Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

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TETRA TECH

Tehama County

HAZARD MITIGATION PLAN
VOLUME 2: PLANNING PARTNER ANNEXES

DRAFT

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Tehama County
Hazard Mitigation Plan;
Volume 2—Planning Partner Annexes

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ACRONYMS

AFG—Assistance to Firefighters Grant

CalEMA—California Emergency Management Agency

CDBG—Community Development Block Grant

CFR—Code of Federal Regulations

CRS—Community Rating System

DMA—Disaster Mitigation Act

DWR—California Department of Water Resources

FEMA—Federal Emergency Management Agency

FMA—Flood Mitigation Assistance

HMGP—Hazard Mitigation Grant Program

NFIP—National Flood Insurance Program

PDM—Pre-Disaster Mitigation

POC—Point of contact

RBCC—Red Bluff City Code

RFC—Repetitive Flood Claims

SRL—Severe Repetitive Loss

TCFCWCD—Tehama County Flood Control and Water Conservation District

TCMC—Tehama County Municipal Code

PART 1—
INTRODUCTION

CHAPTER 1.
PLANNING PARTNER PARTICIPATION

1.1. BACKGROUND

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. Such planning efforts require all participating jurisdictions to fully participate in the process and formally adopt the resulting planning document. Chapter 44 of the Code of Federal Regulations (44 CFR) states:

> "Multi-jurisdictional plans (e.g. watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan." (Section 201.6.a(4))

In the preparation of the Tehama County Hazard Mitigation Plan, a planning partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act of 2000 (DMA) for as many eligible local governments in Tehama County as possible. The DMA defines a local government as follows:

> "Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity."

There are two types of planning partners in this process, with distinct needs and capabilities:

- Incorporated municipalities (cities and the County)
- Special purpose districts.

1.2. THE PLANNING PARTNERSHIP

Initial Solicitation and Letters of Intent

The planning team solicited the participation of the County and all County-recognized special purpose districts at the outset of this project. A meeting was held on July 29, 2010 at the Tehama County Administration Building to identify potential stakeholders for this process. The purpose of the meeting was to introduce the planning process to jurisdictions in the County that could have a stake in the outcome of the planning effort.

A planning process kickoff meeting was held in Yreka on July 29, 2010 to solicit planning partners and inform potential partners of the benefits of participation in this effort. All eligible local governments within the planning area were invited to attend. Various agency and citizen stakeholders were also invited to this meeting. The goals of the meeting were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Provide an update on the planning grant.
- Outline the Tehama County plan development work plan.

- Describe the benefits of multi-jurisdictional planning.
- Solicit planning partners.
- Confirm a Steering Committee.

All interested local governments were provided with a list of planning partner expectations developed by the planning team and were informed of the obligations required for participation. Local governments wishing to join the planning effort were asked to provide the planning team with a "notice of intent to participate" that agreed to the planning partner expectations (see Appendix A) and designated a point of contact for their jurisdiction. In all, formal commitment was received from nine planning partners by the planning team, and the Tehama County Planning Partnership was formed.

Maps for each participating city are provided in the individual annex for that city. These maps will be updated periodically as changes to the partnership occur, either through linkage or by a partner dropping out due to a failure to participate.

Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed at the kickoff meeting held on July 29, 2010:

- Each partner will provide a "Letter of Intent to Participate."
- Each partner will support and participate in the selection and function of the Steering Committee overseeing the development of the plan. Support includes allowing this body to make decisions regarding plan development and scope on behalf of the partnership.
- Each partner will provide support for the public involvement strategy developed by the Steering Committee in the form of mailing lists, possible meeting space, and media outreach such as newsletters, newspapers or direct-mailed brochures.
- Each partner will participate in plan development activities such as:
  - Steering Committee meetings
  - Public meetings or open houses
  - Workshops and planning partner training sessions
  - Public review and comment periods prior to adoption.

  Attendance will be tracked at such activities, and attendance records will be used to track and document participation for each planning partner. No minimum level of participation will be established, but each planning partner should attempt to attend all such activities.
- Each partner will be expected to perform a "consistency review" of all technical studies, plans, and ordinances specific to hazards identified within the planning area to determine the existence of plans, studies or ordinances not consistent with the equivalent documents reviewed in preparation of the County plan. For example: if a planning partner has a floodplain management plan that makes recommendations that are not consistent with any of the County's basin plans, that plan will need to be reviewed for probable incorporation into the plan for the partner's area.
- Each partner will be expected to review the risk assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide jurisdiction-specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.

- Each partner will be expected to review the mitigation recommendations chosen for the overall county and determine if they will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the overall plan recommendations will need to be identified, prioritized and reviewed to determine their benefits and costs.
- Each partner will be required to create its own action plan that identifies each project, who will oversee the task, how it will be financed and when it is estimated to occur.
- Each partner will be required to sponsor at least one public meeting to present the draft plan at least two weeks prior to adoption.
- Each partner will be required to formally adopt the plan.

It should be noted that by adopting this plan, each planning partner also agrees to the plan implementation and maintenance protocol established in Volume 1. Failure to meet these criteria may result in a partner being dropped from the partnership by the Steering Committee, and thus losing eligibility under the scope of this plan.

Linkage Procedures

Eligible local jurisdictions that did not participate in development of this hazard mitigation plan may comply with DMA requirements by linking to this plan following the procedures outlined in Appendix B.

1.3. ANNEX-PREPARATION PROCESS

Templates

Templates were created to help the planning partners prepare their jurisdiction-specific annexes. Since special purpose districts operate differently from incorporated municipalities, separate templates were created for the two types of jurisdictions. The templates were created so that all criteria of Section 201.6 of 44 CFR would be met, based on the partners' capabilities and mode of operation. Each partner was asked to participate in a technical assistance workshop during which key elements of the template were completed by a designated point of contact for each partner and a member of the planning team. The templates were set up to lead each partner through a series of steps that would generate the DMA-required elements that are specific for each partner. The templates and their instructions can be found in Appendices C and D to this volume of the Hazard Mitigation Plan.

Workshop

Workshops were held for planning partners to learn about the templates and the overall planning process. Topics included the following:

- DMA
- Tehama County plan background
- The templates
- Risk ranking
- Developing your action plan
- Cost/benefit review.

Separate sessions were held for special purpose districts and municipalities, in order to better address each type of partner's needs. The sessions provided technical assistance and an overview of the template completion process. Attendance at this workshop was mandatory under the planning partner expectations

established by the Steering Committee. There was 90 percent attendance of the partnership at these sessions.

In the risk-ranking exercise, each planning partner was asked to rank each risk specifically for its jurisdiction, based on the impact on its population or facilities. Cities were asked to base this ranking on probability of occurrence and the potential impact on people, property and the economy. Special purpose districts were asked to base this ranking on probability of occurrence and the potential impact on their constituency, their vital facilities and the facilities' functionality after an event. The methodology followed that used for the countywide risk ranking presented in Volume 1. A principal objective of this exercise was to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes. Tools utilized during these sessions included the following:

- The risk assessment results developed for this plan
- Hazard maps for all hazards of concern
- Special district boundary maps that illustrated the sphere of influence for each special purpose district partner
- Hazard mitigation catalogs
- Federal funding and technical assistance catalogs
- Copies of partners' prior annexes, if applicable.

Prioritization

44 CFR requires actions identified in the action plan to be prioritized (Section 201.c.3.iii). The planning team and steering committee developed a methodology for prioritizing the action plans that meets the needs of the partnership and the requirements of 44 CFR. The actions were prioritized according to the following criteria:

- **High Priority**—Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
- **Medium Priority**—Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
- **Low Priority**—Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

These priority definitions are dynamic and can change from one category to another based on changes to a parameter such as availability of funding. For example, a project might be assigned a medium priority because of the uncertainty of a funding source, but be changed to high once a funding source has been identified. The prioritization schedule for this plan will be reviewed and updated as needed annually through the plan maintenance strategy.

Benefit/Cost Review

44 CFR requires the prioritization of the action plan to emphasize a benefit/cost analysis of the proposed actions. Because some actions may not be implemented for up to 10 years, benefit/cost analysis was qualitative and not of the detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. A review of the

apparent benefits versus the apparent cost of each project was performed. Parameters were established for assigning subjective ratings (high, medium, and low) to costs and benefits as follows:

- Cost ratings:
  - **High—**Existing funding levels are not adequate to cover the costs of the proposed action; implementation would require an increase in revenue through an alternative source (for example, bonds, grants, and fee increases).
  - **Medium—**The action could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the action would have to be spread over multiple years.
  - **Low—**The action could be funded under the existing budget. The action is part of or can be part of an existing, ongoing program.
- Benefit ratings:
  - **High—**The action will have an immediate impact on the reduction of risk exposure to life and property.
  - **Medium**—The action will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
  - **Low—**Long-term benefits of the action are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

It should be noted that for many of the strategies identified in this action plan, funding might be sought under FEMA's HMGP or PDM programs. Both of these programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed on projects at the time of application preparation. The FEMA benefit-cost model will be used to perform this review. For projects not seeking financial assistance from grant programs that require this sort of analysis, the Partners reserve the right to define "benefits" according to parameters that meet their needs and the goals and objectives of this plan.

Analysis of Mitigation Initiatives

Each planning partner reviewed its recommended initiatives to classify each initiative based on the hazard it addresses and the type of mitigation it involves. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor

restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

1.4. FINAL COVERAGE UNDER THE PLAN

Of nine initial planning partners, six fully met the participation requirements specified by the Steering Committee. Therefore, only those six jurisdictions are included in this volume and will seek DMA compliance under this plan. The principal requirement not met by the other partners was the completion of the jurisdictional annex template following the workshops. Remaining jurisdictions will need to follow the linkage procedures described in Appendix B of this volume. Table 1-1 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

TABLE 1-1.
PLANNING PARTNER STATUS

Jurisdiction	Letter of Intent Date	Attended Workshop?	Completed Template?	Will Be Covered by This Plan?
Tehama County Public Works	8/30/2010	Yes	Yes	Yes
City of Corning	8/3/2010	Yes	Yes	Yes
City of Red Bluff	8/18/2010	Yes	Yes	Yes
City of Tehama	9/3/2010	Yes	Yes	Yes
Capay Fire Protection District	8/30/2010	Yes	Yes	Yes
Corning Union High School District	8/23/2010	Yes	No	No
Gerber Union School District	8/30/2010	No	No	No
Red Bluff Joint Union High School District	7/30/2010	Yes	Yes	Yes
Tehama County Health Services Agency	9/8/2010	Yes	No	No

PART 2—
ANNEXES FOR MUNICIPALITIES

CHAPTER 2.
UNINCORPORATED TEHAMA COUNTY ANNEX

2.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Gary Antone, Director of Public Works
9380 San Benito Ave.
Gerber, CA 96035-9701
Telephone: 530-385-1462 ext. 3005
e-mail Address: gantone@tcpw.ca.gov

Alternate Point of Contact
Tim Wood, Chief Deputy Director of PW
9380 San Benito Ave.
Gerber, CA 96035-9701
Telephone: 530-385-1462 ext. 3016
e-mail Address: timwood@tcpw.ca.gov

2.2. JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation—**County was formed in 1856
- **Current Population—**63,475 as of July 1, 2010
- **Population Growth—**Tehama County has had an average annual growth rate of 1.27 percent per year since 2000.
- **Location and Description—**Tehama County lies approximately midway between Sacramento and the Oregon border covering 2951 square miles with a population density of 21 persons per square mile. Tehama County is the central point of widespread recreational areas which provide hiking, camping, scenic tours, golfing, boating, hunting and fishing. The Sacramento River cuts through the central portion of the county and is one of the largest salmon spawning rivers in the world. With more than 300 miles of trails (including 17 miles of the Pacific Crest Trail) and Lassen Volcanic National Park only forty-five miles to the east, Tehama County offers unlimited recreational opportunities. Tehama County is by Glenn and Butte Counties to the south, Shasta County to the north, Mendocino and Trinity counties to the west, and Plumas County to the east.

  The County's economy is based on agriculture, including ranching, farming and timber production. Tehama County is the central point of widespread recreation and the local recreation opportunities are outstanding with nearby camping, hunting, fishing, golfing, snow skiing, and boating resources as good or better than anywhere in California. Camping opportunities abroad throughout the County ranging from fully developed campgrounds to secluded sites with few or no facilities.
- **Brief History—**Tehama County was formed from parts of Butte, Colusa, and Shasta Counties in 1856. The county is named for the City of Tehama. The origin of the name is not known. Suggested possible roots are the Arabic word *tehama* ("hot low-lands"), the Spanish word *tejamanil* (shingle), or "high water" in the dialect of local Native Americans. The first permanent settlers in the area that is now Tehama County, were Robert Hasty Thomes, Albert Gallatin Toomes, William George Chard, and Job Francis Dye. The four men were each given land grants by the government of Mexico in 1844. Thomes received Rancho Saucos, Toomes received Rancho Rio de los Molinos, Chard received Rancho Las Flores, and Dye received Rancho Primer Cañon o Rio de Los Berrendos. Later in the same year Josiah Belden

received Rancho Barranca Colorado. Famous early figures include Kit Carson, who took part in a fight that gave name to Bloody Island and Battle Creek, Jedediah Smith, John Fremont, and William B. Ide, the first and only president of the California Republic.

- **Climate—**the climate in Tehama County is typical of that found in the Central Valley, with summers being very warm and dry, with mild, wet winters. The county has a Mediterranean climate with cool, wet winters and hot, dry summers. There is an average of 100.1 days annually with highs of 90°F (32°C) or higher and an average of 21.5 days with lows of 32°F (0°C) or lower. The record highest temperature was 121°F (49°C) on August 7, 1981, and the record lowest temperature was 17°F (−8°C) on January 9, 1937. Annual precipitation averages 23.21 inches (59.0 cm) with measurable precipitation falling of an average of 71 days. The wettest year was 1983 with 52.98 inches (134.6 cm) and the driest year was 1976 with 7.20 inches (18.3 cm). The most rainfall in one month was 21.47 inches (54.5 cm) in January 1995 and the most rainfall in 24 hours was 3.55 inches (9.0 cm) on January 8, 1995. The most snowfall in one month was 15.0 inches (38 cm) in January 1937.
- **Governing Body Format—**Tehama County is a charter county with a board-administrator form of government whose Chief Administrator is selected by a five member Board of Supervisors, who are elected at large. Each board member serves a four-year term and is elected by district. The Board of Supervisors governs Tehama County and is responsible for establishing the county budget and for executing all ordinances, resolutions and other legal actions that fall within the jurisdiction of Tehama County. The Board of Supervisors will assume the responsibility for the adoption and implementation of this plan on behalf of the unincorporated portions of Tehama County. The County has an operating budget of approximately $106 million and 805 allocated positions. On a regional level, the County provides services to anyone residing within the 3,000 square miles that comprise its legal boundaries. These services include: Agriculture, Animal Services, Assessor, Auditor-Controller, Building & Safety, Child Support Services, Conservator/Public Administrator/Public Guardian, County Clerk & Recorder, County Counsel, District Attorney, Environmental Health, Fire, Health Services, In Home Supportive Services, Landfill Management Agency, Library, Planning, Probation/Juvenile Hall, Public Works, Sheriff/Coroner/Animal Regulations/Veterans Services, Social Services and Treasurer/Tax Collector services.
- **Development Trends—**The unincorporated portion of the County, while growing in population, has experienced a steadily declining growth rate over the past quarter century. Part of this is explained by a significant decline in net migration to the County. From a net increase of 1,892 in 1990, net migration declined to an actual loss of 64 persons in 1996, although it had rebounded to a net increase of 792 in 2002 (Center for Economic Development, 2004). Net migration is based mainly on the abundance or lack of jobs in an area. The decline in net migration occurred during a time of economic recession in California, which may partially explain the decline.

  The population of unincorporated Tehama County increased by approximately 15.3 percent between the 1990 and 2000 U.S. Censuses. By comparison, the population of Red Bluff increased approximately 6.3 percent during that same. The population of Corning increased by 14.8 percent, and that of the City of Tehama rose by 7.7 percent. The two most populous unincorporated areas are the Bowman area, in the far northern portion of the County, and the Antelope area east of Red Bluff. The Bowman area also has one of the fastest growing populations in the County, along with Gerber and Los Molinos.

  Table 2-1 shows the projected population for Tehama County, both overall and for the unincorporated areas. These projections are based upon interim county population projections

by the California Department of Finance. It should be noted that the 2000 projection was approximately 7,075 over the 2000 U.S. Census population of 49,625, or approximately 14.3 percent over the actual population. However, the interim population projections do take the 2000 U.S. Census figures into account.

California law requires counties and cities to prepare and adopt a comprehensive long-range plan to guide community development. The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures and must focus on issues of the greatest concern to the community. County actions such as those relating to land use allocations, annexations, zoning, subdivisions and design review, redevelopment, and capital improvements, must be consistent with the plan. Tehama adopted its general plan under this state mandate in January 2009. Future County growth and development will be managed as identified in the plan.

TABLE 2-1.
TEHAMA COUNTY POPULATION PROJECTIONS

	2008	2013	2018	2028
Population	62,419	69,813	77,457	91,677
Unincorporated Population	40,936	45,441	51,462	63,385

Information taken from the Tehama County Housing element, 2009-2014

2.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 2-2 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 8
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

2.4. HAZARD RISK RANKING

Table 2-3 presents the ranking of the hazards of concern.

2.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 2-4. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 2-5. The assessment of the jurisdiction's fiscal capabilities is presented in Table 2-6. Classifications under various community mitigation programs are presented in Table 2-7.

2.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 2-8 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 2-9 identifies the priority for each initiative. Table 2-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 2-2.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Wildfire	6/11/2008	N/A
Wind	1/4/2008	$4,869.57
Heat	7/4/2007	N/A
Severe Storm/Thunder Storm - Wind	2/22/2007	$6,000
Winter Weather	1/14/2007	$57,142.86
Winter Weather	4/8/2005	$3,076.92
Hail	3/23/2005	$6,000
Wind	2/7/2001	$1,500
Wind	10/21/2000	$1,739.13
Wildfire	10/1/2000	$547,000
Wildfire	9/29/2000	$547,000,000
Wind	2/11/2000	$555.56
Wildfire	10/1/1999	N/A
Wind	4/22/1999	$1,538.46
Wind	2/6/1999	$3,846.15
Winter Weather	12/19/1998	N/A
Winter Weather	12/5/1998	$20,000
Wind	11/7/1998	$41,176.47
Wind	6/16/1998	$1,000
Wind	2/7/1998	$17,647.06
Flooding	2/2/1998	$2,971,428.57
Flooding	12/29/1996	$2,857.14
Winter Weather	12/20/1996	N/A
Flooding - Severe Storm/Thunder Storm - Wind	3/1/1995	N/A
Flooding	1/4/1995	$25,000
Winter Weather	2/16/1994	1$,282.05
Winter Weather	12/11/1993	$3,448.28
Wind	2/19/1993	$50,000
Fog	1/28/1993	$5,000
Wind - Winter Weather	1/19/1993	$31,250
Winter Weather	1/13/1993	$357,142.86
Wind - Winter Weather	12/8/1992	2631.58
Heat	8/13/1992	N/A
Severe Storm/Thunder Storm	6/23/1992	$16,666.67
Flooding - Winter Weather	2/14/1992	9090.91
Flooding - Winter Weather	2/11/1992	11627.91
Winter Weather	2/9/1992	892.86
Winter Weather	2/5/1992	N/A

TABLE 2-2.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Winter Weather	12/20/1990	$86,206.9
Flooding	10/23/1989	N/A
Winter Weather	2/5/1989	N/A
Wind	2/17/1988	$8,620.69
Wind	12/5/1987	$3,571.43
Lightning	9/1/1987	$3,571,428.57
Tornado	3/14/1987	$50,000
Wind	3/4/1987	$4,545.45
Tornado	9/24/1986	$500,000
Flooding	2/17/1986	$5,000,000
Wind	1/26/1984	$3,333.33
Severe Storm/Thunder Storm - Wind	12/3/1983	$312,500
Flooding	3/1/1983	$125,000
Severe Storm/Thunder Storm - Wind	2/26/1983	$10,416.67
Flooding	1/26/1983	$1,666,666.67
Wind	12/22/1982	$1,041,666.67
Wind	12/15/1982	$62,500
Lightning - Wind - Winter Weather	11/13/1981	$3,571.43
Winter Weather	10/27/1981	$3,571.43
Winter Weather	1/27/1981	$1,041.67
Severe Storm/Thunder Storm - Wind	1/9/1980	$1,041.67

TABLE 2-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	3 x (9+6+1) = 48
2	Wildland Fire	3 x (6+6+1) = 39
3	Flood	3 x (3+4+2) = 27
4	Earthquake	2 x (9+2+1) = 24
5	Dam Failure	1 x ((6+4+3) =13
6	Landslide	2 x (3+2+1) = 12
6	Avalanche	2 x (3+2+1) = 12
7	Drought	3 x (0+0+3) = 9

TABLE 2-4.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	N	Y	Title 15, Chapter 15.04 Tehama County Municipal Code (TCMC) adopts the 2007 CA. Building Code., 2/2008
Zoning Code	Y	N	N	Y	Title 17, Chapter 17.02-17.80, TCMC, 1983
Subdivisions	Y	N	N	N	Title 16, chapters 16.04-16.50, TCMC, 1975
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	Y	N	N	Y	CA Civil CODE 1102 requires disclosure on natural hazard exposure for sale of all real property
Growth Management	Y	N	N	Y	Tehama County General Plan, 2009
Site Plan Review	Y	N	N	N	Tehama County Code chapters 15 & 16, and Tehama County Engineering and Land Development Standards
Special Purpose (flood management, critical areas)	Y	N	N	N	Flood Damage Prevention- Title 15. Chapter 15.52 TCMC, 1999 Floodplain Zoning- Title 17, Chapter 17.42, 1983
Planning Documents					
General Plan	Y	N	N	Y	Tehama County General Plan, 2009
Capital Improvement Plan	Y	N	N	N	5-year CIP for roads, water and sewer, updated annually
Economic Development Plan					
Floodplain or Basin Plan	Y	N	N	N	Tehama County Flood Mitigation Plan, October 2006
Stormwater Plan	N	N	N	N	
Habitat Conservation Plan	N	N	N	N	
Shoreline Management Plan	N	N	N	N	
Emergency Response Plan	Y	N	N	Y	Emergency Operations Plan, Feb 2001
Continuity of Operations Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	
Terrorism Plan	N	N	N	N	

TABLE 2-5.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Tehama County Planning Department
Engineers or professionals trained in building or infrastructure construction practices	Y	Tehama County Department of Public Works
Planners or engineers with an understanding of natural hazards	Y	Tehama County Planning Department
Staff with training in benefit/cost analysis	N	Can contract for services
Floodplain manager	Y	The Building Official has been designated as the Floodplain Administrator under TCMC 15.52
Surveyors	Y	Public Works/Contract services
Personnel skilled or trained in GIS applications	Y	Public Works and Planning departments
Scientist familiar with natural hazards in local area	Y	Contract services
Emergency manager	Y	Tehama County Sheriff
Grant writers	Y	Contract for services

TABLE 2-6.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	No
Other	N/A

TABLE 2-7.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	n/a	n/a
Building Code Effectiveness Grading Schedule	Yes	4/4	n/a
Public Protection	Yes	See Fire Dept. Annexes	n/a
Storm Ready	No	n/a	n/a
Firewise	No	n/a	n/a

TABLE 2-8.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #TC-1—Maintain compliance and good standing under the National Flood Insurance Program (NFIP)						
New and existing	Flood	4, 8, 9	Planning/Building	Low	General Fund	Short-term, Ongoing
Initiative #TC-2—Consider participation in the NFIP, Community Rating System (CRS)						
New and Existing	Flood	2, 4, 8, 9	Planning/Building	Low	General Fund	Long term
Initiative #TC-3—Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.						
Existing	All Hazards	2, 3, 9	Public Works, Planning/Building	High	HMGP with local match provided by property owner contribution	Long-term
Initiative #TC-4—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	1, 2, 4, 8, 9	Planning department	Low	General Fund	Short-term
Initiative #TC-5—Support County-wide initiatives identified in Volume 1.						
New and Existing	All Hazards	1, 2, 3, 6, 9	County Council, All County Departments	Low	City general Operations Fund	Short term, Ongoing
Initiative #TC-6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New and Existing	All Hazards	1, 2, 4, 8, 9	Public Works	Medium	General fund, HMGP for 5-year update	Short term

TABLE 2-8.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #TC-7—Consider appropriate higher regulatory standards that prevent or reduce risk to the built environment from the known hazards of concern.						
New and Existing	All hazards	1, 2, 4, 8, 9	Planning, Public Works, County Board of Supervisors	Low	General Fund	Long Term
Initiative #TC-8—Identify and implement a feasible risk reduction solution to the flooding problems around Corning along the Jewett and Burch Creek flood plain. The creeks get choked up with vegetation and merge during high flow events causing harm and danger emergency responders, citizens, property, crops, roads, and bridges.						
New and existing	Flood	1, 4, 9	Public Works	High	General fund, HMGP Funding	Long-term
Initiative #TC-9—Implement and maintain those actions identified in the October 2006, Tehama County Flood Hazard mitigation Plan. This plan identified and prioritized 13 actions to reduce the risk to flooding in Tehama County. The future maintenance of this plan will be integrated in to the plan maintenance strategy for this hazard mitigation plan as described in Chapter 7 of Volume 1.						
New and Existing	Flood, Dam Failure	1, 2, 3, 4, 5, 6, 7, 8, 9	Public Works, Tehama County Flood Control and Water Conservation District	High	General Fund, TCFCWCD funds, FEMA hazard Mitigation Grant Funds	Short term, Ongoing
Initiative #TC-10—Implement and maintain those actions identified in the 2005 Tehama-Glenn Unit Fire Management Plan. This plan identifies and prioritizes projects for 10 zones within the Tehama-Glenn unit.						
New and existing	Wild Fire	1, 2, 3, 4, 5, 6, 7, 8, 9	Tehama-Glenn Unit Fire Safe Council	High	General Fund, Fire Safe Council Funding, AFG grant funding	Long-term, Ongoing

TABLE 2-9.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	3	Medium	Low	Yes	No	Yes	High
2	4	Medium	Low	Yes	No	No	Medium
3	3	High	High	Yes	Yes	No	Medium
4	5	High	Low	Yes	No	Yes	High
5	5	Medium	Low	Yes	No	Yes	High
6	5	Medium	Medium	Yes	Yes	Yes	High
7	5	High	Low	Yes	No	Yes	Medium
8	3	High	High	Yes	Yes	No	Medium
9	9	High	High	Yes	Yes	Yes	High
10	9	High	High	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 2-10.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	4, 5, 6, 7	3	5, 6	4, 7		
Dam Failure	9	3, 9	9	9	9	9
Drought	4, 5, 6, 7	3	5, 6	4, 7		
Earthquake	4, 5, 6, 7	3	5, 6	4, 7		
Flood	1, 2, 4, 5, 6, 7, 9	1, 2, 3, 9	1, 2, 5, 6, 9	1, 2, 4, 7, 9	2, 9	8,9
Landslide	4, 5, 6, 7	3	5, 6	4, 7		
Severe Weather	4, 5, 6, 7	3	5, 6	4, 7		
Wildfire	4, 5, 6, 7, 10	3, 10	5, 6, 10	4, 7, 10	10	10

a. See Section 1.3 for description of mitigation types

2.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A digital elevation model based on LIDAR data would significantly enhance future updates to the risk assessment for Tehama County.

2.8. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the Tehama County area are included in Volume 1 of this mitigation plan. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

CHAPTER 3.
CITY OF CORNING ANNEX

3.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Mark Spannaus, Fire Chief
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Corning, CA 96021
Telephone: (530) 824-7044
e-mail Address: firechief@corning.org

Alternate Point of Contact
Steve Kimbrough, City Manager
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Corning Ca. 96021
Telephone: 530-824-7034
e-mail Address: stevek@corning.org

3.2. JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation—**1907
- **Current Population—**7,700 as of January 1, 2011
- **Population Growth—**The City has experienced a steady rate of growth with an average annual increase in population of 1.40% per year since 1990.

  Location and Description—Corning is 22 miles northwest of Chico, California and 100 miles north of Sacramento. The city limits encompass 2.9 square miles and the most I-5 trucking and traveler services between Medford, Oregon and Bakersfield, California. The City is known as the Olive City, with its landmark business, the "Olive Pit," serving travelers for several generations at the Corning Road / Solano Avenue interchange of I-5. Corning is the center of the California boutique olive oil industry with three award-winning gourmet olive oil presses in operation: Corning Olive Oil Company and Lucero Olive Oil in Corning, and Pacific Sun in nearby Gerber. Corning is mainly agricultural land at an elevation of 277 feet above sea level, with the Coastal Mountain Range to the east. The Sacramento River supports agriculture, including much of the state's crops of almonds, walnuts and prunes.
- **Brief History—**John Corning was born in Troy, New York, in 1826. His uncle was Erastus Corning, president of the New York Central Railroad for many years. John Corning began his railroading career at the age of 32, on the Michigan Central Railroad. Three years later, he was hired by his uncle, Erastus, and worked for the New York Central Railroad. John Corning became Assistant Superintendent within a short period. He became Assistant Superintendent of the Central Pacific Railroad in 1868. He maintained this position until his death, in 1878, at the age of 52. The first railroad train arrived in Corning on October 1, 1882.

