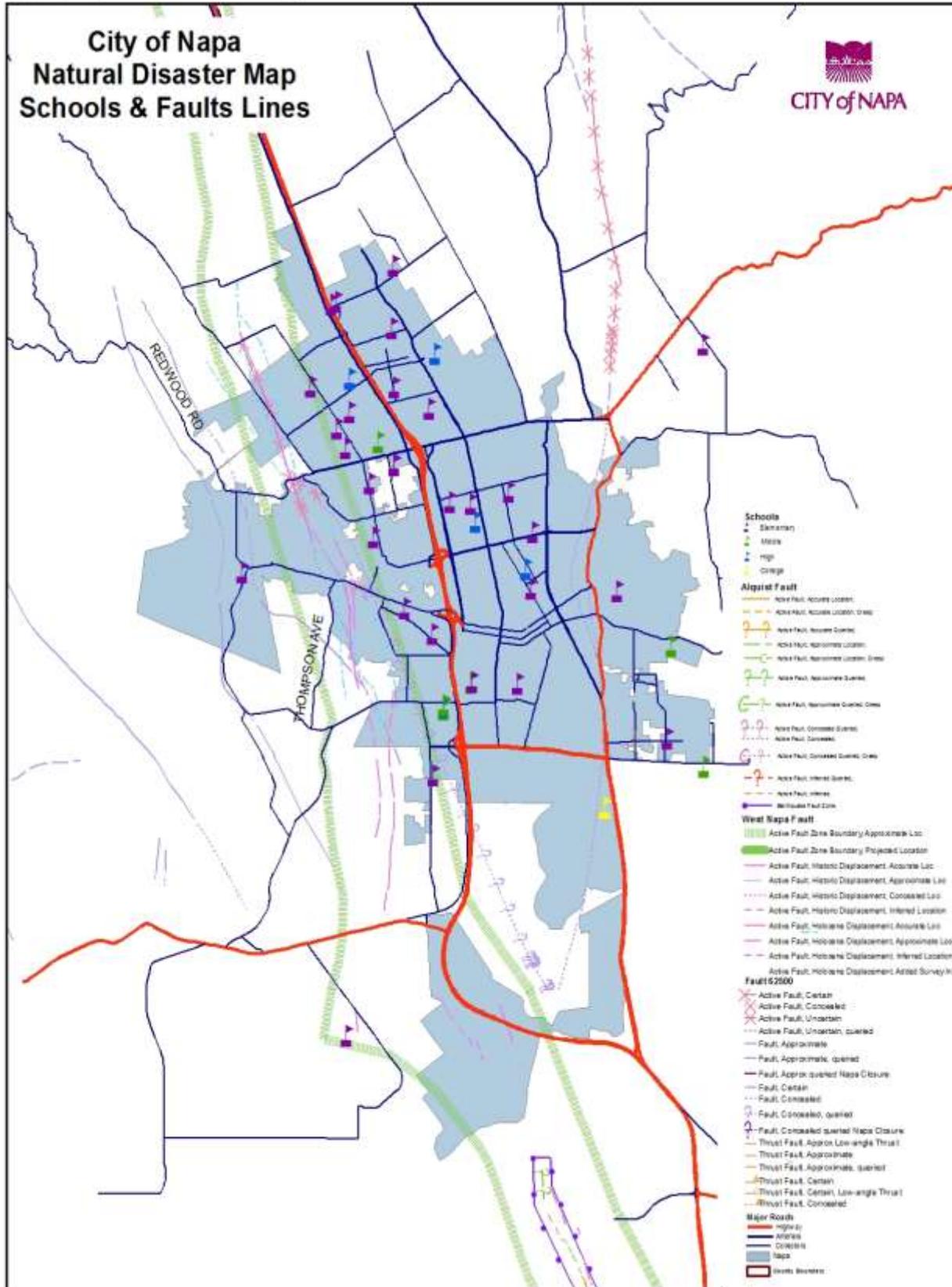
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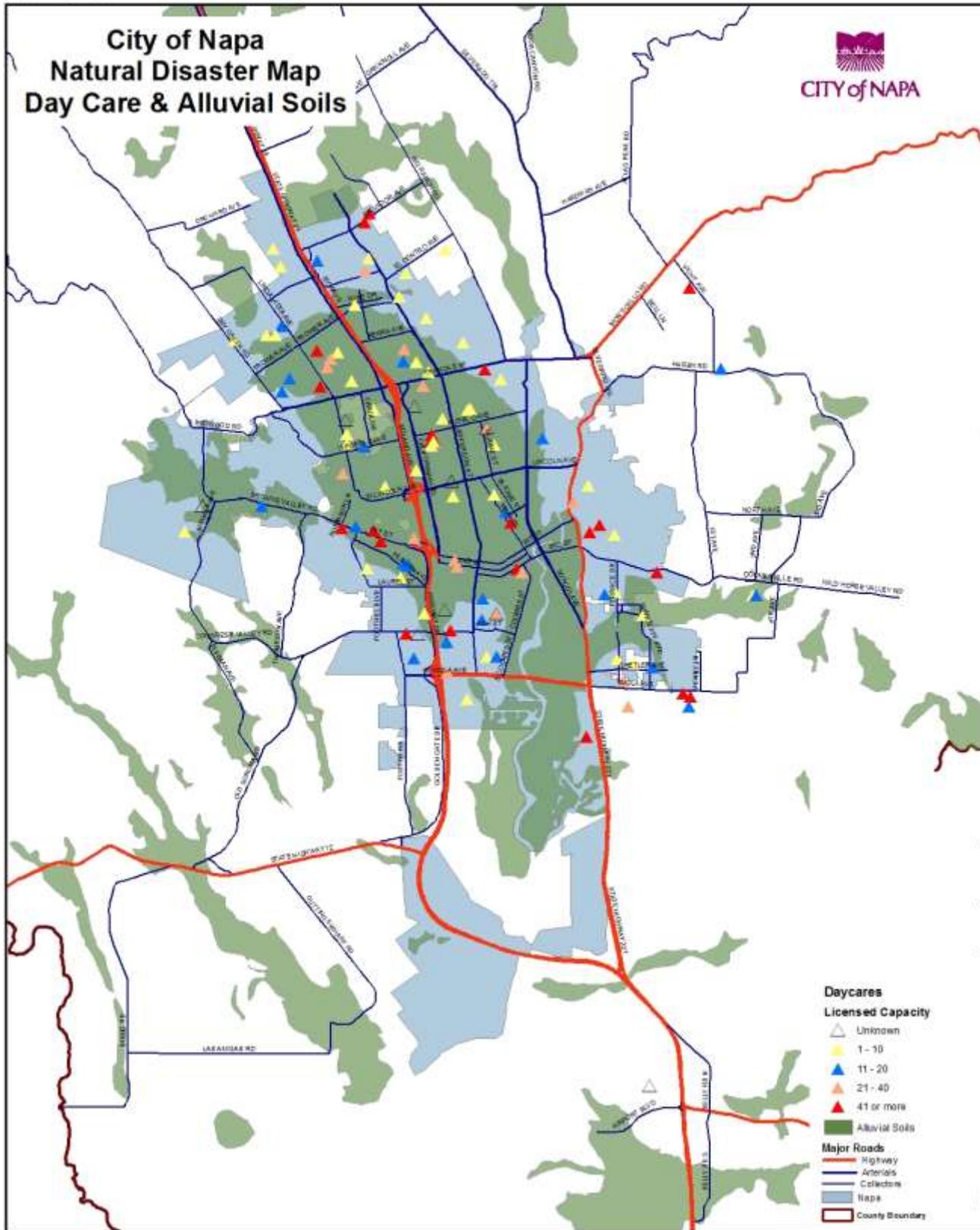
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July 2013

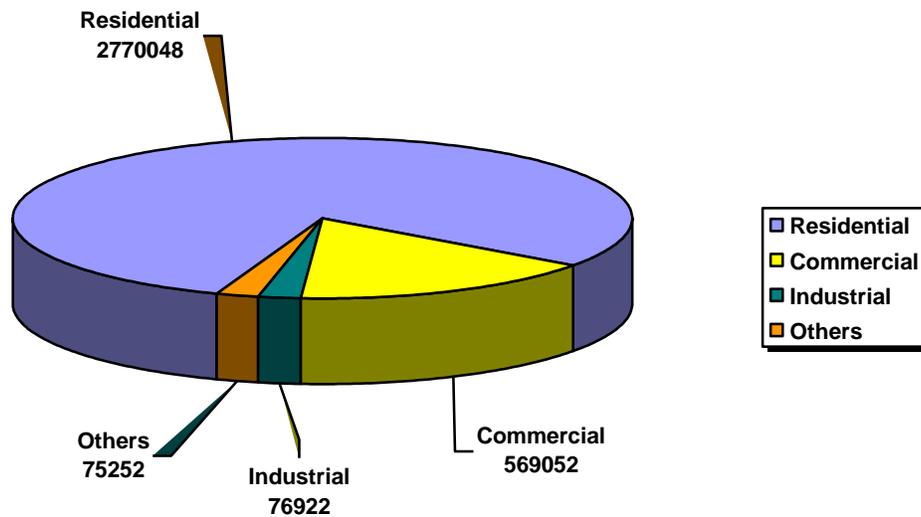


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### WEST NAPA FAULT HAZUS DAMAGE ESTIMATES

Scenario Name: West Napa Mid Point  
 Longitude of Epicenter: -122.312  
 Latitude of Epicenter: 38.2846  
 Earthquake Magnitude: 6.5  
 Depth (Km): 10  
 Rupture Length (Km): 28.8403

**Figure 1: Building Exposure by Occupancy Type**  
 (Thousands of Dollars)



### Transportation System Lifeline Inventory

System	Component	# Locations / # Segments	Replacement Value (Millions of Dollars)
Highway	Major Roads	12	561
	Bridges	38	86
	Tunnels	2	20
	<b>Subtotal</b>		<b>667</b>
Railways	Rail Tracks	10	50
	<b>Subtotal</b>		<b>50</b>
	<b>Total</b>		<b>717</b>

### Utility System Lifeline Inventory

System	Component	Replacement Value (Millions of Dollars)
Potable Water	Pipelines	30
	Distribution Lines	51.8
		<b>51.8</b>
Waste Water	Distribution Lines	31.1
		<b>31.1</b>
Natural Gas	Distribution Lines	20.7
		<b>20.7</b>
Electrical Power	Distribution Lines	15.5
		<b>15.5</b>
Communication	Facilities	8.0
	Distribution Lines	6.9
		<b>14.9</b>
		<b>134.1</b>

### Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Residential	4,961	98.24	6,961	98.35	4,812	97.00	1,242	96.89	452	95.36
Commercial	73	1.45	93	1.31	120	2.42	54	4.91	21	4.43
Industrial	8	0.16	13	0.18	17	0.34	11	0.83	1	0.21
Agriculture	1	0.16	1	0.00	1	0.02	1	0.08	0	0.00
Religion	5	0.10	6	0.00	7	0.14	3	0.23	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	2	0.04	4	0.06	4	0.08	1	0.08	0	0.00
<b>Total</b>	<b>5,050</b>		<b>7,078</b>		<b>4,961</b>		<b>1,325</b>		<b>474</b>	

### Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	35	0.7	28	0.4	38	0.8	18	1.4	2	0.4
Mobile Homes	51	1.0	121	1.7	291	5.9	249	18.8	82	17.3
Precast Concrete	24	0.5	14	0.2	31	0.6	16	1.2	3	0.6
Reinforced Masonry	412	8.2	319	4.5	426	8.6	262	19.8	87	18.4
Steel	220	4.4	264	3.7	536	10.8	345	26.1	120	25.3
Unreinforced Masonry	9	0.2	23	0.3	54	1.1	60	4.5	68	14.3
Wood	4,299	85.1	6,309	89.1	3,585	72.3	372	28.1	112	23.6

### Expected Damage to Essential Facilities

Classification	Total	Number of Facilities		
		Least Moderate Damage > 50%	Complete Damage > 50%	Functionality > 50% at day 1
Hospitals	2	1	0	0
Schools	45	27	0	0
Fire Stations	2	0	0	0

### Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations / Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Roads	12			12	12
	Bridges	38	9	3	29	36
	Tunnels	2	0	0	2	2
Railways	Tracks	0			10	10

### Expected Utility System Facility Damage

System	Number of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
				After Day 1	After Day 7
Communication	4	3	0	0	4
<b>Total</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>4</b>

### Expected Potable Water and Electric Power System Performance (Level 1)

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	23,491	11,363	10,224	7,634	0	0
Electric Power	23,491	19,142	14,202	7,118	638	0

### Causality Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Residential	214	47	5	10
	Non-Residential	7	2	0	1
	<b>Total</b>	<b>221</b>	<b>49</b>	<b>5</b>	<b>11</b>
2 PM	Residential	59	13	1	3
	Non-Residential	358	99	16	31
	Commute	0	0	1	0
	<b>Total</b>	<b>418</b>	<b>113</b>	<b>18</b>	<b>34</b>
5 PM	Residential	71	15	2	3
	Non-Residential	113	31	5	10
	Commute	1	1	2	0
	<b>Total</b>	<b>184</b>	<b>48</b>	<b>9</b>	<b>13</b>

### Building-Related Economic Loss Estimates (Millions of Dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building loss	Structural	51.7	19.7	2.4	2.5	<b>76.3</b>
	Non-Structural	213.6	53.4	6.1	7.1	<b>280.2</b>
	Content	61.0	26.1	4.0	3.2	<b>94.3</b>
	Inventory	N/A	0.4	0.5	0.0	<b>0.9</b>
	<b>Subtotal</b>	<b>326.3</b>	<b>99.6</b>	<b>13.1</b>	<b>12.8</b>	<b>451.7</b>
Business Interruption Loss	Wage	3.0	24.3	0.4	0.7	<b>28.4</b>
	Income	1.3	18.3	0.2	0.2	<b>20.0</b>
	Rental	20.2	8.6	0.2	0.4	<b>29.4</b>
	Relocation	38.0	14.9	0.9	3.3	<b>57.1</b>
	<b>Subtotal</b>	<b>62.4</b>	<b>66.1</b>	<b>1.8</b>	<b>4.5</b>	<b>134.8</b>
<b>Total</b>	<b>388.7</b>	<b>165.7</b>	<b>14.8</b>	<b>17.3</b>	<b>586.5</b>	

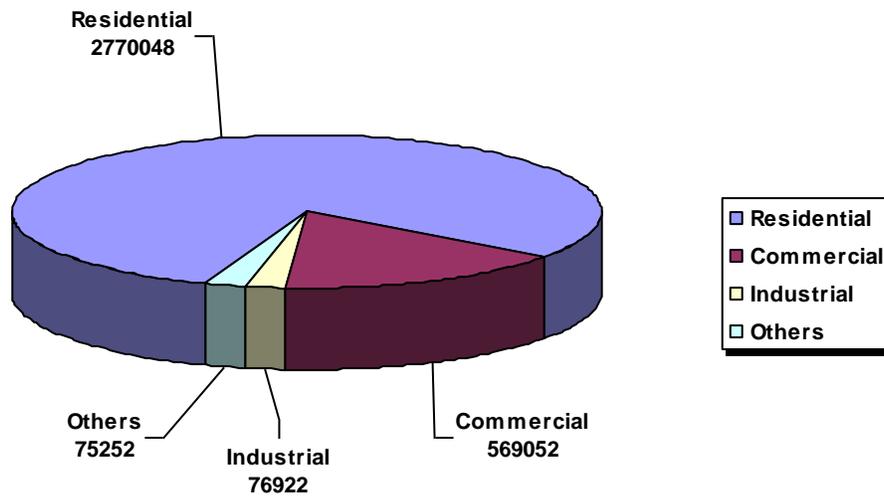
### Transportation System Economic Losses (Millions of Dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Roads	561.2	0.0	0.0
	Bridges	86.0	5.2	6.0
	Tunnels	20.0	0.8	4.0
	<b>Subtotal</b>	<b>667.2</b>	<b>6.0</b>	<b>10.0</b>
Railways	Tracks	50.1	0.0	0.0
	<b>Subtotal</b>	<b>50.1</b>	<b>0.0</b>	<b>0.0</b>
		<b>717.3</b>	<b>6.0</b>	<b>0.8</b>

### CONCORD-GREEN VALLEY FAULT HAZUS ESTIMATES

Scenario Name: Concord-Green Valley Mid Point  
 Longitude of Epicenter: -122.15  
 Latitude of Epicenter: 38.2777  
 Earthquake Magnitude: 6.8  
 Depth (Km): 10  
 Rupture Length (Km): 44.26

**Figure 1: Building Exposure by Occupancy Typ**  
 (Thousands of Dollars)



### Transportation System Lifeline Inventory

System	Component	# Locations / # Segments	Replacement Value (Millions of Dollars)
Highway	Major Roads	12	561
	Bridges	38	86
	Tunnels	2	20
	<b>Subtotal</b>		<b>667</b>
Railways	Rail Tracks	10	50
	<b>Subtotal</b>		<b>50</b>
	<b>Total</b>		<b>717</b>

### Utility System Lifeline Inventory

System	Component	Replacement Value (Millions of Dollars)
Potable Water	Pipelines	20
	Facilities	10
	Distribution Lines	51.8
		<b>51.8</b>
Waste Water	Distribution Lines	31.1
		<b>31.1</b>
Natural Gas	Distribution Lines	20.7
		<b>20.7</b>
Electrical Power	Distribution Lines	15.5
		<b>15.5</b>
Communication	Facilities	8.0
	Distribution Lines	6.9
		<b>14.9</b>
		<b>134.1</b>

### Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Residential	10,006	97.96	5,492	97.95	2,255	95.88	556	96.36	85	97.70
Commercial	162	1.59	92	1.64	77	3.27	19	3.29	2	2.30
Industrial	24	0.23	13	0.23	12	0.51	2	0.35	0	0.00
Agriculture	4	0.23	1	0.00	1	0.04	0	0.00	0	0.00
Religion	10	0.10	6	0.00	5	0.21	0	0.00	0	0.00
Government	2	0.02	0	0.00	0	0.00	0	0.00	0	0.00
Education	6	0.06	3	0.05	2	0.09	0	0.00	0	0.00
<b>Total</b>	<b>10,214</b>		<b>6,758</b>		<b>2,352</b>		<b>577</b>		<b>87</b>	

### Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Mobile Homes	139	1.4	188	3.4	298	12.7	144	25.0	20	23.0
Precast Concrete	49	0.5	16	0.3	18	0.8	3	0.5	0	0.0
Reinforced Masonry	822	8.0	278	5.0	266	11.3	126	21.9	15	17.2
Steel	514	5.0	341	6.1	416	17.7	185	32.2	27	31.0
Unreinforced Masonry	40	0.4	45	0.8	64	2.7	42	7.3	25	28.7
Wood	8,579	84.0	4,714	84.1	1,267	53.9	72	12.5	0	0.0

### Expected Damage to Essential Facilities

Classification	Total	Number of Facilities		
		Least Moderate Damage > 50%	Complete Damage > 50%	Functionality > 50% at day 1
Hospitals	2		0	1
Schools	45	2	0	2
Fire Stations	2	0	0	0

### Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations / Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Roads	12			12	12
	Bridges	38	3	0	38	38
	Tunnels	2	0	0	2	2
Railways	Tracks	0			10	10

### Expected Utility System Facility Damage

System	Number of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
				After Day 1	After Day 7
Communication	4	1	0	4	4
<b>Total</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>

### Expected Potable Water and Electric Power System Performance (Level 1)

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	23,491	1,468	489	0	0	0
Electric Power	23,491	13,632	6,788	1,992	20	0

### Causality Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Residential	71	12	1	2
	Non-Residential	2	1	0	0
	<b>Total</b>	<b>73</b>	<b>13</b>	<b>1</b>	<b>3</b>
2 PM	Residential	20	3	0	1
	Non-Residential	121	28	4	8
	Commute	0	0	0	0
	<b>Total</b>	<b>140</b>	<b>31</b>	<b>4</b>	<b>9</b>
5 PM	Residential	23	4	0	1
	Non-Residential	38	9	1	3
	Commute	0	0	0	0
	<b>Total</b>	<b>62</b>	<b>13</b>	<b>2</b>	<b>3</b>

### Building-Related Economic Loss Estimates (Millions of Dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building loss	Structural	20.2	8.4	1.1	1.0	<b>30.7</b>
	Non-Structural	84.1	23.1	2.9	2.9	<b>112.9</b>
	Content	28.8	12.9	2.0	1.5	<b>42.2</b>
	Inventory	N/A	0.2	0.2	0.0	<b>0.5</b>
	<b>Subtotal</b>	<b>130.1</b>	<b>44.6</b>	<b>6.1</b>	<b>5.4</b>	<b>186.3</b>
Business Interruption Loss	Wage	1.0	10.9	0.2	0.3	<b>12.4</b>
	Income	0.5	8.3	0.1	0.1	<b>8.9</b>
	Rental	7.6	3.9	0.1	0.2	<b>11.7</b>
	Relocation	14.5	7.0	0.5	1.4	<b>23.4</b>
	<b>Subtotal</b>	<b>23.6</b>	<b>30.1</b>	<b>0.9</b>	<b>1.9</b>	<b>56.5</b>
<b>Total</b>		<b>153.7</b>	<b>74.7</b>	<b>7.0</b>	<b>7.4</b>	<b>242.8</b>

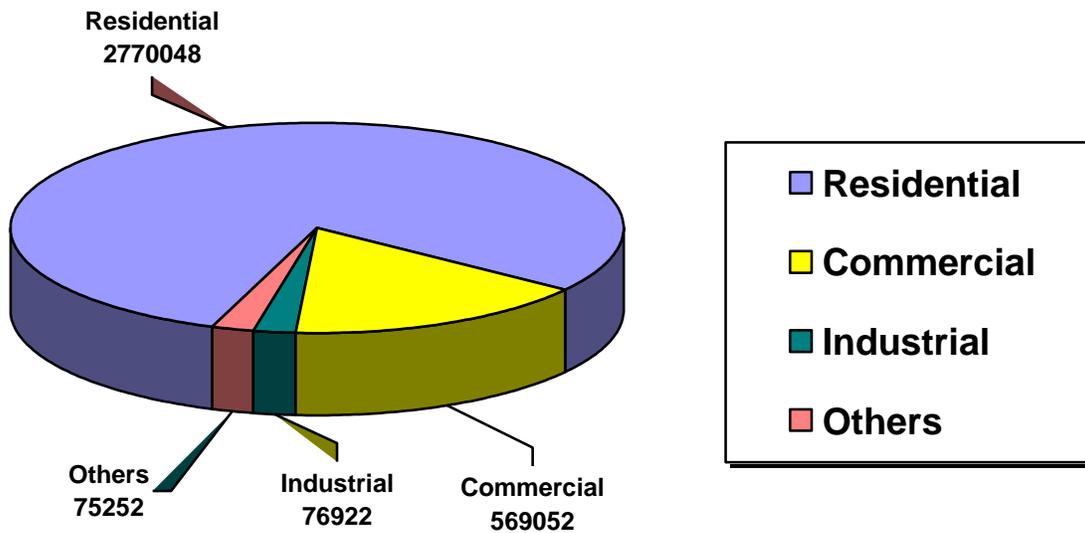
### Transportation System Economic Losses (Millions of Dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Roads	561.2	0.0	0.0
	Bridges	86.0	1.3	1.5
	Tunnels	20.0	0.2	1.0
	<b>Subtotal</b>	<b>667.2</b>	<b>1.5</b>	<b>0.2</b>
Railways	Tracks	50.1	0.0	0.0
	<b>Subtotal</b>	<b>50.1</b>	<b>0.0</b>	<b>0.0</b>
		<b>717.3</b>	<b>1.5</b>	<b>0.2</b>

### RODGERS CREEK FAULT HAZUS DAMAGE ESTIMATES

Scenario Name: Rodgers Creek Mid Point  
 Longitude of Epicenter: -122.452  
 Latitude of Epicenter: 38.1886  
 Earthquake Magnitude: 7.1  
 Depth (Km): 12  
 Rupture Length (Km): 67.9204

**Figure 1: Building Exposure by Occupancy Type**  
 (Thousands of Dollars)



### Transportation System Lifeline Inventory

System	Component	# Locations / # Segments	Replacement Value (Millions of Dollars)
Highway	Major Roads	12	561
	Bridges	38	86
	Tunnels	2	20
	<b>Subtotal</b>		<b>667</b>
Railways	Rail Tracks	10	50
		<b>Subtotal</b>	<b>50</b>
		<b>Total</b>	<b>717</b>

### Utility System Lifeline Inventory

System	Component	Replacement Value (Millions of Dollars)
Potable Water	Pipelines	50
	Facilities	10
	Distribution Lines	51.8
		<b>51.8</b>
Waste Water	Distribution Lines	31.1
		<b>31.1</b>
Natural Gas	Distribution Lines	20.7
		<b>20.7</b>
Electrical Power	Distribution Lines	15.5
		<b>15.5</b>
Communication	Facilities	8.0
	Distribution Lines	6.9
		<b>14.9</b>
		<b>134.1</b>

### Expected Building Damage By Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)								
Residential	1,937	99.13	5,720	98.69	7,034	97.91	2,379	95.50	1,406	94.17
Commercial	17	0.87	61	1.05	121	1.68	90	3.61	69	4.62
Industrial	0	0.00	7	0.12	17	0.24	14	0.56	11	0.74
Agriculture	0	0.00	1	0.00	1	0.01	1	0.04	1	0.07
Religion	0	0.00	5	0.00	7	0.10	5	0.20	4	0.27
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	2	0.00	4	0.06	2	0.08	2	0.13
<b>Total</b>	<b>1,954</b>		<b>5,796</b>		<b>7,184</b>		<b>2,491</b>		<b>1,493</b>	

### Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	14	0.7	23	0.4	41	0.6	25	1.0	20	1.3
Mobile Homes	8	0.4	41	0.7	190	2.6	308	12.4	249	16.7
Precast Concrete	8	0.4	5	0.1	32	0.4	21	0.8	22	1.5
Reinforced Masonry	174	8.9	24	4.2	455	6.3	349	14.0	288	19.3
Steel	70	3.6	121	2.1	158	6.4	498	20.0	332	22.2
Unreinforced Masonry	0	0.0	7	0.1	26	0.4	48	1.9	133	8.9
Wood	1,680	86.0	5,357	92.4	5,982	83.3	1,242	49.9	449	30.1

### Expected Damage to Essential Facilities

Classification	Total	Number of Facilities		
		Least Moderate Damage > 50%	Complete Damage > 50%	Functionality > 50% at day 1
Hospitals	2	2	0	0
Schools	45	44	0	0
Fire Stations	2	2	0	0

### Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations / Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50%	
					After Day 1	After Day 7
Highway	Roads	12			12	12
	Bridges	38	20	9	21	23
	Tunnels	2	0	0	2	2
Railways	Tracks	0			10	10

### Expected Utility System Facility Damage

System	Number of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	With Functionality > 50%	
				After Day 1	After Day 7
Communication	4	4	1	0	4
<b>Total</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>4</b>

### Expected Potable Water and Electric Power System Performance (Level 1)

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	23,491	21,435	21,302	21,004	17,888	0
Electric Power	23,491	22,142	20,434	15,491	5,253	0

### Causality Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Residential	503	126	15	29
	Non-Residential	16	5	1	2
	<b>Total</b>	<b>519</b>	<b>131</b>	<b>17</b>	<b>31</b>
2 PM	Residential	140	38	4	8
	Non-Residential	840	258	44	86
	Commute	1	2	2	0
	<b>Total</b>	<b>980</b>	<b>295</b>	<b>50</b>	<b>95</b>
5 PM	Residential	166	41	5	10
	Non-Residential	264	81	14	27
	Commute	3	4	7	1
	<b>Total</b>	<b>433</b>	<b>127</b>	<b>25</b>	<b>38</b>

### Building-Related Economic Loss Estimates (Millions of Dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building loss	Structural	105.7	37.3	4.5	4.8	<b>152.3</b>
	Non-Structural	442.2	104.8	11.6	14.5	<b>573.1</b>
	Content	120.7	47.4	7.3	6.3	<b>181.8</b>
	Inventory	N/A	0.7	0.9	0.1	<b>1.7</b>
	<b>Subtotal</b>	<b>668.6</b>	<b>190.3</b>	<b>24.4</b>	<b>25.6</b>	<b>909.0</b>
Business Interruption Loss	Wage	6.1	43.0	0.8	1.2	<b>51.0</b>
	Income	2.6	32.5	0.4	0.3	<b>35.8</b>
	Rental	40.7	14.7	0.3	0.7	<b>56.4</b>
	Relocation	74.8	24.7	1.4	5.9	<b>106.9</b>
	<b>Subtotal</b>	<b>124.2</b>	<b>114.9</b>	<b>2.9</b>	<b>8.1</b>	<b>250.2</b>
<b>Total</b>		<b>792.8</b>	<b>305.2</b>	<b>27.4</b>	<b>33.8</b>	<b>1,159.2</b>

### Transportation System Economic Losses (Millions of Dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Roads	561.2	0.0	0.0
	Bridges	86.0	15.9	18.4
	Tunnels	20.0	2.3	11.5
	<b>Subtotal</b>	<b>667.2</b>	<b>6.0</b>	<b>2.7</b>
Railways	Tracks	50.1	0.0	0.0
	<b>Subtotal</b>	<b>50.1</b>	<b>0.0</b>	<b>0.0</b>
		<b>717.3</b>	<b>18.2</b>	<b>2.5</b>

## **Summary of Projected Hazardous Damage**

Queen of the Valley Hospital and Napa State Hospital (including a facility for the criminally insane) are located in the City of Napa. St Helena Hospital is located in the unincorporated town of Angwin, and the State Veterans Home's Holderman Hospital is located in town of Yountville. Approximately half of the beds could be lost during a major earthquake due to the age and construction type of each of the hospitals. Smaller private medical facilities such as the Kaiser Clinic can augment the ability of our hospitals to care for their client populations.

Telephone systems will be affected by system failure, overloads, loss of electrical power and possible failure of some alternate power systems. Immediately following an event, numerous failures will occur, compounded by system use overloads. This will likely disable up to 80% of the telephone system for one day. County UHF/VHF and microwave radio systems are expected to operate at 40% effectiveness the first 12 hours following an earthquake, increase to 50% for the second 12 hours, then begin to slowly decline to approximately 40% within 36 hours. Microwaves systems will likely be 30% or less effective following a major earthquake.

Electrical transmission lines are vulnerable to many hazards due to their length and, in many areas, the remoteness of the lines. Damage to generation plants or substations may cause outages. Damage to generation plants will affect electrical production. Damage to substations will affect delivery. Repairs to electrical equipment may require physically clearing roadways and movement of special equipment. Restoration of local electrical power will be coordinated with regional and local utility representatives. Up to 60% of the system load may be interrupted immediately following the initial earthquake shock wave. Much of the affected area may have service restored in days; however; severely damaged areas with an underground distribution system may create longer service delays.

Damage to natural gas facilities serving the Napa communities will consist primarily of isolated breaks in major transmission lines. Breaks in mains and individual service connections within the distribution system will be significant, particularly near the fault zones, especially in the City of Napa and in American Canyon just to the south of Napa. These many leaks pose a fire threat in the susceptible areas of intense ground shaking and/or unstable ground near the shoreline. Breaks in the system will affect large portions of the City and restoration of natural gas service could be significantly delayed.

Water availability, distribution for supporting life, and treating the sick and injured are of major concern to the City of Napa. It is expected that the major local water source, Lake Hennessey, may be inaccessible due to damage to the pipelines that distribute potable water. However, Napa is also connected to the State Water project at the Barwick Jamieson Treatment Plant and has a tertiary source in Milliken Dam Water treatment facility. Either the Hennessey or Barwick Jamieson facility, if in operation will be able to supply the emergency potable water needs to the City of Napa and its immediately contiguous County areas, if the transmission and distribution systems can be repaired.

There are three water reservoirs within the City of Napa that have all been retrofitted. If the reservoirs and water tanks remain intact, they will likely provide ample potable water to meet demands during the time the water treatment stations are being repaired.

The three reservoirs in Napa are on solid ground and are expected to be usable after a major earthquake. However, the other cities' water tank survivability is low. Therefore, potable water will most likely have to be supplied in these area communities.

Significant damage is expected on the road system. State Highway 12 is expected to be impassable from Cordelia to the Highway 29 Intersection. Interstate 80 could suffer severe surface distortion in the Fairfield and Vacaville areas, as well as damage to its numerous bridges and viaducts in the greater Bay Area. Highway 128 is subject to landslides both up valley toward Geyserville and in the hills around Lake Berryessa. Highway 29 leaving the County to the north is subject to landslides and debris flows to the south as it crosses over old bay mud and fill areas and is subject to liquefaction and surface distortion. Any combination of failures to these main highways could isolate the County for up to 72 hours with complete road restoration taking perhaps several weeks. Vehicular traffic will be limited on the foothill roads due to potential and actual landslides.

Soil liquefaction problems could cause the closure of several roads in American Canyon and areas of other cities built on unconsolidated river soils. The Napa Valley Wine Train, a tourist rail system in Napa, is expected to be severely damaged restricting travel on the system for several weeks to months. The California Northern railway system, which transverses the south County from Interstate 80 at Cordelia to Shellville along Highway 12 and crossing the Napa River Delta area south of the 12/29 Intersection through Napa Junction, will likely be severely damaged and unusable. The freight yard, repair shops and rail yard that are located at Napa Junction are expected to be severely damaged. Railroad commercial and passenger service will be restricted for at least 72 hours and possibly several weeks.

There are ten dams in Napa County, which have completed inundation studies and maps in sufficient detail to plan evacuation, mass care and emergency medical care for populations displaced by failure or threat of dam failure. Maintenance programs and activities of the Conn Dam are regularly performed, and the potential catastrophic failure of the 70-year old dam is considered to be improbable during most scenario earthquakes.

Sewage collection systems throughout the County are expected to sustain widespread damage. In the City of Napa a sanitation plant is located in a highly probable liquefaction area near the Maxwell Bridge. The Napa Sanitation District plant will also experience liquefaction and commercial electrical power losses. If backup generating systems fail, the result could be the discharge of raw sewage into the river. The sanitation plant could be out of service from one to four months, depending on damage.

Based on this modeling it is clear that any number of mitigation techniques are applicable to this threat. California already has the strictest building codes in the country, the highest construction standards for schools and the most dynamic design

and construction standards for highways, bridges and other transportation infrastructure. The recent experience of the 2003/2004 earthquakes illustrated this. Paso Robles in California suffered from the effects of being in near proximity of a moderate 6.5 Richter scale event. Paso Robles suffered significant damage of about \$150 million but with very little loss of life, injuries or damage to modern structures.

## **Unreinforced Masonry Buildings**

### **Background and the URM Law**

The City of Napa has prepared a report considering the possible adoption of a mandatory seismic retrofit ordinance. Attention to the Downtown's Unreinforced Masonry buildings is prompted by several factors:

Public criticism of vacant, unkempt, and deteriorating buildings in the downtown, the economic impacts created by unsafe, URM, and/or blighted buildings, and a "challenge" to some individual building owners to take care of their properties;

The magnitude 6.5 earthquake in San Simeon on 12/22/03, resulting in two deaths, over 40 serious injuries, and economic devastation to downtown Paso Robles;

A subsequent editorial calling for Napa to "fix earthquake unsafe buildings" (*Napa Valley Register*, 12/26/03).

The Downtown Napa Mixed-Use Study, which has focused attention on under-utilized buildings and/or sites; and

Increased visibility, activity and interest in general in the overall development of downtown Napa.

In 1986, the California URM Law SB 547 became effective, requiring local jurisdictions in Seismic Zone 4 (high risk areas) to comply with three directives:

1. Create an inventory of unreinforced masonry buildings in their jurisdictions;
2. Establish an earthquake loss reduction program for these buildings; and
3. Report all information about these efforts to the Seismic Safety Commission in a yearly progress report.

The City of Napa prepared and finalized its URM inventory in 1990, and those building owners were notified as provided for in the law. A URM task force was formed, consisting of City staff and property owners, as well as representatives from the building/contracting, banking, real estate, preservation, and architecture and engineering professions. They met periodically to discuss financial issues, public education, building/engineering issues, and incentives for compliance.

In 1994, a mandatory seismic retrofit ordinance drafted by the Building Official was considered by City Council, but not adopted. The cost of seismic retrofit improvements

was a concern voiced by owners at that time. Council directed staff to continue working with the URM owners to achieve voluntary efforts. Today, Napa has a mandatory seismic retrofit ordinance. URM upgrades are mandatory. The City of Napa presently has 12 structures on this list. Three are vacant, the rest are occupied by active commercial uses.

The City's loss reduction program was enacted in 1997 when the Redevelopment Agency adopted its Seismic Retrofit Program. This program was created with input from members of the original URM Task Force, and combined incentives provided by many other jurisdictions in California, especially the City of Sonoma where a mandatory retrofit ordinance was in effect. The program provided financial incentives in the form of reimbursements to owners for a portion of the cost of architectural and engineering documents (\$1 / sq. ft.) and for construction (\$1 / sq. ft.). The Agency also funded the costs for seismic strength testing up to \$1,000. The program was amended in 1999 to provide the following incentives:

- Assists owners of commercial properties by offering reimbursement for a portion of the architectural and engineering plan costs. Properties must be located within the Redevelopment Project Area.
- Reimbursements are calculated based on commercial square footage of the building: \$2.50 / square foot.
- A maximum of \$1,000 is also reimbursable for seismic testing.
- After the structural plans are approved by the Building Official, the reimbursement is made in the form of a loan, and owners must sign a loan agreement and promissory note. A building permit must be obtained within one year of reimbursement. Retrofit construction must be completed within five years from reimbursement. One extension may be granted.

The City's loss reduction program was enacted in 1997 when the Redevelopment Agency adopted its Seismic Retrofit Program. Since 1997, nine owners have participated in this program for a total of \$145,880 in reimbursements. Five additional owners have had their properties removed from the URM list upon engineering analysis, and have been reimbursed a total of \$ 7,460 from the program. This \$ 153,340 in public contributions leveraged approximately \$4.3 million in private funds."

Property	Agency Participation
Tuscany Restaurant	\$9,000.00
Napa Valley Register Building: Sushi Mambo/Fershko, Lewis & Blevans Attys.	\$13,250.00
Migliavacca Building: Café Ciccero/Shoes On First, et al.	\$16,750.00
First National Bank Building: Ristorante Allegria/Napa Co. Landmarks	\$14,650.00
Winship Building: NV Coffee Roasting, Morgan Lane Real Estate, et al.	\$22,392.50
Napa Labor Temple: Uboldi & Heinke/Napa Steam Laundry Investors	\$24,687.50

Overall, City records indicate that 35 URM properties have been seismically retrofitted in Downtown Napa and removed from the inventory. Since the 1990 inventory was prepared, several buildings thought to be URM have been analyzed by a structural engineer and determined to be reinforced. These have been removed from the inventory, resulting in the current list of 7.

There are 366 jurisdictions subject to Seismic Zone 4 URM Law. Of these, 251 jurisdictions have implemented loss reduction programs, including 130 that have enacted Mandatory Seismic Retrofit Ordinances. There are currently 82 cities/counties that now report no URM buildings on their inventory due to their mitigation programs – URM buildings have been either seismically upgraded or demolished.

### Earthquake Damage Statistics

Earthquake	Date	Fault	Magnitude	Severity in Napa	Damage in Napa	Injuries in Napa
Great 1906 San Francisco	4/18/06	San Andreas	8.25	Moderate to Severe	Moderate Unknown \$ amount	Unknown
Bolinas	8/17/99		4.7	Not felt	None	None
Cloverdale	1/10-1/8/2000	Rogers	4.0, 4.2, 4.0	Not felt	None	None
Santa Rosa	1969	Rogers	5.6 and 5.7	Weak	None to Slight	None
Yountville	9/3/2000	Rogers	5.2	Severe	65 million FEMA awarded 5.5 million in grants, 2300 building permits issued for repairs	40 minor 2 severe

*Earthquakes with an epicenter 60 miles from Napa since 1906 4.0 or greater*

The City of Napa is located in close proximity to four known earthquake faults: Rodgers Creek (the continuation of the Hayward Fault across San Pablo Bay) 15 miles west of Napa, Concord-Green Valley located 10 miles east of Napa, the West Napa Fault which

runs just west and parallel to Highway 29, and the previously-unknown Mt. Veeder/Yountville Fault which impacted Napa in September, 2000. Although the length of that fault has not been mapped, the epicenter was 10 miles northwest of Napa. It lasted for 18 seconds, was calculated at Magnitude 5.1, occurred approximately 5.8 miles underground, and caused about \$65 million in property damage.

