Contra Costa County
Hazard Mitigation Plan Update

Volume 2: Planning Partner Annexes

May 2011

Prepared by

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Contra Costa County

HAZARD MITIGATION PLAN
VOLUME 2: PLANNING PARTNER ANNEXES

DRAFT

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Contra Costa County
Hazard Mitigation Plan;
Volume 2—Planning Partner Annexes

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PART 1—
INTRODUCTION

CHAPTER 1.
PLANNING PARTNER PARTICIPATION

1.1 BACKGROUND

Region IX of the Federal Emergency Management Agency (FEMA) and the California Emergency Management Agency (CalEMA) both encourage 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 (44CFR) 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 Contra Costa 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 Contra Costa 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.

Figure 1-1 shows the special purpose districts within Contra Costa County.

1.2 THE PLANNING PARTNERSHIP

1.2.1 Initial Solicitation and Letters of Intent

The planning team solicited the participation of the County and all County-recognized special purpose districts with junior taxing authority at the outset of this project. A meeting was held on June 5, 2008 at the County Office of Emergency Services (OES) 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 Martinez on August 25, 2008 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 Contra Costa County plan update 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 39 planning partners by the planning team, and the Contra Costa County Planning Partnership was formed.

Maps 1-1 and 1-2 at the end of this chapter show the location of participating special purpose districts. 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.

1.2.2 Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed at the kickoff meeting held on August 25, 2008:

- 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 update. 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 update 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.

1.2.3 Linkage Procedures

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

1.3 ANNEX-PREPARATION PROCESS

1.3.1 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 44CFR 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, D and E to this volume of the Hazard Mitigation Plan.

1.3.2 Workshop

Four workshops were held during the weeks of October 5 and 26 for Planning Partners to learn about the templates and the overall planning process. Topics included the following:

- DMA
- Contra Costa 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 100-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 county-wide 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 Contra Costa County risk assessment results
- Hazard maps for all nine 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 (Association of Bay Area Governments (ABAG), if applicable)

1.3.3 Prioritization

44CFR 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 44CFR. 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.

1.3.4 Benefit/Cost Review

44CFR 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.

1.4 COMPATIBILITY WITH PREVIOUS REGIONAL HAZARD PLAN

The jurisdictions listed in Table 1-1 previously participated in the Association of Bay Area Governments (ABAG) regional hazard mitigation planning effort. The table lists the dates that each of these jurisdictions adopted its annex under the ABAG plan.

The ABAG plan identified over 100 regional strategies in the following categories:

- Infrastructure
- Health
- Housing
- Economy
- Government
- Education
- Land Use.

TABLE 1-1.
PARTICIPATING HAZARD PLAN JURISDICTIONS THAT ALSO PARTICIPATED IN ABAG PLAN

Jurisdiction	ABAG Annex Adoption Date
Contra Costa County	April 17, 2007
Danville	March 6, 2007
El Cerrito	November 7, 2005
Pleasant Hill	March 19, 2007
Richmond	December 20, 2005
San Ramon	March 27, 2007
Walnut Creek	April 17, 2007

Each strategy was further categorized by regional hazard of concern. The complete list of ABAG strategies is provided in Appendix F.

Under the ABAG process, each participating jurisdiction reviewed all the strategies and identified those that were applicable to its jurisdiction, based on its ability to implement the strategy. For the applicable strategies, the jurisdictions then assigned a priority and a responsible agency for implementation.

During the *Contra Costa County Hazard Mitigation Plan* development process, the ABAG participants reviewed the ABAG strategies that they had previously identified as applicable for their annexes to determine which are relevant to the intent and structure of the Contra Costa County planning effort. Each adopted ABAG strategy was identified with one of the following implementation status findings:

- ABAG strategy has been completed (identified in the implementation status table of each jurisdiction's annex).
- ABAG strategy has been removed or is no longer feasible (identified in the implementation status table of each jurisdiction's annex).
- ABAG strategy has been carried over to the current hazard mitigation plan in one of the following ways:
  - Incorporated in the current plan's action plan matrix, exactly as presented in the ABAG plan (identified in the implementation table of each jurisdiction's annex and indicated in the action plan matrix)
  - Addressed by one or more actions in the current plan's action plan matrix, but not incorporated in this plan exactly as presented in the ABAG plan (identified in the implementation status table of each jurisdiction's annex).
- ABAG strategy is considered to be addressed by the goals and objectives of the current hazard mitigation plan (this applies to all strategies in the jurisdiction's ABAG annex that are not listed in the implementation status table of the current plan).

All ABAG participants will continue to support the ABAG strategies as a regional stakeholder; however, their hazard mitigation blueprint will be directed by the *Contra Costa County Hazard Mitigation Plan*.

1.5 FINAL COVERAGE UNDER THE PLAN

Of the 39 committed planning partners, only 36 fully met the participation requirements specified by the Steering Committee. The principal requirement not met by the other partners was the completion of the jurisdictional annex template following the workshops held in October 2009. All 39 partners attended the workshop, but only 36 subsequently submitted completed templates. Therefore, only those 36 jurisdictions are included in this volume and will seek DMA compliance under this plan. The remaining jurisdictions will need to follow the linkage procedures described in Appendix B of this volume. Table 1-2 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

TABLE 1-2.
PLANNING PARTNER STATUS

Jurisdiction	Letter of Intent Date	Attended Workshop?	Completed Template?	Will Be Covered by This Plan?
Contra Costa County	02/01/2007	Yes	Yes	Yes
City of Antioch	06/24/2008	Yes	Yes	Yes
City of Brentwood	0826/2008	Yes	Yes	Yes
Town of Danville	06/17/2008	Yes	Yes	Yes
City of El Cerrito	7/28/2008	Yes	Yes	Yes
City of Martinez	7/29/2008	Yes	Yes	Yes
City of Pinole	7/30/2008	Yes	Yes	Yes
City of Pleasant Hill	01/25/2007	Yes	Yes	Yes
City of Richmond	04/03/2009	Yes	Yes	Yes
City of San Pablo	07/04/2008	No	No	No
City of San Ramon	07/17/2008	Yes	Yes	Yes
City of Walnut Creek	06/20/2008	Yes	Yes	Yes
Antioch Unified School District	09/08/2008	Yes	Yes	Yes
Bethel Island Municipal Improvement District	07/28/2008	Yes	Yes	Yes
Brentwood Union School District	07/21/2001	Yes	Yes	Yes
Canyon Elementary School District	09/30/2008	Yes	Yes	Yes
Central Contra Costa Sanitary District	07/17/2008	Yes	Yes	Yes
Contra Costa Community College District	06/11/2008	Yes	Yes	Yes
Contra Costa County Fire District	10/07/2008	Yes	Yes	Yes
Contra Costa County Flood Control and Water Conservation District	02/01/2007	Yes	Yes	Yes
Contra Costa County Office of Education	08/04/2008	Yes	Yes	Yes
Delta Diablo Sanitation District	07/25/2008	Yes	Yes	Yes
Diablo Water District	09/17/2008	Yes	Yes	Yes
East Contra Costa Fire Protection District	09/04/2008	Yes	Yes	Yes

TABLE 1-2 (continued).
PLANNING PARTNER STATUS

Jurisdiction	Letter of Intent Date	Attended Workshop?	Completed Template?	Will Be Covered by This Plan?
Eastbay Municipal Utility District	06/17/2008	Yes	No	No[a]
Ironhouse Sanitary District	08/01/2008	Yes	Yes	Yes
Kensington Fire Protection District	02/18/2010	Yes	Yes	Yes
Kensington Police Protection and Community Services District	7/30/2008	Yes	Yes	Yes
Knightsen Community Services District	07/30/2008	Yes	Yes	Yes
Liberty Union High School District	12/12/2008	Yes	Yes	Yes
Mt. Diablo Unified School District	07/21/2008	Yes	Yes	Yes
Pittsburg Unified School District	08/21/2008	Yes	No	No
Pleasant Hill Recreation and Park District	10/01/2009	Yes	Yes	Yes
Reclamation District 800 (Byron Tract)	07/24/2008	Yes	Yes	Yes
Reclamation District 830 (Jersey Island)	02/20/2009	Yes	Yes	Yes
Rodeo-Hercules Fire District	03/31/2009	Yes	Yes	Yes
San Ramon Valley Fire Protection District	08/06/2008	Yes	Yes	Yes
Walnut Creek School District	09/03/2008	Yes	Yes	Yes
West Contra Costa Unified School District	07/31/2008	Yes	Yes	Yes

a. Eastbay MUD is a stakeholder in this plan, but did not complete an annex because the District is a full participant in the ABAG planning effort.

PART 2—
ANNEXES FOR MUNICIPAL PLAN UPDATES

CHAPTER 2.
UNINCORPORATED CONTRA COSTA COUNTY ANNEX

2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Susan Roseberry, Senior Emergency Planning Coordinator
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Alternate Point of Contact

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2.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1850
- **Current Population—**1,060,435 as of January 1, 2009
- **Population Growth—**Contra Costa County should continue to experience a steady rate of growth, with an estimated population increase of 29 percent by 2035.
- **Location and Description—**Contra Costa County is major metropolitan area east of San Francisco. The county has a total area of 802 square miles, of which 720 square miles is land and 82 square miles is water. It is bounded on the south and west by Alameda County; on the northwest San Francisco Bay (San Francisco and Marin Counties); on the north by San Pablo Bay, the Carquinez Strait, and Suisun Bay (Solano and Sacramento Counties); and on the east by the San Joaquin River (San Joaquin County).
- **Brief History—**Contra Costa County was incorporated in 1850 as one of the original 27 counties of the state. The County's Spanish language name translates as "opposite coast," indicating its location opposite San Francisco on San Francisco Bay.

  Coal was discovered near Pittsburg in the early 1850s. The Mount Diablo Coal Field was the most extensively mined coal deposit in California. From the 1860s to the beginning of the 20th century, it is estimated that 4 million tons of coal were extracted from the area. Railroads are also an important part of the County's history. In 1901, the Santa Fe Railroad, now BNSF Railway, selected Richmond for its western terminal. During the early 1900s, industry moved into the county: a U.S. Steel mill opened in Pittsburg in 1910; Standard Oil, later to become Chevron, moved to Richmond; and Shell Oil built a refinery in Martinez. Great Western Electro-Chemical, which later became Dow, opened in Pittsburg in 1916.

  Contra Costa County played a significant role in World War II. Richmond was a major shipbuilding center, the U.S. Steel mill in Pittsburg produced casting for the shipyards, Camp Stoneman (Pittsburg) was a troop staging area from 1942 to 1957, wartime pilots trained at what is now Concord/Buchanan Field Airport, and Port Chicago was a major munitions depot. Saint Mary's College Pre-Flight School trained approximately 15,000 recruits in Moraga from June 1, 1942, until it was decommissioned on June 30, 1946. Many workers who migrated to the county to work in the shipyards remained after the war ended. Veterans who passed through the county during the war returned to become residents.

Farming has always been an important part of the County's history. Cattle ranching has been a part of the County's economy since the days of the Spanish land grants. Wheat has been grown in the county since the mid-1800s. However, a steady decline in world wheat prices led to a gradual transition from wheat to fields to vineyards and orchards. Prior to Prohibition, Martinez was home to many wineries, including Christian Brothers Wineries, which started crushing grapes for sacramental wine in Martinez in 1882. Today, the county is home to vineyards that produce award-winning wines. The total gross value of agriculture crops and products in 2008 was $71,233,620. Several categories exceeded $1 million in value (in decreasing order): sweet corn, cattle and calves, tomatoes, grapes, field corn, alfalfa, rangeland pasture, apples, cherries, apricots, miscellaneous vegetables, miscellaneous field crops, walnuts, peaches, beans, herbaceous perennials, and bedding plants.

Today, the major industries are petroleum (Chevron being one of the largest employers in the county), chemical, bio-medical, healthcare services, banking, communication, transportation (shipping/rail/pipelines), retail services, higher education (several private colleges), and agriculture. Major employers in the county include the following governmental entities: Contra Costa County, three junior colleges (Diablo Valley, Contra Costa Community, Los Medanos), California State Hayward extension, and the Contra Costa Regional Medical Center (one of eight remaining County hospitals in the state).

- **Climate—**In Contra Costa County, the average rainfall ranges from 13.25 inches in Antioch (60 feet above sea level) to 23.84 inches at Mt. Diablo Junction (2,170 feet above sea level). Martinez (40 feet above sea level) averages 19.32 inches. The average snowfall is 0 inches, except at higher elevations. Mt. Diablo Junction averages 1.5 inches per year. The average number of days with precipitation ranges from 55 at Antioch to 66 at Mt. Diablo. Martinez averages 63. The average number of sunny days (cloud cover less than 8/10) is 260. The average high temperature in July ranges from 71 at Richmond (20 feet above sea level) to 91 in Antioch. The average low in January ranges from 37 at Antioch to 43 at Richmond. The vast majority of rainfall occurs between October and May. Analysis of long-term precipitation records indicates that wetter and drier cycles lasting several years are common in the region. Severe, damaging rainstorms occur in the Bay Area at a frequency of about once every three years. The western United States periodically experiences two distinct weather patterns that can cause severe storms and heavy precipitation:
  - El Nino—A warm ocean current that typically appears around late December and lasts for several months, but may persist into May or June. The warm current influences storm patterns around the globe. As a result, these climate events commonly bring heavy rains and blustery storms and, in some locations, drought. During the past 40 years, nine El Nino events have affected the western coasts of North and South America.
  - Pineapple Express—A Pacific Ocean subtropical jet stream that brings warm moist air from Hawaii into the region. The combination of moisture-laden air, atmospheric dynamics and orographic enhancement that results as this air passes over the mountain ranges of the West Coast cause some of the region's most torrential rains.
- **Governing Body Format—**Contra Costa County is governed by a five-member Board of Supervisors. In addition to the five elected officials on the Contra Costa Board of Supervisors, six other key county leaders holding department head positions are voted into office via county-wide elections: assessor, auditor-controller, clerk-recorder, district attorney, sheriff-coroner and treasurer. The County seat is in Martinez.
- **Development Trends—**Table 2-1 presents growth projections for the County. Contra Costa should continue to experience a steady rate of growth, with an estimated population increase of 29 percent by 2035.

TABLE 2-1.
CONTRA COSTA COUNTY GROWTH PROJECTIONS

	2000	2005	2010	2015	2020	2025	2030	2035
Population	948,816	1,023,400	1,090,300	1,130,700	1,177,400	1,225,500	1,273,700	1,322,900
Household Population	937,479	1,012,100	1,078,800	1,118,900	1,165,300	1,213,300	1,261,500	1,310,700
Households	344,129	368,310	392,680	407,250	424,340	442,330	461,330	480,480
Persons/household	2.72	2.75	2.75	2.75	2.75	2.74	2.73	2.73
Employed Residents	461,992	459,600	490,200	528,000	586,200	631,700	64,900	718,700
Mean Household Income	$100,500	$98,400	$102,000	$107,500	$113,500	$119,700	$126,200	$133,200
Employment								
Agriculture & Natural Resources	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550
Construction	27,580	29,270	28,340	30,750	33,190	36,510	39,370	42,510
Manufacturing, Wholesale	40,120	34,490	35,110	38,220	41,060	42,950	45,800	48,330
Retail	46,720	46,390	43,870	46,650	50,870	56,740	60,710	64,710
Transportation & Utilities	15,990	18,240	17,690	18,950	20,360	21,090	22,090	23,310
Information	19,760	19,640	19,290	20,970	22,920	25,860	28,430	30,700
Financial & Leasing	40,380	40,930	39,060	41,550	44,470	47,690	50,150	53,870
Professional & Management Services	49,130	47,580	46,450	51,170	56,040	61,670	67,160	72,160
Health, Education	71,090	78,130	81,190	90,430	99,930	106,170	116,870	126,740
Arts, Recreation & Other	44,840	48,110	50,230	54,740	59,840	62,730	67,590	73,310
Government	13,150	13,700	13,040	13,670	14,320	15,390	16,190	17,460
Total	**371,310**	**379,030**	**376,820**	**409,650**	**445,550**	**479,350**	**516,910**	**555,650**

Source: 2000 demographic data taken directly from the U.S. Census. 2000 employment data are derived from the Census Transportation Planning Package. 2000 income data are from U.S. Census, based on 1999 income and then adjusted to 2005 dollars. ABAG updated these data to 2005 based on the Bay Area CPI and real income growth estimates for each county from the Bureau of Economic Analysis. All income data are expressed in constant 2005 dollars.

Anticipated development trends are moderate to high, consisting primarily of residential development. Single-family homes are the predominant housing type in the County, especially in unincorporated areas, where single-family dwellings make up 80 percent of the housing stock. The population of every city in the County increased during the 1990s, but growth has been strongest in the East County, particularly in Antioch, Brentwood, and Oakley. (East County includes Antioch, Pittsburg, Brentwood, Bay Point, Oakley, and Rural East Contra Costa County. The San Ramon Valley includes the unincorporated community of Dougherty Valley, some of which is annexed into the City of San Ramon.) According to the Association of Bay Area Governments (ABAG), East County and San Ramon will account for much of the household growth between 2000 and 2020. Substantial growth is also expected in Bay Point, an unincorporated community within Pittsburg's sphere of influence, as the Pittsburg/Bay Point BART station is the new terminus for the Bay Point/Pittsburg line.

ABAG also anticipates noticeable growth for the West County, especially for Richmond and Hercules. Redevelopable land near the new Richmond Parkway connecting I-80 and I-580 will help fuel growth for the Richmond area. Hercules will most likely grow due to its supply of vacant land and its location at the junction of Highways 80 and 4.

Central County will continue to absorb new housing growth, despite the diminishing supply of vacant land. Undeveloped land remains available in pockets and some communities are experiencing redevelopment in neighborhoods near the downtown and other activity centers, such as the Walnut Creek and Pleasant Hill BART Stations.

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. Contra Costa adopted its general plan under this state mandate in January 2005. Future County growth and development will be managed as identified in the plan.

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: Unknown

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.

2.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 2-11 summarizes the current status of strategies that were adopted by the County for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 2-8. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

2.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Contra Costa County area and are included in Volume 1 of this 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.

TABLE 2-2.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Landslide	4/6/2006	5,500,000 Property
Flooding	12/31/2005–1/1/2006	22,000,000 Property/8,710,359 Crop
Wind	12/31/2002	120,000 Property
Wind	11/7/2002	200,000 Property
Severe Weather	7/10/2002	25,000 Property
Wind	11/24/2001	700,000 Property
Wind (High Wind)	12/18/2000	550,000 Property
Flooding (Flash Flood)	02/14/2000	100,000 Property
Wind (High Wind)	12/21/1999	62,500 Property
Wind (High Wind)	2/9/1999	200,000 Property
Wind (High Wind)	12/16/1998	25,000 Property
Tornado	12/5/1998	200,000 Property
Tornado	02/19/1998	50,000 Property
Landslide (El Nino)	1/1/1997	27,000,000 Property
Severe Weather	12/9/1995	6,000,000 Property/500,000 Crop Damage
Severe Weather	2/21/1994	128,000 Property
Severe Weather	12/11/1993	344,828 Property
Wind (High Wind)	11/14/1993	62,500 Property
Wind (High Wind)	2/19/1993	50,000 Property
Flooding (Flash Flood)	1/20/1993	12,500 Property
Flooding (Flash Flood)	1/13/1993	5,555,556 Property/Crops
Severe Weather	1/10/1993	8,333,333 Property
Flooding/Severe Weather	12/11/1992	131,579 Property
Severe Weather	12/7/1992	1525 Property
Flooding- Severe Weather	02/14/1992	9090.91 Property
Flooding- Severe Weather	02/11/1992	11627.91 Property
Severe Weather	02/09/1992	89286
Severe Weather	12/20/1990	86206 Property/Crops
Flooding (Flash Flood)	5/28/1990	500,000 Property
Earthquake (Loma Prieta)	10/17/1989	25,000.000
Wind	12/14/1988	50000 Property
Flooding (Flash Flood)	2/17/1986	5,000,000 Property
Levee Failure, High Winds, High Tides, Floods, Storm, Wind Driven Water	12/9/1983	Public-7,240,785; private- 2,669 million; agriculture 1 million

TABLE 2-2 (continued).
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Severe Weather	12/3/1983	312,500 Property
Flood- Severe Weather	1/25/1983	384,165 Property
Wind	12/22/1982	1,041,666 Property
Flooding	3/30/1982	166,667 Property
Flood- Severe Weather	1/3/1982	7,142,857 Property
Delta Levee Break Holland & Webb Levee breaks	1/23/1980	Public-11,158,700; private-1,479,500; agriculture-3,887,195; Total-17,388,013
Drought	2/13/1976	Damage Statewide $888.5 million
Eucalyptus Tree Freeze	4/4/1973	Federal Disaster 2 Counties Contra County & Alameda- removal of approximately 2 million dead trees $8-10 million
Flood- Severe Storm/Thunder	1/16/1973	86206 Property
Flood- Severe Storm/Thunder	1/18/1969	862068 Property

a. Drought conditions and Department of Agriculture declared disasters:
- As of May 2009, three consecutive years of drought conditions resulting in approximately $3.6 loss of forage value and $1.3 million cattle production
- March 2004—Rangeland forage loss $6,564,946 and dryland hay loss $72,425
- Sept 2002—Reduced rangeland due to drought estimated loss $1,114296

b. In the years 1973, 1980, 1982, 1983, and 1986, one or more Delta island levees failed or were overtopped, and some of these events were summer breaks that did not occur at time of high storm runoff. Some islands in the Delta have flooded two or three times since 1980.

Sources: Spatial Hazard Events and Losses Database for the United States (SHELDUS); Cal EMA Disasters 1950 – 1999

TABLE 2-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	45
3	Landslide	36
4	Flood	27
5	Wildland Fire	24
6	Drought	15
7	Dam failure	8

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	California Building Code Ordinance 2007-54 adopted 11/27/2007
Zoning Code	Y	N	N	Y	County Code Title 8 Zoning Division-84 Land Use Districts.
Subdivisions	Y	N	N	N	County Ordinances Code (94-4.2)
Post Disaster Recovery	N	N	N	N	To be addressed in 2010
Real Estate Disclosure	N	N	Y	Y	CA. State Civil Code 1102 requires full disclosure on Natural hazard Exposure of the sale/re-sale of any and all real property.
Growth Management	Y	N	N	Y	Growth Management is addressed in the County's General Plan 2005 - 2020
Site Plan Review	Y	N	N	N	County Code Titles 8,9,10
Special Purpose (flood management, critical areas)	Y	N	N	N	County Code Title 10 See the Hazard Mitigation Plan for the *Contra Costa Flood Control and Water Conservation District.*
Planning Documents					
General Plan	Y	N	N	Y	Contra Costa County General Plan 2005-2020 adopted in January 2005.
Floodplain or Basin Plan	N	N	N	N	Managed by the Public Works Department/Flood Control & Water Conservation District
Stormwater Plan	Y	N	N	N	Managed by the Public Works/Flood Control & Water Conservation District. SB790 Stormwater Resources Act effective 1/1/2010.
Capital Improvement Plan	N	N	N	N	Contra Costa County Public Works Department-Capital Road Improvement Preservation Program (CRIPP) Fiscal Year 2007/08 to Fiscal Year 2013/2014. Initially adopted by the Board on May 19, 1989. The CRIPP is updated every other year during the odd years.
Habitat Conservation Plan	N	N	N	N	East Contra Costa County Habitat and Conservation Plan- adopted 05/09/2007
Economic Development Plan	Y	N	N	N	County Administration
Emergency Response Plan	Y	N	N	N	Emergency Operations Plan (EOP), Adopted by the County in January 2006. Currently being revised 2010.

TABLE 2-4 (continued).
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents (continued)					
Shoreline Management Plan	N	N	N	N	The General Plan Land Use Element combined with zoning ordinances addresses County Shoreline (unincorporated). East Bay Regional Park District is responsible for district land use, the Army Corps of Engineers is responsible for dredging channels, and the Office of the Sheriff contracted by the U.S. Army is responsible for the Marine Ocean Terminal Concord. Also involved in shoreline management are the Bay Conservation Development Commission and the State Lands Commissions.
Post Disaster Recovery Plan	N	N	N	N	To be written 2010

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	Department of Conservation and Development/Public Works Department
Engineers or professionals trained in building or infrastructure construction practices	Y	Department of Conservation and Development/Public Works Department/General Services
Planners or engineers with an understanding of natural hazards	Y	Emergency Services Division/Office of Emergency Services- Senior Emergency Planners, Public Works Department- Engineers
Staff with training in benefit/cost analysis	Y	Public Works Department/General Services Department
Floodplain manager	Y	Public Works Department/Flood Control and Water Conservation District-Assistant Chief Engineer & Floodplain/Watershed Manager
Surveyors	Y	Public Works Department
Personnel skilled or trained in GIS applications	Y	Department of Information Technology (DOIT), Public Works Department, and the Department of Conservation and Development
Scientist familiar with natural hazards in local area	Y	Flood Control and Water Conservation Control District-Hydrologist Department of Conservation and Development- Geologist
Emergency manager	Y	Emergency Services Division/Office of Emergency Services- OES Manager
Grant writers	Y	Emergency Services Division/Office of Emergency Services- OES Manager, Public Works Department, Health Services Department, Contra Costa Fire District

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	Unknown
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes

TABLE 2-7.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System			
• City of Concord	Yes	8	10/1/2008
• Contra Costa County	Yes	6	10/1/2006
• City of Pleasant Hill	Yes	8	05/01/2008
• City of Richmond	Yes	9	10/1/2005
• City of San Ramon	Yes	8	10/1/2006
• City of Walnut Creek	Yes	7	05/01/2006
Building Code Effectiveness Grading Schedule			
• City of Antioch	Yes	3/2	N/A
• City of Brentwood	—	—	To Be Rated 2010
• City of Clayton	Yes	4/3	N/A
• City of Concord	Yes	2/2	N/A
• Town of Danville	—	—	To Be Rated 2010
• City of Hercules	Yes	4/3	N/A
• City of Lafayette	Yes	4/3	N/A
• City of Martinez	No	N/A	N/A
• Town of Moraga	Yes	4/3	N/A
• City of Oakley	—	—	To Be Rated 2010
• City of Orinda	Yes	4/3	N/A
• City of Pinole	—	—	To Be Rated 2010
• City of Pittsburg	Yes	4/4	N/A
• City of Pleasant Hill	No	N/A	N/A
• City of Richmond	No	N/A	N/A
• City of San Pablo	Yes	4/3	N/A
• City of San Ramon	Yes	2/2	N/A
• City of Walnut Creek	Yes	4/4	N/A
• Contra Costa County	Yes	4/3	N/A

TABLE 2-7 (continued).
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection[a]			
• Contra Costa County Fire Protection District	Yes	3/8	N/A
• East County Fire Protection District	Yes	4/9	N/A
• Moraga/Orinda Fire Protection District	Yes	3/9	N/A
• San Ramon Valley Fire Protection District	Yes	2/8	N/A
• Richmond Fire Protection District	Yes	3/9	N/A
• El Cerrito Fire Protection District	Yes	3	N/A
• Pinole Fire Protection District	Yes	4/9	N/A
• Hercules/Rodeo Fire Protection District	Yes	3/9	N/A
• Crockett Fire Protection District	Yes	3/9	No
• East Bay Regional Park District	No	Not Rated	N/A
Storm Ready	Yes	Current[b]	05/26/2004
Firewise	No[c]	N/A	N/A

a. Higher classification applies to when subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.
b. Contra Costa County is listed by the NWS as one of six Storm Ready Counties in California. The county was first recognized as Storm Ready on May 26, 2004. We anticipate renewing our Storm Ready status in 2010.
c. Contra Costa Fire Districts participate in the Diablo Fire Safe Council planning and outreach efforts.

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	Included in Previous Plan?
Initiative #CCC-1—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-Term, Ongoing	No
Initiative #CCC-2—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-Term, Ongoing	No
Initiative #CCC-3—Continue to maintain compliance and good standing under the National Flood Insurance Program							
New and existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	General Fund	Ongoing program	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-4—Continue to maintain/enhance the County's classification under the Community Rating System							
New and Existing	Flood	3, 4, 5, 7, 9	Public Works	Low	General Fund	Short	Yes, **ECON-f-1**
Initiative #CCC-5—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4, 5, 14	OES & DCD	Low	General Fund	Early 2010, Short-Term	No
Initiative #CCC-6—Upgrade Emergency Operations Center (EOC) HVAC							
Existing	All Hazards	1, 2, 15	OES/General Service	250,000, High	Potential Sources-General Fund EOC Grant	Long-Term	No
Initiative #CCC-7—Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program to Include Exercises							
New &Existing	All Hazards	2, 3, 6, 13, 16	OES	Low	Potential Sources-Citizen Prep, UASI	Mid 2010, Short-Term	No
Initiative #CCC-8—Provide California State Training Institute (CSTI) "Earthquake" Class to Essential County Personnel. Course to be offered Dec 2009 and Jan 2010, we anticipate offering the course on an annual basis.							
Existing	Earthquake	2, 3, 6, 13, 16	OES/CSTI	55,000 per class, High	State Homeland Security Grant Program (SHSGP) Funds	Annual, Short-Term	No
Initiative #CCC-9—The OES conducts annual Mass Care and Shelter Drills which involve both County Employees, Non-Government Agencies, CERT volunteers, and the public. Shelter Drills were conducted in June & October of 2009. The next drill is scheduled for the summer of 2010.							
New & Existing	All Hazards	2, 3, 6, 13, 16	OES	15,000, Low	Potential Source- SHSGP	Annual, Short-Term	No
Initiative #CCC-10—County OES participates in the annual Golden Guardian Statewide Exercise							
Existing	All Hazards/2011 Levee Break	2, 3, 6, 13, 16	OES	10,000, Medium	Potential UASI	Annual, Short-Term	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-11—FCC P-25 East Bay Regional Communications System (Alameda & Contra Costa County- At built out, the East Bay Regional Communications System will be a 36-site, 2 county P-25 compliant communication system designed to provide fully interoperable communications to all public agencies within Alameda and Contra Costa counties. refer to website www.ebrcsa.org for complete project description.							
New Assets	All Hazards	1, 2, 13, 16	Sheriff Tech	68 Million, High	Potential sources of funding: SUASI, UASI, SHSGP EARMARK, PSIC	Long-term, depends on funding	No
Initiative #CCC-12—Update existing network in the EOC to support full activation to include Wi-Fi.							
Existing	All Hazards	1, 2, 13, 16	Sheriffs Tech	High	Potential source EOC Grant	Long-Term	No
Initiative #CCC-13—Retrofit antenna mast to support the addition of additional antennas, and protect from impacts from seismic and severe weather hazards							
Existing	Earthquake, Severe Weather	1, 2, 13, 15, 16	Dept of Info Tech	15,000, High	Potential source EOC Grant	Long -Term	No
Initiative #CCC-14—Continue to maintain and develop the existing County-wide Community Warning System (CWS) by identifying and implementing new technology as it becomes available.							
Existing	All Hazards	1, 2, 13, 16	CWS	600,000, Low	Community Awareness Emergency Response (CAER) non-profit organization	Short-Term, Ongoing	No
Initiative #CCC-15—Community Warning System to continue outreach for their "Cell Phone Alert" program which allows individuals to register their cell phones with the CWS and to be notified via cell phone during an emergency incident in their geographic location.							
Existing	All Hazards	1, 2, 13, 16	CWS	Low	CAER	Short-Term, Ongoing	No
Initiative #CCC-16—Update/enhance existing flood hazard mapping to better reflect current conditions.							
New & Existing	Flood	3, 6, 12, 16	Public Works/Flood Control District	Medium	FEMA/Public Works Floodplain Determination Fees., FEMA Risk-MAP program	Short-Term, Ongoing	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-17—Canal Road Bridge Replacement							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	Medium	Awaiting Funding- HBRR, Prop 111 Gas Tax	Long-term, depends on funding	No
Initiative #CCC-18—Marsh Creek Road Bridge over Marsh Creek							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	Medium	Awaiting Funding	Long-term, depends on funding	No
Initiative #CCC-19—Bethel Island Road retrofit-Widen to four lane arterial standard from East Cypress Road to Gateway Road including realignment of curve, Road elevation, and construction of new bridge.							
Existing	Flood/Levee Breach	1, 7, 15	Public Works	12 Million, Medium	HBRR, Prop 111 Gas Tax and Bethel Island Area of Benefit (AOB) revenue	Anticipated completion date 2011, Short-Term	No
Initiative #CCC-20—Center Avenue (Pacheco Blvd. To Blackwood Drive) Relocate Fire Station, widen bridge and construct 2 additional lanes (4 lanes total)							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	$7.6 Million, High	FEMA Hazard Mitigation Grant funding for FS relocation. Possible Prop 111 Gas Tax for road work	Long-term, depends on funding	No
Initiative #CCC-21—Boulevard Way at Las Trampas Creek Scour Repair- Bridge on Boulevard Way crossing Las Trampas Creek- Repair of the scouring is needed to maintain the bridge's structural integrity.							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	$500,000, Medium	HBRR, Prop 111 Gas Tax	2009/2010, Short-Term	No
Initiative #CCC-22—Retrofit Marsh Drive Bridge over Walnut Creek							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	High	HBRR, City of Concord AOB	Long-term, depends on funding	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-23—Orwood Road Bridge Replacement- the existing bridge is approaching the end of its useful life and is not designed to for earthquake loading. Project # 0662-6R4076							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	$4 Million, Medium	HBRR, Prop 111 Gas Tax, Local Road Funds, East Bay Regional Park District Funds	Construction Date 2012, Short-Term	No
Initiative #CCC-24—Pomo Street Arch Culvert Repair							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	110,000, Low	Local Road Funds	Construction Date 2010, Short-Term	No
Initiative #CCC-25—San Pablo Avenue Bridge over Rodeo Creek- Bridge replacement.							
Existing	Flood/ Earthquake	1, 7, 15	Public Works	3.6 Million, Medium	HBRR, Prop 111 Gas Tax, Local Road funds	Construction Date 2013, Short-term	No
Initiative #CCC-26—Update of four Dam Emergency Action Plans (EAP): Deer Creek, Dry Creek, Marsh Creek, and Pine Creek							
Existing	Dam Failure	1, 2, 6, 16	OES/Flood Control	High	Potential sources of funding: SUASI, UASI, SHSGP EARMARK, PSIC-NDSP (National Dam Safety Program) grant	Long-term, depends on funding	No
Initiative #CCC-27—Adoption of Fire Hazard Maps-"Very High Fire Zone Severity Maps" currently being developed. Anticipated date of completion and adoption by the Board of Supervisors late 2009 early 2010							
New & Existing	Wildfire	1, 2, 6, 16	County OES/Planning-Fire District	Low	General fund	Short-Term	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-28—Enhance/Improve County Code language and enforcement including: County Building Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the Unincorporated County							
New & Existing	Wildfire	4, 5, 11, 16	County OES/Planning-Fire District	Low	General Fund	Short-Term, Ongoing	No
Initiative #CCC-29—Improve, expand and develop new programs that increase awareness of and reduce risk to wildfires including: Support Fire District Chipper Program							
New & Existing	Wildfire	3, 15, 16	County OES/Planning-Fire District	Low	General fund, PDM, DHS-Citizens Corps Program	Long-term, depends on funding	No
Initiative #CCC-30—Implementation of projects listed in the Community Wildfire Protection Plan (CWFPP)							
Existing	Wildfire	3, 15, 16	County OES/Planning-Fire District	Low	Existing funding-pursue grant funding where eligible	Short-Term, Ongoing	No
Initiative #CCC-31—Participate in Annual Multi-Agency Wildland Fire Drill.							
Existing Assets	Wildfire	2, 3, 6, 13, 16	Fire Districts/OES	Low	General Fund Existing funding-pursue grant funding where eligible	Short-Term, Ongoing	No
Initiative #CCC-32—Continue and Maintain Noxious Weed Eradication Program- Dept of Ag & CDF							
New & existing	Wildfire/Agricultural Hazard	3, 16	Dept. of AG	Low	CA Dept. of Agriculture	Short-Term, Ongoing	No
Initiative #CCC-33—Participate in the bi-annual CAER Group Coastal Region Hazardous Materials Response Organization (CHMRO) Hazardous Materials Transportation Conference 2011.							
Existing	All Hazards	2, 3, 6, 13, 16	County Hazmat/OES	50,000, Low	CAER/ Hazardous Materials/ Private Industry	Short-Term, Ongoing	No

TABLE 2-8 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CCC-34—Address deferred maintenance of county owned facilities as identified in the 2007 "Contra Costa County Facility Condition Analysis (FCA)." The FCA project included the inspection of 93 buildings, totaling over 2,900,000 square feet. Facilities inspected fall into critical infrastructure/key resources categories.							
Existing	All Hazards	1, 2, 15	General Service Dept	251 Million, High	Grants & General Funds when they become available	Long-term, depends on funding	No
Initiative #CCC-35—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	Al Hazards	3, 7, 15	Planning & building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-term, depends on funding	No
Initiative #CCC-36— Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses.							
New and Existing	All Hazards	2,3,13,16	Police, Fire, County OES	Low	Existing County programs	Ongoing	Yes **ECON-j-5**
Initiative #CCC-37— Better inform residents of comprehensive mitigation activities, for all hazards of concern including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.							
New and Existing	All Hazards	3,6,7,15	Public Works, County OES,	Medium	Existing County programs	Short-term, ongoing	Yes **HSNG-k-3**

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	16	Medium	Low	Yes	No	Yes	High
2	16	Medium	Low	Yes	Yes	Yes	High
3	7	Medium	Low	Yes	No	Yes	High
4	5	Low	Low	Yes	No	Yes	High
5	3	Low	Low	Yes	No	Yes	High
6	3	High	High	Yes	Yes	No	Medium
7	5	Low	Low	Yes	No	Yes	High
8	5	High	High	Yes	Yes	Yes	High
9	5	Medium	Low	Yes	No	Yes	High
10	5	Medium	Medium	Yes	Yes	Yes	High
11	4	High	High	Yes	Yes	No	Medium
12	4	Low	High	No	No	No	Low
13	5	High	High	Yes	Yes	No	Medium
14	4	Medium	Low	Yes	No	Yes	High
15	4	Low	Low	Yes	No	Yes	High
16	4	Medium	Medium	Yes	Yes	No	Medium
17	3	High	Medium	Yes	Yes	No	Medium
18	3	High	Medium	Yes	Yes	No	Medium
19	3	High	Medium	Yes	Yes	Yes	High
20	3	High	High	Yes	Yes	No	Medium
21	3	High	Medium	Yes	Yes	Yes	High
22	3	High	High	Yes	Yes	No	Medium
23	3	High	Medium	Yes	Yes	Yes	High
24	3	High	Low	Yes	Yes	Yes	High
25	3	High	Medium	Yes	Yes	Yes	High
26	4	High	High	Yes	Yes	No	Medium
27	4	Medium	Low	Yes	No	Yes	High
28	4	Medium	Low	Yes	No	Yes	High
29	3	Low	Low	Yes	No	Yes	High
30	3	High	Low	Yes	Yes	Yes	High
31	5	Low	Low	Yes	No	Yes	High
32	2	Low	Low	Yes	Yes	Yes	High
33	5	Low	Low	Yes	No	Yes	High

TABLE 2-9 (continued).
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]
34	3	High	High	Yes	Yes	No	Medium
35	3	High	High	Yes	Yes	No	Medium
36	4	High	Low	Yes	No	Yes	High
37	4	Medium	Low	Yes	Yes	Yes	High

a. Explanation of priorities
- 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).