  Mission olives were planted in the Corning area for oil production in the 1890s. In 1897, Nevadillo Blanco and Manzanillo olives became the oil-producing olives of choice. The inhabitants of the Maywood Colony, as Corning was then known, were shareholders in the Maywood Colony Canning and Olive Pickling Association. Initially, and for many years to follow, Corning, California, was known as "Corning--The Clean Town." On December 28, 1923, Warren N. Woodson changed the slogan to "Corning--The Olive Town."
- **Climate**—Corning has a Mediterranean climate with cool, wet winters and hot, dry summers. The average annual rainfall is 22.06 inches. The average temperature is 64ºF. The average low temperature is 51ºF . The average high temperature is 76ºF.

- **Governing Body Format**—The City Council is composed of a Mayor and 4 City Council members. The City Council is elected by the citizens of the City of Corning as their representatives to make the legislative and policy decisions of the City, subject to the provisions of City Ordinances, Resolutions and the Government Code and the Constitution of the State of California. The Corning City Council will assume the responsibility for the adoption and implementation of this plan. The City Council appoints the City Manager who serves at their pleasure and who implements Council Policy. The Mayor and City Councilmembers also represent the City at official functions and in relationship with other organizations.
- **Development Trends—**The City of Corning is a rural agricultural community of 7,396 people situated 25 miles northwest of Chico and 17 miles south of Red Bluff in south central Tehama County. The physical layout of the City was established in 1878, when the town named Scatterville, later Riceville, was built. In 1882, the town of Corning was established and merged with Riceville. Since that time, the City and adjacent agricultural areas have seen a slow to moderate increase in population growth. In the past, the population has been distributed as a small nucleus in the incorporated urbanized areas, surrounded by a larger non-urbanized halo in the unincorporated areas.

  This moderate rate of growth is anticipated to continue in the future, even with the current economic downturn. California law requires counties and cities to prepare and adopt a comprehensive long-range plan to guide community development. The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures and must focus on issues of the greatest concern to the community. City actions such as those relating to land use allocations, annexations, zoning, subdivisions and design review, redevelopment, and capital improvements, must be consistent with the plan. Corning adopted its general plan under this state mandate in January 2009. Future County growth and development will be managed as identified in the plan.

3.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 3
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

3.4. HAZARD RISK RANKING

Table 3-2 presents the ranking of the hazards of concern.

3.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 3-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 3-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 3-5. Classifications under various community mitigation programs are presented in Table 3-6.

3.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 3-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 3-8 identifies the priority for each initiative. Table 3-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 3-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Flood	2/64	High water on streets and localized flooding
Flood	11/83	Localized flooding
Flood	5/2001	Localized flooding
Funnel Cloud	5/3/1993	None reported
Hail Storm	4/23/2005	$2000 in vehicle damage
Thunderstorm –Wind	2/22/2007	$6,000
Hail Storm	6/11/2009	None reported

TABLE 3-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	3 x (6+4+2) = 36
1	Severe Weather	3 x (3+6+3) = 36
2	Wildfire	3 x (3+2+1) = 18
3	Dam Failure	1 x (6+4+3) = 13
4	Earthquake	2 x (3+2+1) = 12
5	Drought	2 x (0+0+2)) = 4
6	Landslide	2 x (0+0+0) = 0
6	Avalanche	2 x (0+0+0) = 0

TABLE 3-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	N	Y	Title 15, CMC adopts the 2007 CA Building Code, 7/13/2010
Zoning Code	Y	N	N	Y	Title 17, Chapters 17.02 -17.92, CMC, adopted 1959
Subdivisions	Y	N	N	N	Title 16, Chapters 16.03 -16.50, CMC, adopted 1994
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	Y	N	N	Y	CA Civil CODE 1102 requires disclosure on natural hazard exposure for sale of all real property
Growth Management	Y	N	N	Y	City of Corning General Plan, 2009-2014, adopted in 2009
Site Plan Review	Y	N	N	N	Title 15, CMC
Special Purpose (flood management, critical areas)	Y	N	N	N	Flood Damage prevention-Title 15, Chapter 15.17, adopted 1988 Floodplain Combining Zoning District- Title 17, chapter 17.45, adopted 1194 Stormwater management- Title 15, Chapter 15.28 Adopted 1991
Planning Documents					
General Plan	Y	N	N	Y	City of Corning General Plan, 2009-2014, adopted in 2009
Capital Improvement Plan	Y	N	N	N	5-year CIP for roads, water supply, sewer and drainage. Updated annually.
Economic Development Plan	Y	N	N	N	City has economic development department and is part of the Tehama Economic Development Corporation.
Floodplain or Basin Plan	N	N	N	N	
Stormwater Plan	N	N	N	N	
Habitat Conservation Plan	N	N	N	N	
Shoreline Management Plan	N	N	N	N	
Emergency Response Plan	Y	N	N	Y	
Continuity of Operations Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	
Terrorism Plan	N	N	N	N	

TABLE 3-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Planning and Public Works departments
Engineers or professionals trained in building or infrastructure construction practices	Y	Building and Safety Department, and the Public Works Department
Planners or engineers with an understanding of natural hazards	Y	Planning Department
Staff with training in benefit/cost analysis	N	Can contract for this service
Floodplain manager	Y	The Flood Damage prevention Ordinance identifies the Building Official as the floodplain administrator.
Surveyors	Y	Contract for services
Personnel skilled or trained in GIS applications	Y	Planning and Public Works Departments. Can also contract for services.
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	Fire Chief
Grant writers	Y	Can contract for services

TABLE 3-5.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for Specific Purposes	Y
User Fees for Water, Sewer, Gas or Electric Service	Y
Incur Debt through General Obligation Bonds	Y
Incur Debt through Special Tax Bonds	Y
Incur Debt through Private Activity Bonds	N
Withhold Public Expenditures in Hazard-Prone Areas	N
State Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	N
Other	N/A

TABLE 3-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	--	--
Building Code Effectiveness Grading Schedule	Yes	4/4	--
Public Protection (ISO Class)	Yes	4	2001
Storm Ready	No	--	--
Firewise	No	--	--

TABLE 3-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #C-1—Maintain compliance and good standing under the National Flood Insurance Program (NFIP)						
New and existing	Flood	4,8,9	Planning Department	Low	City General Operations Fund	Short-term, Ongoing
Initiative #C-2—Consider participation in the NFIP, Community Rating System (CRS)						
New and Existing	Flood	2,4,8,9	Planning Department	Low	City General Operations Fund	Long term
Initiative #C-3—Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.						
Existing	All Hazards	2,3,9	Public Works, Planning Dept.	High	HMGP funding with local match provided by property owner contribution	Long-term
Initiative #C-4—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	1, 2,4 8, 9	Planning department	Low	City General Operations Fund	Short-term
Initiative #C-5—Support County-wide initiatives identified in Volume 1.						
New and Existing	All Hazards	1,2,3,6,9	City Council, All City departments	Low	City General Operations Fund	Short term, Ongoing
Initiative #TC-6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New and Existing	All Hazards	1,2,4,8,9	Public Works	Medium	General fund, HMGP for 5-year update	Short term
Initiative #C-7—Consider appropriate higher regulatory standards that prevent or reduce risk to the built environment from the known hazards of concern.						
New and Existing	All hazards	1,2,4,8,9	Planning, Public Works, City Council	Low	Corning	Long Term

TABLE 3-8.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	3	Medium	Low	Yes	No	Yes	High
2	4	Medium	Low	Yes	No	No	Medium
3	3	High	High	Yes	Yes	No	Medium
4	5	High	Low	Yes	No	Yes	High
5	5	Medium	Low	Yes	No	Yes	High
6	5	Medium	Medium	Yes	Yes	Yes	High
7	5	High	Low	Yes	No	Yes	Medium

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 3-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Dam Failure	4, 5, 6, 7	--	5, 6	--	--	--
Drought	4, 5, 6, 7	3	5, 6	4, 7	--	--
Earthquake	4, 5, 6, 7	3	5, 6	4, 7	--	--
Flood	1, 2, 4, 5, 6, 7	1, 2, 3	1, 2, 5, 6	1, 2, 4, 7	2	--
Landslide	--	--	--	--	--	--
Severe Weather	4, 5, 6, 7	3	5, 6	4, 7	--	--
Wildfire	4, 5, 6, 7	3	5, 6	4, 7	--	--

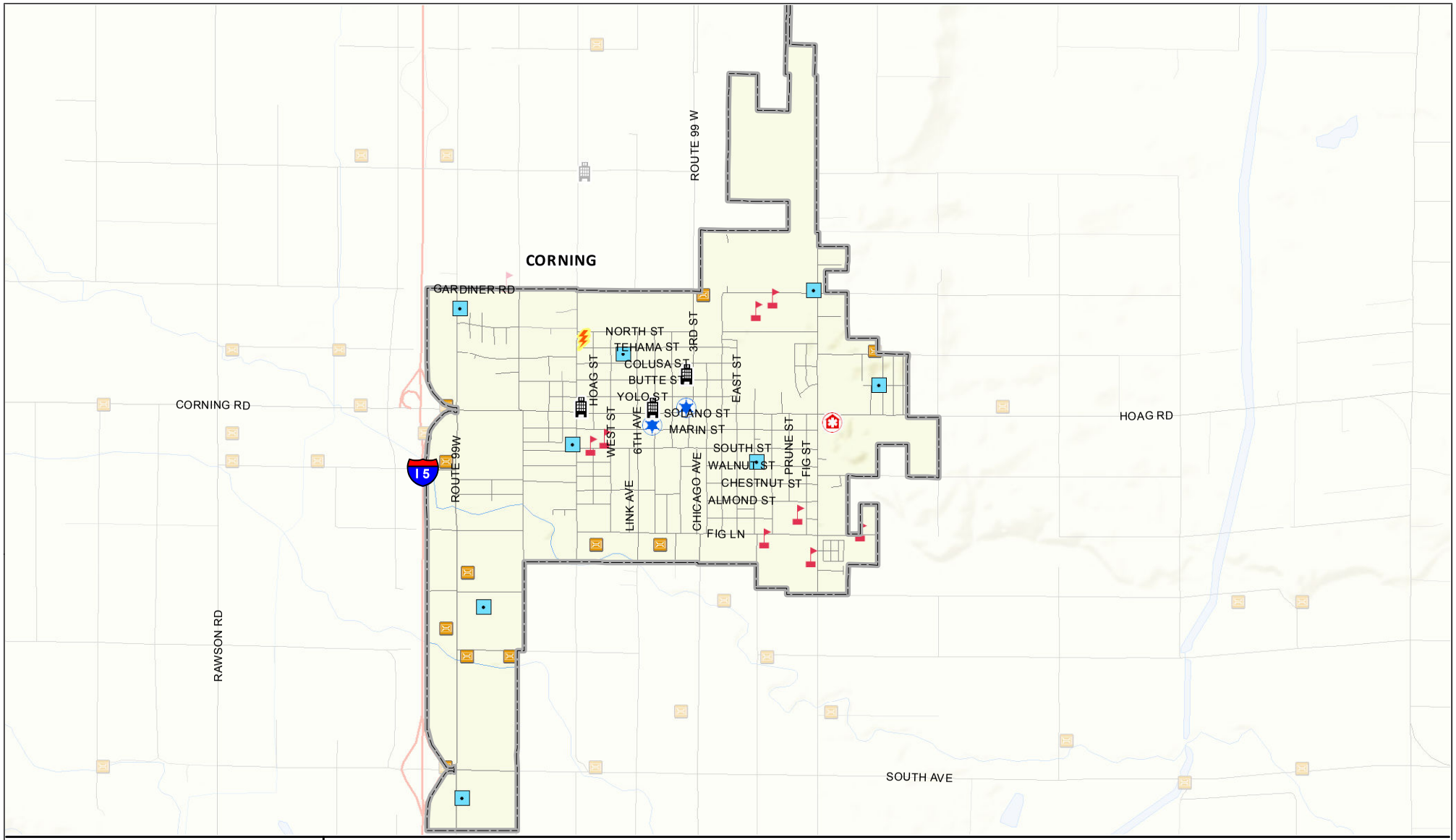
a. See Section 1.3 for description of mitigation types

3.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A digital elevation model based on LIDAR data would significantly enhance future updates to the risk assessment for Tehama County.

3.8. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan.



CITY OF CORNING

Figure x - x

Critical Facilities

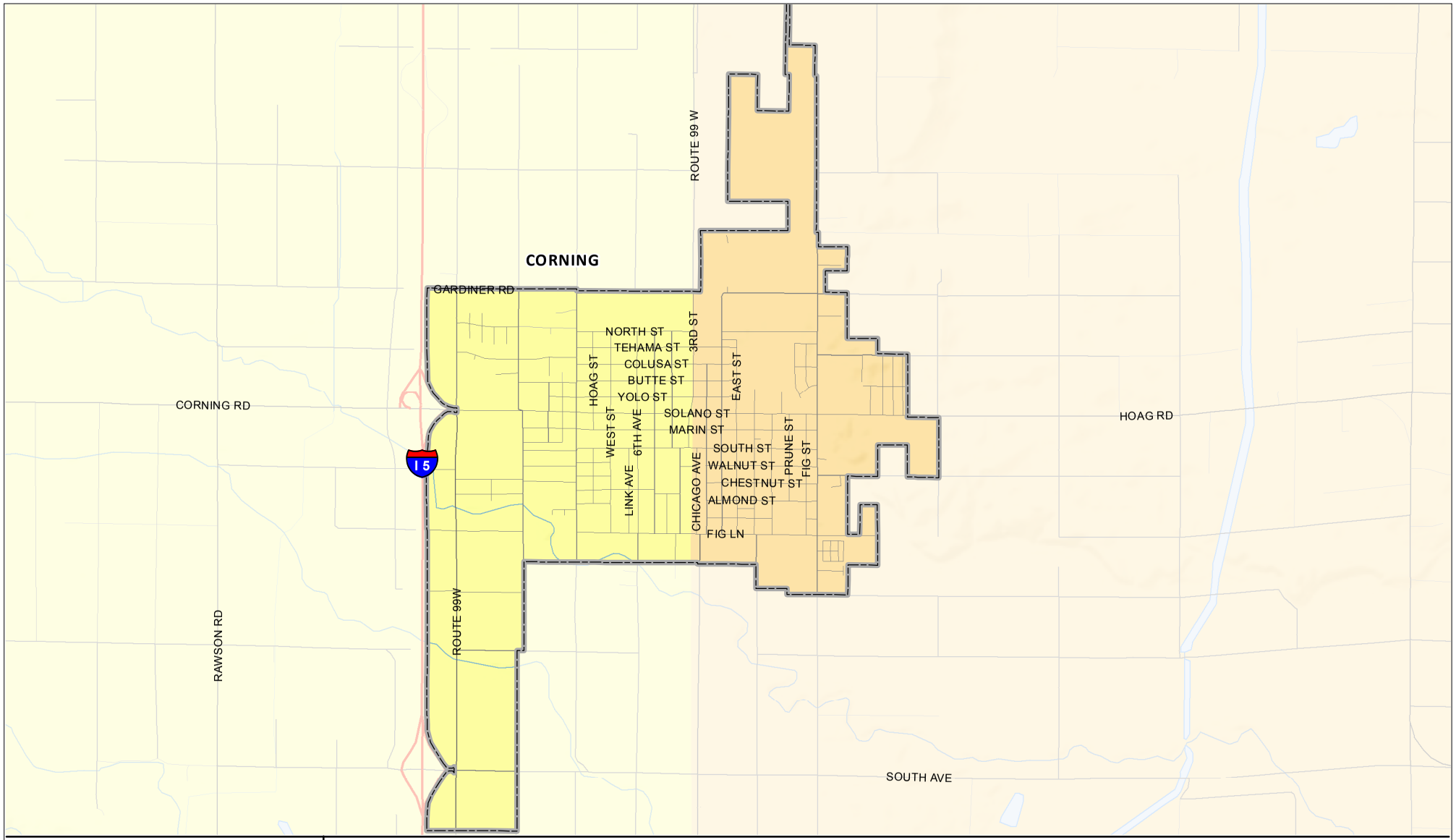
- Communication
- Dam
- Government
- Medical
- Power
- Protective
- School
- Wastewater
- Water
- Other
- Bridge

0 0.25 0.5 0.75 1 Miles

N W E S

Data Sources:
Tehama County NHMP
Planning Partners, Hazus-MH MR5

TETRA TECH



CITY OF CORNING

0 0.25 0.5 0.75 1 Miles

Figure x - x

Peak Ground Acceleration
USGS 500 Year Probabilistic Event

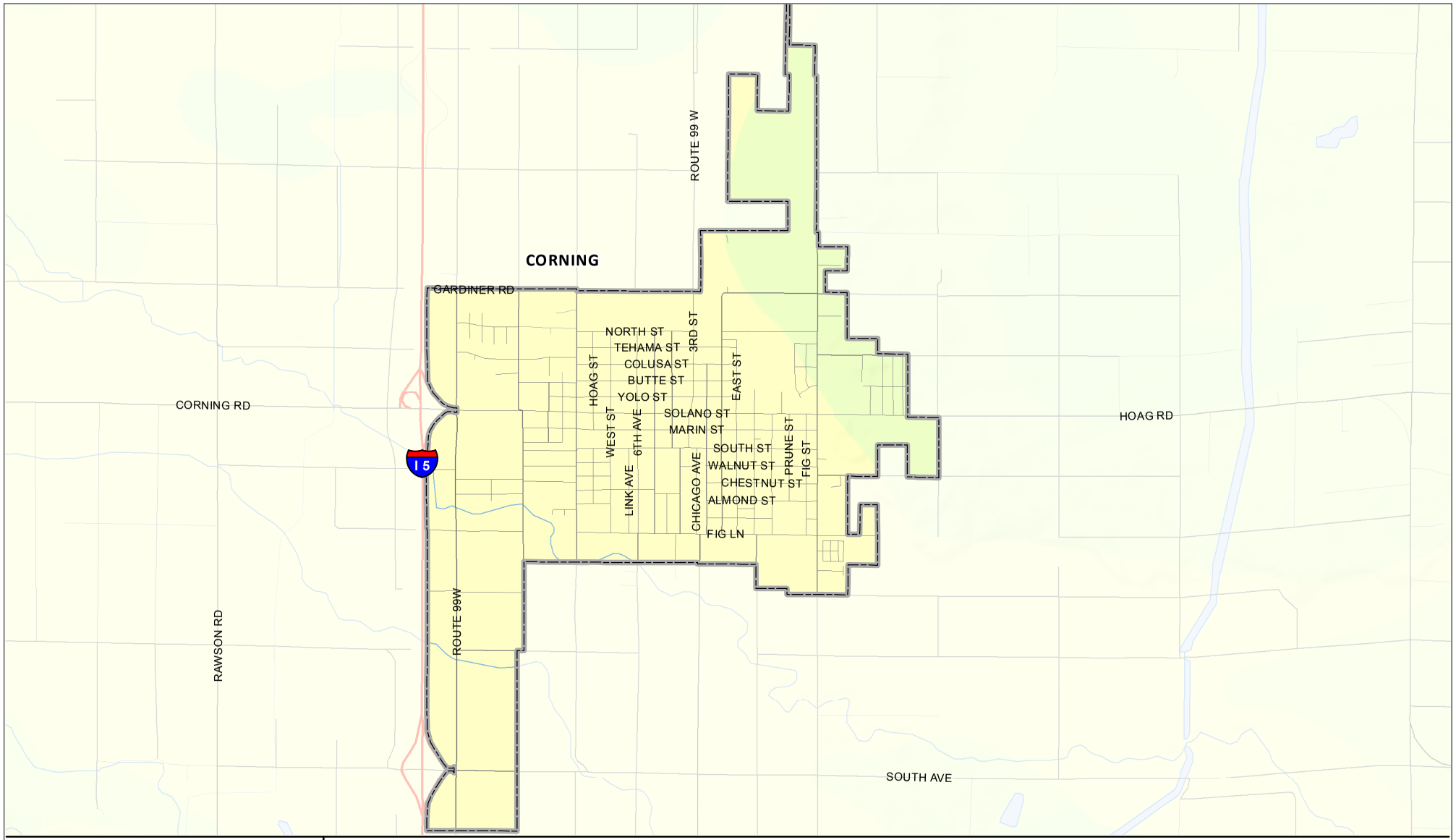
Mercalli Scale, Potential Damage

- IV, None
- V, Very Light
- VI, Light
- VII, Moderate
- VIII, Moderate to Heavy

N W E S

Data Sources:
HAZUS-MH MR4 Output
US Geological Survey

TETRA TECH



CITY OF CORNING

0 0.25 0.5 0.75 1 Miles

Figure x - x

National Earthquake Hazard Reduction Program (NEHRP) Soil Site Classes

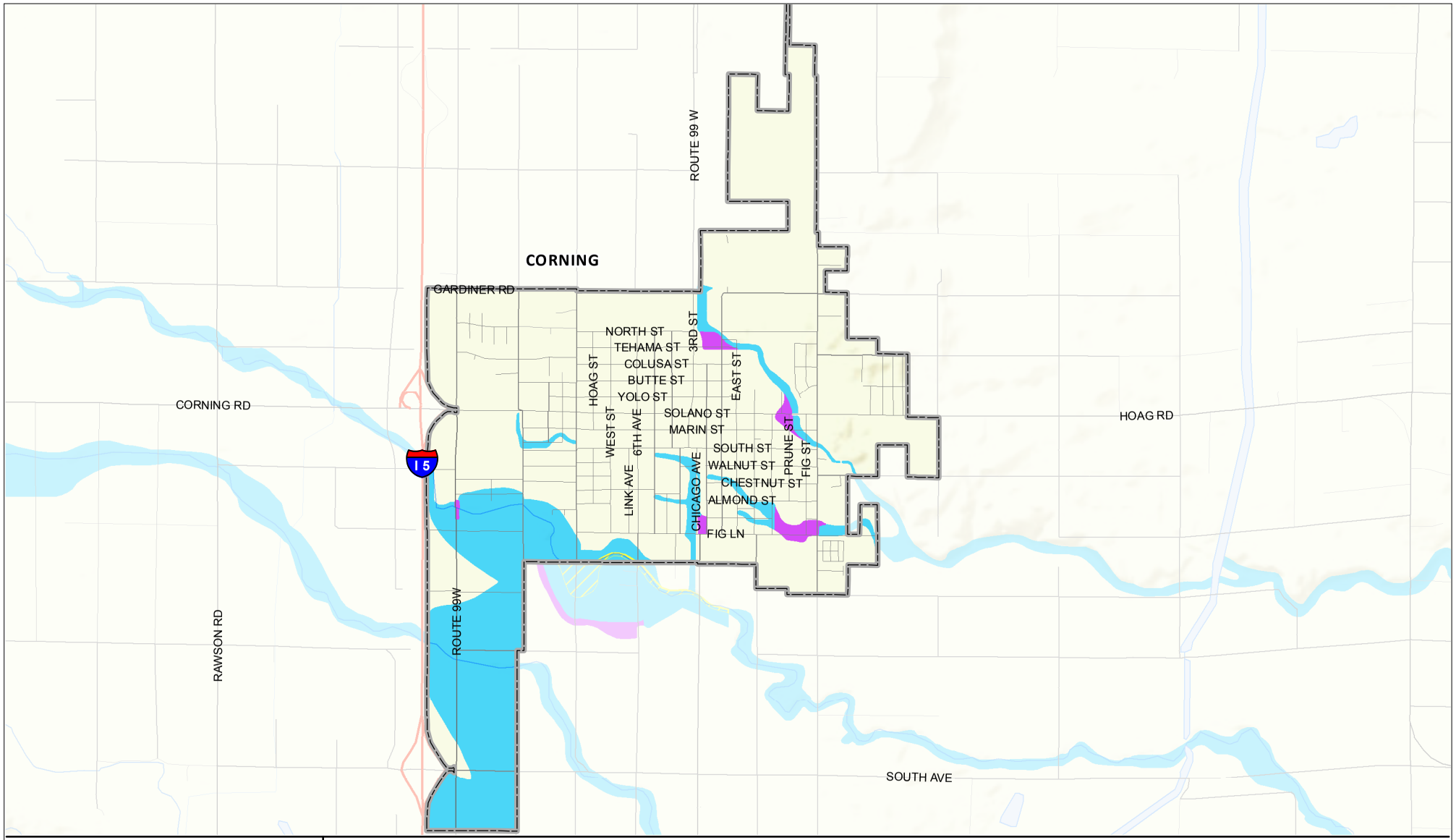
- Site Class E - Soft Soil
- Site Class D - Stiff Soil
- Site Class C - Very Dense Soil and Soft Rock
- Site Class B - Rock

N W E S

Data Sources:
NEHRP Soil Data
California Department of Conservation

This map was prepared for informational purposes only. Lines, roads, topography, culture, and other planimetric features shown on this mapping are compiled from many different sources and may not be, necessarily, current or reliable. Tehama County assumes no liability for the accuracy of the data shown on this map.

TETRA TECH



CITY OF CORNING

0 0.25 0.5 0.75 1 Miles

Figure x - x
Special Flood Hazard Areas

Flood Zone

- Floodway
- 1 Percent Annual Chance Special Flood Hazard Area (100 Year)
- 0.2 Percent Annual Chance Special Flood Hazard Area (500 Year)

N W E S

Data Sources:
Flood Hazard Areas
FEMA Preliminary DFIRM

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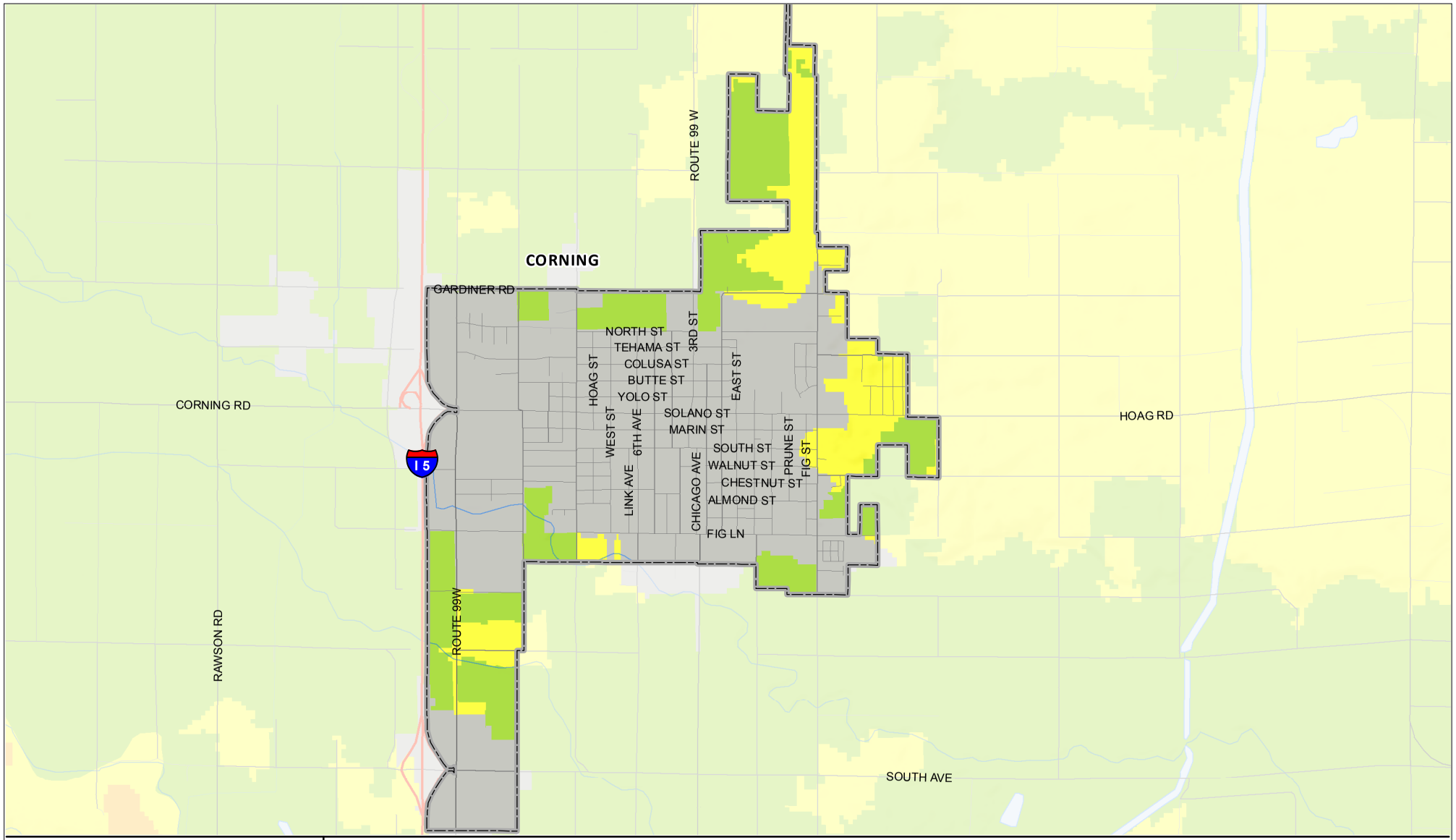
TETRA TECH



CITY OF CORNING

0 0.25 0.5 0.75 1 Miles

Figure x - x
Wildfire Hazard Areas

Fire Hazard Severity

- Very High
- High
- Moderate
- Non-Wildland/Non-Urban
- Urban Unzoned

N W E S

Data Sources:
Fire Hazard Areas
California Department of
Forestry and Fire Protection

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TETRA TECH

CHAPTER 4.
CITY OF RED BLUFF ANNEX

4.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

Public Works Director
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Red Bluff, CA. 96080
Telephone: (530) 527-2605 Ext. 3055

4.2. JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation—**March 31, 1876
- **Current Population—**14,076 as of 2010 Census
- **Population Growth—**Since the City's incorporation and first census in 1880 to the present the City's population growth rates have fluctuated, but on average has maintains a 1.46% growth rate through 2010.
- **Location and Description—**Red Bluff is a city in, and the county seat of Tehama County, California. Centrally located on the Sacramento River in Northern California, Red Bluff is 30 miles (48 km) south of Redding, 40 miles (64 km) northwest of Chico, and 125 miles (201 km) north of Sacramento, 190 miles west of Reno/Tahoe, and 155 miles south of the Oregon border. Red Bluff is a hub where Highway 36, 99, and Interstate 5 meet. Red Bluff also serves as the gateway to Lassen Volcanic National Park and is the third largest city in the Shasta Cascades.
- **Brief History—**Red Bluff derives its name from its location on a high vertical bank at the bend of the Sacramento River. Although never a mining camp, Red Bluff ranks with the celebrated towns of the gold rush days in age, exciting history, colorful personalities, and in present day importance.