The Rodgers Creek Fault is considered one of two in the Bay Area that pose the greatest threat for earthquake probability, the other being San Andreas. The US Geological Survey has determined that the Bay Area Regional Quake Probability of experiencing a M 6.7 event or greater is 62% before 2032. The USGS Earthquake Loss Estimation Model projects losses of \$520 Million in Napa County if the Rodgers Creek Fault experienced a M 7.1 quake. *(From USGS Brochure prepared 2/5/01).*

The 2000 Napa earthquake was analyzed in a report prepared by the Stanford University Earthquake Engineering Center. The analysis reported unusually strong ground accelerations recorded on seismograph instrumentation at Napa Valley College, Carmenet Winery, and Fire Station 3, three geographically dispersed locations. Although the epicenter was approximately 10 miles northwest of Napa, USGS engineers identify two factors accounting for the significant shaking intensity. First, the shaking was amplified by the soft sediments of alluvial soils along the Napa River and in the lower lying areas south of the City. Second, the rupture propagated from the epicenter directly to the City of Napa, shown in the shaking intensity map illustrations generated just after the quake. The intensity levels recorded in Napa were 5 to 8 times greater than shaking within one mile of the epicenter. The final summary of the Stanford report confirmed that observation and concluded with:

*"These accelerations are significantly higher than most of those recorded in other California earthquakes under similar conditions. Many of the structures we visited, in particular URM masonry buildings with unbraced parapets in their facades and old wooden houses on tall crawl spaces supported by cripple walls, would have suffered more damage in our opinion if ground motions at these locations corresponded to spectral displacements of 4 cm or spectral accelerations near 1g. Thus, this earthquake should not be interpreted as an indication of adequate behavior of these types of constructions. On the contrary, this earthquake should serve as a wakeup call for owners of these types of construction to undergo at least a small level of retrofitting of their constructions. In particular bracing and anchoring of URM walls and parapets as well as lateral bracing and anchoring of cripple walls are needed." (Brief Report on the September 3, 2000 Yountville/Napa California Earthquake, by Eduardo Miranda and Hesam Aslani, John A. Blume Earthquake Engineering Center, Stanford University).*

Statistics bear out this finding as well. Within the first six months after Napa's quake, the City Public Works Building Division had issued over 1,480 building permits for earthquake related repairs. Eventually, 2,300 building permits were issued. The US Small Business Administration approved 1,324 loans totaling \$22.6 million to Napa homeowners and businesses; FEMA awarded \$5.5 million in grants for home quake repairs. Officials stated that rarely will a M 5.1 quake result in a federal disaster declaration, but the damage in Napa exceeded that which would have been normally

predicted. Forty people reported injuries, the most seriously a 5-year old boy who was crushed by a fallen fireplace

The December 2003 San Simeon Earthquake most heavily impacted the City of Paso Robles, about 40 miles to the east of the epicenter. Like Napa's 2000 quake, the rupture propagated from San Simeon to Paso Robles. Although Paso Robles does have a mandatory seismic retrofit ordinance, the deadline for compliance was 2007. Many buildings in Paso Robles were damaged, though those that had undergone seismic retrofit sustained relatively minor damage, such as broken glass or loosened bricks.

**CURRENT LIST OF UNREINFORCED BUILDINGS 2009**

<b>NO.</b>	<b>ADDRESS</b>	<b>Vacant</b>	<b>CITY Landmark Inventory</b>	<b>HRI MAP SCORE</b>	<b>Date Construction to be Complete</b>	<b>Extension Granted?</b>
1	1210 First			3	6/1/2009	NO
2	1025 Coombs			3	6/1/2009	NO
	1212 First	X		1	6/1/2009	NO
3	807 Main	X			6/1/2014	YES DESIGN 6/16/13
4	810-816 Brown			1	6/1/2009	NO
5	822 Brown				6/1/2009	YES DESIGN 8/1/08
6	376 Soscol		Yes		6/1/2014	YES DESIGN 5/12/13

\* Listed on the City of Napa Historic Resources Inventory

\* \* Property is outside of 100-year flood boundary; however, finished floor elevation is below base flood elevation.

Properties on National Register and City Landmark Inventory are exempt from flood-proofing requirements.

*Italics denotes historic building name.*

Overall, City records indicate that as of November 2009, thirty-five URM properties have been seismically retrofitted in downtown Napa and removed from the inventory.

**Seismic Hazard Mitigation Activities since 2004**

The City’s most significant gain in mitigating losses from seismic activity has been in its efforts to seismically retrofit the URM inventory in the City. City of Napa Ordinance O2006 1 became effective in April 2006, establishing Chapter 15.110, Review, Rehabilitation, and Abatement of Existing Seismically Unsafe Buildings. The new ordinance set forth directives and schedules for seismic retrofitting of the 23 Un-reinforced Masonry structures remaining on the City’s inventory. The original URM inventory was prepared in 1989 as a result of SB 547, which directed cities and counties in Seismic Zone 4 to identify potentially dangerous URMs and adopt plans for mitigating the hazards posed by these buildings. Through building code requirements, voluntary upgrades, and Redevelopment Agency financial incentives, the number of structures on the inventory decreased from 45 to 4 from 1989-2014. One of these structures, 1212 First Street, is part of a major redevelopment project, and was removed in 2014 to make way for a new hotel. Two other URM structures were heavily damaged in the 6.0 M earthquake on August 24, 2014, and are currently being repaired and seismically retrofitted. As of September, 2015, there is only one URM building remaining in the City of Napa, the historic “Old Adobe”. The City of Napa has been working with the owner of this property to ensure its retrofit in a timely manner.

The review of 2007 showed that of the original number of 45 buildings, there are 7 left in the city that requires retrofitting. The City-owned “Borreo Building” was completed in

2007. These last 7 buildings must submit plans for seismic retrofitting by June of 2008 and complete the work by June 1 of 2009. The City has granted one year extensions for some of the properties to complete the work.

In 2014 the City adopted the 2013 California Building Code.

### **Wildland Interface Fire Hazards**

The City is characterized by a narrow valley floor surrounded and intermingled with steep, hilly terrain that contains areas that are very susceptible to wildland fires. Such fires expose residential and other development within the city to an increased risk of conflagration. The hilly/mountainous terrain to the City's west and east strongly influences both wildland fire behavior and the suppression capability of firefighters and their equipment. Such rough topography places limitations on accessibility for firefighting equipment so that travel time from the suppression station to a fire can greatly exceed the City's maximum acceptable response time of five minutes.

Wind is a predominant factor in the spread of fire in that burning embers are carried with the wind to adjacent exposed areas. The City has a characteristic southerly wind that originates from the San Francisco Bay and becomes a factor in fire suppression. Also, during the dry season the City experiences an occasional north wind of significant velocity that is recognized by fire fighters to be a significant factor in the spread of wildland fires.

The City is divided geographically into three parts by the Napa River and the north/south section of State Highway 29. The River and the Highway can be significant barriers to fire suppression response in times of floods or earthquakes (the City is susceptible to both). Smaller waterways that are tributaries to the River (Napa, Redwood, Dry and Tulocay Creeks) can be barriers to street extensions and linkages thereby exacerbating access difficulties.

### **Wildland / Urban Interface**

The term Wildland/urban interface was coined in 1976 by Cal Fire, reference source Firescope WUI 2011, to identify the condition where highly flammable native vegetation meets high value structures, primarily residences. In most cases, there is not a clearly defined boundary or interface between the structures and vegetation that present the hazard. Historically, residences in these ill-defined wildland/urban intermix boundary areas were particularly vulnerable to wildfires because they were constructed with a reliance on fire department response for protection rather than fire resistance, survivability and self-protection. However, in the recent past, there has developed a greater appreciation for the need to regulate development in these hazardous areas as a result of a number of serious statewide wildland fire conflagrations. (CalFire recently modified the terminology for these areas to "wildland/urban intermix".)

When a wildfire ignites in a high risk WUI area, the priority is life and property protection. Historically, CalFire forces began their attack from the most advantageous topographical or physical location, and surrounded the fire perimeter. Now, with

hundreds or even thousands of structures inside the fire perimeter, the Cal Fire's initial and extended resources are forced to divert to individual structure defense. This causes wildfire control to become secondary to protecting lives and property, thus allowing wildfires to spread unchecked, threatening and destroying more houses and natural resources.

The major wildland fire hazard risks for residential development are in the City's hilly areas characterized by steep slopes, poor fire suppression delivery access, inadequate water pressure and highly flammable vegetation.

The severity of the wildland fire hazard is determined by the relationship between three factors: fuel classification, topographic slope, and critical fire weather frequency. The box below lists fuel classifications; Napa's Fire Hazard Areas generally fall into the Medium Fuel category. Critical fire weather conditions occur in periods of relative low humidity, high heat and high winds. The Napa area typically has critical fire weather from two to seven days annually. Fuel, slope, and weather conditions combine to give Napa WUI areas and overall "Moderate" hazard rating based on 2012 International Wildland-Urban Interface Code, International Code Council.

**Fire Hazard Severity**

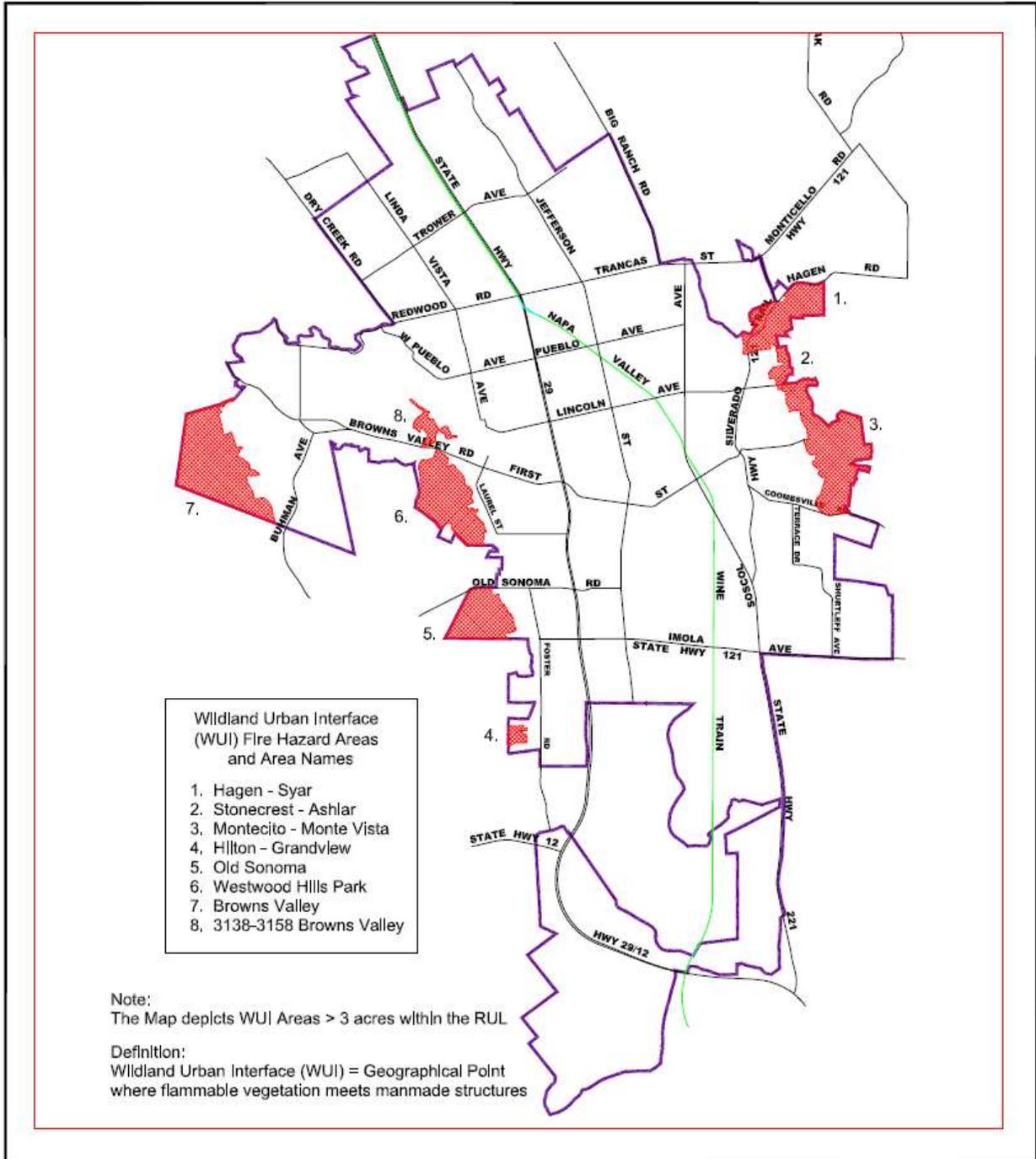
Critical Fire Weather Frequency									
Fuel Classification	< 1 Day/Year			2 to 7 Days/Year			> 8 Days/Year		
	Slope (%)			Slope (%)			Slope (%)		
	< 40	41 – 60	> 61	< 40	41 – 60	> 61	< 40	41 – 60	> 61
Light Fuel	M	M	M	M	M	M	M	M	H
Medium Fuel	M	M	H	H	H	H	E	E	E
Heavy Fuel	H	H	H	H	E	E	E	E	E

M – Moderate  
H – High  
E – Extreme

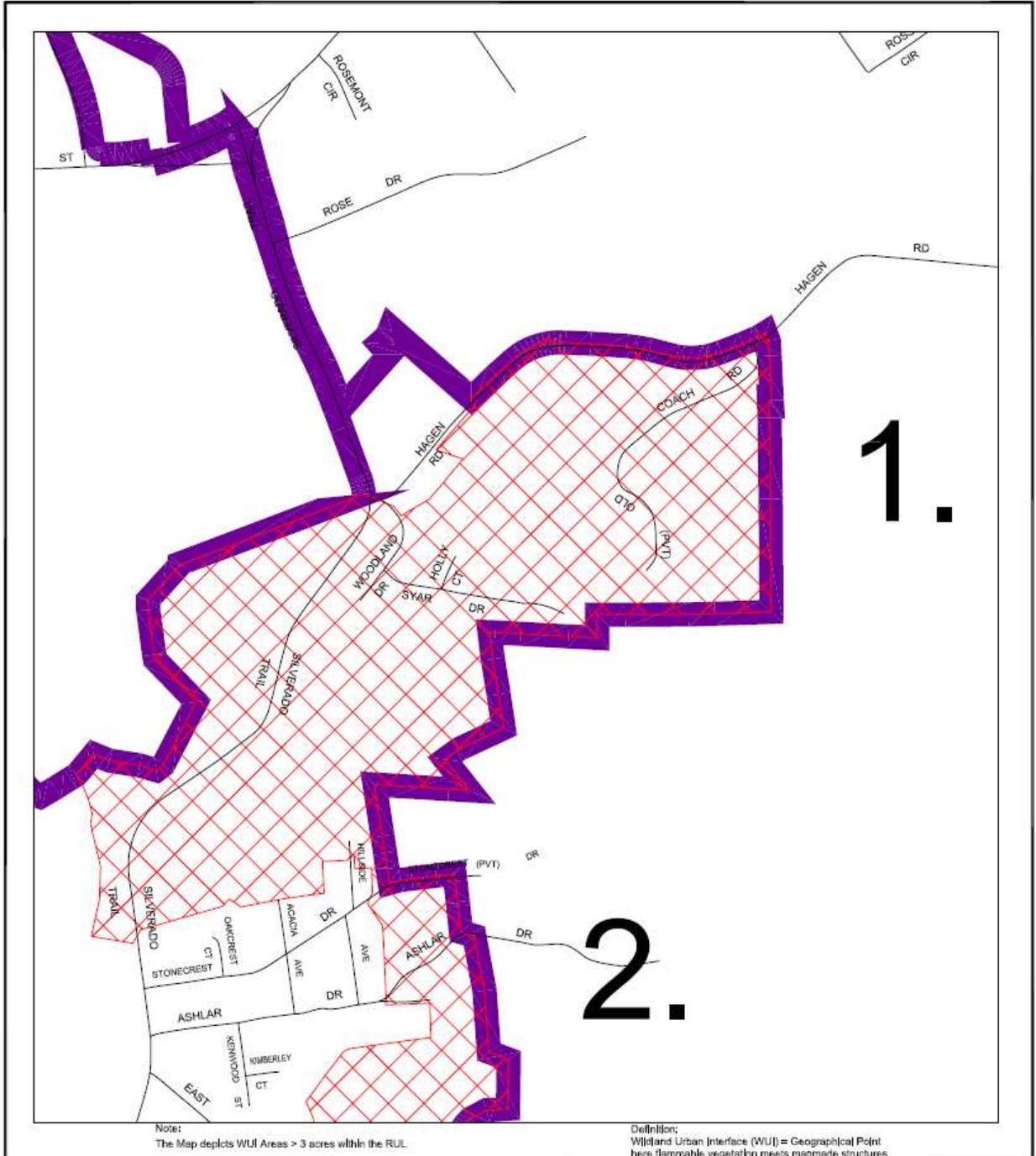
**Fuel Classifications**

**Heavy fuel** ----- vegetation consisting of round wood 3 to 8 inches in diameter  
**Medium fuel** ----- vegetation consisting of round wood 1/3 to 3 inches in diameter  
**Light Fuel** ----- vegetation consisting of herbaceous plants and round wood less than 1/4 inch in diameter.

The map on the following page identifies the WUI Fire potential in the City of Napa and depicts the areas or neighborhoods that have the greatest potential for a vegetation fire extending into the urban interface.



City of Napa General Plan	Updated 11/09
Figure 8-8 <b>Wildland Urban Interface (WUI) Fire Hazard Areas</b>	<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>Fire Hazard Area</p> </div> <div style="margin-left: 20px;"> <p>RUL Boundary</p> </div> </div>
While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions.	



Note:  
The Map depicts WUI Areas > 3 acres within the RUL

Definition:  
Wildland Urban Interface (WUI) = Geographical Point  
where flammable vegetation meets manmade structures

City of Napa Fire Wildland Urban Interface

Updated 11/09

Figure 1  
**HAGEN-SYAR - Area #1**  
Fire Wildland Urban  
Interface (WUI)

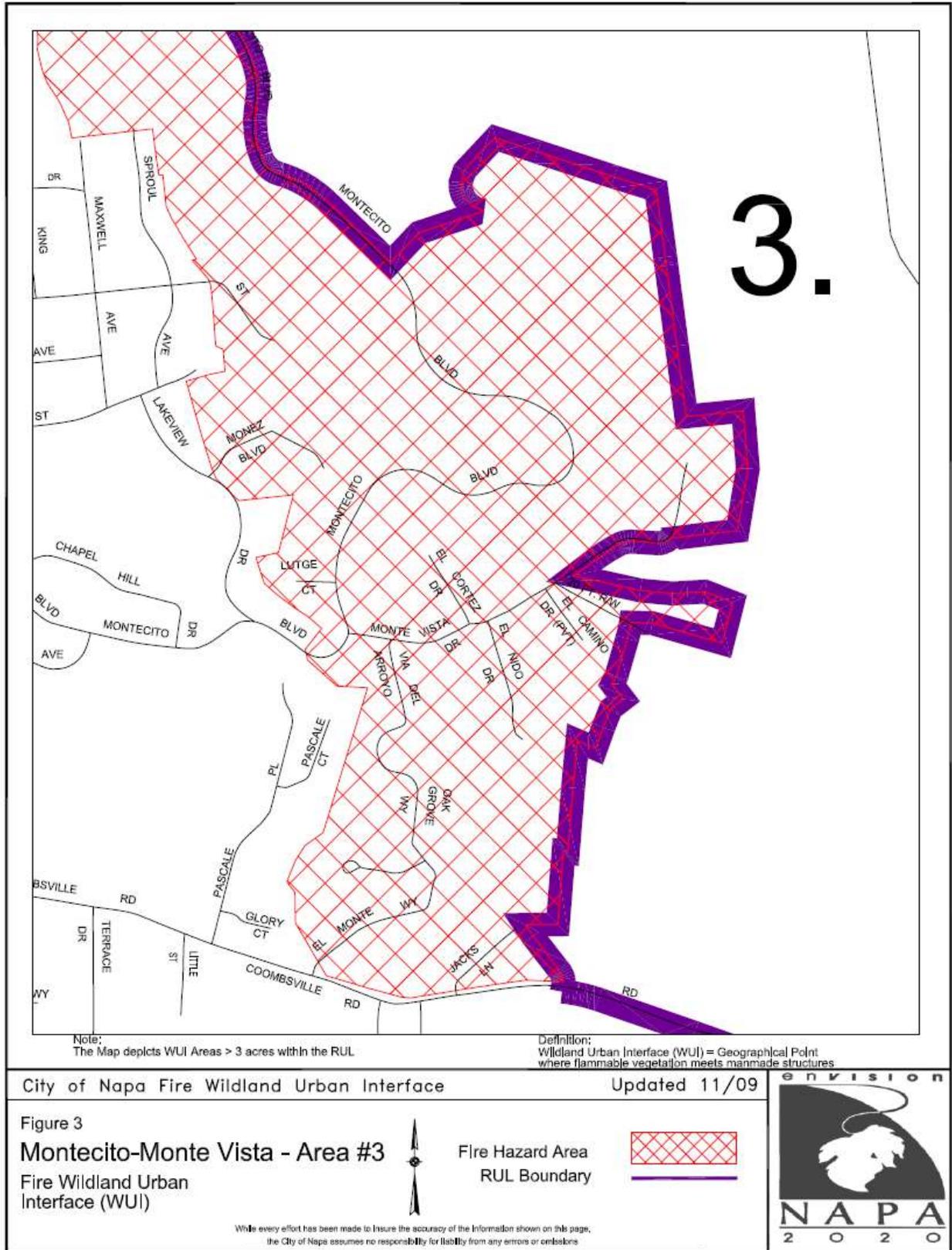


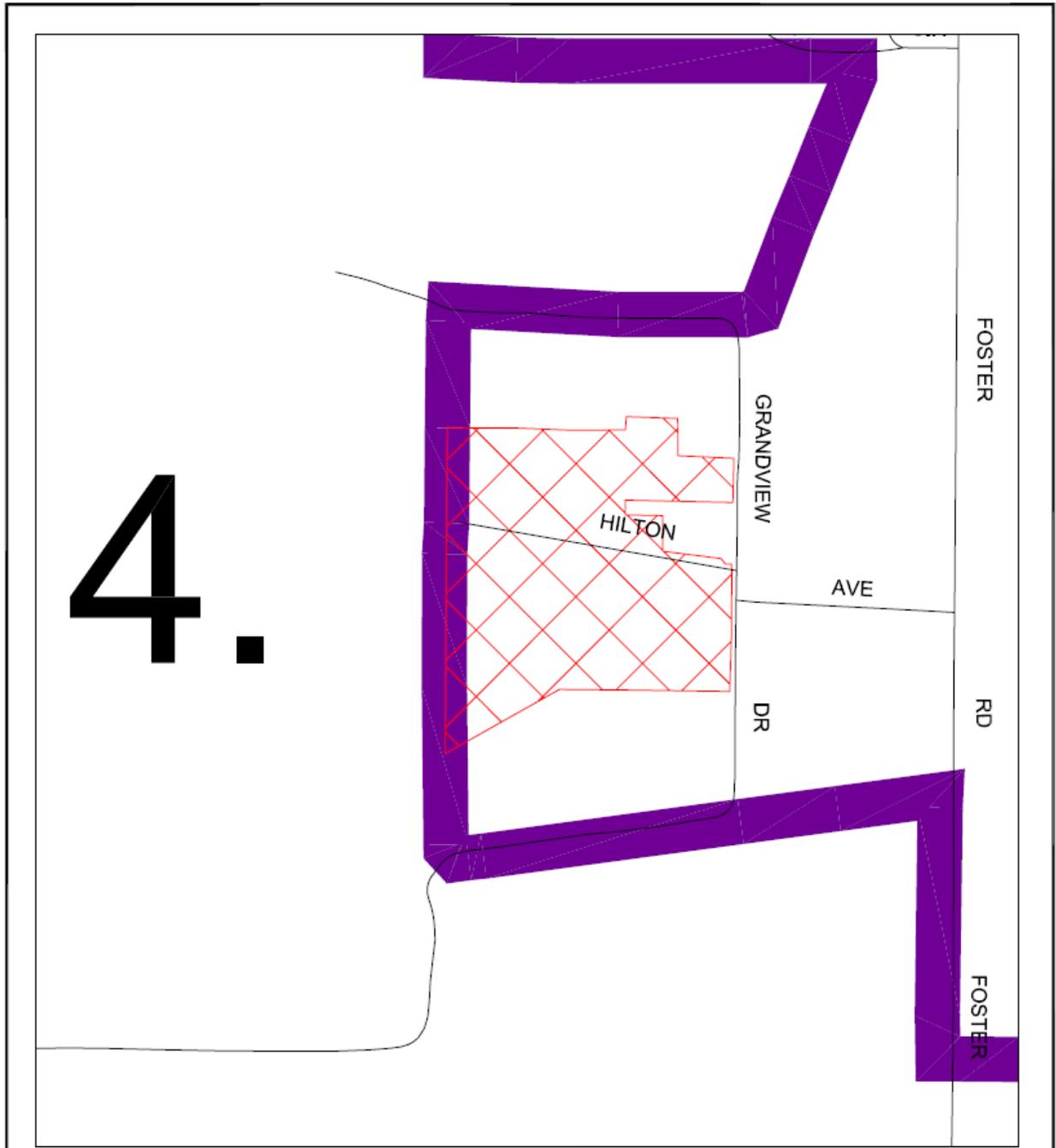
Fire Hazard Area  
RUL Boundary



While every effort has been made to insure the accuracy of the information shown on this page,  
the City of Napa assumes no responsibility for liability from any errors or omissions.





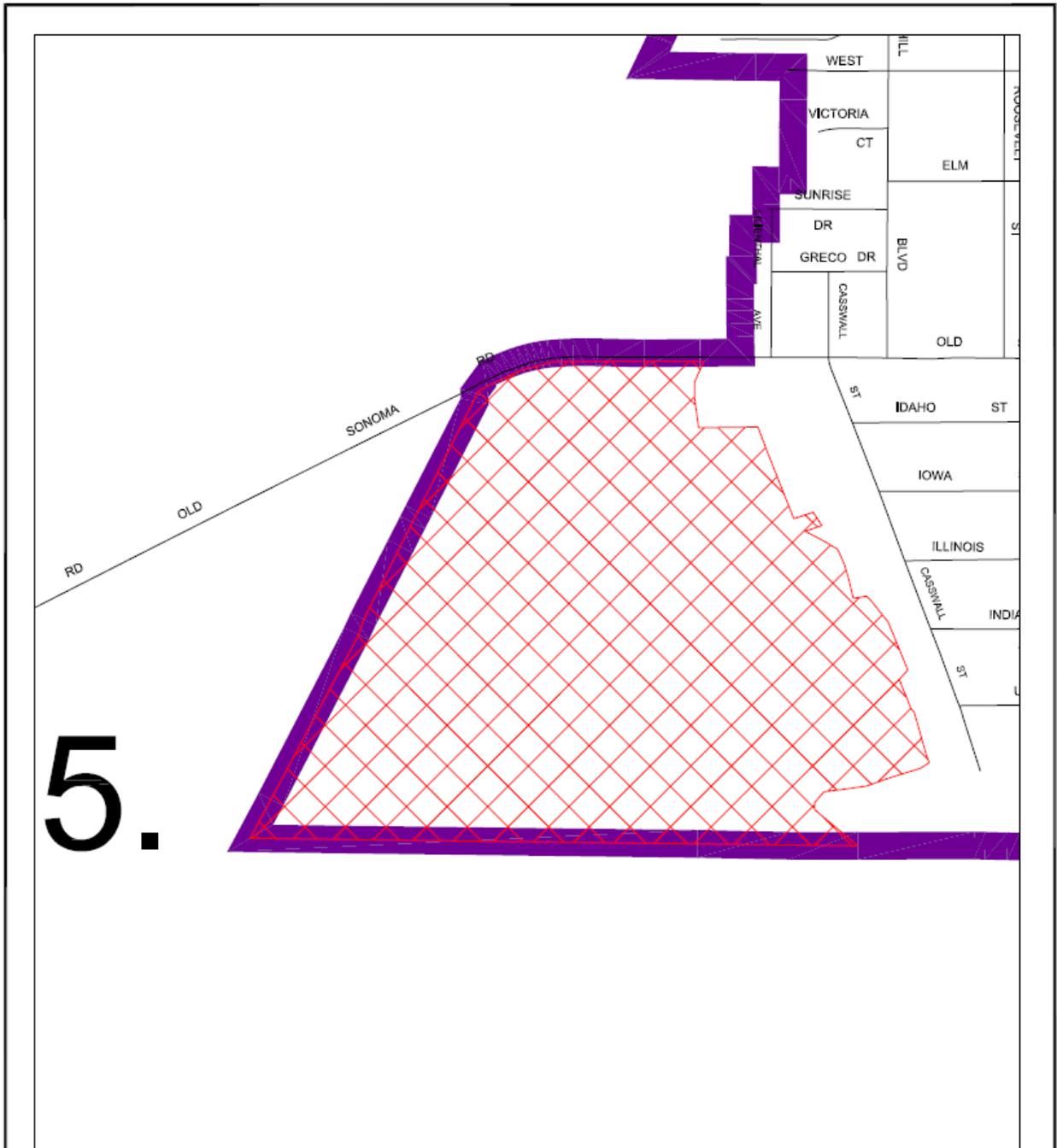


4.

Note:  
The Map depicts WUI Areas > 3 acres within the RUL

Definition:  
Wildland Urban Interface (WUI) = Geographical Point  
where flammable vegetation meets manmade structures

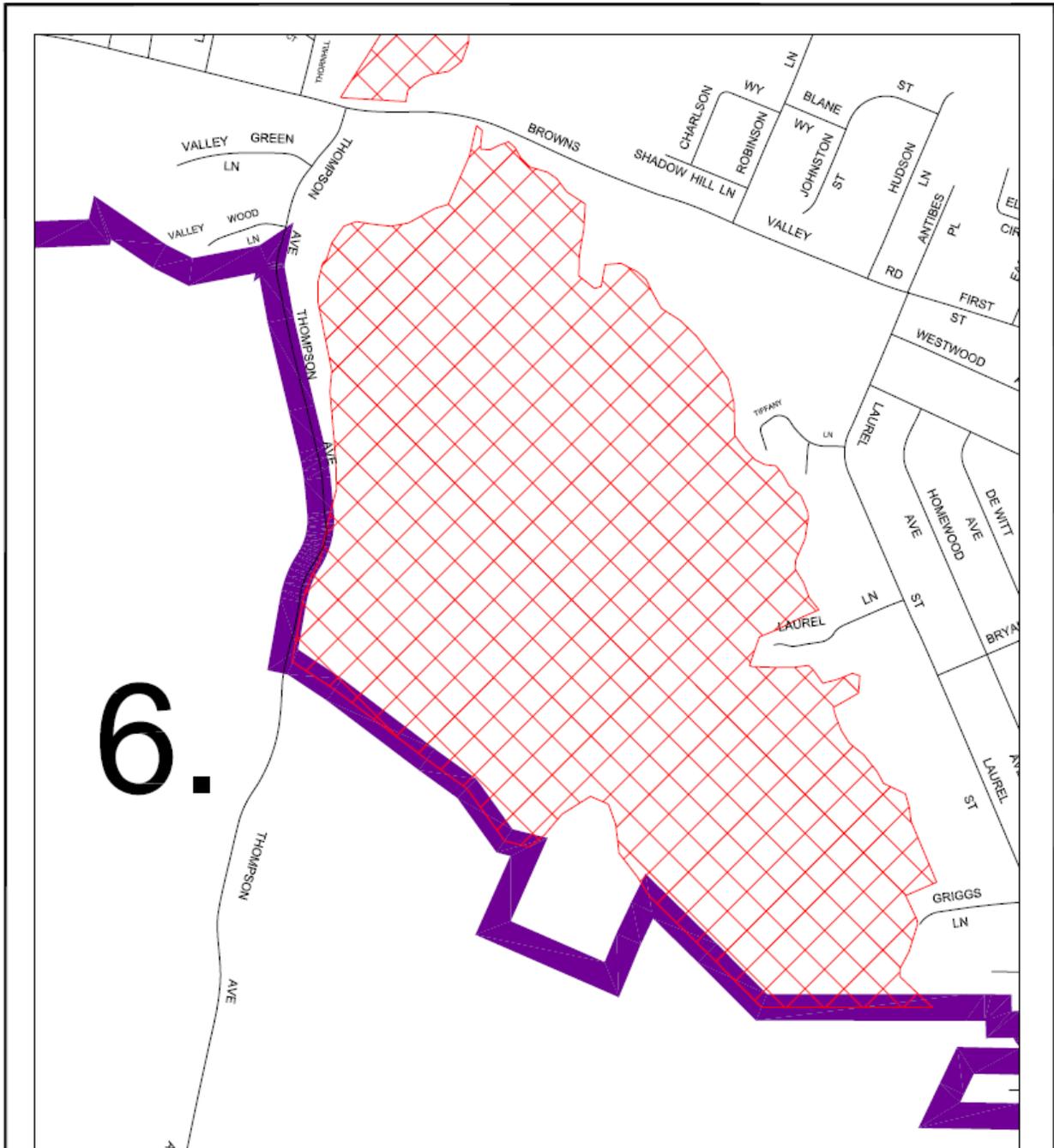
City of Napa Fire Wildland Urban Interface		Updated 11/09	
<p>Figure 4 HILTON-GRANDVIEW - Area #4 Fire Wildland Urban Interface (WUI)</p>			
<p>While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions.</p>		<p>Fire Hazard Area RUL Boundary</p>	<p>NAPA 2 0 2 0</p>



Note:  
The Map depicts WUI Areas > 3 acres within the RUL

Definition:  
Wildland Urban Interface (WUI) = Geographical Point where flammable vegetation meets manmade structures

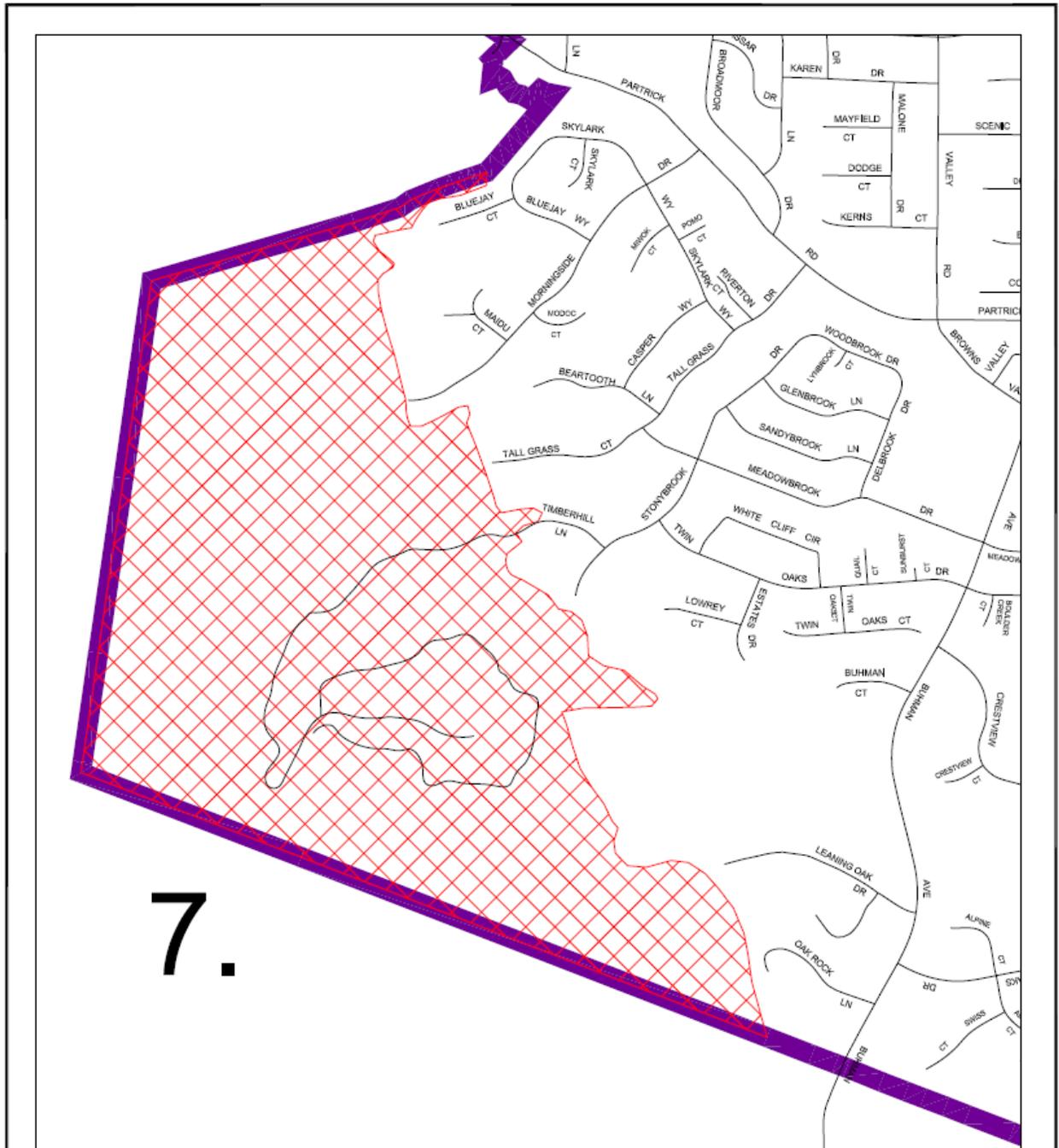
City of Napa Fire Wildland Urban Interface		Updated 11/09	
<p>Figure 5 <b>OLD SONOMA - Area #5</b> Fire Wildland Urban Interface (WUI)</p>	 <p>Fire Hazard Area RUL Boundary</p>	 	
While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions.			



Note:  
The Map depicts WUI Areas > 3 acres within the RUL

Definition:  
Wildland Urban Interface (WUI) = Geographical Point  
where flammable vegetation meets manmade structures

City of Napa Fire Wildland Urban Interface		Updated 11/09	
<p>Figure 6 <b>WESTWOOD HILLS - Area #6</b> Fire Wildland Urban Interface (WUI)</p>			
		<p>Fire Hazard Area</p> 	
		<p>RUL Boundary</p> 	
<p>While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions.</p>			



7.