TABLE 2-10.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	2, 5, 26	5, 34, 35	1, 2, 7, 15, 26, 36, 37	5,	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 26, 33, 36	
Drought	2, 5,		1, 2, 7, 15, 36, 37	5,	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 33, 36	
Earthquake	2, 5,	5, 13, 17, 18, 20, 21, 22, 23, 24, 25, 34, 35	1, 2 7, 15, 36, 37	5,	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 33, 36	
Flood	2, 3, 4, 16,	3, 4, 5, 17, 18, 19, 20, 21, 22, 23, 24, 25, 34, 35	1, 2, 3, 4, 7, 15, 16, 36, 37	3, 4	4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 33, 36	4, 19
Landslide	2, 5	5, 34, 35	1, 2, 7, 15, 36, 37	5,	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 33, 36	
Severe Weather	2, 5	5, 13, 34, 35	1, 2, 7, 15, 36, 37	5,	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 33, 36	
Wild Fire	2, 5, 27, 28, 30	5, 29, 30, 34, 35	1, 2, 7, 15, 27, 29, 30, 36, 37	5, 30	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 27, 30, 31, 33, 36	30, 32

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 2-11.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
ECON-b-2	✓			California Building Code Ordinance 2007-54 adopted 11/27/2007
ECON-f-1		✓		Addressed by Initiative #CCC-4
ECON-f-6		✓		Addressed by Initiative #CCC-3
ECON-f-7		✓		Addressed by Initiative #CCC-35
ECON-f-8		✓		Addressed by Initiative #CCC-35
ECON-j-5		✓		Addressed by Initiative #CCC-36
LAND-c-4		✓		Addressed by Initiatives #CCC-3 and #CCC-4
HSNG-g-1		✓		Addressed by Initiative #CCC-28
HSNG-k-3		✓		Addressed by Initiative #CCC-37
GOVT-a-2		✓		Addressed by Initiative #CCC-35
GOVT-a-7		✓		Addressed by Initiative #CCC-35
GOVT-c-5		✓		Addressed by Initiative #CCC-3

CHAPTER 3.
TOWN OF DANVILLE ANNEX

3.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mr. Gregory Gilbert, Emergency Manager
510 LaGonda Way
Danville, CA 94526
Telephone: 925-314-3368
e-mail Address: ggilbert@danville.ca.gov

Alternate Point of Contact

Name: Steve Lake, Development Services Director
510 LaGonda Way
Danville, CA 94526
Telephone Number: 925-314-3319
E-mail Address: slake@danville.ca.gov

3.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1982
- **Current Population—**43,043 as of 2009 (California Department of Finance)
- **Population Growth—**Danville has had an average annual growth rate of 1.60 percent per year since 1990.
- **Location and Description—**The Town of Danville is a moderately sized community about 18 square miles in size, resting in the shadow of Mount Diablo. The Town is in the south-central portion of Contra Costa County on the SR 680 corridor, about 35 miles from San Francisco.
- **Brief History—**Often referred to as the "Heart of the San Ramon Valley," Danville was first populated by Indians who lived next to the creeks and camped on Mount Diablo in the summer. Later it was part of Mission San Jose's grazing land and a Mexican land grant called Rancho San Ramon. Settlers raised cattle and sheep and grew wheat, barley and onions. Later the farms produced hay, a wide variety of fruit crops (apples, plums, pears), walnuts and almonds. In the 1800s, horses and wagons hauled these products north to the docks at Pacheco and Martinez, following Road No. 2, which wound by San Ramon Creek and was almost impassable in the rainy season. When the Southern Pacific Railroad came to the Valley in 1891, Danville changed dramatically. The farmers built warehouses and shipped crops by rail in any kind of weather, and residents traveled to and from Danville with an ease they had not experienced before.

  Danville continued to be farm country well into the 1940s. The entire valley had 2,120 people in 1940, growing to 4,630 by 1950. Developments such as Montair and Cameo Acres were built and the water and sewer districts extended their boundaries. The I-680 freeway, which sliced through Danville in the mid-1960s, altered the Town permanently. The Valley population rose from 12,700 in 1960 to 15,900 in 1970, 21,100 in 1975, and 26,500 in 1980. The 1980 census showed that 82 percent of Danville's 26,500 had arrived after 1970.

  A remarkable number of early Danville buildings remain today, such as the houses belonging to the Boone, Osborn, Young, Spilker, Podva, Vecki, Root, Elliott and Hartz families. The Danville Hotel and original 1874 Grange Hall exist as well. Many of the early pioneer names

appear on the streets and schools, including Baldwin, Harlan, Wood, Love, Hemme, Boone, Bettencourt and Meese.

In 1982, Danville citizens showed their strong sense of identity by voting to incorporate their community, allowing themselves to shape future changes more directly. There are 155 miles of center line streets maintained by the Town. Open space is greatly valued in Danville, contributing to the overall quality of life for its citizens.

The Town contracts with the Contra Costa County Office of the Sheriff for police services; fire services are supplied by the San Ramon Valley Fire Protection District (SRVFPD). The San Ramon Valley Unified School District serves the Town of Danville, the City of San Ramon and the unincorporated areas of Alamo, Blackhawk and Tassajara, providing service to over 27,000 K-12 grade students. Danville formed a joint-powers agreement/partnership with the City of San Ramon, the SRVFPD and the San Ramon Valley Unified School District, designed to regionally manage disaster preparedness and emergency response. This partnership, called the San Ramon Valley Emergency Preparedness Citizen Corps Council (SRVEPCCC), shares resources, information, ideas and staff to make the region more prepared and disaster-resistant.

- **Climate—**The climate of Danville is generally moderate, with a marine influence coming from the San Francisco Bay. The rainy season lasts from November through April, accounting for about 90 percent of the annual precipitation (23 inches average/annually). The dry season, lasting from May through October, is typically marked by periods of hot dry weather, with shorter periods of low clouds and fog.
- **Governing Body Format—**The Town of Danville incorporated in 1982 as a General Law City, with a Mayor-Council system of governance. Primary power lies with the five council members. The Mayor has the power to appoint, as well as ceremonial duties, presiding over council meetings, and meeting visiting dignitaries. Official city business is administered by the Office of the City Manager. The Town employs a full time staff of 117 people and has an operating budget of $25.3 million for FY 2009-10.
- **Development Trends—**Based on data from the California Department of Finance, Danville has experienced a relatively flat rate of growth, with a 1-percent population increase since 2000. There are currently 15,795 housing units within the Town, averaging 2.75 persons per household. As of 2009, the Town is generally built out, with housing growth consisting mostly of infill projects and remodels.

  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, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan The Town of Danville adopted its general plan under this mandate in 1999 and is currently updating the document. Future growth and development will be managed as identified in the general plan.

3.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-1 lists all past occurrences of natural hazards within the jurisdiction. The Town has no properties identified by FEMA as repetitive flood loss properties.

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.

3.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 3-10 summarizes the current status of strategies that were adopted by the Town for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 3-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

3.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the Town of Danville area and 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 3-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather - High winds	NA	10/2009	$5,000 - Town facilities/infrastructure related
Winter Weather-Flooding	NA	1/6/2007	$243,000 FEMA claim/El Pinto Street failure
Winter Weather-Flooding	NA	1/6/2007	$877,000 FEMA claim/Front Street failure
Flooding - Storm related	NA	1/1/2006	$25,000 - Town facilities/infrastructure related
Landslide - Storm related	NA	11-12/2005	$7,500 - Town facilities/infrastructure related
Flooding - Storm related	NA	12/31/2002	$5 Million - San Ramon Valley Unified School District
Flooding - Storm related	NA	1/17/1995	$10,000-Town facilities/infrastructure related
Landslide - Town Service Ctr.	NA	1990	$1,000,000 - Town facilities/infrastructure related
Earthquake - Landslide	FEMA-845	10/17/1989	Unknown FEMA claim/landslide on El Pintado

TABLE 3-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake[a]	27
2	Wildfire[b]	27
3	Landslide	14
4	Flood	10
5	Dam Failure	6
6	Drought	6
7	Severe Weather	3

a. Earthquake exposure is great due to Danville being bisected by the Calaveras Fault. The Mt. Diablo Thrust Fault surrounds the mountain on the northeast border of the town. Additionally, Danville is close to the Hayward, San Andreas, Rodgers Creek & Concord-Green Valley Faults.
b. Wildfire exposure is great in Danville due to extensive open space and a close urban/open space interface.

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	N	IBC, CBC, Danville Municipal Code (DMC - Updated: Jan 2008)
Zoning Code	Y	N	N	N	DMC – Chapter 32
Subdivisions	Y	N	N	Y	DMC – Chapter 31
Stormwater Management	Y	Y	Y	N	DMC - Chapter 20
Post Disaster Recovery	N	N	N	Y	—
Real Estate Disclosure	Y	N	Y	Y	Ca. Civil Code 1102 requires full disclosure of natural hazard exposure for sale/re-ale of all real property
Growth Management	Y	N	N	N	Contra Costa County Measure C - 1988
Site Plan Review	Y	N	N	N	Design Review Board Planning Commission Scenic Hillside & Ridgeline Ord. DMC- Chapter 19 & 32
Special Purpose (flood management, critical areas)	Y	N	N	N	Flood damage prevention ordinance DMC- Chapter 32-117 (2002)

TABLE 3-3 (continued).
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	Last updated 1999; Currently being reviewed & updated
Floodplain or Basin Plan	N	N	N	N	—
Stormwater Plan	Y	Y	N	Y	December 2009
Capital Improvement Plan	Y	N	N	N	The CIP document is divided into the three project categories or sections: Capital Recovery/-Other, Quality of Life, and Transportation. An index to all projects, both alphabetical and by number is located at the back of the CIP. This five-year CIP includes information on every project that will be under construction from 2009/10 through 2013/14.
Habitat Conservation Plan	N	N	N	N	—
Economic Development Plan	Y	N	N	N	Council Resolution 38-2008
Emergency Response Plan	Y	N	Y	Y	Updated 2008
Shoreline Management Plan	N	N	N	N	—
Post Disaster Recovery Plan	Y	N	N	Y	Town of Danville Emergency Operations Plan - 2008

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 Department, Engineering Department
Engineers or professionals trained in building or infrastructure construction practices	Y	Planning Department, Engineering Department, Building Department
Planners or engineers with an understanding of natural hazards	Y	Planning Department, Engineering Department
Staff with training in benefit/cost analysis	Y	Development Services
Floodplain manager	Y	Development Services Director
Surveyors	Y	Informational Technology Department, Development Services
Personnel skilled or trained in GIS applications	Y	IT and Development Services
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	Police Department - Emergency Services Manager
Grant writers	N	

TABLE 3-5.
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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 3-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	3/8	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

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	Included in Previous Plan?
Initiative #D-1—Incorporate Danville's Local Hazard Mitigation Plan into the Town's General Plan Safety Element							
New & Existing	All hazards	1, 8, 12, 16	Town of Danville	Low	Existing – Danville General Fund	2010 Short-term	No
Initiative #D-2—Continue EBRCSA partnership in building a P25 compliant Interoperability Communications System for public agencies in Alameda & Contra Costa counties							
New & Existing	All hazards	1, 2, 13, 15, 16	CCCSO & EBRCSA partnership	High - $78 million	UASI, SUASI, SHSGP, COPS, PSIC, Earmark	2009 – 2013 Short-term	No
Initiative #D-3—Continue to partner with SRVEPCCC to develop disaster resilient EOC and equipment							
Existing	All hazards	1, 2, 13, 16	SRVEPCCC	Medium	SHSGP, HSGP, PDM, HMGP	Short-term	No
Initiative #D-4—Have back-up power available for critical intersection traffic signals							
Existing	All hazards	1, 2, 13, 16	Town of Danville	Low	SAFETEA-LU Grant	Short-term	No
Initiative #D-5—Expand existing Emergency Highway AM Radio frequency capability to transmit to all of Danville's area and SR Valley							
New & Existing	All Hazards	2, 3, 13, 16	Town of Danville in partnership w/ SRVEPCCC	Med - $125,000	EMPG, Danville, SRVEPCCC	Short-term	No

TABLE 3-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #D-6—Offer the 20-hour basic CERT training to citizens in San Ramon Valley							
New & Existing	All Hazards	3, 6, 16	SRVEPCCC	Low	SRVEPCCC, SHSGP, EMPG	Short-term	No
Initiative #D-7—Building permit application seismic review for any residential soft-structure major modifications							
Existing	Earthquake	1,3, 6, 7, 11, 15	Town of Danville	Low	Town of Danville	Short-term, ongoing	No
Initiative #D-8—Structural seismic retrofit of Danville's Veterans Memorial Building							
Existing	Earthquake	1, 2, 7, 13	Town of Danville	High-$6.8 Million	PDM Grant; Town funding; Local fundraising, HMGP	Short- term	No
Initiative #D-9—Train staff in critical facilities and emergency personnel, as well as elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake							
Existing	Earthquake	1, 2, 7, 13	Town of Danville	Low	Danville, SHSGP	Short-term	No
Initiative #D-10—Jointly, with SRVFPD, develop a MANDATORY defensible space vegetation program that includes the clearing or thinning of non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, within 30 feet of access and evacuation roads and routes to critical facilities.							
New & Existing	Wildland Fire	1, 2, 5, 11, 12, 13, 16	Town of Danville & SRVFPD	Med	Expansion of Danville Code Enforcement staff; Joint partnership w/ SRVFPD Code Enforcement	Short-term	No
Initiative #D-11—Ensure all dead-end segments of public roads, in high hazard areas, have at least a "T" intersection turn-around sufficient for typical wild land fire equipment.							
New & Existing	Wildland Fire	1, 2, 5, 12, 13, 16	Town of Danville & SRVFPD	Med	Joint partnership with SRVFPD and affected local homeowner associations	Short-term	No

TABLE 3-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #D-12—Enforce minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on all driveways and road segments greater than 50 feet in length in high wildfire hazard areas.							
New & Existing	Wildland Fire	1, 2, 5, 11, 12, 13, 16	Town of Danville & SRVFPD	Med	Expansion of Danville Code Enforcement staff; Joint partnership w/ SRVFPD Code Enforcement	Short-term	No
Initiative #D-13—Establish landslide requirements in zoning ordinances to address hillside development constraints in areas of steep slopes during winter storms							
New	Landslide, Earthquake, Flooding, Severe Weather	1, 2, 5, 11, 12, 13	Town of Danville	Low	Town of Danville	Short-term	No
Initiative #D-14—Repair and make structural improvements to storm drains, pipelines, and/or channels in the Cameo Acres residential area to enable them to perform to their design capacity in handling water flows							
New & Existing	Flood, Severe Weather	1, 10, 13	Town of Danville	High	CIP by Danville to increase capacity of existing, older storm drains, Possible FEMA mitigation grant funding	Long-term	No
Initiative #D-15—Partner with CCC Flood Control District to improve creek capacity along Green Valley Creek and Hwy 680							
New & Existing	Flood	1, 2, 5, 6, 13, 16	CCC Flood Control District	Med	CCC Flood Control District, PDM, HMGP	Short-term	No
Initiative #D-16—Enforce provisions under creek protection, storm water management, and discharge control ordinances designed to keep watercourses free of obstructions.							
New & Existing	Flood, Severe Weather	1, 2, 5, 6, 13, 16	Town of Danville in partnership w/County Flood Control District	Low	Town of Danville, Contra Costa County Flood Control, Local Homeowner associations	Short-term	No

TABLE 3-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #D-17—Provide information to residents on the availability of interactive hazard maps showing your community							
Existing	Flooding, Earthquake, Landslide, Wild Fire	2, 6	Danville in partnership w/County Sheriff's Office of Emergency Services (CCCOES) USGS, ABAG	Low	HMGP, Town of Danville, Contra Costa County	Short-term	No
Initiative #D-18—Provide public information on locations for obtaining sandbags and/or deliver those sandbags to those various locations throughout town prior to and/or during the rainy season.							
Existing	Dam Failure, Flood, Landslide	1, 3, 16	Danville in partnership w/ CCCOES	Low-$800/year	Town of Danville	Short-term	No
Initiative #D-19—Ensure EBMUD repairs dam & infrastructure of Prospect Reservoir							
New & Existing	Dam Failure, Flooding	1, 2, 5, 13, 16	EBMUD	High	EBMUD – under construction	Short-term	No
Initiative #D-20—Incorporate a dam failure component into the city's emergency operations plan that include warning and evacuation procedures for dam failure scenarios as well as protocol for periodic communication checks with dam owners/operators							
New & Existing	Dam Failure	1, 2, 5, 13, 16	Danville, CCCOES, EBMUD	Low	Danville	Short-term	No
Initiative #D-21—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-term, ongoing	No
Initiative #D-22—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	Danville, FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

TABLE 3-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #D-23—Continue to maintain compliance and good standing under the National Flood Insurance Program							
New and Existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	Danville	Ongoing	No
Initiative #D-24—Consider participation in the Community Rating System							
New and Existing	Flood	3, 4, 5, 7, 9	Public Works	Low	Danville	Short-term	No
Initiative #D-25—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	3, 7, 15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-term, depends on funding	No
Initiative #D-26—Better inform residents of comprehensive mitigation activities, for all hazards of concern including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.							
New and Existing	All Hazard	3,6,7,15	Planning, County OES, Fire,	Medium	Existing City programs	Short-term, ongoing	Yes **HSNG-k-3**
Initiative #D-27— Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses.							
New and Existing	All Hazard	2,3,13,16	Police, Fire, County OES	Low	Existing City programs	Ongoing	Yes **ECON-j-5**
Initiative #D-28—Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for commercial and industrial properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).							
New and Existing	All Hazard	3,6,12	Planning & Building Departments OES	Low	Existing City programs	Ongoing	Yes **ECON-a-1**

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	4	High	Low	Yes	No	Yes	High
2	5	High	High	Yes	Yes	No	High
3	4	High	Med	Yes	Yes	No	Med
4	4	High	Low	Yes	Yes	Yes	High
5	4	High	Med	Yes	Yes	No	Med
6	3	High	Low	Yes	Yes	Yes	High
7	6	High	Low	Yes	No	Yes	High
8	4	High	High	Yes	Yes	No	High
9	4	High	Low	Yes	No	Yes	High
10	7	High	Med	Yes	No	No	Med
11	6	High	Med	Yes	No	No	Med
12	7	High	Med	Yes	No	No	Med
13	6	High	Low	Yes	No	Yes	High
14	3	Med	High	No	No	No	Med
15	6	High	Med	Yes	Yes	No	Low
16	6	High	Low	Yes	No	Yes	High
17	2	High	Low	Yes	No	Yes	High
18	3	High	Low	Yes	No	Yes	High
19	5	High	High	Yes	Yes	No	High
20	16	High	Low	Yes	No	Yes	High
21	16	Medium	Low	Yes	Yes	Yes	High
22	6	Medium	Low	Yes	No	Yes	High
23	5	Low	Low	Yes	No	Yes	High
24	3	Medium	Low	Yes	No	Yes	Medium
25	3	High	High	Yes	Yes	No	Medium
26	4	High	Medium	Yes	Yes	Yes	High
27	4	High	Low	Yes	No	Yes	High
28	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 3-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	1, 19, 26	1, 19	1, 18, 26, 27, 28	1	1, 2, 3, 4, 5, 6, 20, 27	1, 19
Drought	1, 7, 10, 12, 18, 21, 24, 26	1, 10, 11, 12, 25	1, 5 6, 7, 9, 10, 12, 17, 20, 21, 26, 27, 28	1, 10, 24	1, 4, 5, 9, 11, 27	1
Earthquake	1, 4, 7, 21, 24, 26	1, 2, 25	1, 3, 5, 6, 7, 9, 17, 20, 21, 26, 27, 28	1, 24	1, 3, 4, 5, 9, 27	1, 2
Flood	1, 4, 7, 14, 15, 16, 21, 22, 23, 24, 26	1, 14, 19, 22, 23, 25	1, 3, 5, 6, 7, 9, 17, 18, 20, 21, 22, 23, 26, 27, 28	1, 15, 16, 22, 23, 24	1, 2, 3, 4, 5, 9, 22, 23, 27	1, 14, 19, 22, 23
Landslide	1, 4, 7, 13, 18, 21, 24, 26	1, 25	1, 3, 5, 6, 7, 9, 17, 18, 20, 21, 26, 27, 28	1, 10, 13, 24	1, 2, 3, 4, 5, 9, 27	1
Severe Weather	1, 4; 7, 10, 12, 21, 24, 26	1, 10, 11, 12, 25	1, 3, 5, 6, 7, 9, 10, 12, 20, 21, 26, 27, 28	1, 10, 24	1, 2, 3, 4, 5, 9, 11, 27	1
Wildland Fire	1, 4, 7, 10, 12, 26	1, 10, 11, 12	1, 3, 5, 6, 7, 9, 10, 12, 17, 26, 27, 28	1, 10	1; 2, 3, 4, 5, 9, 11, 27	1

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 3-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

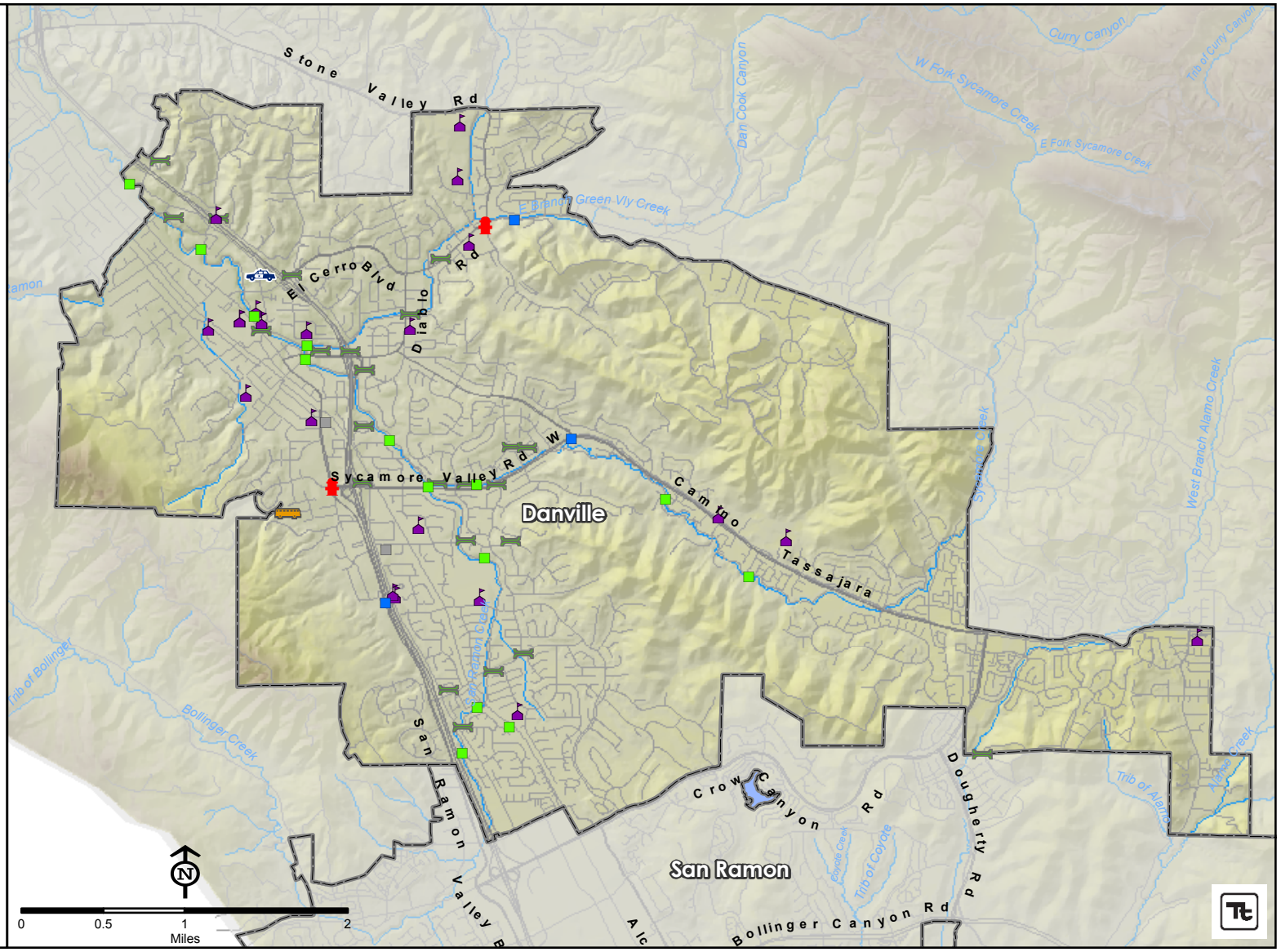
Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
ECON-b-1		✓		Addressed by Initiative #D-7
ECON-b-2	✓			IBC, CBC, Danville Municipal Code (DMC - Updated: Jan 2008)
ECON-f-1		✓		Addressed by Initiative # D-24
ECON-f-6		✓		Addressed by Initiative #D-23
ECON-f-7		✓		Addressed by Initiative #D-25
ECON-f-8		✓		Addressed by Initiative #D-25
ECON-j-5		✓		Addressed by Initiative #D-27
LAND-c-4		✓		Addressed by Initiatives #D-23 and #D-24
HSNG-k-3		✓		Addressed by Initiative #D-28
GOVT-a-2		✓		Addressed by Initiative #D-25
GOVT-a-7		✓		Addressed by Initiative #D-25
GOVT-c-5		✓		Addressed by Initiative #D-23

Town of Danville

Critical Facilities

Legend

- Airport
- Bus
- Care Facility / Hospital
- Electric Power
- Emergency Center
- Fire Station
- Hazardous Material
- Highway Bridge
- Police Station
- Port
- School
- Communication
- Drinking Water
- Storm Water
- Waste Water
- City Limits
- Waterbodies
- Streams
- Roads



Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

Town of Danville

Dam Inundation Zone

Legend

- Dam Inundation Zone
- City Limits
- Waterbodies
- Streams
- Roads

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

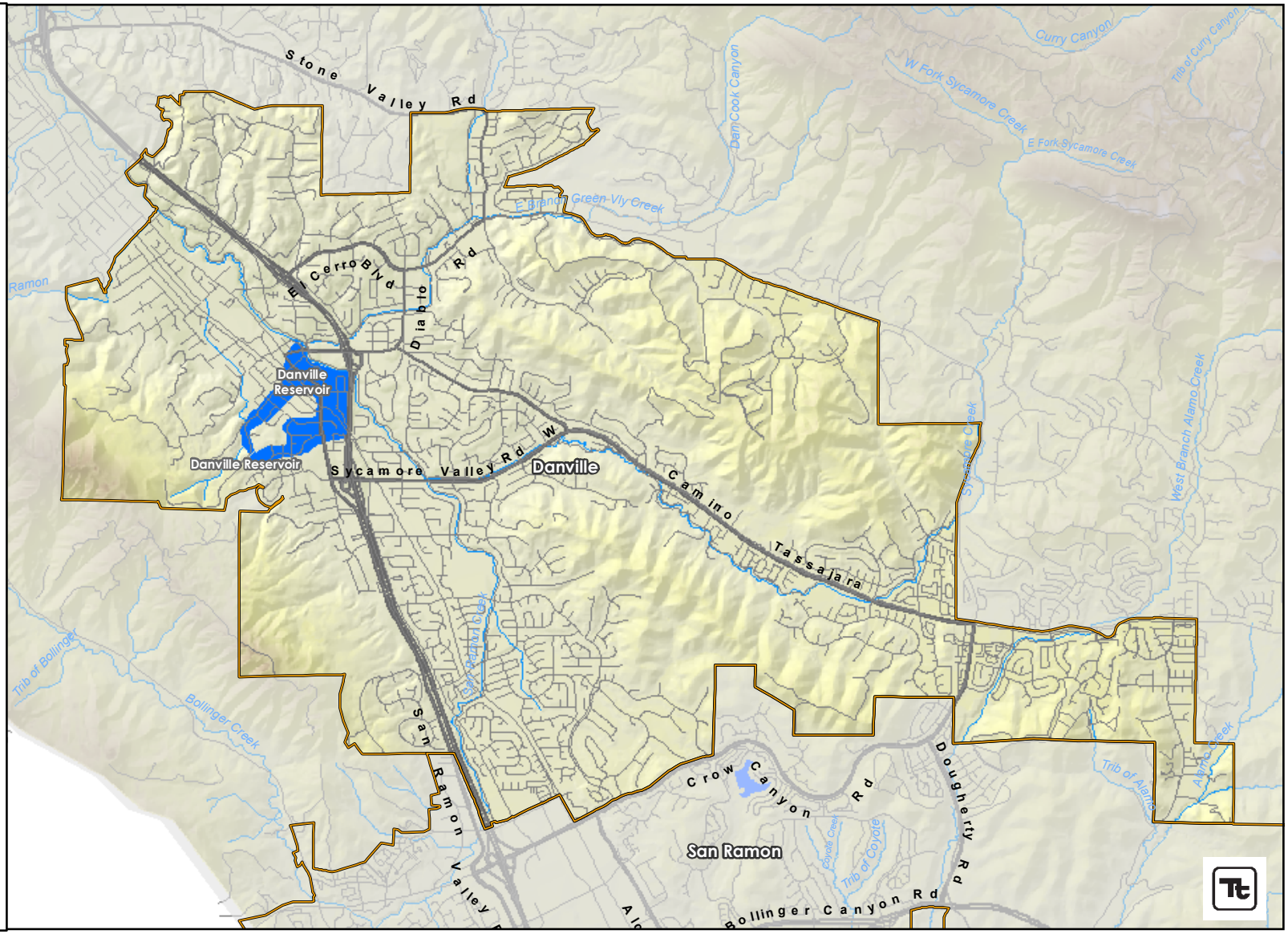
0 0.5 1 2

Miles

Source Contra Costa County GIS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



Town of Danville

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with
an epicenter of N37.45 W121.81

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend

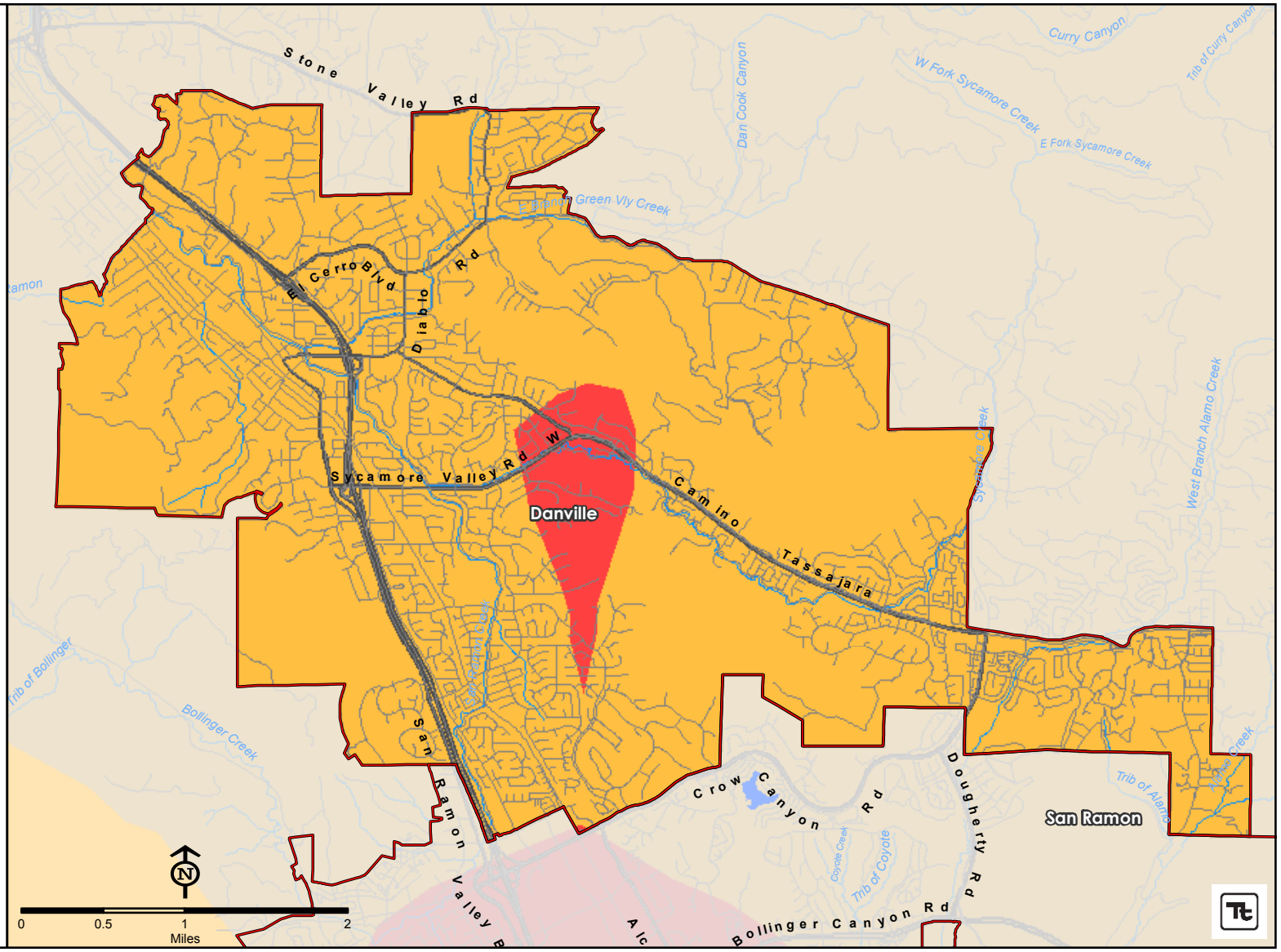
Epicenter in Northern
Santa Clara County
(45 miles S of Concord)

Calaveras PGA

Mercalli Scale

- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- City Limits
- Waterbodies
- Roads
- Streams

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



Town of Danville

Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend

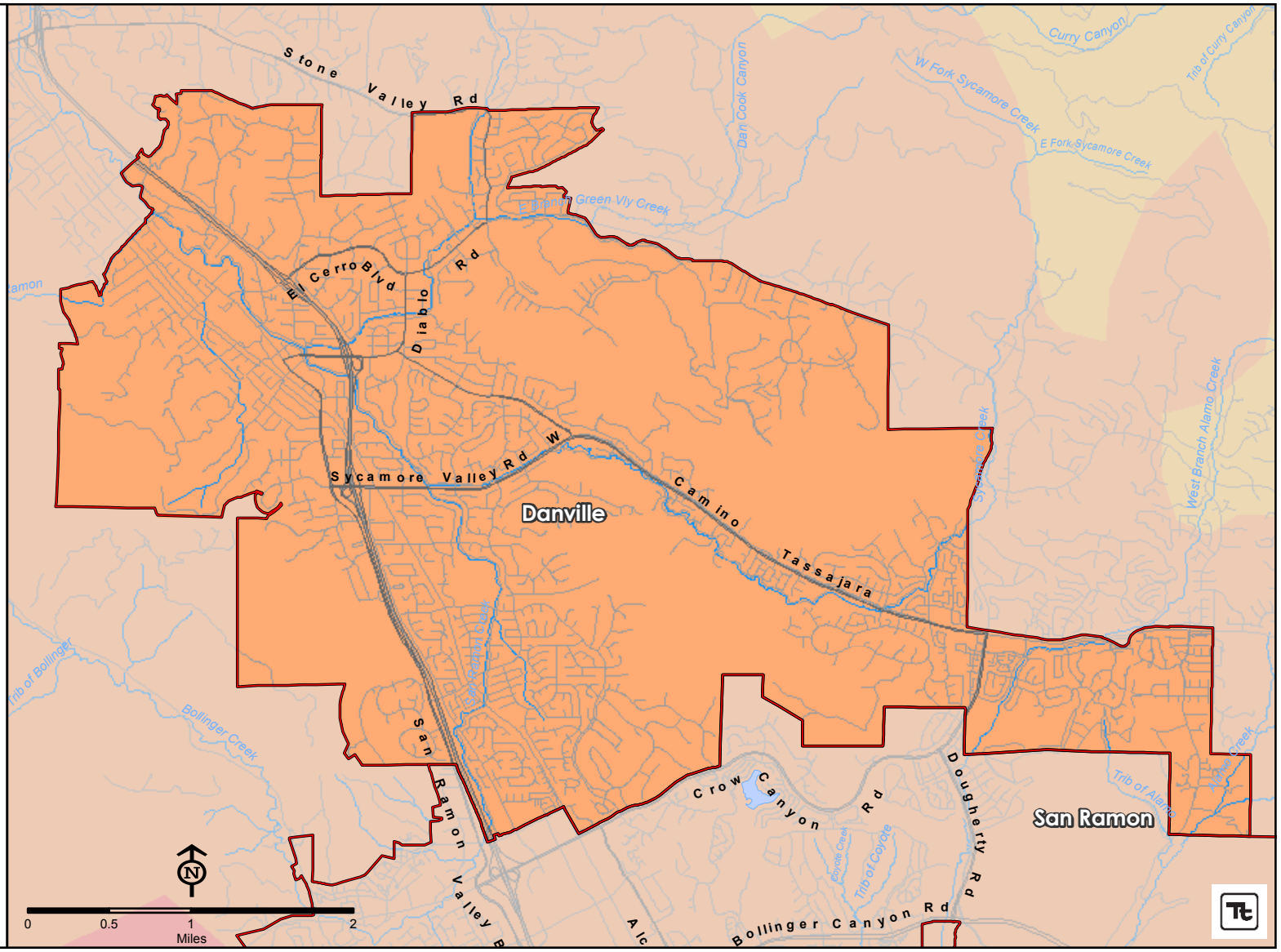
Hypocenter in San Pablo Bay (30 miles E of Concord)