  The story of Red Bluff begins seven or eight years before the community came into existence with the comings and goings and projects of Peter Lassen, whose name was given to a county, a national park, a volcano, and a highway. At the very beginning, Red Bluff became the marketing and distributing center for a large area and its scope in that role widened steadily. By 1853 it was the chief commercial city in the northern part of the Sacramento Valley, and its streets continually thronged with pack trains operating to and from points as far away as Oregon, Nevada and Idaho.

  In 1843, Lassen and two fellow pioneers were in Red Bluff tracking down horse thieves. He was so impressed by the land that he sought and received from the Mexican Government a grant of 25,000 acres, a few miles south of where the city now stands. On that tract in early 1847, he laid out a town site and named it Benton City in honor of Senator Thomas H. Benton of Missouri. Then he journeyed to Missouri to induce settlers to come out and also to obtain a charter for a Masonic Lodge which he wished to establish in his settlement.

Lassen returned to his town site in the summer of 1849 with a party of settlers and with the Masonic Charter. On reaching California, the members of the party learned about the discovery of gold, gave up their original idea, and headed or the mining area. So the town site died suddenly and as a result, the lodge charter was transferred to Shasta. However, the publicity given to Lassen's colonization plan attracted many others to the territory, including several who helped found and build Red Bluff.

Red Bluff achieved and retained commercial importance because, for more than a century, it was the head of navigation on the Sacramento River. The initial attempt at river shipping in the area was made by Lassen in 1849 when he was still to put over Benton City. But the last trip was a losing venture and he abandoned the plan. The following year steamers commenced regular and frequent trips between San Francisco and Red Bluff and soon arrivals and departures were almost a daily occurrence. The service continued until after the turn of the century.

Another pioneer of Red Bluff was William B. Ide, commander of the group of Americans who, in the summer of 1846, revolted against Mexican rule, seized control of Sonoma, raised the Bear Flag and proclaimed the Republic of California. Ide was "President of the Republic" from June 10 to July 8, 1846, when couriers brought word that two days previously Commodore John Drake Sloat had taken over California in the name of the United States. Ide's home on the river bank about two miles north of Red Bluff in now under the State Park System.

- **Climate—**Red Bluff has cool, wet winters and hot, dry summers. Average temperatures in January are a maximum of 54.7°F (12.6°C) and a minimum of 37.0°F (2.8°C). Average temperatures in July are a maximum of 97.9°F (36.6°C) and a minimum of 65.6°F (18.7°C). There is an average of 100.1 days annually with highs of 90°F (32°C) or higher and an average of 21.5 days with lows of 32°F (0°C) or lower. The record highest temperature was 121°F (49°C) on August 7, 1981, and the record lowest temperature was 17°F (−8°C) on January 9, 1937. Annual precipitation averages 23.21 inches (59.0 cm) with measurable precipitation falling of an average of 71 days. The wettest year was 1983 with 52.98 inches (134.6 cm) and the driest year was 1976 with 7.20 inches (18.3 cm). The most rainfall in one month was 21.47 inches (54.5 cm) in January 1995 and the most rainfall in 24 hours was 3.55 inches (9.0 cm) on January 8, 1995. Snowfall averages 2.1 inches (5.3 cm)a year. The snowiest year was 1972 with 15.6 inches (40 cm). The most snowfall in one month was 15.0 inches (38 cm) in January 1937.
- **Governing Body Format—**The City of Red Bluff operates as a general law city under the Council-Manager form of government under which, the Council establishes the policies for the City and appoints a trained and experienced City Manager to administer the affairs of the City. The City Council is the governing board with responsibility for the adoption and implementation of this plan.
- **Development Trends—**Red Bluff serves as the Tehama County seat and centrally located between Redding to the north and Chico to the south, as well as, a regional recreation hub through SR 99/SR 36 Interstate 5 that provide access to the Sacramento River, Lake Almanor, Eagle Lake, Reno, and the Shasta-Trinity National Forests.

  Based on these attractive features and current development activity, the City of Red Bluff continues to experience construction for both commercial and residential above both the statewide and county wide average. This trend is expected to continue over the next decade as Red Bluff did not experience a massive construction boom bust, but rather a moderate uptick in development during the periods of 2004 through 2008. As a result the development in Red

Bluff, while slower paced, still remains consistent and continues to experience diversified growth in Residential (Single Family) along with Goods & Services.

4.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 79
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

4.4. HAZARD RISK RANKING

Table 4-2 presents the ranking of the hazards of concern.

4.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 4-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 4-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 4-5. Classifications under various community mitigation programs are presented in Table 4-6.

4.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 4-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 4-8 identifies the priority for each initiative. Table 4-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 4-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Flooding	At least once a decade-multiple occurrences	The damage to property reoccurs on an annual bases due to winter Storm events and heavy Sacramento River flows that increase the velocity and volume of water in the Floodway, which causes landslides, bank and slope erosion that results in loss of property and the closure of Cedar/ Rio Streets. This is a problem that has occurred multiple times and usually occurs in the Rio/Cedar Street Corridor, but flooding has occurred on Aloha Street and Gilmore Road.
Earthquake[a]	Unknown	No estimates available
Wildfire[a]	Unknown	No estimates available
Hazardous Materials Spill	1983	Hazardous materials spill occurred approximately 500 feet southwest of the Shasta Tehama Community College, were a Thirty-five rail cars train derailed and five caught on fire spewing toxic fumes.
Hazardous Materials Spills	2001	Another hazardous materials spill occurred on Diamond Avenue, north of the college, which resulted in a hazmat team being deployed to contain and clear toxic materials, close off the only access of Diamond Avenue and that which the college fronts on.
Landslides/Mudslides/ Slumping	Annually	The damage to property reoccurs on an annual bases due to winter Storm events and heavy Sacramento River flows that increase the velocity and volume of water in the Floodway, which causes landslides, bank and slope erosion that results in loss of property and the closure of Cedar/ Rio Streets. This is a problem that has occurred multiple times and usually occurs in the Rio/Cedar Street Corridor.

a. The city of Red Bluff has had natural hazard events in this category, however no specifics are available There is no documentation at the City level that provides data as to dates, number occurrences, monetary damage assessments or any other supporting documentation. Known past impacts of the hazards has been minimal as it relates to major property damages and financial losses.

TABLE 4-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flooding	54
2	Landslides/Mudslide/Slumping	54
3	Wildfire	24
4	Severe Weather	24
5	Nam Failure	13
6	Earthquake	6
7	Avalanche	0
7	Drought	0

TABLE 4-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	N	Y	2010 Cal Build Code Effective. 1/1/11
Zonings	Y	N	N	Y	RBCC Chapter 25
Subdivisions	Y	N	N	Y	RBCC Chapter 20
Stormwater Management	Y	N	N	Y	Colorado River Basin & CA Water Board
Post Disaster Recovery	Y	N	Y	Y	SEP Section 11
Real Estate Disclosure	N	N	Y	Y	CA Code 1102 requires disclosure on natural hazard exposure for sale of all real property
Growth Management	Y	N	N	N	Red Bluff General Plan Land Use/Circulation Elements
Site Plan Review	Y	N	N	N	RBCC Chapter 7
Special Purpose (flood management, critical areas)	Y	N	Y	Y	RBCC Chapter 26
Planning Documents					
General Plan	Y	N	N	Y	GC 65300
Capital Improvement Plan	Y	N	N	N	Planned fund from development impact fees; RBCC Chapter 17
Economic Development Plan	Y	N	N	N	Adopted Res. 18-2002
Floodplain or Basin Plan	Y	N	Y	Y	FEMA, CA Water Resource, RBCC Chapter 26
Stormwater Plan					
Habitat Conservation Plan	Y	N	N	N	Natural Resource Conservation Element per GC 65300
Shoreline Management Plan					
Emergency Response Plan	Y	Y	Y	Y	Cal Emergency Service Act
Continuity of Operations Plan					
Post Disaster Recovery Plan					
Terrorism Plan					

TABLE 4-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Planning, Building, Public Works Departments
Engineers or professionals trained in building or infrastructure construction practices	Y	Building and Public Works Departments
Planners/engineers with understanding of natural hazards	Y	Planning and Fire Departments
Staff with training in benefit/cost analysis	Y	Planning and Finance Department
Floodplain manager	Y	Planning Director
Surveyors	N	
Personnel skilled or trained in GIS applications	Y	Planning Department
Scientist familiar with natural hazards in local area	Y	Chico state
Emergency manager	Y	Fire Chief/Police Chief/city Manger
Grant writers	Y	Consultants and some City Staff.

TABLE 4-5.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for Specific Purposes	Y (voter approval, prop 218 regulated)
User Fees for Water, Sewer, Gas or Electric Service	Y
Incur Debt through General Obligation Bonds	N
Incur Debt through Special Tax Bonds	N
Incur Debt through Private Activity Bonds	Unknown
Withhold Public Expenditures in Hazard-Prone Areas	N
State Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	Y
Other	YES: HMGP, PDM, FMA, RFC, SRL

TABLE 4-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	N	N/A	N/A
Building Code Effectiveness Grading Schedule	Y	N/A	N/A
Public Protection	Y	3	2004
Storm Ready	N	N/A	N/A
Firewise	Y	3	2006

TABLE 4-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #RB-1—Increase efforts to reduce hazards in existing development in Very High Fire Hazard Fire Severity Zones through improving engineering design and vegetation management standards for mitigation, appropriate code enforcement and public education on defensible space mitigation strategies.						
Existing	Wildfire	2, 4, 5, 7, 8, 9	Fire Dept.	Low	Code Adoption	Long-term
Initiative #RB-2—Install hillside stabilization and river bank armoring, rip-rap/gabion improvements on Red Bluff Hill and in the Sacramento River from Union Street along Rio Street north of Cedar Street to Hickory Street south of Cedar Street along Rio Street to prevent future mudslides/landslides, property slumping, road failure and infrastructure collapse.						
New	Earthquake, Landslide, Flood, Severe weather	1, 3, 4, 5, 6, 8, 9	Public Works/ Finance	High	Grants/Capital Improvement Program	Long-term
Initiative #RB-3—Ensure that new development is designed to reduce or eliminate flood damage by requiring lots and rights-of-way to be laid out for the provisions of approved sewer and drainage facilities, providing on-site detention facilities as required.						
Ne w & Existing	Flood	1, 4, 5, 8, 9	Planning/ Public Works / Building Dept.	Low	Code adoption Plan review	Long-term
Initiative #RB-4—Make sandbags available to residents in anticipation of Severe rainstorms or known flood events, deliver materials to critical infrastructure and provide public information on where these materials are stored and how to get them.						
Existing	Flood	1, 2, 4, 5, 9	Public Works	Low	Emergency plan	Ongoing, Long-term
Initiative #RB-5—Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to all hazards and disasters						
New & Existing	All Hazard	1, 3, 4, 5, 6, 7, 8, 9	Fire Dept., Planning, Public Works	Low	Emergency plan	Ongoing, Long-term
Initiative #RB-6—Clear drainage facilities of trash, debris, overgrown vegetation, dead and downed trees and shrubs prior to rainy season.						
Existing	Flood	1, 6, 8	Fire Dept., Public Works	$40,000	Grant	Ongoing

TABLE 4-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #RB-7—Investigate, inform and seek funding for the construction of Diamond Avenues Secondary Public Access to mitigate life, health and safety hazards of reoccurring Hazardous Materials spills, Rail road and Industrial accidents.						
Existing	Hazardous Materials Spills	1, 2, 4, 5, 7	Public Works, Finance, Community College	High	Grants/State Federal Funding/ Community College Bond Initiatives	Ongoing
Initiative #RB-8—Clear fuels/overgrowth/dead and downed vegetation in City Parks and Open Space .						
Existing	Wildfire	1, 4,5,8, 9	Fire Dept., Public Works	$25,000	Grants/General Revenues	Ongoing
Initiative #RB-9—Retrofit and maintain existing storm drain system to insure full capacity is utilized						
Existing	Flood, Severe Weather	4, 10, 16	Fire Dept., Public Works	High	Capital Improvements Program	Long-term
Initiative #RB-10—Investigate, inform and seek funding partnerships for the construction Diamond Avenues Secondary Public Access to mitigate life, health and safety hazards of reoccurring Hazardous Materials spills, Rail road and Industrial accidents.						
Existing	Hazardous Materials Spills	1, 2, 3, 4, 5, 6, 7, 8	Public Works, Finance, Community College	High	Grants/State Federal Funding/ Community College	Long-term
Initiative #RB-11—Maintain compliance and good standing under the National Flood Insurance Program (NFIP)						
New and existing	Flood	4, 8, 9	Planning Department	Low	City general Operations Fund	Short term Ongoing
Initiative #RB-12—Consider participation in the NFIP, Community Rating System (CRS)						
New and Existing	Flood	2, 4, 8, 9	Planning Department	Low	City general Operations Fund	Long-term
Initiative #RB-13—Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.						
Existing	All Hazards	2, 3, 9	Public Works, Planning Dept.	High	HMGP funding with local match provided by property owner contribution	Long-term, depends on funding
Initiative #RB-14—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	1, 2, 4 8, 9	Planning Department	Low	City general Operations Fund	Short-term

TABLE 4-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #RB-15—Support County-wide initiatives identified in Volume 1.						
New and Existing	All Hazards	1, 2, 3, 6, 9	City Council, All City departments	Low	City general Operations Fund	Short term Ongoing
Initiative #RB-16—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New and Existing	All Hazards	1,2,4,8,9	Public Works	Medium	General fund, HMGP for 5-year update	Short-term, Ongoing

TABLE 4-8.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	6	Medium	Low	Yes	Yes	Yes	High
2	7	High	High	Yes	Yes	No	High
3	5	Medium	Low	Yes	Yes	Yes	Medium
4	5	Medium	Low	Yes	Yes	Yes	Medium
5	8	Medium	Low	Yes	Yes	Yes	Medium
6	3	High	Low	Yes	Yes	No	High
7	5	High	Medium	Yes	Yes	No	High
8	5	High	Low	Yes	Yes	No	High
9	3	High	High	Yes	Yes	No	High
10	8	High	High	Yes	Yes	No	High
11	3	Medium	Low	Yes	No	Yes	High
12	4	Medium	Low	Yes	No	No	Medium
13	3	High	High	Yes	Yes	No	Medium
14	5	High	Low	Yes	No	Yes	High
15	5	Medium	Low	Yes	No	Yes	High
16	5	Medium	Medium	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 4-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Dam Failure	14	13, 14	14, 15		14	
Drought	--	--	--	--	--	--
Earthquake	2, 14, 15, 16	2,13	14, 15	2, 14	2, 14	2
Flood	3,4,6,9,11, 12, 14, 15, 16	2,3,4,5,6,9,11, 12, 13	3,4, 12, 14, 15	2,3,4,9, 11, 12, 14	2,4,5,9, 12, 14	2,9
Landslide	2,3,4,6,9, 15, 16	2,3,4,5,6,9, 13	4,5, 14	2,3,4,9, 14	2,4,5,9, 14	2,9
Severe Weather	14, 15, 16	13	14, 15	14	14	
Wildfire	1,8, 14, 15, 16	1,5,8, 13	1, 14, 15	1, 14	5,8, 14	

a. See Section 1.3 for description of mitigation types

4.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A digital elevation model based on LIDAR data would significantly enhance future updates to the risk assessment for Tehama County.

4.8. ADDITIONAL COMMENTS

Repetitive Loss Properties

Another indication of the hazards threatening Red Bluff is the frequency with which properties are repeatedly damaged by disaster events. The properties, which may be buildings, roads, utilities, or similar construction, are termed "repetitive loss properties." Properties can fall into this classification based on repeated damages from a variety of hazards. The properties identified below may fall into the repetitive loss classification:

- There are properties along the west bank of the Sacramento River that suffer damage from time to time during winter storms and high flows. Specifically properties along Rio Street, which are continually eroded and undermined causing significant damage to the slope supporting both private and public properties. This would include City Infrastructure Rio Street/Cedar Street as well as private structures.
- Properties on Aloha Street and Gilmore Road have also experienced reoccurring flooding. While drainage ways continually backs up and flood Orange Street and Delphinium Street properties and infrastructure.

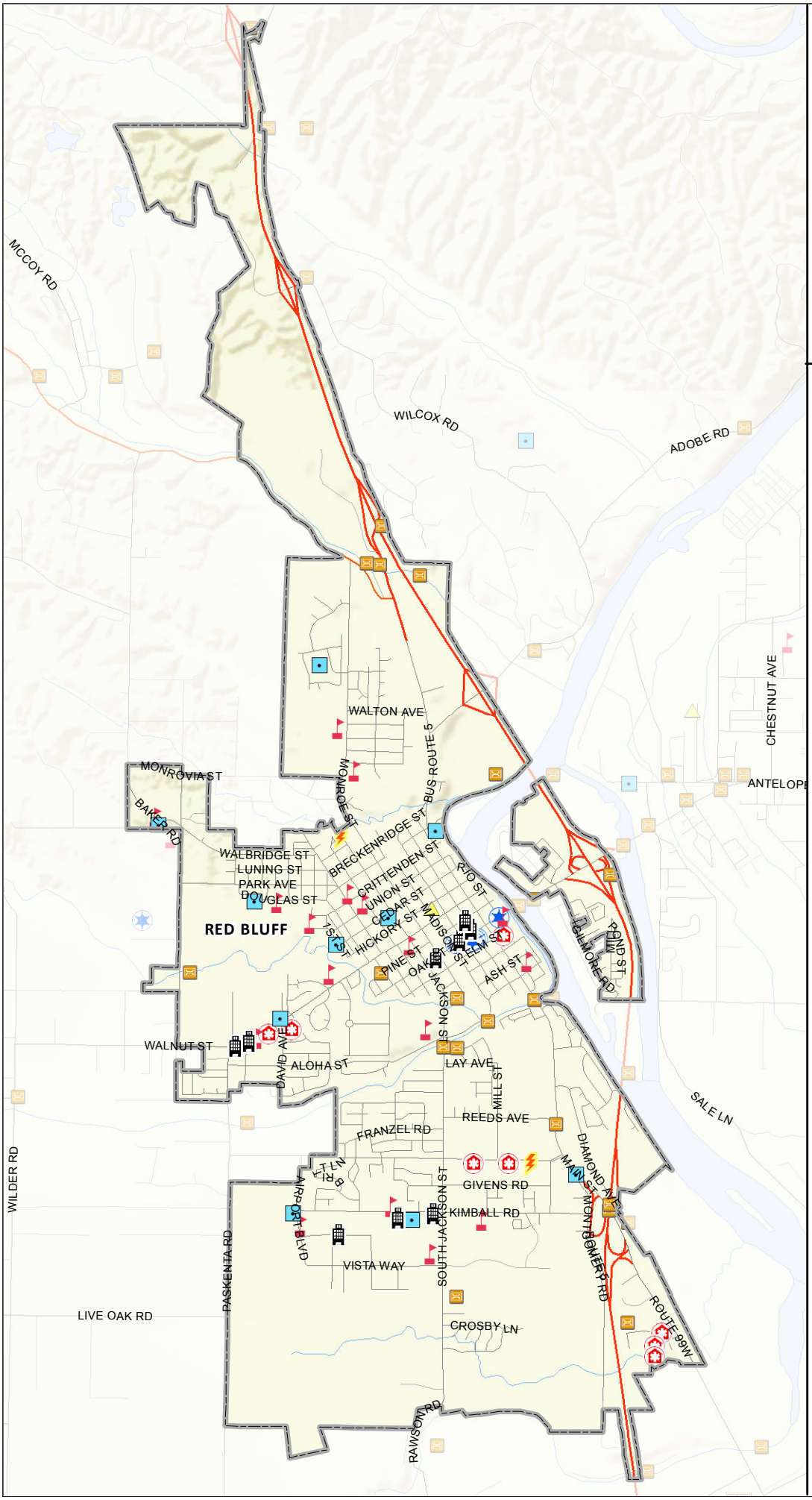
Hazardous Materials Spill (Transportation)

The City of Red Bluff has a history of recurring Hazardous Materials Spills related to transportation along Diamond Avenue, which straddles the City/County limits line. In 1983 a hazardous materials spill occurred approximately 500 feet southwest of the Shasta Tehama Community College, which is located and landlocked on Diamond Avenue between Interstate 5 to the north Sacramento River to the east, Rail Road Tracks to the west and a dead end road (Diamond Ave.) with an Industrial complex to the south. Thirty-five rail cars derailed and five caught on fire spewing toxic fumes. Again in 2001 another hazardous materials spill occurred on Diamond Ave. North of the College, which resulted in units being dispatched to an unknown substance on the side of the road, just east of the freeway over crossing. Once at scene, they activated the Shasta Cascade Hazardous Materials Team, which deployed to contain and clear the toxic materials, closed off the only access of Diamond Ave. and that which the college fronts on, Industrial manufacturing personnel will trapped at the mill sites with no other options for evacuation.

- Reoccurring hazardous materials spills continue to threaten public safety around the industrial complex on Diamond Avenue due to the closing off of the only adequate public access point that the Community College has, which threatens the health and welfare of the student, as well as, faculty. A second public access point is mandated for the college in order to provide life, health and safety for this critical facility that provides essential services and functions for the community.

4.9. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the City of Red Bluff are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

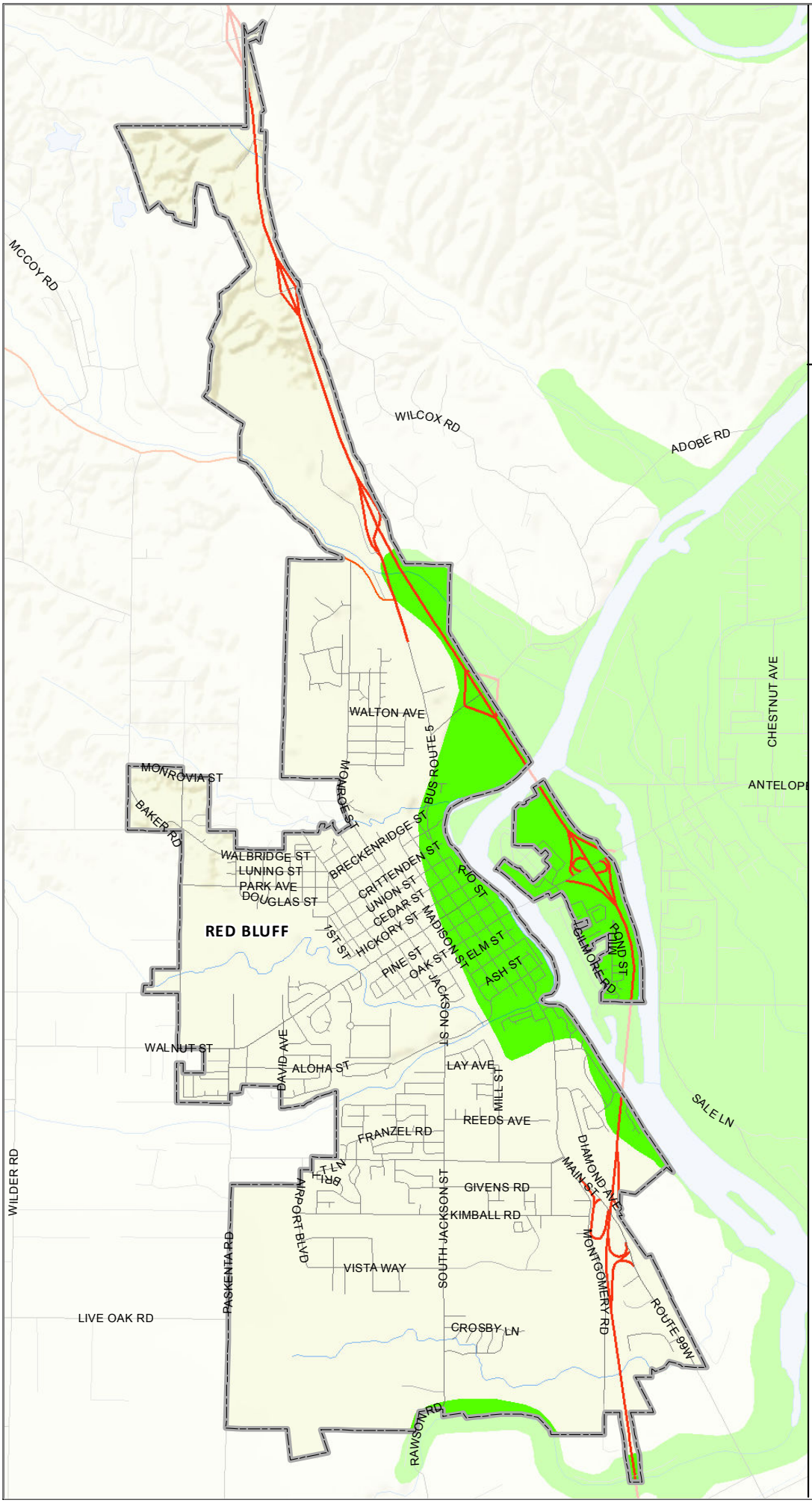
Figure x - x
Critical Facilities

- Communication
- Dam
- Government
- Medical
- Power
- Protective
- School
- Wastewater
- Water
- Other
- Bridge