Note:  
The Map depicts WUI Areas > 3 acres within the RUL

Definition:  
Wildland Urban Interface (WUI) = Geographical Point where flammable vegetation meets manmade structures

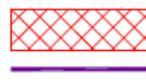
City of Napa Fire Wildland Urban Interface

Updated 11/09

Figure 7  
**BROWNS VALLEY - Area #7**  
Fire Wildland Urban Interface (WUI)

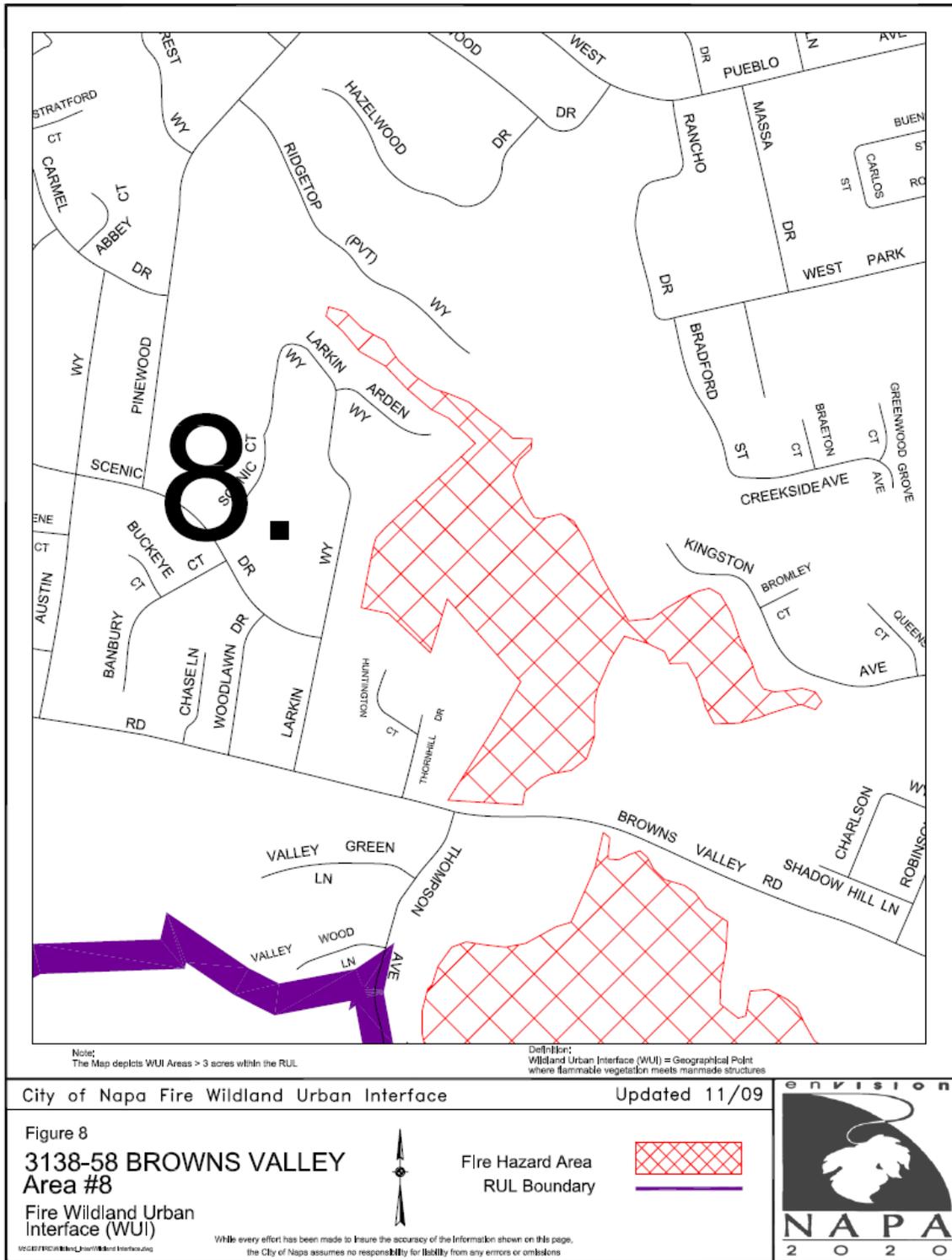


Fire Hazard Area  
RUL Boundary



\\C02712001\Info\GIS\Map\Wildland Interface.dwg

While every effort has been made to insure the accuracy of the information shown on this page, the City of Napa assumes no responsibility for liability from any errors or omissions.



### Fire Hazard Areas Inventory

The following table is an estimate of structures in the 19 identified Fire Hazard Areas shown in the Wildland-Urban Interface Fire Hazard Areas Map on the previous page. This inventory is derived from the HAZUZ 99 database, which relies on the 1990 U.S. Census.

Table 3-1

<b>Building Inventory, Fire Areas</b>									
<b>Fire Area</b>	<b>Geographic area</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religion</b>	<b>Government</b>	<b>Education</b>	<b>Total</b>
<b>1 &amp; 2</b>	<b>Hagn/ Stonecrest</b>	192	2	0	5	0	0	0	<b>199</b>
<b>3</b>	<b>Montevista/ Montecieto</b>	310	3	2	0	1	2	0	<b>318</b>
<b>4</b>	<b>Hilton Grandview</b>	100	0	0	0	0	0	0	<b>100</b>
<b>5</b>	<b>Old Sonoma Rd</b>	21							<b>21</b>
<b>6</b>	<b>Westwood Hills</b>	164	1						<b>164</b>
<b>7</b>	<b>Browns Valley</b>	520	3	3	1	2	0	0	<b>529</b>
<b>8</b>	<b>3138 – 3158 Browns Valley Rd</b>	24							<b>24</b>
<b>Total</b>		<b>1,331</b>	<b>9</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>1,355</b>

### Historical Losses From Urban Interface Fires

While the City of Napa has not sustained losses from an Interface fire, there is great potential. There have been two destructive fires in the County that have threatened areas of the City in 1964 and again in 1986. The graph below demonstrates the potential losses and confirms the reasons why the City must work towards implementing the identified mitigation action items.

### Potential Wildland-Urban Fire Losses

Potential losses from fires at the wildland-urban interface are shown in the table below. These assumptions are worst-case for each fire area. This means that worst case fire weather conditions are assumed resulting in the loss of every building in a given Fire Hazard Area. Estimated values are for structures only and do not include the cost to fight the fires. Due to the short response times in the areas, it is assumed that there would not be any fatalities.

### Methodology Used to Determine Losses for Wildfires

The figures shown for losses due to wildfire were generated by calculating the number of structures in the medium and high hazard areas and assume that all of them would be lost in a worst case fire. The value of these structures was then calculated by prorating the number of structures in the hazard area as a percent of the number of structures in the census tract according to the data in Hazus. This percentage was then multiplied against the total value of the structures in the census tract as shown in Hazus.

<b>Potential Wildland-Urban Fire Losses (\$1,000's)</b>									
<b>Fire Area</b>	<b>Geographic Area</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Agriculture</b>	<b>Religion</b>	<b>Government</b>	<b>Education</b>	<b>Total</b>
<b>1 &amp; 2</b>	<b>Hagen/ Stonecrest</b>	22,088	2,165	618	4	128	40	115	<b>25,158</b>
<b>3</b>	<b>Montevista Montecieto</b>	30,551	2,909	2,074	12	428	134	387	<b>36,495</b>
<b>4</b>	<b>Hilton Grandview</b>	8,247	603	251	9	110	52	64	<b>8,736</b>
<b>5</b>	<b>Old Sonoma Rd</b>	3,472	245	61	2	46	13	27	<b>3,866</b>
<b>6</b>	<b>Westwood Hills</b>	26,477	1,936	463	16	354	96	205	<b>29,451</b>
<b>7</b>	<b>Browns Valley</b>	67,105	4,716	4,933	247	2,476	237	547	<b>80,261</b>
<b>8</b>	<b>3138 – 3158 Browns Valley Rd</b>	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
<b>Total</b>		<b>157,940</b>	<b>12,574</b>	<b>8,400</b>	<b>290</b>	<b>3,542</b>	<b>572</b>	<b>1,345</b>	<b>184,663</b>

Wildland Hazard Rating forms, included on the following pages, are used to design public education programs for the community in the most hazardous areas and for fire pre-planning and structural defense by the Fire Department.

**Wildfire Hazard Rating Form  
-Subdivision-**

<b>Name of Subdivision:</b>	3138-3158 Browns Valley Road		<b>Date:</b>	July 16, 2003	
<b>County:</b>	Napa	<b>Size (Acres):</b>	44.53	<b># of Lots:</b>	15
<b>Rating:</b>	Moderate Hazard	<b>Comments:</b>			
	<b>Points</b>			<b>Points</b>	
<b>A. Subdivision Design</b>			<b>C. Topography</b>		
<b>1. Ingress/Egress</b>			<b>1. Predominant Slope</b>		
Two or more primary roads	1		8% or less	1	
One road	3		More than 8%, but less than 20%	4	
One way in, one way out	5	5	20% or more, but less than 30%	7	
			30% or more	10	10
<b>2. Width of primary Road</b>			<b>D. Roofing Material</b>		
20 feet or more	1		Class A rated	1	
20 feet or less	3	3	Class B rated	3	3
			Class C rated	4	
<b>3. Accessibility</b>			Not rated	10	
Road grade 5% or less	1				
Road grade 5% or more	3	3	<b>E. Fire Protection – Water Source</b>		
			500 GPM hydrant within 1,000 feet	1	
<b>4. Secondary Road Terminus</b>			Hydrant farther than 1,000 feet or draft site	2	2
Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater	1		Water source within 20 minutes, round trip	5	
Cul-de-sac turnaround radius is less than 45 feet	2		Water source farther than 20 minutes, but less than 45 minutes round trip	7	
Dead-end roads 200 feet or less in length	3		Water source farther than 45 minutes, round trip	10	
Dead-end roads greater than 200 feet in length	5	5	<b>F. Existing Building Construction Materials</b>		
			Noncombustible siding/deck	1	
<b>5. Average Lot Size</b>			Noncombustible siding/combustible deck	5	
10 acres or larger	1		Combustible siding and deck	10	10
Larger than 1 acre, but less than 10 acres	3		<b>G. Utilities</b>		
1 acre or less	5	5	All underground utilities	1	
			One underground, one above ground	3	3
<b>6. Street Signs</b>			All above ground	5	
Present	1				
Not present	5	5	<b>B. Vegetation</b>		
			<b>1. Fuel Types</b>		
			<b>TOTAL FOR SUBDIVISION</b>		<b>69</b>
Light	1		<b>Rating Scale</b>		
Medium	5	5	Moderate Hazard		40-59
Heavy	10		High Hazard		60-74
			Extreme Hazard		75+
<b>2. Defensible Space</b>					
70% or more of site	1				
30% or more, but less than 70%	3				
Less than 30% of site	5	5			

**Wildfire Hazard Rating Form**  
**-Subdivision-**

<b>Name of Subdivision:</b>		Buhman/Leaning Oak		<b>Date:</b>	July 16, 2003	
<b>County:</b>	Napa	<b>Size (Acres):</b>	44.53	<b># of Lots:</b>	15	
<b>Rating:</b>	Moderate Hazard	<b>Comments:</b>				
		<b>Points</b>		<b>Points</b>		
<b>A. Subdivision Design</b>				<b>C. Topography</b>		
<b>1. Ingress/Egress</b>				<b>1. Predominant Slope</b>		
Two or more primary roads	1		8% or less	1		
One road	3	3	More than 8%, but less than 20%	4		
One way in, one way out	5		20% or more, but less than 30%	7		
			30% or more	10	10	
<b>2. Width of primary Road</b>						
20 feet or more	1		<b>D. Roofing Material</b>			
20 feet or less	3	3	Class A rated	1		
			Class B rated	3	3	
<b>3. Accessibility</b>				Class C rated		
Road grade 5% or less	1		Not rated	10		
Road grade 5% or more	3	3	<b>E. Fire Protection – Water Source</b>			
			500 GPM hydrant within 1,000 feet	1	1	
<b>4. Secondary Road Terminus</b>				Hydrant farther than 1,000 feet or draft site		
Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater	1		Water source within 20 minutes, round trip	5	5	
Cul-de-sac turnaround radius is less than 45 feet	2		Water source farther than 20 minutes, but less than 45 minutes round trip	7		
Dead-end roads 200 feet or less in length	3		Water source farther than 45 minutes, round trip	10		
Dead-end roads greater than 200 feet in length	5	5	<b>F. Existing Building Construction Materials</b>			
<b>5. Average Lot Size</b>				Noncombustible siding/deck		
10 acres or larger	1		Noncombustible siding/combustible deck	5	5	
Larger than 1 acre, but less than 10 acres	3	3	Combustible siding and deck	10		
1 acre or less	5		<b>G. Utilities</b>			
			All underground utilities	1		
<b>6. Street Signs</b>				One underground, one above ground		
Present			All above ground	5	5	
Not present	1	1				
	5					
<b>B. Vegetation</b>						
<b>1. Fuel Types</b>				<b>TOTAL FOR SUBDIVISION</b>		
Light	1	1			<b>42</b>	
Medium	5		<b>Rating Scale</b>			
Heavy	10		Moderate Hazard		40-59	
<b>2. Defensible Space</b>				High Hazard	60-74	
70% or more of site	1	1	Extreme Hazard		75+	
30% or more, but less than 70%	3					
Less than 30% of site	5					

**Wildfire Hazard Rating Form  
-Subdivision-**

<b>Name of Subdivision:</b>		Foster/Hilton/Grandview		<b>Date:</b> July 16, 2003	
<b>County:</b>	Napa	<b>Size (Acres):</b>	41.94	<b># of Lots:</b>	37
<b>Rating:</b>	Moderate Hazard	<b>Comments:</b>			
		<b>Points</b>		<b>Points</b>	
<b>A. Subdivision Design</b>		<b>C. Topography</b>			
<b>1. Ingress/Egress</b>		<b>1. Predominant Slope</b>			
Two or more primary roads	1		8% or less	1	
One road	3	3	More than 8%, but less than 20%	4	
One way in, one way out	5		20% or more, but less than 30%	7	
			30% or more	10	10
<b>2. Width of primary Road</b>		<b>D. Roofing Material</b>			
20 feet or more	1		Class A rated	1	
20 feet or less	3	3	Class B rated	3	3
			Class C rated	4	
<b>3. Accessibility</b>		Not rated			
Road grade 5% or less	1			10	
Road grade 5% or more	3	3			
		<b>E. Fire Protection – Water Source</b>			
<b>4. Secondary Road Terminus</b>		500 GPM hydrant within 1,000 feet			
Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater	1		Hydrant farther than 1,000 feet or draft site	2	
Cul-de-sac turnaround radius is less than 45 feet	2		Water source within 20 minutes, round trip	5	5
Dead-end roads 200 feet or less in length	3		Water source farther than 20 minutes, but less than 45 minutes round trip	7	
Dead-end roads greater than 200 feet in length	5	5	Water source farther than 45 minutes, round trip	10	
		<b>F. Existing Building Construction Materials</b>			
<b>5. Average Lot Size</b>		Noncombustible siding/deck			
10 acres or larger	1		Noncombustible siding/combustible deck	5	5
Larger than 1 acre, but less than 10 acres	3	3	Combustible siding and deck	10	
1 acre or less	5		<b>G. Utilities</b>		
			All underground utilities	1	
<b>6. Street Signs</b>		One underground, one above ground			
Present			All above ground	3	5
Not present	1	1		5	
	5				
<b>B. Vegetation</b>					
<b>1. Fuel Types</b>		<b>TOTAL FOR SUBDIVISION</b>			
Light	1	1			<b>42</b>
Medium	5		<b>Rating Scale</b>		
Heavy	10		Moderate Hazard		40-59
<b>2. Defensible Space</b>		High Hazard			
70% or more of site	1	1	Extreme Hazard		60-74
30% or more, but less than 70%	3				75+
Less than 30% of site	5				

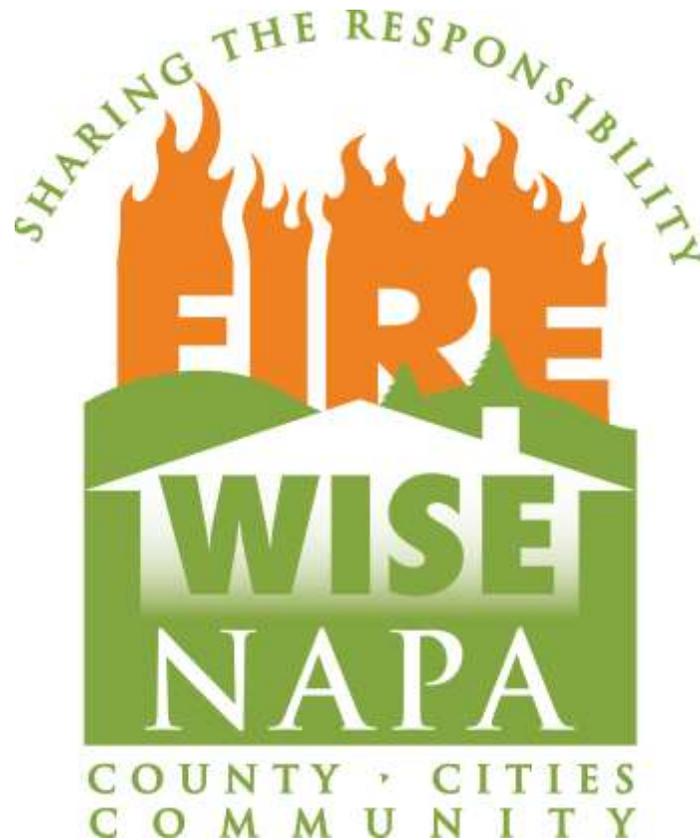
**Wildfire Hazard Rating Form  
-Subdivision-**

<b>Name of Subdivision:</b>		Montecito Heights		<b>Date:</b>	August 31, 2009	
<b>County:</b>	Napa	<b>Size (Acres):</b>	236.57	<b># Lots:</b>	100 (Approximate)	
<b>Rating:</b>	High Hazard	<b>Comments:</b>				
		<b>Points</b>		<b>Points</b>		
<b>A. Subdivision Design</b>				<b>C. Topography</b>		
<b>1. Ingress/Egress</b>				<b>1. Predominant Slope</b>		
Two or more primary roads	1		8% or less	1		
One road	3		More than 8%, but less than 20%	4		
One way in, one way out	5	5	20% or more, but less than 30%	7		
			30% or more	10	10	
<b>2. Width of primary Road</b>						
20 feet or more	1		<b>D. Roofing Material</b>			
20 feet or less	3	3	Class A rated	1		
			Class B rated	3		
<b>3. Accessibility</b>				Class C rated		
Road grade 5% or less	1		Not rated	10	4	
Road grade 5% or more	3	3				
				<b>E. Fire Protection – Water Source</b>		
<b>4. Secondary Road Terminus</b>				500 GPM hydrant within 1,000 feet		
Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater	1		Hydrant farther than 1,000 feet or draft site	2		
Cul-de-sac turnaround radius is less than 45 feet	2	2	Water source within 20 minutes, round trip	5		
Dead-end roads 200 feet or less in length	3		Water source farther than 20 minutes, but less than 45 minutes round trip	7		
Dead-end roads greater than 200 feet in length	5		Water source farther than 45 minutes, round trip	10		
				<b>F. Existing Building Construction Materials</b>		
<b>5. Average Lot Size</b>				Noncombustible siding/deck		
10 acres or larger	1		Noncombustible siding/combustible deck	5		
Larger than 1 acre, but less than 10 acres	3	3	Combustible siding and deck	10	10	
1 acre or less	5					
				<b>G. Utilities</b>		
<b>6. Street Signs</b>				All underground utilities		
Present	1	1	One underground, one above ground	3	3	
Not present	5		All above ground	5		
<b>B. Vegetation</b>						
<b>1. Fuel Types</b>				<b>TOTAL FOR SUBDIVISION</b>		
Light	1				<b>53</b>	
Medium	5	5	<b>Rating Scale</b>			
Heavy	10		Moderate Hazard		40-59	
<b>2. Defensible Space</b>				High Hazard		
70% or more of site	1		Extreme Hazard		60-74	
30% or more, but less than 70%	3				75+	
Less than 30% of site	5	5				

**Wildfire Hazard Rating Form  
-Subdivision-**

<b>Name of Subdivision:</b>		Stonecrest/Ashlar		<b>Date:</b>	July 16, 2003	
<b>County:</b>	Napa	<b>Size (Acres):</b>	97.16	<b># of Lots:</b>	20	
<b>Rating:</b>	Moderate Hazard	<b>Comments:</b>	The end of Ashlar is narrower than Stonecrest			
		<b>Points</b>			<b>Points</b>	
<b>A. Subdivision Design</b>				<b>C. Topography</b>		
<b>1. Ingress/Egress</b>				<b>1. Predominant Slope</b>		
Two or more primary roads	1	1	8% or less	1		
One road	3		More than 8%, but less than 20%	4		
One way in, one way out	5		20% or more, but less than 30%	7	7	
			30% or more	10		
<b>2. Width of primary Road</b>				<b>D. Roofing Material</b>		
20 feet or more	1	1	Class A rated	1		
20 feet or less	3		Class B rated	3	3	
<b>3. Accessibility</b>				Class C rated		4
Road grade 5% or less	1		Not rated	10		
Road grade 5% or more	3	3				
<b>4. Secondary Road Terminus</b>				<b>E. Fire Protection – Water Source</b>		
Loop roads, cul-de-sacs with outside turning radius of 45 feet or greater	1		500 GPM hydrant within 1,000 feet	1		
Cul-de-sac turnaround radius is less than 45 feet	2		Hydrant farther than 1,000 feet or draft site	2	2	
Dead-end roads 200 feet or less in length	3		Water source within 20 minutes, round trip	5		
Dead-end roads greater than 200 feet in length	5	5	Water source farther than 20 minutes, but less than 45 minutes round trip	7		
			Water source farther than 45 minutes, round trip	10		
<b>5. Average Lot Size</b>				<b>F. Existing Building Construction Materials</b>		
10 acres or larger	1		Noncombustible siding/deck	1		
Larger than 1 acre, but less than 10 acres	3	3	Noncombustible siding/combustible deck	5		
1 acre or less	5		Combustible siding and deck	10	10	
<b>6. Street Signs</b>				<b>G. Utilities</b>		
Present	1	1	All underground utilities	1		
Not present	5		One underground, one above ground	3	3	
			All above ground	5		
<b>B. Vegetation</b>				<b>TOTAL FOR SUBDIVISION</b>		<b>52</b>
<b>1. Fuel Types</b>				<b>Rating Scale</b>		
Light	1		Moderate Hazard		40-59	
Medium	5		High Hazard		60-74	
Heavy	10	10	Extreme Hazard		75+	
<b>2. Defensible Space</b>						
70% or more of site	1					
30% or more, but less than 70%	3	3				
Less than 30% of site	5					

## Wild-fire Hazard Mitigation Activities since 2004



The City has made the greatest strides in mitigating the losses due to wildfire by assisting in the organizing of Fire Safe Councils and through developing and regularly using local and national standards for the construction of buildings in Wildland Urban Interface areas.

Napa Firewise is a comprehensive public education and marketing campaign in its ninth year. Several independent groups have organized throughout the County to identify and promote fire awareness and education within those communities and neighborhoods that are at risk from wildfire. The program also provides specific steps each person can take to protect themselves, their family and their neighbors in the event a wildland fire occurs. Napa Firewise is a collaboration between Napa County and the various city governments within the county and the citizens who participate on the *Fire Safe Councils*.

### **Accomplishments:**

In the span of a few short years Napa Firewise has accomplished great things with community action and support.

- Hosted over 40 community meetings and workshops on wildfire awareness and preparedness
- Chipped over 900,000 cubic yards of flammable vegetation

- Cleared over 800 acres of dry wildland vegetation
  - Provided over 300 hours of community leadership consulting and development
  - Trained fire service personnel and contractors on defensible space and home inspection techniques
  - Conducted 250 free defensible space inspections
  - Assisted 5 communities in developing emergency fire plan with four more in the works
  - Secured over \$666,000 in grant funding, donations, and in-kind services
- Napa Firewise has been recognized as a best practices model for community wildfire protection by Firewise Communities USA

## **Technology/Terror Hazards**

### **Hazardous Materials**

A wide variety of hazardous materials are present in Napa County. These materials are stored, used in manufacturing and agriculture, and moved by truck, train and pipeline. The materials may be poisonous, corrosive, explosive or flammable. The poison effect may be due to chemical, radioactive or biological properties of the materials. The physical state may be as a solid, fine powder, liquid or gas, perhaps under great pressure. Quantities range from a few grams in a test tube to large storage tanks. The Napa County Department of Environmental Management is the designated administering agency for the County Area Hazardous Material Monitoring Program. In the event of a spill or release, this agency should be notified immediately.

The table on the following page demonstrates the known level fixed threats that exist within the City. Numerous other sources are also found in smaller quantities throughout the City and County especially in agricultural facilities.

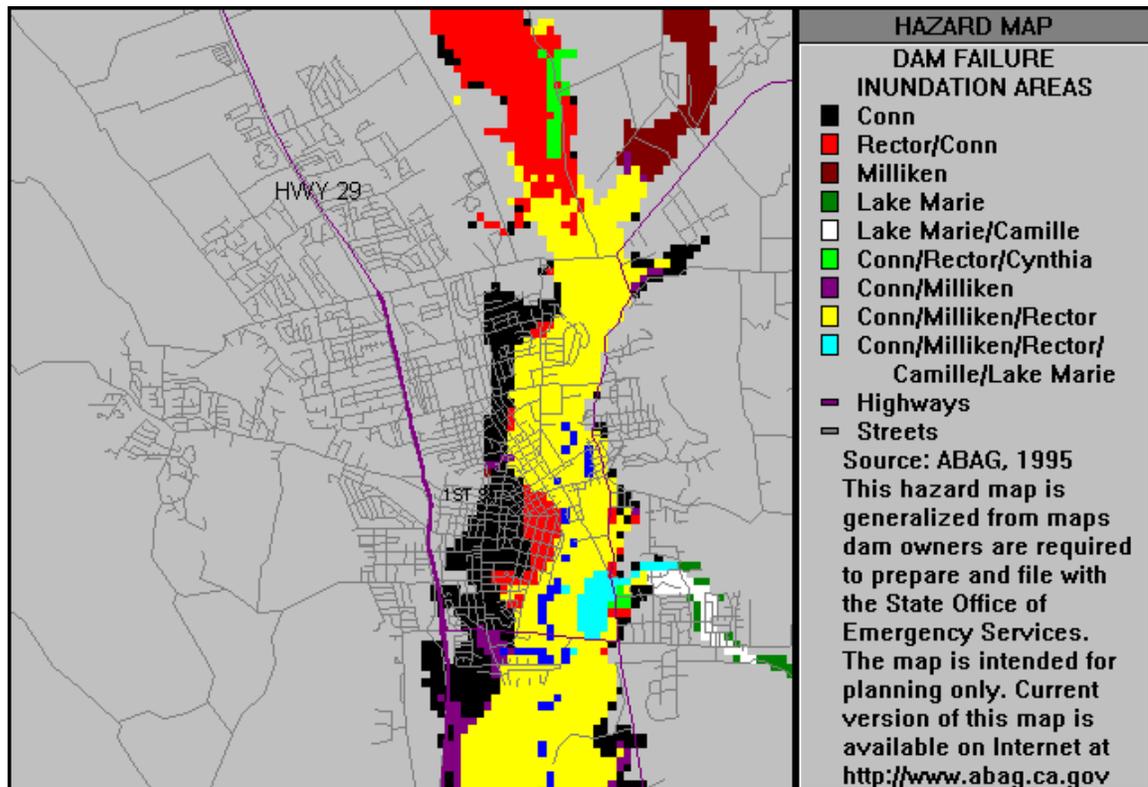
<b>City of Napa Acutely Hazardous Materials Facilities List (AHM)</b>				
<b>Rank</b>	<b>HP#</b>	<b>Facility Name/Address</b>	<b>AHM</b>	<b>Amount</b>
1.	0277	Queen of the Valley Hospital/1000 Trancas Street	Carbon dioxide Nitrogen	3400 CF 3810 CF
2.	1331	Dey Laboratories/2751 Napa Valley Corporate Drive	Acetylestine Hydrochloric Acid	2500 Lbs 1500 Gal
3.	1172	Kaiser Clinic/3285 Claremont Way	Liquid Oxygen Nitrous Oxide	517 CF 404 CF
4.	1096	Napa County Farm Supply/4407 Solano Avenue	Sulphur Ureacarloadide	4800 Lbs 5000 Lbs
5.	1023	Airgas, Northern CA & NV/568 Northbay Drive	Acetylene Helium	17000 CF 25000 CF
6.	0207	Department of Transportation: Jefferson/3161 Jefferson Street	Gasoline Diesel #2	4000 Gal 4000 Gal
7.	0109	Piner's Welding Supply Services/1820 Pueblo Avenue	Acetylene Nitrogen	15000 CF 25000 CF
8.	0951	Northern California Diagnostics Lab/2748 Jefferson Street	Hydrogen-Helium Nox/N	520 CF 910 CF
9.	0711	Golden State Vintners/1075 Golden Gate Drive	Sulfur Dioxide Calcium Hypochlorite Granular Propane Gas	400 Lbs 100 Lbs 500 Gal
10.	1612	Decrevel, Inc./1836 Soscol Avenue	Ferric Chloride	110 Gal
11.	1745	Highway Safety Products/935 Enterprise Way	Calcium Carbonate Polyvinal Chloride Resin	50000 Lbs 4500 Lbs
12.	1550	California Peptide Research, Inc./918 Enterprise Way	Methylene Chloride Nitrogen	110 Gal 3500 CF
13.	2376	Electronic Data systems/2600 Napa Valley Corporate Drive	Diesel Sulfuric Acid	30000 Gal 16000 Lbs
14.	0871	Napa Valley Paint/527 Walnut Street	Vinyl Acrylic Latex Titanium Dioxide Ethanediol Solvent Blend	5000 Gal 10000 Lbs. 220 Gal 540 Gal
15.	0104	Redwood #76 2611169/2005 Redwood Road	Gasoline Lrasc Oil	12000 Gal 1000 Gal
16.	0046	Bell Products Inc./722 Soscol Avenue	Acetylene Carbon Dioxide Trichlorethare	500 CF 1200 CF 12 Lbs
17.	0030	Pacific Bell TC60T/650 Imperial Way	Sulfuric Acid	240 Gal
18.	0026	Napa Valley Register/1615 Second Street	Ammonium Thiosulfate Propane Treated Petroleum Oil	110 Gal 75 Gal 20000 Gal
19.	0117	PG&E Napa Service Center/300 Burnell Street	Methyl Chloroform Hydrogen Acetylene	365 Gal 500 CF 2500 CF
20.	0126	Pacific Bell: 1300 Clay Street/1300 Clay Street	Petroleum Hydrocarbon Lead/Acid Battery/Sulfuric Acid	5000 Gal 2454 Gal
21.	2531	PG&E Napa Service Center/ 300 Burnell Street	Sulfur Hexafluoride Sulfuric Acid	412 CF 32 Gal

22.	Jamieson Canyon Water Treatment Plant	Sodium Hypochlorite Caustic Soda Aluminum Hydroxide Orthopolyphosphate Diesel Fuel	10,000 Gal 10,000 Gal 10,000 Gal 5,000 Gal 1,500 Gal
23.	Hennessey Water Treatment Plant	Sodium Hypochlorite Caustic Soda Potassium permanganate Orthopolyphosphate	10,000 Gal 10,000 Gal 10,000 Gal 5,000 Gal
24.	Milliken Water Treatment Plant	Sodium Hypochlorite	2,000 Gal

### Dam Failure

A dam failure will cause loss of life, damage to property and other ensuing hazards, as well as the displacement of persons residing in the inundation path. There could be loss of communications, damage to transportation routes and the disruption of utilities and other essential services. Public health would be a major concern. There are several dams in Napa County. The two that would cause the most inundation and damage if they were breached, while at full capacity, are the Conn Dam at Lake Hennessey and Rector Dam.

The following map shows the potential dam inundation areas in the City of Napa.



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## **Terrorism**

Due to its proximity to many of the Bay Area military, governmental, and financial institutions, the City of Napa is actively making preparations to respond to acts of terrorism. Despite recent advances in equipment and training, our ability to deal with problems within the City or provide mutual aid to the surrounding county is still limited. Due to its agricultural base, Napa may seem an unlikely target of terrorism, however, it could be subject to the fallout of a chemical or biological type attack targeted in one of many, highly populated cities located near its borders.

It is clear that the Federal government can and will provide many of the specialized resources to combat terrorism; however, the true effectiveness of any response to an act of terrorism will depend on what happens at the local public safety level.

Accordingly, the City of Napa has taken a number of positive steps in preparing the public safety response to acts of terrorism. Using funds from the 2003 Homeland Security Grant, the City of Napa has purchased some of the required specialized first responder equipment in order to effectively respond to acts of terrorism and protect life and property.

### **Napa Terrorism Working Group**

The Napa Terrorism Working Group (TWG) was formed in 2001 in response to 9/11 and the anthrax mailings. All emergency response agencies collaborated on a countywide protocol for response to terrorist incidents. In 2007 it was folded into the operational area council as a standing sub-committee.

When Homeland Defense grants became available, the same agencies decided that the TWG was best positioned to do needs assessments related to terrorism and determine allocations of any monies received for homeland defense issues. It was agreed by the members that such monies would be pooled and used based on needs assessments conducted by the group. The group was instrumental in completing two countywide threat and vulnerability assessments that maintained our eligibility for these grant programs. The TWG group agreed that the money is to be shared as equitably as possible. The main concept of the TWG was to form a cooperative, interagency group to deal with a host of issues related to terrorism and funding. Pooling the monies received and dispensing them according to the agreed upon needs of the group was one of the goals.

### **Terror/Technology Hazard Mitigation Activities since 2004 and Planned Actions**

In the year 2005/2006 all Napa Police Department Officers attended the 8 hour POST mandated training course of "Law Enforcement's Response to Terrorism".

The Department was successful in establishing a respiratory protection and training program to protect first responder's health from airborne hazards or potentially hazardous materials during the performance of their work.

The Napa Police Department remains a member of the Napa County Terrorism Working Group and the Napa County Operational Plan. The Police Department intends to become more involved with the National Criminal Intelligence Sharing Plan in order to develop, gather, access, receive and share intelligence with other law enforcement agencies.

A Vulnerability Assessment was completed in 2003 which assessed the risk of 13 priority threats (including terrorist activities) that may harm the City's water system. None of the City's water assets received a "High Risk" rating. This is a result of the City having two separate large water treatment facilities located more than 20 miles apart (redundancy), numerous basic countermeasures already in place, and a very low rate of vandalism to our system in the past. All assets fell into the Low to Moderate Vulnerability Ranges because most facilities are concealed, fenced, buried or located in relatively remote areas, and as such there have been very few malevolent incidents in the entire history of the City of Napa's water system. Of the few incidents that have occurred, nearly all of them have been caused by teenaged vandals and none have resulted in any significant impacts to the system. While the results of the risk analysis do not indicate any assets in the "High Risk" area (highly critical and highly vulnerable asset), City of Napa Water would like to further reduce risk on the system and has prepared a plan to do so. This plan addresses many of the City's critical assets and single points of failure. City of Napa Water has implemented a number of security upgrades and installed new countermeasures that helped reduce the vulnerability of many of our assets. As ratepayer funds permit, City of Napa Water is committed to continued improvements to reduce risk and has prepared a list of planned improvements to further reduce risk and ensure that the City's mission of providing a safe and reliable water supply for the City of Napa is met.

The 2012 review showed that the edges of Conn Dam (earthen dam) were cleared of vegetation so that the inspector can accurately inspect for seepage from the dam. Based on USGS modification of their definition of a maximum credible earthquake, the State Department of Water Resources Division of Safety of Dams DWR-DSOD recommended improvements to the dam such that it can withstand a maximum credible earthquake while at full capacity. In 2008, at a cost of \$1M the City cored five holes through Milliken Dam to passively lower the water surface elevation by 16 feet to avoid potential failure during a maximum credible earthquake.

The Napa Sheriff's Department and the Napa Police Department have recently signed an MOU in order to better facilitate mutual aid responses and respond to hazardous and/or high risk incidents. The Napa Sheriff's Department Bomb Disposal Unit responds to any SWAT call-outs and is available for use within the City of Napa. The Napa Police Department and Napa Sheriff's Department currently train together on a quarterly basis, a minimum of four times per year.

Most recent CAD/RMS update was completed in 2014. The 2009 upgrade was a multi-year project that provided new hardware and software that modernized our dispatch

center. The updated hardware provided mobile computer terminals in both the police and fire units.

The Communications Center has been receiving 911 calls within the City and County of Napa since 2010. The Communications Center has expanded the services to provide dispatching services to Napa County Animal Control in 2011, American Canyon Fire Protection District in 2011 and American Medical Response (AMR) in 2012.

Also in 2010 the Communications Center - was expanded in size by adding two additional work stations. Even with the addition of two work stations, there is a need to further expand the Center. The City is researching alternative sites including the expansion within the existing facility.

In the next three to five years the Communications Center would like to acquire the technology to be able to receive text, data and digital images from community members devices that which to report emergencies and crimes. The City would like to be able to exchange and disseminate information to the public alerting them of emergencies and send images of data and digital images to the police squad cars.

#### Disaster Resistant Hazard Mitigation Activities Since 2004

Prior to this year's storm season the Department sent fire department personnel out into our most flood prone areas and handed out flood education materials by going door to door. In addition the City had its flood inundation map printed in the local newspaper. This ended up happening the day before the City experienced major flooding.

This particular action item is very important and needs to be included in the Hazard Mitigation Plan.

This is an ongoing action item due to a normal employee attrition cycle within the City. All of the City's new full time employees are required to take NIMS 700 and 800, along with ICS 100 and 200. The City provides additional training depending on an employee's level of responsibility and job description in the City during a disaster event.

The City is approximately 99% compliant.

The three primary public service organizations the City works with in preparation for and in a disaster are the County of Napa, Red Cross and Volunteer Center of Napa Valley. The City has an excellent working relationship with these organizations. The City is very supportive of their educational and awareness programs.

The action item of mobilizing CERT graduates through the Volunteer Center is ongoing. The level of support and cooperation between City and public service organizations has been excellent.

Through the Department of Homeland Security we have implemented the Government Emergency Telecommunications Service (GETS) Program which provides an increased probability of completing calls during an emergency when normal calling methods fail.

The committee meets and plans disaster exercises on a regular basis. In December 2005 the City experienced an actual flood event which was a federally declared Disaster. In addition to having an actual event the City also holds Emergency Operations Center functional exercises each year. Every jurisdiction along with other necessary agencies participate in these events.

The City of Napa Fire Department is entering into a County-wide MOU for the purpose of creating a joint Urban Search and Rescue Team (USAR). This team will manage confined space, trench and collapse emergencies. 2006 was a year for writing policy and procedures, training and developing the MOU. During the year 30 members of the NFD were able to attend and receive certification for Trench Rescue, Confined Space and Advance Rope Rescue. This was made possible due to receiving a Grant from the Federal Government for \$266,667.000. The County Team is certified with OES as a Type 2 USAR Team and has acquired an OES USAR trailer for responses as requested by the state.

The City of Napa Fire Department is nearing its goal of becoming State OES certified as a Type 2 Water Rescue Team. During 2005 and 2006 the team has been upgrading its policy and procedures, training and equipment inventories to make this possible. The Team received a \$20,000 grant from Fireman's Fund which allowed much of the required equipment to be purchased.

## SECTION 4: MITIGATION STRATEGY

Mitigation strategies and action items were developed for the City of Napa through the process of public meeting and public-private partnership committees as mentioned in the first section of this Plan. The list of action items in this section identifies mitigation projects and includes a project ranking based upon time horizon, cost, risk, benefit and input from local stakeholders. The action items were developed to provide public policy makers with a list for potential implementation as mitigation resources, time, equipment and funding become available for the selected projects.

### **Local Hazard Mitigation Goals**

The mitigation goals describe the overall direction that the City of Napa agencies, organizations, and citizens propose to take toward mitigating risk from natural and man-caused hazards. Goals and objectives of the Plan were developed during interviews and meetings with public officials and at public meetings. Napa hazard mitigation goals are identified below.

- Promote a flood safe community
- Promote an earthquake safe community
- Promote a fire safe community
- Promote a technology/terror safe community
- Create a more disaster resistant community

### **Cost-Benefit Review**

City staff has attended FEMA provided training and used the Mitigation Benefit Cost Analysis (BCA) Toolkit to conduct benefit/cost analysis of potential mitigation projects (including the Borreo Building Seismic Retrofit Project). Staff has also reviewed *Developing the Mitigation Plan (FEMA 386-3)* and FEMA's *Guidelines for Benefit-Cost Analysis of PDM Applications* and is, therefore, knowledgeable of methods used for benefit cost analysis.

Projects likely to exceed 1.0 BCR were included in the PDM plan; projects unlikely to exceed 1.0 BCR were not included. Therefore, while formal cost benefit review was not completed for all mitigation actions/projects during the prioritization process, the City is confident the mitigation projects included in the PDM Plan merit future consideration for PDM funding.

### **Mitigation Objectives and Action Items – How were they prioritized**

The broad range of potential mitigation activities were considered, and below is a list of mitigation objectives and the actions identified by the City. After the Risk Assessment was completed, ideas for *Mitigation Action Items* were generated by individual employees, Supervisors and Managers in each Department, City Departments in general, the Disaster Education Task Force and the Terrorism Working Group and from the Public Workshops. City staff reviewed the list and items were chosen based on need, ability to meet a mitigation strategy, and a cost-benefit review. In addition, there was an effort to collaborate with Napa County and action items were chosen based on meeting a

cooperative need. Similarly they were prioritized based on need, ability and ease of completion, level of importance to the community and a realistic ability to fund to action item. The City will review the Action Items on an annual basis and change, add or adjust them as necessary.

The following tables were developed to rank the mitigation projects using the following criteria; each project was assigned a priority rank, an approximate cost, a time horizon from commencement of the project to completion, and an assumption as to whether or not the project would be subject to CEQA or federal EIR requirements.

A more detailed explanation of the Objectives and Action Items follows the tables.