Hayward PGA

Mercalli Scale

- IV - None
- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- IX - Extensive-Complete
- City Limits
- Waterbodies
- Roads
- Streams

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



Town of Danville

NEHRP (National Earthquake Hazards Reduction Program) Soils

Legend

Soils

Type

- B - Rock
- C - Very Dense Soil and Soft Rock
- D - Stiff Soil
- E - Soft Soil
- City Limits
- Waterbodies
- Streams
- Roads

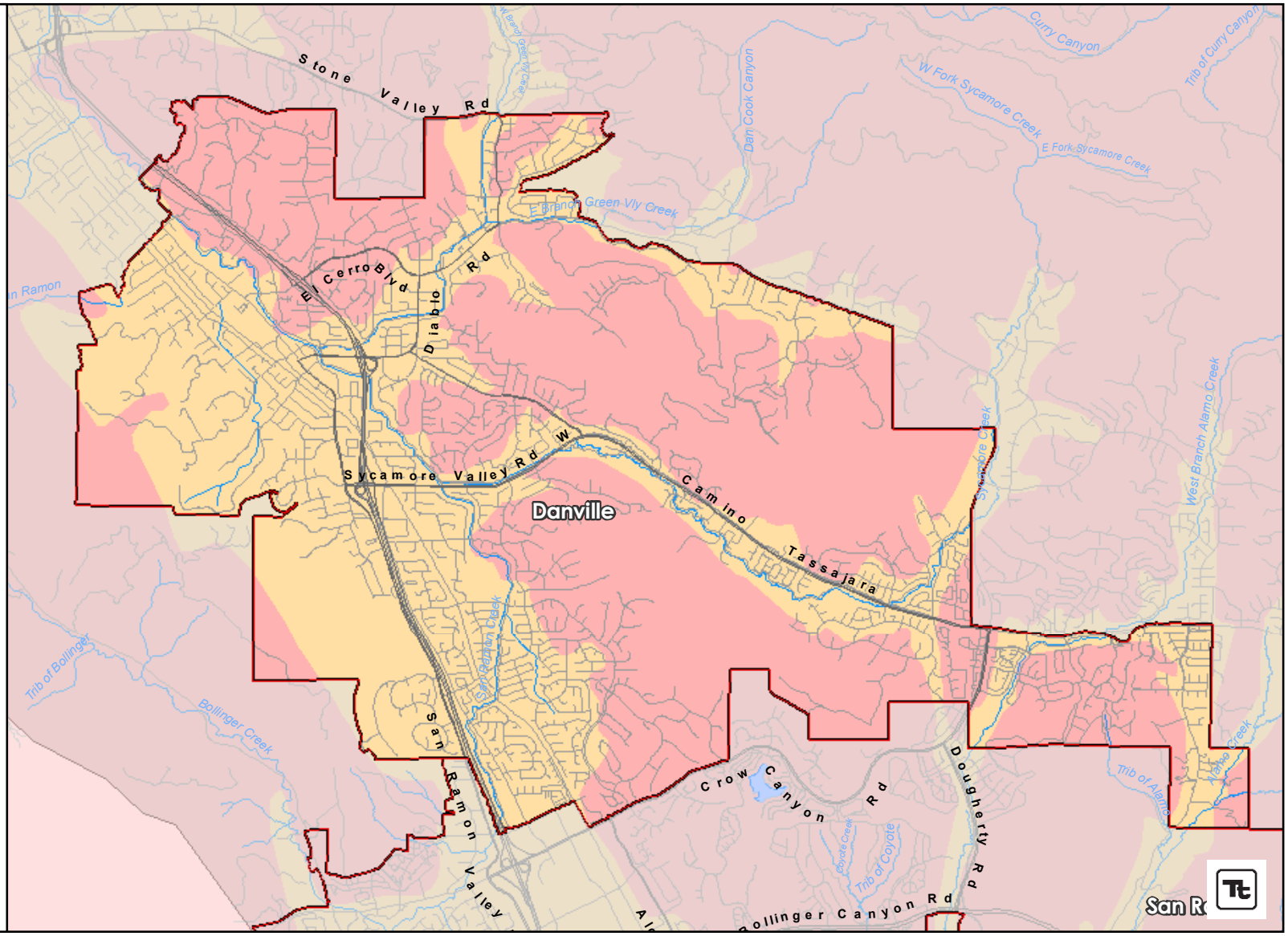
0 0.5 1 2

Miles

Source Contra Costa County GIS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



Town of Danville

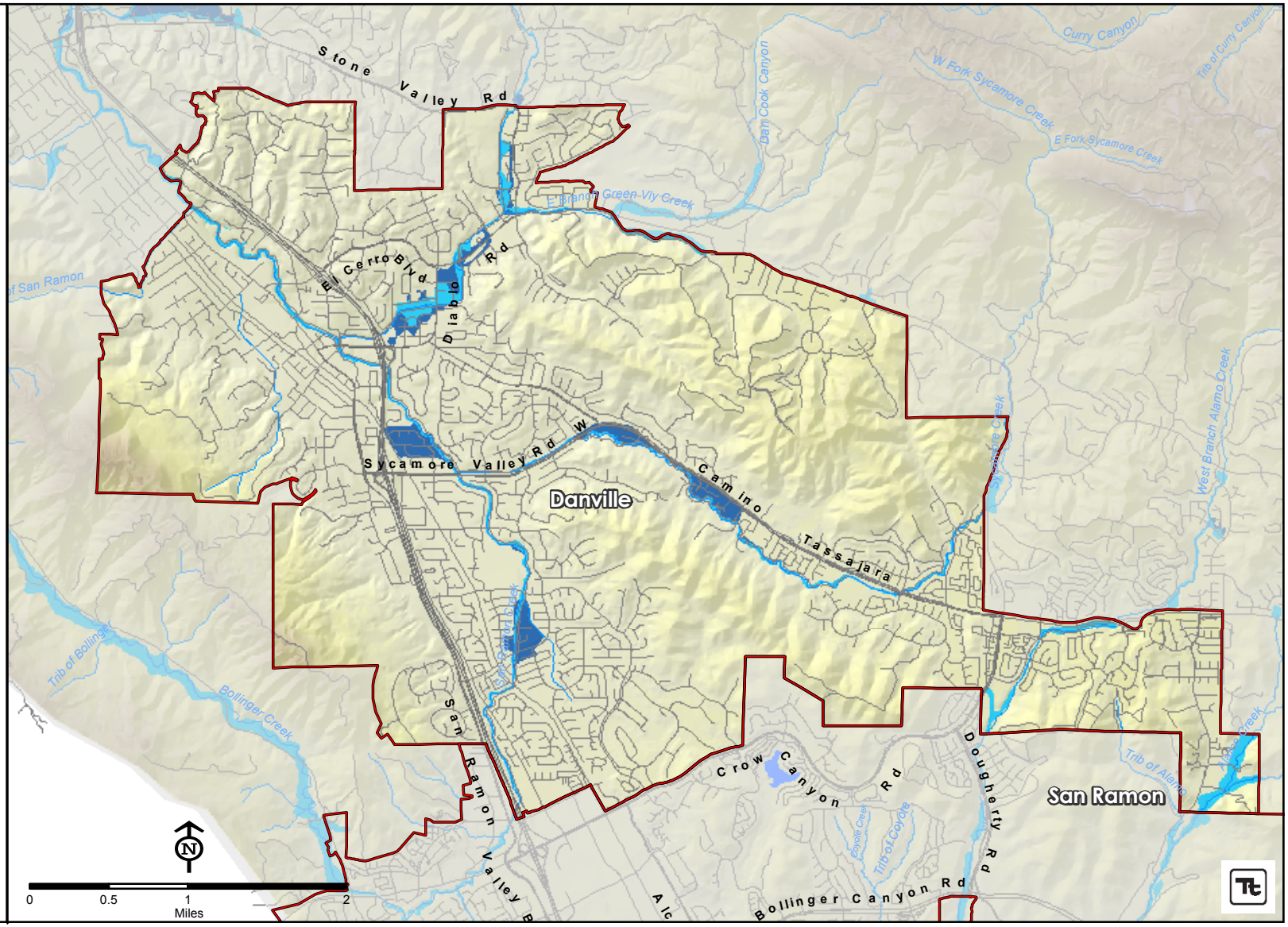
100 & 500 Year
Flood Hazard Boundaries

Legend

Flood Hazard Boundary

Flood Zone

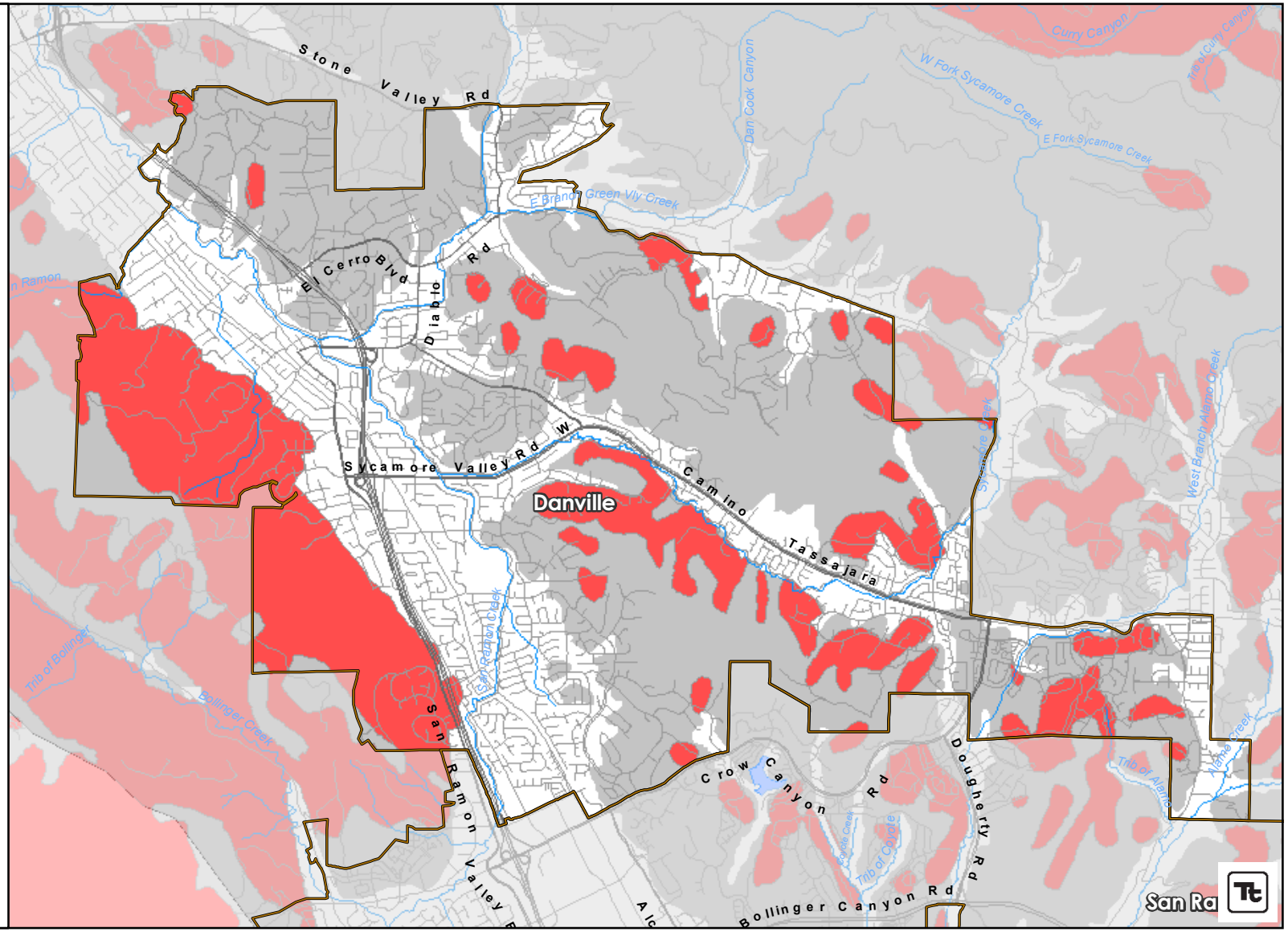
- 100
- 500
- City Limits
- Waterbodies
- Streams
- Roads



Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

Town of Danville

USGS Landslide Hazard Areas



Legend

- Mostly Landslides
- Few Landslides
- City Limits
- Waterbodies
- Streams
- Roads

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

N

0 0.5 1 2
Miles

Source Contra Costa County GIS & USGS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

Town of Danville

FRAP Wildfire Hazard Boundaries

Legend

FRAP (Fire and Resource Assessment Program)
SRA data adopted in 2007
& LRA data recommended in 2008

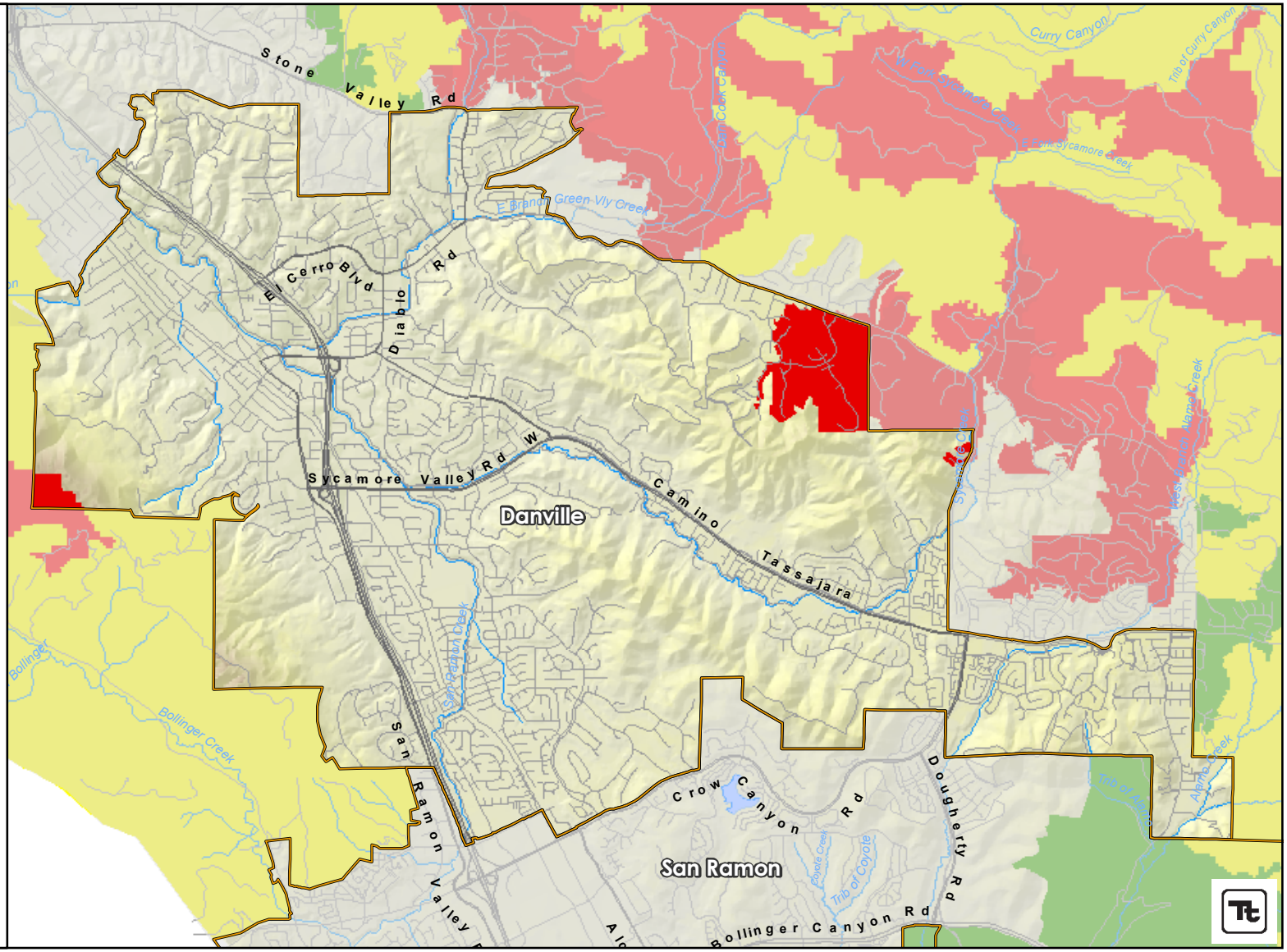
Wildfire Hazard Boundaries

Class

- Moderate
- High
- Very High
- County Boundary
- City Limits
- Waterbodies
- Streams
- Roads

0 0.5 1 2
Miles

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



CHAPTER 4.
CITY OF EL CERRITO ANNEX

4.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Michael J. Bond, Battalion Chief/Fire Marshal
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El Cerrito, CA 94530
Telephone: 510-215-4450
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Alternate Point of Contact

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4.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1917
- **Current Population—**23,440 (2006-2008 ACS). As of Census 2000, there were 10,213 households, and 6,395 families residing in the city.
- **Population Growth—**Based on data from the California Department of Finance, El Cerrito has experienced a modest rate of growth. The overall population has increased 5.61 percent since 2000. With this rate of growth, anticipated development is considered low to moderate. The growth rate has been virtually flat due to the built-out nature of existing city lots.
- **Location and Description—**El Cerrito is a moderately sized city of 3.9 square miles, located in western Contra Costa County on the south and west facing slopes of the Berkeley Hills, which rise from the Bay Plain to the top of the ridgeline (approximate elevation of 900 feet). The city is approximately 17 miles northeast of San Francisco and 12 miles north of Oakland. It forms part of the highly urbanized area along the eastern shore of San Francisco Bay together with the cities of Albany, Berkeley, and Richmond.

  El Cerrito is ideally situated within the San Francisco Bay Area due to its proximity to exceptional mass public transportation systems, small city hospitality within a major urban area, diverse culture, parks and spectacular vistas of the San Francisco Bay.

  The City is traversed by Interstate 80 (Eastshore Freeway), and the Bay Area Rapid Transit (BART) District's rail system bisects the City with an elevated track and two stations. The two BART stations are near the north (El Cerrito/Del Norte) and south (El Cerrito/Plaza) boundaries of the city. The El Cerrito/Del Norte Station is also a major public mass transit transfer station that provides extensive bus service throughout the San Francisco Bay Area. Both El Cerrito BART Stations are served by multiple mass public transportation services which include; AC Transit, WestCAT Transit, Vallejo Transit and Golden Gate Transit services, which are all bus systems.
- **Climate—**The climate of El Cerrito is greatly influenced throughout the year by its proximity to the San Francisco Bay. The rainy season lasts from January through March, accounting for about 90 percent of the annual precipitation. The dry season, lasting from June through October, is typically marked by regular intrusions of low clouds and fog and long spells of high temperatures and low humidity. Temperatures are generally moderate.

In 2009, the high temperature for El Cerrito was 83ºF and the low was 40ºF. During a typical year, the colder lows are in the low to mid-40s and the warmer highs reach the mid-80s. The prevailing southwest wind blows across the cold upwelling water that is almost always present along the San Francisco Bay and Pacific Ocean coast. The immediate coast is largely affected by the cold California current.

- **Governing Body Format—**The City of El Cerrito is a general law City organized as a council-manager form of local municipal government. The City Council consists of five members elected at large for four-year, overlapping terms. The Council selects the Mayor from among its members for a one-year term. The Mayor and City Council provide community leadership, develop policies to guide the City in delivering services and achieving community goals, and encourage citizen understanding and involvement. The Council Members also serve as the governing body of the El Cerrito Redevelopment Agency.

  The City Manager is appointed by the City Council and is responsible for administration of municipal affairs. All City departments operate under the supervision of the City Manager. Through the City Manager, City staff, using the resources appropriated by the Council in the budget to achieve desired service results in the community, carries out the policies of the Council. The City employs approximately 170 people in five departments: Police Services, Fire Services, Administration, Community Development and Community Services. The City Council also appoints a city attorney to advise them and City staff on legal affairs, to see that laws are effectively enforced and, when necessary, to defend the City in litigation.

- **Development Trends—**El Cerrito is largely a bedroom community for San Francisco and other Bay Area cities. Most employment in the city comes from retail or service industries. As of Census 2000, the median income for a household in the city was $81,972, and the median income for a family was $96,047.

  California law requires counties and cities to prepare and adopt a comprehensive plan to guide development. The plan must consist of an integrated, 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, annexations, zoning, subdivision, design review, redevelopment, and capital improvements, must be consistent with the plan The City of El Cerrito adopted its general plan under this state mandate in July 2000. Future growth and development within the City will be managed as identified in the general Plan.

  The City is faced with a host of potential health and safety hazards due to earthquakes, landslides and mudslides, fires, extreme weather/storms, flooding, dam failure, hazardous materials/transportation accidents and terrorist attack. The city is located in the heart of earthquake country, with the Hayward Fault Line running inside the city limits and parallel to its eastern boundary. Several other faults run roughly parallel to the ridgeline, with an extensive portion of the Alquist-Priolo fault zone mostly located within the City of El Cerrito.

  The City is largely an urban housing area with commercial areas intermixed with wildland-urban interface areas. The wildland-urban interface areas are in portions of the city that have steep hillside grades and narrow winding roadways. This makes them extremely vulnerable to wildfire and landslides as portions of both the east and west facing slopes of the El Cerrito hillside are known to be active landslide areas. These areas can be adversely affected by earthquake, fire or excessively heavy rainfall.

4.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows (http://quake.abag.ca.gov/mitigation/pickflood.html):

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

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.

4.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 4-10 summarizes the current status of strategies adopted by the City for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 4-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

4.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of El Cerrito and 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 4-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Fire	NA	2006	$1,000
Landslide	NA	1996	$50,000
Flood	NA	1996	$200,000
Landslide	NA	1990	$100,000
Flood	NA	1990	$200,000
Severe Weather/Wind	NA	1992	$10,000
Severe Weather/Freeze	NA	1991	$10,000

TABLE 4-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Wildfire	54
3	Severe Weather	54
4	Dam Failure	27
5	Flood	18
6	Landslide	6
7	Drought	3

TABLE 4-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	Yes	2007 CA Building Code with El Cerrito local amendments adopted 2008
Zoning Code	Yes	No	No	Yes	El Cerrito Municipal Code, Title 19 adopted June 2008
Subdivisions	Yes	No	No	No	
Stormwater Management	Yes	No	No	No	El Cerrito Municipal Code, 13.40
Post Disaster Recovery	No	No	No		Will be addressed
Real Estate Disclosure	Yes	No	No	Yes	CA. Civil Code 1102 requires full disclosure on Natural hazard Exposure of the sale/re-sale of any and all real property.
Growth Management	Yes	No	No	No	
Site Plan Review	Yes	No	No	No	El Cerrito Municipal Code, 2007
Special Purpose (flood management, critical areas)	Yes	No	No	No	El Cerrito Municipal Code, 16.02.080 & 8.35 adopted June 2008

TABLE 4-3 (continued).
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents					
General or Comprehensive Plan	Yes	No	No	No	General Plan adopted 1999, 2003
Floodplain or Basin Plan	Yes	No	No	No	El Cerrito Municipal Code, 13.40
Capital Improvement Plan	Yes	No	No	No	June 2009
Habitat Conservation Plan	No	No	No	No	In process to be completed 2010
Economic Development Plan	Yes	No	No	No	Adopted 2007
Emergency Response Plan	Yes	No	No	Yes	Adopted 2007
Shoreline Management Plan	No	No	No	No	No Shoreline
Post Disaster Recovery Plan	No	No	No		Will be developed

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	Yes	Community Development, City Engineer, Planning Director
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development, City Engineer
Planners or engineers with an understanding of natural hazards	Yes	Community Development, City Engineer, Planning Director
Staff with training in benefit/cost analysis	No	
Floodplain manager	Yes	Community Development, Building Official
Surveyors	No	Company on contract
Personnel skilled or trained in GIS applications	No	Company on contract
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	
Grant writers	No	

TABLE 4-5.
FISCAL CAPABILITY

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes, through Contra Costa County
Capital Improvements Project Funding	Don't Know
Authority to Levy Taxes for Specific Purposes	No, El Cerrito can place tax increases or new taxes on the election ballot.
User Fees for Water, Sewer, Gas or Electric Service	Yes, the voters have approved a utility lighting and landscape assessment tax.
Incur Debt through General Obligation Bonds	Yes, El Cerrito can place tax increases or new taxes on the election ballot.
Incur Debt through Special Tax Bonds	Yes, El Cerrito can place tax increases or new taxes on the election ballot.
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Don't Know
Development Impact Fees for Homebuyers or Developers	No

TABLE 4-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	ISO 3	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

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	Included in Previous Plan?
Initiative EC-1—Develop and maintain/enhance the Cities classification under the Community Rating System							
New and Existing	Flood	3,4,5,7,9	CD	Low	General Fund	Short Term	No
Initiative EC-2—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4,5,14	FD, PL	Low	General Fund	Early 2010, Short-Term	No
Initiative EC-3—Upgrade Emergency Operations Center (EOC) Internal Communications and maintain the EOC in a fully functional state of readiness							
Existing	All Hazards	1,2,15	FD, IT	50,000, High	Potential Sources- General Fund EOC Grant	Long-Term	No
Initiative EC-4—Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program to Include Exercises							
New &Existing	All Hazards	2,3,6,13,16	FD	Low	Potential Sources- Citizen Prep, UASI	Mid 2010, Short-Term	No
Initiative EC-5—The FD to conduct a Mass Care and Shelter Drill which involve City, County Employees, Non-Government Agencies, CERT volunteers, and the public. To be scheduled for the summer of 2010.							
New & Existing	All Hazards	2,3,6,13,16	FD	15,000, Low	Potential Source- Red Cross, UASI	Annual, Short-Term	No
Initiative EC-6—Participate in the FCC P-25 East Bay Regional Communications System (Alameda & Contra Costa County) System will be a 36-site, 2 county P-25 compliant communication system designed to provide fully interoperable communications to all public agencies within Alameda and Contra Costa counties. Refer to website www.ebrcsa.org for complete project description.							
New Assets	All Hazards	1,2,13,16	PD, FD	68 Million, High	Potential sources of funding: SUASI, UASI, SHSGP EARMARK, PSIC	Long-Term, depends on funding	No

TABLE 4-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative EC-7—Continue to support implementation, monitoring, maintenance and updating of this plan as defined NFIP							
New and existing	All Hazards	All	FD	Low	General Fund, FEMA Mitigation grant for 5-year funding	Short-Term ongoing	No
Initiative EC-8—Enhance/Improve City Code language and enforcement including: City Building and Fire Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements within the City.							
New & Existing	Wildfire	4,5,11,16	FD, BD	Low	General Fund	Short-Term, ongoing	No
Initiative EC-9—Improve, expand and develop new programs that increase awareness of and reduce risk to wildfires including: Support Diablo Fire Safe Council & Fire Dept Chipper Program							
New & Existing	Wildfire	3,15,16	FD	Low	General fund DFSC grants. Citizens Corps Program	Long-Term, depends on funding	No
Initiative EC-10—Install micro and/or surveillance cameras around critical public assets tied to a web based software, and develop a surveillance protocol to monitor cameras							
Existing, COMPLETE	All Hazards	1,2,15	PD	High	General Fund	Long Term	No
Initiative EC-11—Ensure that government-owned facilities are subject to the same or more stringent regulations as imposed on privately owned development							
Existing	All Hazards	1, 4, 5, 7,8,	BD FD	Low	Code adoption	Long Term	No
Initiative EC-12—Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant hazards							
Existing	All Hazards	1, 4, 5, 7, 8	CD	Low	Policy	Long Term	No
Initiative EC-13—Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities for various departments within local government organization, and that outlines o structure and process for policy-making involving elected and appointed advisory committees							
Existing, Complete	All Hazards	2, 9, 15	Finance	Medium	Grant, General Fund, $50,000	In emergency plan, ongoing	Yes, **GOVT-b-1**

TABLE 4-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative EC-14—Establish a goal for the resumption of local government services that may vary from function to function							
Existing, Complete	All Hazards	2, 9, 15	Admin	Medium	Grant, General fund, $50,000	In emergency plan, ongoing	Yes, **GOVT-b-3**
Initiative EC-15—Maintain and update as necessary the local government's Standardized Emergency Management System Plan							
Existing	All Hazard	2,4, 15, 18	FD	Low	General Fund	In emergency plan, ongoing	Yes, **GOVT-b-12**
Initiative EC-16—Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate							
Existing	All Hazard	2, 4, 15	FD, PD	Medium	General Fund, Grants	Long Term	Yes, **GOVT-b-9**
Initiative EC-17—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							
Existing	All Hazard	2, 4, 15	FD, PD, PW	Low	General Fund	Long Term	Yes, **GOVT-b-13**
Initiative EC-18—Develop a business continuity plan that includes backup storage of vital records, such as essential medical records and financial information							
Existing	All Hazard	2, 4, 15	Admin	High	General Fund/Grants when available	Long Term	Yes, **GOVT-b-25**
Initiative EC-19—Create incentives for owners of historic or architecturally significant residential buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's Guidelines for Rehabilitation							
Existing	Earthquake	1, 4, 6, 8. 12, 14, 17	BD	Low	Code Enforcement	Long Term	Yes, **HSNG-a-2**
Initiative EC-20—Require engineered plan sets for retrofitting of heavy two-story homes with living spaces over garages, split level homes, homes on hillsides.							
Existing, Complete	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Code Adoption	Long Term	Yes, **HSNG-b-2**

TABLE 4-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative EC-21— Require engineered plan sets for voluntary or mandatory soft-story retrofits until a standard plan set and construction details become available							
Existing, Complete	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Code Adoption	Long Term	Yes, **HSNG-c-1**
Initiative EC-22—Require engineered plan sets for retrofitting of Unreinforced masonry buildings							
Existing, Complete	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Code Adoption	Long Term	No
Initiative EC-23—Increase efforts to reduce hazards in existing development in Very High Fire Hazard Fire Severity Zones (VHFHSZ) 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, 16	FD	Low	Code Adoption	Long Term	Yes, **HSNG-g-1**
Initiative EC-24—Require new homes in Wildland-Urban-Interface and VHFHSZ threatened communities to be constructed of fire resistant building materials to increase structural survivability and reduce ignitability							
Existing, Complete	Wildfire	2, 4, 5, 16	FD	Low	Code adoption	Long Term	Yes, **HSNG-g-3**
Initiative EC-25—Ensure new development provides required improvements to the storm drainage system necessary to accommodate increased flows from the development							
Existing	Flood	4, 5, 10	Plan	Low	Code Adoption, Plan review	Long Term	No
Initiative EC-26—Ensure that new subdivisions are designed to reduce or eliminate flood damage by requiring lots and rights-of-way are laid out for the provisions of approved sewer and drainage facilities, providing on-site detention facilities as required							
Existing	Flood	4, 5, 10	Plan	Low	Code adoption, Plan review	Long Term	Yes, **HSNG-h-7**
Initiative EC-27—Provide land slide stabilization to critical roadways maintaining emergency access							
New	Landslide	1, 4, 13, 15	CD	High	Grants	Long Term	No
Initiative EC-28—Apply floodplain management regulations for development in the floodplain and floodway							
Existing	Flood	4, 5, 10	BD	Low	Code adoption, Plan review	Long Term	Yes, **HSNG-h-6**
Initiative EC-29—Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, deliver materials to the disabled and elderly and provide public information on where these materials are stored and how to get them.							
Existing	Flood	4, 5, 10	PW	Low	Emergency plan	Long Term, ongoing	Yes, **HSNG-h-4**

TABLE 4-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative EC-30—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-Term, ongoing	No
Initiative EC-31—Continue to maintain compliance and good standing under the National Flood Insurance Program (NFIP).							
New and existing	Flood	4,5,6,7,11, 12	Public Works	Low	General Fund	ongoing	No
Initiative EC-32—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	3,7,15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-Term depends on funding	No

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	5	Low	Low	Yes	No	No	Med
2	3	Low	Low	Yes	No	Yes	High
3	3	High	High	Yes	No	No	Med
4	5	High	Low	Yes	Yes	Yes	High
5	5	High	Low	Yes	Yes	Yes	High
6	4	Low	Low	Yes	Yes	No	Med
7	16	Med	Low	Yes	Yes	Yes	Low
8	4	Med	Low	Yes	Yes	Yes	High
9	4	Low	Low	Yes	No	Yes	High
10	3	High	High	Yes	Yes	No	Med
11	5	Low	Yes	No	Yes	Yes	High
12	5	Low	Low	Yes	No	Yes	High
13	3	Low	Low	Yes	No	No	Med
14	3	Low	Low	Yes	No	No	Med
15	4	Low	Low	Yes	No	Yes	High
16	3	Med	Med	Yes	Yes	Yes	High
17	3	Med	Med	Yes	Yes	Yes	High
18	3	Med	Med	Yes	Yes	No	Med
19	7	Med	Med	Yes	Yes	No	Med
20	6	High	Low	Yes	No	Yes	High
21	6	High	Low	Yes	No	Yes	High
22	6	High	Low	Yes	No	Yes	High

TABLE 4-8 (continued).
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]
23	4	High	Med	Yes	Yes	No	Med
24	3	High	Low	Yes	No	Yes	High
25	3	High	Low	Yes	No	Yes	High
26	3	High	Low	Yes	No	Yes	High
27	4	High	High	Yes	Yes	No	Med
28	3	High	Low	Yes	No	Yes	High
29	3	Low	Low	Yes	No	Yes	High
30	16	Medium	Low	Yes	No	Yes	High
31	7	Medium	Low	Yes	No	Yes	High
32	3	High	High	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 4-9.
ANALYSIS OF MITIGATION INITIATIVES

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	31	—	30, 31	—	—	—
Earthquake	1, 7, 8, 12, 13, 20, 21, 31	8, 10, 11, 12, 17, 20, 21, 33	4, 5, 9, 30, 31	9, 23	2, 3, 4, 5, 6, 7, 10, 14, 15, 16	3, 8, 11, 20, 21, 22, 23
Flood	1, 7, 8, 12, 13, 20, 21, 31, 32	1, 8, 10, 11, 12, 17, 20, 21, 25, 26, 29, 32, 33	1, 4, 5, 9, 30, 31, 32	1, 9, 23, 28, 32	1, 2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17, 29, 32	1, 3, 8, 11, 21, 22, 23, 25, 26, 32
Landslide	1, 7, 8, 12, 13, 20, 21, 28, 31	8. 10, 11, 12, 17, 20, 212, 28, 29, 33	4, 5, 9, 30, 31	9, 23	2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17, 29	3, 8, 11, 21, 22, 23
Severe Weather	1, 7, 8, 13, 20, 21, 31	8, 10, 11, 12, 17, 20, 21, 33	4, 5, 930, 31,	9, 23,	2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17, 25	3, 8, 11, 20, 21, 23
Tsunami	1, 7, 8, 12, 13, 20, 21, 31	8, 10, 11, 12, 17, 20, 21, 33	4, 5, 9, 30, 31	9, 23	2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17	73, 8, 11, 20, 21, 22, 23
Wild Fire	1, 7, 8, 12, 13, 20, 21, 24, 31	8, 10, 11, 12, 17, 20, 21, 24, 33	4, 5, 9, 30, 31	9, 23, 24	2, 3, 4, 5, 6, 7, 10, 14, 15, 16, 17	3, 8, 11, 20, 24, 27

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 4-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Infrastructure Multi-hazard (INFRA-a)				
1	✓			Local Annex
2			✓	
3		✓		Addressed by Initiative #EC-6
4			✓	
5		✓		Addressed by Initiative #EC-18
6		✓		Addressed by Initiative #EC-4
7		✓		Addressed by Initiative #EC-14
8	✓			
9			✓	
10		✓		No Initiative #EC-16
11			✓	
12		✓		No Initiative #EC-17
13			✓	
14			✓	
15		✓		Working through County EMS
16			✓	
Infrastructure Earthquake (INFRA-b)				
1			✓	
2			✓	
3		✓		Addressed by Initiative #EC-18
4		✓		Addressed by Initiative #EC-17
5			✓	
6			✓	
7			✓	
8		✓		Addressed by Initiative #EC-7
9			✓	
10			✓	

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Infrastructure- Wildfire (INFRA-c)				
1		✓		Addressed by Initiative #EC-17
2	✓			During EBMUD upgrades
3	✓			VHFHSZ Maps and inspections
4		✓		Addressed by Initiative #EC-6
5		✓		No Initiative #EC-7
6		✓		Addressed by Initiative #EC-7
7	✓			Established program, vegetation management
8	✓			Established program, vegetation management
Infrastructure-Flooding (INFRA-d_				
1	✓			Capacity model is in place
2	✓			Existing capacity model
3		✓		Addressed by Initiative #EC-14
4		✓		Addressed by Initiative #EC-3
5		✓		Addressed by Initiative #EC-11
6		✓		Addressed by Initiative #EC-11
7		✓		Addressed by Initiative #EC-3
8		✓		Addressed by Initiative #EC-18
9		✓		Addressed by Initiative #EC-11
10			✓	
11			✓	
12			✓	
13		✓		Addressed by Initiative #EC-5
14			✓	
15			✓	
16			✓	
17		✓		Addressed by Initiative #EC-6
Infrastructure –Landslides (INFRA-e)				
1			✓	
2		✓		Addressed by Initiatives #EC-6 and #EC-14
Infrastructure- Building Re-occupancy (INFRA-f)				
1		✓		Addressed by Initiative #EC-18
2			✓	

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
Infrastructure-Public Education (INFRA-g)				
1	✓			CERT/Wed Site/Local papers
2	✓			CERT/Wed Site/Local papers
3	✓			CERT/Wed Site/Local papers
4	✓			CERT/Wed Site/Local papers
5	✓			CERT/Wed Site/Local papers
Land Use-Earthquake (LAND-a)				
1		✓		Addressed by Initiatives #EC-4 and #EC-6
2		✓		Addressed by Initiatives #EC-4 and #EC-6
3		✓		Addressed by Initiatives #EC-4 and #EC-6
4		✓		Addressed by Initiatives #EC-4 and #EC-6
5		✓		Addressed by Initiative #EC-18
6	✓			
Land Use Wildfire (LAND-b)				
1	✓			Local Annex
2	✓			Local Annex
Land Use-Flooding (LAND-c)				
1	✓			
2		✓		Addressed by Initiative #EC-9
3	✓			
4	✓			
5	✓			
Land Use-Landslide (LAND-d)				
1	✓			Policy
2	✓			Continuing Ed
3	✓			Planning Inspections
4	✓			Planning Inspections
5	✓			Planning process
Land Use-Hillsides multi-hazard (LAND-e)				
1		✓		Addressed by Initiative #EC-16
2		✓		Addressed by Initiative #EC-12
Land Use-Smart growth (LAND-f)				
1		✓		Addressed by Initiative #EC-17
2		✓		Addressed by Initiative #EC-17
3		✓		Addressed by Initiative #EC-17
4		✓		Addressed by Initiative #EC-5
5			✓	