N W E S

Data Sources:
Tehama County NHMP
Planning Partners, Hazus-MH MR5

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

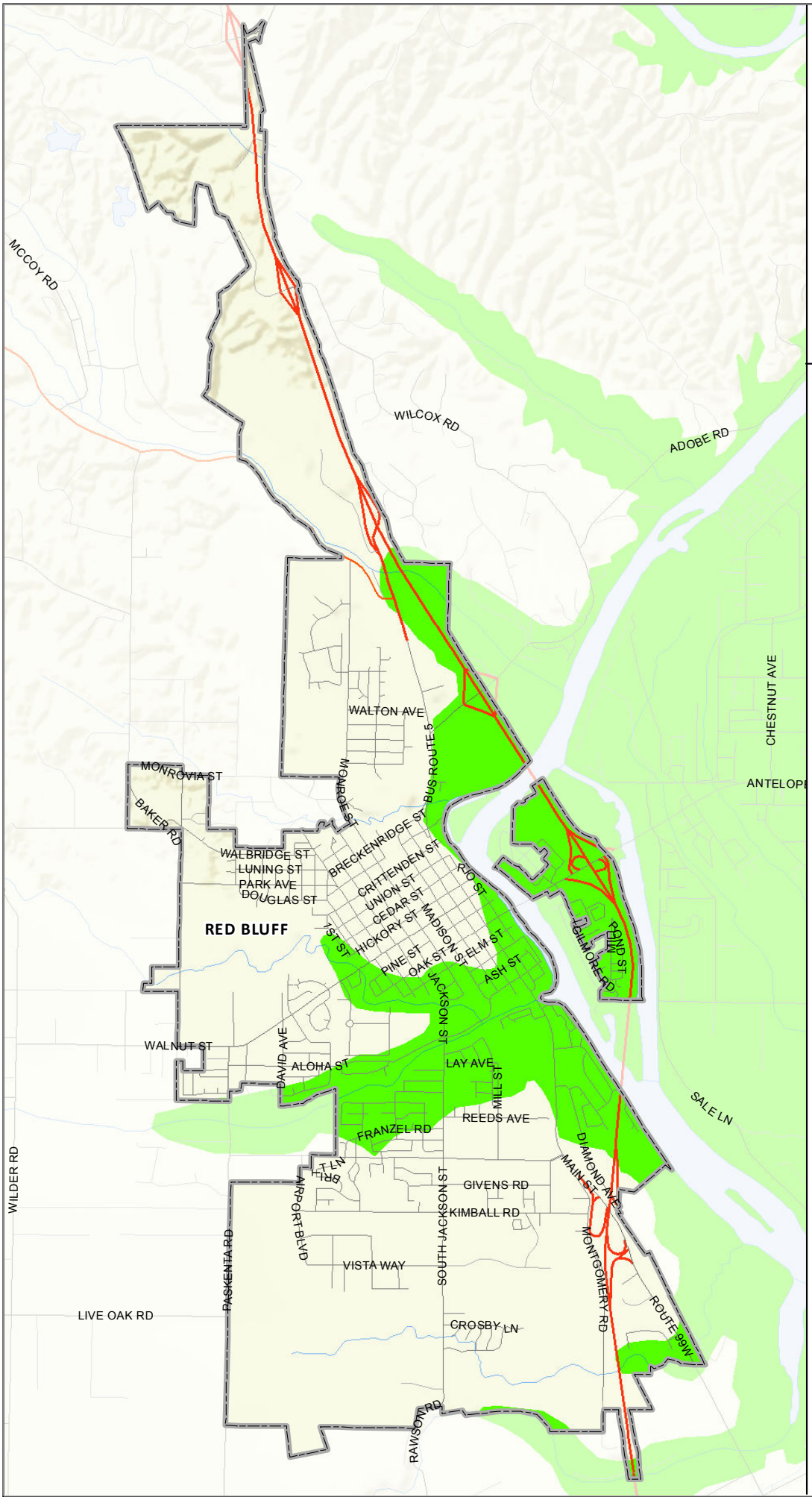
Figure x - x

Whiskeytown Dam Inundation Area

N
W E
S

Data Sources:
California Emergency Management Agency

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

Figure x - x

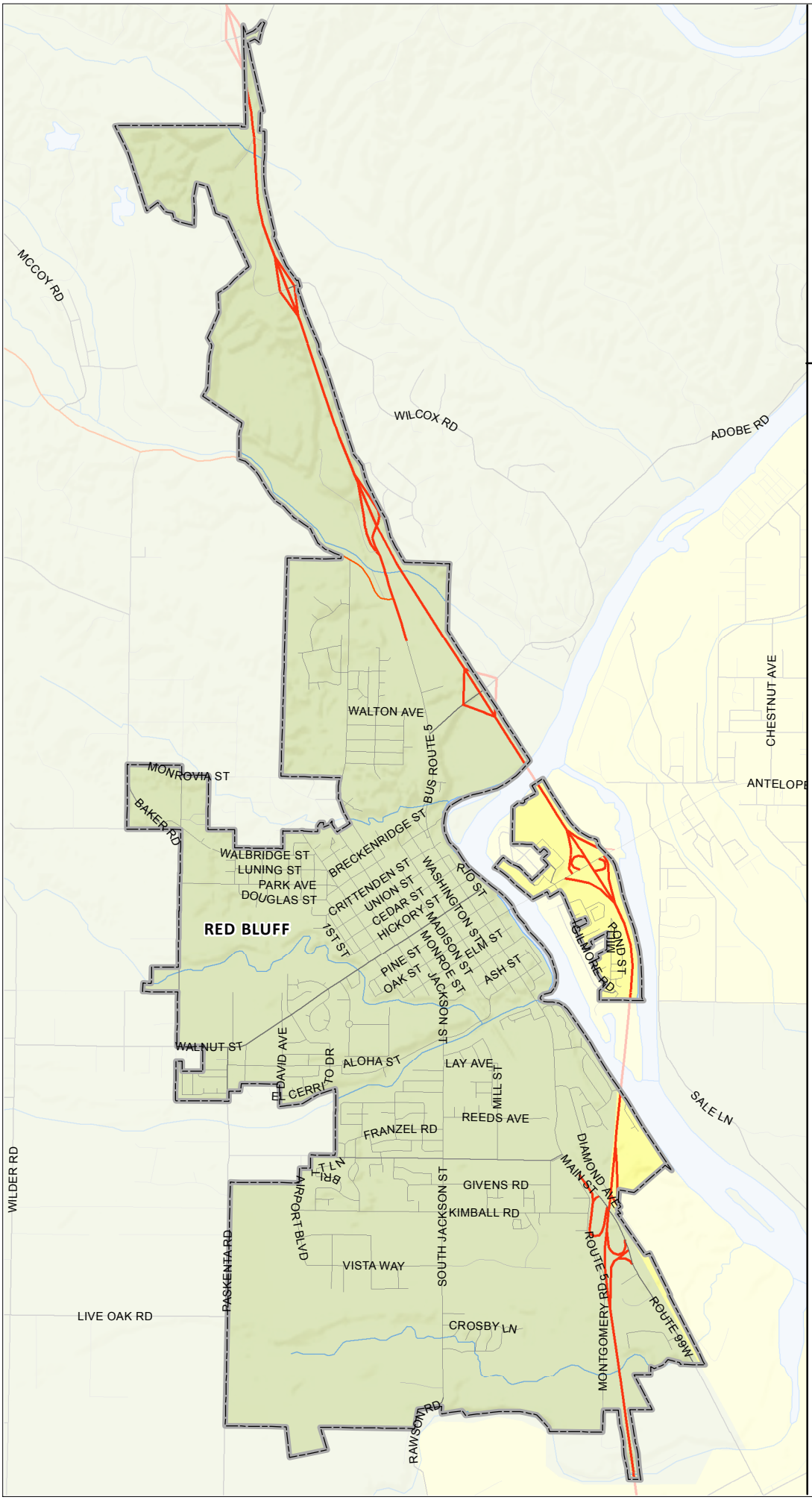
Shasta

Dam Inundation Area

N
W E
S

Data Sources:
California Emergency Management Agency

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

Figure x - x
Peak Ground Acceleration USGS 100 Year Probabilistic Event

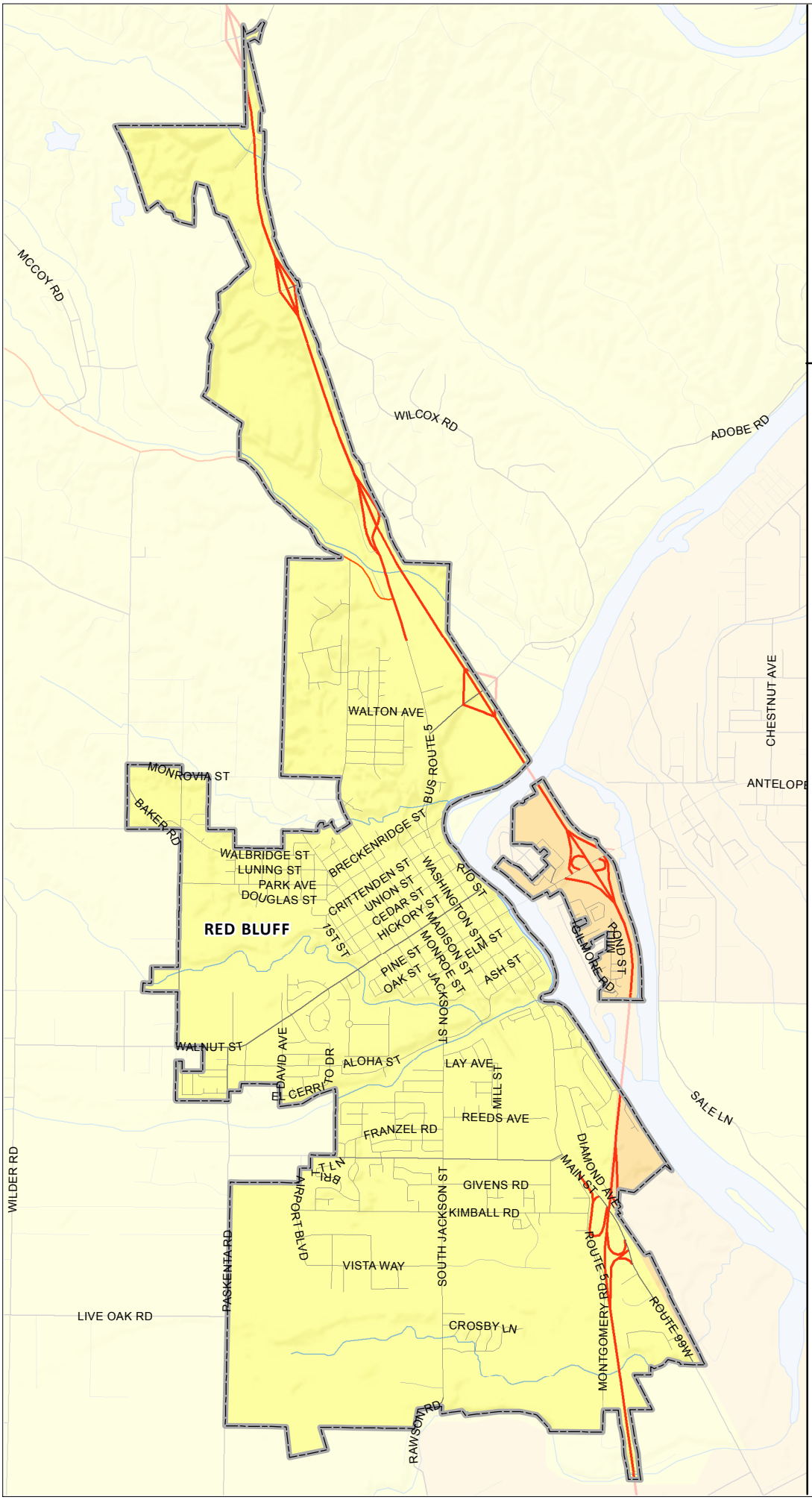
Mercalli Scale, Potential Damage

- V, Very Light
- VI, Light

N
W E
S

Data Sources:
HAZUS-MH MR4 Output,
US Geological Survey

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

Figure x - x
Peak Ground Acceleration USGS 500 Year Probabilistic Event

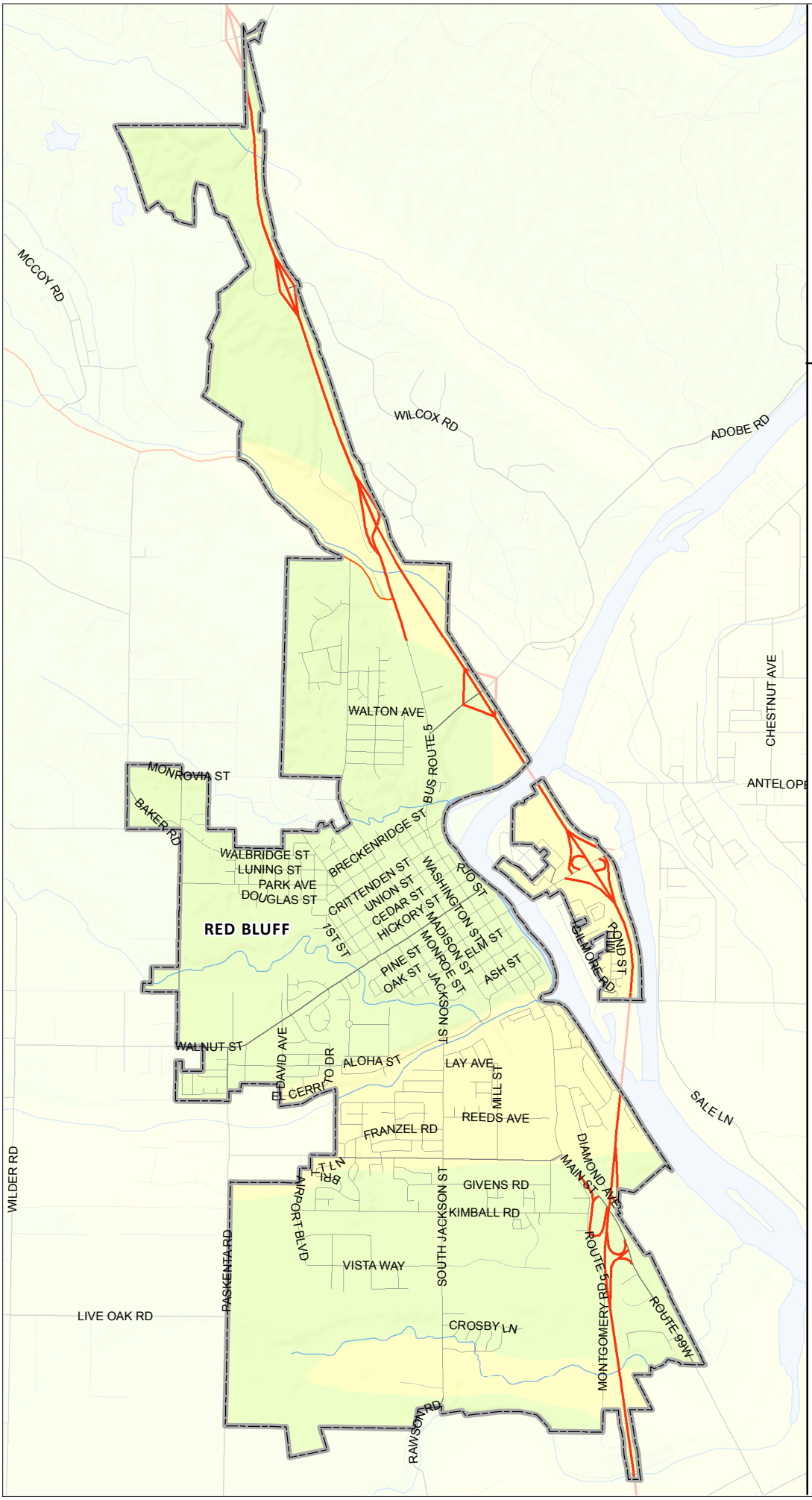
Mercalli Scale, Potential Damage

- IV, None
- V, Very Light
- VI, Light
- VII, Moderate
- VIII, Moderate to Heavy

N W E S

Data Sources:
HAZUS-MH MR4 Output,
US Geological Survey

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

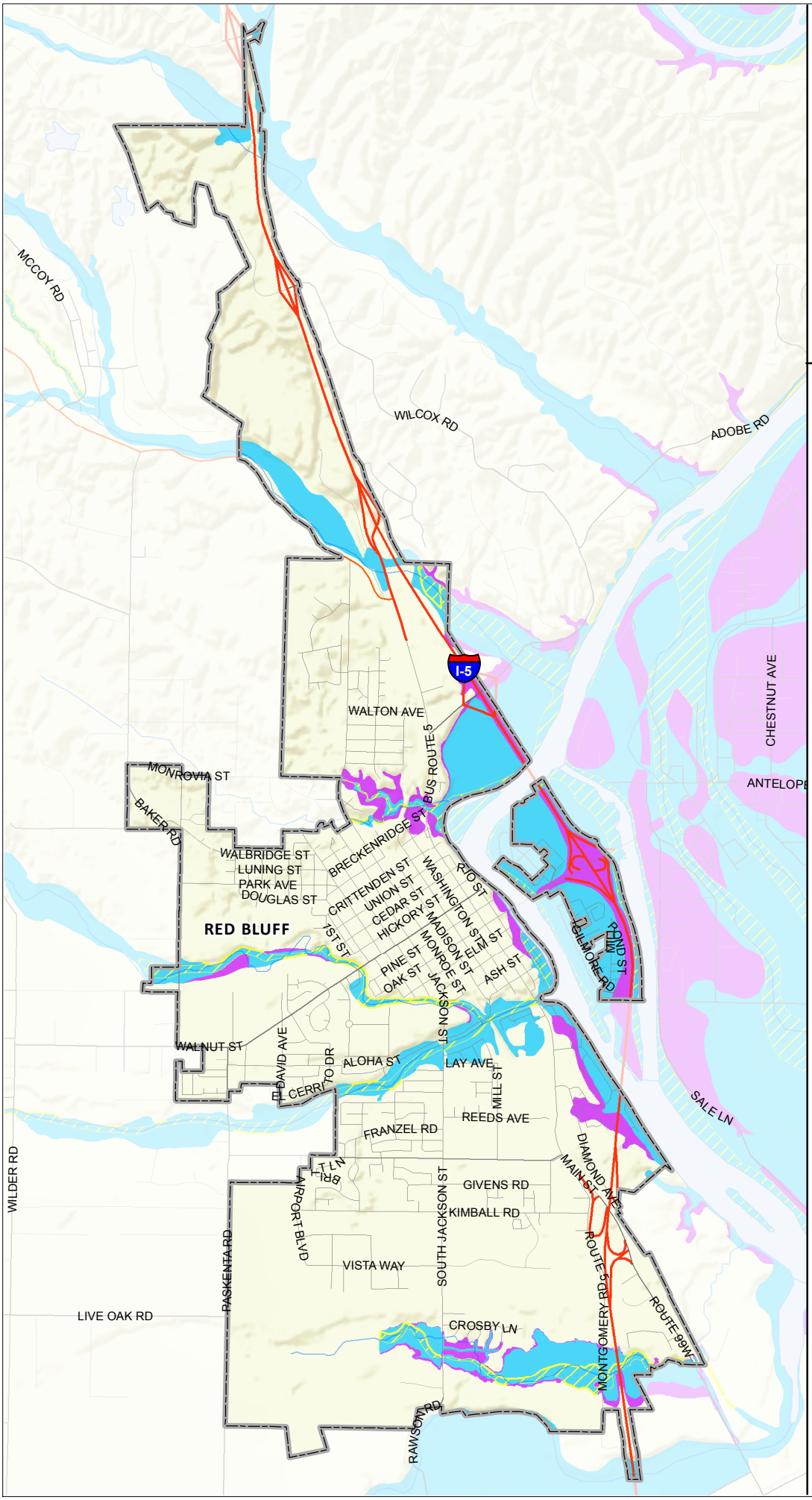
Figure x - x
National Earthquake Hazard Reduction Program (NEHRP) Soil Site Classes

- Site Class E - Soft Soil
- Site Class D - Stiff Soil
- Site Class C - Very Dense Soil and Soft Rock
- Site Class B - Rock

N W E S

Data Sources:
NEHRP Soil Data
California Department of Conservation

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

Figure x - x
Special Flood Hazard Areas

Flood Zone

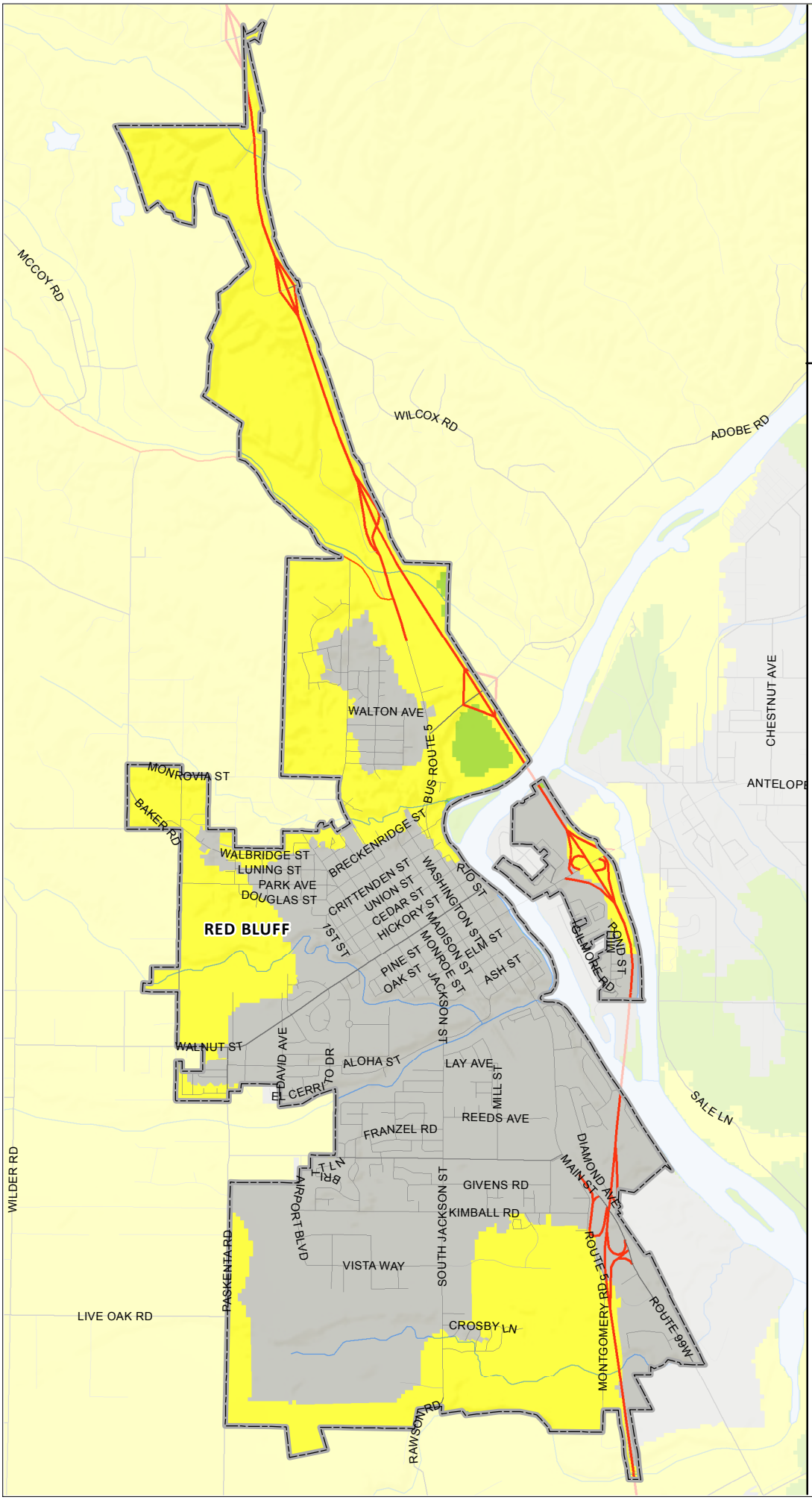
- Floodway
- 1 Percent Annual Chance Special Flood Hazard Area (100 Year)
- 0.2 Percent Annual Chance Special Flood Hazard Area (500 Year)

N W E S

Data Sources:
Flood Hazard Areas
FEMA Preliminary DFIRM

This map was prepared for informational purposes only. Lines, roads, topography, culture, and other planimetric features shown on this mapping are compiled from many different sources and may not be, necessarily, current or reliable. Tehama County assumes no liability for the accuracy of the data shown on this map.

TETRA TECH



CITY OF RED BLUFF

0 0.25 0.5 0.75 1 Miles

Figure x - x
Wildfire Hazard Areas

Fire Hazard Severity

- Very High
- High
- Moderate
- Non-Wildland/Non-Urban
- Urban Unzoned

N W E S

Data Sources:
Fire Hazard Areas
California Department of Forestry and Fire Protection

TETRA TECH

CHAPTER 5.
CITY OF TEHAMA ANNEX

5.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Carolyn Steffan, City Administrator/Clerk
PO Box 70
Tehama, CA 96060
Telephone: (530) 384-1501
e-mail Address: cdsteffan@sbcglobal.net

Alternate Point of Contact
Robert Mitchell, Mayor
PO Box 207
Tehama, CA 96090
Telephone: 530-384-2105
e-mail Address: Tehamavice@yahoo.com

5.2. JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation—July 2, 1906**
- **Current Population—**420 as of 1/1/2011
- **Population Growth—**from 1/1/2010 to 1/1/2011 there was a 0.5% growth. The 2000 census showed a population of 432. The population has remained fairly constant throughout the past few decades, gaining or losing a few residents each year.
- **Location and Description—**Tehama in located in Northern California in Central Tehama County in the Sacramento Valley on the banks of the Sacramento River.
- **Brief History--**Tehama was founded by Robert Hasty Thomes, who arrived in the area that is now Tehama County in the company of Albert G. Toomes, William Chard, and Jake F. Dye. The four men travelled northward from San Francisco, and were each given land grants from the government of Mexico in 1844, with Thomes' portion being named Rancho de la Saucos.

  "Tehama" is believed to be an Indian word, but authorities disagree on the meaning, which has variously been reported as "high water", "low land", "salmon" or "shallow"—any of which would be an accurate description of a location where the river is normally shallow enough to ford, where fishermen are a common sight during the salmon run, and winter floods are a regular occurrence. A Nomlaki village once stood on the site of modern-day Tehama on the western bank of the Sacramento River.

  Thomas mapped out the city in 1850, with First through Fifth Streets running north-south, and B through I Streets running east-west. First Street no longer exists; it was eroded away by the river. Tehama was one of the earliest California settlements north of Sacramento. The town initially thrived on the riverboat traffic.

  When Tehama County was formed in 1856, Tehama was established as the County Seat. However , the seat was moved to Red Bluff, by county-wide election, the very next year, although various local stories have circulated about how Red Bluff "stole" its county seat status from Tehama. Tehama had a reputation of being somewhat more liberal and freewheeling than the rest of the county, being the last town to go "dry" before Prohibition, and a center for bootleggers and gamblers.

Tehama's population peaked in the 1890s, at about 2000 residents, including a sizeable Chinese quarter. The city was incorporated in 1906 when plans were being made for an electric railway through the Sacramento Valley; the railway was never built, but Tehama remains as one of the smallest incorporated cities in California with the smallest general fund. A disastrous fire in 1908 combined with the decline of the riverboat traffic, caused the city to gradually lose prominence and population. Tehama has a mini-mart, a bar, and a post office leaving Tehama an almost entirely a residential neighborhood and farming area.

- **Climate—**The climate in Tehama is typical of that found in the Central Valley, with summers being very warm and dry, with mild, wet winters.
- **Governing Body Format—**Tehama has a council form of government. The 5 member council elects one of its members to serve as mayor. The council also serves as the planning commission. This body will assume responsibility for adoption and implementation of this plan. The city clerk and treasurer are also elected.

  Because of its small size and only part time employees, office hours are by appointment only. The city clerk/administrator is always available by phone. The city clerk is responsible for day-to day operations within the city and is also certified as the water operator and floodplain administrator.. In addition there is a part time maintenance person who performs all maintenance work and assists with the water system. The city contracts for a city engineer and with the County building department for issuing building permits.
- **Development Trends—**According to the 2010 census, there are 195 housing units in the City of Tehama. Tehama is ranked the 4th smallest city in California by population and the smallest by general fund budget. A 2007 income survey showed 55% of households classified as low income according to HUD charts.

  Because Tehama is located entirely in a floodplain, it is mostly agriculture and residential. Little additional development is planned. Tehama doesn't claim a sphere of influence. The focus has been on maintaining, rehabilitation and elevation of existing housing.

  This low rate of growth is anticipated to continue in the future. California law requires counties and cities to prepare and adopt a comprehensive long-range plan to guide community development. The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures and must focus on issues of the greatest concern to the community. City actions such as those relating to land use allocations, annexations, zoning, subdivisions and design review, redevelopment, and capital improvements, must be consistent with the plan. Corning adopted its general plan under this state mandate in 2003. Future County growth and development will be managed as identified in the plan.

5.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 5-1 lists all past occurrences of natural hazards in the county. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 5
- Number of Repetitive Flood Loss Properties that have been mitigated: 2

5.4. HAZARD RISK RANKING

Table 5-2 presents the ranking of the hazards of concern.

5.5. CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 5-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 5-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 5-5. Classifications under various community mitigation programs are presented in Table 5-6.

5.6. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 5-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 5-8 identifies the priority for each initiative. Table 5-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

5.7. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The City of Tehama would like to better define risks and vulnerability to the various hazards.

5.8. ADDITIONAL COMMENTS

The City of Tehama has ongoing and historical incidences of flooding, which affects all of the City's land area and homes. Flood losses have not been accurately recorded, primarily due to a lack of claims requests by residents for the full cost of recovery from flood damage. Homes that were elevated after the floods of 1937 and 1940 (prior to the building of Shasta Dam) did not receive damage in later floods. As a result of those experiences, the City has actively pursued funding to elevate homes that are below the 100 year flood level. 144 of the 195 homes are now above the FEMA 100 year flood level. A more recent Army Corps study established higher 100 year flood levels; only 84 homes are above those levels.