Description of Project	Priority	Time Horizon	Approximate Project Cost	Subject to CEQ/EIR
<b>Flood Hazards Projects</b>				
Complete approved Flood Control Project	1	Mid	\$550,000,000	Yes completed
Storm Drainage Projects	1	Long	\$8,552,600	Yes
Improve Countywide flood surveillance/early warning system	1	Near	\$100,000 per annum	Yes
Interior Drainage Study	1	Near	\$425,000	Yes
Flood Plain Management	1	Mid	Current or grant funding	Yes
Increase coverage of Storm Watch sensors	2	Near	\$25,000	Yes
Distribute NOAA weather radios	3	Mid	\$ 25,000	No
Flood Insurance Rate Map Update	1	Near	\$130,000	No
<b>Earthquake Hazard Projects</b>				
Structural and Infrastructure Safety Program	1	Near	Current Funding	Yes
High Occupancy Structure Program	1	Near	\$100,000	Yes
Building Earthquake Safety Program	1	Mid	\$5,000	No
Install earthquake resistant transmission and distribution pipeline joints across known faults	2	Mid	5,000,000	No
Invest in automation and control features on AC transmission pipeline to protect against catastrophic failures	1	Mid	2,000,000	No
<b>Fire Hazard Projects</b>				
Develop Structural Protection Plans for Urban Interface Areas	1	Mid	\$100,000	No
Support the development of Fire Safe Councils	1	Near	\$135,000	No
Upgrade water utility infrastructure	2	Long	\$1,200,000	Yes
Review building plans in WUI areas	3	Near	\$50,000	Yes
Vegetation Management Program	3	Mid	\$200,000	Yes
<b>Technology/Terror Hazard Projects</b>				
Improve existing communication systems	1	Mid	\$2,600,000	No
Training for Public Safety personnel regarding terrorism	1	Mid	\$100,000	No
Develop training to improve response to civil unrest and riots	1	Near	\$15,000	No
Build an alternate EOC	1	Near	\$60,000	No
Provide terrorism training	2	Near	\$100,000	No

Improve response to Mass Casualty/WMD incidents	2	Near	\$10,000	No
Increase agency coordination in dealing with terrorism	2	Mid	\$50,000	No
Modify and increase resources to decrease crime	3	long	\$300,00	No
Purchase a armored citizen rescue vehicle	3	Long	\$85,000	No
Improve support of Napa County Hazardous Device Team	3	Long	\$100,000	No

<b>Description of Project</b>	<b>Priority</b>	<b>Time Horizon</b>	<b>Approximate Project Cost</b>	<b>Subject to CEQ/EIR</b>
<b>Technology/Terror Hazard Projects (continued)</b>				
Create a Remote Workers Infrastructure	3	Long	\$250,000	No
<b>Disaster Resistant Community Projects</b>				
Promote greater public awareness	1	Near	Current Funding	No
Maintain and equip primary Emergency Operations Center	1	Near	\$5,000 per annum	No
Maintain a program on dam safety	1	Near	\$10,000	No
Invest in water infrastructure to withstand drought years	1	Mid	Current funding	Yes
Invest in water transmission pipeline rehabilitation/replacement to protect against catastrophic failures	2	Mid	\$25,000,000	No
Coordinate efforts with health community to respond to communicable diseases	1	Near	Current or grant funding	No
Identify and develop programs to be instituted to assist businesses to prepare for and recover from a disaster	1	Near	Current funding	No
Identify and develop programs to be instituted to assist residents to prepare for and recover from a disaster	1	Near	Current funding	No
Develop short-term shelter options for residents and animals	1	Near	Current funding	No
Post Disaster Restoration Ordinances	2	Mid	\$5,000	No
Establish the position of Disaster Coordinator for the City of Napa	2	Near	\$60,000	No
Ensure that the city, the hospitals and the County Health Dept. coordinate efforts to educate, prepare for and respond to outbreaks of communicable disease	2	Near	Current or grant funding	No
Identify critical businesses and prepare emergency response plans to protect against economic loss and speedy recovery	2	Mid	Current funding	No
Develop inventories of specific types of businesses and buildings and prepare procedures for post-disaster recovery efforts	2	Mid	Current funding	No
Prepare a secondary EOC site	3	Long	\$125,000	No

Develop and practice evacuation routes in sensitive facilities	3	Long	\$50,000	No
Develop a Climate Action Plan applicable with state and federal law	3	Long	Current funding	Yes

**Goal: To Promote a Flood Safe Community**

**Objective 1.1:** The City shall support programs and methods to reduce the flooding of the Napa River and its tributaries.

***Ideas for Implementation***

**Action 1.1.1:** The City shall continue to assist the U.S. Army Corps of Engineers, Napa County Flood Control and Water Conservation District, other responsible agencies, and the public to maintain funding for the development of the Napa River Flood Protection Project.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing  
**Funding:** \$550,000,000 (450,000,000 spent to date)

**Action 1.1.2:** The City shall pursue funding for the design and construction of storm drainage projects to protect properties that will not be fully protected by the Flood Protection Project, including home elevations, property acquisitions, upstream storage such as detention basins, and channel widening with the associated right-of-way acquisitions, relocations and environmental mitigations. A complete breakdown of the projects can be found in Appendix B.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing  
**Funding:** \$8,552,600

**Action 1.1.3:** The City shall periodically update the Storm Drain Master Plan by performing watershed analysis including the creation of related storm drain system maintenance plans.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing

**Funding:** Current or grant funding

**Action 1.1.4:** The City shall periodically update the Local Hazard Mitigation Plan, Floodplain Management Plan and Emergency Management Plan.

**Coordinating Organization:** Fire Department, Community Development Department and Public Works

**Timeframe:** Ongoing

**Funding:** Current or grant funding

**Action 1.1.5:** The City & County shall periodically update the Flood Insurance Rate Maps to reflect the improvements that have been completed as part of the Flood Protection Project.

**Coordinating Organization:** Community Development Department, Public Works & County of Napa

**Timeframe:** Ongoing

**Funding:** \$200,000

**Objective 1.2:** The City shall continue to provide for floodplain management to protect its residents and property from the hazards of development in the floodplain of the Napa River and its tributaries.

***Ideas for Implementation***

**Action 1.2.1:** The City shall continue to apply floodplain management regulations for development in the flood plain and floodway.

**Coordinating Organization:** Community Development Department and Public Works

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 1.2.2:** The City shall continue to participate in the Federal Emergency Management Agency's National Flood Insurance Program and Community Rating System to promote greater public awareness and understanding of flood hazards.

**Coordinating Organization:** Community Development Department and Public Works

**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 1.2.3:** The City shall continue to utilize the Federal Emergency Management Agency’s Flood Insurance Rate Map to define the special flood hazard area, the floodway and the floodplain.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 1.2.4:** The City shall balance the housing needs of its residents against the risk from potential flood-related hazards.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 1.2.5:** Should funding opportunities become available the City would encourage private property owners to participate in home elevation and acquisition programs.

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Ongoing  
**Funding:** Funding from Grant Programs

**Action 1.2.6:** Climate Change Studies – As more information becomes available the City of Napa will evaluate the impact on our current development standards as it relates to rising sea levels. i.e. San Francisco Bay Coastal Study

**Coordinating Organization:** Community Development  
Department and Public Works  
**Timeframe:** Unknown  
**Funding:** No Present funding known

**Action 1.2.7:** The City shall coordinate with Napa County to create a plan to reduce woody debris from vineyards upstream that cause flooding in the City of Napa. The City shall coordinate with Napa County for dredging of channels to clear debris from creeks and

other tributaries.

**Coordinating Organization:** Community Development  
Department and Public  
Works  
**Timeframe:** Ongoing  
**Funding:** Current or grant funding

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**Objective 1.3:** Develop and improve the countywide flood surveillance and early warning system.

***Ideas for Implementation***

**Action 1.3.1:** The City and County of Napa have created an automated system of rain and flood gauges on the major tributaries and storm approach path to the greater Napa River Drainage system. The system is web enabled and accessible from both flood operation centers and the City website. The tool is constantly used for surveillance during the rainy season.

<http://cityofnapa.org>

<http://napa.onerain.com/home.php>

**Coordinating Organization:** City and County Public Works  
**Timeframe:** Ongoing  
**Funding:** \$100,000 per annum

**Action 1.3.2:** Increase coverage of Storm Watch sensors to include small streams that, due to land use changes, have demonstrated an impact on existing streams and urban flooding.

**Coordinating Organization:** City and County Public Works  
**Timeframe:** 1 – 3 years  
**Funding:** \$25,000

**Action 1.3.3:** Distribute NOAA weather Radios to high risk, limited income families living in flood zones. Develop program of at cost NOAA radios for families in the various flood zones in Napa County. Provide weather radios to block captains.

**Coordinating Organization:** County Disaster Education  
Taskforce  
**Timeframe:** 1 – 3 years  
**Funding:** \$25,000

**Action 1.3.4:** The City shall provide sandbags and plastic to the disabled and the elderly upon request during flood events.

**Coordinating Organization:** Community Development  
Department and Public Works

**Timeframe:** Ongoing

**Funding:** Current or grant funding

**Objective 1.4:** Study of Interior drainage – residual ponding areas after the Flood Project is completed.

***Ideas for Implementation***

**Action 1.4.1:** Soscol Interior Drainage Project – Preliminary Design

**Coordinating Organization:** Napa Community Redevelopment  
Agency  
City of Napa Public Works  
Department

**Time Frame:** Completed

**Funding:** \$425,000 (approximately)  
Napa Community Redevelopment  
Agency Property tax increment  
revenue

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**Objective 1.5:** Study of levee systems

**Action 1.1.5:** The City shall pursue funding for the analysis, certification and maintenance of existing and new levee systems within the City of Napa.

**Coordinating Organization:** Community Development  
Department and Public Works

**Timeframe:** Ongoing

**Funding:** Current or grant funding

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**Goal: To Promote an Earthquake Safe Community**

**Objective 2.1:** The City shall continue to require that all new buildings and infrastructure be designed and constructed to resist stresses produced by earthquakes.

***Ideas for Implementation***

**Action 2.1.1:** The City shall require all new buildings to conform to the structural requirements of the most recently adopted edition of the *California Building Code*.

**Coordinating Organization:** Community Development Dept.

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 2.1.2:** The City shall continue to discourage the placing of facilities necessary for emergency services, major utility lines and facilities, manufacturing plants using or storing hazardous materials, high occupancy structures (such as multi-family residences and large public assembly facilities), or facilities housing dependent populations (such as schools and convalescent centers) within areas subject to very strong, violent, or very violent ground shaking unless no alternative is available and adequate mitigation measures can be incorporated into the project.

**Coordinating Organization:** Community Development Dept.

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 2.1.3:** The City shall continue to require soils and geologic studies for proposed development with large client populations (such as schools and convalescent centers) within areas subject to very strong, violent, or very violent ground shaking. Such studies should determine the actual extent of the seismic hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location. Mitigation measures shall be incorporated as conditions of any project approval.

**Coordinating Organization:** Community Development Dept.

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 2.1.4:** The City shall continue to require special construction features in the design of structures where site investigations confirm potential seismic hazards.

**Coordinating Organization:** Community Development Dept.  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 2.1.5:** The City shall Continue to require that facilities necessary for emergency services be capable of withstanding a maximum credible earthquake from any of the seven known active faults in the region and remaining operational to provide emergency response.

**Coordinating Organization:** Community Development Dept.  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 2.1.6:** Inventory non-ductile concrete, tilt-up concrete (such as converted lofts), and other privately owned potentially structurally vulnerable residential building.

**Coordinating Organization:** Community Development Dept.  
**Time Frame:** 1-3 years  
**Funding:** Current Funding

**Action 2.1.7:** Adopt the latest applicable standard for the design of voluntary or mandatory retrofit or privately-owned seismically vulnerable buildings.

**Coordinating Organization:** Community Development Dept.  
**Time Frame:** 1-3 years  
**Funding:** Current Funding

**Action 2.1.8:** Utilize or recommend adoption of a retrofit standard that includes standard plan sets and construction details for voluntary bolting of homes to their foundations and bracing of outside walls of crawl spaces.

**Coordinating Organization:** Community Development Dept.  
**Time Frame:** 1-3 years  
**Funding:** Current Funding

**Action 2.1.9:** Encourage local government building inspectors to take classes on periodic basis on retrofitting of single-family homes.

**Coordinating Organization:** Community Development Dept.

**Time Frame:** 1-3 years

**Funding:** Current Funding

**Action 2.1.10:** The City Water System shall design and install seismic-resistant transmission and distribution pipeline joints across known faults.

**Coordinating Organization:** Public Works Water System

**Timeframe:** 1-5 years

**Funding:** Current or Grant Funding

**Action 2.1.10:** The City Water System shall invest in automation and control features on AC transmission pipeline to protect against catastrophic failures.

**Coordinating Organization:** Public Works Water System

**Timeframe:** 1-5 years

**Funding:** Current or Grant Funding

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**Objective 2.2:** Identify options, incentives and funding sources for structural retrofitting of structures that are identified as seismically vulnerable.

***Ideas for implementation***

**Action 2.2.1:** The City shall develop a program to educate the community on the various methods of retrofitting pre-earthquake code designed structures, which would include: workshops, literature and public safety announcements.

**Coordinating Organization:** Community Development Dept.

**Timeframe:** 1 – 3 years

**Funding:** \$5,000

**Action 2.2.2:** The City shall encourage the study and rehabilitation of high occupancy structures (such as multi-family residences and large

public assembly facilities) susceptible to collapse or failure in an earthquake.

**Coordinating Organization:** Community Development Dept.

**Timeframe:** Ongoing

**Funding:** \$100,000

**Goal: To Promote a Fire Safe Community**

**Objective 3.1:** The City shall compile and disseminate information regarding the fire threat to identified Wildland Urban Interface Areas.

***Ideas for Implementation***

**Action 3.1.1:** The City shall prepare a community base map in Wildland Urban Interface areas (WUI) showing emergency vehicle access routes, escape routes, safety zones, water sources and location of structures.

**Coordinating Organization:** Fire Department  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 3.1.2:** The City shall prepare Structure Protection Plans for each of the identified Wildland Urban Interface Areas as they are updated.

**Coordinating Organization:** Fire Department  
**Timeframe:** 1- 3 years  
**Funding:** \$100,000

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**Objective 3.2:** The City shall encourage implementation of wildfire mitigation activities in a manner consistent with the goals of promoting sustainable ecological management and community stability.

***Ideas for implementation***

**Action 3.2.1:** The City shall include in its weed abatement procedures a vegetation program to provide for the clearing or thinning of non-fire resistive vegetation along a minimum 10 feet along emergency vehicle access roads and driveways.

**Coordinating Organization:** Fire Department, Community Development Department and Property Owners  
**Timeframe:** 1 – 3 years  
**Funding:** \$50,000

**Action 3.2.2:** The City shall provide an ongoing vegetation management program such as the *City's Weed Abatement* ordinance to prohibit

the spread of wildfire in ground and aerial fuels and to assist homeowners in developing defensible space.

**Coordinating Organization:** Fire Department, Community Development Department and Property Owners  
**Timeframe:** 1 – 3 years  
**Funding:** \$200,000

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**Objective 3.3:** The City shall attempt to decrease the potential risk associated from wildfires within the City Limits and surrounding area through a variety of actions.

***Ideas for Implementation***

**Action 3.3.1:** The City shall continue to review new development in WUI areas to assure that adequate emergency vehicle access roads, fire flow onsite fire protection systems, signage, ignition resistant building materials, and defensible space are provided as needed.

**Coordinating Organization:** Fire Department, Community Development Department, Napa Communities Firewise Foundation, Property Owners, and Public works Department  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 3.3.3:** The City shall continue to upgrade existing water utility infrastructure to increase redundancy in high fire hazard areas especially at the rural and urban interface to minimize the risk of losing access to infrastructure during an event.

**Coordinating Organization:** Public Works  
**Timeframe:** 3-5 years  
**Funding:** \$1,200,000

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**Objective 3.4:** The City shall increase communication, coordination and collaboration between wildland/urban interface property owners, local and county fire officials to address risks, existing mitigation measures, and state and federal assistance programs to create a more fire safe community.

***Ideas for Implementation***

**Action 3.4.1:** The City shall encourage owners and occupants of single-family residences to have an emergency plan in the event of a wildfire or other natural disaster.

**Coordinating Organization:** Fire Department, Community Development Department, Napa communities Firewise foundation, and Property Owners  
**Timeframe:** Ongoing  
**Funding:** Current funding

**Action 3.4.2:** The City shall insure the Fire Department review all building plans in WUI areas for defensible space, emergency vehicle access, fire flow and ignition resistant construction requirements.

**Coordinating Organization:** Fire Department  
**Timeframe:** Ongoing  
**Funding:** \$50,000

**Action 3.4.3:** The City shall investigate the development and adoption of minimum standards to locate, design and construct buildings and structures or portions thereof for the protection of life and property, to resist damage from wildfires, and to mitigate building and structure fires from spreading to wildland fuels.

**Coordinating Organization:** Fire Department, Community Development Department and Property Owners  
**Timeframe:** 1 – 3 years  
**Funding:** \$10,000

**Action 3.4.4:** Encourage the formation of a community-based approach to wildfire education and action through the *Fire Wise Program* and formation of Fire Safe Councils.

**Coordinating Organization:** Fire Department, Community Develop Dept., Napa Communities Firewise Foundation, City Council and Property Owners

**Timeframe:** Ongoing

**Funding:** \$135,000

**Goal: Promote a Technology/Terror Safe Community**

**Objective 4.1:** Improve existing communication systems to effectively deal with acts of terrorism and civil unrest.

***Ideas for Implementation***

**Action 4.1.1:** Accept text communication and digital images directly into the 911 center.

**Coordinating Organization:** Napa Police Department

**Timeframe:** 2 – 4 years

**Funding:** \$25,000

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**Objective 4.2:** Encourage training for Public Safety personnel in understanding what terrorism is and the risk associated with such an incident.

***Ideas for Implementation***

**Action 4.2.1:** Continue first responder participation in attending available local, state and federal agency training on the effects of terrorist events. Training should include a better understanding on the potential outcomes associated with a terrorist event, and the ability to recognize the presence of, and identify, criminal activity or terrorism in an emergency. Training should also include information on weapons of mass destruction and chemical, biological, and nuclear hazards.

**Coordinating Organization:** Napa Police Department

**Timeframe:** 1 – 3 years

**Funding:** \$100,000

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**Objective 4.3:** Increase inter- and intra-agency coordination on potential terrorist activity.

***Ideas for Implementation***

**Action 4.3.1:** Continue to improve and increase the exchange of information related to terrorist activity between the Napa Police Department

and local, state and federal law enforcement agencies. This can be accomplished by participating in County and State-wide committees, and researching potential technology based programs.

**Coordinating Organization:** Napa Police Department  
**Timeframe:** 1 – 3 years  
**Funding:** \$50,000

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**Objective 4.4:** Improve support of the Napa County Hazardous Device Team.

***Ideas for Implementation***

**Action 4.4.1:** Identify and train personnel who can assist the Napa County Sheriff Department Hazardous Device Team with the investigation of cases involving hazardous devices. Currently the team provides service for Napa County residents as well as residents of the City of Napa. The major services provided by the team include: investigation of suspicious packages, render safe operations performed on explosive devices, disposal of found explosive materials and explosive chemicals, collection of evidence at bombing scenes, and technical assistance for the Napa Police Department SWAT Team.

**Coordinating Organization:** Napa Police Department  
**Timeframe:** 3 – 5 years  
**Funding:** \$100,000

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**Objective 4.5:** Develop training to improve response to civil unrest and riots.

***Ideas for Implementation***

**Action 4.5.1:** Work towards improving the strategic response to civil unrest and riots through increased training and awareness. Utilizing the department's SWAT Team, coordinate a mutual training day with the Napa Sheriff's Department SWAT Team focusing on team tactics and response to civil unrest.

**Coordinating Organization:** Napa Police Department  
**Timeframe:** 1 – 3 years  
**Funding:** \$15,000

**Action 4.5.2:** Improve the city of Napa equipment needs for response to high risk incidents, such as purchasing an armored citizen rescue vehicle.

**Coordinating Organization:** Napa Police Department  
**Timeframe:** 3 – 5 years  
**Funding:** \$85,000

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**Objective 4.6:** Improve response to Mass Casualty/WMD Incidents.

***Ideas for Implementation***

**Action 4.6.1:** Increase the Napa Police Department response to mass casualty and weapons of mass destruction incidents by participating in realistic, countywide, full-scale exercises to test the effectiveness of first responders.

**Coordinating Organization:** Napa Police Department  
**Timeframe:** 1 – 3 years  
**Funding:** \$10,000

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**Objective 4.7:** Design and build an alternate processing and emergency operations center. The City of Napa Hazard Mitigation Plan of 2004 identified the establishment of an alternate Emergency Operations Facility as a requirement to meet the goal of a disaster resistant community. The City of Napa’s current emergency operations infrastructure is riddled with single points of failure. The information Technology Division is proposing a distributed emergency operation infrastructure that would allow for emergency operation in the event of the loss of City Hall, or the Public Safety building. Currently, the loss of either of these facilities would eliminate our technology infrastructure.

**Action 4.7.1:** Alternate processing for critical telecommunications systems and computer applications.

**Coordinating Organization:** Napa Fire Department, IT Dept.  
**Timeframe:** 1-3 years  
**Funding:** \$60,000

**Action 4.7.2:** City maintained wireless infrastructure for telephone, radio and data communication.

**Coordinating Organization:** IT Department

**Timeframe:** 1 -3 years

**Funding:** Current funding

**Action 4.7.3:** Automated off site data storage with self healing network Infrastructure.

**Coordinating Organization:** IT Department

**Timeframe:** 1 – 3 years

**Action 4.7.4:** The City will search for funding sources and a site to construct a new Emergency Operations Center to respond to all local disasters and assist with mutual aid in surrounding communities.

**Coordinating Organization:** Napa Fire Department, Public Works and IT Department

**Timeframe:** 1 – 3 years

**Funding:** \$3,500,000

**Objective 4.8:** Develop and create a remote workers infrastructure

**Action 4.8.1:** The requirement for remote access to city data and applications is a constant evolving need. The information Technology Division is proposing a remote worker infrastructure that unifies that look and feel of the users experience on the network. The intent is to provide secure, remote deployable access to City applications and data without the need for information technology staff to configure the remote computer.

**Coordinating Organization:** IT Department

**Timeframe:** 1 – 3 years

**Funding:** \$250,000

**Objective 4.9:** Maintain reliable critical water infrastructure

**Action 4.9.1:** The City Water System shall invest in automation and control features on AC transmission pipeline to protect against catastrophic failures.

**Coordinating Organization:** Public Works Water System

**Timeframe:** 1-5 years  
**Funding:** Current or Grant Funding

**Action 4.9.2:** The City Water System shall invest in redundant and reliable automation and SCADA control features to insure reliability of communications to remote facilities in the event of the loss of one or more portions of the system.

**Coordinating Organization:** Public Works Water System  
**Timeframe:** 1-5 years  
**Funding:** Current or Grant Funding

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**Goal: To Create a Disaster Resistant Community**

**Objective 5.1:** The City shall promote greater public awareness and understanding of natural hazards.

***Ideas for Implementation***

**Action 5.1.1:** Provide disaster preparedness education in the Napa Community utilizing our public education officer and other appropriate City resources.

**Coordinating Organization:** City of Napa Fire Department  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.1.2:** The City shall support the continuation of a mandatory hazards response Education program to meet the State of California's SEMS training and Federal NIMS training curriculum.

**Coordinating Organization:** City of Napa Fire Department  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.1.3:** The City shall continue to support the education and awareness Programs developed and distributed by public service organizations.

**Coordinating Organization:** Napa Fire Department  
**Timeframe:** Ongoing  
**Funding:** Current

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**Objective 5.2:** The City shall continue to investigate and pursue opportunities to improve public safety communication throughout the county operational area as well as adjacent operational areas throughout the Bay Area and Region II. In addition we must continue to seek through modern technology methods of communication with the public during significant emergencies or disaster events.

***Ideas for Implementation***

**Action 5.2.1:** The Fire and Police Departments will continue to make improvements in the communication system as it relates to interoperability.

**Coordinating Organization:** Fire Department, Police Department  
**Timeframe:** 3 – 5 years  
**Funding:** current or grant funding

**Action 5.2.2:** Continue to work toward improving our radio system by incorporating more common radio frequencies for emergency personnel to communicate within the county during a significant emergency or disaster event.

**Coordinating Organization:** Fire Department, Police Department, Public Works  
**Timeframe:** 3 – 5 years  
**Funding:** current or grant funding

**Action 5.2.3:** The City of Napa shall work to insure the ability to maintain priority phone communication during a significant disaster which can overwhelm the telephone system.

**Coordinating Organization:** IT Department  
**Timeframe:** Ongoing  
**Funding:** Current

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**Objective 5.3:** The City shall review and update its resources, including material information and human, in an ongoing effort to maintain a state of readiness in the event of an emergency.

***Ideas for Implementation***

**Action 5.3.1:** The City shall coordinate the revision of the City of Napa Emergency Plan to address local needs and to satisfy all State and Federal Emergency Management system requirements.

**Coordinating Organization:** Fire Department and Personnel Department

**Time frame:** Ongoing

**Funding:** Current utilizing Fire Department overtime budget.

**Action 5.3.2:** The City shall coordinate training exercises that rehearse the procedures established by the Emergency Plan in order to maintain optimum readiness for disasters.

**Coordinating Organization:** Fire Department

**Timeframe:** Ongoing

**Funding:** \$5,000

**Action 5.3.3:** The City shall maintain and equip an Emergency Operation Center(EOC) for immediate availability in the event of a disaster.

**Coordinating Organization:** Fire Department, All City Departments, Public Works and Finance Department

**Timeframe:** Ongoing

**Funding:** \$5,000 per annum

**Action 5.3.4:** As funding becomes available, the City shall secure a site and the necessary equipment to operate a back-up Emergency Operations Center.

**Coordinating Organization:** Fire Department, All City Departments, Public Works and Information Technology

**Timeframe:** 1 – 3 years

**Funding:** \$125,000

**Action 5.3.5:** The City shall hire a permanent part time disaster coordinator to help facilitate disaster programs in the City of Napa.

**Coordinating Organization:** Fire Department, All City Departments, Public Works and Finance Department  
**Timeframe:** 1 – 3 years  
**Funding:** \$60,000

**Action 5.3.6:** The City will collect data to complete and improve future risk analysis efforts

**Coordinating Organization:** Community Development, Fire Department, Public Works, Police Department  
**Timeframe:** 1 – 3 years  
**Funding:** Current funding coupled with Grant opportunities

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**Objective 5.4:** The City shall develop mechanisms in advance of a major emergency to cope with the subsequent rebuilding and recovery phases.

***Ideas for implementation***

**Action 5.4.1:** The City shall develop mechanisms in advance of a major emergency to cope with the subsequent rebuilding and recovery phases.

**Coordinating Organization:** Community Development, Fire Department  
**Timeframe:** 1 – 3 years  
**Funding:** Current funding

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**Objective 5.5:** Explore opportunities to participate in Mutual-Aid and other agreements with Napa County, Cal Fire, and other agencies where there is a mutual benefit to both parties.

***Ideas for Implementation***

**Action 5.5.1:** Reassess current agreements and explore for new opportunities to expand current mutual, automatic aid, and combined specialized team agreements with other agencies.

**Coordinating Organization:** Fire Department  
**Timeframe:** Ongoing  
**Funding:** Current funding

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**Objective 5.6:** Require all sensitive facilities (facilities housing large numbers of people who have restricted mobility, i.e., hospitals, nursing homes, day care facilities, assisted care facilities, jails, etc.) to maintain and regularly update emergency response plans identifying safety procedures and evacuation routes.

***Ideas for Implementation***

**Action 5.6.1:** Develop a program to identify evacuation routes and procedures for all sensitive facilities and implement programs to practice evacuation and safety maneuvers.

**Coordination Organization:** Napa Fire Department, Community Development Department, Public Works, and Police Department  
**Timeframe:** Ongoing  
**Funding:** \$50,000

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**Objective 5.7:** Enhance outreach and education programs aimed at mitigating, reducing or preventing the hazards from dam failure.

***Ideas for Implementation***

**Action 5.7.1:** Provide education and distribute information to the community regarding flood preparedness from dam failure.

**Coordinating Organization:** Fire Department  
**Timeline:** Ongoing  
**Funding:** Current Funding

**Action 5.7.2:** Continue to support the education and awareness programs developed and distributed by public service organizations such as Red Cross and the Napa County Disaster Education Task Force.

**Coordinating Organization:** Fire Department  
**Timeline:** Ongoing

**Funding:** Current Funding

**Action 5.7.3:** Through the public education division of the Napa Fire Department, provide people and materials to facilitate required assistance.

**Coordination Organization:** Fire Department

**Timeline:** Ongoing

**Funding:** Current Funding

**Action 5.7.4:** Request the State to minimize the risk to the City of damage from inundation resulting from failure of Rector Reservoir Dam by maintaining the dam in a safe condition.

**Coordination Organization:** Napa Fire Department,  
Disaster Education Task Force  
and Public Works

**Timeline:** Ongoing

**Funding:** Current Funding Available

**Objective 5.8:** Integrate updated information and improved technical analysis of Dam Failure into Policy and Procedure.

***Ideas for Implementation***

**Action 5.8.1:** Update the City Water Division's Emergency Response Plan to include new information received from an updated Vulnerability Assessment.

**Coordination Organization:** Public Works

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 5.8.2:** Conduct a risk analysis emphasizing the threat of terrorist activity and implement recommendations including higher security fencing and electronic surveillance, alarms and monitoring.

**Coordination Organization:** Public Works

**Timeframe:** 3-5 years

**Funding:** \$140,000

**Action 5.8.3:** Maintain a program of reservoir dam safety review and continue to cooperate with the State Division of Dam Safety in addressing any needed dam maintenance or structural improvements.

**Coordination Organization:** Public Works, Community Development Department, and Napa Police Department

**Timeframe:** Ongoing

**Funding:** \$10,000

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**Objective 5.9:** Work to ensure that the City/County of Napa Health Departments and local Hospitals coordinate with each other to prepare for outbreaks of communicable diseases that affect the Community.

***Ideas for Implementation***

**Action 5.9.1:** In coordination with the County Health Dept. and the local hospitals, develop response strategies for responding to outbreaks of communicable disease.

**Coordinating organization:** Fire Dept.

**Timeframe:** Ongoing

**Funding:** Current or available grants

**Action 5.9.2:** Through a coordinated effort with the County Health Dept and local Hospitals provide education to the community on how to prevent and properly respond to an outbreak of communicable disease.

**Coordinating Organization:** Fire Dept.

**Timeframe:** Ongoing

**Funding:** Current or available grants

**Action 5.9.3:** Participate with the County Health Dept. and the local medical community in training exercises to prepare for a break out of communicable disease.

**Coordinating Organization:** Fire Dept

**Timeframe:** Ongoing

**Funding:** Current or available grants

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**Objective 5.10:** The City shall continue to invest in water infrastructure and diversify the portfolio of water supplies.

***Ideas for Implementation***

**Action 5.10.1:** The City shall secure internal and external water supply sources and maintain reservoir levels to withstand drought years.

**Coordinating Organization:** Public Works Dept.

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 5.10.2:** The City shall continue to educate the community about conservation and the importance of efficient water use.

**Coordinating Organization:** Public Works Dept.

**Timeframe:** Ongoing

**Funding:** Current funding

**Action 5.10.3:** The City shall implement best management practices and establish a drought policy to identify triggers for low supplies during dry years, implement conservation and include fines and enforcement for water waste during times of draught.

**Coordinating Organization:** Public Works Dept.

**Timeframe:** 1-2 years

**Funding:** Current funding

**Action 5.10.4:** The City shall continue to identify local groundwater and surface water sources as well as external water supply sources to insure availability of water during critical dry years and multiple dry years.

**Coordinating Organization:** Public Works Dept.

**Timeframe:** 2-3 years

**Funding:** \$260,000

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**Objective 5.11:** Identify a series of programs and tools that should be instituted to assist local Businesses to prepare for and recover after a natural disaster or security threat.

***Ideas for implementation***

**Action 5.11.1:** Work with local businesses to prepare Emergency Preparedness Plans by working with other agencies and advocacy organizations to distribute to and assist businesses with the preparation of plans in the case of disaster.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.11.2:** Encourage business owners to assist their employees in developing a family disaster plan for their home.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.11.3:** Develop a Continuity-of -Operation plan that includes off-site back-up and storage of vital records, such as critical business client files, tax returns, financial statements and documents, software ownership and purchase information, insurance information, employee records, business inventory lists, photographs, video documentation of premises and equipment, plans, etc.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.1.4:** Develop a short-term and intermediate term plan of action for sheltering of employees and connecting them with family members post-disaster, securing the facilities, implementing safety precautions, as well as providing tools and information one would need if the business owner were incapacitated or unavailable in the hours directly after the disaster.

**Coordinating Organization:** Economic Development / Fire Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Objective 5.12:** Identify and develop a series of programs and procedures to assist residents and property owners to prepare for and recover after a natural disaster or security threat.

***Ideas for Implementation***

**Action 5.12.1:** Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness.

**Coordinating Organization:** Economic Development Dept / Fire Dept

**Timeframe:** Ongoing

**Funding:** Current

**Action 5.12.2:** Work with local school officials to ensure age-appropriate training for students in the event of an occurrence during school hours.

**Coordinating Organization:** Economic Development Dept / Fire Prevention

**Timeframe:** Ongoing

**Funding:** Current

**Objective 5.13:** Identify and assess the most vulnerable critical business and infrastructure facilities in the case of a natural disaster or security threat and prepare emergency response plans to protect against economic loss and speedy recovery

***Ideas for Implementation***

**Action 5.13.1:** Inventory and map critical businesses such as hospitals, fire stations, etc. and infrastructure such as dams, bridges, transit and rail systems, communications facilities, streets and lights, water and sewer lines, utility (electric or gas) facilities, etc.

**Coordinating Organization:** Economic Development Dept / I. T. / Planning

**Timeframe:** Ongoing

**Funding:** \$500,000

**Action 5.13.2:** Develop plans to ensure the speedy repair and functional restoration of critical businesses and infrastructure after a disaster through pre-planning, stocking piling of materials, etc. Prepare and distribute disaster operational plans and a process to check facilities and infrastructure after a disaster.

**Coordinating Organization:** Building/Economic Development  
Dept / Building  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.13.3:** Conduct mock training exercises to ensure appropriate actions are taken to restore operations of critical infrastructure and facilities and promote multi-jurisdictional coordination efforts.

**Coordinating Organization:** Fire / Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.13.4:** Support the efforts of other agencies to plan and prepare for disasters.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

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**Objective 5.14:** Develop inventories of historic buildings, governmental buildings, soft-story commercial or industrial buildings, unreinforced buildings, etc. to speed and target post-disaster response inspections and develop recovery permit assistance procedures to speed post-disaster recovery efforts.

### ***Ideas for Implementation***

**Action 5.14.1:** Develop procedures for inspecting and tagging business for occupancy a disaster.

**Coordinating Organization:** Building / Economic Development  
Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.2:** Create educational programs for owners of historic or architecturally significant properties to assist them to undertake measures that will minimize the impact of a disaster on the structure and the likelihood of demolition after a disaster – such as the Secretary of the Interior’s Guidelines for Rehabilitation.

**Coordinating Organization:** Planning / Cultural Heritage /  
Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.3:** Educate property owners of soft-story and unreinforced buildings of the mandatory need to seismically retrofit these buildings. Notify tenants or potential lessees that the building is unreinforced.

**Coordinating Organization:** Building / Economic Development  
Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.4:** Identify locations for recovery permit assistance centers, and develop a protocol for processing specialized plans, streamline plan checking, inspections, etc. to expedite recovery and rebuilding efforts.

**Coordinating Organization:** Economic Development Dept /  
Planning  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.5:** Develop and enforce a “reconstruction ordinance” to ensure that damaged buildings or structures are repaired in an appropriate and timely manner.

**Coordinating Organization:** Planning / Building / Economic  
Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.6:** Establish preservation-sensitive measures for the repair and re-occupancy of historic buildings including requirements for temporary shoring or stabilization, arrangements for consulting with preservation professionals, and expedited permit procedures.

**Coordinating Organization:** Building / Planning / Economic  
Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.14.7:** Provide this information to the designated Public Information Officer so that notifications may be announced as early as possible after the disaster has occurred.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

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**Objective 5.15:** Work with various organizations to ensure that residents and animals have short-term shelter after a disaster.

***Ideas for Implementation***

**Action 5.15.1:** Develop a plan for shorter-term sheltering of residents and animals in the community after a disaster by working with the American Red Cross, Humane Society, animal shelters, pet stores, local veterinarians and others. Identify locations, necessary facilities, responders, etc.

**Coordinating Organization:** Economic Development Dept  
**Timeframe:** Ongoing  
**Funding:** Current

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**Objective 5.16:** Develop energy efficiency programs and activities to ensure the most advanced business practices, and develop sustainability programs to ensure integrated-system buildings that are designed for high-performance, efficiency, security, etc.

***Ideas for Implementation***

**Action 5.16.1:** The City will develop a Climate Action Plan and Energy Strategy to reduce its greenhouse gas emissions in compliance with applicable state and federal law (AB 32).

**Coordinating Organization:** Public Works / Building / City  
Manager Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.16.2:** The City will provide training to appropriate staff who evaluate building plans and perform inspections on LEED-rated buildings so

that they may ensure that sustainability goals and measures are met and incorporated.

**Coordinating Organization:** Building / Planning Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.16.3:**

The City will adopt policy and purchasing guidelines that give Preference to projects that incorporate sustainability and safe systems components in their designs.

**Coordinating Organization:** Building / Public Works / Dept  
**Timeframe:** Ongoing  
**Funding:** Current

**Action 5.16.4:**

Develop and maintain an integrated and secure digital Emergency Management software system for use by responding, assisting, and collaborating agencies.

Program Description: This project would develop a secure net based Emergency Management Operating system for sharing immediate disaster information and give a common operational picture to response, assisting and cooperating agencies. This emergency management, and data and image sharing capability would greatly enhance real time disaster intelligence in both crises and day to day emergencies.

**Coordinating Organizations:** County Communications/OES  
Napa County, St. Helena,  
Calistoga, Yountville, American  
Canyon, the American Red Cross,  
and other CBOs involved with  
disaster response  
**Time Frame:** 1-3 years  
**Funding required:** \$75,000 per annum

## **SECTION 5: PLAN MAINTENANCE PROCEDURES**

The City of Napa Hazard Mitigation Plan will be used to prioritize projects. Mitigation projects will be considered for funding through federal and state grant programs, and when other funds are made available to the City. The City Disaster Committee will be the coordinating agency for project implementation. The Napa Fire Department and Public Works Department will be responsible for mitigation project administration.

A number of state and local regulations and policies form the legal framework to implement the City of Napa's hazard mitigation goals and projects. A list of these Regulations and Plans can be found at the end of this section.

### **Plan Maintenance**

The Plan will be maintained by formal process to ensure that the Napa Hazard Mitigation Plan remains an active and relevant document. The Plan maintenance process includes a schedule for monitoring and evaluating the Plan and producing a Plan revision every five years. This section describes how the City will integrate public participation throughout the Plan maintenance process.

### **Monitoring, Evaluating and Updating the Plan**

The City of Napa Hazard Mitigation Plan will be reviewed every year, or sooner as deemed necessary by knowledge of new hazards, vulnerabilities, or other pertinent reasons. The review will determine whether a Plan update is needed prior to the required five-year update. The Plan review will identify new mitigation projects and evaluate the effectiveness of mitigation priorities and existing programs.

Steve Brassfield Battalion Chief for the Napa Fire Department will be responsible for scheduling a meeting of the Napa City Disaster Committee every year to review and update the Plan as needed. The meeting will be open to the public and advertised in the local newspaper and local radio stations to solicit public input. The public will have the opportunity to review the goals and mitigation projects at these meetings, review changing hazard situations in the City, and changes in state or federal policy relating to this Plan to ensure that it addresses current and expected needs.

The City Disaster Committee and public will also review the risk assessment portion of the Plan to determine if this information should be updated or modified, given any newly available data. The list of critical facilities will also be reviewed and enhanced with additional details.

The Disaster Committee will develop status reports detailing the success of various mitigation projects, difficulties encountered, success of coordination efforts and which strategies should be revised.

The Napa Fire Department, with the assistance of other City Departments, will be responsible for the five-year update of the Plan which will begin in the fourth year, and

will submit to the City Council and public for review and approval. Before the end of the five-year period, the updated Plan will be submitted to the State Hazard Mitigation Officer and the FEMA for acceptance. The Fire Department will notify all holders of the City Plan when changes have been made.