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Government Mitigation Strategies-Critical Facilities (GOVT-a)				
1	✓			
2		✓		Addressed by Initiative #EC-32
3	✓			
4		✓		Addressed by Initiative #EC-17
5	✓			
6	✓			
7		✓		Addressed by Initiative #EC-32
8			✓	
9			✓	
10	✓			
11	✓			
12		✓		Addressed by Initiative #EC-5
Government Mitigation Strategies-Emergency Response (GOVT-b)				
1		✓		Addressed by Initiative #EC-13
2		✓		Addressed by Initiative #EC-9
3		✓		Addressed by Initiative #EC-14
4	✓			
5			✓	
6		✓		Addressed by Initiative #EC-6
7		✓		Addressed by Initiative #EC-18
8		✓		Addressed by Initiative #EC-18
9		✓		Addressed by Initiative #EC-16
10	✓			
11	✓			
12		✓		Addressed by Initiative #EC-15
13		✓		Addressed by Initiative #EC-17
14			✓	
15			✓	
16	✓			Local Code
17	✓			Weather station at fire houses
18	✓			Local written policy
19	✓			Local policy

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Government Mitigation Strategies-Emergency Response (GOVT-b)				
20			✓	
21	✓			EPA local industry
22	✓			County System in place
23			✓	
24			✓	
25		✓		Addressed by Initiative #EC- 18
Government Mitigation Strategies: Participate in National, State, Multi-Jurisdictional and Professional Society Efforts to Identify and Mitigate Hazards (GOVT-c)				
1		✓		Addressed by Initiative #EC-18
2	✓			ICS EOC Training
3		✓		Addressed by Initiatives #EC-18 and #EC-9
4			✓	
5		✓		Addressed by Initiative #EC-31
6	✓			
7		✓		Addressed by Initiatives #EC-3, #EC-7 and #EC-18
8	✓			
9	✓			
10	✓			
Housing: Multi-Hazard (HSNG-a)				
1	✓			
2		✓		Addressed by Initiative #EC- 19
Housing –single Family (HSNG-b)				
1	✓			CERT Pub Ed
2		✓		Addressed by Initiative #EC-20
3	✓			Policy
4	✓			Continuing Ed
5		✓		Addressed by Initiative #EC-18
6			✓	
7			✓	
8			✓	
9			✓	

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

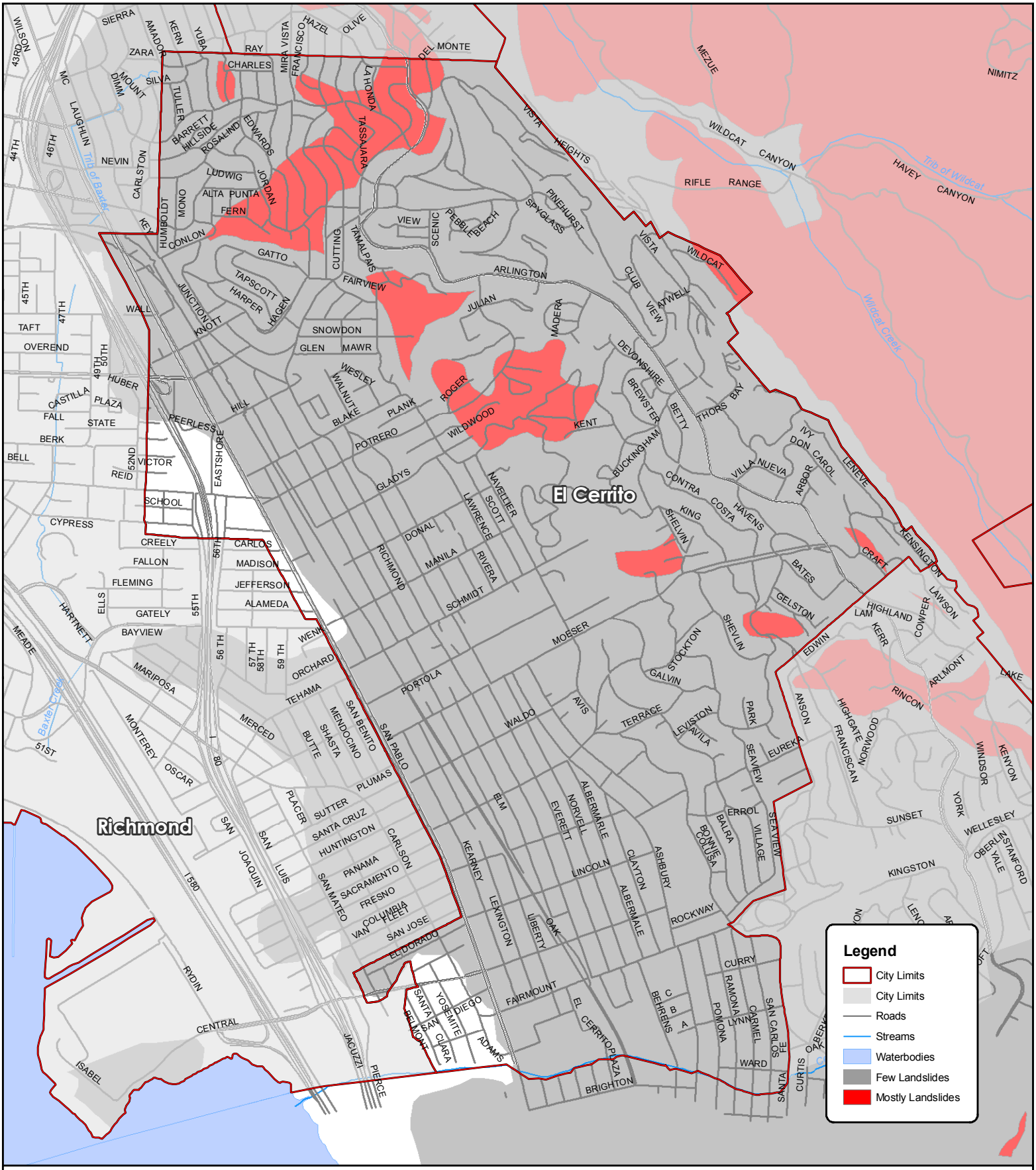
	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Housing-Soft Story (HSNG-c)				
1		✓		Addressed by Initiative #EC-21
2	✓			
3		✓		Addressed by Initiative #EC-17
4	✓			
5	✓			
6	✓			
7			✓	
8		✓		Addressed by Initiatives #EC-7, #EC-8 and #EC-17
9		✓		Addressed by Initiative #EC-18
Housing-Unreinforced (HSNG-d)				
1		✓		Addressed by Initiative #EC-7
2		✓		Addressed by Initiatives #EC-7, #EC-8, #EC-17, #EC-18
3	✓			
4	✓			
Housing –other (HSNG-e)				
1		✓		Addressed by Initiative #EC-17
2		✓		Addressed by Initiative #EC-9
3	✓			
4	✓			
Housing-New construction earthquakes (HSNG-f)				
1	✓			Policy
2	✓			Inspections code enforcement
Housing-Wildfire and structural fires (HSNG-g				
1		✓		Addressed by Initiative #EC-23
2	✓			Vegetation management Pub Ed
3		✓		Addressed by Initiative #EC-24
4			✓	
5	✓			Policy
6	✓			Code
7	✓			Inspections
8	✓			Enhance for construction and upgrades
9	✓			Vegetation Management

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Housing-Wildfire and structural fires (HSNG-g)				
10			✓	
11			✓	
12	✓			Vegetation management Pub Ed
13	✓			Local Code
14		✓		Addressed by Initiative #EC-7
15		✓		Addressed by Initiative #EC-7
16	✓			
17	✓			Annual fire inspections
18	✓			Vegetation management standards
19	✓			Code required CERT
20		✓		Addressed by Initiatives #EC-7, #EC-17 and #EC-18
Housing –Flood (HSNG-h)				
1	✓			Storm drain upgrades
2			✓	
3	✓			Permit fees
4		✓		Addressed by Initiative #EC-29
5	✓			Radio Pub Ed Web
6		✓		Addressed by Initiative #EC-28
7		✓		Addressed by Initiative #EC-26
8			✓	
9			✓	
10	✓			
Economy-Soft story (ECON-b)				
1	✓			
2	✓			2007 CA Building Code with El Cerrito Local amendments adopted 2008
3			✓	
4			✓	
5			✓	
6			✓	
7			✓	
8			✓	
9	✓			

TABLE 4-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
Economy-Flood (ECON-f)				
1		✓		Addressed by Initiative #EC-1
2	✓			
3	✓			Stormwater utility
4	✓			
5	✓			
6		✓		Addressed by Initiative #EC-31
7		✓		Addressed by Initiative #EC-32
8		✓		Addressed by Initiative #EC-32
9			✓	



City of El Cerrito

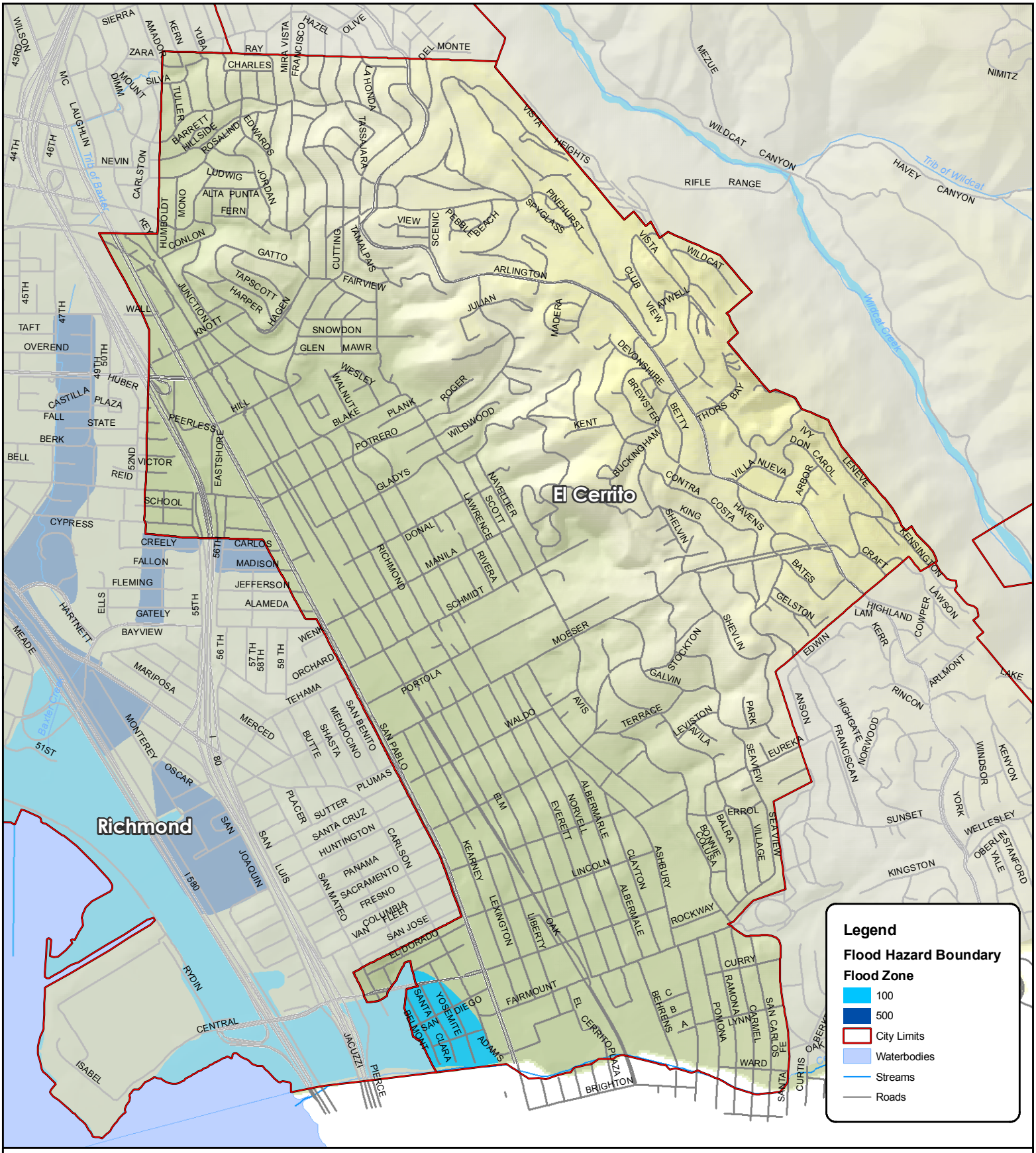
USGS Landslide Hazard Areas

0 1,000 2,000 4,000
Feet

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

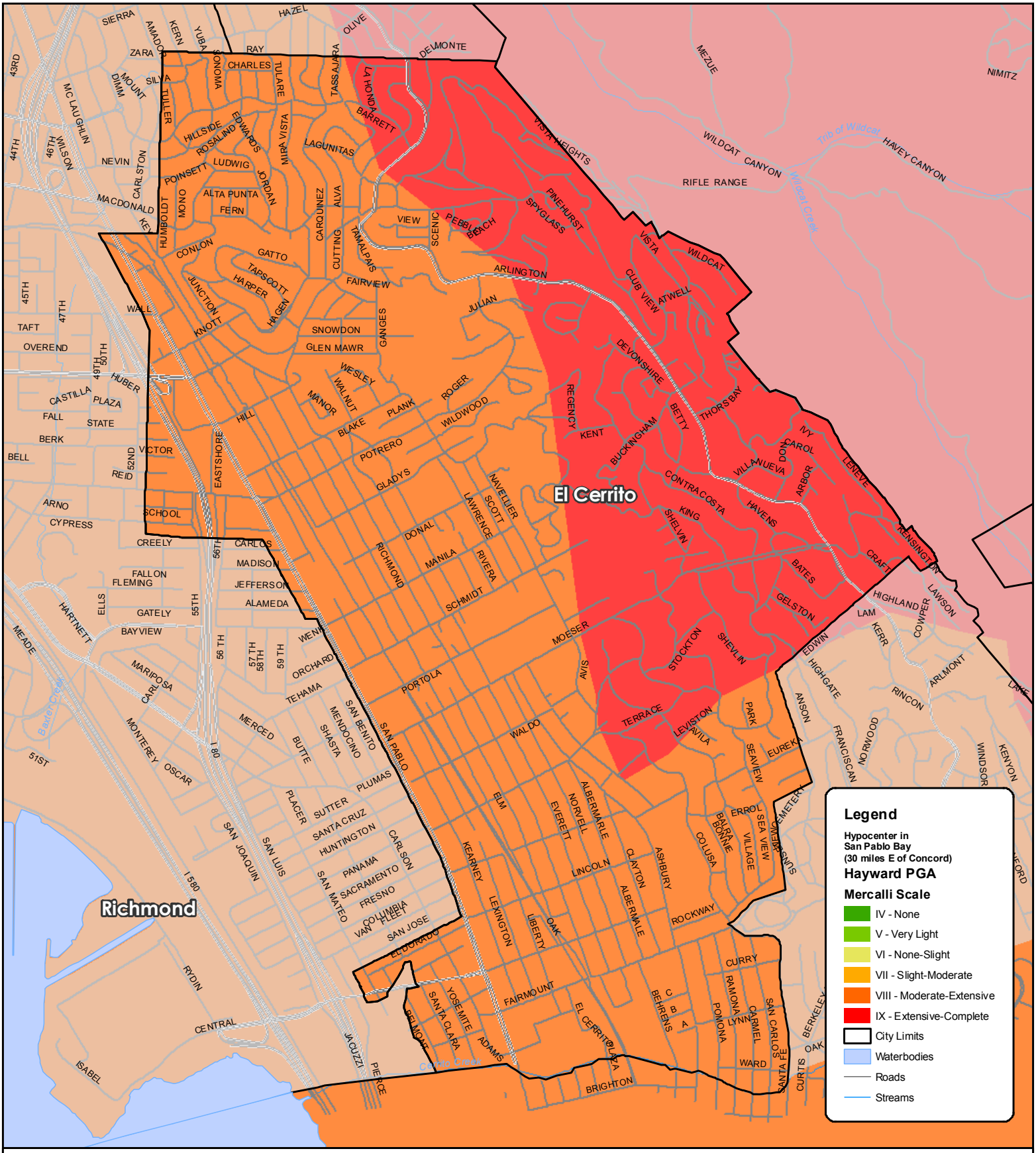


City of El Cerrito

100 & 500 Year
Flood Hazard Boundaries

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of El Cerrito

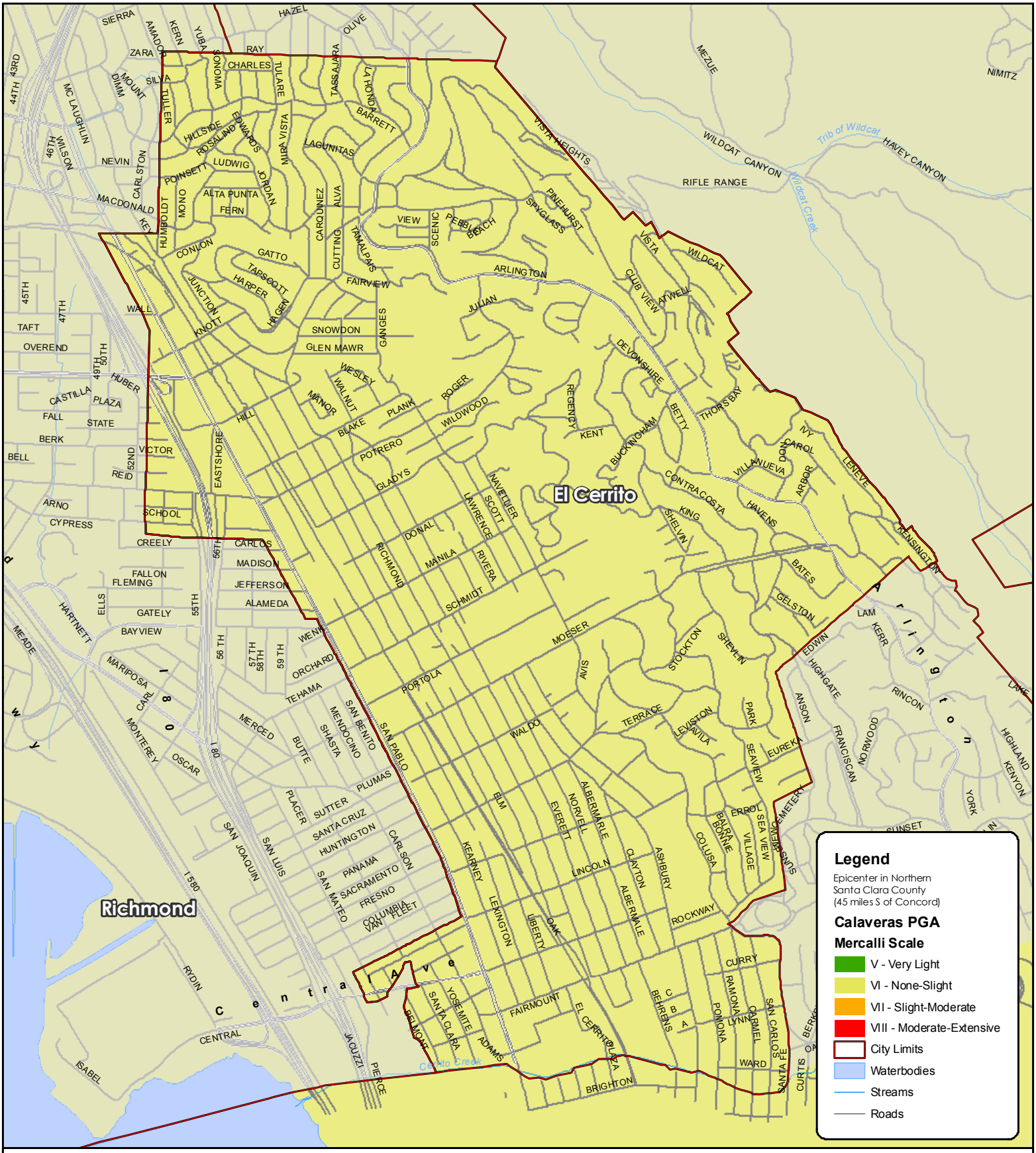
Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

0 1,000 2,000 4,000
Feet

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of El Cerrito

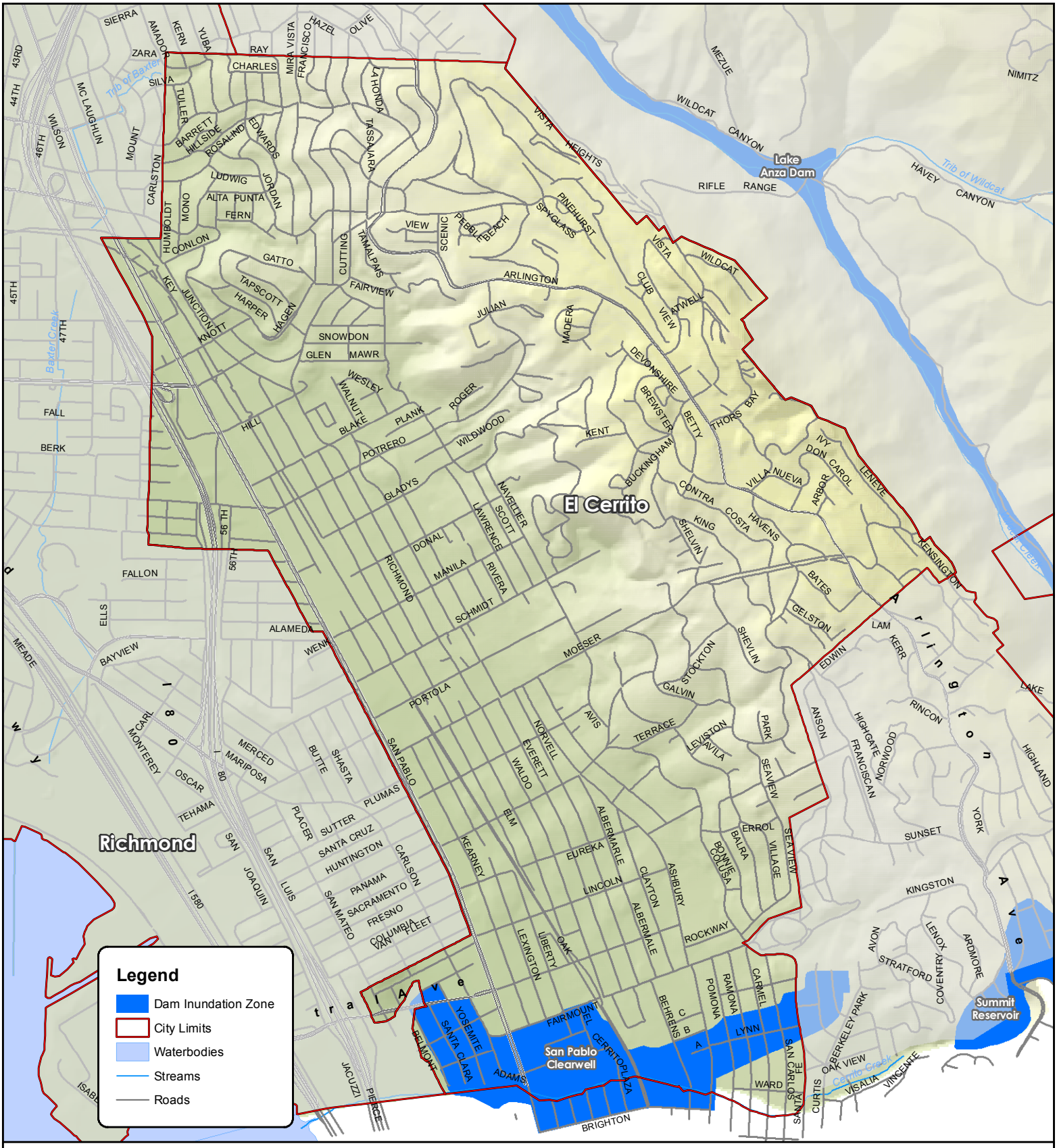
Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 1,000 2,000 4,000
Feet

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of El Cerrito

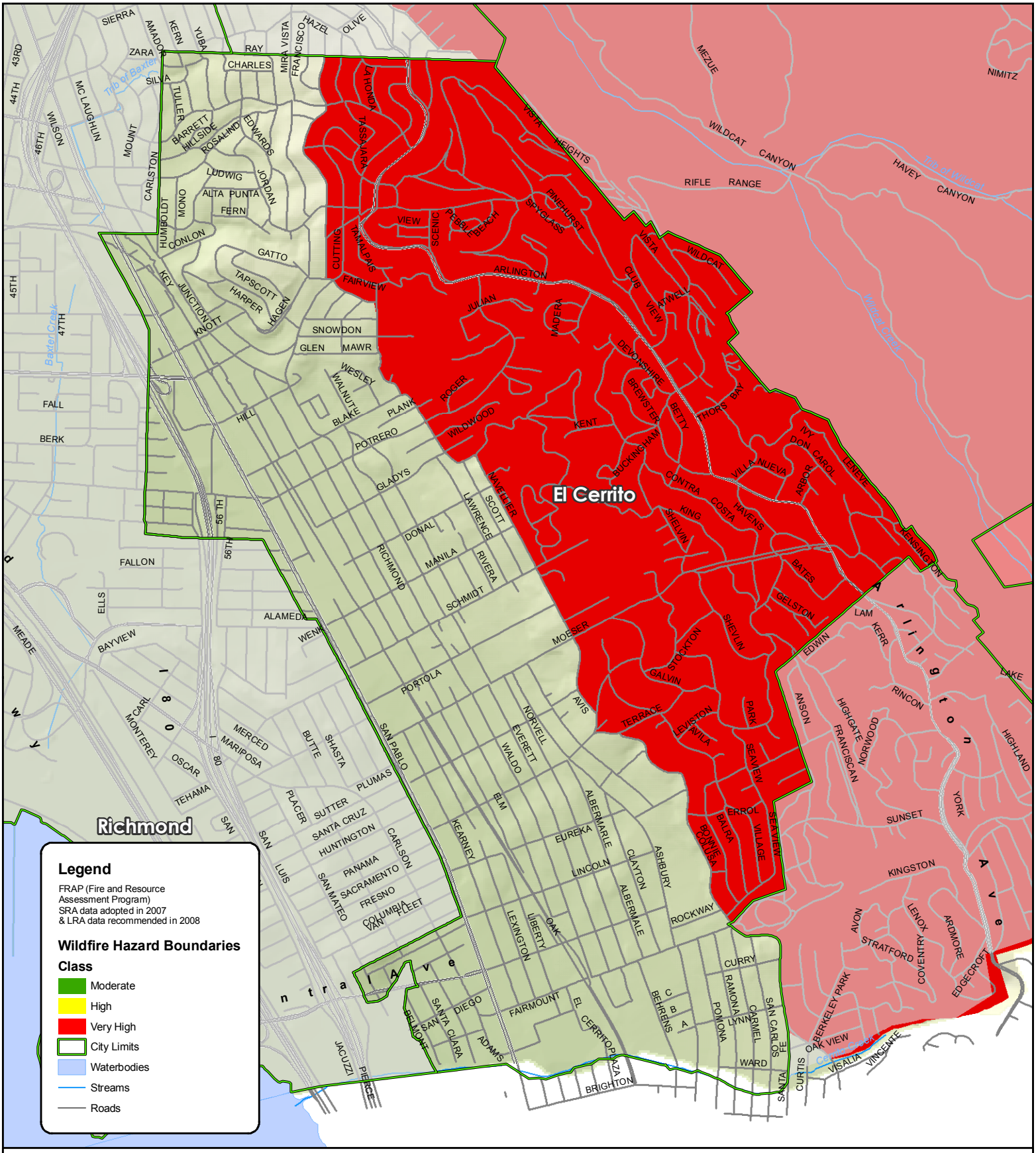
Dam Inundation Zone

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of El Cerrito

FRAP Wildfire Hazard Boundaries

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

CHAPTER 5.
CITY OF PLEASANT HILL ANNEX

5.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Roderick Wui, Associate Engineer
100 Gregory Lane
Pleasant Hill, CA 94523
Telephone: 925-671-5261
e-mail Address: rwui@ci.pleasant-hill.ca.us

Alternate Point of Contact

Steve Wallace, Public Works & Community Development Director
100 Gregory Lane
Pleasant Hill, CA 94523
Telephone: 925-671-5265
e-mail Address: swallace@ci.pleasant-hill.ca.us

5.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1961
- **Current Population—**32,671
- **Population Growth—**Based on data from the U.S. Census Bureau, the City of Pleasant Hill has experienced a relatively flat rate of growth. The overall population has increased 1.1 percent since 2000, and only 6.3 percent from 1990 to 2008.
- **Location and Description—**The City of Pleasant Hill is in the central part of Contra Costa County alongside Interstate 680. Pleasant Hill has a nearby Bay Area Rapid Transit (BART) station and extensive Contra Costa County Connection bus lines. Primarily a bedroom community, the City has a mix of new small developments and older, larger neighborhoods. Pleasant Hill is the home of the county's main central library as well as to John F. Kennedy University and Diablo Valley College.
- **Brief History—**In the 1890s, Pleasant Hill was the hub of a growing farming community with good cropland. Approximately 19 small and large farms around the area helped provide a strong agricultural economy that sparked steady growth. Rail travel came to Pleasant Hill in 1891 when the Central Pacific Railroad started a line through the Diablo Valley. In 1911, an electric railroad passed through Pleasant Hill on its way to Sacramento Valley. Rural mail service began around 1912. The area that is now Pleasant Hill grew from that farmland into a bedroom community during World War II. Pleasant Hill incorporated in 1961. Since 2000, when it opened its new downtown area, Pleasant Hill has developed a sense of identity and a strong financial base. It has developed into a community that incorporates mixed uses: a pedestrian-oriented downtown shopping area featuring traditional architecture that mixes retail uses with entertainment and residential and civic uses, anchored by the new City Hall.
- **Climate—**Pleasant Hill's weather is typical of Northern California, with mild summers and cool, wet winters. It rarely freezes in the winter and it is rarely hot in the summer. Pleasant Hill gets 20 inches of rain per year, with 80 percent of that falling in the six months from November through April. Average snowfall is 0 inches. The average number of days with any measurable precipitation is 48. On average, there are 264 sunny days per year in Pleasant Hill. The July high is around 89ºF. The January low is 39ºF. The comfort index, which is

based on humidity during the hot months, is a 55 out of 100, where higher is more comfortable.

- **Governing Body Format—**The City of Pleasant Hill is governed by a five-member City Council. The City consists of seven departments: Public Works and Community Development, Police, Redevelopment, Finance, Human Resources, City Attorney's Office, and the City Manager's Office. The City has nine commissions and one committee, which report to the City Council.
- **Development Trends—**Development trends for Pleasant Hill are anticipated to be low to moderate, consisting of residential infill development and the re-development of many commercial areas. 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. In addition, the plan must focus on issues of the greatest concern for the community and be written in a clear and concise manner. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan. The City of Pleasant Hill adopted its general plan under this state mandate in 2003. Future growth and development in the City of Pleasant Hill will be managed as identified in the general plan.

5.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

- Number of FEMA Identified Repetitive Flood Loss Properties: 2
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

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 STATUS OF PREVIOUS PLAN INITIATIVES

Table 5-10 summarizes the current status of strategies that were adopted by the City for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 5-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

5.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The City has identified the following future needs:

- Flooding (basin) study
- Creek embankment stability study
- Slope stability study.

5.9 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Pleasant Hill and 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	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding, Landslide – Reliz Valley	NA	1/4/2008	No estimates available
Flooding	FEMA-1628-DR	1/1/2006	No estimates available
Flooding, Landslides – 419 Saddlebrook & Heritage Hills	FEMA-1628-DR	12/31/2005	No estimates available
Wind	NA	12/21/2002	No estimates available
Severe Weather	NA	7/10/2002	No estimates available
Wind	NA	11/24/2001	No estimates available
Wind	NA	2/14/2000	No estimates available
Severe Weather - El Nino	FEMA-1203-DR	2/2/1998	No estimates available
Winter Weather, Flooding	NA	12/9/1995	No estimates available
Flooding	FEMA-758	2/17/1986	No estimates available
Severe Storm, Flooding	NA	1/3/1982	No estimates available
Wind	NA	12/22/1982	No estimates available
Wind, Flooding	NA	3/1980	No estimates available
Wind, Flooding	NA	1/1980	No estimates available

TABLE 5-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	36
2	Earthquake	21
3	Landslide	18
4	Dam Failure	12
5	Drought	12
6	Severe Weather	12
7	Wildfire	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	N	Y	California Building Code (2007)
Zoning Code	Y	Y	Y	Y	PHMC Title 18 (1996)
Subdivisions	Y	Y	N	N	PHMC Title 17 (2000), Subdivision Map Act
Post Disaster Recovery	N	N	N	N	N/A
Real Estate Disclosure	N	N	Y	Y	N/A
Growth Management	Y	Y	N	N	PH General Plan 2003
Site Plan Review	Y	N	N	N	PHMC Title 18 (1996)
Special Purpose (flood management, critical areas)	Y	Y	N	Y	PHMC Section 15.15 (1997), FEMA regulations, Clean Water Act
Planning Documents					
General or Comprehensive Plan	Y	Y	N	N	PH General Plan 2003
Floodplain or Basin Plan	Y	Y	Y	Y	PHMC Section 15.15 (1997), FEMA, Regional Water Quality Control Board
Stormwater Plan	Y	Y	Y	Y	PHMC Section 15.05 (2005), NPDES
Capital Improvement Plan	Y	N	N	N	PH CIP 6-year Plan (2009-2014)
Habitat Conservation Plan	N	N	N	N	N/A
Economic Development Plan	Y	N	N	N	PH Economic Development Strategic Plan 2005
Emergency Response Plan	Y	N	N	Y	PH EOC 2005
Shoreline Management Plan	N	N	N	N	N/A
Post Disaster Recovery Plan	N	N	N	N	N/A

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	Engineering Division staff, Planning Division staff
Engineers or professionals trained in building or infrastructure construction practices	Y	Building Division staff, Engineering Division staff
Planners or engineers with an understanding of natural hazards	Y	Engineering Division staff, Planning Division staff
Staff with training in benefit/cost analysis	N	
Floodplain manager	Y	Associate Engineer (CFM)
Surveyors	N	
Personnel skilled or trained in GIS applications	Y	Engineering Division staff
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	City Manager
Grant writers	Y	Engineering Division staff

TABLE 5-5.
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
Development Impact Fees for Homebuyers or Developers	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	Don’t know
State Sponsored Grant Programs	Yes

TABLE 5-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	2008
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

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	Included in Previous Plan?
Initiative #PH-1—Install engineered pipelines in areas subject to faulting, liquefaction, landsliding, or other earthquake hazard.							
New, Existing	Earthquake, Landslide	1, 7	City	High	General Fund	Long-term	No
Initiative #PH-2—Replace or retrofit water-retention structures that are determined to be structurally deficient.							
Existing	Earthquake, Flood, Severe Weather	1, 7, 9, 10, 15	City	High	General Fund	Long-term	No
Initiative #PH-3—Install portable facilities (hoses, pumps, emergency generators) to allow pipelines to bypass failure zones							
Existing	Earthquake, Flood, Landslide	1	City	Medium	General Fund	Long-term	No
Initiative #PH-4—Install earthquake-resistant connections when pipes enter and exit bridges.							
Existing	Earthquake	1	City	Medium	General Fund	Long-term	No
Initiative #PH-5—Comply with all applicable building and fire codes, as well as other regulations when constructing or significantly remodeling infrastructure facilities.							
Existing	Earthquake, Wildfire, Flood	1, 2	City	Low	FEMA, General Fund	Short-term	No
Initiative #PH-6—Relocate or locate critical facilities outside of hazard areas							
Existing	Earthquake, Flood, Wildfire, Dam Failure, Landslide	1, 5, 14, 15	City	High	FEMA, General Fund	Long-term	No

TABLE 5-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #PH-7—Ensure a reliable source of water for fire suppression							
Existing	Wildfire	1, 2,	Water District	Medium	General Fund	Short-term	No
Initiative #PH-8—Develop a defensible space vegetation program.							
Existing, New	Wildfire	1, 2, 4, 6, 7, 14	Fire District	Low	General Fund	Short-term	No
Initiative #PH-9—Retrofit access roads to ensure fire equipment have adequate access to sites							
Existing, New	Wildfire	1, 2, 11	Fire District	Low	General Fund	Short-term	No
Initiative #PH-10—Develop and distribute public outreach materials							
Existing, New	Drought, Earthquake, Flood, Wildfire, Landslide, Severe Weather	3, 5, 9, 11, 16	City	Low	General Fund, NPDES tax	Short-term	No
Initiative #PH-11—Conduct a watershed analysis of runoff and drainage systems to predict areas of insufficient capacity in the storm drain and natural creek system.							
Existing, New	Flood	9, 10	City	High	USACE, General Fund, FEMA	Short-term	No
Initiative #PH-12—Continue to repair and make structural improvements to storm drains, pipelines, and/or channels.							
Existing, New	Flood, Dam Failure	1, 7, 9, 10, 11	City	Medium	NPDES tax	Short-term	No
Initiative #PH-13—Continue maintenance efforts to keep storm drains and creeks free of obstructions.							
Existing	Flood, Dam Failure	1, 7, 9, 10, 11	City	Low	NPDES tax	Short-term	No
Initiative #PH-14—Enforce provisions under creek protection, stormwater management, and discharge control ordinances.							
Existing, New	Flood	1, 4, 5, 6, 7, 10, 11, 12	City	Low	NPDES tax	Short-term	No
Initiative #PH-15—Elevate critical bridges affected by flooding to increase stream flow and maintain critical access and egress routes.							
Existing	Flood, Dam Failure	1, 2, 7, 10, 15	City	High	FEMA	Long-term	No