5.9. HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps for the City of Garden City are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

TABLE 5-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Flood	02/09/1998	*b*
Flood	01/04/1997	$23,208 - streets*b*
Flood	03/12/1995	27,870 – streets*b*
Flood	01/10/1995	$48,520- streets*b*
Flood	02/03/1993	*b*
Severe freeze	02/21/1991	*b*
Flood	02/21/1986	*b*
Flood	02/09/1983	*c*
Flood	01/25/1974	*b*
Flood	02/16/1970	*b*
Flood	01/26/1969	*b*
Flood	07/16/1965	*b*
Flood	12/24/1964	*b*
Severe Weather*a*	Not available	Not available
Earthquake*a*	Not available	Not available
Drought*a*	Not available	Not available

a. The City of Tehama has had natural hazard events in this category, however no specifics are available. There is no documentation at the City level that provides data as to dates, number of occurrences, monetary damage assessments or any other supporting documentation. Known past impacts of the hazards has been minimal as it relates to major property damages and financial losses.
b. Payments for pre-FIRM-built houses by NFIP from 1/1/1978 through 9/30/2010 totaled $386,813.08. $ Amounts listed are for streets only.
c. 1983 flood survey showed 34 houses with water in them or damage to them.

TABLE 5-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	3 x (9+6+3) = 54
2	Severe Weather	3 x (6+4+3) = 39
3	Earthquake	2 x (9+2+1) = 24
4	Dam Failure	1 x (6+4+3) = 13
5	Wildfire	3 x (3 +0+1) = 12
6	Drought	3 x (0+0+3) = 9
7	Avalanche	2 x (0+0+0) = 0
7	Landslide	2 x (0+0+0) = 0

TABLE 5-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	N	Y	Y	International Building Code Ordinance 170, adopted 2008
Zoning Code	Y	N	N	Y	Title 17 adopted 1973 by ordinance #89.
Subdivisions	N	N	N	N	Ordinance #171, adopted
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	Y	N	N	Y	CA Civil Code 1102 requires disclosure on natural hazard exposure for sale of all real property
Growth Management	Y	N	N	Y	City of Tehama general plan adopted pursuant to state growth management act in 2003
Site Plan Review	Y	N	N	Y	
Special Purpose (flood management, critical areas)	Y	N	N	N	Flood Damage Prevention- City Code Chapter 15.08 amended in 2003
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	Updated 2003. Housing El 2010
Floodplain or Basin Plan	Y	N	N	N	Flood Hazard Mitigation Plan, Ordinance 159, amended 2003.
Stormwater Plan	Y	N	N	N	Ordinance 171, adopted 3/11/2008
Capital Improvement Plan	Y	N	N	N	
Habitat Conservation Plan	N	N	N	N	
Economic Development Plan	N	N	N	N	
Shoreline Management Plan	N	N	N	N	
Emergency Response Plan	Y	N	N	Y	
Continuity of Operations Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	
Terrorism Plan	N	N	N	N	
Other	Y	N	N	N	The City of Tehama has a Water Systems Plan, Ord. #174 adopted 10/13/2009

TABLE 5-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	City has a contract Engineer
Engineers or professionals trained in building or infrastructure construction practices	Y	City contracts with Tehama County Building Dept.
Planners or engineers with an understanding of natural hazards	Y	Contract City Engineer
Staff with training in benefit/cost analysis	Y	City Clerk/Administrator
Floodplain manager	Y	City Clerk/Admin is certified floodplain manager
Surveyors	Y	Provided by Contract City Engineer
Personnel skilled or trained in GIS applications	Y	City Clerk – some training
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	Provided by Tehama County Sheriff's Office
Grant writers	Y	City Clerk/Administrator

TABLE 5-5.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for Specific Purposes	Y-limited by Prop 218
User Fees for Water, Sewer, Gas or Electric Service	Y –Prop 218
Incur Debt through General Obligation Bonds	Y
Incur Debt through Special Tax Bonds	Y
Incur Debt through Private Activity Bonds	N
Withhold Public Expenditures in Hazard-Prone Areas	N
State Sponsored Grant Programs	Y
Development Impact Fees for Homebuyers or Developers	Y
Other	Y

TABLE 5-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Y	6	10/1/2008
Building Code Effectiveness Grading Schedule	Y	9/9	--
Public Protection	Unknown	Unknown	Unknown
Storm Ready	N	--	--
Firewise	N	--	--

TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #T1—Designate floodplain areas; preserve open space; ensure consistency of floodplain regulations with General Plan.						
New & existing	Flood	1, 4, 5, 8	City	low	General Fund	Ongoing
Initiative #T2—Refer development proposals that impact flood protection to other agencies as applicable, including Army Corps, FEMA. Require drainage plans.						
New	Flood	8	City	low	General Fund	Ongoing
Initiative #T3—Continue participation in NFIP and CRS; seek CRS classification improvements. Promote purchase of flood insurance.						
New & existing	Flood	1, 2, 3, 4, 5, 6, 7, 8, 9	City	medium	General Fund	Ongoing
Initiative #T4—Continue outreach program to provide information needed to increase awareness and modify actions to reduce flood damage, encourage flood insurance coverage and protect natural functions of floodplains.						
New & existing	Flood	2, 9	City	low	General Fund	Ongoing
Initiative #T5—Continue to pursue regional approach to flood issues by remaining involved in County Multi-Hazard Mitigation Plan.						
New & existing	Flood	6	City/County	low	General Fund	Ongoing
Initiative #T6—Continue to develop, implement, and expand the Flood Alert and Early Warning Program systems.						
New & existing	All hazards	7	City	low	General Fund	Short term
Initiative #T7—Identify special needs residents and stay-at-home children that may require special assistance in hazard situations.						
New	All hazards	7	City	low	General Fund	Short term

TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #T8—Monitor and regularly update City hazard studies whenever information becomes available that would significantly modify previous date. Update GIS data.						
New & existing	All hazards	5	City/County / FEMA/ DWR	low	General Fund	Ongoing
Initiative #T9—Implement a plan to keep brush & debris clear from Tehama Simpson Slough.						
New & existing	Flood					
Initiative #T10—Continue annual inspection and maintenance of City's storm drain systems.						
Existing	Floods, Severe weather	1, 4	City	low	General Fund	Ongoing
Initiative #T11—Analyze solutions to Gyle Rd flooding & funding sources. Improve barricading of Gyle Rd during flooding.						
New & existing	Flood, Severe weather	1, 4	City	Medium	Gas tax, FEMA grants	Ongoing
Initiative #T12—Repair culvert on Gyle Rd for drainage of Oak Creek.						
New & existing	Flood, Severe weather	1, 4	City	Medium	Gas Tax, FEMA Grants	Short term
Initiative #T13—Continue to promote programs to elevate and retrofit structures to protect from future damage, with repetitive loss properties as priority.						
New & existing	Flood, Earthquake	2, 3, 4, 9	City	high	FEMA grants with local match by property owner contribution, CDBG	Long term depends on funding availability
Initiative #T14—Perform a dam failure analysis to determine probably impact of flooding within Tehama if Shasta Dam fails & create a dam failure element for City's emergency response plan.						
New & existing	Flood	1, 2, 5, 7, 9	City/DWR	Medium	General Fund, FEMA grants	Long-term
Initiative #T15—Investigate accuracy of river gauge to obtain readings on water levels and educate public on readings.						
New & existing	Flood	2, 7	City/DWR	low	General Fund	Short term
Initiative #T16—Elevate or move City Hall to a structure with lower risk for flooding.						
Existing	Flood	1	City	high	FEMA Grant	Long term
Initiative #T17—Integrate, where appropriate, goals, objectives and initiatives of Tehama Hazard Mitigation Plan into City General Plan, regulations and programs where appropriate						
New & existing	All hazards	1, 8	City	low	General Fund	Short term
Initiative #T18—Support county-wide initiatives identified in Volume I						
New & existing	All hazards	3, 6	City/County	low	General Fund	Ongoing

TABLE 5-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #T19—Collect information and participate in programs which address emergency preparedness.						
New & existing	All hazards	1, 2, 3, 4, 8, 9	City	low	General Fund	Ongoing
Initiative #T20—Continue to participate in agreement with County for cooperative response to all hazards and disasters.						
New & existing	All hazards	3, 6, 2	City	low	General Fund, COPS funding	Ongoing
Initiative #T21—Inform and educate public on hazard mitigation; develop web site; annual dissemination of information.						
New & existing	All hazards	2, 5, 9	City	Low	General Fund	Ongoing
Initiative #T22—Continue tree trimming program of 140-year old black walnut trees						
Existing	Severe weather	1, 4	City	Medium	General Fund	Short term
Initiative #T23—Undertake Earthquake Study for all critical facilities and non-reinforced masonry buildings. Seismic retrofit of identified buildings.						
Existing	Earthquake	1, 2, 4, 9	City	High	FEMA Grants	Long term
Initiative #T24—Implement an automatic gas shut off valve install program.						
New & existing	Earthquake	1, 2, 4, 9	City	Medium	FEMA Grants, CDBG	Medium
Initiative #T25—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & existing	All hazards	9	City	Low	General Fund	Ongoing
Initiative #T26—Continue to participate in mutual-aid agreements, such as in WARN –Water Assistance Resource Network- to get assistance in disaster situations.						
New & existing	All hazards	3, 6	City /WARN	Low	General Fund	Ongoing
Initiative #T27—Develop and promote water conservation programs.						
New & existing	Drought	2, 4, 9	City	Low	Water Fund	Short term
Initiative #T28—Continue weed abatement program .						
New & existing	Wildfire	1, 4, 9	City	Low	General Fund	Ongoing
Initiative #T29—Continue to maintain compliance and god standing under the national Flood Insurance program (NFIP)						
New & existing	Flood	4,8,9	City	Low	General Fund	Short term, Ongoing
Initiative #T30—Consider appropriate higher regulatory standards that prevent or reduce risk to the built environment from the known hazards of concern.						
New & Existing	All Hazards	1,2,4,8,9	City	Low	General Fund	Long term

TABLE 5-8.
MITIGATION STRATEGY PRIORITY SCHEDULE

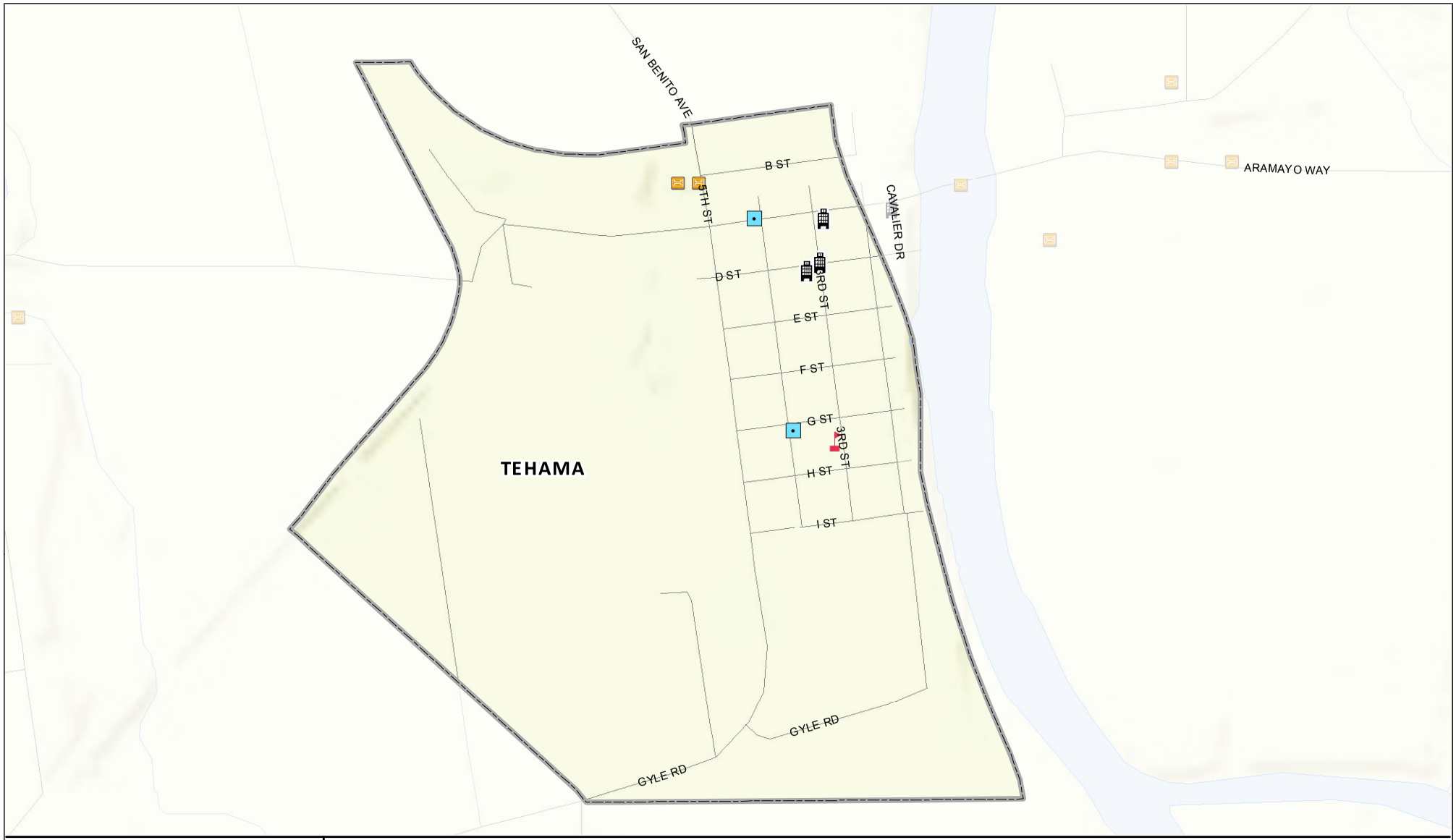
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	4	High	Low	Yes	Yes	Yes	High
2	1	Medium	Low	Yes	No	Yes	Medium
3	9	High	Low	Yes	No	Yes	High
4	2	High	Low	Yes	No	Yes	High
5	2	Medium	Low	Yes	No	Yes	Medium
6	1	Medium	Low	Yes	No	Yes	High
7	1	Medium	Low	Yes	No	Yes	Medium
8	1	Medium	Low	Yes	No	Yes	Medium
9	2	Medium	Low	Yes	Yes	Yes	High
10	2	Medium	Low	Yes	Yes	Yes	Medium
11	2	High	Medium	Yes	Yes	No	High
12	2	Medium	Medium	Yes	Yes	No	Medium
13	4	High	High	Yes	Yes	No	High
14	5	High	Medium	Yes	Yes	No	Medium
15	2	Medium	Low	Yes	Yes	Yes	Medium
16	1	High	High	Yes	Yes	No	Medium
17	2	Medium	Low	Yes	No	No	Medium
18	2	Medium	Low	Yes	No	No	Medium
19	6	High	Low	Yes	No	Yes	High
20	3	High	Low	Yes	No	Yes	High
21	3	High	Low	Yes	No	Yes	High
22	2	High	Medium	Yes	No	Yes	Medium
23	4	Medium	Medium	Yes	Yes	No	Medium
24	4	Medium	Medium	Yes	Yes	No	Medium
25	1	Medium	Low	Yes	No	Yes	Medium
26	2	Medium	Low	Yes	No	Yes	Medium
27	3	Medium	Low	Yes	No	Yes	Medium
28	3	Medium	Low	Yes	No	Yes	Medium
29	3	Medium	Low	Yes	No	Yes	High
30	5	Medium	Low	Yes	No	Yes	Medium

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 5-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Dam Failure	25, 30		4			
Drought	25, 8, 30		7.21.25,	30	6, 7, 19, 20, 26	
Earthquake	8, 23.25, 30		7.21.25	30	6, 7, 19, 20, 26	
Flood	1, 2, 3, 5, 8, 10.14, 17, 18, 25, 29, 30	9, 13, 16	3, 4, 5, 7, 15, 18, 21, 25	4, 30	6, 7, 19, 20, 26	11, 12
Landslide	--	--	--	--	--	--
Severe Weather	25, 8, 30		7.21.25	22, 30	6, 7, 19, 20, 26	
Wildfire	25, 8, 30	9	7.21.25	28, 30	6, 7, 19, 20, 26	

a. See Section 1.3 for description of mitigation types



CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Critical Facilities

- Communication
- Dam
- Government
- Medical
- Power
- Protective
- School
- Wastewater
- Water
- Other
- Bridge

N W E S

Data Sources:
Tehama County NHMP
Planning Partners, Hazus-MH MR5

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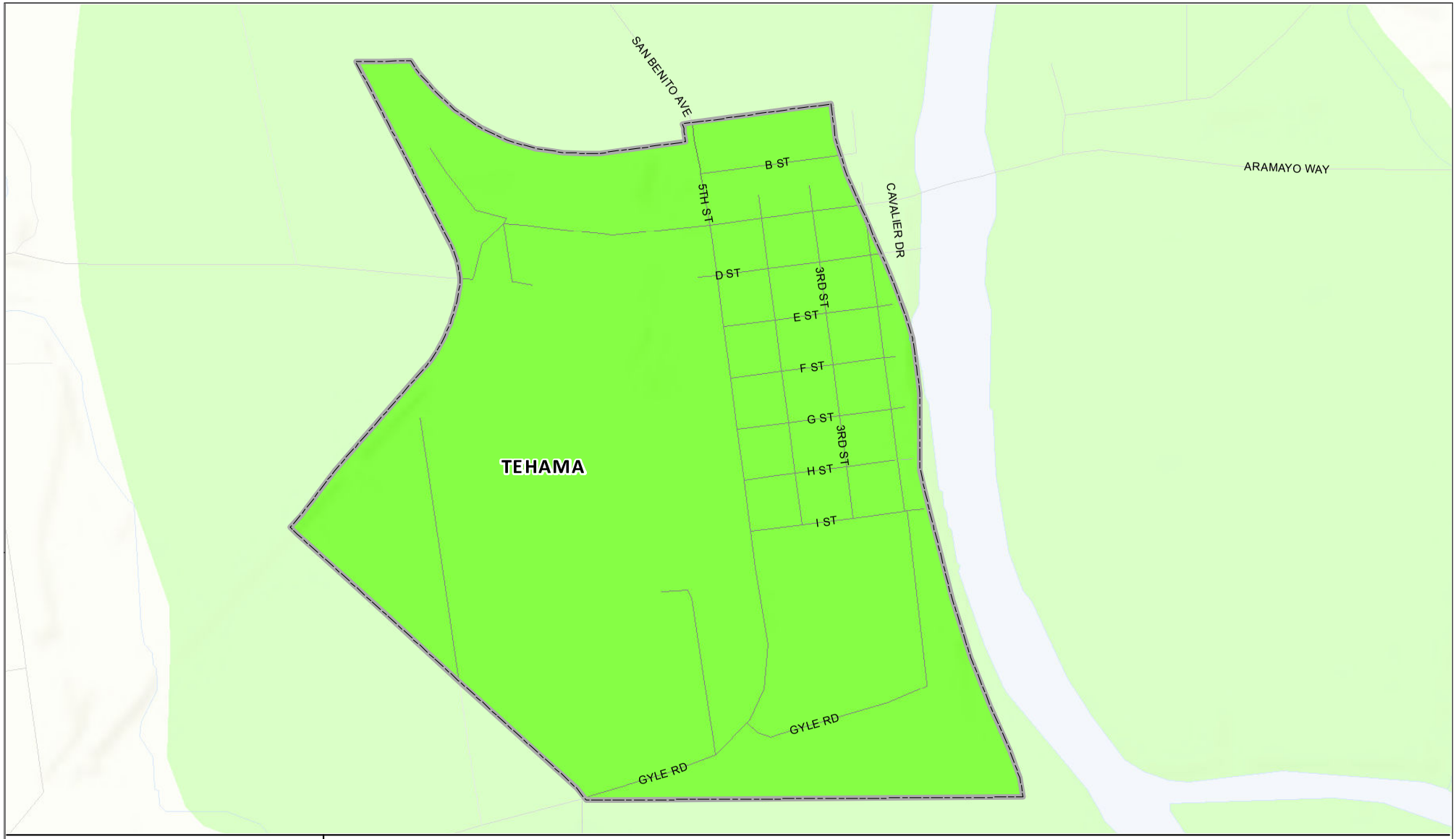

CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Whiskeytown Dam Inundation

N W E S

Data Sources:

California Emergency Management Agency

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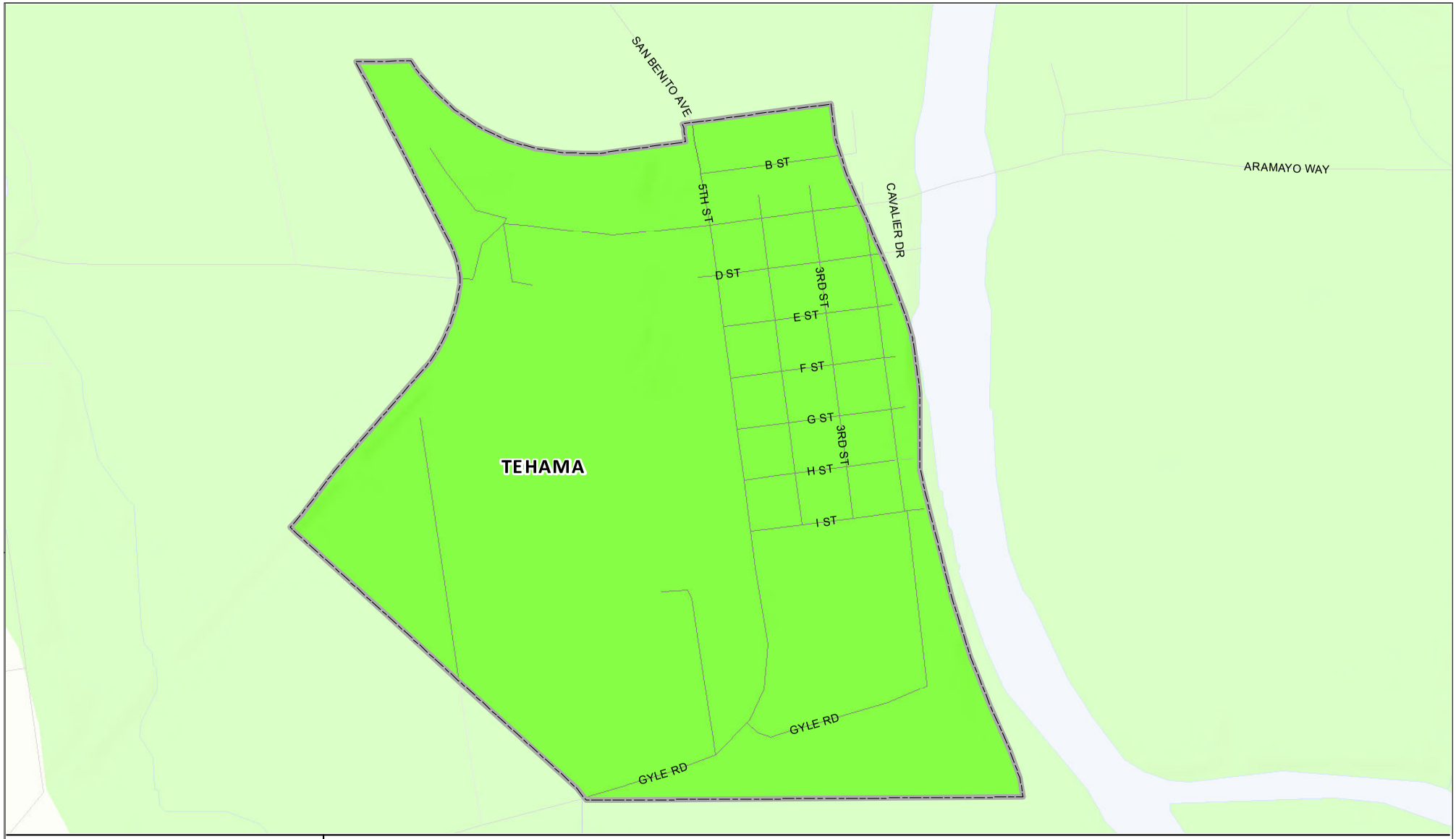

CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Shasta Dam Inundation

N W E S

Data Sources:

California Emergency Management Agency

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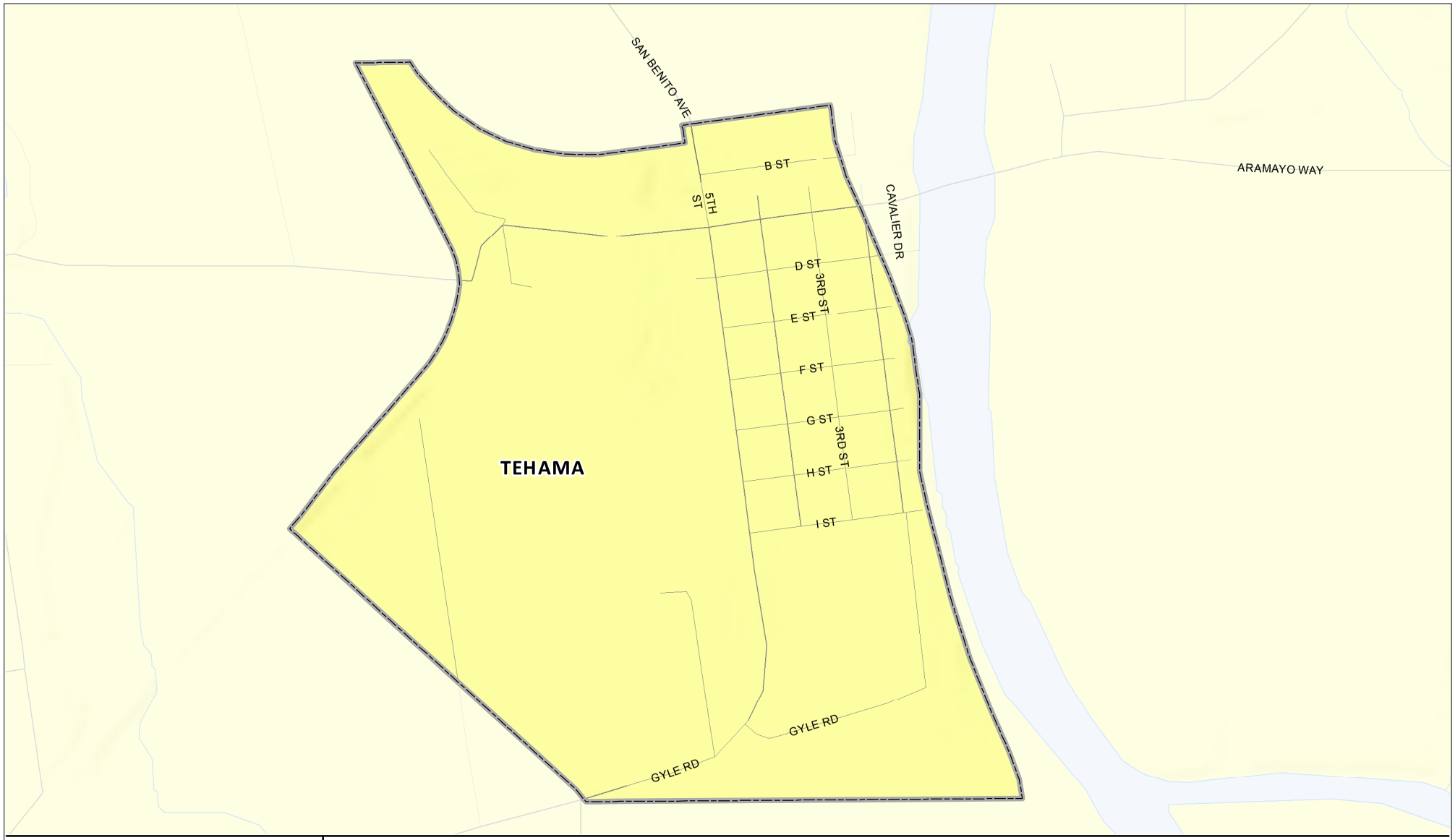


CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Peak Ground Acceleration
USGS 100 Year Probabilistic Event