### **Implementation through existing Planning Mechanisms**

Within six months of formal adoption of the Napa City Hazard Mitigation Plan, mitigation goals will be incorporated into future versions of the Napa City Emergency Plan. Meetings of the City Council and public hearings will provide an opportunity for local officials to report back on the progress made on the integration of mitigation planning elements into City planning documents and procedures.

The City adopts a capital improvement program as part of its two-year budget. Capital improvement programs included in the Hazard Mitigation Plan will be reviewed with all others recommended by Departments in coming up with a set of CIP recommendations for the next budget cycle.

The City updates its General Plan periodically (typically every 7-10 years, with minor updates occurring more frequently). The last comprehensive update was adopted in December 1998 however some updates were approved in 2009. Programs and policies found in the Health and Safety Element have been closely coordinated with those in the Hazard Mitigation Plan to assure that they are consistent. Any future updates of the Hazard Mitigation Plan (or the General Plan) will also be coordinated so that they reinforce each other.

The City adopted a comprehensive Zoning Ordinance update in 2003. The Zoning Ordinance implements the General Plan and includes a: FP *Floodplain Overlay District* approved by FEMA, and a Flood Evacuation Area requirement beyond that which FEMA requires covering properties within the floodplain. Other zoning site development regulations used in Napa to reduce site development hazards include:

- building creek setbacks, erosion control standards and standards for protection of riparian corridors;
- a specific strict process for early geotechnical review of projects in the West Napa fault Zone;
- Requirements for fire hazard reduction plans in identified fire hazard areas.

The Community Development Department, Building Division, updates its local building codes periodically and has adopted the most recent edition of the California Building Code in accordance with the Hazard Mitigation Plan recommendation relating to seismic safety. The Community Development Department also reviews development projects against General Plan policies and programs, local area plan standards and zoning regulations.

### **Continued Public Involvement**

Napa is dedicated to involving the public directly in review and updates of the Napa Hazard Mitigation Plan. Copies of the Plan will be catalogued and kept at all appropriate

agencies in the City as well as posted on the City's web site and made available on read only files on CD ROM.

Public meetings will be held annually and as part of all future required five-year updates of the Plan. The meetings will provide a forum for public input to the Plan.

## Checklist for Annual Review of the Hazard Mitigation Plan

Point of Contact:	Local Plan Reviewed by:
Title:	
Agency:	
Phone Number:	

<b>PLAN REVIEW CRITERIA REFERENCE PAGE #</b>	<b>ITEMS TO BE REVIEWED</b>	<b>LOCATION IN THE PLAN</b>	<b>COMMENTS</b>
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### PLANNING PROCESS

Documentation of the Planning Process	Is the City continuing to document the planning process, how it was prepared, who was involved and how.		
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### RISK ASSESSMENT

Identifying Hazards	Are there new hazards threatening the City?		
Profiling Hazard Events	1. Can the hazard assessment be updated? 2. Has the jurisdiction experienced a hazard event since the last review?		
Assessing Vulnerability: Identifying Hazards	Is there new information regarding the types and numbers of existing and future buildings,		

	infrastructure and critical facilities located in the City?		
ASSESSING VULNERABILITY: ESTIMATING LOSSES	Is there a change in the potential dollar losses to vulnerable structures?		
Assessing Vulnerability: Analyzing Development Trends	Describe any changes to land uses and development trends. Do mitigation options need to be considered?		

**MITIGATION STRATEGY**

Local Hazard Mitigation Goals	Do the mitigation goals need to be changed or updated?		
Identification and Analysis of Mitigation Measures	1. Describe any Actions Items that have been completed. 2. Are there new Action Items that need to be added? 3. Are there any changes to existing Action Items?		
Implementation of Mitigation Measures	Are there changes to the action plan describing how the actions identified will be prioritized, implemented, and administered?		

**PLAN MAINTAINANCE PROCEDURES**

Monitoring, Evaluating and Updating the Plan	State when the plan will be reviewed in the future.		
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Continued Public Involvement	Describe how the community was involved in the review of this plan.		
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The Disaster Committee will develop status reports detailing the success of various mitigation projects, difficulties encountered, successes of coordination efforts and which strategies should be revised.

## **SECTION 6: FEDERAL, STATE & LOCAL REGULATIONS & POLICIES**

### **Federal Environmental Protection & Historic Preservation Laws:**

- National Environmental Policy Act (NEPA)
- Executive order 11990 Wetland Protection
- Executive Order 11988 Floodplain Management
- Clean Water Act (Section 404)
- Clean Water Act (Section 401)
- Executive Order 12898 Environmental Justice
- Wild and Scenic Rivers Act
- National Historic Preservation Act
- Endangered Species Act
- Robert T. Stafford Disaster Relief and Emergency Assistance Act
- Disaster Mitigation Act of 2000

### **California Environmental Protection & Historic Preservation Laws:**

- California Environmental Quality Act (CEQA)
- Farmland Protection Act
- Coastal Zone Management Act

The City of Napa recognizes that environmental compliance and historic preservation are essential components of the mitigation project planning and approval process. The City is committed to examining each proposed mitigation measure and project to determine if there are any environmental or historic issues that would require studies or reviews. The City will be compliant with federal, state and local laws and regulations including but not limited to the following:

## **Local Ordinances**

### **Napa Municipal Code:**

- Title 17 Zoning Ordinance: regulations governing uses and setting development standards including but not limited to Chapter 17.38 Floodplain Overlay district, Chapter 17.52 Site and Use Regulations. This latter chapter includes Seismic/Landslide Hazard Area regulations, Wetland and Creek Regulations and the Napa River/Napa Creek Flood Protection Project Regulations.
- Chapter 8.28 Hazardous Materials
- Chapter 13.10 – 13.12 Moderate and Severe Water Shortage Regulations
- Chapter 15.50 Standard City Mitigation Measures and Project Conditions which the City establishes through Policy Resolution 27.
- Chapter 15.52 Historic Preservation
- California Building Code
- California Fire Code
- General Plan Policy Document
- US Army Corps of Engineers, Napa River/Napa Creek Flood Protection Project General Design Manual and Supplemental EIR/EIS, 1997
- City of Napa Urban Water Management Plan, 2005 update, adopted 2006

# **APPENDIX A**

## **CRITICAL FACILITIES**

**CRITICAL FACILITIES**

<b>NAPA CITY AND COUNTY GOVERNMENT BUILDINGS</b>				
	<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>
1	County Administration	1195 Third Street	Napa	94559
2	Hall of Justice	1125 Third Street	Napa	94559
3	Communications	1220 Fourth Street	Napa	94559
4	County Library	580 Coombs Street	Napa	94559
5	Juvenile Hall	2350 Old Sonoma Road	Napa	94558
6	Emergency Medical Services	1500 Third Street	Napa	94559
7	Soscol Professional Plaza	1710 Soscol Avenue	Napa	94558
8	Soscol Business Park	650 Imperial Way	Napa	94559
9	Soscol Office Building	1804 Soscol Avenue	Napa	94559
10	Carither's Building	1127 First Street	Napa	94559
11	Alexandria Building	1001 Second Street	Napa	94559
12	County Court House	825 Brown Street	Napa	94559
13	Family Suport Legal	1546 First Street	Napa	94559
14	H&HS EMS	1721 First Street	Napa	94559
15	County Sanitation\Animal Shelter	942 Imola Avenue	Napa	94559
16	Health & Human Service/Public Health	2344 Old Sonoma Road	Napa	94559
17	H&HS SIU	1500 Third Street	Napa	94559
18	Napa Police Department	1539 First Street	Napa	94559
19	City Hall	955 School Street	Napa	94559
20	Community Services	1600 First Street	Napa	94559
21	Housing Authority/Economic Development	1600 Clay Street	Napa	94559

<b>NAPA MEDICAL FACILITES</b>						
	<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Type</b>
1	Napa Valley Dialysis	1100 Trancas Street #267	Napa	94558	224-6533	Care Center
2	Piner's Care Center	1800 Pueblo Avenue	Napa	94558	224-7925	Care Center
3	Pleasant Care	2465 Redwood Road	Napa	94558	255-3012	Care Center
4	Roberts Nursing Home	3415 Browns Valley Road	Napa	94558	257-3515	Care Center
5	Urgent Care Ctr Of Napa	3230 Beard Road	Napa	94558	254-7778	Care Center
6	Napa Valley Dialysis	1100 Trancas Street #267	Napa	94558	224-6533	Care Center
9	Primrose Care Home	3698 Jefferson Street	Napa	94558	255-8594	Care Center
10	Adapt Day Treatment Program	1600 Myrtle Avenue	Napa	94558	253-9136	Clinic
11	Community Health Clinic Ole	935 Trancas Street # 4c	Napa	94558	254-1770	Clinic
12	Excel Quality Care	575 Lincoln Avenue #240	Napa	94558	426-6522	Clinic
13	Napa State Hospital	2100 Napa Vallejo Highway	Napa	94558	253-5260	Clinic
14	Rohlffs Manor	2400 Fair Drive	Napa	94558	255-9555	Clinic
15	Senior Life Care Inc	3460 Villa Lane	Napa	94558	224-2285	Clinic
16	Transitions-St Helena Hospital	1000 Professional Drive	Napa	94558	259-2840	Clinic
17	Queen Of The Valley Hospital	1000 Trancas Street	Napa	94558	252-4411	Hospital
21	A Hidden Knoll	3158 Browns Valley Road	Napa	94558	258-1873	Nursing Home
22	A'Egis Of Napa	2100 Redwood Road	Napa	94558	251-1409	Nursing Home

<b>NAPA MEDICAL FACILITIES (continued)</b>						
<b>ID</b>	<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Type</b>
23	Heart of Napa	2300 Brown Street	Napa	94558	226-1821	Nursing Home
24	Heart That Matters	68 Coombs Street #9	Napa	94559	252-7569	Nursing Home
25	Home Care Nurses Registry	1712 Jefferson Street	Napa	94558	255-8719	Nursing Home
26	Home Care Svc-Queen-Valley	1100 Trancas Street # 300	Napa	94558	257-4124	Nursing Home
27	Meadows Care Center	1900 Atrium Parkway	Napa	94558	257-4990	Nursing Home
28	Napa Nursing Center	3275 Villa Lane	Napa	94558	257-0931	Nursing Home
29	Sierra Vista Nursing & Rehab	705 Trancas Street	Napa	94558	255-6060	Nursing Home
30	Sunrise Assisted Living-Napa	3700 Valle Verde Drive	Napa	94558	255-1100	Nursing Home
31	Your Home Nursing Service	3188 Jefferson Street	Napa	94558	225-7800	Nursing Home

<b>NAPA PUBLIC SAFETY FACILITIES</b>						
<b>ID</b>	<b>Facility</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>	<b>Phone</b>	<b>Type</b>
1	Napa Fire Prevention	1600 First Street	Napa	94559	257-9590	Fire
2	Napa Fire Department	1539 First Street	Napa	94559	257-9593	Fire
3	Napa City Police Department	1539 First Street	Napa	94559	257-9223	Police
4	Napa County Sheriffs Department	1195 Third Street	Napa	94559	253-4415	Police

<b>PUBLIC/PRIVATE SCHOOL FACILITIES</b>				
<b>Name</b>	<b>Address</b>	<b>City</b>	<b>Zip</b>	<b>Phone</b>
Alta Heights Elementary School	15 Montecito Boulevard	Napa	94558	253-3671
Bel Aire Park Elementary School	3580 Beckworth Drive	Napa	94558	253-3775
Browns Valley Elementary School	1001 Buhman Avenue	Napa	94558	253-3761
Casa Montessori School	780 Lincoln Avenue	Napa	94558	224-1944
El Centro Elementary School	1480 El Centro Avenue	Napa	94558	253-3771
Justin-Siena High School	4026 Maher Street	Napa	94558	255-3615
McPherson Elementary School	2670 Yajome Street	Napa	94558	253-3488
Napa Christian	2201 Pine Street	Napa	94559	255-5233
Napa High School	2475 Jefferson Street	Napa	94558	253-3711
Napa Valley Christian Academy	2645 Laurel Street	Napa	94558	252-2191
New Technology High School	920 Yount Street	Napa	94558	259-8557
Northwood Elementary School	2214 Berks Street	Napa	94558	253-3471
Phillips Elementary School	1210 Shetler Avenue	Napa	94558	253-3481
Pueblo Vista Elementary School	1600 Barbara Road	Napa	94558	253-3491
Redwood Middle School	3600 Oxford Street	Napa	94558	253-3415
River School	2447 Old Sonoma Road	Napa	94558	253-6813
Salvador Elementary School	1850 Salvador Avenue	Napa	94558	253-3476
Shearer Elementary School	1590 Elm Street	Napa	94559	253-3508
Silverado Middle School	1133 Coombsville Road	Napa	94559	253-3688
Snow Elementary School	1130 Foster Road	Napa	94558	253-3666
St Apollinaris Catholic School	3700 Lassen Street	Napa	94558	224-6525
St Johns Lutheran School	3521 Linda Vista Avenue	Napa	94558	226-7970
St Johns the Baptist School	983 Napa Street	Napa	94558	224-8388
Sunrise Montessori Elementary	1226 Salvador Avenue	Napa	94558	257-2392
Sunrise Montessori Of Napa	4149 Linda Vista Avenue	Napa	94558	253-1105
Trinity Grammer & Prep	2055 Redwood Road	Napa	94558	258-9030
Valley Oaks High School	1600 Myrtle Ave	Napa	94558	253-3791
Vintage High School	1375 Trower Avenue	Napa	94558	253-3601
Westwood Elementary School	2700 Kilburn Avenue	Napa	94558	253-3678
Napa Valley Charter School	575 Third Street	Napa	94559	252-5522
West Park Elementary	2315 W Park Avenue	Napa	94558	253-3516
Kolbe Academy	1600 F Street	Napa	94559	256-4306
Napa Valley College	2277 Napa-Vallejo Highway	Napa	94559	253-3000
Blue Oak School	1436 Polk Street	Napa	94559	261-4500
Oxbow School	530 – 3 <sup>rd</sup> Street	Napa	94559	255-6000
Harvest Middle School	2449 Old Sonoma Road	Napa	94559	259-8866

# **APPENDIX B**

**FLOOD MITIGATION**

**ASSISTANCE PROGRAM**

**CANDIDATE PROJECTS**

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## **Flood Mitigation Assistance Program Candidate Projects**

The Flood Mitigation Assistance Program (FMA) of the Federal Emergency Management Agency (FEMA) provides grants to communities for projects that reduce the risk of flood damage to structures that have insurance coverage. The City has received a FMA 1999 Planning Grant to identify projects with the Napa County Flood Control and Water Conservation District (District) that can be funded under the FMA program.

This chapter is limited to one aspect of the FMA program, to develop a recommended list of projects that meet the FMA criteria for funding. It is an outgrowth of West Yost & Associates' work on the Storm Drain Master Plan for the City and the Interior Drainage Study for the District.

Representatives from the City, District, State Office of Emergency Services and FEMA formed a Planning Grant Team to help manage the grant and to recommend projects for funding priority. WYA, as consultant to the City, is also a member of the committee. In its initial work, the committee reviewed the City's floodplain management ordinance in relation to the flood mitigation program and did not recommend any changes.

The City's FMA program is aimed at reducing repetitive flood losses. Properties with repetitive losses are defined as having two or more claims of at least \$1,000 paid by the National Flood Insurance Program. A map has been prepared by the City showing the location of repetitive loss properties.

Many of the repetitive loss properties were damaged by Napa River flooding. The flooding risk from the Napa River and Napa Creek have been significantly reduced with the ongoing construction of the Napa River Flood Protection Project (Project). Continuing flood threats will be from local drainage problems and from 100-year interior drainage that floods either by ponding in low areas or flowing overland at significant depths.

### **Ongoing Studies**

Construction has begun on the Napa River and Napa Creek Flood Protection Project. A description of facilities is included in the Supplemental General Design Memorandum, of the Corps of Engineers, October 1998. The Flood Protection Project has the primary objective of providing protection from 100-year Napa River flooding by constructing setback levees and floodwalls. It will reduce the risk of flooding to many of the repetitive loss properties.

As part of the Flood Protection Project, the Corps analyzed the interior drainage flooding that would occur after the protection project was completed. Interior drainage projects were formulated and made part of the Flood Protection Project. The project will construct interior drainage facilities including three pump stations, culverts through the levees, and floodwalls and storm drains.

An analysis was conducted for the District that identified residual flooding from a 100-year runoff event. An interior, behind the levees, 100-year runoff will pond in low areas

and will cause flooding as it flows downhill toward one of the project's three large pump stations. Projects were recommended that would reduce the residual flooding area. Other areas, for economic reasons, will remain in the floodplain and await future development proposals.

The Planning Grant Team appreciates the importance of mapping floodplains caused by sources of flooding beyond the protection offered by the Flood Protection Project. The project provides protection from the Napa River and from residual interior flooding. There are other interior drainage problems that will cause ponding and flooding during major rainfall events. These additional areas should be mapped as floodplains by FEMA. It is recommended that the Corps of Engineers publish a pre-FIRM mapping notice as a disclosure to the general public before the map is adopted by the City Council.

The City conducted a Storm Drain Master Plan that investigated storm drains in the City that are larger than 30 inches in diameter, determined design flow and pipe capacity and recommended additional storm drain improvements to provide a 10-year level of protection. Improvements were identified and listed by priority. This work also resulted in the identification of potential problem areas from a 100-year runoff.

The Flood Insurance Rate Maps were updated to reflect the improvements that have been completed up to Third Street and a new floodplain area has been mapped for Salvador Creek area. The new maps became effective September 29, 2010.

The Salvador Creek Drainage Improvement Analysis Report dated December 2012 was prepared by GHD Inc. The report includes hydrologic modeling of the Salvador Creek that identifies flood reduction alternatives.

Most recently, the Flood Insurance Rate Map (FIRM) number 06055C0516F was updated to reflect the improvements that have been completed for the Napa Creek area between Hwy 29 and Main Street. A letter of Map Revision (LOMR) became effective November 12, 2014 revising the floodplain boundaries in this area. It is anticipated that another LOMR will be issued after the completion of the bypass channel on the Napa River revising the FIRMs in that area.

### **Structural Flood Control Measures**

Flood control measures found to have the greatest potential for reducing the risk from flooding include storm drains and fill. Measures found to be less effective include upstream storage, floodwalls and levees, and pumps.

The upstream detention storage needed to reduce the relatively small areas of residual ponding is disproportionate to the benefits received. Floodwalls for individual properties were found to be uneconomical when compared to other measures. Pumps, also, were not considered because of location and high cost.

Additional storm drain capacity was often an effective solution. After detailed study, structural measures may be the most effective in many situations.

## **Non-Structural Flood Control Measures**

Storm drain improvements are but one method of mitigating repeat flooding. Storm drain improvements are presented here as a base condition that establishes a workable plan and a cost against which other methods can be measured. Non-structural solutions, if found to be economical, may be preferred.

Nonstructural methods require field surveys, identification of specific properties affected, formulation of a plan for each property, preparation of cost estimates, and construction. Flood mitigation projects can be divided into six methodologies; structural solutions including storm drains, floodwalls and levees; elevation of structures above the base flood elevation (100 year flood level); wet floodproofing; relocation of structures; dry floodproofing; and demolition. Wet floodproofing and elevation are likely candidates in the City.

Flood mitigation projects are presented below. It is recommended that field surveys and feasibility studies be initiated to determine if non-structural methods would be more economical solutions.

## **Flood Problems and Mitigation Projects**

Several problems have been identified and improvements proposed that will reduce the risk of flooding from interior runoff after the Napa River Flood Protection Project is complete. The following improvements, grouped by general areas within the City, will reduce residual flooding from a 100-year runoff.

Proposed projects are shown in Table 17-1. Projects are shown in to priorities. Priority A includes needed studies and projects showing the greatest benefit. Priority B includes projects that will result from the studies and field surveys.

### **Soscol Avenue, East Side of Napa River**

The Flood Protection Project assumes interior flood waters will continue to flow overland and along City streets, eventually reaching the lowest point in the watershed. A storage basin would collect runoff and pumps would lift it to Tulocay Creek and the Napa River. Between its source and the pump detention basin, flooding will occur caused by excessive depth of flowing water and from ponding in low areas. At the lower end, the combination of a very flat Soscol Avenue and new commercial buildings effectively limit runoff from flowing into the proposed basin.

A series of projects is proposed to reduce residual flooding along Soscol Avenue from the Expo Fairgrounds to the South Napa Marketplace.

1. **Spring Street, Silverado Trail to Napa River.** The storm drain at the north end of Juarez Street between Spring Street and the river is a combination pipe and open channel. Construction of a "sealed" drain to the river that will operate under pressure will assure that there is a positive outflow even during periods of high river stages and reduce the overland flow contributing to the Expo and Soscol Avenue

flooding. If a pressurized storm drain is constructed for high stages, a second storm drain is needed to drain the lower shed to the river during low river stages.

2. **Taylor Street.** A similar situation exists at Taylor Street where a pressurized storm drain could maintain outflow to the river and reduce the flood volume flowing to Expo and Soscol Avenue. With the pipe pressurized, a second pipe would be needed to drain Taylor Street during periods of low river stages.
3. **Expo Fairgrounds.** Much of the overland flow resulting from a 100-year runoff and blocked outfalls to the river flows into the Third Street area and the Expo Fairgrounds. There is limited attenuation of peak flows because the topography only allows ponding to about two feet deep. Some control of this flood water is needed, either a drainage channel to convey the runoff or a detention basin to reduce downstream peaks.
4. **Soscol Avenue to Tulocay Wetlands.** Overland flow, up to 264-acre feet, tends to pond in Soscol Avenue and flood commercial properties on both sides of the street. As the depth increases, some water makes its way through parking lots, along Oil Company Road and overland to the Tulocay storage basin. To reduce flooding along Soscol Avenue and move floodwaters to the basin, a storm drain will be needed from Oil Company Road and Soscol Avenue to a point near the basin where the pipe can empty into an open channel and then to the basin.
5. **Oil Company Road Watershed.** Hydrology results show uncontrolled runoff from the 270-acre watershed east of Souza Lane and Silverado Trail to be 96-acre feet. A more detailed drainage study of this shed is needed to formulate projects to control this runoff and reduce the volume of floodwater flowing to Soscol Avenue.

A storm drain has been included to convey this runoff to the Tulocay basin but a detailed study should be undertaken before a large capital outlay is committed.

6. **Soscol Avenue near Tulocay Creek.** A wide swath of overland flow will remain. A coordinated approach to acquire flowage easements will be needed to assure the unobstructed flow of water. Lower buildings will remain subject to flooding. Surveys and possibly elevation and/or floodproofing is recommended.

### **Soscol Avenue, West Side of Napa River**

Interior drainage north of Napa Creek will flow overland to a low point between the railroad tracks and Soscol Avenue. Pumps will remove the water to the river bypass, but without a storage facility, shallow street flooding will likely occur. Also, there are low areas that will not adequately drain to the pumps.

7. **Survey Structures and First Floor Elevations.** Without a significant pump storage basin, cycling units to minimize ponding becomes important. A balance must be obtained between running a pump dry and allowing water to pond to damaging depths. Field surveys are needed to develop the information needed to compute the depths of this short term flooding. Surveys are also needed north along Soscol to Jordan Lane.

8. **Soscol Avenue – Lincoln to Vallejo.** Field surveys are needed to identify structures in the residual floodplain and to determine suitability for elevation and/or floodproofing.
9. **Jordon Lane – Soscol Avenue.** A storm drain (30- and 36-inch) is needed to remove residual flooding near Jordan Lane, north of Lincoln Avenue and along lower Soscol Avenue. These may be candidate areas for nonstructural measures.

### **Riverside Drive**

10. **Sea Scout Building – Laurel and Riverside.** The Sea Scout on Riverside Drive is on the river side of the project levee and will not be protected by the flood protection project. This building must be surveyed and a decision made to elevate and/or floodproof.

### **Silverado Trail**

11. **County Garden Inn – 1815 Silverado Trail.** County Garden Inn on Silverado Trail will also not be protected by the project. Surveying is needed to obtain elevation data and allow a decision to elevate and/or floodproof.

### **Lincoln Avenue – Carolina Street to Jordan Lane**

12. **Buildings on Carolina, Ida and Maplewood Streets.** The residual floodplain includes several structures along Lincoln Street and on Carolina, Ida and Maplewood Streets. Two of these structures are described separately in numbers 13 and 14 below. Surveys will determine first floor elevation and street grades. A decision will then be made to elevate and/or floodproof or do nothing.
13. **Compadres Restaurant – 505 Lincoln.** The River City restaurant sits low along Lincoln Street in the floodplain. This structure will be included in the survey and the building may be elevated and/or floodproofed.
14. **517 Lincoln – Napa Small Animal Veterinary Hospital.** The Napa Small Animal Veterinary Hospital is on Lincoln Street in the Floodplain. This structure will be included in the survey and the building may be elevated and/or floodproofed.

### **Imola Avenue Basin**

15. **Imola – South Coombs.** The area around the proposed Imola Basin needs field surveys to identify structure type and first floor elevations. Structures at risk from overland floodwaters draining to the basin should be identified.
16. **South Coombs and Imola.** Floodproofing becomes a potential solution in the area adjacent to the pumps. Field surveys are needed to determine first floor elevations.
17. **Arboreo Street.** Arboreo Street has difficulty with overland flow draining. A storm drain is needed to drain the Arboreo Street area to the new drain in South Coombs Street.

18. **Brown Street – Elm Street. Along South Coombs Street.** A low area near the south end of Brown Street must be drained to the Imola Basin. A storm drain is proposed for construction along South Coombs Street.
19. **Jefferson Street.** A 72-inch drain is proposed along Jefferson Street to the detention basin to alleviate excessive street flows.

#### **River Glen – Pike Drive Drain**

20. **River Glen – Trout Way.** Field surveys are needed to develop the information needed to route flows into the Lake Park detention basin and pump station facilities.
21. **Trout Way to Lake Park.** Alternatives that involve a combination of increased pipe capacity and flowage easements need to be identified. A pipeline is proposed, but further studies may result in a better solution.

#### **Salvador Channel**

22. **Big Ranch Road to Solano Avenue.** A detailed drainage study of the Salvador Channel has been completed. 100-year floodplains have been developed and channel, levee and bridge needs should be identified so that adjacent structures will be protected from 100-year runoff.
23. **Big Ranch Road to Solano Avenue.** Improvements need to be designed and plans and specifications prepared after completion of the Salvador Channel study.

**Table 17-1. Flood Mitigation Assistance – Proposed Projects**

Project No.	Priority level	Location	Action/Improvement	Quantity	Unit Price (dollars)	Cost (dollars)
<b>Soscol Avenue East Side of River (Tulocay Creek Area)</b>						
1	B	Spring St, Silverado Trail, to Napa River	Design and construct 48" pressure pipe Design and construct 48" drain Drain inlets	1,000 lf 800 lf 12 ea	404 307 7,000	404,000 246,000 84,000
2	B	Taylor Street	Design and construct 48" pressure pipe Design and construct 48" drain	1,250 lf 850 lf	404 307	505,000 261,000
3	B	Expo Fairgrounds	Design and construct drainage channel	1,500 lf	LS	300,000
4	B	Soscol Avenue to Tulocay wetlands	Construct a 48" drain to the basin Drainage Ditch Acquire Flowage Easements	2,200 lf 600 lf	307 LS	675,000 150,000 10,000
5	B	Oil Company Road watershed	Drainage study of City/County shed Design and construct 72" drain	— 1,600 lf	— 350	20,000 570,000
6	B	Soscol Avenue near Tulocay Creek	Field Surveys / Elevate Buildings - Five Commercial Structures	5	100,000	500,000
<b>Soscol Avenue, West Side of River</b>						
7	B	Survey structures and 1 <sup>st</sup> floor elevations	Field surveys	3 days	1,800	5,400
8	B	Soscol Ave. – Lincoln to Vallejo	Elevate and/or floodproof structures	—	—	(a)
9	B	Jordan Lane – Soscol Ave. Construct drains	Construct 30" drain 36" drain s	1,800 lf 3,060 lf	225 263	405,000 805,000
<b>Riverside Drive</b>						
10	B	Sea Scout Building – Laurel & Riverside	Elevate Building or floodproof	1	100,000	100,000
<b>Silverado Trail</b>						
11	B	Country Garden Inn – 1815 Silverado Trail	Elevate Building or floodproof	1	100,000	100,000

**Table T-1. Flood Mitigation Assistance – Proposed Projects, cont.**

Project No.		Location	Action/Improvement	Quantity	Unit Price dollars	Cost dollars
<b>Lincoln Avenue</b>						
12	B	Buildings on Carolina, Ida & Maplewood Streets	Elevate Buildings or floodproof	16	60,000	960,000
13	B	River City Restaurant , 505 Lincoln	Elevate Building or floodproof	1	150,000	150,000
14	B	517 Lincoln Napa Small Animal Veterinary Hospital	Elevate Building or floodproof	1	100,000	100,000
<b>Imola Avenue Basin, West Side of River</b>						
15	B	Imola – South Coombs	Survey structures and 1 <sup>st</sup> floor elevations	1 day	1,800	1,800
16	B	South Coombs and Imola	Floodproof, elevate, and remove structures	—	—	(a)
17	B	Arboreo Street	36" drain	250 lf	263	66,000
18	B	Brown Street – Elm Street, along South Coombs Street	36" drain 48" drain	800 lf 1,600 lf	263 307	210,000 491,000
19	B	Jefferson Street	72" drain	3,000 lf	356	1,068,000
<b>River Glen – Trout Way</b>						
20	B	River Glen - Trout Way	Survey structure, 1 <sup>st</sup> floor elevations, street profiles, design survey, Trout Way to Lake Park	3 days	1,800	5,400
21	B	Trout Way to Lake Park	Design and construct 36" drain	800 lf	203	210,000
<b>Salvador Channel</b>						
22	B	Big Ranch Rd to Solano Avenue	Completed	—	—	150,000 <sup>(b)</sup>
23	B	Big Ranch Rd to Solano Avenue	Construct channel and structure improvements	—	—	<sup>(b)</sup>

Notes: (a) Survey data are needed to determine number of structures and if elevation of floodproofing is preferable.  
 (b) Salvador Channel needs a detailed engineering study.

The projects in Table 17-1 will reduce the risk of residual flooding although not all the projects identified may be funded under FMA. There are properties that have a flooding history and that are located in areas where some flooding is expected after the Flood Protection Project is completed. After detailed study and surveys, these properties may be candidates for floodproofing or elevating. Some projects may be funded as part of the Flood Protection Project. Other projects may be financed as drainage improvements as part of the storm drain master plan improvements. All properties shown on the map as residual drainage properties are shown in table 17-2.

**Conclusion**

All of the proposed projects significantly reduce the risk of flooding to properties in the lower areas behind the Flood Protection Project levees and floodwalls. Some of the proposed projects do not directly protect repetitive loss properties. Pre-design studies are recommended. Engineering studies and detailed cost estimates will result in more effective allocation of grant funds.

**Table 17-2. Properties Not Protected by Project**

Street Number	Apt	Street
1038	1040	Vallejo Street
904		Napa Street
900		Vallejo Street
880	884	Napa Street
1546		Yajome
520		Third Street
1916		Silverado Trail

\*1916 Silverado Trail has been elevated using Hazard Mitigation Grant Funds in 2000-2001.

**Table 17-3 Properties Protected by the Project But May Be Subject to Residual Flooding**

Street Number	Apt	Street
706		Carolina St
419		FirStreet Street
1017	1019	Juarez Street
1015		Juarez Street
301		Fir Street
1004		Juarez Street
600		Fourth Street
842		Dewoody Street
431		Taylor Street
390		Taylor Street
2134		Soscol Avenue
670		Maplewood Street
665		Maplewood Avenue
669		Maplewood Avenue

Street Number	Apt	Street
1835		
602		Lincoln Ave
500	#A	Lincoln Ave
505		Lincoln Ave
510		Northbay Dr
1710		Soscol Ave
625		Imperial Way
1100	25	Jordan Ln
218		Soscol Ave
1701		Soscol Ave
1098		Jordan Ln
1947		Soscol Ave
1790		Soscol Ave

**Table 17-4. Properties Protected by the Project and Not Subject to Residual Flooding**

<b>Street Number</b>	<b>Apt</b>	<b>Street</b>
1333		Jefferson St
1821		Silverado Tr
1815		Silverado Tr
1543		Seminary Dr
1540	1542	Behrens St
1552		Behrens St

# **Appendix C**

## **ASSET INVENTORY AND CAPABILITY TO RESPOND**

### CITY OF NAPA CAPABILITY TO RESPOND TO HAZARDS

The City of Napa uses the Standardized Emergency Management System (SEMS) to respond to hazardous situations. All Employees are each trained in SEMS to the level that is appropriate for their position and responsibility. In a major disaster, the Emergency Operations Center (EOC) is activated with the City Manager functioning as the Director of Emergency Services and the resources from the Fire, Police, Public Works and Community Resources functioning under the Operations Section. All field resources follow an Incident Action Plan in order to meet the defined objectives. If Mutual Aid is required it is requested through the Operational Area as outlined in the California Master Mutual Aid Agreement. The following information outlines the capabilities of the City of Napa to manage hazards.

#### Fire Department

The Napa Fire Department has 56 sworn personnel, 7 non-sworn and 9 Reserve Firefighters for a total of 72 personnel. The department has four Fire Stations and staffs four Paramedic Engines, one Truck Company and the Battalion Chief. Minimum Staffing is thirteen with three person companies. The department has a Hazardous Material Team, a Water Rescue Team and a Fire Investigation Team.

### Napa Fire Department Inventory

EQUIPMENT	Fire Station 1					Fire Station 2		Fire Station 3				Fire Station 4			
	E1	T1	U1	E5	P1	E2	OES252	E3	E6	P3	Haz Mat	E4	E7	P4	Boat 1&2
TYPE	I	TRK	UTILITY	I	IV	I	I / II	I	I	IV		I	I	IV	
JAWS		X	X												
AIR BAGS		X													
CLASS A FOAM	X			EDUC	X		X	X	EDUC	X		EDUC	EDUC	X	
CLASS B FOAM	X			EDUC		X		X	EDUC			EDUC	EDUC		
LTS PORTABLE	X	X	X	X		X	X	X	X			X	X		
LTS TOWER															
WATER VAC			X												
CO DETECTOR		X													
THERMAL IMAGER															
CIRCULAR SAW			X												
FAN(S)	EJ	X	2			EJ		EJ				EJ			
SALVAGE COVER	2	4	6	2		2	2	2	2			2	2		
STOKES		X													
SWIFTWATER RESCUE	X	X				X		X				X			
ROPE RESCUE	X	X	X	X		X	X	X	X			X	X		
PORTABLE PUMP							X								
CHAIN SAW		2	2			X	X								
PORTABLE TANK															
MATTRESS COVER		2	2	1		X		X	X			X	X		
ACETYLENE PACK			X												

### Law Enforcement

The Napa Police Department has 73 sworn Personnel, 48 professional staff for a total of 121 full-time personnel. The department has a SWAT team, a Volunteer Program, a Hostage Negotiations Team and a Canine Program.

Patrol Cars	Trucks	Vans	SWAT Van	Transport. Truck	Motorcars	K-9
21	9	3	1	1	5	2

### Public Works

Public works oversees the following departments; Administrative Services, Development Engineering, Engineering Services, Fleet Management, Property Management, Recycling/Waste Reduction, Street, Electrical and Communications, Transit, Transportation/Engineering and Water. The department is capable of providing trained personnel and equipment to assist in flood fighting, debris removal, evacuations, water and sanitation emergencies as well as assistance in other areas.

The Public Works and Parks and Recreation Department join forces and work under the leadership of Public Works during a disaster. In addition they fill roles in the Logistics, Operations and Planning Sections of the Emergency Operation Center.

Sedan	Van	Pickup	Dump Truck	Water Truck	Truck	Forklift	Backhoe
4	8	63	16	1	20	5	7
Asphalt Roller	Tractor	Generator	Trailer	Excavator	Compressor	Street Sweeper	
2	3	17	24	0	5	3	

## Capability Index

**Description    AmCan    Napa    Yount    St Helena    Calistoga    County    Totals**  
**General Resources**

EOC	1	1	1	1	1	1	6
Alt EOC		1				2	3
Dispatch		1			1	1	3
Corp Yard	1	1	1	1	1	3	8
PD/SO	1	1	1	1	1	1	6
Firestations	1	4	1	1	1	11	19
Hospitals		2	1			1	4
Clinics	1	4	1	1	1	1	9
IC Veh/Trailers	2	3		1	1	2	9

### Fire Resources

Engines Type I Ladder		1		1		0	2
Engines Type I	6	7	2	2	3	15	35
Engines Type II	1	1		1		3	6
Engines Type III		1		1		8	10
Engines Type IV	1	3			2		6
Water Tenders	2			1	1	3	7
Med/HVY Rescue Tm	1	1			1	1	4
Hazmat Tm	1	1				1	3
Utility	2	4	1	2	2	6	17
Personnel	40	60	12	33	33	100	278

### Police Resources

Sworn Officers	13	30	5	11	11	75	145
Admin Personnel		7				11	18
SWAT Teams		1				1	2
EOD Teams						1	1
Sp Teams	1	2		1		1	5
Patrol Vehicles	3						3
SAR						1	1
Dive						1	1

### Public Works Resources

Personnel	26	52	8	15	8	125	234
Backhoes	2	7	0	1	1	4	12
Dozers	0	0	0	0	0	2	2
Dump Trucks	2	16	0	1	2	14	33
Utility Vehicles	21	26	6	6	6	42	107
Water Tenders	0	1	0	0	0	2	4

Generators Portable	1	9	1	2	1	3	12
Loaders	1	3	0	0	1	4	8
Spill Trailers	0	0	0	0	0	1	1
Shelter Trailers	0	1	0	1	1	4	7

**Description AmCan Napa Yount St Helena Calistoga County Totals**

**Emergency Medical**

BLS Caches	1			1			2
ALS Caches		1					1
Ambulances PVT		9					9
Ambulances Fire	1	4				3	8
EMT Trained Personnel	30	60	12	30	30	150	312
Paramedics	2	5		2		50	59
Hospital Ers		2				1	2
Trauma Center		1					1

**Communications**

Microwave	y	y	y	y	y	y	y
RIMS	y	y	y	y	y	y	y
High speed Internet	y	y	y	y	y	y	y
Telephone	y	y	y	y	y	y	y
Sat Phones	y	y	n	n	n	y	y
OASIS	n	y	n	n	n	n	y

# **Appendix D**

## **RESOLUTION AUTHORIZING NFMP**

RESOLUTION R2009 112

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF  
NAPA, STATE OF CALIFORNIA, AUTHORIZING THE  
ADOPTION OF THE 2009 UPDATE TO THE CITY OF  
NAPA FLOODPLAIN MANAGEMENT PLAN

WHEREAS, Napa Municipal Code Section 17.38 authorizes the Public Works Director, Floodplain Administrator of the City of Napa, to prepare a City of Napa Floodplain Management Plan, subject to the approval of the City Council; and

WHEREAS, the Public Works Director in consultation with City staff, has developed recommended updates to the City's Floodplain Management Plan; and

WHEREAS, the City of Napa participates in the Community Rating System and has a current rating of a Class 8 whereby citizens in the City of Napa receive a 10% discount on flood insurance policy premiums; and

WHEREAS, it is a requirement to update the City of Napa's Floodplain Management Plan at least every 5 years in order to continue to receive credits in the Community Rating System; and

WHEREAS, the City Council has considered all information related to this matter, as presented at the public meetings of the City Council identified herein, including any supporting reports by City Staff, and any information provided during public meetings.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Napa, as follows:

1. The City Council hereby finds that the facts set forth in the recitals to this Resolution are true and correct, and establish the factual basis for the City Council's adoption of this Resolution.
2. The City Council hereby approves the 2009 Update to the City of Napa's Floodplain Management Plan dated July, 2009.
3. This Resolution shall take effect immediately upon its adoption.