TABLE 5-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #PH-16—Provide a mechanism to expedite the repair or replacement of facilities protecting critical infrastructure.							
Existing	Earthquake, Flood, Landslide, Wildfire, Severe Weather	2, 6, 16	City	Low	General Fund	Short-term	No
Initiative #PH-17—Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage.							
New	Flood	1, 4, 7	City	Low	General Fund	Short-term	No
Initiative #PH-18—Develop hazard maps with GIS and provide to public on hard copy and internet							
Existing	Drought, Earthquake, Flood, Landslide, Wildfire, Severe Weather	3, 6	County	Low	General Fund	Short-term	No
Initiative #PH-19—Provide emergency power generation in critical buildings to maintain continuity of government and services.							
Existing	Earthquake, Flood, Severe Weather, Dam Failure	1, 2, 13	City	Medium	General Fund	Long-term	No
Initiative #PH-20—Have back-up emergency power available for critical intersection traffic lights.							
Existing	Earthquake, Flood, Severe Weather, Dam Failure	1, 2, 13	County	Medium	General Fund	Long-term	No
Initiative #PH-21—Warehouse critical infrastructure components, and repair items							
Existing	Earthquake, Flood, Severe Weather, Dam Failure, Landslide	2, 13	City	High	General Fund, NPDES tax	Short-term	No
Initiative #PH-22—Promote information sharing and coordination of mitigation efforts among local jurisdictions							
Existing	Earthquake, Flood, Dam Failure	16	County	Low	General Fund	Short-term	No

TABLE 5-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #PH-23—Continue participation in the CRS Program							
Existing	Flood, Dam Failure	3, 4, 5, 7, 9	City	Low	General Fund, FEMA	Short-term	No
Initiative #PH-24—Repair and retrofit City bridges							
Existing	Earthquake, Flood, Severe Weather	1, 7, 15	City	High	General Fund	Short-term	No
Initiative #PH-25—Construct drainage basin to alleviate flooding throughout the City							
Existing	Flood	1, 9, 10	County	High	USACE, General Fund, FEMA	Long-term	No
Initiative #PH-26—Repair slides on City-maintained open space and slopes (i.e. Taylor Boulevard)							
Existing	Earthquake, Flood, Severe Weather	1, 7	City	Medium	General Fund	Short-term	No
Initiative #PH-27—Conduct study and construct improvements at Ellinwood Creek							
Existing	Flood	1, 9, 10	City	Low	NPDES tax, FEMA	Short-term	No
Initiative #PH-28—Purchase new permit tracking software to assist staff with documentation							
New	Earthquake, Flood, Landslide, Severe Weather	2, 6, 7, 11, 13	City	Low	General Fund	Short-term	No
Initiative #PH-29—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-Term, ongoing	No
Initiative #PH-30—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-Term, ongoing	No

TABLE 5-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #PH-31—Continue to maintain compliance and good standing under the National Flood Insurance Program							
New and existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	General Fund	Ongoing	No
Initiative #PH-32—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4, 5, 14	OES & DCD	Low	General Fund	Early 2010, Short-Term	No
Initiative #PH-33—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	3, 7 ,15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-Term, depends on funding	No
Initiative #PH-34—Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses. [Note - these programs go by a variety of names in various cities and areas.]							
New and Existing	All Hazards	2,3,13,16	Police, Fire, County OES	Low	Existing City programs	Ongoing	Yes **ECON-j-5**

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	2	Medium	High	No	No	No	Low
2	5	Medium	High	No	Yes	No	Low
3	1	Medium	Medium	Yes	No	No	Medium
4	1	Medium	High	No	Yes	No	Low
5	2	High	Low	Yes	Yes	Yes	High
6	4	High	High	Yes	Yes	No	Low
7	2	High	Medium	Yes	No	No	Medium
8	6	High	Low	Yes	Yes	Yes	High
9	3	Medium	Medium	Yes	Yes	Yes	High
10	5	Low	Low	Yes	No	Yes	Medium
11	2	Medium	High	No	No	No	Low
12	5	High	Low	Yes	No	Yes	Medium
13	5	High	Low	Yes	No	Yes	Medium
14	8	Medium	Low	Yes	No	Yes	Medium
15	5	High	High	Yes	Yes	No	Medium
16	3	Low	Low	Yes	No	Yes	Medium
17	3	High	Low	Yes	No	Yes	Medium
18	2	Medium	Low	Yes	No	Yes	Medium
19	3	Medium	Medium	Yes	No	No	Medium
20	3	Medium	Medium	Yes	No	No	Medium
21	2	Low	High	No	No	No	Low
22	1	Low	Low	Yes	No	Yes	Medium
23	1	High	Low	Yes	No	Yes	Medium
24	3	High	Medium	Yes	Yes	No	Medium
25	3	High	High	Yes	Yes	No	Medium
26	2	High	Medium	Yes	Yes	Yes	High
27	3	Medium	Medium	Yes	No	No	Medium
28	5	Low	Low	Yes	No	Yes	Medium
29	16	Medium	Low	Yes	No	Yes	High

TABLE 5-8 (continued).
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]
30	16	Medium	Low	Yes	Yes	Yes	High
31	7	Medium	Low	Yes	No	Yes	High
32	3	Low	Low	Yes	No	Yes	High
33	3	High	High	Yes	Yes	No	Medium
34	4	High	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

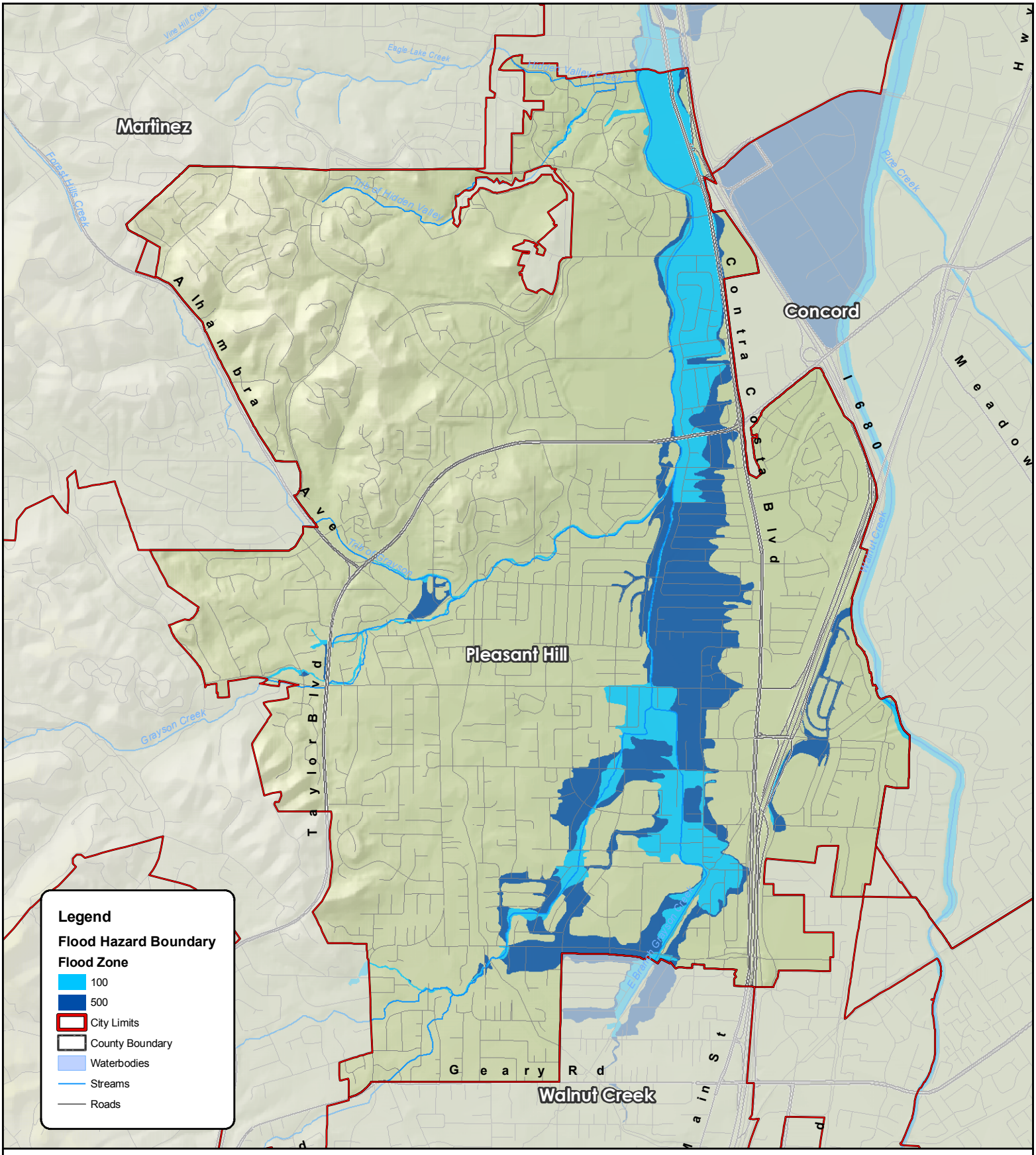
TABLE 5-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	6, 12, 13, 22, 30, 32	6, 15, 23, 33, 34	23 29, 30	12, 32	21, 34	12
Drought	30, 32	33, 34	10, 18, 29, 30	32	34	
Earthquake	1, 2, 3, 4, 6, 22, 24, 26, 30, 32	5, 6, 26, 28, 33, 34	10, 18 29, 30	32	16, 19, 20, 21, 34	1, 3, 26
Flood	2, 3, 6, 11, 12, 13, 14, 17, 22, 24, 30, 32	5, 6, 15, 17, 23, 28, 33, 34	10, 18, 23, 27 29, 30	11, 12, 27, 32	16, 19, 20, 21, 34	12
Landslide	1, 3, 6, 26, 30, 32	6, 26, 28, 33, 34	10, 18 29, 30	32	16, 19, 20, 21, 34	1, 3, 26
Severe Weather	2, 24, 26, 30, 32	28, 33, 34	10, 18 29, 30	32	16, 19, 20, 21, 34	25, 26
Wild Fire	6, 8, 9, 30, 32	5, 6, 33, 34	10, 18 29, 30	32	7, 8, 9, 16, 34	9

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 5-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
ECON-b-2	✓			California Building Code (2007)
ECON-f-1		✓		Addressed by Initiative #PH-23
ECON-f-6		✓		Addressed by Initiative #PH-31
ECON-f-7		✓		Addressed by Initiative #PH-33
ECON-f-8		✓		Addressed by Initiative #PH-33
ECON-j-5		✓		Addressed by Initiative #PH-34
LAND-c-4		✓		Addressed by Initiatives #PH-23 and #PH-31
HSNG-k-3		✓		Addressed by Initiative #PH-10
GOVT-a-2		✓		Addressed by Initiative #PH-33
GOVT-a-7		✓		Addressed by Initiative #PH-33
GOVT-c-5		✓		Addressed by Initiative #PH-31

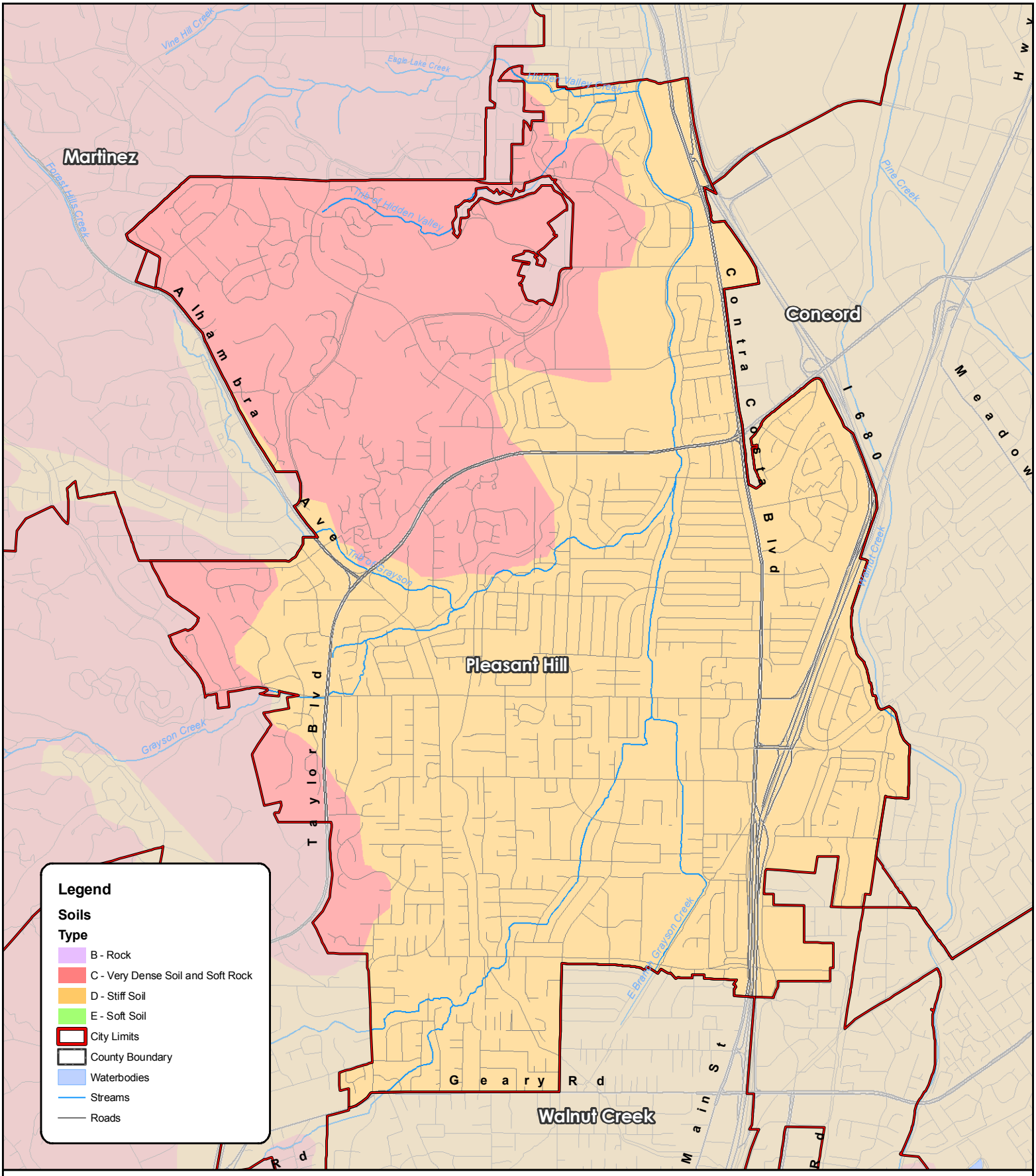


City of Pleasant Hill

100 & 500 Year
Flood Hazard Boundaries

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

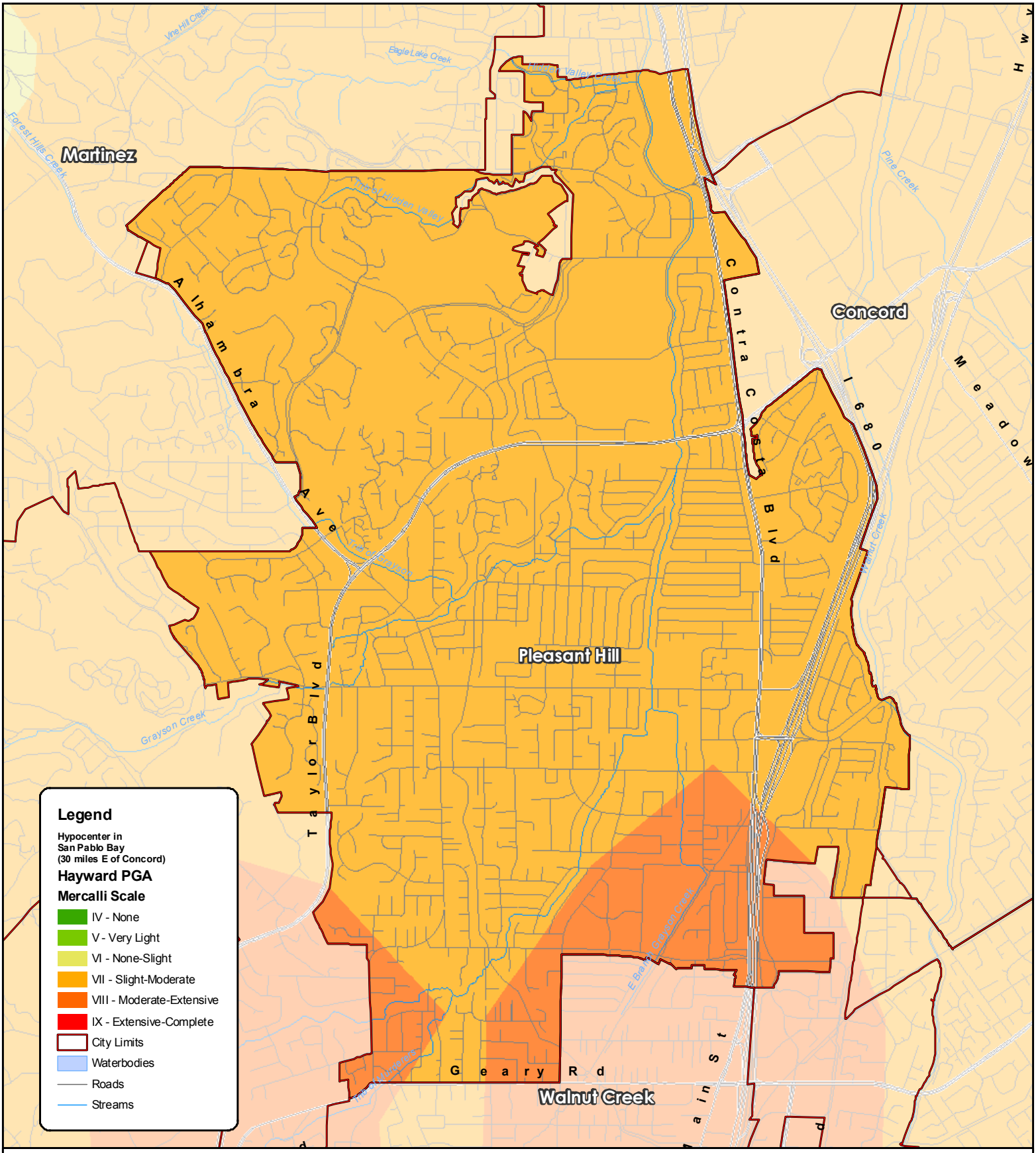


City of Pleasant Hill

NEHRP (National Earthquake Hazards Reduction Program) Soils

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS & NEHRP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pleasant Hill

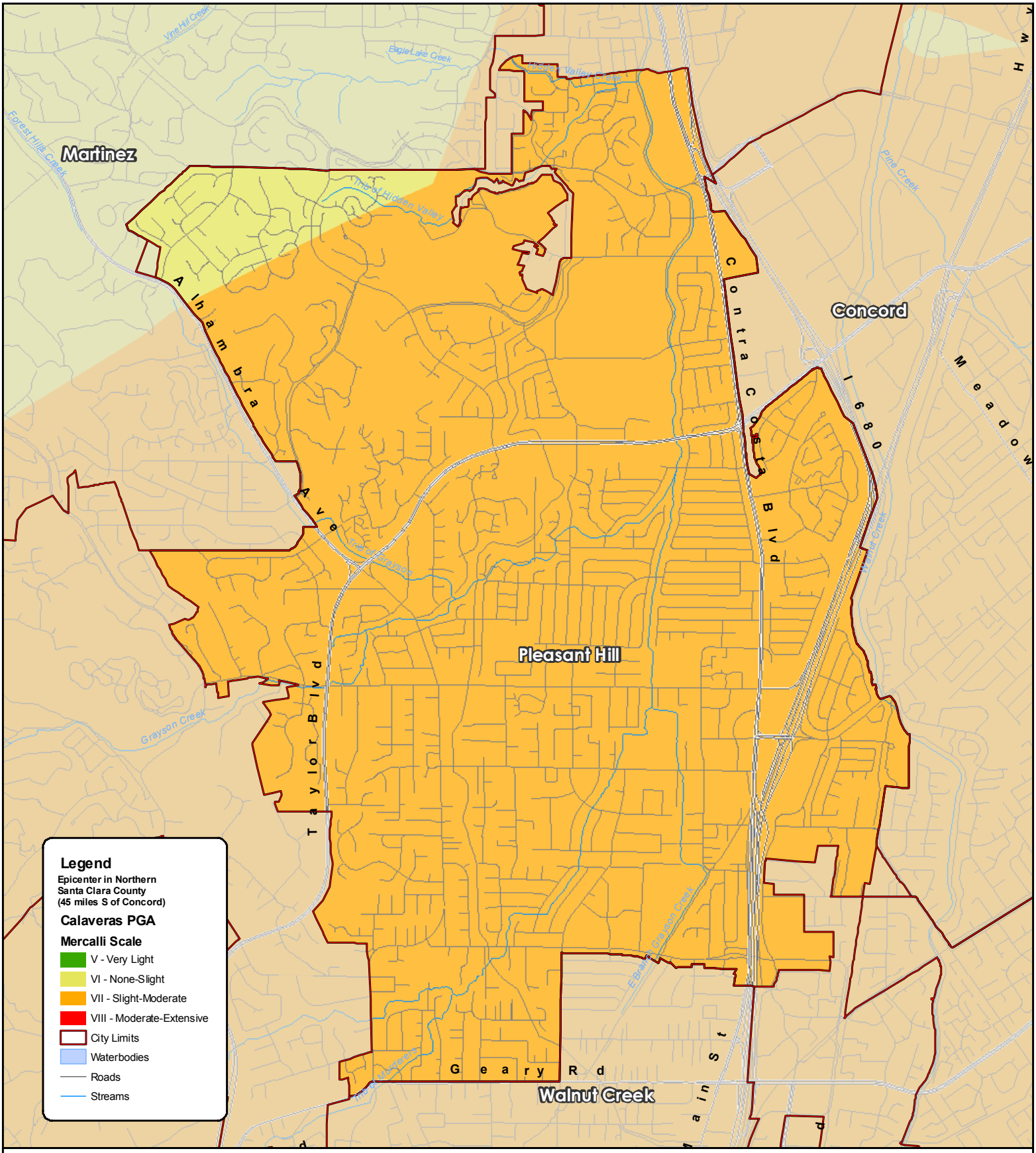
Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

0 1,000 2,000 4,000
Feet

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pleasant Hill

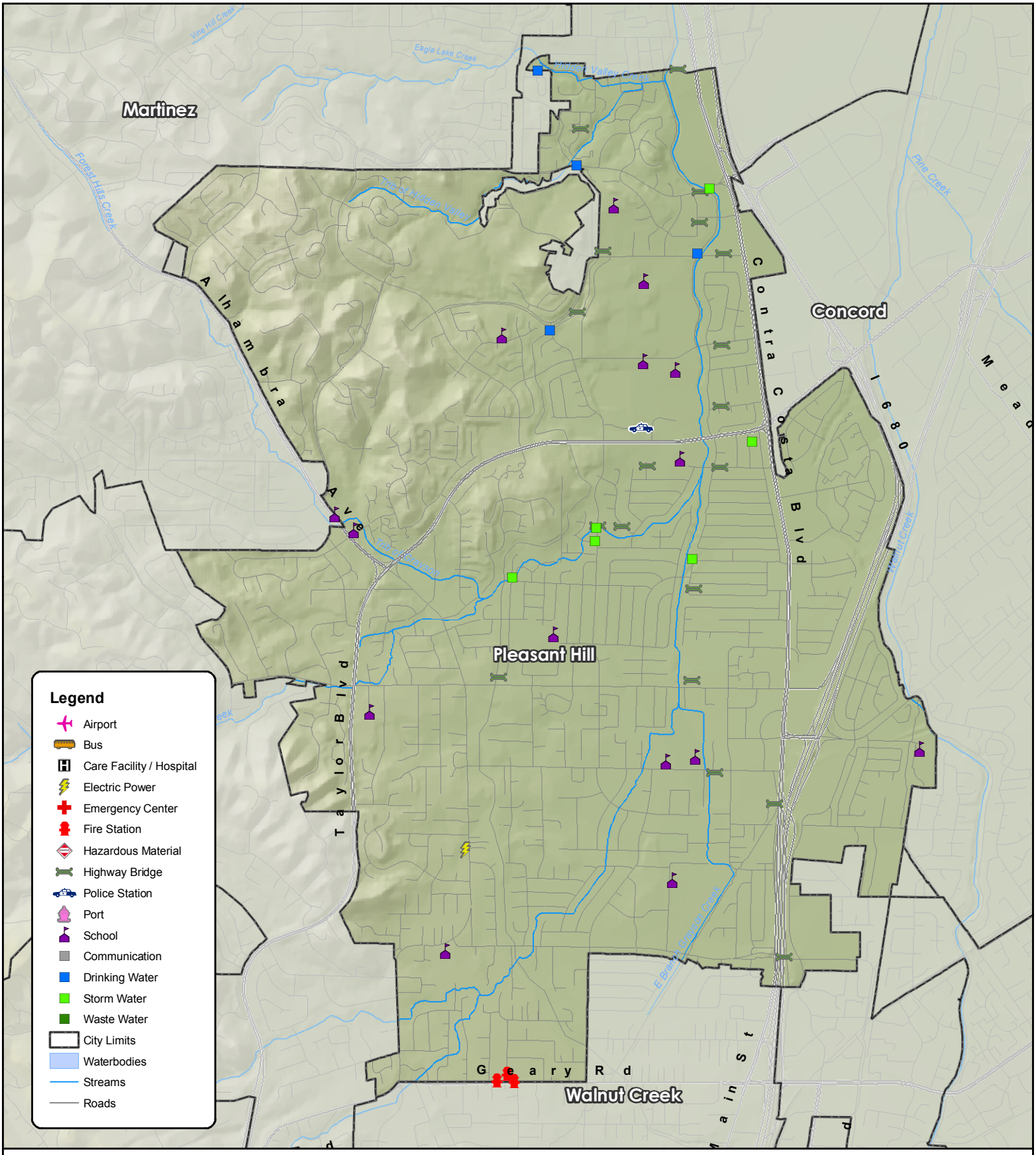
Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 1,000 2,000 4,000
Feet

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

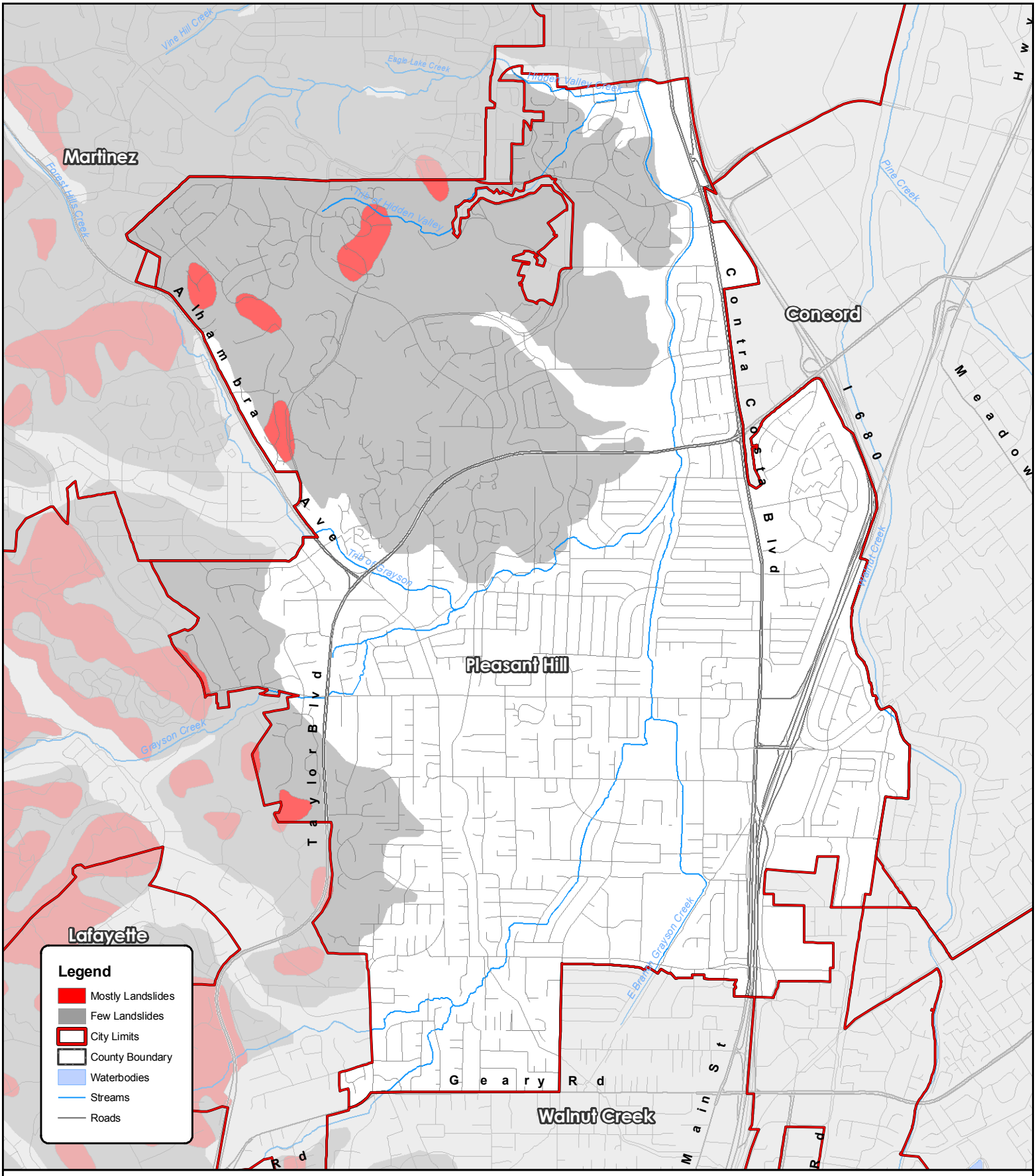


City of Pleasant Hill

Critical Facilities

0 1,000 2,000 4,000
Feet

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pleasant Hill

USGS Landslide Hazard Areas

0 1,000 2,000 4,000
Feet

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

CHAPTER 6.
CITY OF RICHMOND ANNEX

6.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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6.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**Richmond was founded and incorporated in 1905
- **Current Population—**104,513 as of January 1, 2009
- **Population Growth—** The City has had an average annual growth rate of 1.74% since 1990.
- **Location and Description**—The City of Richmond is located in the nine-county San Francisco Bay Area in West Contra Costa County. Major nearby Bay Area cities and employment centers include: the City of Oakland, 9 miles to the south; the City of San Francisco, 17 miles west; and the City of San Jose, 50 miles south. Richmond's land mass forms a promontory that stretches into the San Francisco and San Pablo bays. This shoreline defines a significant portion of the City's borders to the north, west and south. Neighboring San Francisco and Marin County provide attractive backdrops from Richmond across the Bay. The cities of El Cerrito, San Pablo and Pinole as well as unincorporated areas of the County border Richmond to the north and east; and the Berkeley Hills, San Pablo and Sobrante ridges frame the eastern edge of the City.
- **Brief History—**The Ohlone Indians were the first inhabitants of the Richmond area, settling an estimated 5,000 years ago. The name "Richmond" appears to predate actual incorporation by more than fifty years. Edmund Randolph, originally from Richmond, Virginia, represented the city of San Francisco when California's first legislature met in San Jose in December 1849, and he became state assemblyman from San Francisco. His loyalty to the town of his birth caused him to persuade a federal surveying party mapping the San Francisco Bay to place the names "Point Richmond" and "Richmond" on an 1854 geodetic coast map, which was the geodetic map at the terminal selected by the San Joaquin Valley Railroad; and by 1899 maps made by the railroad carried the name "Point Richmond Avenue," designating a county road that later became Barrett Avenue, a central street in Richmond.

  Richmond is best known for its unique history and role in the World War II home front effort. Between _940 and _945, tens-of-thousands of workers from all over the country streamed into the City to support wartime industries. The City was home to four Kaiser shipyards which housed the most productive wartime shipbuilding operations of World War II, launching 747 ships during the war. The City was also home to approximately 55 war-related

industries - more than any other city of its size in the United States. Today, the City is an important oil refining, industrial, commercial, transportation, shipping and government center.

- **Climate—** Richmond, like much of the coastal East Bay, enjoys a very mild Mediterranean climate year round. The climate is slightly warmer than the coastal areas of San Francisco, the Peninsula, and Marin County; it is however more temperate than areas further inland. The average highs range from 57 °F (14 °C) to 73 °F (23 °C) and the lows between 43 °F (6 °C) to 56 °F (13 °C) year round. Richmond usually enjoys an "Indian summer", and September is, on average, the warmest month. January is on average the coldest month.

  The highest recorded temperature in Richmond was 107 °F/41.6 °C in September 1971 while the coldest was 24 °F/-4.4 °C in January 1990.

  The rainy season begins in late October and ends in April with some showers in May. Most of the rain occurs during stronger storms which occur between November and March and drop 3.3 to 4.91 inches of rain per month. January and February are the rainiest months.

  Like most of the Bay Area, Richmond is made up of several microclimates. Southern parts of the city and the ridges receive more fog than northern areas. Summer temperatures are higher in inland areas, where the moderating influence of San Francisco Bay is lessened. The average wind speed is 6 to 9 miles per hour with stronger winds from March through August; the strongest winds are in June. Morning humidity is 75% to 92% year round; afternoon humidity is more variable. This percentage is in the high 20s to mid 30s (%) May through October (the summer months) and climbs or descends through 40% to 70% during the winter.

- **Governing Body Format—**Richmond city government operates under a council-manager system with nine members (including mayor and vice mayor) elected to alternating four-year terms. Primary power lies with the five council members. The Mayor has the power to appoint, as well as ceremonial duties, presiding over council meetings, and meeting visiting dignitaries. Official city business is administered by the Office of the City Manager. The City Council will assume the responsibility for the adoption of this plan.

- **Development Trends—** Based on the data tracked by the California Department of Finance, Richmond has experienced a relatively moderate rate of growth with a 6% population increase since 2000. There are currently 38,433 housing units within the City averaging 2.79 persons per household.

  California State Law requires that every county and city prepare and adopt a comprehensive long-range plan to serve as a guide for community development. The plan must consist of an integrated and internally consistent set of goals, policies, and implementation measures. In addition, the plan must focus on issues of the greatest concern to the community and be written in a clear and concise manner. 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 The City of Richmond adopted its general plan pursuant to this state mandate in 1999 and is currently updating the document as of the preparation of this annex. Future growth and development will be managed as identified in this general plan.