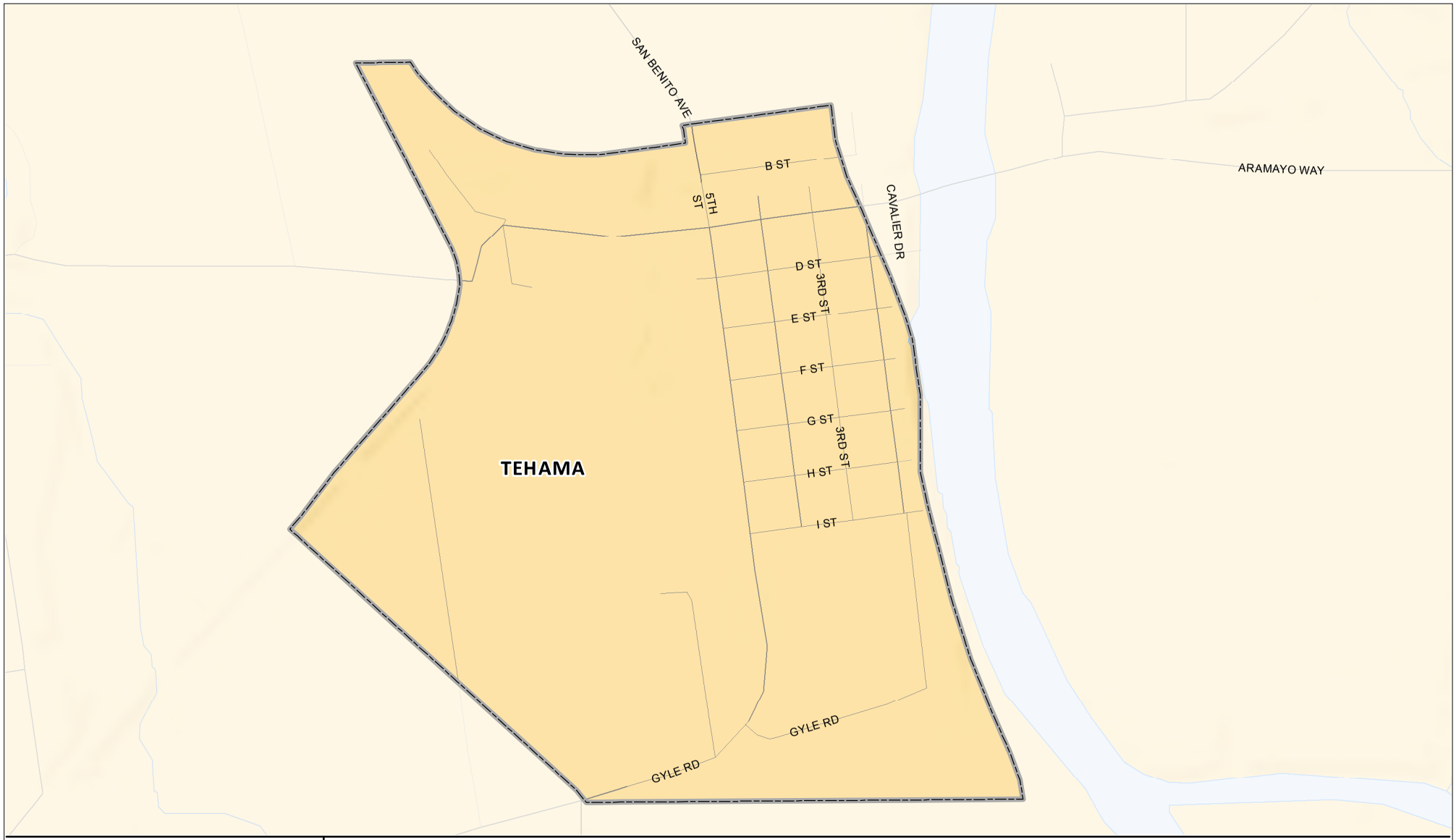
Mercalli Scale, Potential Damage

- IV, None
- V, Very Light
- VI, Light
- VII, Moderate
- VIII, Moderate to Heavy

N W E S

Data Sources:
HAZUS-MH MR4 Output
US Geological Survey

TETRA TECH



CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Peak Ground Acceleration
USGS 500 Year Probabilistic Event

Mercalli Scale, Potential Damage

- IV, None
- V, Very Light
- VI, Light
- VII, Moderate
- VIII, Moderate to Heavy

N W E S

Data Sources:
HAZUS-MH MR4 Output
US Geological Survey

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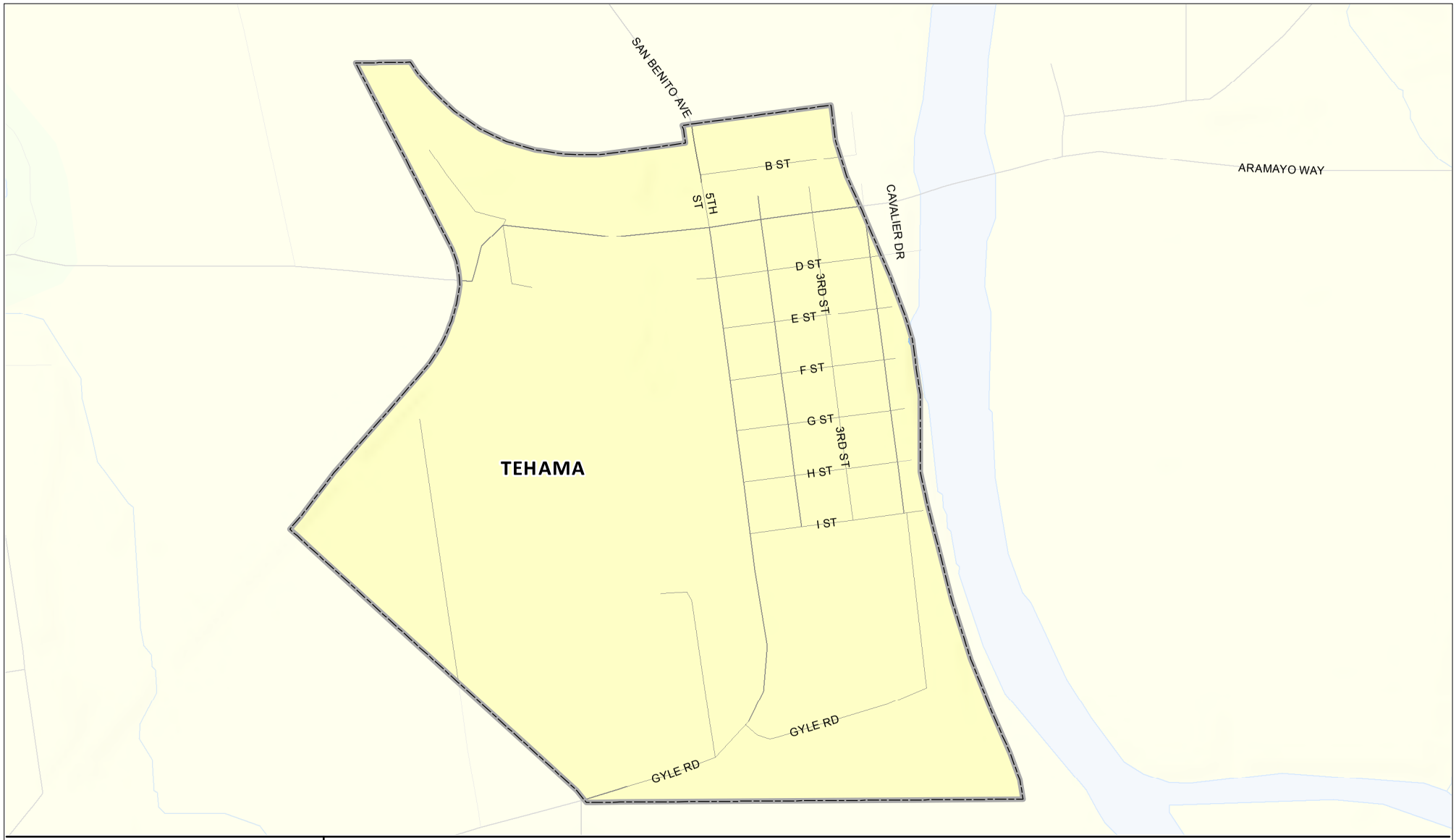

CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

National Earthquake Hazard Reduction Program (NEHRP) Soil Site Classes

- Site Class E - Soft Soil
- Site Class D - Stiff Soil
- Site Class C - Very Dense Soil and Soft Rock
- Site Class B - Rock

N W E S

Data Sources:
NEHRP Soil Data
California Department of Conservation

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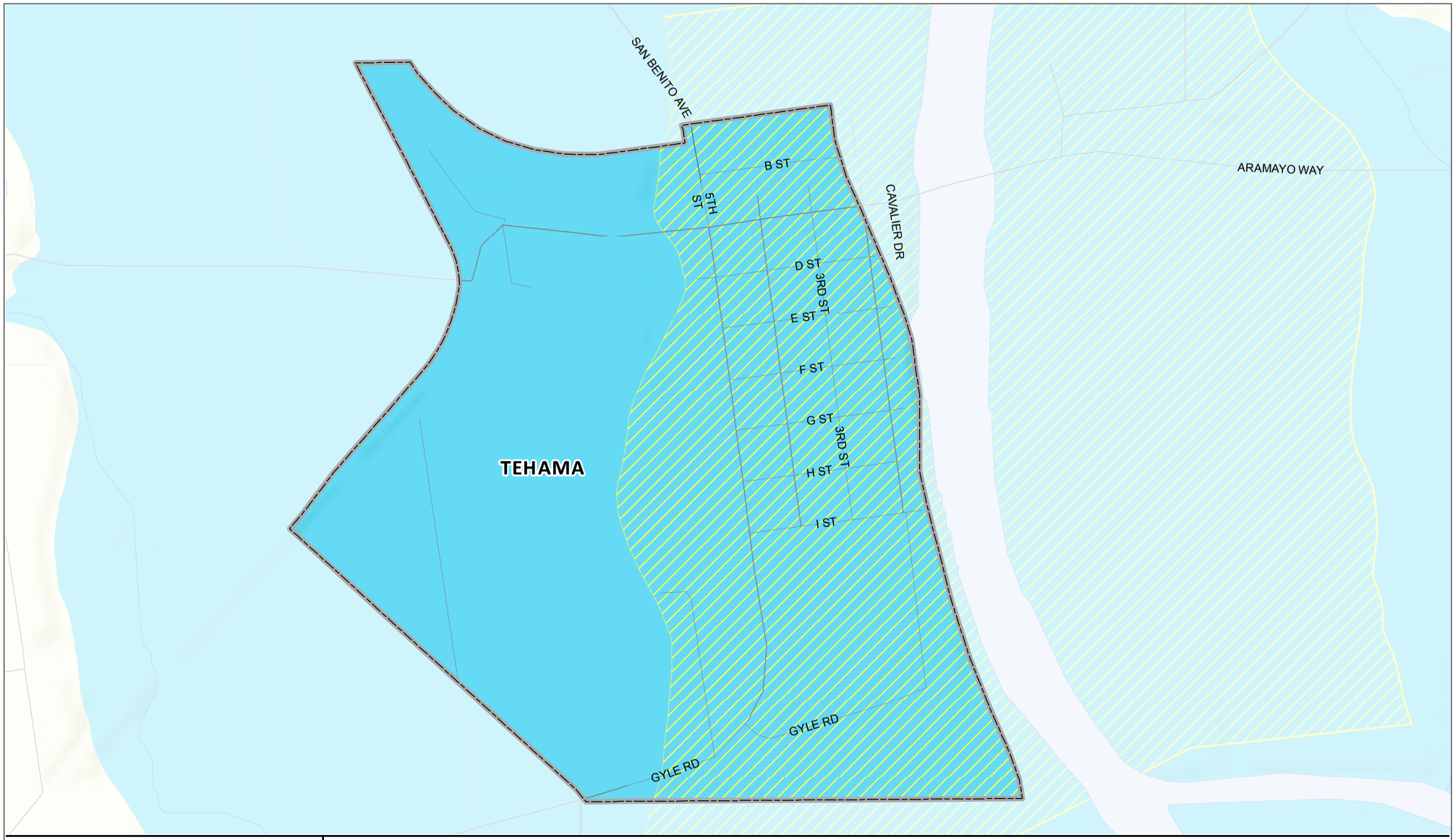

CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x

Special Flood Hazard Areas

Flood Zone

- Floodway
- 1 Percent Annual Chance Special Flood Hazard Area (100 Year)
- 0.2 Percent Annual Chance Special Flood Hazard Area (500 Year)

N W E S

Data Sources:
Flood Hazard Areas
FEMA Preliminary DFIRM

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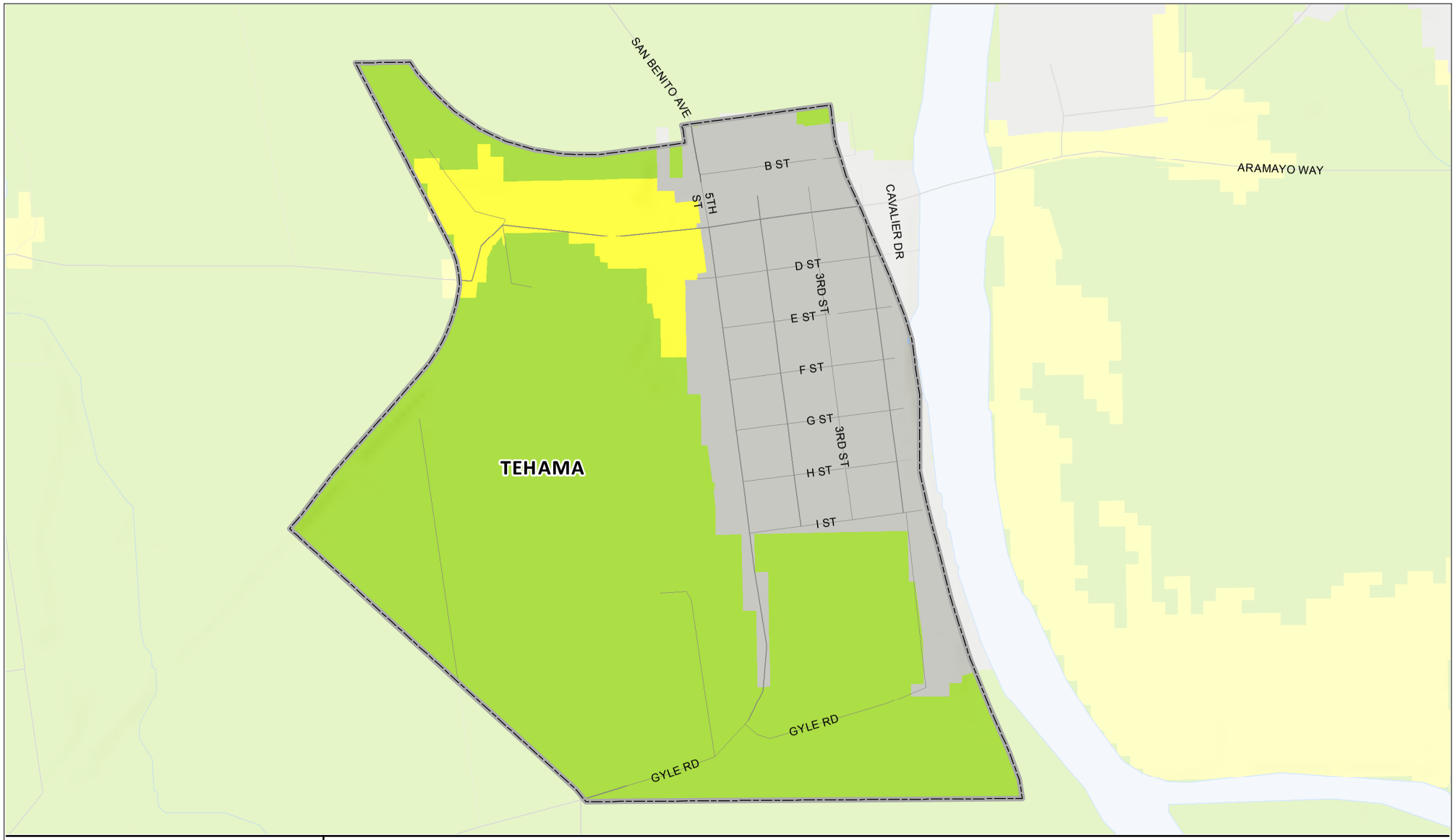
TETRA TECH



CITY OF TEHAMA

0 500 1,000 1,500 Feet

Figure x - x
Wildfire Hazard Areas

Fire Hazard Severity

- Very High
- High
- Moderate
- Non-Wildland/Non-Urban
- Urban Unzoned

N W E S

Data Sources:
Fire Hazard Areas
California Department of
Forestry and Fire Protection

This map was prepared for informational purposes only. Lines, roads, topography, culture, and other planimetric features shown on this mapping are compiled from many different sources and may not be, necessarily, current or reliable. Tehama County assumes no liability for the accuracy of the data shown on this map.

TETRA TECH

PART 3—
SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 6.
CAPAY FIRE PROTECTION DISTRICT ANNEX

6.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Ian Turnbull, Fire Chief
50 Fourth Avenue
Orland, California 95963
Telephone: (530) 864-8477
e-mail Address: ian_turnbull@ruralits.com

Alternate Point of Contact

Lori Finch, Board Administrative Assistant
Post Office Box 4527 / 50 Fourth Avenue
Orland, California 95963
Telephone: (530) 852-7834
e-mail Address: lorifinch143@gmail.com

6.2. JURISDICTION PROFILE

The Capay Fire Protection District encompasses just over 24 square miles across both Tehama and Glenn counties and has a population of approximately 1500 people. It is comprised of flat valley agricultural land and primarily made up of small farms, orchards and dairies. The district provides fire suppression, traffic collision rescue, medical aid and public assistance services and has done so since 1964. In addition to farm and residential areas, responsibilities include a 50-acre agricultural dehydrator facility, a kindergarten through eighth grade school campus, a power substation and a communications facility. Additionally, the district provides service to Glenn-Colusa Irrigation District's main pumping station, which is part of the Central Valley Water Project.

The Capay Fire Protection District is an entirely volunteer group and has 25 active firefighters including 5 officers. Firefighters respond to between 55 and 100 calls for service per year, with approximately 30% of those calls being mutual-aid assistance to nearby departments. The district has a single, centrally located, fire station and a current vehicle roster that includes two pumper trucks, one rescue truck and two water tenders. District governance consists of a 5 member elected board with 4-year terms. The primary source of district funding is through the county property tax and a per parcel special district tax that provides a total revenue of approximately $70,000 per year.

The following is a summary of key information about the jurisdiction:

- **Population Served—**1500 as of 2010
- **Land Area Served—**Approximately 24 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $48,905,459
- **Land Area Owned—**0.59 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Initial Attack Apparatus (150) and Contents $220,000
  - Initial Attack Apparatus (160) and Contents $220,000
  - Rescue Apparatus (170) and Contents $140,000
  - Water Tender (180) and Contents $200,000
  - Water Tender (180) and Contents $200,000

  - Maintenance Equipment $100,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $1,080,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Firehouse Operations Building $250,000
  - Firehouse Truck Building $300,000
  - Water Supply Tank and Well $100,000
  - Radio System and Tower $25,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $675,000
- **Current and Anticipated Service Trends—**The district responded to between 55 and 100 calls for service per year and this has remained constant for the past 10 years. The land area is currently zoned for a 40 acre minimum parcel size and agricultural uses. While some additional residences and structures are possible under current zoning, most of the district is built out. Public sentiment in the district makes a zoning change to allow a higher density unlikely. It is anticipated that the current call volume will continue to be between 55 and 100 annual calls for service for the foreseeable future.

The jurisdiction's boundaries are shown in Figure 6-1

6.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 6-1 lists all past occurrences of natural hazards within the jurisdiction.

6.4. HAZARD RISK RANKING

Table 6-2 presents the ranking of the hazards of concern.

6.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- Tehama County Code, Title 15, Chapter 15.34 (Tehama County Fire Code)
- Tehama County Code, Title 9, Chapter 9.14 (Tehama County Fire Safe Regulations)
- Tehama County Code, Title 15, Chapter 9.05 (Tehama County Fire Hazard Abatement Ordinance)
- California Public Resources Code
- California Health and Safety Code
- California Government Code
- California Environmental Quality Act
- Federal Endangered Species Act

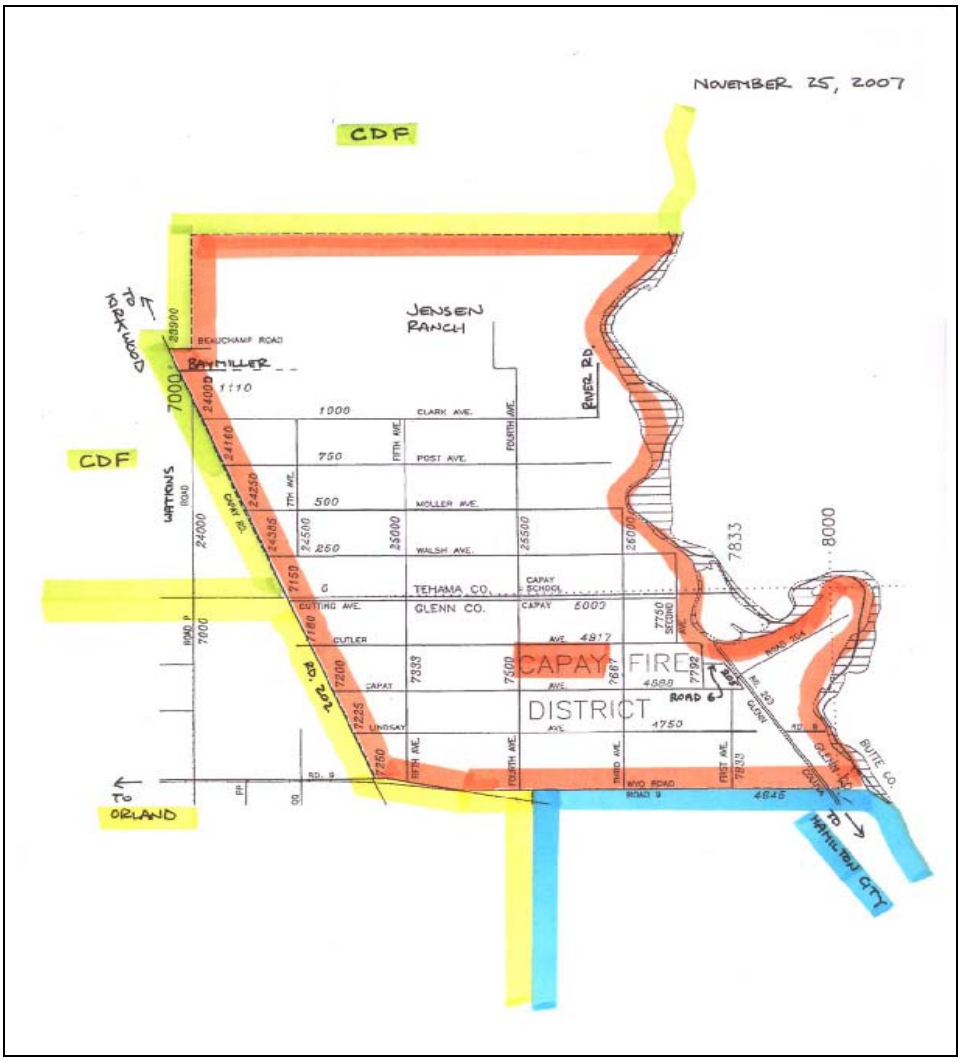


Figure 6-1. Capay Fire Protection District Boundary

6.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 6-3.

6.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 6-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 6-5 identifies the priority for each initiative. Table 6-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

6.8. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Better mapping of flood inundation areas from a Shasta Dam failure should be made available. An estimation of agricultural and household well failure during drought conditions including impacts on same of conjunctive use water policies in the future is needed.

TABLE 6-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Wind Storm	2008	No estimate available
Power Outage (extended)	Approx. every 8 years	No estimate available
Grass Fire w/ homes threatened	10 per year	No estimate available
Flooding	Approx. every 9 years	No estimate available
Drought (wells threatened)	Approx. every 9 years	No estimate available
Severe Weather	Approx. every 5 years	No estimate available

TABLE 6-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Drought	36
2	Wildfire	33
2	Severe Weather	33
2	Flood	33
3	Earthquake	16
4	Dam Failure	0
4	Landslide	0
5	Avalanche	0

TABLE 6-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	9	Unknown
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

TABLE 6-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CFPD-01—Retrofit fire suppression water supply in district with deep well and storage tank to reduce vulnerability to natural hazards						
Existing	Drought, Wildfire, Severe Weather, Flood	1, 3, 4, 6	District	High	District Funds, Federal Grants, State Grants	Short-term
CFPD-02—Retrofit fire station to reduce impact from severe weather storms w/ power outages, earthquake and flooding						
Existing	Severe Weather, Earthquake, Flood	1, 4	District	Medium	District Funds, Federal Grants, State Grants	Short-term
CFPD-03—Support district efforts to reduce fuels and hazardous overhead vegetation using planned burning and vegetation removal						
Existing	Wildfire	2, 3, 4, 6, 8, 9	District	Low	District Funds, State Grants	Short-term, Ongoing
CFPD-04—Support County-wide initiatives identified in Volume 1.						
New & existing	All Hazards	1, 2, 3, 6, 9	District	Low	District Funds	Short term, Ongoing
CFPD-05-—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & existing	All Hazards	1, 2, 4, 8, 9	District	Medium	District Funds, HMGP Grant Funding for 5-year update	Short term
CFPD-6—Consider participation in the Firewise program.						
New & existing	Wildfire	3, 4, 9	District	Low	District Funds	Long term

TABLE 6-5.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
CFPD-01	4	High	High	Yes	Yes	No	High
CFPD-02	2	Medium	Medium	Yes	Yes	No	Medium
CFPD-03	6	Medium	Low	Yes	Yes	Yes	High
CFPD-04	5	Medium	Low	Yes	No	Yes	High
CFPD-05	5	Medium	Low	Yes	Yes	Yes	High
CFPD-06	3	High	Low	Yes	Yes	Yes	Medium

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 6-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Drought	4, 5	1	4, 5	--	1	1
Earthquake	4 ,5	2	4, 5	--	2	2
Flood	4, 5	1, 2	4, 5	--	1, 2	1, 2
Landslide	--	--	--	--	--	--
Severe Weather	3, 4, 5	1, 2	3	3	1, 2	1, 2
Wildfire	3, 4, 5, 6	1,6	3, 4, 6	3	1	1

a. See Section 1.3 for description of mitigation types

CHAPTER 7.
RED BLUFF JOINT UNION HIGH SCHOOL DISTRICT ANNEX

7.1. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Joseph Kittle
23415 Hillman Court
Red Bluff, CA 96080
Telephone: 530-200-5717
e-mail Address: jkittle@tehamaed.org

Alternate Point of Contact

Jack Hansen, Superintendent
106 Sherman Drive
Red Bluff, CA 96080
Telephone: 530-527-4930
e-mail Address: jhansen@tehamaed.org

7.2. JURISDICTION PROFILE

The Red Bluff Joint Union High School District is comprised of a Comprehensive High School Campus, a Continuation High School Campus, a Community Day School, an Independent Study Program and a Charter School. The district receives students from 11 feeder-schools throughout the county. The district has been established for 113 years and currently has 195 employees. The district is funded by local, state and federal sources administered by a board of directors and a district superintendent. The Board will assume the responsibility of the adoption and implementation of this plan. The district serves students in grades 9-12. The following is a summary of key information about the jurisdiction:

- **Population Served—**The population of Red Bluff Proper as of the 2010 Census is 14,076 while the population of the census designated places that lie in the district's boundaries total 19,790 as of the 2010 Census.
- **Land Area Served—**Approximately 2,000 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is approximately $1.28 billion
- **Land Area Owned—**40.87 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Maintenance and Operations Vehicles/Equipment $80,000.00
  - Transportation Vans/Buses $520,000.00
  - Central Services Offices $670,000.00
  - Fleet Maintenance Facility $456,000.00
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $1,726,000.00
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Red Bluff High School - E. O. A. a Charter School
  - Salisbury High School - Land Parcels
  - REBOUND Community Day School
  - Independent Study Program

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $35,000,000.00
- **Current and Anticipated Service Trends—**The District faces a declining enrollment trend as anticipated by the county and the district. According to *2011 California Labor Market Info*, the City of Red Bluff grew 3.03% between 2000 and 2004; the district's enrollment continued to decline during this time as the population increase was primarily made up of retirees moving to the area. District enrollment decreased by 88 between the 2002-03 and 2003-04 school years. District enrollment for the 2010-2011 school year fell to 1,905, and a 100-student reduction is anticipated for the 2011-2012 school year.

The jurisdiction's boundaries are shown on Figure 7-1 and Figure 7-2.

7.3. JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-1 lists all past occurrences of natural hazards within the jurisdiction.

7.4. HAZARD RISK RANKING

Table 7-2 presents the ranking of the hazards of concern.

7.5. APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- California Department of Public Health
- California and U.S. Environmental Protection Agency
- California State Division of the State Architect
- Federal Endangered Species Act
- Tehama County Hazard Mitigation Plan
- City of Red Bluff Hazard Mitigation Plan
- Red Bluff Joint Union High School District Emergency Plan

7.6. CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 7-3.

7.7. HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 7-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 7-5 identifies the priority for each initiative. Table 7-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

7.8. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The District's needs for the future revolve around increasing awareness and understanding of natural-hazard risks and vulnerability among District staff, students and the public. District management and emergency personnel will work to increase educational opportunities for these groups.