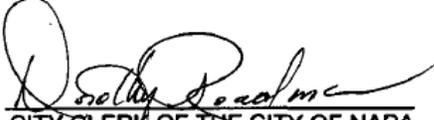
I HEREBY CERTIFY that the foregoing Resolution was duly adopted by the City Council of the City of Napa at a public meeting of said City Council held on the 1<sup>st</sup> day of September, 2009, by the following vote:

AYES: Techel, Inman, Krider, Mott, van Gorder

NOES: None

ABSENT: None

ABSTAIN: None

ATTEST:   
CITY CLERK OF THE CITY OF NAPA

Approved as to form:

  
Michael W. Barrett  
City Attorney

# **Appendix E**

## **AGENDA REPORT OF THE ADOPTION OF THE NFMP**

**CITY OF NAPA CITY COUNCIL  
AGENDA REPORT**

CONSENT CALENDAR  
Agenda Item No. 4C  
Date: September 1, 2009

To: Honorable Mayor and Members of City Council  
From:  Jacques R. LaRochelle, Public Works Director  
Prepared by: Karen Harnois, CFM, Senior Engineering Aide, 257-9404  
Subject: Adoption of the 2009 Update to the City of Napa Floodplain Management Plan

**ISSUE STATEMENT:**

Adopt a resolution authorizing the adoption of the 2009 Update of the City of Napa Floodplain Management Plan as required by the Community Rating System.

**DISCUSSION:**

The City of Napa participates in the FEMA's National Flood Insurance Program (NFIP) and the Community Rating System (CRS). One of the requirements of the CRS is to update the Floodplain Management Plan (FMP) at least every five years. While the Public Works Director is authorized to approve administrative revisions to the FMP (i.e., identification of personnel, resources and potential projects), each update must be submitted to the City Council for adoption.

The complete FMP is on file with the City Clerk and the Public Works Department.

The following is a 5-year summary of updated changes to the FMP:

- Council Resolution formally adopting the FMP
- A Letter of Map Revision dated April 2008 is being processed to revise the current Flood Insurance Rate Maps (FIRM) to include new and revised floodplain and floodway boundaries for the Napa River and its tributaries
- Urgency Ordinance O2009 7 and Ordinance O2009 8 were adopted to identify the updated boundaries for floodways and floodplains
- Repetitive loss properties have been prioritized for mitigation projects in Chapter 17 of the Storm Drain Master Plan dated April 2006
- An update to the Safety Element of the General Plan Resolution R2009 51
- Building Code Adoption Ordinance O2007 20

# **Appendix F**

## **COOPERATING TECHNICAL PARTNERS PARTNERSHIP AGREEMENT**

City Agreement # 87042  
Budget Account # \_\_\_\_\_

**COOPERATING TECHNICAL PARTNERS  
PARTNERSHIP AGREEMENT**

**AGREEMENT** is made on August 10, 2004, by these parties: the City of Napa, California, and the Federal Emergency Management Agency (FEMA).

**BECAUSE** the National Flood Insurance Program (NFIP) established by the National Flood Insurance Act of 1968 has several purposes, the most significant being:

- To better indemnify individuals from losses through the availability of flood insurance;
- To reduce future flood damages through community floodplain management regulations; and
- To reduce costs for disaster assistance and flood control;

**BECAUSE** a critical component of the NFIP is the identification and mapping of the nation's floodplains to create a broad-based awareness of flood hazards and to provide the data necessary for community floodplain management programs and to actuarially rate flood insurance;

**BECAUSE** FEMA administers the NFIP and is authorized by §1360 of the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4101), to establish and update flood-risk zone data in floodplain areas;

**BECAUSE**, in the identification of flood prone areas, FEMA is authorized to consult with, receive information from, and enter into agreements or other arrangements with the head of any State, regional, or local agency;

**BECAUSE** FEMA encourages strong Federal, State, regional, and local partnerships for the purposes of reducing flood losses and disaster assistance; FEMA and its State, regional, and local partners have determined that it is advantageous to encourage and formalize greater cooperation in the flood hazard identification and mapping processes; and many communities and the agencies that serve them have developed considerable technical capabilities and resources that provide the opportunity to improve and expand the collection, development, and evaluation of flood hazard data; and

**BECAUSE** the community participates in the NFIP (or shares flood protection and/or floodplain management responsibilities with communities that participate in the NFIP), the community has been deemed by FEMA to be in good standing in the NFIP; and

**BECAUSE** the community has expressed a desire to perform certain functions in the flood hazard identification process and has provided evidence that it has sufficient technical capability and will dedicate the resources necessary to perform those functions.

**NOW, THEREFORE**, it is mutually agreed that the parties enter into this Agreement to work together to create and maintain accurate, up-to-date flood hazard data subject to the terms and conditions recited below.

**1. CONSULTATIONS**

The parties shall collaborate on flood hazard identification activities and shall consult with each other to fully integrate each other's contributions into flood hazard identification efforts. Questions regarding the execution of this Agreement will be resolved by an implementation committee consisting of a FEMA representative and a community representative. If the implementation

committee is unable to resolve technical issues, the issues may be resolved through alternative dispute resolution procedures.

**2. EVALUATION AND REPORTING**

The parties shall, on an annual basis, review the partnership created by this Agreement to determine and document the activities undertaken to maintain accurate flood hazard data and to revise the Agreement as necessary.

**3. RESOURCE COMMITMENT**

The parties agree to commit the appropriate and available human, technical, and financial resources sufficient to coordinate effectively with all entities impacted by flood hazard identification efforts to implement this Agreement.

**4. STANDARDS**

Unless otherwise agreed to by the parties, all flood hazard identification activities will be accomplished in accordance with the standards documented in *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003, and all subsequent revisions.

**5. SPECIFIC INITIATIVES OR PROJECTS**

When specific initiatives, projects, or activities are to be performed, they will be forwarded through and negotiated by the community's Public Works, Planning, Community Development, or Building Department and shall be attached as negotiated Mapping Activity Statement (MAS) items. For this Memorandum of Agreement to go into effect, no MAS items are required.

**6. TERM**

The respective duties, responsibilities, and commitments of the parties in this Agreement shall begin on the date this Agreement is signed by the parties and may be periodically renewed, revised, or terminated at the option of any of the parties. The parties agree that a 60-day notice shall be given prior to the termination of this Agreement.

THEREFORE, each party has caused this Agreement to be executed by its duly authorized representatives on the date mentioned above.

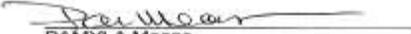
CITY OF NAPA:

  
MICHAEL N. O'BRYON  
Public Works Director

Sally Zolowski, Division Director  
Federal Insurance & Mitigation  
Division FEMA, Region IX

By: 

ATTEST:

  
PAMYLA Means  
City Clerk

COUNTERSIGNED:

  
JED CHRISTENSEN  
Finance Director

APPROVED AS TO FORM:

  
LINDA MILLS  
Assistant City Attorney

# **Appendix G**

## **HISTORICAL INFORMATION ON THE 2005-2006 FLOOD**

## **Historical Information on our 2005-2006 Flood**

### **Chronology & Extent Of Flooding**

#### **Friday, December 23<sup>rd</sup> through Tuesday, December 27<sup>th</sup>**

- On the 23<sup>rd</sup> of December, the City of Napa's staff in the Situation Status Unit began to monitor the weather reports and flood warnings.
- December 26<sup>th</sup>, the City authorized publication of the Flood Awareness Map in the Napa Valley Register on December 30<sup>th</sup>, 2005.
- The City of Napa Police and Fire Departments began going door to door in the most flood prone areas on December 27<sup>th</sup> warning residents of the potential threat.
- The City's sandbag operation began operating on a 24 hour basis on December 27<sup>th</sup>.

#### **Wednesday, December 28<sup>th</sup>**

- National Weather Service predicted that for the next ten days a series of winter storms having the potential to drop significant amounts of rain will pass through Napa. The County sent out a press release advising citizens what to do before, during and after a storm. Staff met to prepare for possible flooding.
- City of Napa issued a press release at 9:00 am, advising residents that the City Sandbag operation was up and running and that City Fire and Police crews visited the Behrens Street area, advising residents of precautionary measures that should be taken with the upcoming storm warnings.
- The intersection at Clinton and Soscol in the City of Napa was closed as a precautionary measure December 28<sup>th</sup>, 2005.

#### **Friday, December 29<sup>th</sup> through Friday, January 6<sup>th</sup>**

### **Emergency Operations Centers Open**

- Napa County – 1:00 pm, December 30<sup>th</sup>
- City of Napa – 4:00 pm, December 30<sup>th</sup>
- American Canyon
- Calistoga
- St. Helena
- Yountville

### **Proclamations of Local Disaster**

- Napa County... 8:00 am, December 30<sup>th</sup>,
- City of Napa... 9:00 pm, December 30<sup>th</sup>
- American Canyon...8:00 am, December 31<sup>st</sup>
- Calistoga
- St. Helena
- Yountville...12:00 am, December 31<sup>st</sup>

## **Evacuations**

- City of Napa issued a mandatory evacuation of The River Pointe Resort area at approximately 5:00 p.m. on Friday, December 30<sup>th</sup>, 2005. Voluntary evacuations of the Behrens Street area began at approximately 9:00 p.m., on Friday, December 30<sup>th</sup>, 2005.
- By 3:30 a.m., Saturday, December 31<sup>st</sup>, the City began notifying residents and businesses of Phase I, II and III areas that any necessary precautions and voluntary evacuations of the areas should begin at this time.
- In the City of Napa, homes were evacuated from Trower Ave. to Glacier and the Trailer Park at Oil Company Road had been evacuated by 5:30 a.m., Saturday, December 31<sup>st</sup>. The Napa Police Department initiated voluntary evacuations at Ida and Carolina Streets, Sousa Lane and Third and Juarez Streets.
- At approximately 7:30 a.m., Saturday, December 31<sup>st</sup>, the City of Napa was advising residents of additional flood prone areas to "Shelter in Place" and that should further evacuations be necessary, City of Napa Police and Fire personnel would notify the affected areas by public address system.
- The Police and Fire Departments of the City of Napa began evacuation of the Lake Park and Stonehouse areas at approximately 9:00 a.m. on Saturday, December 31<sup>st</sup>.
- A mandatory evacuation order was issued at approximately 12:30 p.m. December 31<sup>st</sup>, for all the residents of Edgerly Island, which is located in the southern portion of the County.
- In St. Helena an apartment complex housing mostly frail and elderly residents was evacuated. Also, Vineyard Valley Homes in St. Helena were evacuated.
- During the course of the storm, nearly 1,400 residences and businesses of the City of Napa were affected by the power outages.

## **Shelters Open**

- On Thursday, December 29<sup>th</sup>, the Red Cross deployed cots to shelter sites throughout the County.

- During the course of the storm the first shelter to open was at the Queen of the Valley Hospital in Napa late in the evening of December 30<sup>st</sup>. As the waters rose throughout the early morning hours of Saturday, December 31<sup>st</sup>, the Queen of the Valley shelter was moved to the First Baptist Church in Napa and Napa High School. By December 31<sup>st</sup> at 8:00 am shelters were also open at the Calistoga Fairgrounds in Calistoga, and the St. Helena High School in St. Helena.
- Approximately 500 residents went to the shelters during the course of the flood event. By late afternoon on Saturday all the shelters had closed. The County was also able during the peak of the flooding to keep open the two homeless shelters it operates. Homeless shelter services were extended 24/7.

### **Road Closures -- City**

- By approximately 9:00 p.m., Friday, December 30<sup>th</sup>, the City of Napa closed the Phase I areas identified in the Flood Awareness Map prepared by the City and published in the Friday, December 30<sup>th</sup> Napa Valley Register. By 9:00 p.m., the intersection of Trancas Street and Silverado Trail was flooded.
- At approximately 11:00 p.m., December 30<sup>th</sup>, the City began notifying residents and businesses in the Phase II areas identified on the Flood Awareness Map that precautions should begin at this time. The intersection of Randeem Way and Soscol Ave. was flooded by this time.
- Areas identified as Phase I, II, and III of the Flood Awareness Map of the City of Napa were all closed by 3:30 a.m., Saturday morning December 31<sup>st</sup>.
- By 5:30 a.m., December 31<sup>st</sup>, the creek at Trower and Jefferson Streets had crested over the bridge and was closed. The letter streets A, B, C, D and E streets at Jefferson Street experienced moderate flooding and the Downtown area of the City of Napa was entirely closed. Residents were strongly encouraged to stay off the roads and to expect widespread flooding and not ignore street barricades.
- The Phase IV area of the Flood Awareness Map for the City of Napa was closed by 7:30 a.m., Saturday, December 31<sup>st</sup>. At this time, reports of numerous road closures throughout the County were received, literally closing Napa County off from other areas.
- Closures of Phases I, II, III, and IV remained in place until early Sunday morning, January 1<sup>st</sup>, 2006. Phase I areas remained closed until approximately 4:00 p.m.

### **County Roads**

- As the rains continued throughout Friday and into the early morning hours of Saturday many roads were closed throughout the County.
- By 8:00 am Saturday, December 31<sup>st</sup>, the County was virtually an island. Portions of the two main thoroughfares which head north and south throughout the County, Highway 29 and the Silverado Trail, were closed. Roads heading into Sonoma County, Lake County and Solano County were closed. Also, nearly all the crossroads between these thoroughfares were closed.

### **River Levels**

- The Napa River reached records highs in St. Helena, over 21 feet, which is eight feet above flood level.
- Napa Creek at Highway 29 in the City of Napa reached 18.8 feet, which is eight feet above flood level at 10 p.m., on Friday, December 30<sup>th</sup>.
- The Napa River at the Lincoln Bridge in the City of Napa reached 23 feet, which is 4.5 feet above flood level at 7:30 a.m., on Saturday, December 31<sup>st</sup>.
- The Napa River at Oak Knoll peaked at nearly 30 feet, which is five feet above flood level at approximately 11:30 a.m., Saturday, December 31<sup>st</sup>.

### **Sandbags**

- The City of Napa opened its sandbag operation and began notifying residents on December 27<sup>th</sup>, 2005.
- December 30<sup>th</sup>, bags became available at four locations in the unincorporated area of the County.

### **Weather Forecasts**

- December 30<sup>th</sup> - Flood warning issued for Calistoga and St. Helena.
- December 31<sup>st</sup> – Flood warning issued for the entire County.

### **Mutual Aid**

- Mutual aid to the City of Napa, 1 swift water SAR team from American Canyon, three Type 1 engines, PIOs, liaison and overhead personnel.

### **Local Flood Assistance Center**

- A "One-Stop" Local Flood Assistance Center opened on Wednesday, January 4<sup>th</sup> to give residents harmed by the flood access to a range of government and non-governmental supportive services and resources. Representatives

from the County, Red Cross and non-profit organizations such as the Volunteer Center are available to provide assistance and answer questions. The Center will remain open seven days a week through at least January 27<sup>th</sup>.

### **Unified Command**

- Napa City and County Officials received notification from the State of California Office of Emergency Services (OES) that State and Federal damage assessment teams will jointly visit Napa County to determine if a Presidential Disaster Declaration will be made. Teams could possibly arrive early the week of January 9<sup>th</sup>, 2006.
- In an effort to prepare for the site visits, the City and County of Napa created a Unified Command System, in accordance with the National Incident Management System (NIMS) protocol, to respond to the upcoming inspections.

### **Community Response**

#### **Community Outreach**

The City of Napa is the sixth fifth most flood prone community among approximately 500 communities in the State of California. The Napa County Flood Control District, in partnership with the U.S. Army Corps of Engineers has undertaken a \$560 million flood protection project to protect Napa communities from flooding by diverting river and creek water away from developed urban areas but has been only able to complete approximately two-thirds of the project due to delays in federal funding appropriations. The Flood Project was awarded \$16 million in May 2013 for the construction of the Oxbow Bypass Channel. Project phases to construct floodwalls and interior drainage pump stations will be delayed until additional federal funding is allocated. The project was originally scheduled for completion in 2006 but due to the Federal and State funding delays the project is now scheduled for completion in 2018 if sufficient federal funding is allocated each year.

Until the entire Napa County Flood Control Project is completed, Napa County communities are still prone to flooding events such as the recent January 2006 event. Each year the City of Napa undertakes an extensive community outreach effort to inform the public about the potential for flooding on both the Napa River and its creeks and tributaries and to provide them information about what they can do to prepare for a potential flooding event, how to safely evacuate when a flooding warning is issued and how to recover from a flooding event.

The City of Napa took the following preliminary actions to inform the public and prepare for a potential flooding event in 2005-06:

- On October 20, 2005, held an Emergency Operations Briefing with all City of Napa field crews to review their responsibilities for preparing for and responding to any potential flooding events.
- On November 21, 2005, held a Pre-Flood Awareness Preparation Meeting with all City and County departments and community agencies to prepare plans for informing the public to prepare for potential flood events and to coordinate appropriate agency responses to actual events.
- On November 28, 2005, issued a Press Release to all local media titled, "**BE PREPARED FOR FLOODING THIS WINTER**" which provided information about getting the "Citizens Guide to Flooding and Flood Recovery, availability of free sand and sand bags on the first Saturday of November through March at the City Corporation Yard, access information on the City Web page regarding monitoring weather and river and stream water levels, the PIO Hotline number for current updates and other information to inform and prepare the public for the potential of flooding during the 2005-06 winter.
- Various City staff conducted on air interviews with local KVON radio station to provide information and answer public questions on preparing for the winter storms and also provided interviews to reporters for the local Napa Register.
- On December 3, 2005, the City began its free monthly sand and sandbag operation at the City Corporation Yard on the first Saturday of the month through March 2006.
- On December 3, 2005, City Fire Department personnel went door to door in the most flood prone areas of Napa providing information about the potential for flooding and how to prepare and protect property.
- On December 23, 2005, City staff in the Situation Status Unit responsible for monitoring reports from the National Weather Service indicated that there was the possibility of three severe storms affecting the Napa area during the December 31st-January 2<sup>nd</sup> period of time.
- On December 26, 2005, the City authorized the publication in the Napa Register December 30, 2005 edition a full page display map showing the flood prone areas in Napa and the pre-determined four phase road closure and evacuation areas in case of the need to evacuate due to either creek or river flooding.
- On December 27, 2005, Police and Fire staff went door to door in the most flood prone areas of Napa warning residents about the potential threat of weekend flooding and to be prepared to evacuate on short notice by public announcement system on police and fire vehicles.
- On December 27, 2005, sand bag operations were moved to Memorial Stadium at Napa High and were available on a 24-hour basis until the passage of the storms.
- During the week of December 26-December 30, 2005 leading up to the storms that resulted in flooding, three Media Releases were issued telling the public that sandbags were available and they should prepare for potential flooding, including interviews with the local Napa Register, KVON and local TV stations, including Spanish stations.

On December 30, 2005 at 4:00 PM, City staff made the decision to staff the Emergency Operations Center to continue to monitor the storms impacting Napa County. At 9:00 P.M., the Director of Emergency Services, Napa City Manager issued a **PROCLAMATION OF THE EXISTENCE OF A LOCAL EMERGENCY.**

The Public Information Section of the City of Napa Emergency Operation Center undertook the following actions to keep both the public and media aware of what steps were being taken by emergency response personnel to respond to the emergency:

- The Public Information Office and Center was fully activated on December 30, 2005 at 8:00 P.M. and staffed with both English and Spanish personnel to take calls from the public and media for the next 4 ½ days until January 3, 2006 at 1:30 P.M when the PIO Center was closed.
- During the flooding event, the PIO section issued a total of 17 Media Releases and updates to the pre-recorded PIO Hotline in both English and Spanish to provide the most current accurate information to the public and media outlets, including conducting over 130 interviews by phone or in person with media representatives, answering thousands of calls to the PIO Center from the public and arranging several live interviews for the Mayor and other officials with both local and national media outlets.
- During the event the PIO section focused on providing accurate information on the following key areas:
  1. Weather and flooding updates
  2. Road closures and areas to avoid
  3. Evacuated areas
  4. Police, Fire and Public Works operations
  5. Shelter locations
  6. Sandbag operations
  7. Estimates on number of people displaced
  8. Location of debris boxes for cleanup
  9. Contact information for agencies to help with clean up
  10. Preliminary damage assessments
- A major problem encountered by the City in its efforts to communicate to the public occurred when local radio station KVON went off the air due to flooding of its transmitter in Kennedy Park. In order to mitigate this problem the City took the following actions:
  1. Worked with local Channel 28 and aired live updates from the City Council Chamber throughout the County.
  2. Developed a continuous loop Power Point presentation in English and Spanish that was shown on Channel 28 throughout the rest of the event.
  3. City IT division created a Special Flood Update page on the City Web page to post all of the Media Releases and other information about recovery efforts and contact information for the public.

4. City Public Works staff made several signs in both English and Spanish with critical contact information for the public and located them at key intersections in the impacted areas.
  5. The City requested mutual aid for field trained PIOs from other jurisdictions and formed PIO field teams that created informational boards with information in both English and Spanish that were disbursed throughout the effected area to provide information and answer questions in the field from the public.
- On January 6, 2006, the City and County of Napa created a Unified Command with a Joint Information Center to more effectively respond to the State of California Office of Emergency Services need to conduct inspections of damages to public facilities, individual properties and businesses to determine if a Presidential Disaster Declaration will be made for Napa County to provide federal assistance to recover from the recent flooding.

### **Business Outreach**

On the night of December 30, 2005 the Liaison Section assisted by the Napa Downtown Association (NDA) activated the Phase 1 zone call list to over 50 businesses at 8:00 PM. Phase 2 zone businesses, encompassing over 70, were called at 12:30 AM on December 31<sup>st</sup>. Phase 3 zone car dealers were called at 3:00 AM. Continuing throughout the early morning hours businesses were contacted as flooding spread into different sections of the City.

Beginning the afternoon of December 31<sup>st</sup> notification efforts shifted to recovery efforts. The City worked closely with the Chamber of Commerce, Napa Downtown Association (NDA), and the Napa Valley Economic Development Corporation (NVEDC) to reach out to the businesses community with the latest recovery information. All three organizations representing an email distribution list of 2,500 members sent out Press Releases and four Emergency Notification updates. The Chamber of Commerce instituted a Flood Recovery Referral Service by 5:00 PM on December 31<sup>st</sup> for those needing information and assistance with water damage, environmental clean-up, janitorial services, equipment rental, plumbers and electrical contractors, general contractors, etc. This phone line is receiving and responding to about 250 calls per day. The Chamber of Commerce, NDA, and NVEDC also distributed damage assessment forms to their members to allow the City to track and document damage. City personnel went to hard hit areas to identify needs and respond with assistance from debris containers, graders to remove mud, or arranging storage containers to preserve undamaged items.

The City established Information Field Teams and sent them directly into affected flood areas to distribute clean-up and referral information from January 1 – 6, 2006. Teams were located at the Rite-Aid on Imola, Home Depot, Central Valley Lumber, Wal-Mart, Safeway, Vallergas on First Street, and roaming throughout the downtown. These teams made contact with affected business and home owners and provided information on handling flooded items, location of debris boxes, recovery referral services, etc. Sign boards were placed on key streets in English and Spanish to refer persons to the

Chamber recovery referral line and the building inspection hotline number. Once KVON the local radio station was back on-line 2 two-hour shows were aired on January 5<sup>th</sup> and 6<sup>th</sup> to provide recovery information.



Public information signs placed throughout the City.



Information boards were placed throughout the community.

The City worked closely with the Volunteer Center to match individuals that were flooded with volunteers who would assist with the clean-up. The Fire Department Chaplin coordinated a group of volunteers from local religious institutions to assist with flood damage victims through the Volunteer Center, approximately 100 matches are being made daily. The Volunteer Center contacted seniors on the night of the flood to make sure they were prepared with their medicine and other essentials in case they were evacuated or could not be reached because of localized flooding. They continue to be a key communication center to the Hispanic community distributing 250+ flyers a day in English and Spanish. The City also provided flood recovery information to St. John's Catholic Church for their Spanish services.

Since the afternoon of December 31, 2005 the City with its partners have reached out to the community through business notifications, recovery information teams, referral lines, matching services, newsletters, one-on-one contacts, debris containers and clean-up efforts. We have received and documented damage forms to be able to accurately relay information on the 2005/06 Winter Storm to various agencies.

## Clean up Efforts

The City and County have been coordinating clean up throughout the areas affected. The cleanup effort has consisted of debris removal for residences and businesses and mud removal and washing down the affected areas.

Approximately 25 debris boxes have been placed throughout the City of Napa for use by residences and businesses that sustained damage. The estimated cost to date for the hauling and disposing of the debris boxes is approximately \$150,000.



Debris boxes provided to residences and businesses.

### Debris Box Locations for residences and businesses:

- Behrens Street (north and south of the bridge): 2 boxes on Seminary because Behrens is still being cleaned up -- 1 north of Arroyo, 1 south of Arroyo
- Arroyo Street (will be relocated to Behrens tomorrow)
- Napa Street @ Main Street (across from St. John's School)
- Ida Street @ Carolina (off Lincoln): 1 on Carolina, 1 on Ida
- Clinton Street between West & Yajome
- Action Avenue between Yajome & Soscol
- Vallejo Street @ Nursery Street (by Drapinski)
- Vallejo Street @ corner of Action Street
- Second Street @ Juarez: 2 boxes
- Tannen Street: 4 boxes
- Coombs Street between Second & Third streets (will be moved to Behrens St. tomorrow)
- Pearl @ Main streets intersection (will be moved to West Street @ Pearl today or tomorrow)
- First Street @ McKinstry

- Souza Lane @ Soscol
- On Jordan near Imperial Way
- CineDome parking lot
- South Coombs near Tanneries: 3 boxes
- South Coombs@ Imola Ave.: 2 boxes in front of Wine Valley Lodge
- Redwood Rd. & Browns Valley Rd.
- Other locations are added as necessary, boxes that are unused will be removed and relocated to areas of greatest need.

In addition to the debris boxes the City of Napa has contracted for mud removal and wash downs of City streets. As of January 9, 2006 the estimated costs for the street clean up is \$575,000.



Crews clean up the Second Street parking garage.

### **Local Assistance Center**

A Local Flood Assistance Center (FLAC) opened on Wednesday January 4, 2006 to assist local flood victims. The center, set up at 2261 Elm Street, promises to be a one stop shop for flood victims. The center will provide governmental and non-governmental supportive services and resources.

### **Local Flood Assistance Center Open**

Napa County, City of Napa, Red Cross and Volunteer Center Collaborate on One-Stop Local Flood Assistance Center

**Location:** 2261 Elm Street, Napa, California  
(Building K of the 2344 Old Sonoma Rd. Health and Human Services Campus)

**Hours:** 10:00am – 5:00pm, 7 days a week through at least January 27<sup>th</sup>  
**Phone:** (707)299-1977

- Services are available in English and Spanish.
- No appointment necessary.

The following services and resources are represented:

**Napa County Health and Human Services**

Public Assistance

- MediCal & Food Stamps
- Cal Works Emergency Aid
- General Assistance

Public Health

- Water Testing
- Public Health Consultations
- Referrals to Health Services
- WIC

Behavioral Health

- Emergency Crisis Response
- Minor Crisis Stabilization
- Referrals to Mental Health Services

**Fair Housing Napa Valley**

- Landlord/Tenant Issues

**American Red Cross**

- Emergency Shelter
- Emergency Clothing
- Emergency Food

**Other County Resources**

County Planning Department  
(Residents & Businesses in Unincorporated County)

- Info on Electrical, Plumbing &/or Structural Repairs and Replacement
- County Building Permit Process Information
- Advice & Referral

Environmental Management

- Advice on Drinking Water
- Other Contamination Issues/Concerns

**City of Napa**

- Written Information Available on Building Permit Process & Debris Removal

City Inspection Teams & Permits for Flood Repairs  
Available at:

1600 First St., Napa  
Phone: (707)257-9540

**Catholic Charities**

- Long-term Housing Assistance
- Relocation Assistance
- Food, Clothing, & Shelter Grants

**Volunteer Center of Napa Valley**

- Senior Services
- Volunteer Sign-Ups

The Local Flood Assistance Center (FLAC) has had 340 people come in for services since opening on Wednesday January 4, 2006. The majority of those people represent a family of three or more all of whom are in need of services. Client needs have ranged from food, clothing and housing to medical and counseling services.



The Local Flood Assistance Center has already helped hundreds of flood victims.

The FLAC is being expanded through the placement of temporary office trailers. The center will be complete with internet access and telephone service in place by Wednesday January 11, 2005 and has expanded their space anticipating allocating space for FEMA and OES.

## California Standardized Emergency Management System

### **INITIAL DAMAGE ESTIMATE (IDE) REPORT**

From County Operation Area:

City of Napa

Incident Event:

2005 2006 Winter Storms

#### **INDIVIDUAL ASSISTANCE (IA) DAMAGES**

	a. Destroyed	b. Major Damage	c. Minor Damage	d. Affected (no phys. damage)	e. Est Loss	f. Est % covered by Insurance
11. Primary Residence		278	222		\$13,750,000	25%
12. Business		198	217		\$24,300,000	15%
13. Other (i.e. outbuildings, etc.)		50	50		\$5,000,000	
14. Totals		526	489		\$43,050,000	
Comments						

#### **PUBLIC ASSISTANCE (PA) DAMAGES**

NOTE: CATEGORIES A&B - EXCLUDE NORMAL OPERATING COSTS

CATEGORY	# OF SITES	ESTIMATED COSTS
19. CAT A: Debris Removal and Disposal		\$2,300,000
20. CAT B: Emergency Protective Measures		\$500,000
21. CAT C: Road & Bridge System (non-federal)	50	\$11,000,000
22. CAT D: Water Control Facilities (levees, dams and channels)	4	\$1,500,000
23. CAT E: Public Buildings and Equipment	3	\$1,000,000
24. CAT F: Public Utilities (Water & Power)	4	\$1,000,000
25. CAT G: Park/Recreation/other	15	\$6,000,000
26. Totals	76	\$23,300,000
Comments:		

# **Appendix H**

**Hazard Mitigation Plan Update  
Meeting Schedule and Sign In  
Sheets**

Hazard Mitigation Plan Meetings, 2013-2015

Meeting Date	Place	Time	Review Team
June 10, 2013	<i>City of Napa</i> City Hall Committee Room	2:00pm-4pm	HMP City Review Team
July 9, 2013	CSB	4:00pm-4:30pm	Floodplain Section review
July 10, 2013	City Hall Committee Room	2:00pm-4:00pm	HMP City Review Team
September 20, 2013	CSB Planning Conference Room	2:00pm-3:00pm	HMP Final City Review Team
May 23, 2013	<i>Napa County &amp; Ethan Mobley Michael Baker Corp.</i> Hall Of Justice, Main St. Conference Room	1200 Hours	Napa County & Multijurisdictional Team
June 20, 2013	Hall Of Justice, Main St. Conference Room	1000 Hours	Napa County & Multijurisdictional Team

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Sign in sheet & agendas: **Appendix H**

## HAZARD MITIGATION PLAN MEETING SIGN-IN SHEET

Date: **June 10, 2013**

Name	Organization	Address/Phone	Email Address
Karen Harnois	City of Napa	707-257-9404	kharnois@cityofnapa.org
Steve Brassfield	city of Napa	707-257-9576	sbrassfield@cityofnapa.org
Mike Randolph	"	257-9595	mrandolph@cityofnapa.org
Julie Lucido	"	257-9690	jlucido@cityofnapa.org
Rick Tooker	"	257-9349	rtooker@cityofnapa.org
Lois Husten	QUMC	252-4411 x2341	lois.husten@stjor.us
Dan Kavarian	City of Napa	257-9327	dkavarian@cityofnapa.org
Megan Thomas	City of Napa	257-9341	mthomas@cityofnapa.org
HMP PLAN UPDATE MEETING			
Date: <b>July 10, 2013</b>			
Karen Harnois	City of Napa	707-257-9404	kharnois@cityofnapa.org
Joe Folks	Coal	257-9582	jfolks@cityofnapa.org
Julie Lucido	City PW	257-9690	jlucido@cityofnapa.org
Darren Drake	NFD	257-9590	dadrake@cityofnapa.org
Dan Kavarian	City of Napa	257-9327	dkavarian@cityofnapa.org
Barry Martin	" " "	707-257-8463	bmartin@cityofnapa.org
Joy Eldredge	PW-Water	257-9319	JEldredge@cityofnapa.org
Rick Tooker	City of Napa	257-9349	rtooker@cityofnapa.org
Lois Husten	QUMC	707-252-4411	lois.husten@stjor.us
Mike Randolph	City of Napa	257-9595	mrandolph@cityofnapa.org
PAT MANZER	CITY OF NAPA	257-9644	PMANZER@CITYOFNAPA.ORG
STEVE BRASSFIELD	" "	257-9593	sbrassfield@cityofnapa.org

nba:\redes\forms\mgt\sign.doc

## HAZARD MITIGATION PLAN MEETING SIGN-IN SHEET

Date: June 10, 2013

Name	Organization	Address/Phone	Email Address
Karen Harnois	City of Napa	707-257-9404	kharnois@cityofnapa.org
Steve Brassfield	city of Napa	707-257-9576	sbrassfield@cityofnapa.org
Mike Randolph	"	257-9595	mrandolph@cityofnapa.org
Julie Lucido	"	257-9690	jlucido@cityofnapa.org
Rick Tooker	"	257-9349	rtooker@cityofnapa.org
Lois HUSTON	QJMC	252-4411 x2341	lois.huston@stjor.us
Dan KAVARIAN	City of Napa	257-9327	dkavarian@cityofnapa.org
Megan Thomas	City of Napa	257-9341	mthomas@cityofnapa.org
		Date: August 14, 2013	
Karen Harnois	City of Napa	257-9 <del>576</del> <sup>404</sup>	kharnois@cityofnapa.org
Steve Brassfield	city of napa	257-9576	sbrassfield@cityofnapa.org
Karen Thomas	County of	299-1892	kthomas@countyofnapa.org
Julie Lucido	city of napa PW	257-9690	jlucido@cityofnapa.org
Dan KAVARIAN	city of napa	257-9327	dkavarian@cityofnapa.org
Eric Whan	CON - PWID	257-9634	ewhan@cityofnapa.org
S Potter	Napa PD	258-7882	spotter@cityofnapa.org
Joy Eldredge	Water	257-9319	Jelobredge@cityofnapa.org

nbw-1250621@esri.com

**Harnois, Karen**

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**Subject:** 2013 Hazard Mitigation Plan update/review  
**Location:** City Hall Committee Room

**Start:** Mon 6/10/2013 2:00 PM  
**End:** Mon 6/10/2013 4:00 PM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Brassfield, Steve  
**Required Attendees:** Drake, Darren; Eldredge, Joy; Folks, Jeff; Harrington, Gil; Husted, Larry; Kavarian, Dan; LaLiberte, Jennifer; Lucido, Julie; MacNab, Ken; Martin, Barry; Nielsen, Scott; Potter, Steve; Randolph, Mike; Tooker, Rick; 'Twohey, Kevin'; Whan, Eric; Lois Husted (Lois.Husted@stjoe.org); Harnois, Karen

Napa County Hazard Mitigation Planners are going through a Hazard Mitigation Plan edit cycle to get Federal approval of their plan.

The City of Napa has an approved Hazard Mitigation Plan that can be annexed to the County's plan once it is adopted.

We need your assistance in reviewing the City's current plan to determine if there are any areas that should be updated.

A meeting has been scheduled for Monday, June 10 at 2:00pm in the Committee Room behind the council chambers.

Below are the Hazard Mitigation Objectives and Action Items for your review:

- Flood Hazard Projects – Karen Harnois, Eric Whan
- Earthquake Hazard Projects – Dan Kavarian, Rick Tooker & Jennifer LaLiberte
- Fire Hazard Projects – Darren Drake
- Technology/Terror Hazard Projects – Steve Potter? Scott Nielsen
- Disaster Resistant Community Hazard Projects – Mike Randolph, Lois Husted, Steve Brassfield
- Drought Resistant Hazard Projects – Joy Eldridge
- Updated GIS maps – Gil Harrington
- General Plan, SEQA and Historic Preservation procedures – Rick Tooker, Ken MacNab
- Public Forums – Barry Martin
- Flood Project updates – Julie Lucido
- County representative – Kevin Twohey
- Napa Police Department – Steve Potter?

Please review your section of the plan prior to the meeting. I will email you the document!

Thank you for your cooperation.

## Harnois, Karen

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**Subject:** 2013 Hazard Mitigation Plan updates  
**Location:** City Hall Committee Room

**Start:** Wed 7/10/2013 2:00 PM  
**End:** Wed 7/10/2013 4:00 PM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Brassfield, Steve  
**Required Attendees:** Harnois, Karen; Drake, Darren; Eldredge, Joy; Folks, Jeff; Harrington, Gil; Husted, Larry; Kavarian, Dan; LaLiberte, Jennifer; Lois Husted (Lois.Husted@stjoe.org); Lucido, Julie; MacNab, Ken; Martin, Barry; Nielsen, Scott; Potter, Steve; Randolph, Mike; Tooker, Rick; 'Twohey, Kevin'; Whan, Eric

2<sup>nd</sup> meeting: please come prepared with your findings, after you review your sections and provide input to our group.

- Update progress of Napa County Plan (Consultant will submit draft to Napa County FEMA by 7/12/13, wrap up plan to FEMA by 7/31/13)
- Update progress of committee member reviews
- Update committee member contact list
- Annual update form
- GIS maps
- Next meeting

## Harnois, Karen

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**Subject:** 2013 Hazard Mitigation Committee Meeting  
**Location:** CSB Planning Conference Room

**Start:** Fri 9/20/2013 2:00 PM  
**End:** Fri 9/20/2013 3:00 PM

**Recurrence:** (none)

**Meeting Status:** Accepted

**Organizer:** Brassfield, Steve  
**Required Attendees:** Drake, Darren; Eldredge, Joy; Folks, Jeff; Harnois, Karen; Harrington, Gil; Husted, Larry; Kavarian, Dan; LaLiberte, Jennifer; Lois Husted (Lois.Husted@stjoe.org); Lucido, Julie; MacNab, Ken; Manzer, Pat; Martin, Barry; Nielsen, Scott; Potter, Steve; Randolph, Mike; Tooker, Rick; 'Twohey, Kevin'; Whan, Eric

Final meeting with everyone'S updates and edits to the document.

Please ensure you have completed your assignments by this date.

Dan K. has reserved the room ; IT support if needed for this meeting.

Thank you too everyone for all your efforts.

# **Appendix I**

## **Resolution Adopting Updated Hazard Mitigation Plan**

RESOLUTION R2010 67

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF  
NAPA, STATE OF CALIFORNIA, AUTHORIZING THE  
COUNCIL ADOPTION OF THE UPDATED CITY OF NAPA  
HAZARD MITIGATION PLAN

WHEREAS, the City Council adopted the Hazard Mitigation Plan on September 7, 2004, and the Updated Hazard Mitigation Plan has been reviewed and ready for submittal to Cal EMA; and

WHEREAS, the City of Napa is required to have a Hazard Mitigation Plan to receive future project funding from the federal hazard mitigation grant program; and

WHEREAS, the City of Napa is also required to have a Hazard Mitigation Plan to receive reimbursement post-disaster from Federal Emergency Management Agency (FEMA); and

WHEREAS, an initial study was completed on October 16, 2009, that concluded the proposed amendments did not create new significant impacts or increase the severity of any previously identified impacts and therefore falls within the scope of the adopted General Plan and the General Plan Program EIR; and

WHEREAS, the City Council has considered all information related to this matter, as presented at the public meetings of the City Council identified herein, including any supporting reports by City Staff, and any information provided during public meetings.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Napa, as follows:

1. The City Council hereby finds that the facts set forth in the recitals to this Resolution are true and correct, and establish the factual basis for the City Council's adoption of this Resolution.
2. The City Council hereby determines that the potential environmental effects of the recommended action described in the Agenda Report were adequately examined by the City of Napa General Plan with its mitigating policies (and ordinances, standards and guidelines) and its General Plan EIR, certified December 1, 1998, pursuant to CEQA Guidelines section 15162.
3. The City Council hereby adopts the Updated City of Napa Hazard Mitigation Plan, attached hereto as Exhibit "A" and incorporated herein by reference.
4. This Resolution shall take effect immediately upon its adoption.