6.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 6-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 6

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

6.4 HAZARD RISK RANKING

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

6.5 CAPABILITY ASSESSMENT

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

6.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 6-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 6-8 identifies the priority for each initiative. Table 6-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

6.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 6-10 summarizes the current status of strategies that were adopted by the City for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 6-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

6.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

None at this time

TABLE 6-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood- Severe Storm/Thunder	DR-253	1/18/1969	$862,068 Property (County-wide)
Flood- Severe Storm/Thunder	DR-364	1/16/1973	$86,206 Property (County-wide)
Severe Weather	NA	1982	$348,000 (SHELDUS)
Flooding/Severe Weather	NA	1984	$350,000 (SHELDUS)
Earthquake (Loma Prieta)	DR-845	10/17/1989	$25 Million (county-wide)
Flooding	DR-1046	03/12/1995	N/A
Flooding	DR-1155	01/01/1997	N/A
Severe Winter Storms/Flooding	DR-1298	02/09/1998	$500,000 (per NCDC events database
Severe Weather/Wind (F0 Tornado)	N/A	12/5/1998	$200,000 (per NCDC events database)
Flooding	DR-1628	2/3/2006	22,000,000 Property (county-wide)

TABLE 6-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	42
3	Flood	18
3	Dam Failure	18
4	Landslide	12
4	Wildfire	12
5	Drought	6

TABLE 6-3.
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	Article V, Chapter 6.04.020 RMC adopts by reference the IBC. (2006)
Zonings	Y	N	N	Y	Article XV, Chapter 15.04 RMC (1995)
Subdivisions	Y	N	N	N	Article XV, Chapter 15.08 RMC (1986)
Stormwater Management	Y	Y	N	Y	Article XII, Chapter 12.22 RMC (2006)
Post Disaster Recovery	N	N	N	N	Article V, Chapter 6.04.020 RMC
Real Estate Disclosure	N	N	N	Y	CA. State Civil Code 1102 requires full disclosure on Natural hazard Exposure of the sale/re-sale of any and all real property.
Site Plan Review	Y	N	N	N	
Special Purpose (flood management, critical areas)					*Flood Damage Prevention:* Article XII, Chapter 12.56 RMC (2001) *Code for the Seismic Retrofit of Hazardous Unreinforced Masonry Bearing Wall Buildings:* Article V, Chapter 6.12 RMC

TABLE 6-3 (continued).
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	The City of Richmond is currently updating its general Plan. Adoption is anticipated some time in 2010.
Floodplain or Basin Plan	N	N	N	N	
Stormwater Master Plan					
Capital Improvement Plan	Y	N	N	N	The Engineering Division implements a 6-year capital improvement program (reviewed and updated annually) for roads, water, sewer, and stormwater.
Habitat Conservation Plan	N	N	N	N	
Economic Development Plan		N	N	N	Community and Economic Development Strategic Plan, (May, 2006)
Emergency Response Plan	Y	N	N	Y	
Shoreline Management Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	

TABLE 6-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Public Works and Planning Division, Engineering
Engineers or professionals trained in building or infrastructure construction practices	Y	Public Works
Planners or engineers with an understanding of natural hazards	Y	Planning Division
Staff with training in benefit/cost analysis	N	Can contract for this service
Floodplain manager	Y	The City Engineer is designated as the floodplain Administrator by ordinance
Surveyors	Y	Public Works, as well as contract personnel
Personnel skilled or trained in GIS applications	Y	Planning Division, Information technology, GIS Division
Scientist familiar with natural hazards in local area	Y	Engineering, Planning-Building Division
Emergency manager	Y	Department of Public Safety
Grant writers	Y	All Departments to a limited degree. Can contract for this service

TABLE 6-5.
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	Y
Other	N

TABLE 6-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	9	10/1/1995
Building Code Effectiveness Grading Schedule	Yes	10	N/A
Public Protection	Yes	3/9	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 6-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #R-1— Reduce damage to residential units following an earthquake by establishing a 'soft story' retrofit program for apartments and commercial buildings.							
Existing	Earthquake	7,11,15	Department of Planning & Building	High ($250K/ bldg)	FEMA Grant funding, HUD	Short term Depends on funding	No
Initiative #R-2—Conduct and Inventory of existing or suspected "soft-story" commercial or industrial structures.							
Existing	Earthquake	7,11,15	Department of Planning & Building	High	CIP funding, HUD	Short-term, Depends on funding	Yes, **ECON-b-4**
Initiative #R-3— Reduce risk of damage from future landslides and wildfires by developing special guidelines and regulations for more compact construction of residences proposed for rural hillside areas.							
New and Existing	Earthquake, Landslide	5,7,11,12	Department of Planning & Building	Medium	General Fund	Short term	No
Initiative #R-4— Harden/retrofit the historic Winehaven buildings at Pt. Molate to prevent their loss during major earthquake							
Existing	Earthquake	1,7,15	Department of Planning & Building	High $3 Million)	FEMA Grant funding, HUD, SBA, Private-sector funding	Short-term, Depends on funding	No
Initiative #R-5— Perform vulnerability analysis of city owned docks and Piers.							
Existing	Earthquake, Flood, Severe Weather	1,6,13	Port of Richmond	Medium $350K	Grants from Department of Boating &Waterways, Army Corps of Engineers	Short-term, Depends on funding	No
Initiative #R-6— Complete Port of Richmond Timber wharf replacement							
Existing	Earthquake, Flood, Severe Weather	1,7,15	Port of Richmond	High $1.2 million	Port Capital funds	Short-term	No
Initiative #R-7— Harden/Retrofit retaining walls in Pt. Richmond to prevent failure during seismic event							
Existing	Earthquake, Landslide	1,7,15	Engineering Services Dept.	High $1.5 mil	Measure C funding FEMA grant Funding	Short-term	No

TABLE 6-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #R-8— Construct dock to support Ferry operations during emergency response functions.							
New	All Hazards	2,16	Port of Richmond	High $1.8 Million	DBAW loan WETA grant	Short-term, Depends on funding	No
Initiative #R-9— Complete EIR for ferry terminal to support Emergency ferry service							
New	All Hazards	2,16	Community redevelopment agency	Medium $250,000	WETA grant	Short-term, Depends on funding	No
Initiative #R-10— Evaluate levies on Wildcat and San Pablo Creeks relative to new COE Standards							
Existing	Flood, Earthquake	1,16,13	Engineering Dept	Medium $350,000	USACE 205 program	Short-term, Depends on funding	No
Initiative #R-11— Complete Dornan Drive Tunnel Repair and Rehabilitation Project to mitigate the impacts from seismic and landslide events.							
Existing	Earthquake, Landslide	1,16,13	Engineering services Dept.	High $1 mill	Measure C Grants FEMA mitigation Grant Funding	Short-term, Depends on funding	No
Initiative #R-12— Fund emergency services training (ICS 300,400 and 700 for City Staff)							
New and existing	All Hazards	2,3,6,13,16	Planning Engineering Public Works	Low $50,000	FEMA/DHS	Short-term, Ongoing	No
Initiative #R-13— Evaluate the feasibility of establishing additional storm water retention basins to reduce flooding							
New and existing	Flood, Severe Weather	1,6,13	Planning and Engineering Depts.	Medium $275,000	CIP funding, EPA Water Quality Grant	Short-term, Depends on funding	No
Initiative #R-14— Evaluate all underground storm water culverts to prevent sink holes							
Existing	Flood, Landslide, Severe Weather	1,6,13	Engineering Department	Medium $375,000	FEMA Grant	Short-term, Depends on funding	No
Initiative #R-15— Acquire supplies and equipment to stock large capacity evacuation shelters to be utilized on all hazard events requiring evacuation.							
N/A	All Hazards	2,16	Police & Fire Departments	High $400,000	FEMA/DHS Grant	Short-term, Depends on funding	No

TABLE 6-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #R-16— Participate in the annual Operational Area Golden Guardian Exercise							
New and Existing	All Hazards	2,3,16	Police & Fire Departments Planning & Building Regulations	Low $10,000	General Fund allocation	Short-term, Ongoing	No
Initiative #R-17— Partner with local Jurisdictions to stage an annual West End Safety Preparedness Fair							
New and Existing	All Hazards	2,3,16	Police & Fire Departments Planning & Building Regulations	Low $30,000	General Fund allocation	Short-term, Ongoing	No
Initiative #R-18— Install Richmond's section of the FCC-P-25 East Bay Regional Communications System (a 36 site, 2 county P-25 Compliant com. System.							
New and Existing	All Hazards	2,3,16	Police & Fire Departments Planning & Building Regulations	High $125,000	FEMA/DHS EMPG Grant	Short-term, Depends on funding	No
Initiative #R-19— Acquire designation as NWS "Storm Ready City"							
New and Existing	Flood, Dam Failure, Severe Weather	2,3,9,16	Police & Fire Departments Planning & Building Regulations	Low $15,000	General Fund Allocation	Short-Term	No
Initiative #R-20— Support County-wide initiatives identified in Volume 1.							
New and existing	All Hazards	All Objectives	City of Richmond Planning Division	Low	General Fund Allocation	Short-term, Ongoing	No
Initiative #R-21— Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All Objectives	City of Richmond Planning Division	Low	General Fund Allocation	Short-term, Ongoing	No

TABLE 6-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #R-22— Continue to maintain compliance and good standing under the National Flood Insurance Program (NFIP).							
New and existing	Flood	4,5,6,7,11,12	City of Richmond	Low	General Fund Allocation	Ongoing	No
Initiative #R-23— Continue to maintain/enhance the City's classification under the Community Rating System (CRS).							
New and existing	Flood	4,5,6,7,11,12	City of Richmond	Low	General Fund Allocation	Ongoing	Yes, **ECON-f-1**
Initiative #R-24— Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4,5,14	Planning Division	Low	General Fund Allocation	Ongoing	No
Initiative #R-25— Update/enhance existing flood hazard mapping to better reflect current conditions.							
New and Existing	Flood	3,6,12,16	Engineering Department	High	FEMA RiskMAP	Long-term, Depends on funding	No
Initiative #R-26— 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	3,7,15	Planning and Engineering Depts	High	FEMA Hazard Mitigation Grant funding	Long-term, Depends on funding	No
Initiative #R-27— Assist in ensuring adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for commercial and industrial properties with regard to seven official natural hazard zones: 1) Special Flood Hazard Areas (designated by FEMA), 2) Areas of Potential Flooding from dam failure inundation, 3) Very High Fire Hazard Severity Zones, 4) Wildland Fire Zones, 5) Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act), and the 6) Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).							
New and Existing	All Hazards	3,6,12	Building Regulations, Planning, OES	Low	Existing City programs	Ongoing	Yes, **ECON-a-1**
Initiative #R-28— Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses.							
New and Existing	All Hazards	2,3,13,16	Police, Fire, County OES	Low	Existing City programs	Ongoing	Yes, **ECON-j-5**

TABLE 6-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #R-29— Increase efforts to reduce hazards in existing development in high wildfire hazard areas (identified as wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat) through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.							
New and Existing	Wildfire	3,4,5,12	Fire, County OES	Low	Existing City programs	Ongoing	Yes, **HSNG-g-1**
Initiative #R-30— Better inform residents of comprehensive mitigation activities, for all hazards of concern including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.							
New and existing	All Hazards	3,6,7,15	Planning, County OES, Fire, Building Regulations	Medium	Existing City programs	Short-term, Ongoing	Yes, **HSNG-k-3**
Initiative #R-31— Consider where appropriate the adoption of higher regulatory flood standards such as freeboard, compensatory storage, cumulative substantial improvement requirements, etc; to reduce the impacts of flooding on new and existing construction.							
New and existing	Flood	4,7,11	Planning & Building Regulation	Low	General fund allocation	Long-term	No

TABLE 6-8.
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]
R-1	3	High	High	Yes	Yes	No	Medium
R-2	3	High	High	Yes	Yes	Yes	High
R-3	4	Medium	Medium	Yes	No	Yes	High
R-4	3	High	High	Yes	Yes	No	Medium
R-5	3	Medium	Medium	Yes	Yes	No	Medium
R-6	3	High	High	Yes	Yes	Yes	High
R-7	3	High	High	Yes	Yes	Yes	High
R-8	2	High	High	Yes	Yes	Yes	High
R-9	2	Medium	Medium	Yes	Yes	No	Medium
R-10	3	Medium	Medium	Yes	Yes	No	Medium
R-11	3	High	High	Yes	Yes	Yes	High
R-12	5	Medium	Low	Yes	No	Yes	High
R-13	3	Medium	Medium	Yes	No	No	Medium
R-14	3	Medium	Medium	Yes	No	Yes	Medium
R-15	2	High	High	Yes	Yes	No	Medium
R-16	3	High	Low	Yes	No	Yes	High
R-17	3	Low	Low	Yes	No	Yes	High
R-18	3	High	High	Yes	Yes	No	Medium
R-19	4	Low	Low	Yes	No	Yes	High
R-20	16	Medium	Low	Yes	No	Yes	High
R-21	16	Medium	Low	Yes	Yes	Yes	High
R-22	6	Medium	Low	Yes	No	Yes	High
R-23	6	Low	Low	Yes	No	Yes	High
R-24	3	Low	Low	Yes	No	Yes	High
R-25	4	High	High	Yes	No	`No	Medium
R-26	3	High	High	Yes	Yes	No	Medium
R-27	3	High	Low	Yes	No	Yes	High
R-28	4	High	Low	Yes	No	Yes	High
R-29	4	High	Low	Yes	No	Yes	High
R-30	4	High	Medium	Yes	Yes	Yes	High
R-31	3	Medium	Low	Yes	No	Yes	Medium

a. Explanation of priorities
- 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).

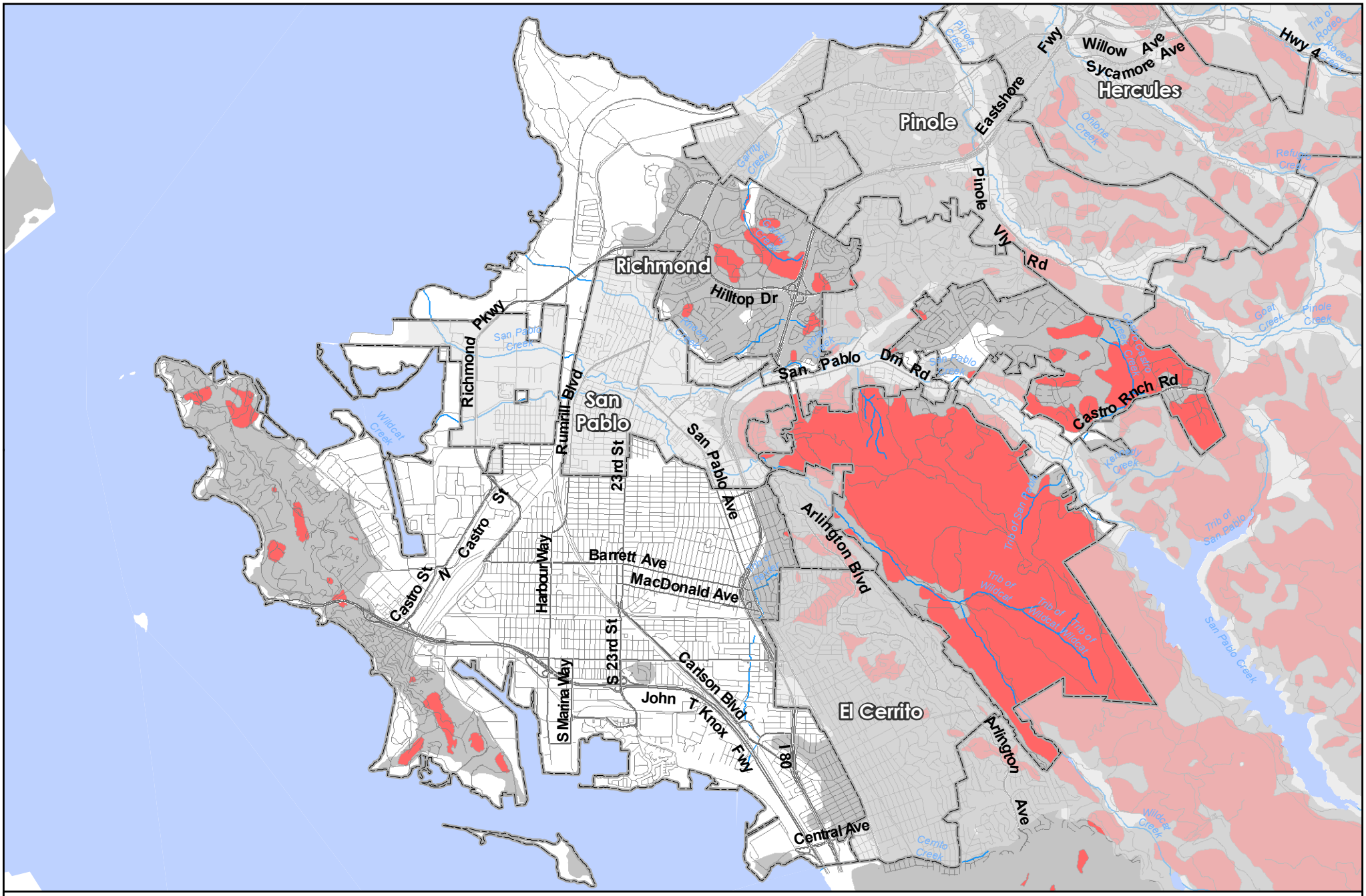
TABLE 6-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	R-14, R-20, R-21, R-22, R-23, R-24,	R-23, R-26	R-16, R-17, R-19, R-23, R-27, R-28, R-30	R-9, R-23	R-8, R-12, R-16, R-18, R-23, R-28	R-10, R-13, R-23
Drought	R-20, R-21, R-24	R-26	R-16, R-17, R-27, R-28, R-30	R-9,	R-8, R-12, R-15, R-16, R-18, R-28	
Earthquake	R-1, R-2, R-3, R-5, R-14, R-20, R-21, R-24	R-1, R-2, R-4, R-6, R-7, R-11, R-26	R-2, R-16, R-17, R-27, R-28, R-30	R-9,	R-2, R-5, R-8, R-12, R-15, R-16, R-18, R-28	R-11
Flood	R-5, R-20, R-21, R-22, R-23, R-24, R-25, R-31	R-6, R-23, R-26	R-16, R-17, R-19, R-23, R-25, R-27, R-28, R-30	R-9, R-23	R-5, R-8, R-12, R-15, R-16, R-18, R-23, R-28	R-10, R-13, R-23
Landslide	R-3, R-14, R-20, R-21, R-24	R-7, R-11, R-26	R-16, R-17, R-27, R-28, R-30	R-9,	R-8, R-12, R-15, R-16, R-18, R-28	R-11,
Severe Weather	R-5, R-14, R-20, R-21, R-23, R-24	R-6, R-23, R-26	R-16, R-17, R-19, R-23, R-27, R-28, R-30	R-9, R-23	R-5, R-8, R-12, R-15, R-16 , R-18, R-23, R-28	R-13, R-23
Wildfire	R-20, R-21, R-24, R-29	R-26	R-16, R-17, R-27, R-28, R-29, R-30	R-9,	R-8, R-12, R-15, R-16, R-18, R-28	

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 6-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
ECON-a-1		✓		Addressed by Initiative #R-26
ECON-b-1		✓		Addressed by Initiative #R-1
ECON-b-2	✓			Article V, Chapter 6.04.020 RMC adopts by reference the IBC. (2006)
ECON-b-4		✓		Addressed by Initiative #R-2
ECON-f-1		✓		Addressed by Initiative #R-23
ECON-f-6		✓		Addressed by Initiative #R-22
ECON-f-7		✓		Addressed by Initiative #R-26
ECON-f-8		✓		Addressed by Initiative #R-26
ECON-j-5		✓		Addressed by Initiative #R-28
LAND-c-4		✓		Addressed by Initiatives #R-22 and #R-23
INFRA-d-12		✓		Addressed by Initiative #R-10
HSNG-g-1		✓		Addressed by Initiative #R-29
HSNG-k-3		✓		Addressed by Initiative #R-30



City of Richmond

USGS Landslide Hazard Areas

0 0.5 1 2

Miles

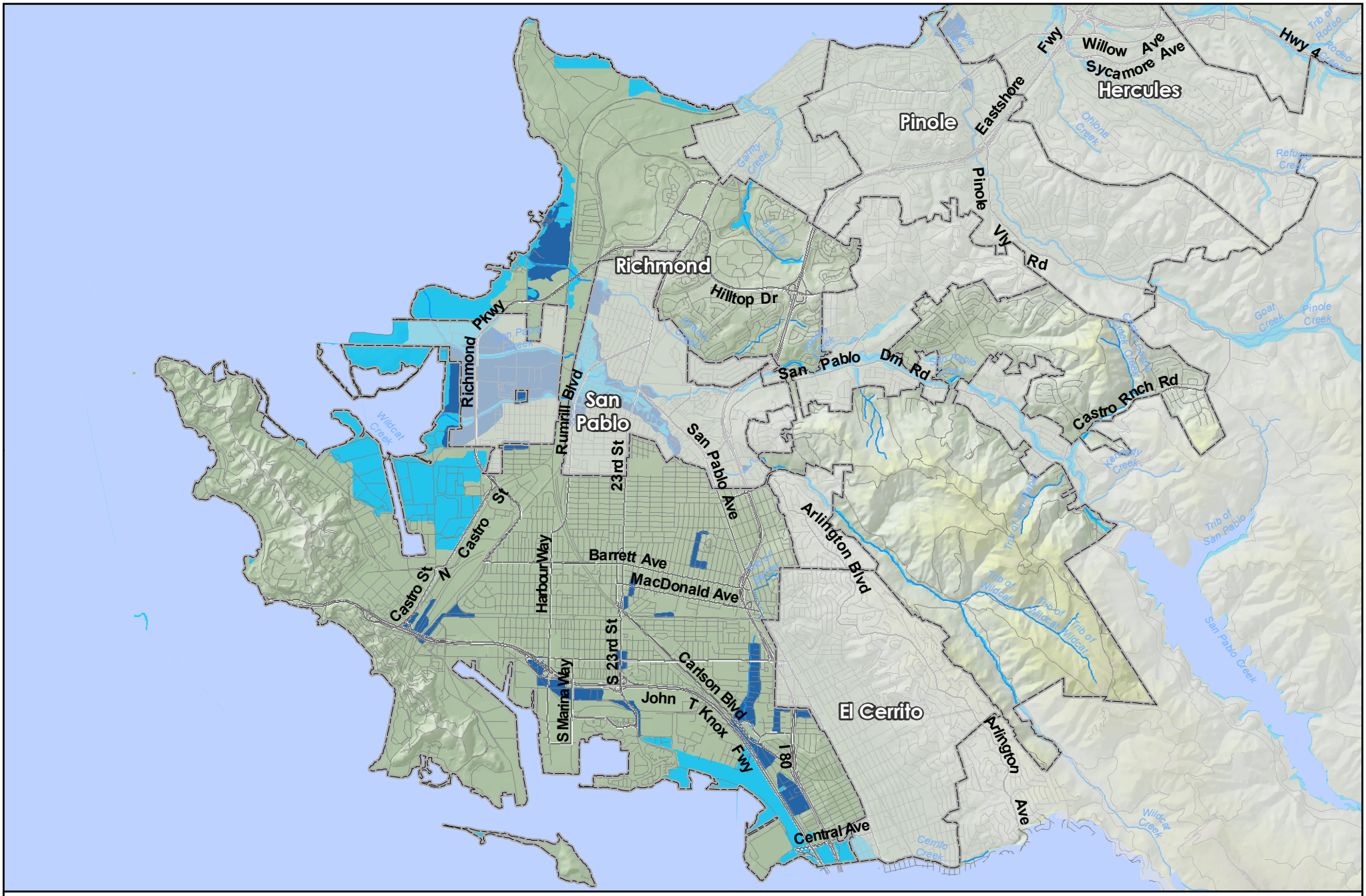
Legend

- Mostly Landslides
- Few Landslides
- City Limits
- Waterbodies
- Roads
- Streams

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Richmond

100 & 500 Year
Flood Hazard Boundaries

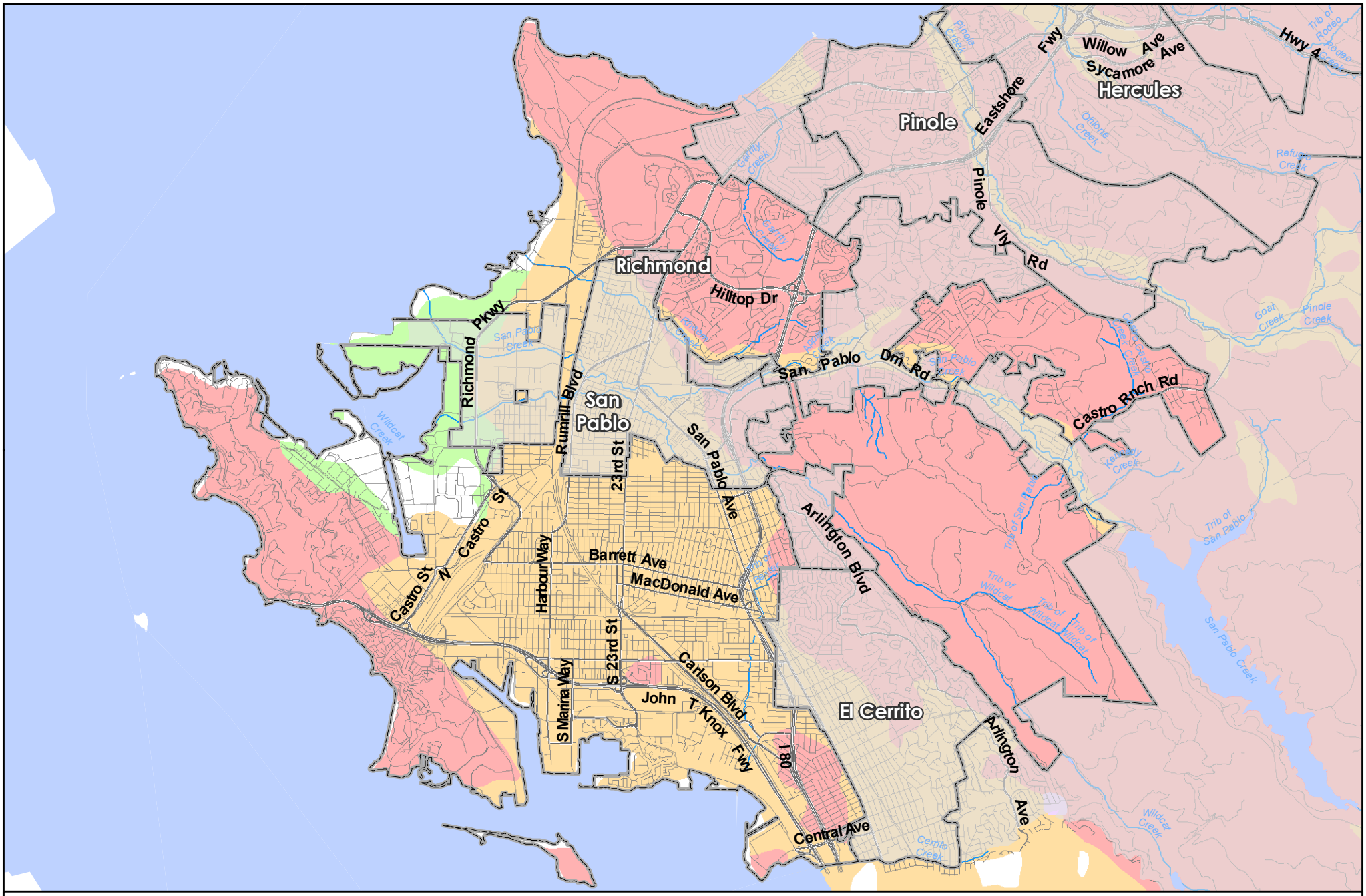
0 0.5 1 2
Miles

Legend

Flood Hazard Boundary
- City Limits
- Waterbodies
- Roads
- Streams

Flood Zone
- 100
- 500

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_
California_III_FIPS_0403_Feet



City of Richmond

NEHRP (National Earthquake Hazards Reduction Program) Soils

0 0.5 1 2
Miles

Legend

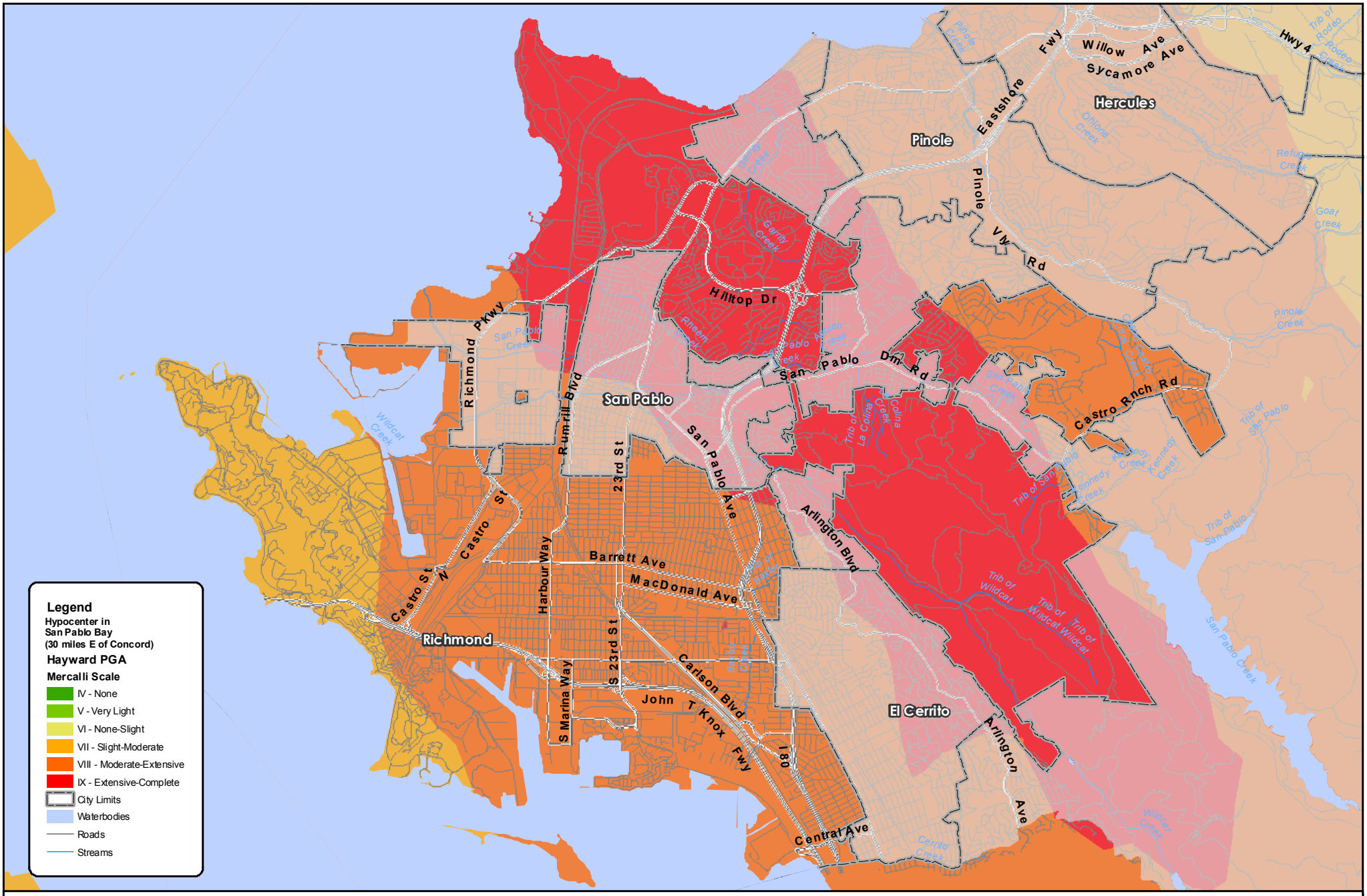
Soils

Type

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

- City Limits
- Waterbodies
- Roads
- Streams

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Richmond

Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

0 0.5 1 2
Miles

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of Richmond

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 0.5 1 2
Miles

Legend

Epicenter in Northern Santa Clara County (45 miles S of Concord)

Calaveras PGA

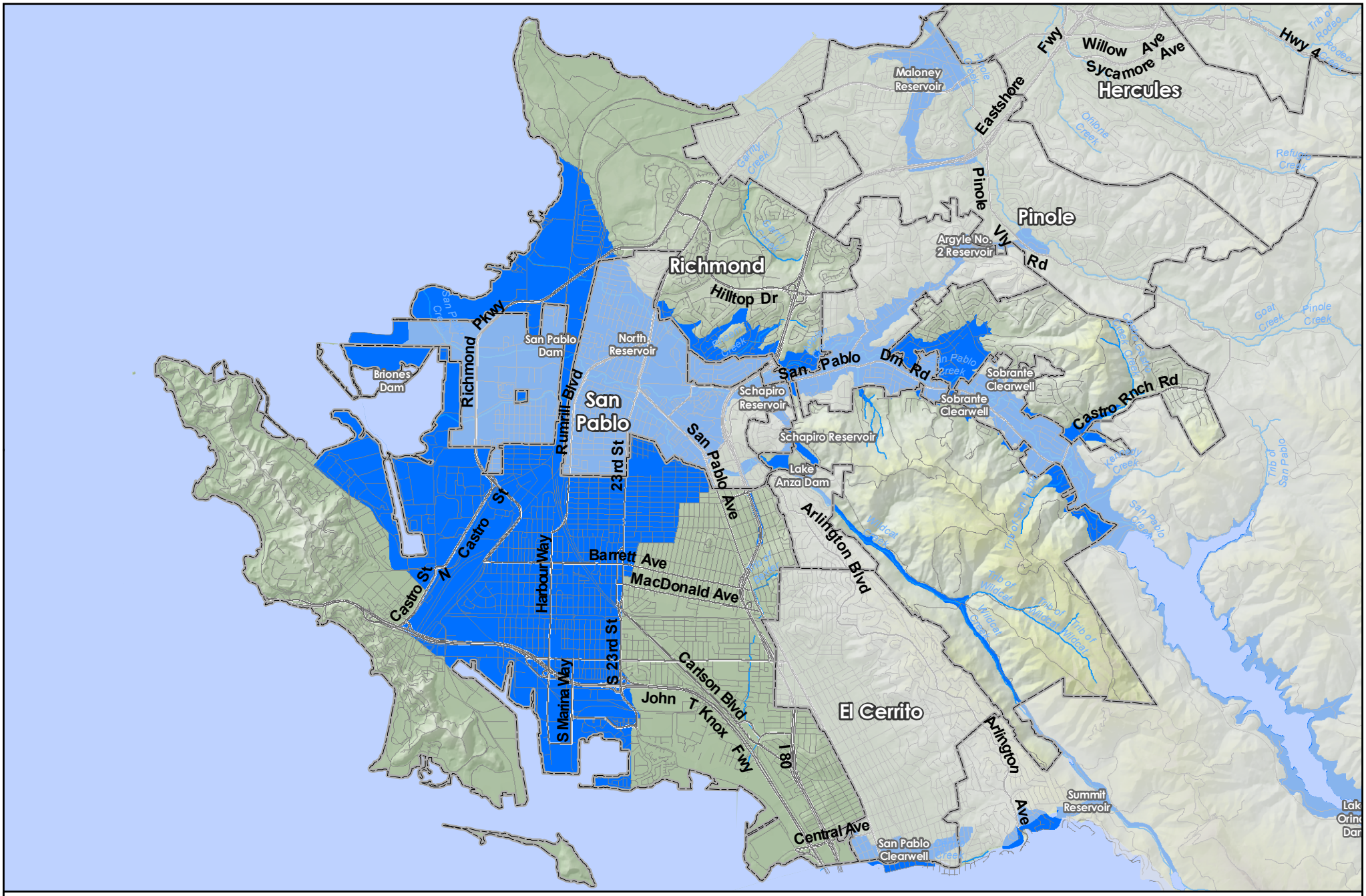
Mercalli Scale

- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive

- City Limits
- Waterbodies
- Roads
- Streams

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Richmond

Dam Inundation Zone

0 0.5 1 2

Miles

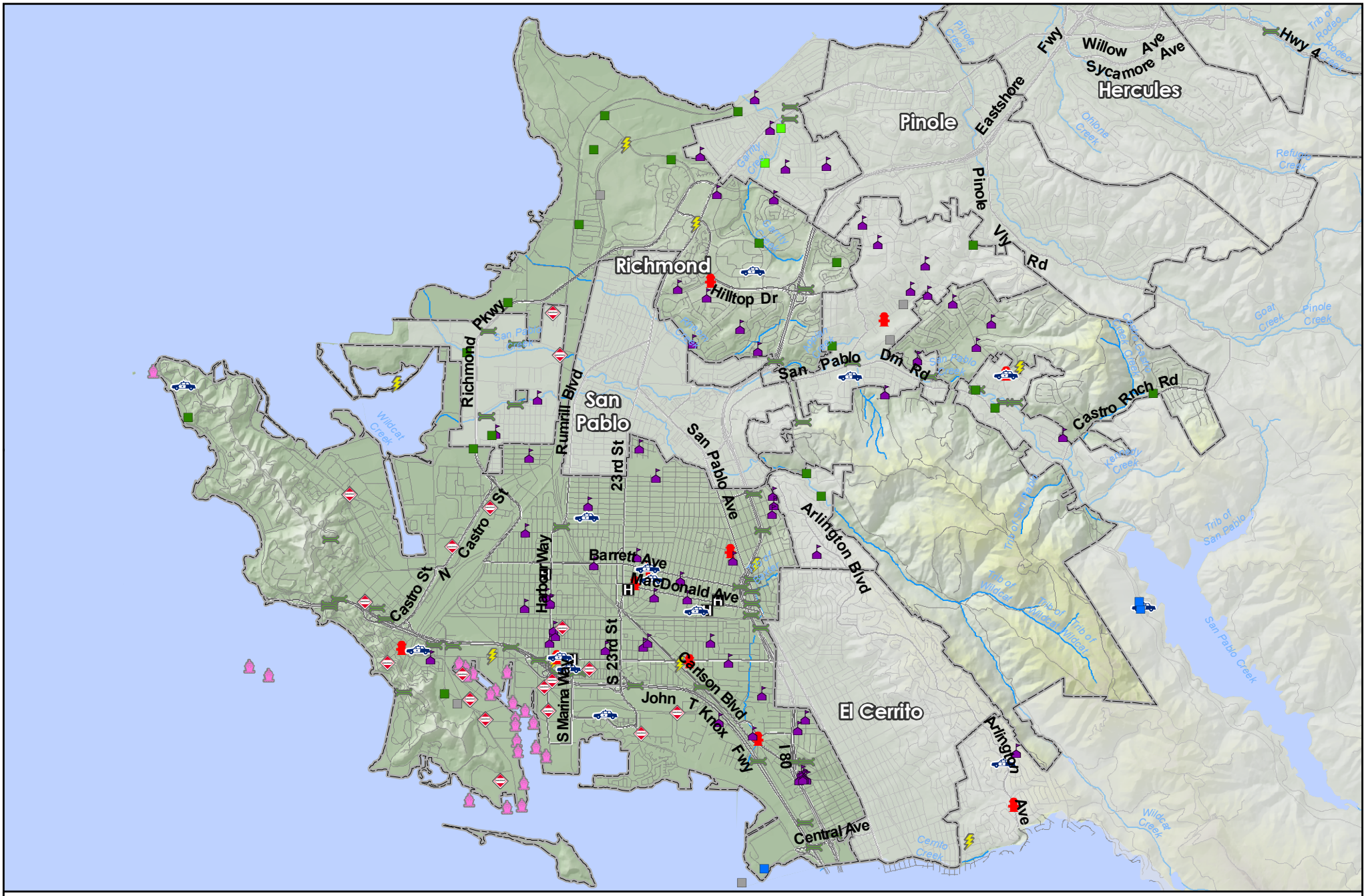
Legend

- Dam Inundation Zone
- City Limits
- Waterbodies
- Roads
- Streams

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Richmond

Critical Facilities

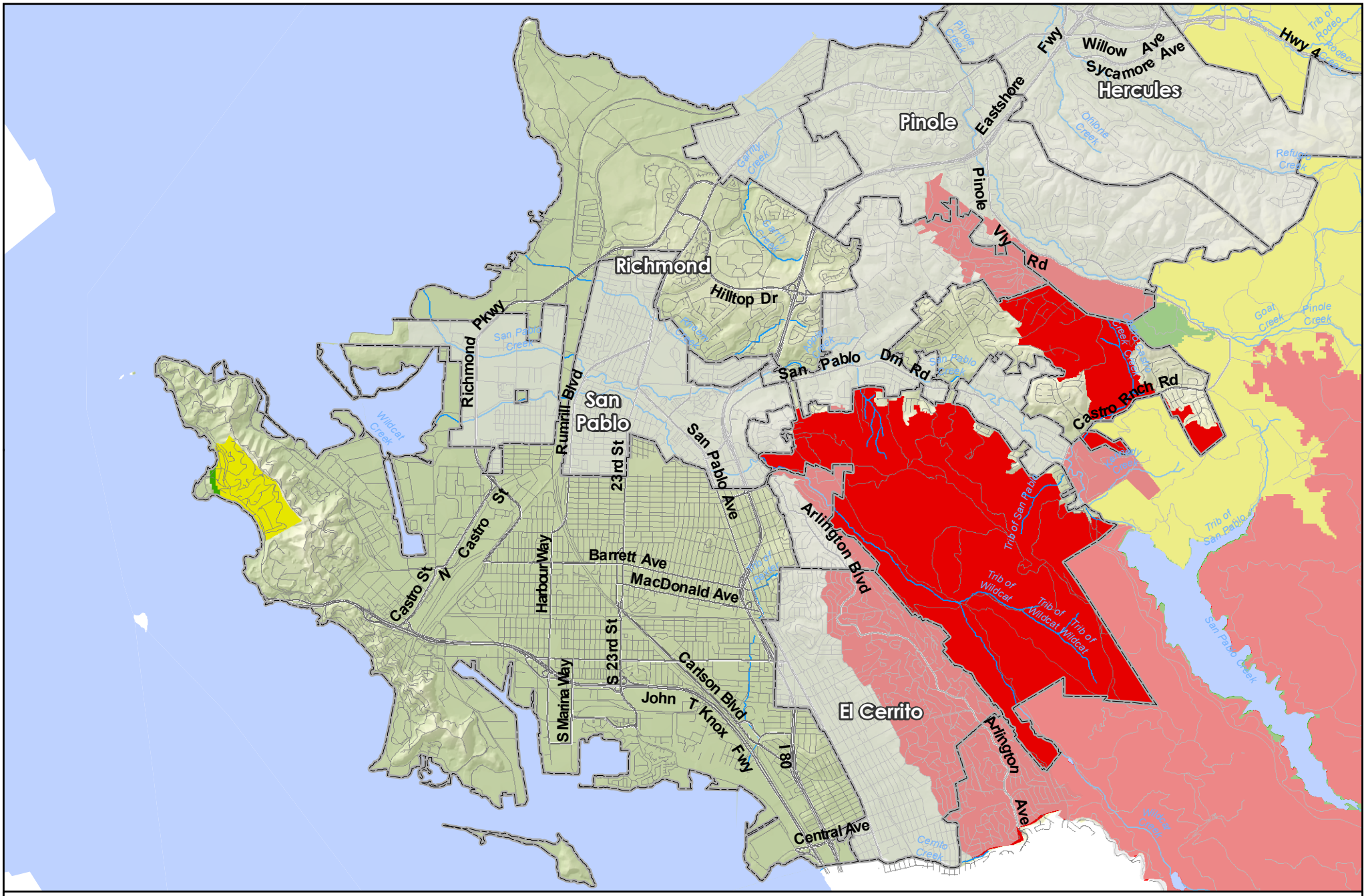
0 0.5 1 2

Miles

Legend

- Airport
- Bus
- Care Facility / Hospital
- Electric Power
- Emergency Center
- Fire Station
- Hazardous Material
- Highway Bridge
- Police Station
- Port
- School
- Communication
- Drinking Water
- Storm Water
- Waste Water
- City Limits
- Waterbodies
- Roads
- Streams

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_
California_III_FIPS_0403_Feet



City of Richmond

FRAP Wildfire Hazard Boundaries

0 0.5 1 2

Miles

Legend

FRAP (Fire and Resource Assessment Program)
SRA data adopted in 2007
& LRA data recommended in 2008

Wildfire Hazard Boundaries

Class

- Moderate
- High
- Very High
- City Limits
- Waterbodies
- Roads
- Streams

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

CHAPTER 7.
CITY OF SAN RAMON ANNEX

7.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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7.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1983
- **Current Population—**63,176
- **Population Growth—**According to projections by the Association of Bay Area Governments (ABAG), San Ramon is expected to add more residents than any other city in Contra Costa County—approximately 35,000, for an increase of 76 percent.
- **Location and Description—**San Ramon is in southern Contra Costa County, surrounded by the municipalities of Danville and Dublin and the unincorporated areas of Alameda and Contra Costa counties. Primarily undeveloped hillsides rising to over 1,000 feet in elevation lie to the west of the City. To the east lie the Dougherty Hills. The primary transportation corridor is I-680 along the San Ramon Valley floor, linking San Ramon to Central Contra Costa County to the north and Silicon Valley and San Jose to the south.
- **Brief History—**San Ramon is a young city, incorporated in 1983, one of California's outstanding urban villages. It has a variety of homes, parks and stores and a major employment center, Bishop Ranch Business Park. It was once home to the Seunen Indians, Ohlone/Costanoans who lived adjacent to the valley creeks. After 1797 it was Mission San Jose grazing land; later it included Jose Maria Amador's 16,000-acre Rancho San Ramon. San Ramon Creek was named after an Indian vaquero, Ramon, who tended mission sheep here. In an 1855 land title case, Don Amador explained that "San" was added to the creek's name to conform with Spanish custom. American settlers first came to San Ramon in 1850 when Leo and Mary Jane Norris purchased 4,450 acres of land from Amador.