Figure 7-1. Red Bluff Joint Union High School Main Campus

Figure 7-2. Red Bluff Joint Union High School Salisbury Campus

TABLE 7-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Severe Weather/Wind	12/19/1993	$7,000.00
Severe Weather/Wind	12/12/1995	$51,430.48
Severe Weather/Lightning	7/29/2008	$19,437.34

TABLE 7-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Drought	30
2	Severe Weather	18
3	Earthquake	12
4	Flood	12
5	Wildfire	12
6	Dam Failure	0
6	Landslide	0
6	Avalanche	0

TABLE 7-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

TABLE 7-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #RBJUHSD-1—Create and maintain a hazard mitigation and awareness web page on the District's web site.						
Existing	All Hazards	2, 4, 7, 9	District Technology	$1,000	District Funds	Short-term
Initiative #RBJUHSD-2—Conduct public awareness & education regarding hazards & hazard preparedness.						
Existing	All Hazards	2, 4, 7, 9	Admin/Tech	$7,000	District Funds	Short-term
Initiative #RBJUHSD-3—Partner with the City of Red Bluff and Tehama County Emergency Services for disaster response preparedness, including Emergency Plan updates, post disaster response plan, training and support.						
Existing	All Hazards	1, 3, 4, 5, 6, 7, 8,	Operations	$10,000	District Funds	Long-term
Initiative #RBJUHSD-4—Remove large trees near buildings and retrofit facility lighting.						
Existing	Severe Weather, Earthquakes	1, 4, 8	Maintenance & Operations	$250,000	HMGP, PDM, District Funds	Long-term
Initiative #RBJUHSD-5—Put into inventory emergency response equipment including cots, portable fencing, portable generators, portable pumps, 4x4 SUT for off road accessibility.						
Existing	All Hazards	1, 3, 6	Operations	$125,000	HMGP, PDM, District Funds	Short-term
Initiative #RBJUHSD-6—Install District wide CERT Program						
Existing	All Hazards	2, 3, 6,	Operations	$5,000	Districts Funds	Long-term
Initiative #RBJUHSD-7—Repair or replace roof drainage systems on school sites.						
Existing	Severe Weather	1, 3, 4	Operations	$150,000	HMGP, PDM, District Funds	Short-term
Initiative #RBJUHSD-8—Repair or replace storm drainage system on school sites.						
Existing	Severe Weather	1, 3, 4	Operations	$150,000	HMGP, PDM, District Funds	Short-term
Initiative #RBJUHSD-9—Continue the implementation, monitoring, maintenance, and updating of the hazard mitigation plan.						
New & existing	All Hazards	All	County & District	Low	District Funds & HMGP for 5-year update	Short-term and ongoing
Initiative #RBJUHSD-10—Support County-wide initiatives identified in Volume 1.						
New & existing	All Hazards	1, 2, 3, 6, 9	District	Low	District Funds	Short term, Ongoing
Initiative #RBJUHSD-11-—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & existing	All Hazards	1, 2, 4, 8, 9	District	Medium	District Funds, HMGP Funding for 5-year update	Short term

TABLE 7-5.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	4	High	Low	Yes	No	Yes	High
2	4	High	Medium	Yes	No	No	Medium
3	7	Medium	Medium	Yes	No	No	Medium
4	3	High	High	Yes	Yes	No	High
5	3	Medium	High	No	Yes	No	Medium
6	3	Medium	Low	Yes	No	Yes	High
7	3	High	High	Yes	Yes	No	High
8	3	High	High	Yes	Yes	No	High
9	9	Low	Low	Yes	Yes	Yes	High
10	5	Medium	Low	Yes	No	Yes	High
11	5	Medium	Low	Yes	Yes	Yes	High

a. See Section 1.3 for definitions of high, medium and low priorities.

TABLE 7-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Drought	10,11	4, 7, 8	11		1, 3, 5, 6	
Dam Failure	--	--	--	--	--	--
Earthquake	1, 2, 3, 7, 8, 10,11		1, 2, 3, 6, 11	4, 8	1, 3, 5, 6	
Flood	1, 2, 3, 7, 8, 10, 11	4, 7, 8	1, 2, 3, 6, 11	4, 8	1, 3, 5, 6	
Landslide	--	--	--	--	--	--
Severe Weather	1, 2, 3, 7, 8, 10, 11	4, 7, 8	1, 2, 3, 6,11	4, 8	1, 3, 5, 6	8
Wildfire	1, 2, 3, 7, 8, 10, 11	4, 7, 8	1, 2, 3, 6, 11	4, 8	1, 3, 5, 6	

a. See Section 1.3 for description of mitigation types

Tehama County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX A.
PLANNING PARTNER EXPECTATIONS

April 2012

PLANNING PARTNER EXPECTATIONS

ACHIEVING DMA COMPLIANCE FOR ALL PLANNING PARTNERS

One of the goals of the multi-jurisdictional approach to hazard mitigation planning is to achieve compliance with the Disaster Mitigation Act (DMA) for all participating members in the planning effort. DMA compliance must be certified for each member in order to maintain eligibility for the benefits under the DMA. Whether our planning process generates ten individual plans or one large plan that has a chapter for each partner jurisdiction, the following items must be addressed by each planning partner to achieve DMA compliance:

- ✓ **Participate in the process.** It must be documented in the plan that each planning partner "participated" in the process that generated the plan. There is flexibility in defining "participation". Participation can vary based on the type of planning partner (i.e.: City or County, vs. a Special Purpose District). However, the level of participation must be defined and the extent for which this level of participation has been met for each partner must be contained in the plan context.

- ✓ **Consistency Review.** Review of existing documents pertinent to each jurisdiction to identify policies or recommendations that are not consistent with those documents reviewed in producing the "parent" plan or have policies and recommendations that complement the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).

- ✓ **Action Review.** For Plan updates, a review of the strategies from your prior action plan to determine those that have been accomplished and how they were accomplished; and why those that have not been accomplished were not completed.

- ✓ **Update Localized Risk Assessment.** Personalize the Risk Assessment for each jurisdiction by removing hazards not associated with the defined jurisdictional area or redefining vulnerability based on a hazard's impact to a jurisdiction. This phase will include:

    - A ranking of the risk
    - A description of the number and type of structures at risk
    - An estimate of the potential dollar losses to vulnerable structures
    - A general description of land uses and development trends within the community, so that mitigation options can be considered in future land use decisions.

- ✓ **Capability assessment.** Each planning partner must identify and review their individual regulatory, technical and financial capabilities with regards to the implementation of hazard mitigation actions.

- ✓ **Personalize mitigation recommendations.** Identify and prioritize mitigation recommendations specific to the each jurisdiction's defined area.

- ✓ **Create an Action Plan.**

- ✓ **Incorporate Public Participation.** Each jurisdiction must present the Plan to the public for comment at least once, within two weeks prior to adoption.

- ✓ **Plan must be adopted by each jurisdiction.**

One of the benefits to multi-jurisdictional planning is the ability to pool resources. This means more than monetary resources. Resources such as staff time, meeting locations, media resources, technical expertise will all need to be utilized to generate a successful plan. In addition, these resources can be pooled such that decisions can be made by a peer group applying to the whole and thus reducing the individual level of effort of each planning partner. This will be accomplished by the formation of a steering committee made up of planning partners and other "stakeholders" within the planning area. The size and makeup of this steering committee will be determined by the planning partnership. This body will assume the decision making responsibilities on behalf of the entire partnership. This will streamline the planning process by reducing the number of meetings that will need to be attended by each planning partner. The assembled Steering Committee for this effort will meet monthly on an as needed basis as determined by the planning team, and will provide guidance and decision making during all phases of the plan's development.

With the above participation requirements in mind, each partner is expected to aid this process by being prepared to develop its section of the plan. To be an eligible planning partner in this effort, each Planning Partner shall provide the following:

A. A "Letter of Intent to participate" or Resolution to participate to the Planning Team (see exhibit A).

B. Designate a lead point of contact for this effort. This designee will be listed as the hazard mitigation point of contact for your jurisdiction in the plan.

C. Support and participate in the selection and function of the Steering Committee selected to oversee the development of this plan.

D. Provide support in the form of mailing list, possible meeting space, and public information materials, such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy developed by the Steering Committee.

E. Participate in the process. There will be many opportunities as this plan evolves to participate. Opportunities such as:

   a. Steering Committee meetings

   b. Public meetings or open houses

   c. Workshops/ Planning Partner specific training sessions

   d. Public review and comment periods prior to adoption

At each and every one of these opportunities, attendance will be recorded. Attendance records will be used to document participation for each planning partner. No thresholds will be established as minimum levels of participation. However, each planning partner should attempt to attend all possible meetings and events.

F. There will be one ***mandatory*** workshop that all planning partners will be required to attend. This workshop will cover the proper completion of the jurisdictional annex template which is the basis for each partner's jurisdictional chapter in the plan. Failure to have a representative at this workshop will disqualify the planning partner from participation in this effort. The schedule for this workshop will be such that all committed planning partners will be able to attend.

G. After participation in the mandatory template workshop, each partner will be required to complete their template and provide it to the planning team in the time frame established by the Steering Committee. Failure to complete your template in the required time frame may lead to disqualification from the partnership.

H. Each partner will be expected to perform a "consistency review" of all technical studies, plans, ordinances specific to hazards to determine the existence of any not consistent with the same such documents reviewed in the preparation of the County (parent) Plan. For example, if your community has a floodplain management plan that makes recommendations that are not consistent with any of the County's Basin Plans, that plan will need to be reviewed for probable incorporation into the plan for your area.

I. Each partner will be expected to review the Risk Assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide the jurisdiction specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner.

J. Each partner will be expected to review and determine if the mitigation recommendations chosen in the parent plan will meet the needs of its jurisdiction. Projects within each jurisdiction consistent with the parent plan recommendations will need to be identified and prioritized, and reviewed to determine their benefits vs. costs.

K. Each partner will be required to create its own action plan that identifies each project, who will oversee the task, how it will be financed and when it is estimated to occur.

L. Each partner will be required to sponsor at least one public meeting to present the draft plan to its constituents at least 2 weeks prior to adoption.

M. Each partner will be required to formally adopt the plan.

Templates and instructions to aid in the compilation of this information will be provided to all committed planning partners. Each partner will be expected to complete their templates in a timely manner and according to the timeline specified by the Steering Committee.

**** Note**: Once this plan is completed, and DMA compliance has been determined for each partner, maintaining that eligibility will be dependant upon each partner implementing the plan implementation-maintenance protocol identified in the plan. At a minimum, this means completing the on-going plan maintenance protocol identified in the plan. Partners that do not participate in this plan maintenance strategy may be deemed ineligible by the partnership, and thus lose their DMA eligibility.**

Exhibit A
Example Letter of Intent to Participate

Tehama County Hazard Mitigation Planning Partnership
C/O Laura Hendrix, Tetra Tech, Inc.
1420 5th Ave. Suite 600
Seattle, WA 98101-2357

Dear Tehama County Planning Partnership,

Please be advised that the _____ (***insert City or district name***) is committed to participating in the Tehama County Natural Hazards Mitigation Plan. As the Chief Administrative Official for this jurisdiction, I certify that I will commit all necessary resources in order to meet Partnership expectations as outlined in the "Planning Partners expectations" document provided by the planning team, in order to obtain Disaster Mitigation Act (DMA) compliance for our jurisdiction.

Mr./Ms. _____ will be the district's point of contact for this process and they can be reached at ***(insert: address, phone number and e-mail address)***.

Sincerely,

_____

Exhibit B

Planning Team Contact information

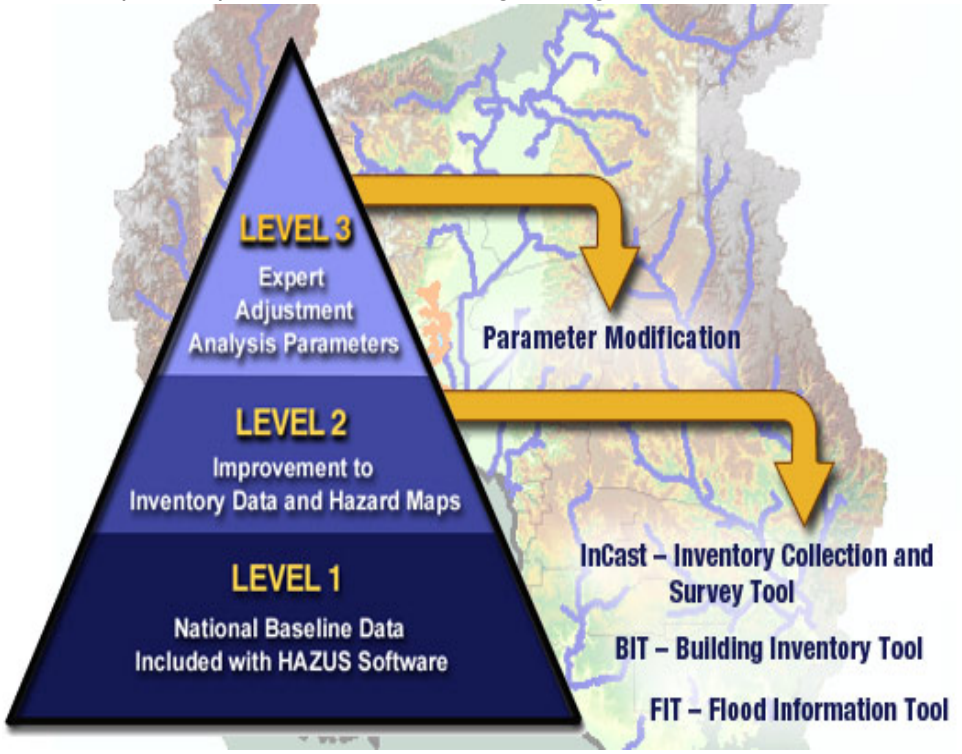
Name	Representing	Address	Phone	e-mail
Gary Antone	Tehama County DPW	9380 San Benito Gerber, CA 96035	530.385.1462 ext 3005	gantone@tcpw.ca.gov
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetratech.com
Laura Hendrix	Tetra Tech, Inc.	1420 5th Ave, STE 600 Seattle, WA 98101-2357	206-883-9344	laura.hendrix@tetratech.com
Ed Whitford	Tetra Tech, Inc.	10101 271st Street, Stanwood, WA. 98292	(360) 629-0242	Ed.whitford@tetratech.com

Exhibit C

Overview of HAZUS

Overview of HAZUS-MH (Multi-Hazard)

HAZUS-MH, is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds. HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). NIBS maintains committees of wind, flood, earthquake and software experts to provide technical oversight and guidance to HAZUS-MH development. Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.



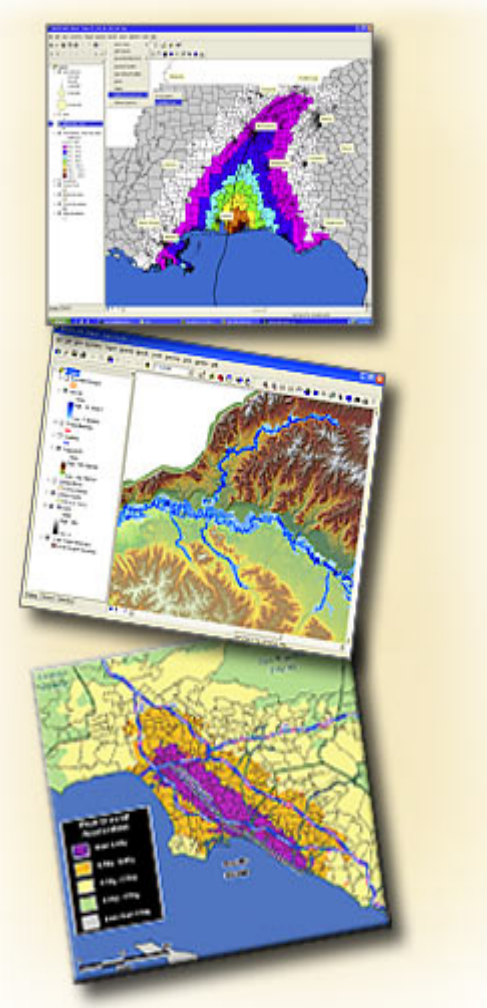
HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations. The latest release, HAZUS-MH MR1, is an updated version of HAZUS-MH that incorporates many new features which improve both the speed and functionality of the models. For information on software and hardware requirements to run HAZUS-MH MR1, see HAZUS-MH Hardware and Software Requirements.

HAZUS-MH Analysis Levels

HAZUS-MH provides for three levels of analysis:

- A Level 1 analysis yields a rough estimate based on the nationwide database and is a great way to begin the risk assessment process and prioritize high-risk communities.

- A Level 2 analysis requires the input of additional or refined data and hazard maps that will produce more accurate risk and loss estimates. Assistance from local emergency management personnel, city planners, GIS professionals, and others may be necessary for this level of analysis.
- A Level 3 analysis yields the most accurate estimate of loss and typically requires the involvement of technical experts such as structural and geotechnical engineers who can modify loss parameters based on to the specific conditions of a community. This level analysis will allow users to supply their own techniques to study special conditions such as dam breaks and tsunamis. Engineering and other expertise is needed at this level.



Three data input tools have been developed to support data collection. The Inventory Collection Tool (InCAST) helps users collect and manage local building data for more refined analyses than are possible with the national level data sets that come with HAZUS. InCAST has expanded capabilities for multi-hazard data collection. HAZUS-MH includes an enhanced Building Inventory Tool (BIT) allows users to import building data and is most useful when handling large datasets, such as tax assessor records. The Flood Information Tool (FIT) helps users manipulate flood data into the format required by the HAZUS flood model. All Three tools are included in the HAZUS-MH MR1 Application DVD.

HAZUS-MH Models

The **HAZUS-MH Hurricane Wind Model** gives users in the Atlantic and Gulf Coast regions and Hawaii the ability to estimate potential damage and loss to residential, commercial, and industrial buildings. It also allows users to estimate direct economic loss, post-storm shelter needs and building debris. In the future, the model will include the capability to estimate wind effects in island territories, storm surge, indirect economic losses, casualties, and impacts to utility and transportation lifelines and agriculture. Loss models for other severe wind hazards will be included in the future. Details about the Hurricane Wind Model.

The **HAZUS-MH Flood Model** is capable of assessing riverine and coastal flooding. It estimates potential damage to all classes of buildings, essential facilities, transportation and utility lifelines, vehicles, and agricultural crops. The model addresses building debris generation and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, and building interiors. The effects of flood warning are taken into account, as are flow velocity effects. Details about the Flood Model.

The **HAZUS-MH Earthquake Model**, The HAZUS earthquake model provides loss estimates of damage and loss to buildings, essential facilities, transportation and utility lifelines, and population based on scenario or probabilistic earthquakes. The model addresses debris generation, fire-following, casualties, and shelter requirements. Direct losses are estimated based on physical damage to structures, contents, inventory, and building interiors. The earthquake model also includes the Advanced Engineering Building Module for single- and group-building mitigation analysis. Details about the Earthquake Model.

The updated earthquake model released with HAZUS-MH includes:

- The (September 2002) National Hazard Maps

- Project ‘02 attenuation functions
- Updated historical earthquake catalog (magnitude 5 or greater)
- Advanced Engineering Building Module for single and group building mitigation analysis

Additionally, HAZUS-MH can perform multi-hazard analysis by providing access to the average annualized loss and probabilistic results from the hurricane wind, flood, and earthquake models and combining them to provide integrated multi-hazard reports and graphs. HAZUS-MH also contains a third-party model integration capability that provides access and operational capability to a wide range of natural, man-made, and technological hazard models (nuclear and conventional blast, radiological, chemical, and biological) that will supplement the natural hazard loss estimation capability (hurricane wind, flood, and earthquake) in HAZUS-MH.

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APPENDIX B. PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

April 2012

APPENDIX B.
PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

Not all eligible local governments within Tehama County are included in the Tehama County Hazard Mitigation Plan. It is assumed that some or all of these non-participating local governments may choose to "link" to the Plan at some point to gain eligibility for programs under the federal Disaster Mitigation Act. In addition, some of the current partnership may not continue to meet eligibility requirements due to a lack of participation as prescribed by the plan. The following "linkage" procedures define the requirements established by the Plan's Steering Committee and all planning partners for dealing with an increase or decrease in the number of planning partners linked to this plan. It should be noted that a currently non-participating jurisdiction within the defined planning area is not obligated to link to this plan. These jurisdictions can chose to do their own "complete" plan that addresses all required elements of section 201.6 of 44 CFR.

INCREASING THE PARTNERSHIP THROUGH LINKAGE

The annual time period for the linkage process will be from _____ to _____ during any year. Eligible linking jurisdictions are instructed to complete ***all*** of the following procedures during this time frame:

- The eligible jurisdiction requests a "Linkage Package" by contacting the Point of Contact (POC) for the plan:

  Name
  Title
  Address
  City, State ZIP
  Phone
  e-mail

  The POC will provide a linkage packages that includes:

  – Copy of Volume 1 and 2 of the plan
  – Planning partner's expectations package.
  – A sample "letter of intent" to link to the Hazard Mitigation Plan.
  – A Special Purpose District or City template and instructions.
  – Catalog of Hazard Mitigation Alternatives
  – A "request for technical assistance" form.
  – A copy of Section 201.6 of Chapter 44, the Code of Federal Regulations (44 CFR), which defines the federal requirements for a local hazard mitigation plan.

- The new jurisdiction will be required to review both volumes of the Hazard Mitigation Plan, which includes the following key components for the planning area:

  – The planning area risk assessment
  – Goals and objectives
  – Plan implementation and maintenance procedures

  - Comprehensive review of alternatives
  - County-wide initiatives.

  Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC. Technical assistance can be provided upon request by completing the request for technical assistance (TA) form provided in the linkage package. This TA may be provided by the POC or any other resource within the planning partnership such as a member of the Steering Committee or a currently participating City or Special Purposes District partner. The POC will determine who will provide the TA and the possible level of TA based on resources available at the time of the request.

- The new jurisdiction will be required to develop a public involvement strategy that ensures the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must make an attempt to solicit public opinion on hazard mitigation at the onset of this linkage process and a minimum of one public meeting to present their draft jurisdiction specific annex for comment, prior to adoption by the governing body. The planning partnership will have resources available to aid in the public involvement strategy such as the Plan website. However, it will be the new jurisdiction's responsibility to implement and document this strategy for incorporation into its annex. It should be noted that the Jurisdictional Annex templates ***do not*** include a section for the description of the public process. This is because the original partnership was covered under a uniform public involvement strategy that covered the planning area described in Volume 1 of the plan. Since new partners were not addressed by that strategy, they will have to initiate a new strategy, and add a description of that strategy to their annex. For consistency, new partners are encouraged to follow the public involvement format utilized by the initial planning effort as described in Volume 1 of the plan.
- Once their public involvement strategy is completed and they have completed their template, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the Regional plan format.
- The POC will review for the following:
  - Documentation of Public Involvement strategy
  - Conformance of template entries with guidelines outlined in instructions
  - Chosen initiatives are consistent with goals, objectives and mitigation catalog of the Planning Area Hazard Mitigation Plan
  - A Designated point of contact
  - A ranking of risk specific to the jurisdiction.

  The POC may utilize members of the Steering Committee or other resources to complete this review. All proposed linked annexes will be submitted to the Steering Committee for review and comment prior to submittal to CalEMA.
- Plans approved and accepted by the Steering Committee will be forwarded to CalEMA for review with a cover letter stating the forwarded plan meets local approved plan standards and whether the plan is submitted with local adoption or for criteria met/plan not adopted review.
- CalEMA will reviews plans for federal compliance. Non-Compliant plans are returned to the Lead agency for correction. Compliant plans are forwarded to FEMA for review with annotation as to the adoption status.

- FEMA reviews the new jurisdiction's plan in association with the approved plan to ensure DMA compliance. FEMA notifies new jurisdiction of results of review with copies to CalEMA and approved planning authority.
- New jurisdiction corrects plan shortfalls (if necessary) and resubmits to CalEMA through the approved plan lead agency.
- For plans with no shortfalls from the FEMA review that have not been adopted, the new jurisdiction governing authority adopts the plan (if not already accomplished) and forwards adoption resolution to FEMA with copies to lead agency and CalEMA.
- FEMA regional director notifies new jurisdiction governing authority of plan approval.

The new jurisdiction plan is then included with the regional plan with the commitment from the new jurisdiction to participate in the ongoing plan implementation and maintenance.

DECREASING THE PARTNERSHIP

The eligibility afforded under this process to the planning partnership can be rescinded in two ways. First, a participating planning partner can ask to be removed from the partnership. This may be done because the partner has decided to develop its own plan or has identified a different planning process for which it can gain eligibility. A partner that wishes to voluntarily leave the partnership shall inform the POC of this desire in writing. This notification can occur any time during the calendar year. A jurisdiction wishing to pursue this avenue is advised to make sure that it is eligible under the new planning effort, to avoid any period of being out of compliance with the Disaster Mitigation Act.

After receiving this notification, the POC shall immediately notify both CalEMA and FEMA in writing that the partner in question is no longer covered by the Hazard Mitigation Plan, and that the eligibility afforded that partner under this plan should be rescinded based on this notification.

The second way a partner can be removed from the partnership is by failure to meet the participation requirements specified in the "Planning Partner Expectations" package provided to each partner at the beginning of the process, or the plan maintenance and implementation procedures specified under chapter 7 in Volume 1 of the plan. Each partner agreed to these terms by adopting the plan.

Eligibility status of the planning partnership will be monitored by the POC. The determination of whether a partner is meeting its participation requirements will be based on the following parameters:

- Are progress reports being submitted annually by the specified time frames?
- Are partners notifying the POC of changes in designated points of contact?
- Are the partners supporting the Steering Committee by attending designated meetings or responding to needs identified by the body?
- Are the partners continuing to be supportive as specified in the planning partner expectations package provided to them at the beginning of the process?

Participation in the plan does not end with plan approval. This partnership was formed on the premise that a group of planning partners would pool resources and work together to strive to reduce risk within the planning area. Failure to support this premise lessens the effectiveness of this effort. The following procedures will be followed to remove a partner due to the lack of participation:

- The POC will advise the Steering Committee of this pending action and provide evidence or justification for the action. Justification may include: multiple failures to submit annual

progress reports, failure to attend meetings determined to be mandatory by the Steering Committee, failure to act on the partner's action plan, or inability to reach designated point of contact after a minimum of five attempts.

- The Steering Committee will review information provided by POC, and determine action by a vote. The Steering Committee will invoke the voting process established in the ground rules established during the formation of this body.
- Once the Steering Committee has approved an action, the POC will notify the planning partner of the pending action in writing via certified mail. This notification will outline the grounds for the action, and ask the partner if it is their desire to remain as a partner. This notification shall also clearly identify the ramifications of removal from the partnership. The partner will be given 30 days to respond to the notification.
- Confirmation by the partner that they no longer wish to participate or failure to respond to the notification shall trigger the procedures for voluntary removal discussed above.
- Should the partner respond that they would like to continue participation in the partnership, they must clearly articulate an action plan to address the deficiencies identified by the POC. This action plan shall be reviewed by the Steering Committee to determine whether the actions are appropriate to rescind the action. Those partners that satisfy the Steering Committee's review will remain in the partnership, and no further action is required.
- Automatic removal from the partnership will be implemented for partners where these actions have to be initiated more than once in a 5 year planning cycle.

Tehama County
Hazard Mitigation Plan
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APPENDIX C.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE FOR MUNICIPALITIES

April 2012

INSTRUCTIONS FOR COMPLETING MUNICIPALITY ANNEX TEMPLATE

This document provides instructions for completing the annex template for city and county governments participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials ***before*** you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the municipal jurisdiction annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (The City of Metropolis, Jefferson County, etc.). At this time, also change the name in the "header" box on Page 3, using the same wording.

Note that the template is set up as Chapter "X." Please leave all references to "X" in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Provide information specific to your jurisdiction as indicated, in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document. For population data, use the most current population figure for your jurisdiction based on an official means of tracking (e.g., the U.S. Census or state office of financial management).

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. Potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data
- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Citizen input.

Repetitive Loss Properties

A repetitive loss property is any property for which FEMA has paid two or more flood insurance claims in excess of $1,000 in any rolling 10-year period since 1978. In the space provided in the text for Section X.3, indicate the number of any FEMA-identified Repetitive Flood Loss properties in your

Example Jurisdiction Profile:

- **Date of Incorporation**—1858
- **Current Population**—17,289 as of July 2006
- **Population Growth—**Based on the data tracked by the California Department of Finance, Arcata has experienced a relatively flat rate of growth. The overall population has increased only 3.4% since 2000 and has averaged 0.74% per year from 1990 to 2007
- **Location and Description**—The City of Arcata is located on California's redwood coast, approximately 760 miles north of Los Angeles and 275 miles north of San Francisco. The nearest seaport is Eureka, five miles south on Humboldt Bay. Arcata is the home of Humboldt State University and is situated between the communities of McKinleyville to the north and Blue Lake to the east. It sits at the intersection of US Highway 101 and State Route 299.
- **Brief History**—The Arcata area was settled during the California gold rush in the 1850s as a supply center for miners. As the gold rush died down, timber and fishing became the area's major economic resource. Arcata was incorporated in 1858 and by 1913 the Humboldt Teachers College, a predecessor to today's Humboldt State University was founded in Arcata. Recently, the presence of the college has come to shape Arcata's population into a young, liberal, and educated crowd. In 1981 Arcata developed the Arcata Marsh and Wildlife sanctuary, an innovative environmentally friendly, sewage treatment enhancement system.
- **Climate**—Arcata's weather is typical of the Northern California coast, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Annual average rainfall is over 40 inches, with 80% of that falling in the six-month period of November through April. The average year-round temperature is 59ºF. Humidity averages between 72 and 87 percent. Prevailing winds are from the north, and average 5 mph.
- **Governing Body Format**—The City of Arcata is governed by a five-member City Council. The City consists of six departments: Finance, Environmental Services, Community Development, Public Works, Police and the City Manager's Office. The City has 13 Committees, Commissions and Task Forces, which report to the City Council.
- **Development Trends**—Anticipated development levels for Arcata are low to moderate, consisting primarily of residential development. The majority of recent development has been infill. Residentially, there has been a focus on affordable housing and a push for more secondary mother-in-law units on properties.