I HEREBY CERTIFY that the foregoing Resolution was duly adopted by the City Council of the City of Napa at a public meeting of said City Council held on the 18<sup>th</sup> day of May, 2010 by the following vote:

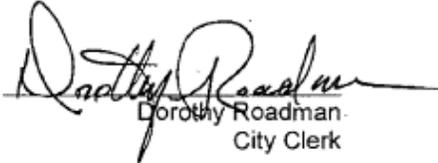
AYES: Techel, Mott, Krider, Inman

NOES: None

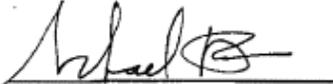
ABSENT: van Gorder

ABSTAIN: None

ATTEST:

  
Dorothy Roadman  
City Clerk

Approved as to form:



Michael W. Barrett  
City Attorney

# **Appendix J**

**Napa Municipal Code Section 17.38  
:FP - Floodplain Management  
Overlay District**

Napa Municipal Code

Up Previous Next Main Collapse Search Print No Frames

Title 17 ZONING

**Chapter 17.38 :FP—FLOODPLAIN MANAGEMENT OVERLAY DISTRICT**

**17.38.010 Background and purpose.**

- A. The special flood hazard areas of the city of Napa are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. Uses that are inadequately elevated, flood proofed, or protected from flood damage contribute to flood losses. The cumulative effect of obstructions in the special flood hazard area which increase flood heights and velocities also contribute to the flood loss.
- B. It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions to:
  - 1. Protect human life and health;
  - 2. Minimize expenditure of public money for costly flood control projects;
  - 3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
  - 4. Minimize prolonged business interruptions;
  - 5. Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;
  - 6. Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
  - 7. Ensure that potential buyers are notified that property is in an area of special flood hazard;
  - 8. Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions;
  - 9. Implement the regulations of the National Flood Insurance Program and Related Regulations (as outlined in Part 44 of the Code of Federal Regulations) and administered by the Federal Emergency Management Agency (FEMA); and
  - 10. Implement the policies of the health and safety element of the General Plan regarding flood hazards with the Napa River and its tributaries.
- C. In order to accomplish its purposes, this chapter includes methods and provisions to:
  - 1. Restrict or prohibit uses which are dangerous to health, safety, and property due to water hazards, or result in damaging increases in flood heights or velocities;
  - 2. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
  - 3. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
  - 4. Control filling, grading, dredging, and other development which may increase flood damage; and
  - 5. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters

or which may increase flood hazards in other areas.

D. The degree of flood protection required by these regulations is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods will occur on rare occasions. Flood heights may be increased by manmade or natural causes. These regulations do not imply that land outside the areas of special flood hazard, or uses permitted within such areas will be free from flooding or flood damages. These regulations shall not create liability on the part of the city, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on these regulations, or any administrative decision lawfully made there under. (O2003 12)

#### **17.38.020 General provisions.**

A. It is the intent that this chapter shall apply to all special flood hazard areas within the jurisdiction of the city of Napa. These special flood hazard areas are identified by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA) in the Flood Insurance Study (FIS) dated September 26, 2008 and accompanying Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFMs) dated September 26, 2008, as revised under the FEMA Letter of Map Revision submittal dated April, 2008, and as set forth in the revised 2008 LOMR Mapping Documents. All subsequent amendments and/or revisions thereto are hereby adopted and incorporated by reference into this chapter. This FIS and attendant mapping is the minimum area of applicability of this chapter and may be supplemented by studies for other areas which allow implementation of this chapter and which are recommended to the City Council by the Floodplain Administrator. The FIS, FIRMs and FBFMs are on file at the Department of Public Works, 1600 First Street, Napa, California. The provisions of this chapter shall apply to those lots shown on the zoning map (along with the zoning district with which they are combined) with an "FP" suffix.

B. No development project may hereinafter be undertaken without full compliance with the terms of this chapter and any term, condition, mitigation measure or project description incorporated into any permit or other entitlement granted. Violation of any permit term, condition mitigation measure, project description or applicant misrepresentation shall be unlawful, prohibited and a violation of this title.

C. This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions.

D. Where this chapter and another law, regulation or ordinance conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (O2003 12; O2009 7; O2009 8)

#### **17.38.030 Definitions.**

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give the chapter its most reasonable application. The specific definitions below are intended for use only in conjunction with the regulations contained herein.

"Area of special flood hazard." See "Special flood hazard area."

"Base flood" means a flood that has a one percent chance of being equaled or exceeded in any given year (also known as the "100-year flood").

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Building" means any structure intended for any use or occupancy with substantial walls and roof.

"Building" includes "manufactured home."

"Development" means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling

operations. It includes the construction or placement of new buildings and structures or substantial improvement of existing buildings and structures but does not normally include maintenance, painting and minor repairs. Development also includes a change of use which requires a use permit under this title, approval of a tentative subdivision map or parcel map and establishment of a manufactured home or mobile home park. Development also includes the storage of equipment and materials where such storage may increase the base flood elevation result in water damage to the stored equipment or materials or result in the equipment or material becoming water borne debris.

“Development project” means any project undertaken for the purpose of development.

“Encroachment” means the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain that may impede or alter the flow capacity of a floodplain.

“Existing manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) was completed before March 1988.

“Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“Flood, flooding or flood water” means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters or the unusual and rapid accumulation of runoff of surface waters from any source.

“Flood Boundary and Floodway Map (FBFM)” means the official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated both the special flood hazard area and the floodway.

“Flood Insurance Rate Map (FIRM)” means the official map on which FEMA or FIA has delineated both the special flood hazard area and the risk premium zones applicable to the community.

“Flood Insurance Study” means the official report provided by the FIA that includes flood profiles, the FIRM, the FBFM, and the water surface elevation of the base flood.

“Floodplain or flood-prone area” means any land area susceptible to being inundated by water from any source. See “Flood, flooding or flood water.”

“Floodplain Administrator” is the Director of Public Works.

“Floodplain management” means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.

“Floodplain management regulations” means this chapter and other zoning chapters, subdivision regulations, building codes, health regulations, special purpose chapters (such as grading and erosion control) and other application of police power which control development in flood-prone areas. This term describes federal, state or local regulations in any combination thereof which provide standards for preventing and reducing flood loss and damage.

“Floodproofing” means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents. (Applicable to “Floodplain management regulations” only.)

“Floodway” means the channel of a river or other water course and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. Also referred to as “regulatory floodway.”

“Floodway fringe” is that area of the floodplain on either side of the “regulatory floodway” where encroachment may be permitted.

“Functionally dependent use” means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.

“Hardship” as related to Section 17.38.100 of this chapter means the exceptional hardship that would result from a failure to grant the requested variance. The City Council requires that the variance be exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is not exceptional. Inconvenience, physical problems, aesthetic considerations, personal preferences, or the disapproval of one’s neighbors likewise cannot, as a rule, qualify as an exceptional hardship. All of these problems can be resolved through other means without granting a variance, even if they are more expensive, or require the property owner to build elsewhere or put the parcel to a different use than originally intended.

“Highest adjacent grade” means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

“Historic structure” means any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on the state of California inventory of historic places; or
4. Individually listed as a city of Napa landmark on the local inventory of historic places.

“Levee” means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding.

“Levee system” means a flood protection system that consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accord with sound engineering practices.

“Lowest floor” means the lowest floor of the lowest enclosed area including basement (see “Basement” definition).

1. An unfinished or flood resistant enclosure below the lowest floor that is useable solely for parking of vehicles, building access or storage in an area other than a basement areas, is not considered a building’s lowest floor provided it conforms to applicable non-elevation design requirements including but not limited to:
  - a. The wet floodproofing standards in Section 17.38.060 of this chapter;
  - b. The anchoring standards in Section 17.38.060 of this chapter;
  - c. The construction materials and methods standards in Section 17.38.060 of this chapter;
  - d. The standards for utilities in Section 17.38.080 of this chapter.

2. For residential structures, all subgrade enclosed areas are prohibited as they are considered to be basements (see “Basement” definition). This prohibition includes below-grade garages and storage areas.

“Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

“Manufactured home park or subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“Mean sea level” means for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community’s Flood Insurance Rate Map are referenced.

“New construction,” for floodplain management purposes, means structures for which the “start of construction” commenced on or after March 1988 and includes any subsequent improvements to such structures.

“New manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) was completed on or after March 1988.

“Obstruction” includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, channelization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water, or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

“One-hundred-year flood” or “100-year flood.” See “Base flood.”

“Recreational vehicle” means a vehicle which is:

1. Built on a single chassis;
2. 400 square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light-duty truck (rated two tons or less); and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

“Regulatory floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

“Remedy a violation” means to bring the structure or other development into compliance with state or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter or otherwise deterring future similar violations, or reducing state or federal financial exposure with regard to the structure or other development.

“Revised 2008 LOMR Mapping Documents” means all Flood Insurance Rate Maps and associated Flood Insurance Studies as contained in the city of Napa’s Federal Emergency Management Agency Letter of Map Revision submittal dated April 2008, and as mapped in FEMA document numbers 06055C0504E,

06055C0505E, 06055C0508E, 06055C0509E, 06055C0510E, 06055C0512E, 06055C0515E, 06055C0516E, 06055C0517E, 06055C0518E, 06055C0519E, 06055C0610E, 06055C0650E, Index number 06055CIND0A, and Flood Insurance Study number 0655CV000A.

“Riverine” means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

“Sheet flow area.” See “Area of shallow flooding.”

“Special flood hazard area (SFHA)” means an area having special flood, mud slide (i.e., mud flow), or flood-related erosion hazards, and shown on an FHBM or FIRM as Zone A, AO, A1-A30, AE, A99, AH, E, M, V1-V30, VE or V. These areas are designated on city zoning maps with the :FP suffix.

“Start of construction” for new development other than the issuance of a use permit means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit; for a use permit it shall be the effective date of approval of the use permit. The “actual start” for development other than a substantial improvement means either the first placement of permanent construction of a structure on a site, such as pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation such as clearing, grading, and filling; nor does it include the installation of streets and/or sidewalks; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not a part of the main structure. For a substantial improvement, the “actual start” of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

“Structure” means anything constructed or erected, except for fences, the use of which requires a permanent location on the ground or attached to something having a permanent location on the ground (Note: all buildings are structures, but not all structures are buildings.)

“Storage” means to place or leave in a location for preservation, later use or disposal.

“Substantial damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

“Substantial improvement” means any reconstruction, alteration, rehabilitation, addition, or other proposed change of a structure, the cost of which equals or exceeds 50% of the market value of the existing structure before “start of construction” of the improvement; this term includes reconstruction, rehabilitation, addition or repair of a structure which has incurred “substantial damage,” regardless of the actual amount of work performed. The term “substantial improvement” does not however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
2. Any alteration, rehabilitation, repair addition or other change of a “historic structure,” provided that the work performed will not preclude the structure’s continued designation as an “historic structure.”

“Variance” means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

“Violation” means the failure of a structure or development project to be in full compliance with this chapter. A development project without the elevation certificate, other certifications, or other evidence of compliance required in this chapter is presumed to be in violation until such time as that documentation is

provided.

“Water surface elevation” means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

“Watercourse” means a lake, river, creek, stream, wash, arroyo, channel or other topographic feature on or over which flood waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur. (O2003 12; O2009 7; O2009 8)

#### **17.38.040 Floodplain Administrator—Duties and responsibilities.**

The Public Works Director of the city of Napa is hereby appointed Floodplain Administrator to administer, implement, and enforce this chapter and to grant or deny floodplain permits in accord with its provisions. Specific duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

- A. Review all applications for development within the floodplain to determine that:
  1. The permit requirements of this chapter have been satisfied;
  2. All other required state and federal permits have been obtained;
  3. The site is reasonably safe from flooding; and
  4. The proposed development does not adversely affect the carrying capacity of areas where base flood elevations have been determined but a floodway has not been designated. For purposes of this chapter, “adversely affects” means that the cumulative effect of the proposed development when combined with all other existing and anticipated development will increase the water surface elevation of the base flood more than one foot at any point.
- B. When base flood elevation data have not been provided in accordance with Section 17.38.020 of this chapter, obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal or state agency, or other source, in order to administer Sections 17.38.050 through 17.38.100. Any such information shall be submitted to the City Council for its review and adoption.
- C. In the event of alteration or relocation of a watercourse:
  1. Notify adjacent communities and the California Department of Water Resources prior to alteration or relocation of a watercourse.
  2. Submit evidence of such notification to the Federal Insurance Administration, Federal Emergency Management Agency.
  3. Assure that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained.
- D. Make interpretations where needed as to the exact location of the boundaries of the areas of special flood hazard, for example, where there appears to be a conflict between a mapped boundary and actual field conditions. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this section.
- E. Obtain and maintain for public inspection and make available as needed the following:
  1. Certification required by Section 17.38.060 (lowest floor elevation).
  2. Certification required by Section 17.38.060 (elevation of floodproofing of nonresidential structures).
  3. Certification required by Section 17.38.060 (wet floodproofing standard).

- 4. Certification of elevation required by Section 17.38.060 (subdivision standards).
- 5. Certification required by Section 17.38.060 (floodway encroachments).
- F. Take action to remedy violations of this chapter as specified in Section 17.38.020.

Any decision or determination made under this chapter by the Floodplain Administrator may be appealed to the City Council by filing a written appeal setting forth the reasons of the appeal accompanied by the appropriate fee with the City Clerk not later than 10 calendar days following the date of action from which such appeal is being taken. If the tenth calendar day is a weekend or city holiday, the deadline is extended to the next working day of the city. The City Council shall consider the decision or determination de novo. (O2003 12)

**17.38.050 Floodplain permit required.**

- A. No development project may be approved by the city of Napa nor undertaken by any person on property zoned :FP unless a floodplain permit is first obtained from the Floodplain Administrator.
- B. Application for a floodplain permit shall be made in a form acceptable to the Floodplain Administrator, shall provide an indemnification that is in the approved form and may include, but not be limited to: plans drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, fill, storage of materials or equipment, drainage facilities; and the location of the forgoing. Specifically, the following information is required:
  - 1. Proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures; or proposed elevation in relation to mean sea level to which any nonresidential structure will be floodproofed, if required in Section 17.38.060.
  - 2. All appropriate certifications listed in Section 17.38.060 of this chapter.
  - 3. Description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.
  - 4. In the case of a tentative parcel or subdivision map, the application shall:
    - a. Identify the special flood hazard area and the elevation of the base flood on the tentative map;
    - b. Show how any existing or buildings, structures or utilities will comply with the development standards of this section;
    - c. Identify the elevation of any existing structures, buildings or proposed structure(s) and pad (s). If the site is filled above the base flood elevation, the lowest floor and pad elevations shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator;
    - d. Show how construction will minimize flood damage;
    - e. Show how public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage; and
    - f. Identify all drainage necessary to reduce exposure to flood hazards.

(O2003 12)

**17.38.060 Floodplain management regulations.**

The following development standards shall be met on all lots zoned :FP:

- A. All new construction of structures shall be secured to a permanent foundation system to prevent

flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

B. All new construction and substantial improvement of structures shall be constructed and designed:

1. With materials and utility equipment resistant to flood damage;
2. Using methods and practices that minimize flood damage;
3. With electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located as to prevent water from entering or accumulating within the components during conditions of flooding;
4. With adequate drainage paths around structures on slopes to guide floodwaters around and away from structures; and
5. In compliance with FEMA Technical Bulletins 2-93, 3-93 and 7-93.

C. All new construction or substantial improvement of residential buildings, shall have the lowest floor, including basement (See Section 17.38.030 definitions for "basement," "lowest floor," "new construction," "substantial damage" and "substantial improvement"), elevated to at least one foot above the base flood elevation as determined by this community and be designed so that fully enclosed areas below the lowest floor automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. The minimum criteria for equalizing hydrostatic forces include a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding with the bottom of such opening no higher than one foot above grade and equipped with screens, louvers, valves or other coverings or devices which permit the automatic entry and exit of floodwaters.

Upon completion of the building, the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor, and verified by the community Building Inspector to be properly elevated. Such certification and verification shall be provided to the Floodplain Administrator.

D. All new construction or substantial improvement of nonresidential buildings shall either be elevated to conform with this section or together with attendant utility and sanitary facilities:

1. Be flood proofed below an elevation one foot above the base flood elevation so that the structure is watertight with walls substantially impermeable to the passage of water; (See FEMA Technical Bulletins 3-93 and 7-93 for additional requirements);
2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
3. Be certified by a registered professional engineer or architect that the standards of this section are satisfied. Such certification shall be provided to the Floodplain Administrator.

E. All new construction and substantial improvement of buildings with fully enclosed areas below the lowest floor (excluding basements) that are useable solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must meet or exceed the following minimum criteria:

1. Be certified by a registered professional engineer or architect; or
2. Have a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater.

F. All new and replacement water supply, gas, electrical and sanitary sewage systems shall be designed:

1. To minimize or eliminate infiltration of floodwaters into the system and discharge from the

system into floodwaters; and

2. To avoid impairment or contamination during flooding in the case of on-site waste disposal systems.

G. All manufactured homes placed or substantially improved within the special flood hazard area and located:

1. Outside a manufactured home park or subdivision, or

2. In a new manufactured home park or subdivision, or

3. In an expansion to an existing manufactured home park or subdivision, or

4. In an existing manufactured home park or subdivision on a site upon which a manufactured home has incurred "substantial damage" as the result of a flood shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to a level one foot above the base flood elevation and be securely fastened to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

H. All recreational vehicles placed on lots zoned :FP shall either:

1. Be on site for fewer than 180 consecutive days, and be fully licensed and ready for highway use. A recreational vehicle is ready for highway use only if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or

2. Meet the permit requirements of Section 17.38.050 of this chapter and the elevation and anchoring requirements for manufactured homes in Section 17.38.060.

(O2003 12)

**17.38.070 Additional regulations for certain residential development in portions of the floodplain (flood evacuation area).**

The following additional development standards shall be met in the flood evacuation portion of the :FP for residential developments which consist of five or more units, including subdivisions or mixed use projects with a residential development potential of five or more units. The flood evacuation area is established by the city Public Works Department consistent with the Health and Safety Element of the General Plan.

Except as provided in subsection E of this section, a flood evacuation plan, prepared by a registered civil engineer or architect shall be required. Alternately, an approved hydraulic analysis, prepared by a registered civil engineer, may be substituted for a flood evacuation plan. A hydraulic analysis may also require an accompanying flood evacuation plan, depending on the location of the property.

The flood evacuation plan and/or hydraulic analysis shall be submitted to the Public Works Director for review and approval. In determining the adequacy of flood evacuation plans, the Public Works Director shall consider the existing and future street, drainage and flood control facilities that could affect the proposed development as well as the technical and economic feasibility of required flood evacuation procedures and/or improvements. In determining the adequacy of hydraulic analyses, the Public Works Director shall consider the water surface elevation of the property and surrounding areas, flood control facilities that could affect the proposed development, and the location of the property in relationship to surrounding areas of inundation. The Public Works Director shall determine if an accompanying flood evacuation plan demonstrating a safe evacuation route shall be submitted.

The minimum residential densities of the General Plan shall not apply to residential developments of five or more units, including potential units which could result from the subdivision of property, when located on a property in the flood evacuation area.

- A. The flood evacuation plan shall include the following:
  - 1. The nature and extent of flooding and effect of such flooding on the occupants of the proposed development and the ability to safely evacuate the occupants from the premises in the event of a flood.
  - 2. Measures needed to mitigate flood hazards and to assist the occupants of the proposed development to safely evacuate in the event of a flood.
  - 3. A plan as described in subsection B.
- B. The flood evacuation plan shall be drawn to scale, and shall be of sufficient size and clarity to show existing details and the nature and extent of all proposed improvements. The plan shall include the following information:
  - 1. Name and address of owner;
  - 2. Name, address, professional status, license number, and phone number of the person who prepared the plan;
  - 3. Location and assessor's parcel number of the proposed site;
  - 4. North arrow, scale, and the name and location of the nearest public road intersection;
  - 5. Existing contours of the site, as well as finished contours to be achieved by grading. Contours shall be sufficiently detailed to define the topography over the entire site (generally at two-foot intervals);
  - 6. Location of and elevation of the streets in the area of the proposed development which would be used in the event of a flood evacuation;
  - 7. Location of any buildings, structures, trees and other landscape features on the property to remain, and the locations of any buildings, structures or trees on adjacent property within 15 feet of adjoining property lines;
  - 8. The concept of the flood evacuation measures proposed and a plan showing the construction details or other measures necessary to implement the plan;
  - 9. Phasing of proposed work, as appropriate.
- C. All approved measures to mitigate flood hazards and to provide for the safe evacuation of the occupants of the proposed development shall become conditions of approval of the project. In addition all approved flood evacuation measures shall be installed prior to the final clearance of the building permit or concurrently with the installation of site improvements in the case of a subdivision map.
- D. The hydraulic analysis shall include the following:
  - 1. The information required by subsections (B)(1) through (B)(6) above, provided, however, that to the extent practicable, the analysis shall be based on one-foot contours.
  - 2. A comprehensive list of data sources used for the analysis.
  - 3. Hydraulic model(s) and related assumptions.
  - 4. Comparisons of the water surface profile and site topography.
  - 5. Disclosure of any limits to the analysis.
  - 6. Figures, tables and plans sufficient to illustrate the water surface profiles and water surface elevations, and areas of inundation in a 100-year flood; and the boundaries of the area included in the analysis. Plans should be to scale, and include street names, scale, and a north arrow.
  - 7. The area of analysis should include the site to be developed and surrounding areas to the nearest intersection that is outside of the city's identified flood evacuation area to demonstrate a safe evacuation route from the site.

- E. The following projects are exempt from the requirements of this section:
1. All nonresidential development, unless such nonresidential development includes residential development as part of a mixed use development, in which case the requirement for a flood evacuation plan shall be required;
  2. Residential developments which consist of four or fewer units or subdivisions with a development potential of four or fewer units;
  3. An addition or expansion of less than 50% of the original total floor area to an existing residential structure which, in the opinion of the Public Works Director, involves no identifiable increase in the flood evacuation hazards to the occupants of such a structure;
  4. Construction within an existing structure which involves no expansion of the structure;
  5. Construction proposed for a site where an approved flood evacuation plan and/or hydraulic analysis has been prepared provided that the proposed development conforms to the recommendations of the previously approved plan and/or hydraulic analysis;
  6. A lot line adjustment;
  7. A use which involves no buildings or structures.

(O2003 12; O2006 6)

#### **17.38.080 Floodplain management regulations for the floodway.**

Floodways are areas specially designated within the special flood hazards area on the FIRM for the city (a copy of which is available in the office of the Public Works Director). Floodways are extremely hazardous areas due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential. On those lots zoned :FP which are located in the floodway, the following provisions shall apply in addition to the general development standards and requirements of Section 17.38.060:

- A. New development projects are prohibited unless a floodway development analysis complying with Section 17.38.090 prepared by a registered professional engineer or architect is provided demonstrating that such new development shall not result in any increase in the base flood elevation during the occurrence of the base flood discharge.
- B. No manufactured home shall be placed in a floodway, except in an existing manufactured home development, mobile home park or mobile home subdivisions. (O2003 12)

#### **17.38.090 Floodway development analysis requirements.**

In all cases where a development project is proposed in the floodway, a floodway development analysis, as described in this section prepared by a registered professional engineer or architect is required. The analysis shall supplement the existing data on the floodway by adding one or more cross sections across the entire floodway, prepared from field measurements. The number of cross sections required to complete these analyses shall be determined by the Floodplain Administrator. The minimum requirement shall be one cross section at the site of the proposed development.

- A. Base Case Analysis. Applicants shall prepare and submit for review a 100-year water surface profile analysis of the entire length of the floodway within the city utilizing the FEMA data and analysis method as amended, without the imposition of any development which has occurred since the FIS as amended. In the event that the applicant's project is in close proximity to the city limits, the analysis shall extend into the unincorporated area a sufficient distance as determined by the analysis results, to demonstrate that there are no impacts beyond the analysis limits. The requirement to be met is that there shall be zero increase in the

water surface area file for the entire length of the floodway when compared to the FEMA data as amended.

B. Cumulative Analysis. Applicants shall prepare and submit for review a 100-year water surface profile analysis, using an approved analysis method, of the entire length of the floodway within the city utilizing updated floodplain data that includes all floodway development which has occurred, or which has been approved but not constructed since the FIS as amended. In the event that the applicant's project is in close proximity to the city limits, the analysis shall extend into the unincorporated area a sufficient distance as determined by the analysis results, to demonstrate that there are no impacts beyond the analysis limits. The requirement to be met is that there shall be zero increase in the water surface area file for the entire length of the floodway.

C. Site Analysis. Applicants shall prepare and submit for review an analysis of the site, including adjacent property which may be impacted. The analysis shall include a floodway blockage before and after comparison and shall detail and analyze flood flow and velocity changes which will result from the proposed project. This analysis shall include an accurate topographic drawing of the proposed project, including structures or other blockages on adjacent properties. The drawing submitted for this purpose shall identify the flood flow patterns through the proposed project. Any adverse impacts on surrounding properties in the floodway shall be 100% mitigated. Specific compensatory action to increase flood carrying capacity must be proposed for any increase in blockage and for any adverse change in flood flow or velocity. Mitigation measures and compensatory actions proposed shall be verified by re-computing the 100-year water surface profile under subsections A and B above.

D. Permanent Record, Methodology and Limitations. All analyses shall, after review and final modifications, be submitted in a form that will provide a permanent record. The data and methodology approved by FEMA may change over time. When performing the analyses required by these regulations, the most current data and methodology approved by FEMA shall be utilized. In areas of rapid ground elevation change, accurate topographic mapping may reveal minor differences between actual conditions and the adopted floodway. Regardless of such minor differences, no change in the adopted floodway shall be made. (O2003 12)

#### **17.38.100 Variance procedure.**

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A. The variance procedures and criteria set forth in this section are based on the general principle of zoning law that variances pertain to a piece of property and are not personal in nature. A variance may be granted for a parcel of property with physical characteristics so unusual that complying with the requirements of this chapter would create an exceptional hardship to the applicant or the surrounding property owners. The characteristics must be unique to the property and not be shared by the adjacent parcels. The unique characteristic must pertain to the land itself, not to the structure, its inhabitants, or the property owners.

B. The City Council needs to help protect its citizens from flooding. This need is so compelling and the implications of the cost of insuring a structure built below flood level are so serious that variances from the flood elevation or from other requirements in this chapter should be quite rare. The long term goal of preventing and reducing flood loss and damage can only be met if variances are strictly limited. Therefore, the variance guidelines provided in this chapter are detailed, contain multiple provisions that must be met before a variance can be properly granted and shall supersede the general variance procedures set forth in Chapter 17.64 (Variances) of this title. The criteria are designed to screen out those situations in which alternatives other than a variance are more appropriate.

C. In order to ensure accomplishment of the goals of this chapter, only the City Council is authorized to act upon requests for a variance. The City Council shall hold a public hearing on the application prior to making a decision. In reviewing requests for variances, the City Council shall consider all technical

evaluations, all relevant factors, standards specified in other sections of this chapter and the:

1. Danger that materials may be swept onto other lands to the injury of others;
2. Danger of life and property due to flooding;
3. Susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the existing owner and future owners of the property;
4. Importance of the services provided by the proposed facility to the community;
5. Necessity to the facility of a waterfront location, where applicable;
6. Availability of alternative locations for the proposed use which are not subject to flooding;
7. Compatibility of the proposed use with existing and anticipated development;
8. Relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
9. Safety of access to the property in time of flood for ordinary and emergency vehicles;
10. Expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and
11. Costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water system, and streets and bridges.

D. The City Council may grant a variance for development on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing that the requirements of Sections 17.38.060 and 17.38.080 and 17.38.090, as applicable, have been fully considered. As the lot size increases, beyond one-half acre, the technical justification required for issuing the variance increases. In order to grant a variance, the City Council must find:

1. The applicant has made a showing of good and sufficient cause;
2. The failure to grant the variance would result in exceptional "hardship" (as defined in Section 17.38.030 of this chapter) to the applicant;
3. The variance will not result in increased flood heights, additional threats to public safety, i.e., anything which is injurious to the health or safety of the entire community, a neighborhood or any considerable number of people, extraordinary public expense, creation of a nuisance, obstruction of free passage or use in the customary manner of any navigable river, a conflict with existing laws or regulations or cause fraud or victimization of the public or future owners who are unaware of potential flood damage and high insurance rates;
4. The variance will afford the requested relief with the minimum deviation from the requirements of this chapter;
5. If the property is within any mapped regulatory floodway, no increase in flood levels during the base flood discharge would result from the grant of the variance; and
6. Such conditions as are necessary to further the purposes of this chapter have been imposed.

E. The City Council may grant a variance for development which is necessary for the conduct of a functionally dependent use if the City Council finds that the development:

1. Complies with the provisions of Section 17.38.050;
2. Is protected by methods that minimize flood damage during the base flood;
3. Does not result in threats to public safety; and
4. Does not create a public nuisance.

F. The Floodplain Administrator shall ensure that any variance granted to construct a structure below the base flood elevation includes a notice that such construction will result in increased premium rates for flood insurance significantly and shall record such notice in the office of the Napa County Recorder.

G. The Floodplain Administrator shall maintain a record of all variance actions and report such variances issued in its biennial report submitted to the Federal Insurance Administration and Federal Emergency Management Agency. (O2003 12)

# **Appendix K**

## **Community Rating System CC-230 Verification Form**

Community City of Napa State CA CID 060207

**CC-230 Verification**

Date of visit	11-18-14	FIRM Effective Date	9-29-10
Population	78,358	Current FIRM Date	9-29-10, 9-26-08
County	Napa	ISO/CRS Specialist	Gina Gabriel
<i>Coordinator's Manual Year</i>			
	Chief Executive Officer		CRS Coordinator
Name	Jill Techel	Karen Harnois	
Title	Mayor	Engineering Assistant, CFM	
Address	P.O. Box 660	P.O. Box 660	
	Napa, CA 94559	Napa, CA 94559	
Phone	707-257-9513	707-257-9520	
E-mail	jtechel@cityofnapa.org	kharnois@cityofnapa.org	

I hereby certify that City of Napa [community name] is implementing the following activities [check the ones that apply]. We will continue to implement these activities and will advise FEMA if any of them are not being conducted in accordance with this certification. We will cooperate with the ISO/CRS Specialist's verification visit and will submit the documentation and annual recertification needed to validate our program.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> 310 (Elevation Certificates)       | <input checked="" type="checkbox"/> 440 (Flood Data Maintenance)         |
| <input checked="" type="checkbox"/> 320 (Map Information Service)      | <input checked="" type="checkbox"/> 450 (Stormwater Management)          |
| <input checked="" type="checkbox"/> 330 (Outreach Projects)            | <input checked="" type="checkbox"/> (Repetitive Loss Requirements)       |
| <input checked="" type="checkbox"/> 340 (Hazard Disclosure)            | <input checked="" type="checkbox"/> 510 (Floodplain Management Planning) |
| <input checked="" type="checkbox"/> 350 (Flood Protection Information) | <input checked="" type="checkbox"/> 520 (Acquisition and Relocation)     |
| <input checked="" type="checkbox"/> 360 (Flood Protection Assistance)  | <input checked="" type="checkbox"/> 530 (Flood Protection)               |
| <input checked="" type="checkbox"/> 370 (Flood Insurance Promotion)    | <input checked="" type="checkbox"/> 540 (Drainage System Maintenance)    |
| <input checked="" type="checkbox"/> 410 (Floodplain Mapping)           | <input checked="" type="checkbox"/> 610 (Flood Warning and Response)     |
| <input checked="" type="checkbox"/> 420 (Open Space Preservation)      | <input checked="" type="checkbox"/> 620 (Levees)                         |
| <input checked="" type="checkbox"/> 430 (Higher Regulatory Standards)  | <input checked="" type="checkbox"/> 630 (Dams)                           |

I hereby certify that, to the best of my knowledge and belief, we are maintaining in force all flood insurance policies that have been required of us as a condition of Federal financial assistance for insurable buildings owned by us and located in the Special Flood Hazard Area shown on our Flood Insurance Rate Map. I further understand that disaster assistance for any community-owned building located in the Special Flood Hazard Area is reduced by the amount of National Flood Insurance Program flood insurance coverage (structural and contents) that a community should be carrying on the building, regardless of whether the community is carrying a policy.

Signed Jill Techel (Chief Executive Officer)

# **Appendix L**

Ordinance 02015-4  
Moderate Water Shortage

ORDINANCE O2015-4

URGENCY ORDINANCE OF THE CITY COUNCIL OF THE  
CITY OF NAPA, STATE OF CALIFORNIA, AMENDING  
NAPA MUNICIPAL CODE CHAPTER 13.10 REGARDING  
MODERATE WATER SHORTAGE REGULATIONS

WHEREAS, the State Water Resources Control Board adopted California Code of Regulations, Title 23, Sections 863, 864, and 865 as emergency regulations for statewide urban water conservation on July 15, 2014; and

WHEREAS, the Moderate Water Shortage Regulations contained in Chapter 13.10 of the Napa Municipal Code were amended and a Moderate Water Shortage declared by City Council on September 16, 2014, in response to those initial statewide regulations; and

WHEREAS, the State Water Resources Control Board amended and readopted California Code of Regulations, Title 23, Sections 863, 864, and 865 on March 17, 2015, to include additional end-user restrictions and a requirement for urban water suppliers to adopt mandatory restrictions on the number of days that outdoor irrigation of ornamental landscapes or turf with potable water is allowed; and

WHEREAS, Governor Brown issued Executive Order B29-15 on April 1, 2015, directing the State Water Resources Control Board to impose additional restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 16, 2016, and the State Water Resources Control Board adopted California Code of Regulations, Title 23, Section 866 and amended and readopted Sections 863, 864, and 865 on May 5, 2015, to address provisions in the Executive Order; and

WHEREAS, the newly adopted state regulations place the City in a tier of agencies required to reduce total potable water production by 20 percent for the period of June 2015 through February 2016 compared to the same months in 2013; and

WHEREAS, the Moderate Water Shortage Regulations contained in Chapter 13.10 of the Napa Municipal Code constitute the applicable stage of the City of Napa Water Shortage Contingency Plan to achieve 20 percent conservation, but updated language for Chapter 13.10 is needed to address the prescriptive new statewide regulations adopted by the State Water Resources Control Board; and

WHEREAS, the City Council has considered all information related to this matter, as presented at the public meeting of the City Council identified herein, including any supporting reports by City Staff, and any information provided during public meetings.

NOW, THEREFORE, BE IT ORDAINED, by the City Council of the City of Napa as follows:

**SECTION 1: Findings.** The City Council hereby makes the following findings in support of the Ordinance:

- A. In 2014, the Governor proclaimed a State of Emergency to exist in California due to severe drought conditions. Now in 2015, this fourth consecutive dry year, the Governor has issued an Executive Order calling for the first ever statewide mandatory water use reductions. The State Water Resources Control Board has implemented a series of emergency regulations for Urban Water Suppliers to limit outdoor irrigation and wasteful practices. Statewide emergency regulations adopted on March 17, 2015, and May 5, 2015, include these along with an additional mandate for the City to reduce total potable water production by 20 percent compared to 2013. Violation of an information or conservation order from the State Water Resources Control Board carries a penalty of up to \$500 per day. Violation of a cease and desist order from the Board is subject to a civil liability of up to \$10,000 per day.
- B. This Ordinance is intended to address a moderate water shortage and shall be in effect upon approval by the City Council and shall remain in effect until the City Council finds that the moderate water shortage no longer exists.
- C. Pursuant to Section 62 of the Napa City Charter, this Ordinance is intended to and shall be effective immediately, since it is for the immediate preservation of the public peace, property, health or safety, upon 4/5 vote of City Council.

**SECTION 2: Amendment.** Chapter 13.10 of Title 13 of the Napa Municipal Code is hereby repealed in its entirety. A new Chapter 13.10, "Moderate Water Shortage Regulations," is hereby added to Title 13 of the Napa Municipal Code to read as follows:

**Chapter 13.10 MODERATE WATER SHORTAGE REGULATIONS**

**Sections:**

- 13.10.010 Purpose and scope.**
- 13.10.020 Findings.**
- 13.10.030 Definitions.**
- 13.10.040 Water use regulations.**
- 13.10.050 Prohibitions and limitations.**
- 13.10.055 Prohibitions subject to supplemental Council findings.**
- 13.10.060 Water use guidelines.**
- 13.10.070 Requests for exceptions.**
- 13.10.080 Enforcement of code violations.**

**13.10.010 Purpose and scope.**

This chapter establishes regulations to deal with a moderate water shortage emergency. These regulations shall become effective immediately upon approval by the City Council of a resolution declaring the existence of a moderate water shortage and

shall remain in effect until the City Council finds that the moderate water shortage no longer exists.

**13.10.020 Findings.**

The City Council finds, determines and declares that the following facts are true:

A. The regulations set forth herein are necessary and proper to protect the water supply for human consumption, sanitation and fire protection during the duration of the shortage.

B. This chapter shall apply to customers receiving water from the city and expressly applies to customers outside the city limits pursuant to the city's charter powers and Water Code Section 355 et seq., and 375 et seq.

**13.10.030 Definitions.**

The following terms are defined for the purpose of this chapter:

"Customer" means the person responsible for paying for each water service account on the City of Napa or Congress Valley Water District's water distribution system, both inside City limits and outside City limits.

"Domestic use" means any water used by a person for cooking, cleaning, bathing, washing clothes, drinking and sanitation.

"General Manager" means the General Manager of the Water Division of the Public Works Department, or a designee of the General Manager, or a designee of the City Manager.

"High-Efficiency Toilet" means any toilet with an effective flush volume that does not exceed 1.28 gallons per flush.

"Moderate Water Shortage Emergency" means a shortage in either local or statewide water supplies exists such that mandatory water use restrictions are required to achieve up to twenty (20) percent community-wide demand reduction and maintain water supply reliability.

"New development" means any of the following construction projects:

1. Any free-standing building that contains water-using fixtures;
2. Any floor area additions to existing nonresidential structures;
3. Any residential additions or remodeling that increases the number of independent living units.

"Person" is as defined by Section 1.04.030 of this Code.

"Water" means potable water that is supplied by the City's water distribution system.

**13.10.040 Water use regulations.**

A. The Congress Valley Water District must enact and enforce water use regulations identical to those water use regulations included in this chapter.

B. Service to interruptible surplus agricultural water contractors may be reduced or suspended during the water shortage period in accordance with the terms of the Agreement for Provision of Interruptible-Surplus Agricultural Water Service.

**13.10.050 Prohibitions and limitations.**

A. No person shall waste water. As used herein, the term "waste" means:

1. Use of water in a decorative fountain or other decorative water feature, except where the water is part of a recirculating system;
2. Use of a hose that dispenses water to wash a motor vehicle, except where the hose is fitted with a shutoff nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;
3. Application of water to driveways and sidewalks, except where necessary to address an immediate health and safety need;
4. Application of water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures.

B. No person shall use water to irrigate landscaping on consecutive days, except for the initial watering of newly planted landscaping and germination requirements of newly seeded lawns.

C. No person shall use water to irrigate landscaping between the hours of 10:00 a.m. and 5:00 p.m., except for the initial watering of newly planted landscaping and germination requirements of newly seeded lawns.

D. No person shall use water to irrigate landscaping during a measurable rainfall event or within 48 hours thereafter.

E. No person shall use water to irrigate ornamental turf on public street medians.

F. No person shall drain and refill any swimming pool unless that person establishes that it is needed for the purpose of pool repair or to correct a severe chemical imbalance. No person shall drain and refill any decorative pond or lake unless that person establishes that it is needed for the purpose of lining the bottom to prevent absorption.

G. No operators of eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drinks

are sold, served, or offered for sale, shall provide drinking water to any person unless expressly requested by that person.

H. Operators of hotel, motel, and other commercial lodging establishments shall provide guests the option of not having towels and linens laundered daily, and shall prominently display notice of this option in each guestroom using clear and understood language.

**13.10.055 Prohibitions subject to supplemental Council findings.**

A. If the City Council determines, by resolution, that specified conditions warrant the establishment of additional water conservation measures in order to achieve the City's water conservation goals, the City Manager is authorized to impose the measures set forth in Section 13.10.055(B), provided that written notice is published in a newspaper of general circulation no less than 10 days prior to the effective date of the imposition, consistent with the provisions of California Government Code Sections 6060 and 6061.

B. No person shall use water to irrigate outdoor ornamental landscapes or turf more than two days per week for the period of June 1 through September 30. No person shall use water to irrigate outdoor ornamental landscapes or turf more than one day per week for the period of October 1 through May 31.