  During the 1860s, the village became a hub of community activity. In 1864 a stage line established by Brown and Co. ran from San Ramon through the valley to Oakland. A church was dedicated in 1860, the general store was built in 1863 and students left their home-based classrooms to attend the San Ramon Grammar School beginning in 1867.

  With the arrival of the San Ramon Branch Line of the Southern Pacific in 1891, other changes took place. The name "San Ramon" permanently replaced references to "Limerick." Crops and passengers could travel in and out of the area, no matter what the weather. Until 1909, San Ramon was the terminus for the line and boasted a two-story depot, the engine house and a turnaround for the locomotive.

In 1895 attorney Thomas Bishop acquired 3,000 acres of Norris land (after a divorce case in which Bishop's law firm represented Margaret Norris). The Bishop Ranch raised cattle and sheep and was planted to hay, grain, diversified fruit crops and walnuts.

As with the entire Tri-Valley, agriculture was the basis for San Ramon's economy until suburban development began. In 1966, the new Interstate-680 freeway was completed through San Ramon to Dublin. In 1970, Western Electric purchased 1,733 acres of the Bishop Ranch and proposed a "new town" complete with a variety of housing, green belts, stores and light industry, placed in the center of San Ramon. Eventually part of the land became new homes and, in 1978, 585 acres became today's Bishop Ranch Business Park, a premier modern office development.

In 1983 San Ramon voters overwhelmingly voted to incorporate as a city and took control over development, police, parks and other services. A new library, community center, parks and hospital testify to the new city's energy.

- **Climate—**San Ramon's climate is warm during summer when temperatures tend to be in the mid-80s and cold during winter when temperatures tend to be in the 50s. Temperature variations between night and day tend to be moderate during summer and limited during winter. The annual average precipitation at San Ramon is 14 inches. Winter tends to be wetter than summer. The wettest month of the year is January, with an average rainfall of 2.7 Inches.

- **Emergency Operation Plan—**In 2006, the San Ramon City Council adopted its Emergency Operations Plan. In 2009, an update to the plan was initiated. The Emergency Operations Plan identifies the actions to take when an event occurs due to a major earthquake, hazardous materials incident, flood, national security emergency, wildfire, landslide, or dam failure.

  The City's plan is in compliance with state and federal laws. The objectives of the plan are to reduce injury and loss of life, property and natural resource through effective management of emergency resources. The Emergency Operations Plan identifies the City's emergency planning, organizational, and response policies and procedures, integrating and coordinating these with other governmental levels when required. The Emergency Operations Plan institutes the Incident Command System, the Standardized Emergency Management System, and the National Incident Management System, which provide a common system that is recognized throughout California as a basis for managing large emergency incidents that could involve multiple agencies.

  The City's response to disasters is based on four phases: increased readiness; initial response operations; extended response operations; and recovery operations. All supporting departmental plans support the Emergency Operations Plan and inform staff of the procedures for recalling departmental personnel, disaster assignments, and departmental resource lists. Response to emergency situations follows the Incident Command System, ensuring unified command by all emergency response teams. Depending on the incident, the most appropriate agency will be the lead agency and will be supported by the other emergency response teams.

- **Development Trends—**San Ramon's population is expected to increase by 76 percent and an additional 22,400 jobs are expected over the 20-year time horizon used by ABAG. Much of this population and employment growth will be accommodated by development that has already been programmed or approved for the San Ramon Planning Area. This includes build out of Dougherty Valley under the terms of a settlement agreement, which includes up to 11,000 housing units and 1.37 million square feet of non-residential space, and other projects. As a consequence, the City has little discretion in determining the magnitude and location of much of the development beyond the city limits through 2020.

7.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-1 lists all past occurrences of natural hazards within the jurisdiction. The City has no properties identified by FEMA as repetitive flood loss properties.

7.4 HAZARD RISK RANKING

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

7.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 7-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 7-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 7-5. Classifications under various community mitigation programs are presented in Table 7-6.

7.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

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

7.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 7-10 summarizes the current status of strategies that were adopted by the City for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 7-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

7.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of San Ramon and 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 7-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Landslide - Canyon Lakes	NA	2008	$100,000
Wind	NA	2008	Estimated < $50,000
Frost Damage	NA	2007	Estimated < $50,000
Landslide - Thomas Ranch	NA	2006	$650,000
Landslide - Westside	NA	2005	$200,000
Landslide - Barbados	NA	2004	$100,000
Flood - Sunnyglen	NA	2003	$320,000
Frost Damage/Wind	NA	2002	Estimated < $50,000
Landslide - Old Ranch Road	NA	2001	$40,000
Wind	NA	2001	Estimated < $50,000
Landslide - Alta Mesa	NA	2000	$850,000
Heat/Wind	NA	2000	Estimated < $50,000
Landslide - Fountainhead	NA	1999	$60,000
Wind	NA	1999	Estimated < $50,000
Landslide - Creek Court	NA	1998	$1,660,000
Wind	NA	1998	Estimated < $50,000
Severe Storm/Wind	NA	1995	Estimated < $50,000
Frost Damage	NA	1994	Estimated < $50,000
Wind	NA	1993	Estimated < $50,000
Heat/Wind/Frost Damage	NA	1992	Estimated < $50,000
Frost Damage	NA	1990	Estimated < $50,000
Frost Damage	NA	1989	Estimated < $50,000
Wind	NA	1988	Estimated < $50,000
Wind	NA	1987	Estimated < $50,000
Severe Storm/Wind	NA	1983	Estimated < $50,000
Wind	NA	1982	Estimated < $50,000
Frost Damage	NA	1981	Estimated < $50,000
Severe Storm	NA	1980	Estimated < $50,000

TABLE 7-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Landslide	26
3	Flood	22
4	Wildfire	22
5	Drought	12
6	Severe Weather	12
7	Dam Failure	0

TABLE 7-3.
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Y	Y	Y	Y	California Building Code (2007)
Zoning Code	Y	Y	Y	Y	SRMC Title D (2009)
Subdivisions	Y	Y	Y	N	SRMC Title C Div. C5 (10/28/2008)
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	N	N	N	N	
Growth Management	Y	Y	Y	Y	San Ramon General Plan 2020
Site Plan Review	Y	Y	Y	Y	SRMC Title D
Special Purpose (flood management, critical areas)	Y	Y	Y	Y	SRMC, FEMA Regulations, Clean Water Act
Planning Documents					
General or Comprehensive Plan	Y	Y	Y	Y	San Ramon General Plan 2020
Floodplain or Basin Plan	Y	Y	Y	Y	SRMC Title C Div C4 (1990)
Stormwater Plan	Y	Y	Y	Y	SRMC Title B Div. B6 (1996)
Capital Improvement Plan	Y	N	N	N	SR 5-year CIP (2009-2014)
Habitat Conservation Plan	N	N	N	N	
Economic Development Plan	Y	Y	Y	Y	San Ramon General Plan 2020
Emergency Response Plan	Y	Y	N	Y	SR OES (01/07/2007)
Shoreline Management Plan	N	N	N	N	
Post Disaster Recovery Plan	Y	Y	N	Y	SR OES (01/07/2007)

TABLE 7-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Engineering Department and Community Development staff
Engineers or professionals trained in building or infrastructure construction practices	Y	Engineering Department and Community Development staff
Planners or engineers with an understanding of natural hazards	Y	Engineering Department and Community Development staff
Staff with training in benefit/cost analysis	Y	Administrative Services Department
Floodplain manager	Y	Engineering Department Senior Engineer
Surveyors	Y	Available through contract when necessary
Personnel skilled or trained in GIS applications	Y	Engineering Department Senior Analyst
Scientist familiar with natural hazards in local area	Y	Available through contract when necessary
Emergency manager	Y	San Ramon Police Department, Emergency Preparedness Manager
Grant writers	Y	Available through contract when necessary

TABLE 7-5.
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	No
Development Impact Fees for Homebuyers or Developers	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

TABLE 7-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	10/1/2006
Building Code Effectiveness Grading Schedule	Yes	2	7/7/2009
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 7-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-1—Develop and distribute public outreach materials.							
Existing/New	Drought, Earthquake, Flood, Wildfire, Landslide, Severe Weather	3, 5, 9, 11, 16	City/Fire District	Low	General Fund, NPDES Tax, PDM, HMGP	Long-term	No
Initiative SR-2—Maintain firebreaks and manage vegetation along hillsides and open space located near development.							
Existing/New	Wildfire	1, 2, 4, 6, 7, 14	City/Fire District/GHAD	Low	General Fund, GHAD, PDM, HMGP	Long-term	No
Initiative SR-3—Install native plants and vegetation whenever feasible in order to reduce the amount of water required and damage during drought.							
Existing/New	Drought	1, 11, 12, 13,	City	Low	General Fund	Long-term	No
Initiative SR-4—Inspect and clean stormwater inlets, drains, culverts, and other conveyance devices annually.							
Existing	Flood	1, 2, 7, 10, 15	Public Works	Medium	General Fund, NPDES Tax, Capital Facilities Funds	Short-term	No
Initiative SR-5—Institute low impact development techniques.							
Existing/New	Flood	1, 2, 7, 10, 15	City	Medium	General Fund, NPDES Tax	Short-term, ongoing	No

TABLE 7-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-6—Conduct a Citywide Drainage Infrastructure Study to create a digital inventory of key drainage infrastructure.							
Existing/New	Flood	9, 10	City	Medium	Creek Mitigation Fund/Drainage Mitigation Fund	Long-term, depends on funding	No
Initiative SR-7—Conduct current and future storm damage repairs along all City maintained creeks.							
Existing/New	Flood	1, 2, 7, 10, 15	City	High	Redevelopment Agency, Creek Mitigation Fund/Drainage Mitigation Fund, General Fund	Long-term, ongoing	No
Initiative SR-8—Continue to repair and make structural improvements to storm drains, pipelines, and/or channels.							
Existing	Flood	1, 7, 9, 10, 11	City	Medium	General Fund, NPDES Tax, PDM, HMGP	Short-term	No
Initiative SR-9—Enforce provisions under creek protection, stormwater management, and discharge control ordinances.							
Existing/New	Flood	1, 4, 5, 6, 7, 10, 11, 12	City	Low	NPDES Tax	Short-term, ongoing	No
Initiative SR-10—Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage.							
New	Flood	1, 4, 7	City	Low	General Fund	Short-term, ongoing	No
Initiative SR-11—Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses. [Note - these programs go by a variety of names in various cities and areas.]							
New and Existing	All Hazards	2,3,13,16	Police, Fire, County OES	Low	Existing City programs	Ongoing	Yes, **ECON-j-5**
Initiative SR-12—Provide redundancy for critical functions.							
Existing	Earthquake	1, 2, 7, 13	City/Fire District	Medium	General Fund	Long-term	No
Initiative SR-13—Adopt and enforce the International Building Code, including future amendments, ratified by the State as the State Building Code.							
Existing	Earthquake	1, 6, 7	City	Low	General Fund	Short-term	No

TABLE 7-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-14—Include retrofitting/replacement of critical system elements in CIP.							
New	Earthquake	1, 2, 7, 8, 13, 15	City	High	General Fund	Short-term, ongoing	No
Initiative SR-15—Develop a strategy to take advantage of post disaster opportunities.							
New	Drought, Earthquake, Flood, Wildfire, Landslide, Severe Weather	2, 4, 6, 13, 16	City	Low	General Fund	Short-term	No
Initiative SR-16—Warehouse critical infrastructure components such as pipeline and road repair material.							
New	Earthquake, Flood, Landslide	2, 13	City	Medium	General Fund	Long-term	No
Initiative SR-17—Develop and adopt a Continuity of Operations Plan (COOP).							
New	Earthquake, Flood, Wildfire, Landslide, Severe Weather	2, 4, 6, 13, 16	City	Low	General Fund	Long-term	No
Initiative SR-18—Further enhance seismic risk assessment to target high hazard buildings for mitigation opportunities.							
New	Earthquake	1, 2, 4, 6, 7, 13, 15	City	High	General Fund	Long-term	No
Initiative SR-19—Develop a post disaster action plan that includes a grant funding and debris removal components.							
New	Earthquake, Flood, Wildfire, Landslide	2, 4, 13	City	Low	General Fund	Short-term	No
Initiative SR-20—Purchase portable facilities (hoses, pumps, emergency generators) to allow pipelines to bypass failure zones.							
New	Earthquake, Flood, Landslide	1, 2, 13	City	Medium	General Fund	Long-term	No
Initiative SR-21—Comply with all applicable building and fire codes, as well as other regulations when constructing or significantly remodeling infrastructure facilities.							
Existing	Earthquake, Wildfire, Flood	1, 2, 13	City	Low	General Fund	Short-term	No
Initiative SR-22—Ensure a reliable source of water for fire suppression.							
Existing	Wildfire, Earthquake	1, 2	Water District	Medium	District Assessments	Short-term	Yes, **INFR-c-1**

TABLE 7-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-23—Maintain access roads to ensure fire equipment have adequate access to sites.							
Existing/New	Wildfire	1, 2, 11	Fire District/City	Low	District Assessments/General Fund	Short-term	Yes, **INFR-c-8**
Initiative SR-24—Provide emergency power generation in critical buildings to maintain continuity of government and services.							
Existing	Earthquake, Flood, Severe Weather	1, 2, 13	City	Medium	General Fund	Long-term	No
Initiative SR-25—Install monitoring devices to determine landslide probability in high risk areas.							
Existing	Landslide	1, 5, 6	GHAD/City	Medium	GHAD Assessments/General Fund	Long-term	No
Initiative SR-26—Install and maintain drainage devices in landslide prone areas in order to reduce the probability of a landslide.							
Existing/New	Landslide	1, 5, 6	GHAD/City	Medium	GHAD Assessments/General Fund	Long-term	No
Initiative SR-27—Develop a GIS based mapping system to track potential hazards and maintenance activities.							
Existing/New	Landslide	1, 2, 3, 6, 12, 14	GHAD/City	Low	GHAD Assessments/General Fund	Short-term	No
Initiative SR-28—Conduct a watershed analysis of runoff and drainage systems to predict areas of insufficient capacity in the storm drain and natural creek system.							
Existing	Flood	1, 5, 6, 9, 10, 12, 14	County Flood Control/City	Low	NPDES Tax/General Fund	Short-term	No
Initiative SR-29—Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified structural engineers to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings.							
New	Earthquake, Flood, Wildfire	2, 12, 13	City	Medium	General Fund	Long-term	Yes, **INFR-f-1**
Initiative SR-30—Conduct an inventory of existing or suspected soft-story residential structures.							
New	Earthquake	1, 6, 7, 11, 15	City	Medium	General Fund	Long-term	Yes, **HSNG-c-4**

TABLE 7-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-31—Use the soft-story inventory to require owners to inform all existing tenants that they live in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will live in this type of building prior to signing a lease.							
New	Earthquake	1, 6, 7, 11, 15	City	Medium	General Fund	Long-term	Yes, **HSNG-c-5**
Initiative SR-32—Use the soft-story inventory to require owners to inform all existing tenants that they should be prepared to live elsewhere following an earthquake if the building has not been retrofitted.							
New	Earthquake	1, 6, 7, 11, 15	City	Medium	General Fund	Long-term	Yes, **HSNG-c-6**
Initiative SR-33—Explore development of local ordinances or State regulations to require or encourage owners of soft-story structures to strengthen them.							
New	Earthquake	1, 6, 7, 11, 15	City	Medium	General Fund	Long-term	Yes, **HSNG-c-8**
Initiative SR-34—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-term, ongoing	No
Initiative SR-35—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing	No
Initiative SR-36—Continue to maintain compliance and good standing under the National Flood Insurance Program							
New and existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	General Fund	Ongoing	No
Initiative SR-37—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4 ,5, 14	OES & DCD	Low	General Fund	Early 2010, Short-Term	No

TABLE 7-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative SR-38—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	3, 7, 15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution, HMGP, PDM	Long-Term, depends on funding	No
Initiative SR-39—Continue to maintain the City's status under the Community Rating System (CRS) Program							
New and existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	General Fund	Ongoing	No

TABLE 7-8.
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	5	High	Low	Yes	No	Yes	Med
2	6	High	Low	Yes	No	Yes	Med
3	4	Med	Low	Yes	Yes	Yes	Low
4	5	High	Low	Yes	Yes	Yes	High
5	5	High	Low	Yes	Yes	Yes	High
6	2	Low	Low	Yes	Yes	Yes	Med
7	5	High	Med	Yes	Yes	Yes	High
8	5	High	Med	Yes	Yes	No	Med
9	8	Med	Med	Yes	Yes	Yes	Med
10	3	Med	Low	Yes	Yes	Yes	Med
11	1	Low	Low	Yes	No	Yes	Med
12	4	Med	Med	Yes	Yes	Yes	Med
13	3	Med	Low	Yes	No	Yes	Low
14	6	High	High	Yes	Yes	No	High
15	5	Med	Low	Yes	Yes	No	Med

TABLE 7-8 (continued).
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]
16	2	Med	Med	Yes	Yes	No	Med
17	5	Low	Low	Yes	No	Yes	Low
18	7	High	Med	Yes	Yes	Yes	Med
19	3	Med	Low	Yes	Yes	Yes	Low
20	3	High	Med	Yes	Yes	Yes	High
21	3	Low	Low	Yes	No	Yes	Low
22	2	High	High	Yes	Yes	No	Med
23	3	Med	Low	Yes	Yes	Yes	Med
24	3	High	Med	Yes	Yes	No	Med
25	3	Med	Low	Yes	Yes	Yes	Low
26	3	High	High	Yes	Yes	No	Med
27	6	Med	Low	Yes	Yes	Yes	High
28	7	Med	Low	Yes	Yes	Yes	Med
29	3	Low	Low	Yes	Yes	Yes	Low
30	5	Low	Low	Yes	Yes	Yes	Med
31	5	Low	Low	Yes	Yes	Yes	Low
32	5	Low	Low	Yes	Yes	Yes	Low
33	5	Low	Low	Yes	Yes	Yes	Low
34	16	Medium	Low	Yes	No	Yes	High
35	16	Medium	Low	Yes	Yes	Yes	High
36	7	Medium	Low	Yes	No	Yes	High
37	3	Low	Low	Yes	No	Yes	High
38	3	High	High	Yes	Yes	No	Medium
39	4	High	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 7-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Earthquake	1, 13, 14, 18, 21, 30, 31, 33, 35, 37	1, 13, 14, 18, 19, 21, 33, 34, 38	1, 30, 31, 32, 33, 34, 35	37	1, 12, 15, 16, 17, 20, 24, 29	14, 18, 33
Landslide	1, 25, 26, 35, 37	1, 19, 25, 26, 27, 38	1, 27, 34, 35	25, 26, 37	1, 15, 16, 17, 20	25, 26
Flood	1, 4, 5, 6, 7, 8, 9, 10, 21, 28, 35, 36, 37, 39	1, 4, 5, 19, 21, 36, 38, 39	1, 6, 9, 11, 28, 34, 35, 36, 39	4, 5, 7, 8, 10, 36, 37, 39	1, 15, 16, 17, 20, 24, 29, 36, 39	7, 28, 36, 39
Wild Fire	1, 2, 21, 23, 35, 37	1, 2, 19, 21, 22, 23, 38	1, 34, 35	22, 37	1, 2, 15, 17, 22, 23, 24, 29	
Drought	1, 3, 35, 37	1, 3, 38	1, 34, 35	3, 37	1, 15	
Severe Weather	1, 35, 37	1, 38	1, 34, 35	37	1, 15, 17	

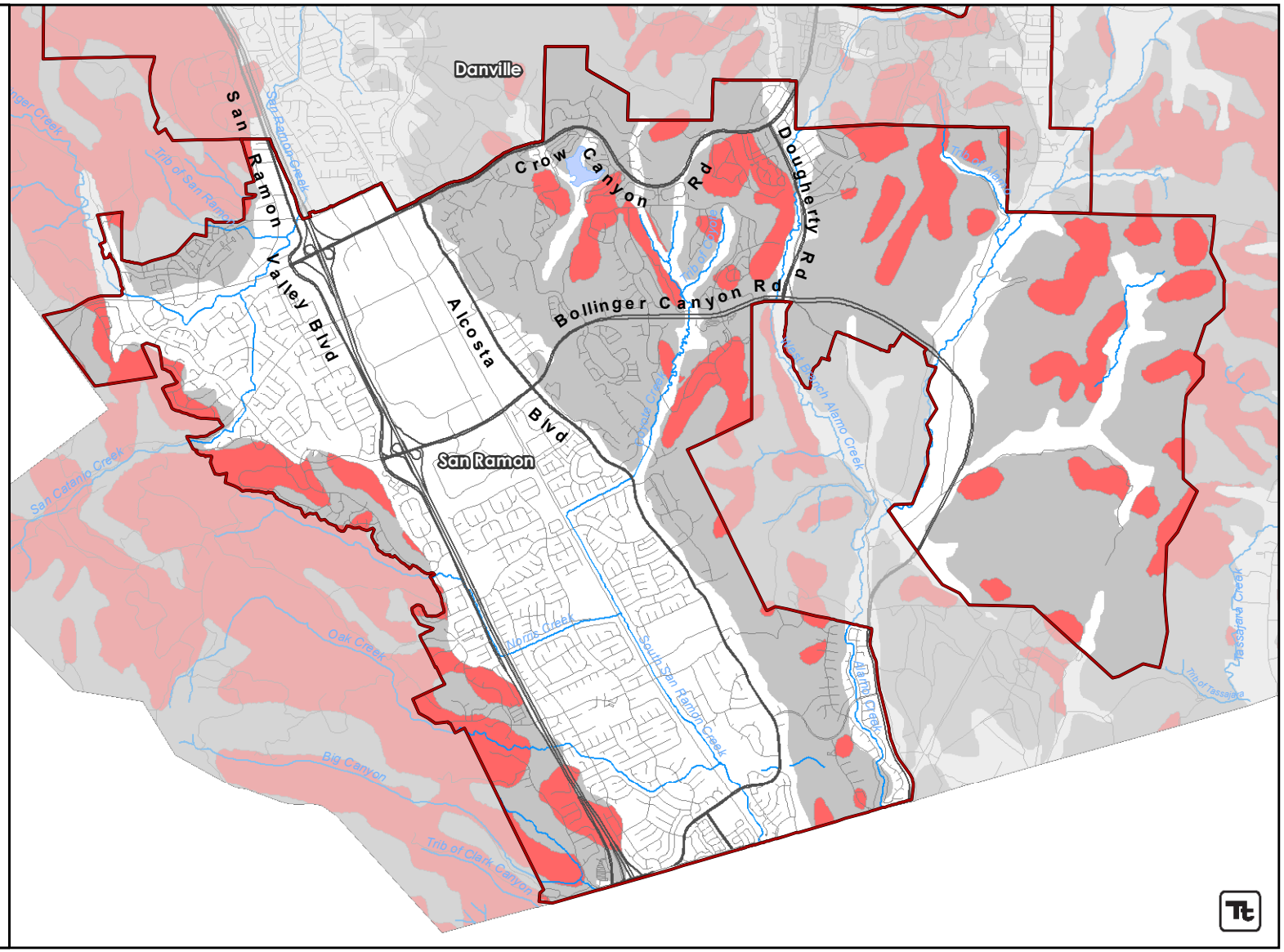
Notes:
1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 7-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
ECON-b-2	✓	✓		California Building Code (2007), carried over under initiatives #SR-13 and #SR-21
ECON-f-1		✓		Now Initiatives #SR-39
ECON-f-6		✓		Now Initiatives #SR-10 and SR-10
ECON-f-7		✓		Now Initiative #SR-38
ECON-f-8		✓		Now Initiative #SR-38
ECON-j-5		✓		Now Initiative #SR-11
LAND-c-4		✓		Now Initiatives #SR-10, #SR-36 and #SR-39
HSNG-c-4		✓		Now Initiative #SR-30
HSNG-c-5		✓		Now Initiative #SR-31
HSNG-c-6		✓		Now Initiative #SR-32
HSNG-c-8		✓		Now Initiative #SR-33
HSNG-k-3		✓		Now Initiative #SR-1
GOVT-a-2		✓		Now Initiative #SR-38
GOVT-a-7		✓		Now Initiative #SR-38
GOVT-c-5		✓		Now Initiative #SR-10 and SR-36
INFR-c-1		✓		Now Initiative #SR-22
INFR-c-8		✓		Now Initiative #SR-23
INFR-f-1		✓		Now Initiative #SR-29

City of San Ramon

USGS Landslide Hazard Areas



Legend

- Mostly Landslides
- Few Landslides
- City Limits
- Waterbodies
- Streams
- Roads

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

N

0 0.5 1 2

Miles

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of San Ramon

100 & 500 Year
Flood Hazard Boundaries

Legend

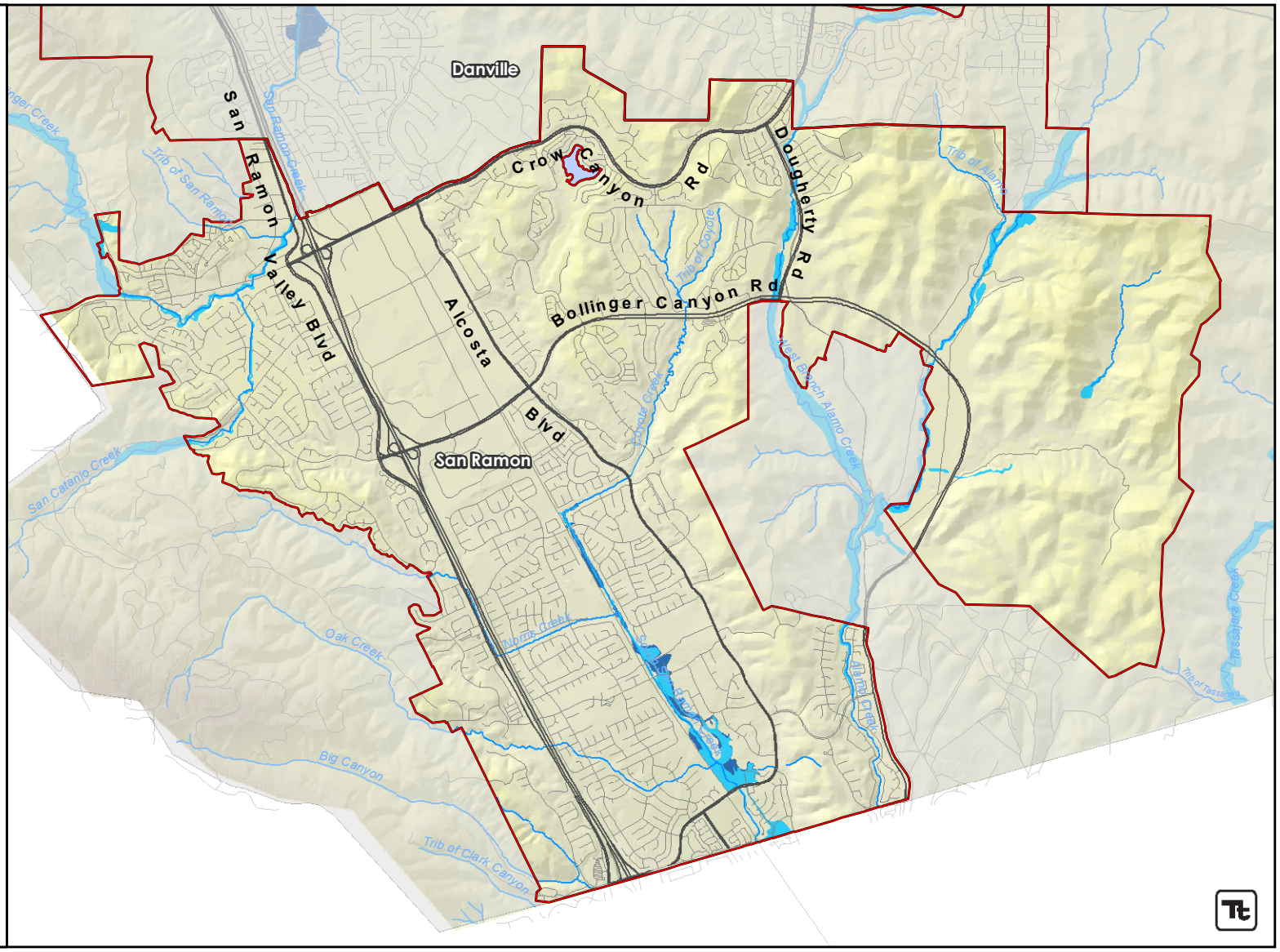
Flood Hazard Boundary

Flood Zone

- 100
- 500
- City Limits
- Waterbodies
- Streams
- Roads

0 0.5 1 2
Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of San Ramon

NEHRP (National Earthquake Hazards Reduction Program) Soils

Legend

Soils

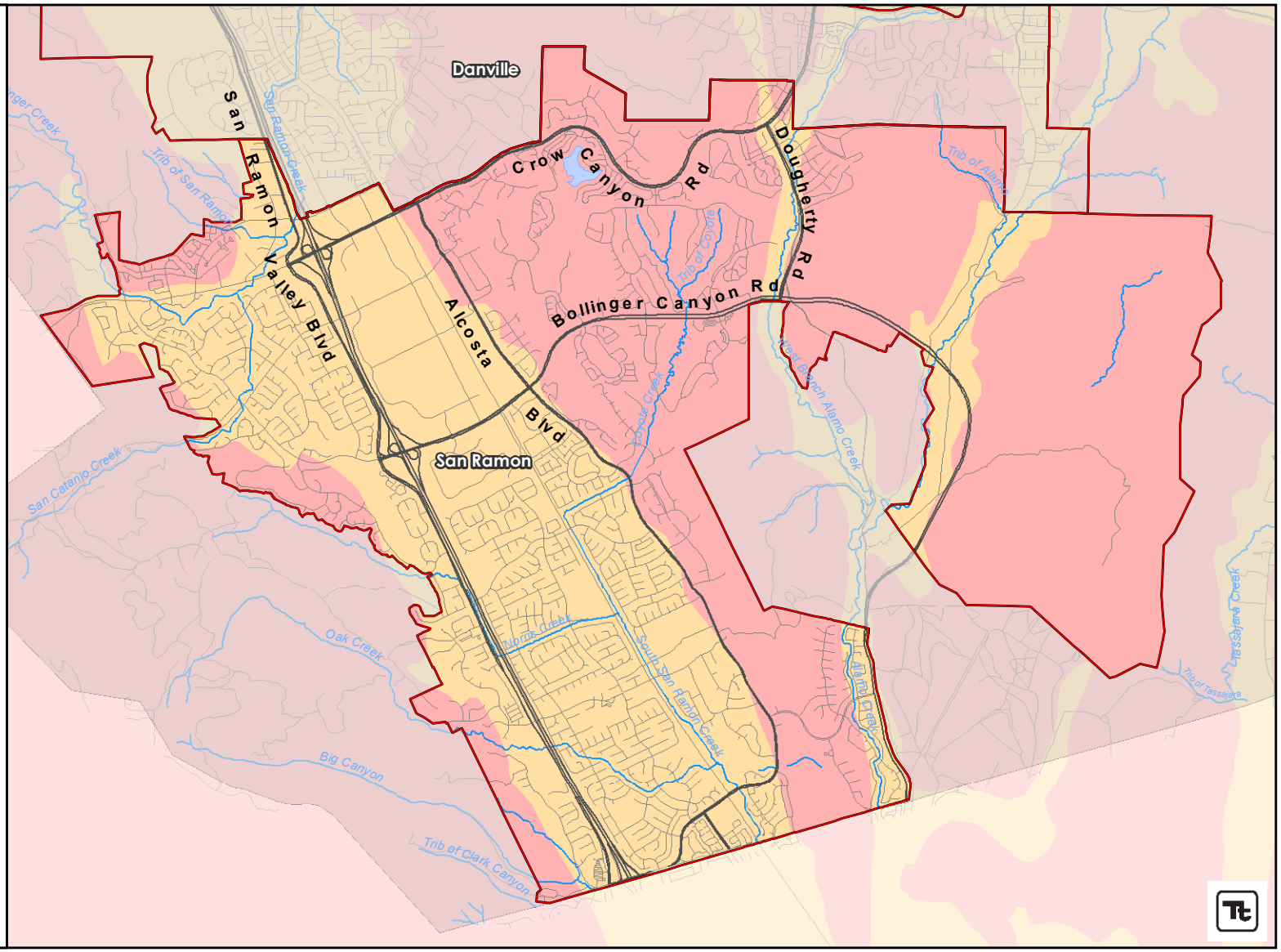
Type

- B - Rock
- C - Very Dense Soil and Soft Rock
- D - Stiff Soil
- E - Soft Soil
- City Limits
- Waterbodies
- Streams
- Roads

0 0.5 1 2

Miles

Source Contra Costa County GIS & NEHRP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of San Ramon

Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

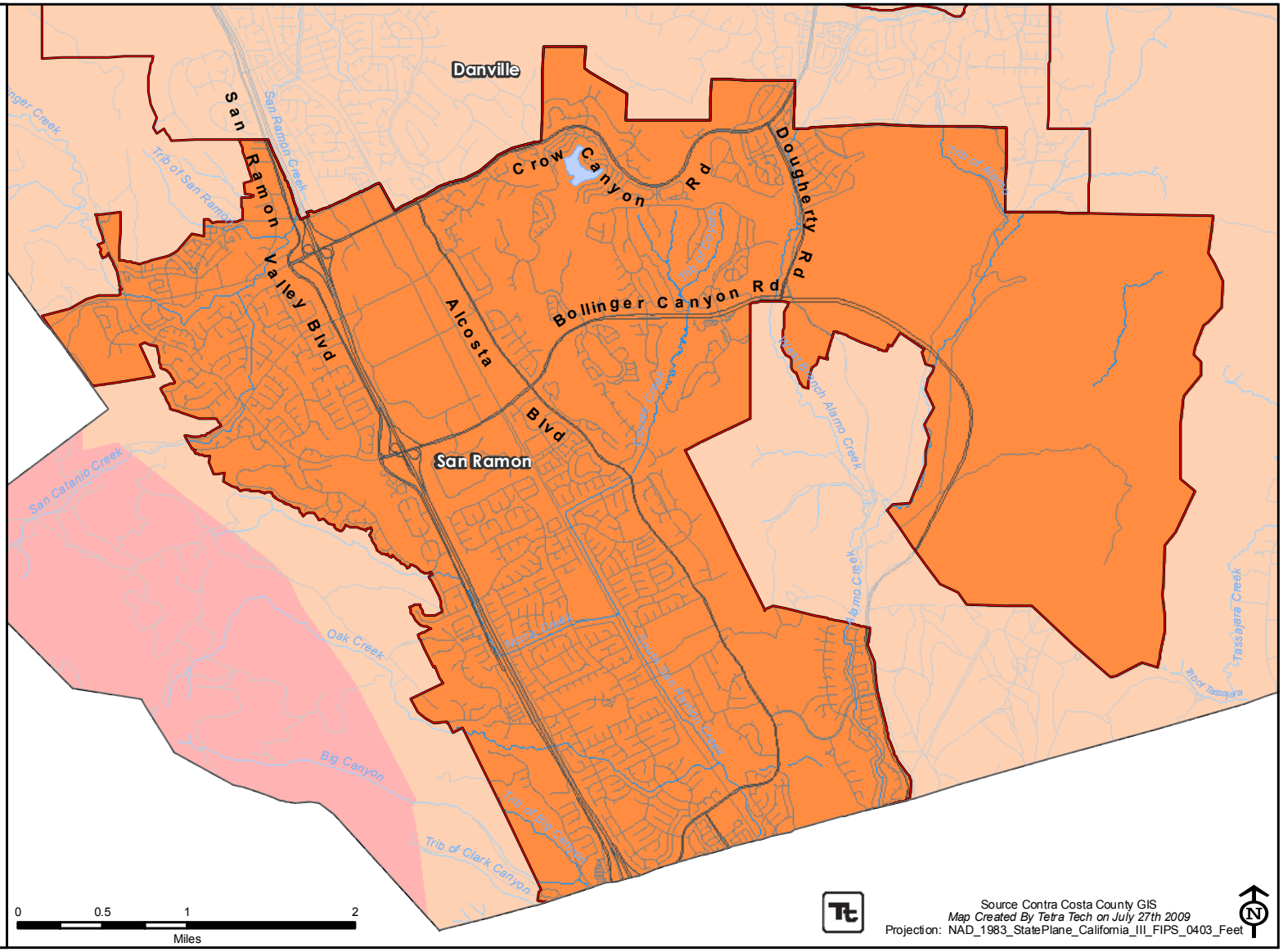
Legend

Hypocenter in San Pablo Bay (30 miles E of Concord)