  The City of Arcata adopted its general plan in July 2000. The plan focuses on issues of the greatest concern to the community. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with such a plan. Future growth and development in the City will be managed as identified in the general plan.

jurisdiction (your technical assistance provider will be able to help you confirm this information). If you have none, indicate "none" in the space provided.

Next, indicate the number (if any) of repetitive loss structures in your jurisdiction that have been mitigated. Mitigated for this exercise means that flood protection has been provided to the structure. If you do not know the answer to this question, the planning team will provide it for you.

HAZARD RISK RANKING

The risk ranking performed for the overall planning area is presented in the risk assessment section of the overall hazard mitigation plan. However, each jurisdiction has differing degrees of risk exposure and vulnerability and therefore needs to rank risk for its own area, using the same methodology as used for the overall planning area. The risk-ranking exercise assesses two variables for each hazard: its probability of occurrence; and its potential impact on people, property and the economy. A detailed discussion of the concepts associated with risk ranking is provided in the overall hazard mitigation plan. The instructions below outline steps for assessing risk in your jurisdiction to develop results that are to be included in the template.

Determine Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. In Table 1, list the probability of occurrence for each hazard as it pertains to your jurisdiction, along with its probability factor, as follows:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor = 2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor = 1)
- None—If there is no exposure to a hazard, there is no probability of occurrence (Probability Factor = 0)

TABLE 1.
HAZARD PROBABILITY OF OCCURRENCE

Hazard Type	Probability	Probability Factor

The probability of occurrence of a hazard event is generally based on past hazard events in an area. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories were also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on the economy was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on people, values are assigned based on the percentage of the total ***population exposed*** to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% or less of the population is exposed to the hazard (Impact Factor = 1)
- No impact—None of the population is exposed to a hazard (Impact Factor = 0)

TABLE 2.
HAZARD IMPACT ON PEOPLE

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total ***property value exposed*** to the hazard event. In Table 3, enter the cost estimates for potential damage to exposed structures, taken from the "Summary of Loss" matrix provided with these instructions.

TABLE 3.
COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES

Hazard type	Estimate of Potential Dollar Losses to Exposed Structures

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—30% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)
- Medium Impact—15% to 29% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- Low Impact—14% or less of the total assessed property value is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value is exposed to a hazard (Impact Factor = 0)

TABLE 4.
HAZARD IMPACT ON PROPERTY

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Economy

To assess impacts on the economy, values are assigned based on the percentage of the total ***property value vulnerable*** to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total assessed value of property in the county. For some hazards, such as wildland fire, landslide and severe weather, vulnerability is the same as exposure due to the lack of loss estimation tools specific to those hazards. In Table 5, list the potential impact of each hazard on the economy in your jurisdiction, along with its impact factor, as follows:

- High Impact—Estimated loss from the hazard is 20% or more of the total assessed property value (Impact Factor = 3)
- Medium Impact—Estimated loss from the hazard is 10% to 19% of the total assessed property value (Impact Factor = 2)
- Low Impact—Estimated loss from the hazard is 8% or less of the total assessed property value (Impact Factor = 1)
- No impact—No loss is estimated from the hazard (Impact Factor = 0)

TABLE 5.
HAZARD IMPACT ON THE ECONOMY

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 1)

Determine Risk Rating for Each Hazard

A risk rating for each hazard is determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and the economy:

- Risk Rating = Probability Factor x Weighted Impact Factor {people + property + economy}

Using the results developed in Tables 1, 2, 4 and 5, complete Table 6 to calculate a risk rating for each hazard of concern.

TABLE 6.
HAZARD RISK RATING

Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Economy (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table X-2 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table X-2 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

CAPABILITY ASSESSMENT

Legal and Regulatory Capability

Describe the legal authorities available to your jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that can support hazard mitigation initiatives. In Table X-3, indicate "Yes" or "No" for each listed code, ordinance, requirement or planning document in each of the following columns:

- Local Authority—Enter "Yes" if your jurisdiction has prepared or adopted the identified item; otherwise, enter "No." If yes, then enter the code or ordinance number and its date of adoption in the comments column.
- State or Federal Prohibitions—Enter "Yes" if there are any state or federal regulations or laws that would prohibit local implementation of the identified item; otherwise, enter "No."
- Other Regulatory Authority—Enter "Yes" if there are any regulations that may impact your initiative that are enforced or administered by another agency (e.g., a state agency or special purpose district); otherwise, enter "No."

- State Mandated—Enter "Yes" if state laws or other requirements enable or require the listed item to be implemented at the local level; otherwise, enter "No."

Administrative and Technical Capability

This section requires you to take inventory of the staff/personnel resources available to your jurisdiction to help with hazard mitigation planning and implementation of specific mitigation actions.

Complete Table X-4 by indicating whether your jurisdiction has access to each of the listed personnel resources. Enter "Yes" or "No" in the column labeled "Available?". If yes, then enter the department and position title in the right-hand column.

Financial Resources

Identify what financial resources (other than the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Grant Program) are available to your jurisdiction for implementing mitigation initiatives.

Complete Table X-5 by indicating whether each of the listed financial resources is accessible to your jurisdiction. Enter "Yes" if the resource is fully accessible to your jurisdiction. Enter "No" if there are limitations or prerequisites that may hinder your eligibility for this resource.

Community Mitigation Related Classifications

Complete Table X-6 to indicate your jurisdiction's participation in various national programs related to natural hazard mitigation. For each program enter "Yes" or "No" in the second column to indicate whether your jurisdiction participates. If yes, then enter the classification that your jurisdiction has earned under the program in the third column and the date on which that classification was issued in the fourth column; enter "N/A" in these columns if your jurisdiction is not participating.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the HMGP and PDM (see fact sheet provided). Listing HMGP or PDM as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP or PDM grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Complete Table X-7 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment (Table X-5) to identify possible sources of funding.
- Indicate the time line as "short term" (1 to 5 years) or "long term" (5 years or greater).

Wording Your Initiative Descriptions:

Descriptions of your initiatives need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan initiative:

- **Initiative 1—**Address Repetitive Loss properties. Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Initiative 2—**Perform a non-structural, seismic retrofit of City Hall.
- **Initiative 3—**Acquire floodplain property in the Smith subdivision.
- **Initiative 4—**Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Prioritization of Mitigation Initiatives

Complete the information in Table X-8 as follows:

- Initiative #—Indicate the initiative number from Table X-7.
- # of Objectives Met—Enter the number of objectives the initiative will meet.
- Benefits—Enter "High," "Medium" or "Low" as follows:
  - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
  - Low: Long-term benefits of the project are difficult to quantify in the short term.
- Costs—Enter "High," "Medium" or "Low" as follows:
  - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.
  - Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
  - Low: Possible to fund under existing budget. Project is part of, or can be part of an existing ongoing program.

If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.

- Do Benefits Exceed the Cost?—Enter "Yes" or "No." This is a qualitative assessment. Enter "Yes" if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter "No" if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- Is the Project Grant-Eligible?—Enter "Yes" or "No." Refer to the fact sheet on HMGP and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter "Yes" or "No." In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter "High," "Medium" or "Low" as follows:
  - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
  - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
  - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-9 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- Prevention—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- Property Protection—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- Public Education and Awareness—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- Natural Resource Protection—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

- Emergency Services—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- Structural Projects—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X.
[INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation—**[Insert Date of Incorporation]
- **Current Population—**[Insert Population] as of [Insert Date of Population Count]
- **Population Growth—**[Insert Discussion of Population Growth]
- **Location and Description—**[Insert Description of Location, Surroundings, Key Geographic Features]
- **Brief History—**[Insert Summary Discussion of Jurisdiction's History]
- **Climate—**[Insert Summary Discussion of Climate]
- **Governing Body Format—**[Insert Summary Description of Governing Body]
- **Development Trends—**[Insert Summary Description of Development]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: [Insert #]
- Number of Repetitive Flood Loss Properties that have been mitigated: [Insert #]

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table X-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table X-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table X-5. Classifications under various community mitigation programs are presented in Table X-6.

X.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-8 identifies the priority for each initiative. Table X-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.8 ADDITIONAL COMMENTS

[Insert text, if any]

TABLE X-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

TABLE X-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		

TABLE X-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code					
Zonings					
Subdivisions					
Stormwater Management					
Post Disaster Recovery					
Real Estate Disclosure					
Growth Management					
Site Plan Review					
Special Purpose (flood management, critical areas)					
Planning Documents					
General Plan					
Capital Improvement Plan					
Economic Development Plan					
Floodplain or Basin Plan					
Stormwater Plan					
Habitat Conservation Plan					
Shoreline Management Plan					
Emergency Response Plan					
Continuity of Operations Plan					
Post Disaster Recovery Plan					
Terrorism Plan					
Other					
Other					

TABLE X-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices		
Engineers or professionals trained in building or infrastructure construction practices		
Planners or engineers with an understanding of natural hazards		
Staff with training in benefit/cost analysis		
Floodplain manager		
Surveyors		
Personnel skilled or trained in GIS applications		
Scientist familiar with natural hazards in local area		
Emergency manager		
Grant writers		

TABLE X-5.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	
Capital Improvements Project Funding	
Authority to Levy Taxes for Specific Purposes	
User Fees for Water, Sewer, Gas or Electric Service	
Incur Debt through General Obligation Bonds	
Incur Debt through Special Tax Bonds	
Incur Debt through Private Activity Bonds	
Withhold Public Expenditures in Hazard-Prone Areas	
State Sponsored Grant Programs	
Development Impact Fees for Homebuyers or Developers	
Other	

TABLE X-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System			
Building Code Effectiveness Grading Schedule			
Public Protection			
Storm Ready			
Firewise			

TABLE X-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

TABLE X-8.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]

a. See Section ___ for definitions of high, medium and low priorities.

TABLE X-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects

a. See Section __ for description of mitigation types

Tehama County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX D.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE FOR SPECIAL-PURPOSE DISTRICTS

April 2012

INSTRUCTIONS FOR COMPLETING SPECIAL-PURPOSE DISTRICT ANNEX TEMPLATE

This document provides instructions for completing the annex template for special-purpose districts participating in multi-partner hazard mitigation planning. Assistance in completing the template will be available in the form of a workshop for all planning partners or one-on-one visits with each partner, depending on funding availability. Any questions on completing the template should be directed to:

Rob Flaner
Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616
(208) 939-4391
e-mail: rflaner@msn.com

Please provide both a hard copy and digital copy of the completed template to Tetra Tech upon completion.

Associated Materials:

Along with the annex template and these instructions, you have been provided with other materials with information that is needed for completing the template. Be sure to review these materials ***before*** you begin the process of filling in the template:

- Summary-of-loss matrix for the hazard mitigation plan
- Results from the hazard mitigation plan questionnaire
- Catalog of mitigation alternatives
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM)

A Note About Software:

The template for the special-purpose district annex is a Microsoft Word document in a format that will be used in the final plan. Partners are asked to use this template so that a uniform product will be completed for each partner. Partners who do not have Microsoft Word capability may prepare the document in other formats, and the planning team will convert it to the Word format.

CHAPTER NUMBER AND TITLE

In the chapter title at the top of Page 1, type in the complete official name of your jurisdiction (West County Fire Protection District #1, Burgville Flood Protection District, etc.). At this time, also change the name in the "header" box on Page 3, using the same wording.

Note that the template is set up as Chapter "X." Please leave all references to "X" in the template as they are. Once all templates are received, chapter numbering will be assigned for incorporation into the final plan.

HAZARD MITIGATION PLAN POINT OF CONTACT

Please provide the name, title, mailing address, telephone number, and e-mail address for the primary point of contact for your jurisdiction. This should be the person responsible for monitoring, evaluating and updating the annex for your jurisdiction. This person should also be the principle liaison between your jurisdiction and the Steering Committee overseeing development of this plan.

In addition, designate an alternate point of contact. This would be a person to contact should the primary point of contact be unavailable or no longer employed by the jurisdiction.

JURISDICTION PROFILE

Narrative Profile

Please provide a brief summary to profile your jurisdiction. Include the purpose of the jurisdiction, the date of inception, the type of organization, the number of employees, the mode of operation (i.e., how operations are funded), the type of governing body, and who has adoptive authority. Describe who the jurisdiction's customers are (if applicable, include number of users or subscribers). Include a geographical description of the service area.

Provide information in a style similar to the example provided in the box at right. This should be information that was not provided in the overall mitigation plan document.

Example Jurisdiction Narrative Profile:

Humboldt Community Services District is a special-purpose district created in 1952 to provide water, sewer, and street lighting to the unincorporated area surrounding the City of Eureka known as Pine Hill & Cutten. The District's designated service areas expanded throughout the years to include other unincorporated areas of Humboldt County known as Myrtletown, Humboldt Hill, Fields Landing, King Salmon, and Freshwater. A five-member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of April 30, 2007, the District serves 7,305 water connections and 6,108 sewer connections, with a current staff of 21. Funding comes primarily through rates and revenue bonds..

Summary Information

Complete the bulleted list of summary information as follows:

- **Population Served—**List the estimated population that your jurisdiction provides services to. If you do not know this number directly, create an estimate (e.g., the number of service connections times the average household size for the service area based on Census data).
- **Land Area Served—**Enter the service area of your jurisdiction in acres or square miles.
- **Value of Area Served—**Enter the approximate assessed value of your service area. If you do not have this information, the County should be able to provide a number using the County Assessor's database.
- **Land Area Owned—**Enter the area of property owned by the jurisdiction in acres or square miles.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction—**List all infrastructure and equipment that is critical to your jurisdiction's operations and is located in a natural hazard risk zone. Briefly describe the item and give its estimated replacement-cost value. Examples are as follows:
  - Fire Districts—Apparatus and equipment housed in a facility that is located in a natural hazard risk zone. This is the equipment that is essential for you to deliver services to this area should a natural hazard occur. It is not necessary to provide a detailed inventory of each engine and truck and its contents. A summary will suffice, such as "5 Engines, 2 ladders, and their contents". Do not list reserve equipment.
  - Dike/Flood Control Districts—Miles of levees, pump stations, retention/detention ponds, tide gates, miles of ditches, etc., within natural hazard risk zones.
  - Water Districts—Total length of pipe (it is not necessary to specify size and type), pump stations, treatment facilities, dams and reservoirs, within natural hazard risk zones.

  - Public Utility Districts—Miles of power line (above ground and underground), generators, power generating sub-stations, miles of pipeline, etc., within natural hazard risk zones.
  - School Districts—Anything within natural hazard risk zones, besides school buildings, that is critical for you to operate (e.g., school buses if you own a fleet of school buses).
- **Total Value of Critical Infrastructure/Equipment—**Enter total replacement-cost value of the critical infrastructure and equipment listed above.
- **List of Critical Facilities Owned by the Jurisdiction—**List all buildings and other facilities that are critical to your jurisdiction's operations and are located in a natural hazard risk zone. Briefly describe the facility and give its estimated replacement-cost value.
- **Total Value of Critical Facilities—**Enter total replacement-cost value of the critical facilities listed above.
- **Current and Anticipated Service Trends—**Enter a brief description on how your jurisdiction's services are projected to expand in the foreseeable future and why. Note any identified capital improvements needed to meet the projected expansion. Examples are as follows:
  - For a Fire District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land uses will represent an increase in population and thus a projected increase in call volume. Our District is experiencing an average annual increase in call volume of 13 percent.
  - For Dike/Drainage/Flood Control District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will result in an increase in impermeable surface within our service area and thus increase the demand on control facilities.
  - For a Water District: Portions of the jurisdiction have experienced a 13 percent growth over the last five years. Land use designations allow for an increase in light commercial and residential land uses within the service area. This increase in density of land use will represent an increase in the number of housing units within the service area and thus represent an expansion of the district's delivery network.

Boundary Map

Maps that illustrate the service area boundary for all special-purpose district partners will be provided at the workshop. Please confirm that the boundaries reflected on the maps are current and accurate for your jurisdiction. In the box for this section, include a reference to the map that includes your jurisdiction's boundaries.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table X-1, list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction since 1975. Include the date of the event and the estimated dollar amount of damage it caused. Please refer to the summary of natural hazard events within risk assessment of the overall hazard mitigation plan. Potential sources of damage information include:

- Preliminary damage estimates your jurisdiction filed with the county or state
- Insurance claims data

- Newspaper archives
- Other plans/documents that deal with emergency management (safety element of a comprehensive plan, emergency response plan, etc.)
- Citizen input.

HAZARD RISK RANKING

The risk ranking performed for the overall planning area is presented in the risk assessment section of the overall hazard mitigation plan. However, each jurisdiction has differing degrees of risk exposure and vulnerability and therefore needs to rank risk for its own area, using the same methodology as used for the overall planning area. The risk-ranking exercise assesses two variables for each hazard: its probability of occurrence; and its potential impact on people, property and operations. A detailed discussion of the concepts associated with risk ranking is provided in the overall hazard mitigation plan. The instructions below outline steps for assessing risk in your jurisdiction to develop results that are to be included in the template.

Determine Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. In Table 1, list the probability of occurrence for each hazard as it pertains to your jurisdiction, along with its probability factor, as follows:

- High—Hazard event is likely to occur within 25 years (Probability Factor = 3)
- Medium—Hazard event is likely to occur within 100 years (Probability Factor = 2)
- Low—Hazard event is not likely to occur within 100 years (Probability Factor = 1)
- None—If there is no exposure to a hazard, there is no probability of occurrence (Probability Factor = 0)

TABLE 1.
HAZARD PROBABILITY OF OCCURRENCE

Hazard Type	Probability	Probability Factor

The probability of occurrence of a hazard event is generally based on past hazard events in an area. For example, if your jurisdiction has experienced two damaging floods in the last 25 years, the probability of occurrence is high for flooding and scores a 3 under this category. If your jurisdiction has experienced no damage from landslides in the last 100 years, your probability of occurrence for landslide is low, and scores a 1 under this category.

Determine Potential Impacts of Each Hazard

The impact of each hazard was divided into three categories: impacts on people, impacts on property, and impacts on your jurisdiction's operations. These categories were also assigned weighted values. Impact on people was assigned a weighting factor of 3, impact on property was assigned a weighting factor of 2 and impact on operations was assigned a weighting factor of 1. Steps to assess each type of impact are described below.

Impacts on People

To assess impacts on people, values are assigned based on the percentage of the total ***population exposed*** to the hazard event. The degree of impact on individuals will vary and is not measurable, so the calculation assumes for simplicity and consistency that all people exposed to a hazard because they live in a hazard zone will be equally impacted when a hazard event occurs. In Table 2, list the potential impact of each hazard on people in your jurisdiction, along with its impact factor, as follows:

- High Impact—50% or more of the population is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the population is exposed to a hazard (Impact Factor = 2)
- Low Impact—25% or less of the population is exposed to the hazard (Impact Factor = 1)
- No impact—None of the population is exposed to a hazard (Impact Factor = 0)

TABLE 2.
HAZARD IMPACT ON PEOPLE

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 3)

Impacts on Property

To assess impacts on property, values are assigned based on the percentage of the total ***value of buildings, equipment and infrastructure that is exposed*** to the hazard event. In Table 3, enter the cost estimates for potential damage to the jurisdiction's exposed buildings, equipment and infrastructure , taken from the "Summary of Loss" matrix provided with these instructions.

TABLE 3.
COST ESTIMATES FOR POTENTIAL DAMAGE TO STRUCTURES

Hazard type	Estimate of Potential Dollar Losses to Jurisdiction-Owned Facilities Exposed to the Hazard

In Table 4, list the potential impact of each hazard on property in your jurisdiction, along with its impact factor. Determine impact based on damage estimates from Table 3, as follows:

- High Impact—50% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)
- Medium Impact—25% to 49% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- Low Impact—24% or less of the total assessed property value of facilities, equipment and infrastructure is exposed to the hazard (Impact Factor = 1)
- No impact—None of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 0)

TABLE 4.
HAZARD IMPACT ON PROPERTY

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Jurisdiction's Operations

Impact on operations is assessed based on estimates of ***how long it will take your jurisdiction to become 100-percent operable*** after a hazard event. The estimated functional downtime for critical facilities has been estimated for most hazards within the planning area. In Table 5, list the potential impact of each hazard on the operations of your jurisdiction, along with its impact factor, as follows:

- High = functional downtime of 365 days or more (Impact Factor = 3)
- Medium = Functional downtime of 180 to 364 days (Impact Factor = 2)
- Low = Functional downtime of 180 days or less (Impact Factor = 1)
- No Impact = No functional downtime is estimated from the hazard (Impact Factor = 0)

TABLE 5.
HAZARD IMPACT ON OPERATIONS

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 1)

You will need to consult the risk assessment for this task. The critical facilities exposed to each hazard have been identified, and the impacts on operability have been estimated for most of the hazards within the planning area. If the functional downtime component has not been provided for a hazard in the risk assessment, consider the impact on operability of that hazard to be low.

Determine Risk Rating for Each Hazard

A risk rating for each hazard is determined by multiplying the assigned probability factor by the sum of the weighted impact factors for people, property and operations:

- Risk Rating = Probability Factor x Weighted Impact Factor {people + property + operations}

Using the results developed in Tables 1, 2, 4 and 5, complete Table 6 to calculate a risk rating for each hazard of concern.

TABLE 6.
HAZARD RISK RATING

Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Operations (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table X-2 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table X-2 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

APPLICABLE REGULATIONS AND PLAN

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements addressing hazard mitigation. Describe how these laws may support or conflict with the mitigation strategies of this plan. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction. Note whether the documents could have a positive or a negative impact on the mitigation strategies of this plan. “None applicable” is a possible answer for this section.

CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

Complete Table X-3 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. For each program enter “Yes” or “No” in the second column to indicate whether your jurisdiction participates. If yes, then enter the classification that your jurisdiction has earned under the program in the third column and the date on which that classification was issued in the fourth column; enter “N/A” in these columns if your jurisdiction is not participating.

HAZARD MITIGATION ACTION PLAN

Action Plan Matrix

Identify the initiatives your jurisdiction would like to pursue with this plan. Refer to the mitigation catalog for mitigation options you might want to consider. Be sure to consider the following factors in your selection of initiatives:

- Select initiatives that are consistent with the overall goals, objectives and guiding principles of the hazard mitigation plan.
- Identify projects where benefits exceed costs.
- Include any project that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the HMGP and PDM (see fact sheet provided). Listing HMGP or PDM as a potential funding source for an ineligible project will be a red flag when this plan goes through review. If you have projects that are not HMGP or PDM grant eligible, but do mitigate part or all of the hazard and may be eligible for other grant programs sponsored by other agencies, include them in this section.
- Although you should identify at least one initiative for your highest ranked risk, a hazard-specific project is not required for every hazard. If you have not identified an earthquake related project, and an earthquake occurs that causes damage in your jurisdiction, you are not discounted from HMGP project grant eligibility.

Complete Table X-4 for all the initiatives you have identified:

- Enter the initiative number and description.
- Indicate whether the initiative mitigates hazards for new or existing assets.
- Identify the specific hazards the initiative will mitigate.
- Identify by number the mitigation plan objectives that the initiative addresses. These have been provided in the Steering Committee meeting minutes that were forwarded to you in the past.
- Indicate who will be the lead in administering the project. This will most likely be your governing body.
- Identify funding sources for the project. If it is a grant, include the funding sources for the cost share.
- Indicate the time line as "short term" (1 to 5 years) or "long term" (5 years or greater).

Technical assistance will be available to your jurisdiction in completing this section during the technical assistance visit.

Wording Your Initiative Descriptions:

Descriptions of your initiatives need not provide great detail. That will come when you apply for a project grant. Provide enough information to identify the project's scope and impact. The following are typical descriptions for an action plan initiative:

- **Initiative 1—**Address Repetitive Loss properties. Through targeted mitigation, acquire, relocate or retrofit the five repetitive loss structures in the County as funding opportunities become available.
- **Initiative 2—**Perform a non-structural, seismic retrofit of City Hall.
- **Initiative 3—**Acquire floodplain property in the Smith subdivision.
- **Initiative 4—**Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.

Prioritization of Mitigation Initiatives

Complete the information in Table X-5 as follows:

- Initiative #—Indicate the initiative number from Table X-4.
- # of Objectives Met—Enter the number of objectives the initiative will meet.
- Benefits—Enter "High," "Medium" or "Low" as follows:
  - High: Project will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
  - Low: Long-term benefits of the project are difficult to quantify in the short term.
- Costs—Enter "High," "Medium" or "Low" as follows:
  - High: Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.
  - Medium: Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
  - Low: Possible to fund under existing budget. Project is part of, or can be part of an existing ongoing program.

  If you know the estimated cost of a project because it is part of an existing, ongoing program, indicate the amount.
- Do Benefits Exceed the Cost?—Enter "Yes" or "No." This is a qualitative assessment. Enter "Yes" if the benefit rating (high, medium or low) is the same as or higher than the cost rating (high benefit/high cost; high benefit/medium cost; medium benefit/low cost; etc.). Enter "No" if the benefit rating is lower than the cost rating (medium benefit/high cost, low benefit/medium cost; etc.)
- Is the Project Grant-Eligible?—Enter "Yes" or "No." Refer to the fact sheet on HMGP and PDM.
- Can Project Be Funded Under Existing Program Budgets?—Enter "Yes" or "No." In other words, is this initiative currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- Priority—Enter "High," "Medium" or "Low" as follows:
  - High: Project meets multiple plan objectives, benefits exceed cost, funding is secured under existing programs, or is grant eligible, and project can be completed in 1 to 5 years (i.e., short term project) once funded.
  - Medium: Project meets at least 1 plan objective, benefits exceed costs, requires special funding authorization under existing programs, grant eligibility is questionable, and project can be completed in 1 to 5 years once funded.
  - Low: Project will mitigate the risk of a hazard, benefits exceed costs, funding has not been secured, project is not grant eligible, and time line for completion is long term (5 to 10 years).

This prioritization is a simple review to determine that the initiatives you have identified meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for

HMGP/PDM project grants. The prioritization will identify any projects whose probable benefits will not exceed the probable costs.

Analysis of Mitigation Actions

Complete Table X-6 summarizing the mitigation actions by hazard of concern and the following six mitigation types:

- Prevention—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
- Property Protection—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- Public Education and Awareness—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- Natural Resource Protection—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Emergency Services—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- Structural Projects—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

This exercise demonstrates that the jurisdiction has selected a comprehensive range of actions.

FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In this section, identify any future studies, analyses, reports, or surveys your jurisdiction needs to better understand its vulnerability to identified or currently unidentified risks. These could be needs based on federal or state agency mandates such as EPA's Bio-terrorism assessment requirement for water districts.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

CHAPTER X.
[INSERT JURISDICTION NAME] ANNEX

X.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

Alternate Point of Contact

[Name, Title]
[Street Address]
[City, State ZIP]
Telephone: [Phone #]
e-mail Address: [email address]

X.2 JURISDICTION PROFILE

[Insert Narrative Profile Information, per Instructions]

The following is a summary of key information about the jurisdiction:

- **Population Served—**[Insert Population] as of [Insert Date of Population Count]
- **Land Area Served—**[Insert Area]
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is [Insert Total Value]
- **Land Area Owned—**[Insert Area]
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is [Insert Total Value]
- **List of Critical Facilities Owned by the Jurisdiction:**
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
  - [Insert Description of Item] [Insert Value of Item]
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is [Insert Total Value]
- **Current and Anticipated Service Trends—**[Insert Summary Description of Service Trends]

The jurisdiction's boundaries are shown on Figure [Insert # of Figure Showing Jurisdiction Boundaries]

X.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table X-1 lists all past occurrences of natural hazards within the jurisdiction.

X.4 HAZARD RISK RANKING

Table X-2 presents the ranking of the hazards of concern.

X.5 APPLICABLE REGULATIONS AND PLANS

The following existing codes, ordinances, policies or plans are applicable to this hazard mitigation plan:

- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]
- [Insert Name of Code, Ordinance, Policy or Plan]

X.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table X-3.

X.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table X-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table X-5 identifies the priority for each initiative. Table X-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

X.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

[Insert text, if any]

X.9 ADDITIONAL COMMENTS

[Insert text, if any]

TABLE X-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

TABLE X-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		

TABLE X-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection			
Storm Ready			
Firewise			

TABLE X-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						
Initiative #—Description						

TABLE X-5.
MITIGATION STRATEGY PRIORITY SCHEDULE

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]

a. See Section ___ for definitions of high, medium and low priorities.

TABLE X-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type[a]					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects

a. See Section ___ for description of mitigation types