**13.10.060 Water use guidelines.**

Each customer shall make every attempt possible to reduce water usage by the amount specified in the City Council resolution declaring the moderate water shortage. Each person is encouraged to use the following water conservation guidelines:

- A. Establish procedures in the home and business to recycle water where possible;
- B. Use recycled water for construction purposes when available;
- C. Use water in a manner which minimizes waste and repair leaks as soon as possible;
- D. Install low-flow showerheads, high-efficiency toilets;
- E. Refrain from additional irrigation and unnecessary use of water, such as car washing, on days when the temperature exceeds 85 degrees Fahrenheit;
- F. Limit outdoor irrigation of ornamental landscapes or turf with water to no more than two days per week for the period of June 1 through September 30 and to no more than one day per week for the period of October 1 through May 31 (may be declared a mandatory limitation under these regulations upon City Council resolution);

G. New development must adhere to the City's High Performance Building Regulations. All new or replacement landscaping should be designed and installed in accordance with the City's Water Efficient Landscape Guidelines in order to be water efficient, and the irrigation of landscapes outside of newly constructed homes and buildings must be consistent with emergency regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

**13.10.070 Requests for exceptions.**

Any person may request an exception to any provision of Sections 13.10.040 and 13.10.050 of this Chapter by submitting a written request to the Water Division of the Public Works Department in accordance with this Section 13.10.070.

A. The request shall be made in writing, using the form provided by the Water Division of the Public Works Department.

B. The request shall provide sufficient information, documentation, and verification, to the satisfaction of the General Manager, which establishes that the requested exception is necessary in order to: (1) protect the public health or safety, or (2) avoid undue hardship (including adverse economic impacts such as loss of production or jobs). The request shall also document that all feasible conservation measures are being used, and that there are no alternative available sources of water.

C. The request shall be subject to the review and approval of the General Manager.

D. The decision of the General Manager will be final.

**13.10.080 Enforcement of code violations.**

A. It is a code violation for any person to violate any provision of Sections 13.10.040 and 13.10.050 of this Chapter, subject to the enforcement provisions of Title 1 and Chapter 1.16 of this Code.

B. The General Manager is authorized to issue administrative citations, as the Enforcement Officer, pursuant to Chapter 1.24 of this Code. Any penalty that could otherwise be imposed pursuant to this Chapter or Chapter 1.16 may be reduced or discharged if the cited person establishes that the water waste was beyond the control of the cited person, and if all reasonable means had been previously taken to prevent water waste. "All reasonable means" includes, but is not limited to, securing hose bibbs, written warnings to tenants or other water users and amendments to rental agreements where permitted by the lease.

C. In addition to the remedies and penalties for Code violations, set forth in Title 1 of this Code: (1) Filing of false information for any requirement contained in this chapter shall be subject to a fine of \$10,000.00 for each offense.

**SECTION 3: CEQA.** The City Council hereby finds that the Action described in the ordinance is exempt from CEQA pursuant to CEQA Guidelines Sections 15307 and 15308 which exempt actions taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource or protection of the environment where the regulatory process involves procedures for protection of the environment.

**SECTION 4: Severability.** If any section, sub-section, subdivision, paragraph, clause or phrase in this Ordinance, or any part thereof, is for any reason held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining sections or portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, sub-section, subdivision, paragraph, sentence, clause or phrase of this Ordinance, irrespective of the fact that any one or more sections, sub-sections, subdivisions, paragraphs, sentences, clauses or phrases may be declared invalid or unconstitutional.

**SECTION 5: Effective Date.** This Ordinance is declared to be an urgency ordinance for the preservation of the public health, safety, and welfare, and shall take effect and be enforced immediately upon adoption.

City of Napa, a municipal corporation

MAYOR:



ATTEST:

  
CITY CLERK OF THE CITY OF NAPA

STATE OF CALIFORNIA }  
COUNTY OF NAPA } SS:  
CITY OF NAPA }

I, Dorothy Roberts, City Clerk of the City of Napa, do hereby certify that the foregoing Ordinance was adopted as an urgency measure during the regular meeting of the City Council on the 19<sup>th</sup> day of May, 2015, by the following vote:

AYES: Inman, Luros, Mott, Sedgley, Techel

NOES: None

ABSENT: None

ABSTAIN: None

ATTEST:   
Dorothy Roberts  
City Clerk

Approved as to Form:

  
Michael W. Barrett  
City Attorney

# **Appendix M**

**Resolution R2015-60  
Renewing the City of Napa's  
Declaration of a Moderate Water  
Shortage Contingency Plan**

RESOLUTION R2015-60

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NAPA, STATE OF CALIFORNIA, RENEWING ITS DECLARATION OF A MODERATE WATER SHORTAGE TO IMPLEMENT THE CITY'S WATER SHORTAGE CONTINGENCY PLAN, SET FORTH IN NAPA MUNICIPAL CODE CHAPTER 13.10, IN COMPLIANCE WITH STATE WATER RESOURCES CONTROL BOARD EMERGENCY REGULATIONS

WHEREAS, on January 17, 2014, the Governor issued a proclamation of a State of Emergency under the California Emergency Services Act based on drought conditions; and

WHEREAS, the State Water Resources Control Board adopted California Code of Regulations, Title 23, Sections 863, 864, and 865 as emergency regulations for statewide urban water conservation on July 15, 2014; and

WHEREAS, on September 16, 2014, the City Council declared a Moderate Water Shortage Emergency, pursuant to Resolution No. R2014-154, and adopted amendments to Napa Municipal Code Chapter 13.10 in response to the statewide regulations; and

WHEREAS, the City of Napa responded to the statewide emergency in 2014 with its lowest annual water usage since 1995, and has begun 2015 on an even lower pace of usage than last year; and

WHEREAS, the State Water Resources Control Board amended and readopted California Code of Regulations, Title 23, Sections 863, 864, and 865 on March 17, 2015, to include additional end-user restrictions and a requirement for urban water suppliers to adopt mandatory restrictions on the number of days that outdoor irrigation of ornamental landscapes or turf with potable water is allowed; and

WHEREAS, Governor Brown issued Executive Order B29-15 on April 1, 2015, directing the State Water Resources Control Board to impose additional restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 16, 2016; and

WHEREAS, to address provisions in the Executive Order the State Water Resources Control Board adopted California Code of Regulations, Title 23, Section 866 and amended and readopted Sections 863, 864, and 865 on May 5, 2015; and

WHEREAS, the newly adopted state regulations place the City in a tier of agencies required to reduce total potable water production by 20 percent for the period

of June 2015 through February 2016 compared to the same months in 2013, and the State Water Resources Control Board will track compliance on a cumulative basis; and

WHEREAS, the Moderate Water Shortage Regulations contained in Chapter 13.10 of the Napa Municipal Code constitute the applicable stage of the City of Napa Water Shortage Contingency Plan to achieve 20 percent conservation; and

WHEREAS, updates to the City of Napa Water Shortage Contingency Plan are to become a required part of the City's 2015 Urban Water Management Plan; and

WHEREAS, the City Council has considered all information related to this matter, as presented at the public meeting of the City Council identified herein, including any supporting reports by City Staff, and any information provided during public meetings.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Napa, as follows:

1. The City Council hereby finds that the facts set forth in the recitals to this Resolution are true and correct, and establish the factual basis for the City Council's adoption of this Resolution.

2. The City Council hereby finds that with four consecutive dry years leaving the state's major reservoirs and snowpack well below normal and many areas of the state facing severe water shortages, reasonable mandatory restrictions on water use, prohibitions on wasteful practices, more aggressive enforcement, and targeted customer outreach will help the City reach the mandatory target of 20 percent reduction, thereby improving the City's water supply reliability into an uncertain 2016.

3. The City Council hereby renews its declaration that a "moderate water shortage emergency" exists in the City of Napa, based on the facts presented to the City Council as part of the hearing for this resolution, in order to implement and comply with the Statewide Urban Water Conservation Emergency Regulation adopted by the State Water Resources Control Board on May 5, 2015 (Resolution No. 2015-0032), and in order to reinforce the severity of the statewide drought conditions and the importance of meeting the 20 percent conservation target for June 2015 through February 2016. In accordance with Napa Municipal Code Section 13.10.010, the requirements of Napa Municipal Code Chapter 13.10 remain in effect until the City Council finds that the moderate water shortage emergency no longer exists.

4. The City Council hereby determines that a cumulative reduction of water usage by the City's residential customers of less than 18 percent (comparing the months of June-July-August 2015 to the months of June-July-August 2013) warrants the imposition of the additional water conservation measures set forth in Napa Municipal Code Section 13.10.055 in order to achieve the City's water conservation goals. Therefore, if the City Manager determines, based on a recommendation from the City's Water General Manager, that the City's residential water usage has been reduced by

less than 18 percent (using the criteria set forth in this section to compare residential water usage in 2015 to residential water usage in 2013), the City Manager is authorized to implement the additional water conservation measures that are set forth in Napa Municipal Code Section 13.10.055(B). These additional water conservation measures shall be in effect beginning no sooner than 10 days after publication of the notice required by Napa Municipal Code Section 13.10.055(A), and ending when the Council finds that the moderate water shortage emergency no longer exists.

5. The City Council hereby determines that the actions taken under this resolution are exempt from CEQA pursuant to CEQA Guidelines Sections 15307 and 15308 which exempt actions taken by a regulatory agency as authorized by state law or local ordinance to assure the maintenance, restoration, or enhancement of a natural resource or protection of the environment where the regulatory process involves procedures for protection of the environment.

6. This Resolution shall take effect immediately upon its adoption.

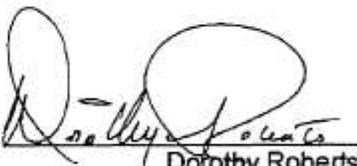
I HEREBY CERTIFY that the foregoing Resolution was duly adopted by the City Council of the City of Napa at a public meeting of said City Council held on the 19<sup>th</sup> day of May, 2015, by the following vote:

AYES: Inman, Lueros, Mott, Sedgley, Techel

NOES: None

ABSENT: None

ABSTAIN: None

ATTEST:   
Dorothy Roberts  
City Clerk

Approved as to form:

  
Michael W. Barrett  
City Attorney

# Emergency Drought Regulations

Due to ongoing drought conditions throughout California, the State Water Board (<http://www.swrcb.ca.gov/>) has approved emergency regulations ([http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/emergency\\_req](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_req)) address urban water use. Five water-wasting actions are prohibited statewide for everyone. An additional three are prohibited locally under the City of Napa's Moderate Water Shortage Regulations. Information cards for these eight basic prohibitions are available in English ([images/publicworks/Water/Conservation/Drought%20Regs%20-%20English%202015.pdf](#)) or Spanish ([images/publicworks/Water/Conservation/Drought%20Regs%20-%20Spanish%202015.pdf](#)). Two other restrictions apply only to the hospitality industry. Violations are subject to fines of **up to \$500**.

## PROHIBITED ACTIVITIES:



### **Irrigating lawns or landscapes on consecutive days, except for the initial watering of new plantings**

**SOLUTION:** Limit watering to two days per week in summer, one day per week in fall/spring.

### **Irrigating lawns or landscapes between the hours of 10am and 5pm, except for the initial watering of new plantings**

**SOLUTION:** Schedule spray irrigation for early morning or overnight to avoid these daytime hours and their high evaporation loss.

### **Irrigating during rain or within 48 hours after measurable rainfall**

**SOLUTIONS:** Turn off automatic controller when rain is forecast; Equip your controller with a rain sensor.

### **Overwatering lawns or landscapes such that excessive runoff flows onto adjacent property, walkways, roadways, or parking lots**

**SOLUTIONS:** Redirect poorly aimed sprinklers; Repair broken sprinkler heads; Reduce pop-up sprinkler run times to 5 minutes or less and use multiple start times with 1-hour soak in between (cycle/soak method); Replace conventional spray nozzles with rotating stream nozzles.



**Using water to wash driveways or sidewalks, unless necessary to address an immediate health and safety need**

**SOLUTION:** Use a broom!

**Using a hose to wash a motor vehicle, unless hose is equipped with a shutoff nozzle**

**SOLUTION:** The City of Napa provides free shutoff nozzles ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=228&Itemid=314#Devices](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=228&Itemid=314#Devices)) to water customers!

**Using water in a fountain or other decorative water feature, unless the water is recirculated**

**SOLUTIONS:** Install a recirculating system; or Turn off the water feature.

**Draining and refilling a swimming pool, unless needed for repair or to correct a severe chemical imbalance**

**SOLUTION:** Refrain from draining and refilling pools or decorative ponds and lakes.

**HOSPITALITY BUSINESSES are subject to the following additional restrictions:**

- Restaurants and other food service establishments can only serve drinking water to customers on request.
- Hotels/Motels must provide guests the option of not having towels and linens laundered daily.

The City of Napa Water Division is enforcing these mandatory restrictions. Customers are urged to avoid all wasteful activities listed above. Violators will be subject to warning and opportunity to correct the violation. **Repeat violators will be subject to escalating penalties on their water bill of \$100, \$200, or \$500.**

**REPORT WATER WASTE: Call 707-257-9521 or  
Email (<mailto:jstokes@cityofnapa.org>)**

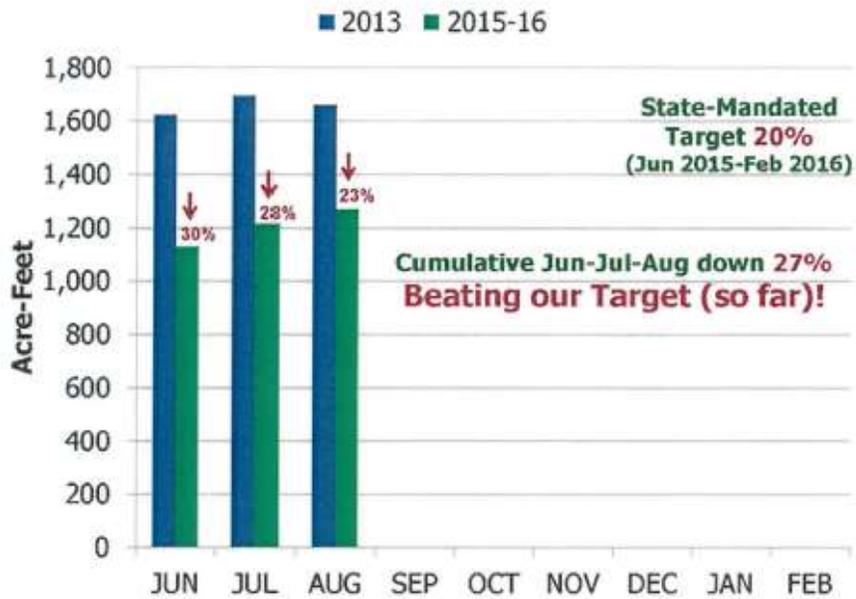
**NOTES:**

- The emergency regulations apply to potable water served by the City of Napa water system. They do not apply to recycled (purple pipe) water supplied by the Napa Sanitation District.
- The regulations may be in effect into 2016, unless statewide drought conditions improve.
- While the regulations were not specifically triggered by a local water shortage, every drop saved now puts the City in better position entering an uncertain future.

**Help Napa Save 20% June 2015-February 2016 (vs. 2013)!**

Summer has us off to an amazing start, with our lowest water consumption since the 1987-1992 drought:

## City of Napa Drought Response Water Use vs. Base Year 2013



(images/publicworks/Water/Conservation/Progress%20August%202015.pdf)

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# **Appendix N**

## **Water Conservation Emergency Regulations and Outreach**

# Water Conservation

## Help Napa Save 20%

**THE DROUGHT:** In January 2014, the Governor first declared a Drought State of Emergency for California (<http://gov.ca.gov/news.php?id=18368>), and in April 2014 called on citizens to redouble their efforts (<http://gov.ca.gov/news.php?id=18496>) to conserve water. With this historic drought continuing into 2015 and record low snowpack in the Sierra Nevada mountains, the Governor issued an **Executive Order** (<http://gov.ca.gov/news.php?id=18913>) in April 2015 seeking a 25% statewide reduction in urban water use. Under the implementing regulations ([http://www.waterboards.ca.gov/waterrights/water\\_issues/programs/drought/emergency\\_m](http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/emergency_m) by the State Water Board, **the City of Napa must reduce its total water consumption by 20% for the period of June 2015 through February 2016 (compared to those same months in 2013).**

(<images/publicworks/Water/Conservation/Progress%20August%202015.pdf>)

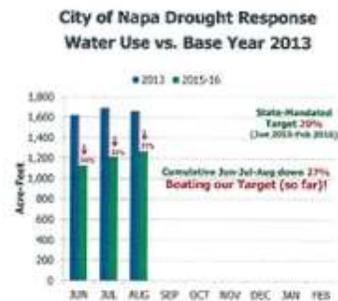
(<images/publicworks/Water/Conservation/Progress%20August%202015.pdf>) So far, the Napa community is responding to the state emergency. For **June through August**, water usage in Napa was **down 27%**

(<images/publicworks/Water/Conservation/Progress%20August%202015.pdf>) compared to 2013, beating our target and achieving

the **lowest summer usage since the 1987-92 drought**, when the population was 14,000 fewer and extensive hotel development had yet to occur. We urge customers to continue this great progress over the coming months to **Help Napa Save 20%**. Avoid violating our local **Water Waste Prohibitions** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1810:emergency-drought-regulations&catid=15:city-departments-and-divisions&Itemid=1110&highlight=WyJlbWVvZ2ZuY3kiLCJkcm91Z2h0liwicmVndWxhdGlvbnMi](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1810:emergency-drought-regulations&catid=15:city-departments-and-divisions&Itemid=1110&highlight=WyJlbWVvZ2ZuY3kiLCJkcm91Z2h0liwicmVndWxhdGlvbnMi))

Throughout the year, consult our **Drought Survival Guides: Lawns**

(<images/publicworks/Water/Conservation/droughtsurvivalguide-lawns.pdf>), **Trees & Shrubs** (<images/publicworks/Water/Conservation/droughtsurvivalguide-trees.pdf>), **Mulch** (<images/publicworks/Water/Conservation/droughtsurvivalguide-mulch.pdf>). Turn down those automatic irrigation systems as days get shorter this fall, then let Mother Nature take over completely this winter! Check out the **Save Our Water** (<http://www.saveourwater.com/>) campaign for some great tips on What You Can Do (<http://www.saveourwater.com/what-you-can-do>), and be sure to take advantage of the local incentive programs detailed below.



[http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=228:toilet-w...](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=228:toilet-w...) 9/21/2015

The State Water Board has adopted statewide emergency regulations ([http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/emergen](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergen)) to prohibit water waste and the City is enforcing local mandatory restrictions for all customers:

Click for **EMERGENCY DROUGHT REGULATIONS** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1810:emergency-drought-regulations&catid=15:city-departments-and-divisions&Itemid=1110&highlight=WyJlbWVyZ2VuY3kiLCJkcm91Z2h0I](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1810:emergency-drought-regulations&catid=15:city-departments-and-divisions&Itemid=1110&highlight=WyJlbWVyZ2VuY3kiLCJkcm91Z2h0I))

**REPORT WATER WASTE:** Call 707-257-9521 or Email (<mailto:jstokes@cityofnapa.org>)

Water use efficiency (a.k.a. water conservation) is an integral part of the City of Napa's long-term water management strategy. As a signatory to the *Memorandum of Understanding Regarding Urban Water Conservation in California* (<http://www.cuwcc.org/About-Us/Memorandum-of-Understanding>), the City is committed to implementing the appropriate Best Management Practices (BMPs) to ensure future supply reliability. To comply with the Water Conservation Act of 2009 (SBx7-7) (<http://www.water.ca.gov/wateruseefficiency/sb7/>), the City is working to reduce demand below 132 gallons per capita per day (gpcd) by 2020. For our customers this means we are available to help you make every drop count, and every drop you save will reduce your own water bill!

(<http://www.saveourwater.com/>)From 1997 to 2002, demand on our water system averaged 170 gpcd. Since 2003 when the City began to implement more California BMPs, demand has averaged about 150 gpcd, including a low of 136 gpcd in 2014. This trend results from the evolution of water-efficient appliances, City ordinances and programs, and water recycling. We look to continue this progress by offering our customers a variety of financial incentives and educational opportunities:



- **Virtual Water Saver Home Tour**
- **Water-Wise Landscaping**
- **Residential Programs**
- **Commercial Programs**
- **Free Water-Saving Devices**
- **Public Events**

- **School Education**
- **Water Conservation "How to" Video Library (<http://cuwcc.org/Resources/Video-Library>)**

**Check out the Save Our Water Video: Quick Facts about Water Use in California - And Why You Should Conserve (<http://vimeo.com/39006239>)**

**Reminder for Outside City customers:** Whether located inside *or outside* the City limits, if your site is served by the City of Napa water system (i.e. you receive a City of Napa water bill) then you are eligible for all of our water-saving incentives!

**All Napa County Residents:** Click on this handy Countywide Water Conservation Map (<http://www.napawatersheds.org/waterconservation>) to find water-saving programs available for your home or business.



(<http://www.h2ouse.org/>) **Virtual Water Saver Home Tour**

(<http://www.napa.watersavingplants.com/>)

Just click here (<http://www.h2ouse.org/>) to learn everything you need to know about saving water at home.

This comprehensive web site is operated by the California Urban Water Conservation Council (<http://www.cuwcc.org/>).

**Wondering how much water your own house uses? Try this handy Water Use Calculator (<http://www.home-water-works.org/calculator>)** (courtesy of the Alliance for Water Efficiency).

## Water-Wise Landscaping

Nearly half of Napa's treated drinking water is used outdoors, much of it wasted in overwatering lawns and gardens. Like only 2% of the world, Napa has a Mediterranean climate, with cool, wet winters and summer droughts. Selecting appropriate plants, mulching, and frequently adjusting irrigation to match the weather are just a few of the actions you can take to save water in your landscape.

### **NEW: Fall 2015 Water-Wise Landscaping Workshop Series**

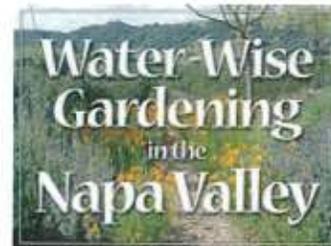
([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=434:gardening-plants-soil-sprinkler-drip-irrigation-design-amendment-compost-mulch-drought-tolerant&catid=15:city-departments-and-divisions&Itemid=573&highlight=Wyj3YXRlci13aXNlliwibGFuZHNjYXBpbmciLCJ3b3Jrc2hvcHMI](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=434:gardening-plants-soil-sprinkler-drip-irrigation-design-amendment-compost-mulch-drought-tolerant&catid=15:city-departments-and-divisions&Itemid=573&highlight=Wyj3YXRlci13aXNlliwibGFuZHNjYXBpbmciLCJ3b3Jrc2hvcHMI))

is being held **September 16, 23, and 30**. Register via email [frances@naparcd.org](mailto:frances@naparcd.org)

[http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=228:toilet-w...](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=228:toilet-w...) 9/21/2015

(mailto:frances@naparcd.org) or call (707) 252-4188 ext 116. Special Sunday hands-on event requires separate registration: September 20 (Greywater) (<http://naparcd.org/greywater-to-green-landscape-sept-20/>).

- (<http://www.napa.watersavingplants.com/>) Click to **Water-Wise Gardening in the Napa Valley** (<http://www.napa.watersavingplants.com/>), a free online resource!  
*Visit the inspiring Garden Gallery. Browse more than 1,000 climate-appropriate plants. Create a printable plant list. Discover design, irrigation, maintenance tips, and more!*
- Practice the 8 Basic Principles of Water-Wise Landscaping ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=432:landscaping-plants-irrigation-turf-lawn-mulch-hydrozone-native-maintenance&catid=15:city-departments-and-divisions&Itemid=571&highlight=WzgsImJhc2ljlwIwIChJpbmNpcGxlcylsIjggYmFzaWMIcI4IC](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=432:landscaping-plants-irrigation-turf-lawn-mulch-hydrozone-native-maintenance&catid=15:city-departments-and-divisions&Itemid=571&highlight=WzgsImJhc2ljlwIwIChJpbmNpcGxlcylsIjggYmFzaWMIcI4IC))
- Attend our free **Water-Wise Landscaping Workshops** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=434:gardening-plants-soil-sprinkler-drip-irrigation-design-amendment-compost-mulch-drought-tolerant&catid=15:city-departments-and-divisions&Itemid=573&highlight=WyJ3YXRlci13aXNlIiwibGFuZHNjYXBpbmciLCJ3b3Jrc2hvc](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=434:gardening-plants-soil-sprinkler-drip-irrigation-design-amendment-compost-mulch-drought-tolerant&catid=15:city-departments-and-divisions&Itemid=573&highlight=WyJ3YXRlci13aXNlIiwibGFuZHNjYXBpbmciLCJ3b3Jrc2hvc))
- Visit our Demonstration Gardens ([http://napavalleyregister.com/news/local/napa-shows-off-wonders-of-water-wise-landscaping/article\\_4b8a4d76-6761-5238-aad0-736bfb297b3e.html](http://napavalleyregister.com/news/local/napa-shows-off-wonders-of-water-wise-landscaping/article_4b8a4d76-6761-5238-aad0-736bfb297b3e.html)).
- Search for a local Bay-Friendly Qualified Landscape Professional (<http://www.bayfriendlycoalition.org/QPdirectory.php>).
- Earn a **"Cash For Grass" Turf Replacement Rebate** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyJjYXNoliwiZm9yIiwiz3Jhc3MIcIjYXNoIGZvcilsmNhc2?](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyJjYXNoliwiZm9yIiwiz3Jhc3MIcIjYXNoIGZvcilsmNhc2?))
- Find Rainwater Harvesting (<http://www.napawatersheds.org/rainwater>) resources.
- Schedule your free Water-Wise Home Survey ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=435:audit-appliance-fixture-efficiency-toilet-showerhead-faucet-leak-rebate-irrigation-schedule&catid=15:city-departments-and-divisions&Itemid=574&highlight=WyJ3YXRlci13aXNlIiwiaG9tZSIsInN1cnZleSIsIndhdGVyLXd](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=435:audit-appliance-fixture-efficiency-toilet-showerhead-faucet-leak-rebate-irrigation-schedule&catid=15:city-departments-and-divisions&Itemid=574&highlight=WyJ3YXRlci13aXNlIiwiaG9tZSIsInN1cnZleSIsIndhdGVyLXd))
- Business Survey ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=455:commercial-industrial-institutional-audit-appliance-fixture-efficiency-toilet-faucet-leak-irrigation&catid=15:city-departments-and-divisions&Itemid=604&highlight=WyJ3YXRlci13aXNlIiwiaWVzaW5lc3MIcIjZdXJ2ZXkiLCJ3YX](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=455:commercial-industrial-institutional-audit-appliance-fixture-efficiency-toilet-faucet-leak-irrigation&catid=15:city-departments-and-divisions&Itemid=604&highlight=WyJ3YXRlci13aXNlIiwiaWVzaW5lc3MIcIjZdXJ2ZXkiLCJ3YX))
- Make irrigation scheduling easy with **Sprinkler Times** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyJzchJpbmmtsZXliLCJ0aW1lcyIsInNwcmIua2xiciB0a](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyJzchJpbmmtsZXliLCJ0aW1lcyIsInNwcmIua2xiciB0a)) our free online tool.



- (<http://www.saveourwater.com/what-you-can-do/outdoor/sprinklers/>)Explore Save Our Water's Sprinklers 101 (<http://www.saveourwater.com/what-you-can-do/outdoor/sprinklers/>) web portal.
- Make every month Smart Irrigation Month ([http://www.irrigation.org/Resources/Smart\\_Irrigation\\_Month/Consumer\\_Resources.aspx](http://www.irrigation.org/Resources/Smart_Irrigation_Month/Consumer_Resources.aspx))
- Find a Qualified Water Efficient Landscaper (QWEL) (<http://www.qwel.net/>).
- Learn about our Central Control Irrigation for Parks and Schools.



**Drought Tips from the UC Master Gardeners**  
([http://ucanr.edu/sites/ucmgnapa/Drought\\_Tips/](http://ucanr.edu/sites/ucmgnapa/Drought_Tips/))

**DROUGHT SURVIVAL GUIDES:**



(<images/publicworks/Water/Conservation/droughtsurvivalguide-lawns.pdf>)



(<images/publicworks/Water/Conservation/droughtsurvivalguide-trees.pdf>)



(<images/publicworks/Water/Conservation/droughtsurvivalguide-mulch.pdf>)

## Residential Programs

Single-family and multi-family residential water use represents about 65% of Napa's total demand. Residential customers save water and money by using the most efficient indoor appliances and fixtures, fixing leaks, and practicing water-wise landscaping. Our incentive programs can help:

- **Water-Wise Home Survey** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=435:audit-appliance-fixture-efficiency-toilet-showerhead-faucet-leak-rebate-irrigation-schedule&catid=15:city-departments-and-divisions&Itemid=574&highlight=Wyj3YXRlci13aXNlliwiaG9tZSIsInN1cnZleSIsIndhdGVyLXd](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=435:audit-appliance-fixture-efficiency-toilet-showerhead-faucet-leak-rebate-irrigation-schedule&catid=15:city-departments-and-divisions&Itemid=574&highlight=Wyj3YXRlci13aXNlliwiaG9tZSIsInN1cnZleSIsIndhdGVyLXd))
- **Toilet Replacement** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=439:toilet-ulft-ultra-low-flush-plumber-replace-retrofit-residential&catid=15:city-departments-and-divisions&Itemid=580&highlight=Wyj0b2lsZXQlLCJyZXBsYWNIbWVudCIsInRvaWxldCBYzXB](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=439:toilet-ulft-ultra-low-flush-plumber-replace-retrofit-residential&catid=15:city-departments-and-divisions&Itemid=580&highlight=Wyj0b2lsZXQlLCJyZXBsYWNIbWVudCIsInRvaWxldCBYzXB))
- **Clothes Washer Rebate** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=445:washer-high-efficiency-appliance-energy-rebate-front-load-residential-factor&catid=15:city-departments-and-divisions&Itemid=582&highlight=WyjJbG90aGVzliwid2FzaGVyIiwicmViYXRlliwIY2xvdGhlcy](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=445:washer-high-efficiency-appliance-energy-rebate-front-load-residential-factor&catid=15:city-departments-and-divisions&Itemid=582&highlight=WyjJbG90aGVzliwid2FzaGVyIiwicmViYXRlliwIY2xvdGhlcy))
- **Sprinkler Times Scheduling Tool** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyjzchJpbmtdZXllLCJ0aW1lcylsInNwcmlua2xlcjB0a](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyjzchJpbmtdZXllLCJ0aW1lcylsInNwcmlua2xlcjB0a))
- **"Cash For Grass" Turf Replacement Rebate** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyjYXNoliwiZm9yIiwIz3Jhc3MlLCJjYXNoIGZvcilsmNhc2](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyjYXNoliwiZm9yIiwIz3Jhc3MlLCJjYXNoIGZvcilsmNhc2))
- State of California Turf Replacement and Toilet Rebates for Single-Family Residences (<http://www.saveourwaterrebates.com/>) - while funds last
- **HERO Financing Program for Water and Energy Efficiency Upgrade Projects** (<https://www.heroprogram.com/Napa>)

## Commercial Programs

Commercial, industrial, and institutional water use represents more than 20% of Napa's total demand. Business, government, and non-profit institutions save water and money by using the most efficient appliances, fixtures, and processes, and by practicing water-wise landscaping. Our incentive programs can help:

- **Water-Wise Business Survey** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=455:commercial-industrial-institutional-audit-appliance-fixture-efficiency-toilet-faucet-leak-irrigation&catid=15:city-departments-and-divisions&Itemid=604&highlight=Wyj3YXRlci13aXNlliwIYnVzaW5lc3MlLCJzdXJ2ZXkiLCJ3YX](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=455:commercial-industrial-institutional-audit-appliance-fixture-efficiency-toilet-faucet-leak-irrigation&catid=15:city-departments-and-divisions&Itemid=604&highlight=Wyj3YXRlci13aXNlliwIYnVzaW5lc3MlLCJzdXJ2ZXkiLCJ3YX))

[http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=228:toilet-w...](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=228:toilet-w...) 9/21/2015

- **Smart Rebates** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=457:commercial-industrial-institutional-incentive-high-efficiency-toilet-urinal-washer-waterbroom-x-ray&catid=15:city-departments-and-divisions&Itemid=606&highlight=WyjzbWFydCIsInJlYmF0ZXMiLCJzbWFydCBYZWJhdGVzIl0=](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=457:commercial-industrial-institutional-incentive-high-efficiency-toilet-urinal-washer-waterbroom-x-ray&catid=15:city-departments-and-divisions&Itemid=606&highlight=WyjzbWFydCIsInJlYmF0ZXMiLCJzbWFydCBYZWJhdGVzIl0=))
- **Sprinkler Times Scheduling Tool** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyJzcHJpbm50ZXMiLCJ0aW1lcyIsInNwcmlua2xlcjB0a=](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1497:sprinkler-times&catid=15:city-departments-and-divisions&Itemid=848&highlight=WyJzcHJpbm50ZXMiLCJ0aW1lcyIsInNwcmlua2xlcjB0a=))
- **"Cash For Grass" Turf Replacement Rebate** ([http://www.cityofnapa.org/index.php?option=com\\_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyJjYXNoIiwZm9yIiwZ3Jhc3MiLCJjYXNoIGZvcil0=](http://www.cityofnapa.org/index.php?option=com_content&view=article&id=1121:cash-grass-rebate-turf-replacement-water-efficient-conversion&catid=15:city-departments-and-divisions&Itemid=782&highlight=WyJjYXNoIiwZm9yIiwZ3Jhc3MiLCJjYXNoIGZvcil0=))
- **Green Business Stipend** (<images/publicworks/Water/Conservation/green%20biz%20stipend.pdf>)

Check out other energy- and water-saving Equipment Rebates from PG&E (<http://www.pge.com/en/mybusiness/save/rebates/index.page>).

### Free Water-Saving Devices

City of Napa water customers are entitled to an array of free conservation devices and literature. You may receive these items as part of a Water-Wise Home Survey ([index.php?option=com\\_content&task=view&id=435&Itemid=574](index.php?option=com_content&task=view&id=435&Itemid=574)) or Business Survey ([index.php?option=com\\_content&task=view&id=455&Itemid=604](index.php?option=com_content&task=view&id=455&Itemid=604)), or by visiting our display at various public events. Or you may simply pick them up at Water Division headquarters, **1340 Clay Street, Downtown Napa (intersection of Clay and Franklin Streets)**.

#### Devices

- Showerhead: 1.5 gallon-per-minute (gpm) Earth Showerhead, available in White or Chrome
- Shower Timer: 5-minute Shorter Shower Timer helps change habits
- Bathroom Faucet Aerators: 0.5, 1.0, or 1.5 gpm, residential and commercial
- Kitchen Faucet Aerator: 1.5 gpm, dual-setting with swivel
- Toilet Dye: for leak detection
- Toilet Fill Cycle Diverter: Tankee Clipper may save up to a half gallon with each flush
- Rain Gauge: comes with Sprinkler Times promo
- Garden Hose Nozzle: 6-position Water Miser
- Hose Timer: automatic shutoff, minutes to 2-hours duration



#### Literature

- California Water Facts (Water Education Foundation)
- Educational Water Wheel (tips from Niagara Conservation)

- Practical Plumbing Handbook (California Urban Water Conservation Council)
- Water for Tomorrow Magazine
- Easy WaterWise Gardening (Sunset)
- Backyards from the Ground Up (Sunset)
- Gardening for Wildlife with Native Plants (Bay Nature)
- Soil Matters (Bay Nature)
- Drip Irrigation excerpts from Harmony Farm Supply Catalog
- Drought Survival 101 Guides
- Save Our Water "Dear Neighbor" Door Hangers
- various other water and energy program brochures



## Public Events

Look for the City of Napa Water Conservation Booth at various community events throughout the year. Sign up for rebates and other water-saving programs, pick up free devices and literature, and check out our educational displays. Youth-oriented events may feature our Prize Wheel or Knock Out Water Waste game. A partial calendar for 2015 is listed here:

**Earth Day** (<http://www.earthdaynapa.com/>)

Saturday, April 25

Veterans Park area, Downtown Napa

## Watershed Symposium



([http://www.napawatersheds.org/app\\_pages/view/7016](http://www.napawatersheds.org/app_pages/view/7016))

Friday, May 15

City Winery, Main Street, Napa

**Napa-Solano Home & Garden Show** (<http://www.napahomeshow.com/>)

May 15-17

Napa Valley Expo Fairgrounds

**Napa Downtown Farmers Market** (<http://www.napafarmersmarket.com/>)

Selected Tuesday mornings, May through October

Across from Oxbow Public Market

**Napa Town & Country Fair** (<http://www.napavalleyexpo.com/town-and-country-fair.php>)  
July 8-12  
Napa Valley Expo Fairgrounds

**Napa Strong 6.0/365 Earthquake Anniversary**  
(<http://www.sfgate.com/bayarea/article/Napa-residents-to-gather-on-first-anniversary-of-6458570.php>)  
Monday, August 24  
Veterans Park, Downtown Napa



**Down the Garden Path Garden Tour**

([http://ucanr.edu/sites/ucmgnapa/Master\\_Gardener\\_Programs/Down\\_the\\_Garden\\_Path](http://ucanr.edu/sites/ucmgnapa/Master_Gardener_Programs/Down_the_Garden_Path))  
Sunday, September 13  
Master Gardeners, Napa Valley

**Bay-Friendly Garden Open House** (<http://naparcd.org/bay-friendly-garden-open-house-oct-4/>)  
Sunday, October 4  
Three Gardens, Napa

**Fire & Life Safety Day (index.php?option=com\_content&view=article&id=40&Itemid=915)**  
Saturday, October 10  
Fire Station #1, 930 Seminary Street

**Napa Sanitation District Open House** (<http://www.napasan.com/Pages/ContentMenu.aspx?id=102>)  
Saturday, October 17  
1515 Soscol Ferry Road

## School Education

Knowledge of local, regional, and global water supply issues allows citizens to make appropriate decisions in preserving today's water for tomorrow's generation. A water conservation ethic instilled at an early age will last a lifetime.

As one of the founding members of the Environmental Education Coalition of Napa County (EECNC) (<http://www.napaenvironmentaled.org/>), the City of Napa Water Division is committed to working with local schools and youth groups to provide the best possible water education opportunities. To take advantage of our free water education programs, please call the Water Resources Analyst at 707-257-9309 or email (<mailto:pcostello@cityofnapa.org>) them. Current offerings include:

**(<http://www.watereducation.org/project-wet>)Project WET Workshop:**

Napa County teachers can gain access to award-winning classroom activities and earn a \$75 stipend or 0.5 CEU by participating in *Project WET for the Napa Valley*, six hours of hands-on, action-packed training. Stay tuned for our next local offering. Project WET (<http://www.watereducation.org/project-wet>) (Water Education for Teachers) promotes awareness, appreciation, knowledge, and stewardship of water resources through the dissemination of classroom-ready teaching aids. Interdisciplinary activities for grades K-12 are designed to enhance existing curriculum and are aligned to Common Core State Standards.



**Water Treatment Plant Field Trip:** Tour of the Edward I. Barwick Jamieson Canyon Water Treatment Plant, either separately or as part of combined full-day trip in conjunction with Napa Recycling & Composting Facility and Napa Sanitation District Water Recycling Facility. Water Treatment Plant portion is 60-90 minutes including introductory discussion, escorted tour, and drinking water-related giveaways for students. Grades K-12. 40 students maximum. Tuesdays preferred. Transportation costs may be covered.



**Classroom Presentation:** 40-60 minute interactive presentation on fresh water supply issues affecting California and Napa. Emphasis is on **water conservation** methods. Includes brainstorming contest on ways to save water in the home and conservation-related giveaways for students. Grades K-12.

**Water Week Teaching Kit:** Free kit includes Teacher's Guide and up to 35 student workbooks. Divided into 5 days, program may be completed in a week using one class period per day, or exercises may simply be assigned as they fit into the overall science curriculum. Subjects include water supply, the water cycle, water usage, conservation, and pollution prevention. Grades 3-6.

The fourth edition of EECNC's *Environmental Education Guide* (<http://www.napaenvironmentaled.org/guide.html>) is available. The Guide describes an amazing array of field trips, guest speakers, and service projects available from more than 25 local agencies, non-profits, and businesses. A Content by Grade Level index helps teachers correlate program offerings with curriculum standards. City of Napa Water Division offerings are listed on pages 20-21 ([http://www.napaenvironmentaled.org/pdfs/city\\_napa\\_water.pdf](http://www.napaenvironmentaled.org/pdfs/city_napa_water.pdf)) of the Guide.

Teachers and youth group leaders should also visit the CREEC web site (<http://www.creec.org/>) to find additional environmental education opportunities.

**Other Water Education Web Sites:**

- Discover Water (<http://www.discoverwater.org/>)
- Water Education Foundation (<http://www.watereducation.org/water-kids>)
- USGS Water Science School (<http://ga.water.usgs.gov/edu/>)

- The Water Page (<http://www.thewaterpage.com/water-conservation-kids.htm>)