Hayward PGA

Mercalli Scale

- IV - None
- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- IX - Extensive-Complete
- City Limits
- County Boundary
- Waterbodies
- Streams
- Roads



Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of San Ramon

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with
an epicenter of N37.45 W121.81

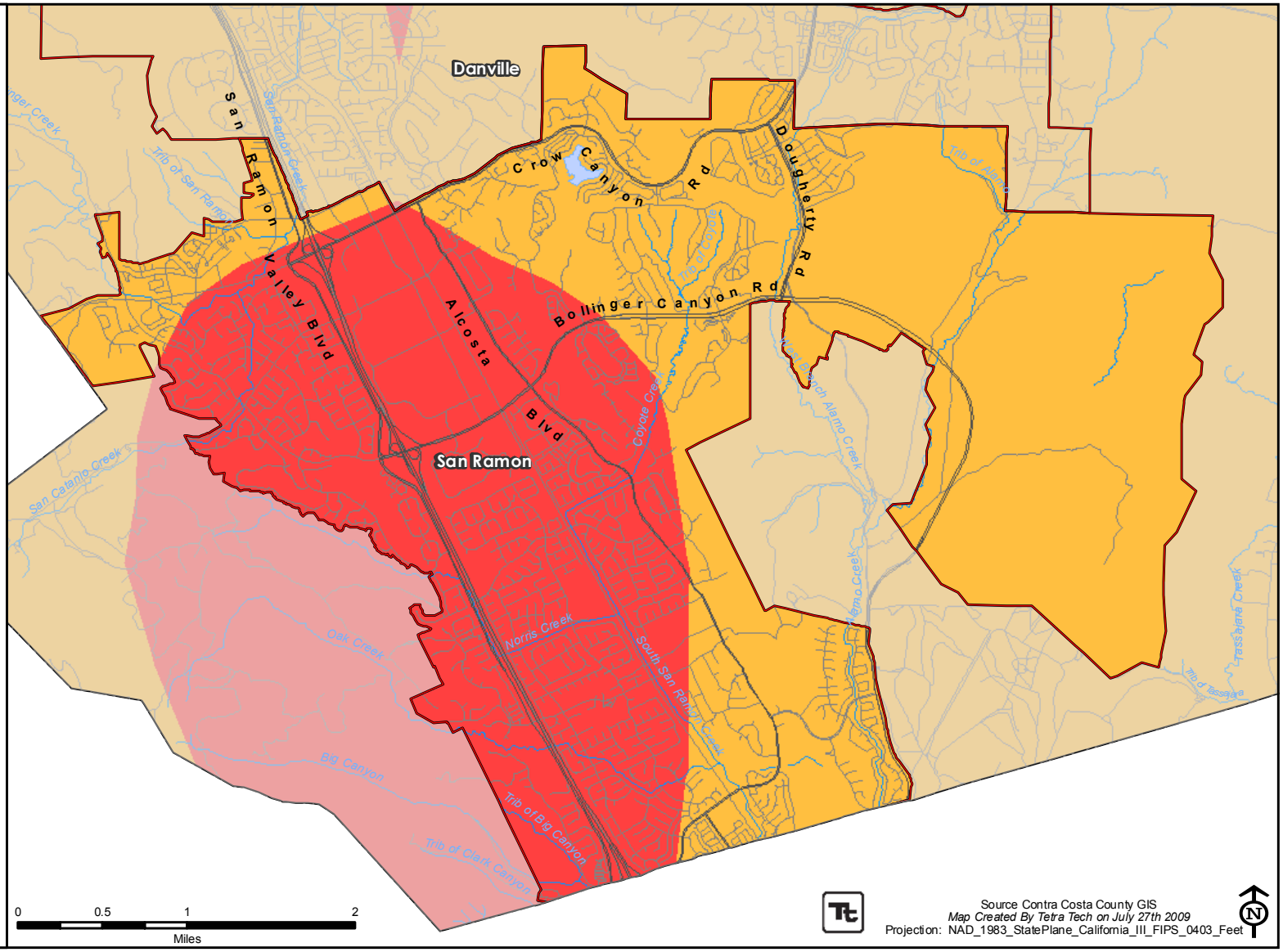
VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend
Epicenter in Northern
Santa Clara County
(45 miles S of Concord)

Calaveras PGA

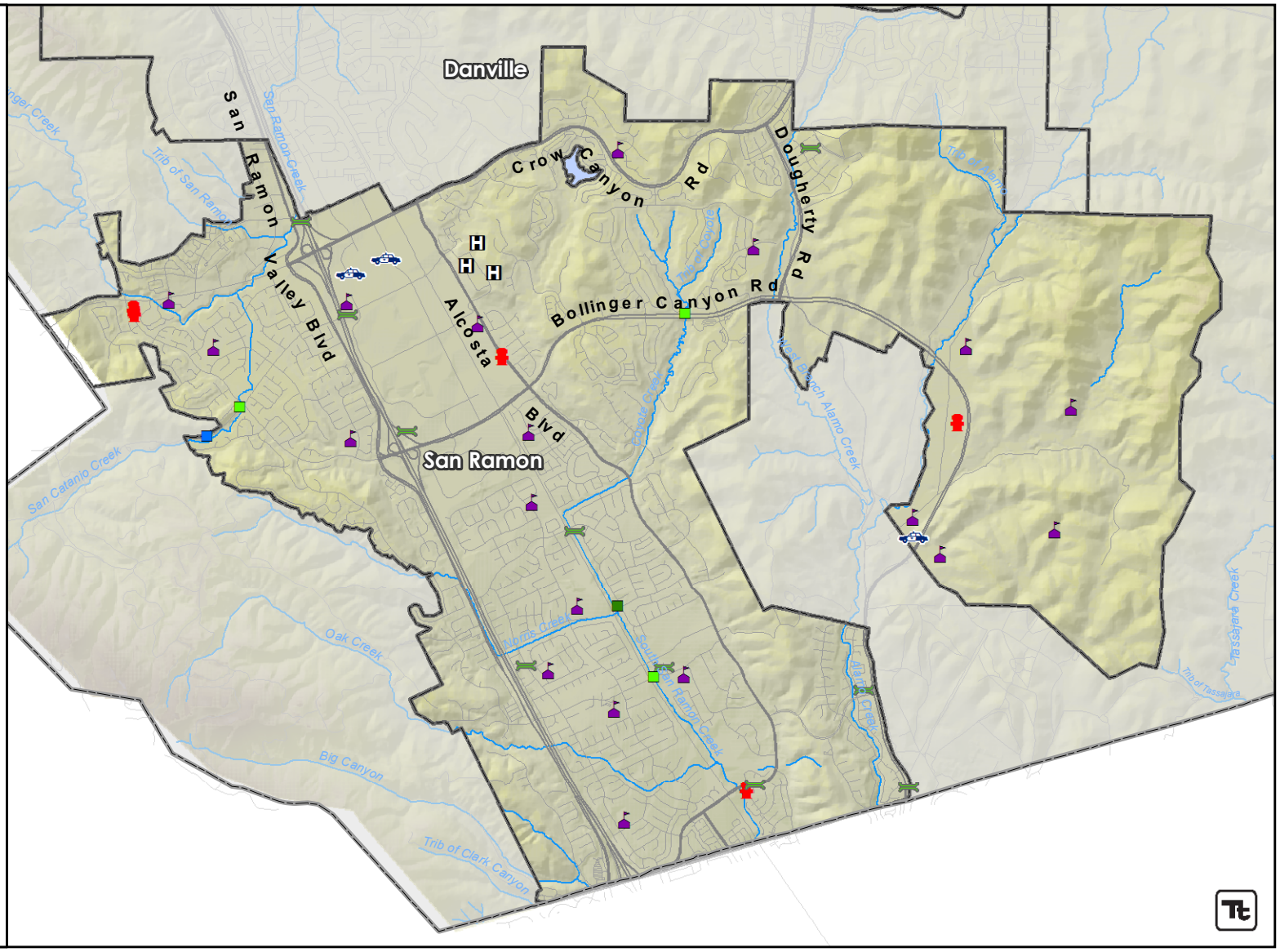
Mercalli Scale

- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- County Boundary
- City Limits
- Waterbodies
- Roads
- Streams



City of San Ramon

Critical Facilties



Legend

- Airport
- Bus
- Care Facility / Hospital
- Electric Power
- Emergency Center
- Fire Station
- Hazardous Material
- Highway Bridge
- Police Station
- Port
- School
- Communication
- Drinking Water
- Storm Water
- Waste Water
- City Limits
- Waterbodies
- Roads
- Streams

N

0 0.5 1 2

Miles

Source Contra Costa County GIS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of San Ramon

FRAP Wildfire Hazard Boundaries

Legend

FRAP (Fire and Resource Assessment Program)
SRA data adopted in 2007
& LRA data recommended in 2008

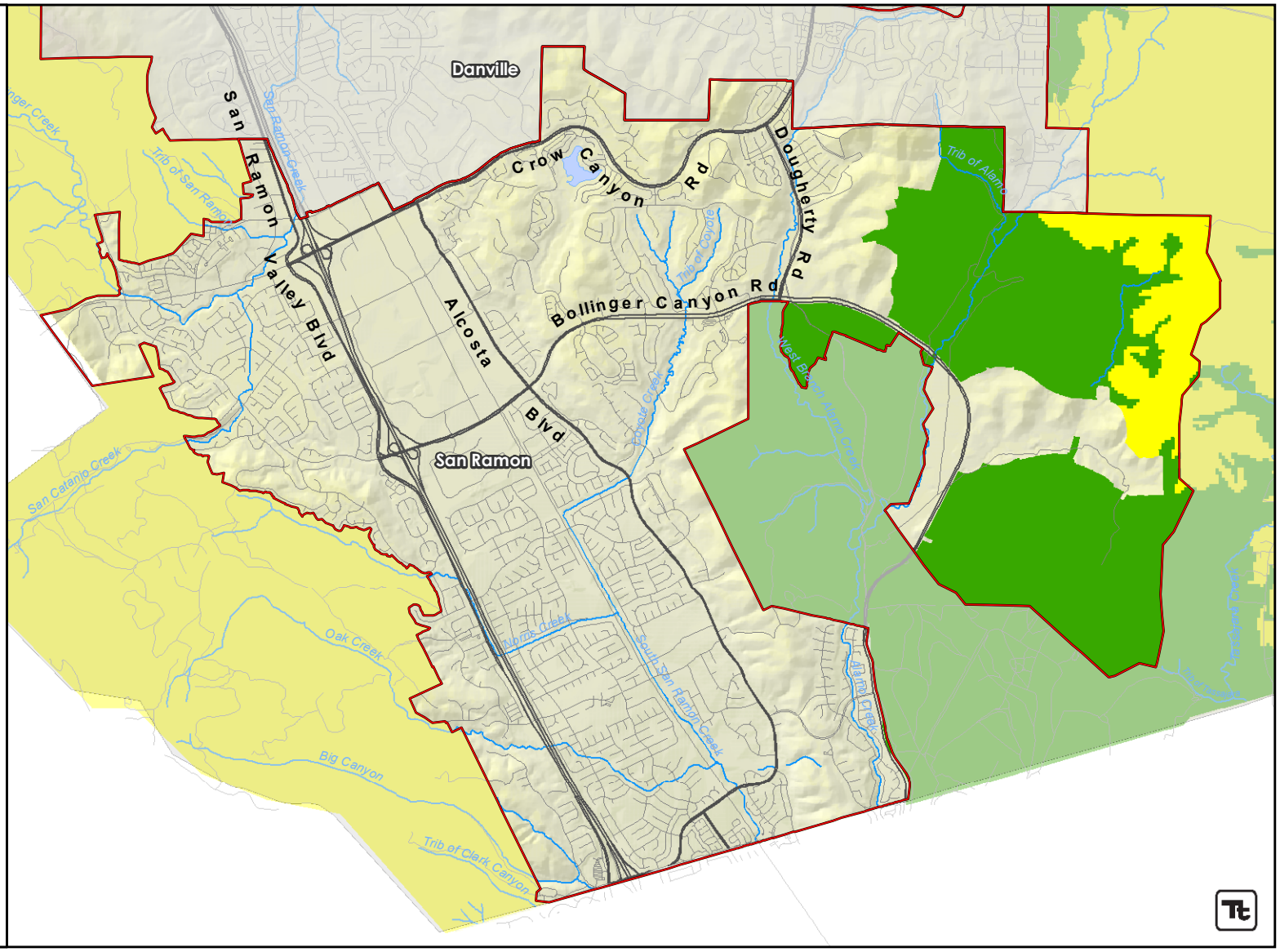
Wildfire Hazard Boundaries

Class

- Moderate
- High
- Very High
- City Limits
- Waterbodies
- Streams
- Roads

0 0.5 1 2
Miles

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



CHAPTER 8.
CITY OF WALNUT CREEK ANNEX

8.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Steve Waymire, City Engineer
1666 North Main Street
Walnut Creek, CA 94546
Telephone: 925-256-3507
e-mail Address: waymire@walnut-creek.org

Alternate Point of Contact

Heather Ballenger, Director of Public Services
1666 North Main Street
Walnut Creek, CA 94546
Telephone: 925-256-3593
e-mail Address: ballenger@walnut-creek.org

8.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**October 21, 1914
- **Current Population—**65,860 as of 2009 (California Department of Finance)
- **Population Growth—**Based on data from the California Department of Finance, Walnut Creek has experienced a relatively flat rate of growth, with little population increase since 2000.
- **Location and Description—**The City of Walnut Creek, is located at the foot of Mt. Diablo, 23 miles east of San Francisco. Portions lie in both the San Ramon Valley and the Ygnacio Valley. While not as large as neighboring Concord, Walnut Creek serves as the business and entertainment hub for neighboring cities in central Contra Costa County, due in part to its location at the junction of the highways from Sacramento and San Jose (I-680) and San Francisco/Oakland (SR-24). The city has a total incorporated area of 19.45 square miles.
- **Brief History—**Walnut Creek is located amidst the earlier site of four Mexican land grants. One of these land grants - measuring 18,000 acres - belonged to Juana Sanchez de Pacheco, who deeded it to her two grandsons. Ygnacio Sibrian, one of the grandsons, created the first roofed home in the valley in about 1850. The grant was called Rancho Arroyo de Las Nueces y Bolbones, named after the principal waterway, Arroyo de las Nueces (Walnut Creek) as well as for the local group of indigenous Americans (Bolbones). The Arroyo de los Nueces was named for the occurrence in the valley of the California walnut tree.

  With the coming of American settlers following the US-Mexico War, a small settlement called “The Corners” emerged, named because it was the place where roads from Pacheco and Lafayette met. The site of this first American settlement is found today at the intersection of Mt. Diablo Boulevard and North Main Street. The first town settler was William Slusher, who built a dwelling on the bank of Walnut Creek, which was called “Nuts Creek” by the Americans in 1849. In the year 1855, Milo Hough of Lafayette built the hotel named “Walnut Creek House” in the corners. A blacksmith shop and a store soon joined the hotel, and a year later, Hiram Penniman (who built Shadelands Ranch) laid out the town site and realigned the Main Street of today. Two decades later, the community changed its name from The Corners to Walnut Creek.

Walnut Creek began to grow with the arrival of Southern Pacific Railroad service in 1891. On October 21, 1914, the town and the surrounding area of 500 acres were incorporated as the eighth city in Contra Costa County.

A branch line of the Southern Pacific railroad ran through Walnut Creek until the early 1960s. The current East Bay Regional Park Iron Horse Trail, used by walkers, runners and bikers, runs over what used to be portions of that branch line. The mainline of the Sacramento Northern Railway passed through Walnut Creek. Both railroads had stations here. Today, the Pittsburg/Bay Point - SFO Line of the Bay Area Rapid Transit (BART) serves Walnut Creek with a station adjacent to I-680.

With the opening of the Broadway Shopping Center, Contra Costa County's first major retail center, in 1951, the city took off in a new direction, and its population more than tripled from 2,460 in 1950 to 9,903 in 1960.

Today, Walnut Creek, the actual waterway, has been routed underneath downtown through a series of tunnels starting at the southwest end of Macy's and ending just southwest of Maria Maria Restaurant. Slusher's dwelling was built in the area of modern-day Liberty Bell Plaza.

Walnut Creek owns more open space per capita than any other community in the state of California. In 1974, Walnut Creek voters approved a $6.7 million bond measure that allowed the City to purchase 1,800 acres of undeveloped hillsides, ridge lines, and park sites. Walnut Creek owns parts of Lime Ridge Open Space, Shell Ridge Open Space, Acalanes Ridge Open Space, and Sugarloaf Open Space. There is open space in the retirement community, Rossmoor. Walnut Creek's open space now totals 2,704 acres

- **Climate—**The area is characterized by a Mediterranean climate with cool, moist winters and warm to hot dry summers. Annual rainfall averages 20 inches, with slight microclimate variations based on elevation and topography. Winter daytime temperatures average in the mid-50s with little daily variation, while summer daytime temperatures average in the high 80s. 100-degree weather occurs numerous times during summer heat waves, and occasional light frosts occur during clear, calm winter nights. The climate allows for the cultivation of many plants and crops, being warm enough for citrus yet cold enough for apples.
- **Governing Body Format—**As a general law city, the City of Walnut Creek operates under a Council-Manager form of government with five City Council members elected at large, serving staggered four-year terms. This body will assume responsibility for adoption of this plan. The City employs approximately 380 regular employees and has a biennial operating budget of over $166 million for 2008-2010. Fire protection services are supplied by the Contra Costa Fire Protection District. Official City business is administered by the Office of the City Manager.
- **Development Trends—**There are 31,425 homes in Walnut Creek, with a 2007 average home price of $857,136. The majority of recent development has been in commercial development and infill housing with an emphasis on growth close to downtown and the BART stations. 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, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan. The City of Walnut Creek adopted its general plan under this law in July 2000. Future growth and development will be managed as identified in the general plan.

8.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 8-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

- Number of FEMA Identified Repetitive Flood Loss Properties: 7
- Number of Repetitive Flood Loss Properties that have been mitigated: 0

8.4 HAZARD RISK RANKING

Table 8-2 presents the ranking of the hazards of concern.

8.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 8-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 8-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 8-5. Classifications under various community mitigation programs are presented in Table 8-6.

8.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

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

8.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 8-10 summarizes the current status of strategies that were adopted by the City for the ABAG hazard plan. Those that are directly carried over as actions in this hazard plan are also indicated as such in Table 8-7. Section 1.4 of this volume describes the ABAG strategies and how their status was reviewed for this plan.

8.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Walnut Creek and 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.

8.9 ADDITIONAL COMMENTS

Figures 8-1 through 8-6 show the extent and location of the hazards of concern in Walnut Creek.

TABLE 8-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Flooding	FEMA-1628-DR	1/1/2006	Minimal recorded damage
Flooding	NA	12/16/2002	Minimal recorded damage
Flooding	NA	1/12/1993	Minimal recorded damage
Flooding/Landslide	FEMA-1203-DR	2/1998	$300,075
Flooding/Severe Weather	NA	1984	$350,000
Landslide	NA	1986	$150,500
Landslide	NA	1983	$250,000
Severe Weather	NA	1982	$348,000

TABLE 8-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Drought	36
3	Severe Weather	36
4	Flood	18
5	Landslide	18
6	Wildfire	18
7	Dam Failure	9

TABLE 8-3.
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	Walnut Creek Municipal Code Ordinance 2087, passed February 16, 2010
Zoning Code	Y	N	N	Y	Title-Chapter 10-2 Zoning
Subdivisions	Y	N	N	N	Title-Chapter 10-1 Subdivision
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	Y	N	Y	Y	Ca. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property
Growth Management	Y	N	N	Y	
Site Plan Review	Y	N	N	N	
Special Purpose (flood management, critical areas)	Y	N	N	N	Title-Chapter 9-12 Flood Damage Prevention
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	General Plan 2025 (adopted April 4, 2006)
Floodplain or Basin Plan	Y	N	N	N	In connection with Contra Costa County Flood Control
Stormwater Plan	Y	N	N	N	Title-Chapter 9-16 Stormwater Management
Capital Improvement Plan	Y	N	N	N	
Habitat Conservation Plan	N	N	N	N	
Economic Development Plan	Y	N	N	N	
Emergency Response Plan	Y	N	N	N	
Shoreline Management Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	

TABLE 8-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Public Services Engineering Dept. and Community Development Planners
Engineers or professionals trained in building or infrastructure construction practices	Y	Public Services Engineering Dept. and Community Development Building Engineers
Planners or engineers with an understanding of natural hazards	Y	Public Services Engineering Dept.
Staff with training in benefit/cost analysis	Y	Public Services Engineering Dept.
Floodplain manager	Y	Public Services Engineering Dept. – Senior Engineer
Surveyors	Y	Public Services Engineering Dept. and Consultants
Personnel skilled or trained in GIS applications	Y	IT Department
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	
Grant writers	Y	Public Services Engineering Dept. and Community Development Planners

TABLE 8-5.
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	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Don’t know
Incur Debt through Private Activity Bonds	Don’t know
Withhold Public Expenditures in Hazard-Prone Areas	Don’t know
State Sponsored Grant Programs	Don’t know
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 8-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	Yes	7	10/1/2009
Building Code Effectiveness Grading Schedule	Yes	4	7/1/2005
Public Protection (Contra Costa Consolidated FD)	Yes	3/8	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 8-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative WC-1—Seismic upgrade/retrofit to corporation yard							
Existing	Earthquake	1, 2, 7, 13	Public Services	$1,500,000	HMGP, PDM	Long-term	No
Initiative WC-2—Soft-story building inventory							
Existing	Earthquake	1, 2, 6, 7, 15, 16	Public Services	$100,000	General Fund	Short-term	Yes, **HSNG-c-4**
Initiative WC-3—Determine ownership of ditches to determine responsibility of cleaning and then implement maintenance program to maintain conveyance							
New & Existing	Flooding/Severe Weather	1, 3, 10	Public Services	$10,000	General Fund, Grant	Short-term	No
Initiative WC-4—Construct Tice Creek By-Pass Project							
New & and Existing	Flooding/Severe Weather	1, 10	Public Services	$6,000,000	Grants, General Fund, Assessment District	Long-term	No
Initiative WC-5—Construct Walnut Boulevard Drainage Improvements							
New and Existing	Flooding/Severe Weather	1, 10	Public Services	$6,000,000	Grants, General Fund, Assessment District	Long-term	No
Initiative WC-6—Pleasant Hill Flood Control Project – Partner with Pleasant Hill and County Flood Control Project							
New and Existing	Flooding/Severe Weather	1, 10	City of Pleasant Hill	High	Grants, General Fund, Assessment District	Long-term	No

TABLE 8-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative WC-7—Lancaster Neighborhood Flood Improvements							
New and Existing	Flooding/Severe Weather	1, 10	Public Services	$6,000,000	Grants, General Fund, Assessment District, HMGP, PDM	Long-term	No
Initiative WC-8—Upper Ygnacio Valley Road Slide Repair							
Existing	Landslide	1, 2, 13	Public Services	$1,000,000	General Fund, Grants	Long-term	No
Initiative WC-9—Continue to support and promote the CERT program within Walnut Creek							
New and Existing	All Hazards	2, 3, 4, 5	City Manager's Office	$10,000	General Fund, EMPG	Short-term	Yes, **ECON-j-5**
Initiative WC-10—Overlook Landslide prevention repairs							
Existing	Landslide	1, 2, 13	Public Services	$3,000,000	General Fund, Grants	Long-term	No
Initiative WC-11—Implement drought tolerant landscaping ordinance							
New and Existing	Drought	1, 2, 3, 11, 12	Planning and Public Services	$10,000	General Fund	Short-term	No
Initiative WC-12—Continue working with Fire Department to keep open space fire breaks							
New and Existing	Wild Fire	1, 2, 16	Public Services	$5,000	General Fund	Short-term	No
Initiative WC-13—Provide Grants and low cost permits to property owners to strengthen soft-story buildings							
Existing	Earthquake	1, 3, 4, 7, 15	Building	Varies	General Fund, Grants	Long-term	No
Initiative WC-14—Support County-wide initiatives identified in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund	Short-Term, ongoing	No
Initiative WC-15—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.							
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-Term, ongoing	No

TABLE 8-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative WC-16—Continue to maintain compliance and good standing under the National Flood Insurance Program.							
New and existing	Flood	4, 5, 6, 7, 11, 12	Public Works	Low	General Fund	Ongoing	No
Initiative WC-17—Continue participation in the Community Rating System (CRS).							
New and Existing	Flood	3, 4, 5, 7, 9	Public Works	Low	General Fund	Short-Term	No
Initiative WC-18—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan							
New and Existing	All Hazards	4, 5, 14	OES & DCD	Low	General Fund	Early 2010 Short-Term	No
Initiative WC-19—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	3, 7, 15	Planning & Building Departments	High	HMGP funding with local match provided by property owner contribution	Long-Term, depends on funding	No
Initiative WC-20—Develop and maintain a system of interoperable communications for First Responders from local, State and Federal agencies.							
New and Existing	All Hazards	2, 13, 16	Walnut Creek PD	Medium	General Fund	Short-term, ongoing	No
Initiative WC-21—Maintain the City EOC in a fully functional state of readiness.							
New and Existing	All hazards	2,13,16	City Emergency Manager	Low	General Fund	Short-term, ongoing	No
Initiative WC-22—Maintain and update as necessary the City's Comprehensive Emergency Management plan to meet SEMS standards.							
New and existing	All Hazards	2, 13, 16	City Emergency Manager	Low	General Fund	Short-term, ongoing	No

TABLE 8-8.
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	High	Yes	Yes	No	Med
2	6	High	Med	Yes	Yes	No	High
3	3	High	Low	Yes	No	No	High
4	2	High	High	Yes	Yes	No	Low
5	2	High	High	Yes	Yes	No	Med
6	2	High	High	Yes	Yes	No	Low
7	2	High	High	Yes	Yes	No	Med
8	3	Med	High	Yes	Yes	No	Low
9	4	High	Low	Yes	Yes	Yes	High
10	3	Med	High	No	Yes	No	Low
11	5	Low	Low	Yes	No	Yes	High
12	3	High	Low	Yes	No	Yes	High
13	5	High	Med	Yes	Yes	No	Med
14	16	Medium	Low	Yes	No	Yes	High
15	16	Medium	Low	Yes	Yes	Yes	High
16	7	Medium	Low	Yes	No	Yes	High
17	5	Low	Low	Yes	No	Yes	High
18	3	Low	Low	Yes	No	Yes	High
19	3	High	High	Yes	Yes	No	Medium
20	3	High	Medium	Yes	No	Yes	High
21	3	High	Low	Yes	No	Yes	High
22	3	High	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 8-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	11, 13, 15, 18	13, 19	11, 14, 15	11, 18	9, 20, 21, 22	
Earthquake	1, 2, 15, 18	1, 2, 19	2, 9, 13, 14, 15	18	1, 9, 20, 21, 22	1, 2, 13
Flood	3, 4, 5, 6, 7, 15, 16, 17, 18	3, 4, 5, 6, 7, 16, 17, 19	3, 9, 14, 15, 16, 17	3, 4, 5, 6, 7, 16, 17, 18	3, 4, 5, 6, 7, 9, 16, 17, 20, 21, 22	4, 5, 6, 7, 16, 17
Landslide	8, 10, 15, 18	8, 10, 19	9, 14, 15	8, 10, 18	8, 9, 10, 20, 21, 22	8, 10
Severe Weather	3, 4, 5, 6, 7, 15, 18	3, 4, 5, 6, 7, 19	9, 3, 14, 15	3, 4, 5, 6, 7, 18	3, 4, 5, 6, 7, 9, 20, 21, 22	4, 5, 6, 7
Dam Failure	15, 18	19	14, 15	18	9, 20, 21, 22	
Wild Fire	12, 15, 18	12, 19	9, 14, 15	12, 18	9, 12, 20, 21, 22	

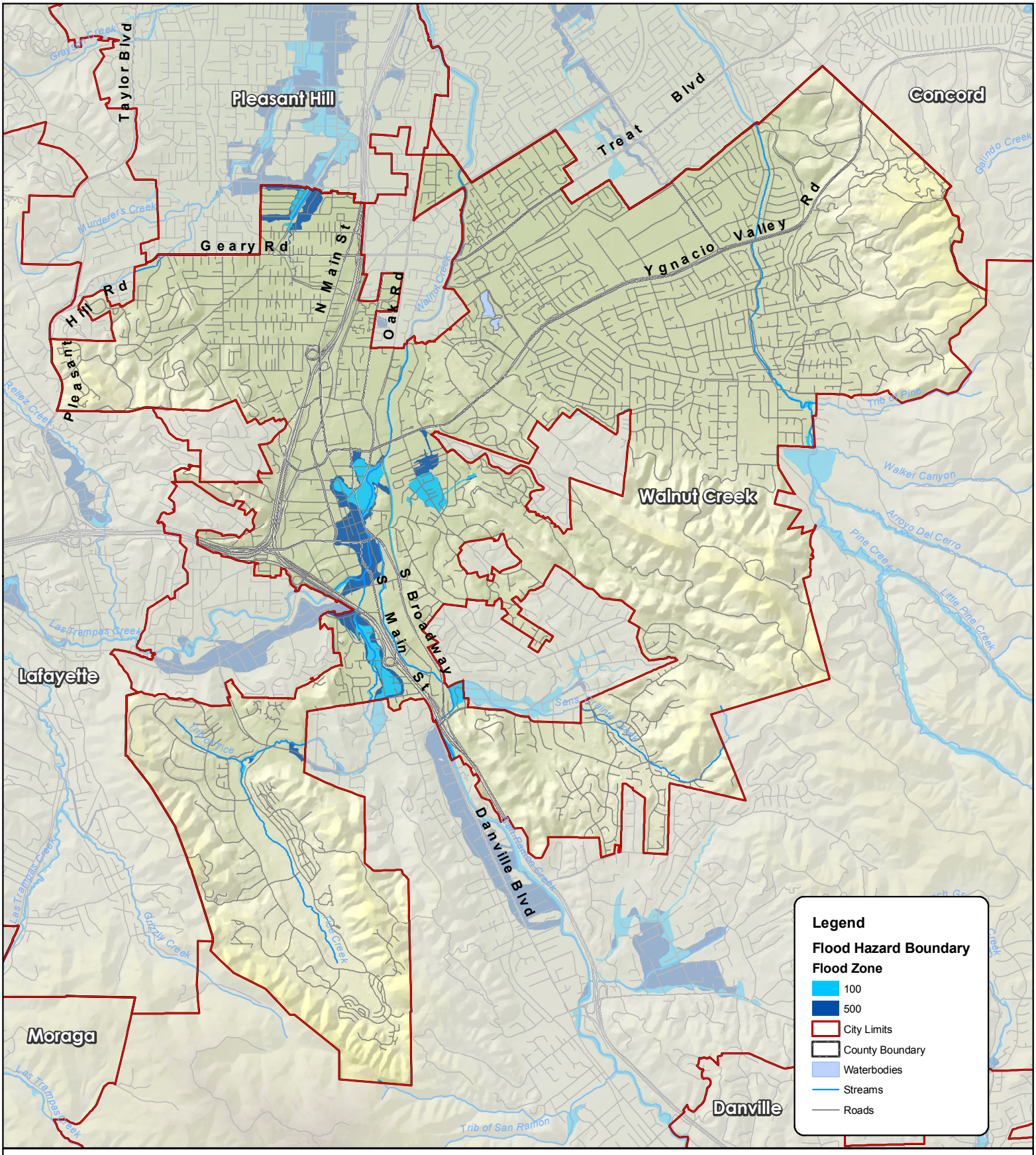
Notes:
1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE 8-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
Government Function (a)—Focus on Critical Facilities				
1		✓		This strategy is now addressed by Objective 15
2		✓		This is now addressed by Initiative WC-1
3		✓		This strategy is now addressed by Objective 3
4	✓			City Hall retrofit is now complete
5	✓			A Disaster Task Force has been established
6			✓	
7	✓			City Hall retrofit is now complete
8			✓	Not applicable to the City of Walnut Creek
9		✓		This strategy is now addressed by Initiatives 2 and 13
10		✓		This strategy is now addressed by Objective 7
11		✓		This strategy is now addressed by Objective 7
12		✓		This strategy is now addressed by Objectives 1, 6 and 7
Government Function (b)—Maintain and Enhance Local Government's Emergency Response and Recovery				
1		✓		Ongoing activity now addressed by Objective 2
2	✓			This strategy was completed during initial performance period
3	✓			This strategy was completed during initial performance period
4	✓			This strategy was completed during initial performance period
5			✓	
6			✓	
7		✓		This is now addressed by Initiative WC-20
8			✓	
9			✓	
10		✓		This is now addressed by Initiative WC-21
11		✓		This strategy is now addressed by Objectives 2 and 16
12		✓		This is now addressed by Initiative WC-22
13		✓		This strategy is now addressed by Objectives 2 and 16
14			✓	
15			✓	
16	✓			This strategy was completed during initial performance period
17	✓			This strategy was completed during initial performance period

TABLE 8-10 (continued).
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
Government Function (b)—Maintain and Enhance Local Government's Emergency Response and Recovery				
18			✓	
19		✓		This strategy is now addressed by Objective 6
20			✓	
21			✓	
22			✓	
23			✓	
24			✓	
25	✓			This strategy was completed during initial performance period
Government Function (c)—Participate in National, State, etc. Efforts to Identify and Mitigate Hazards				
1		✓		This strategy is now addressed by Objective 16
2		✓		This strategy is now addressed by Objective 16
3		✓		This strategy is now addressed by Objective 16
4		✓		This strategy is now addressed by Objective 6
5		✓		This strategy is now addressed by Objective 9
6			✓	
7			✓	
8	✓			This strategy was completed during initial performance period
9	✓			This strategy was completed during initial performance period
10	✓			This strategy was completed during initial performance period

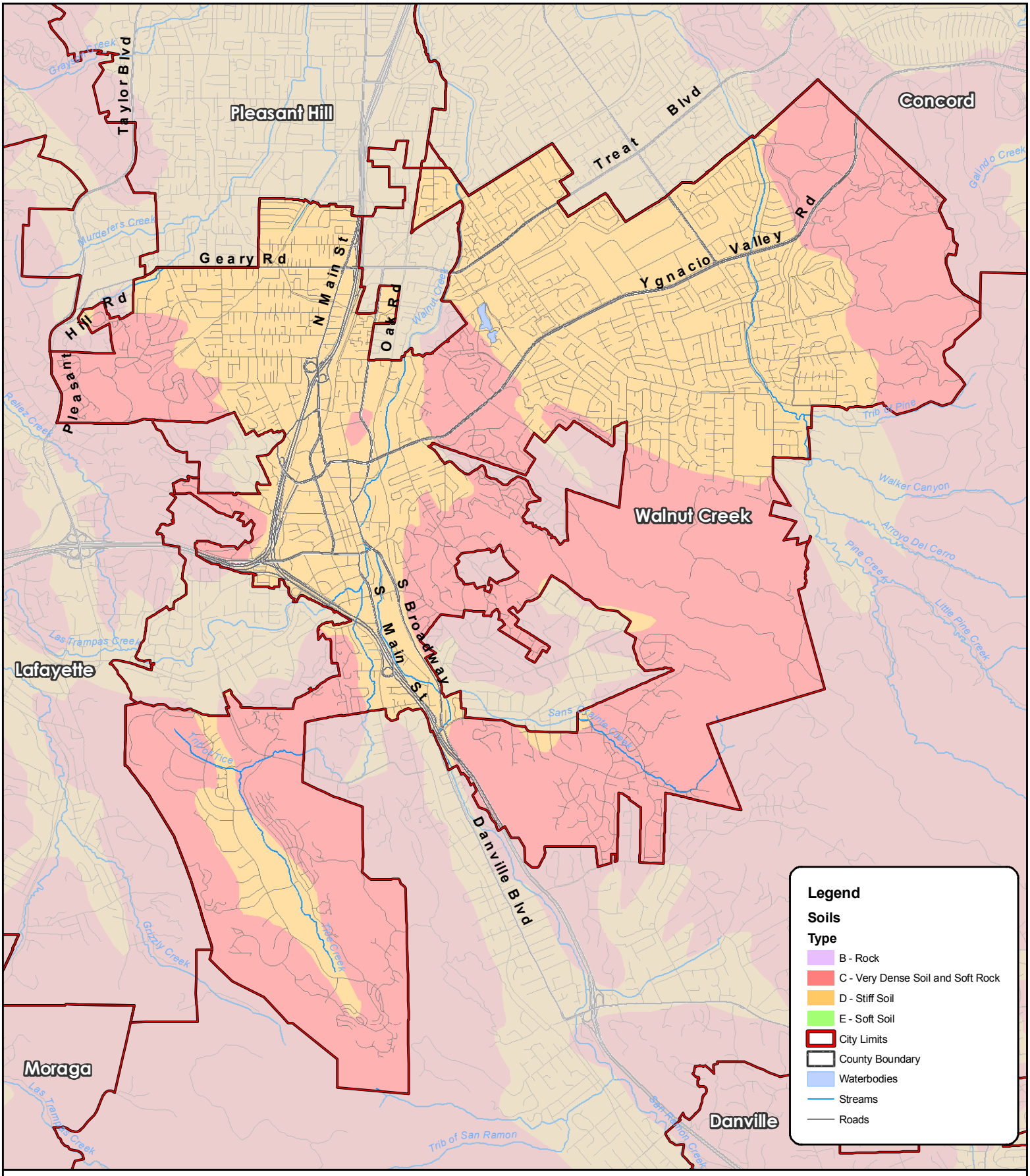


City of Walnut Creek

100 & 500 Year
Flood Hazard Boundaries

0 0.5 1 2
Miles

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_
California_III_FIPS_0403_Feet

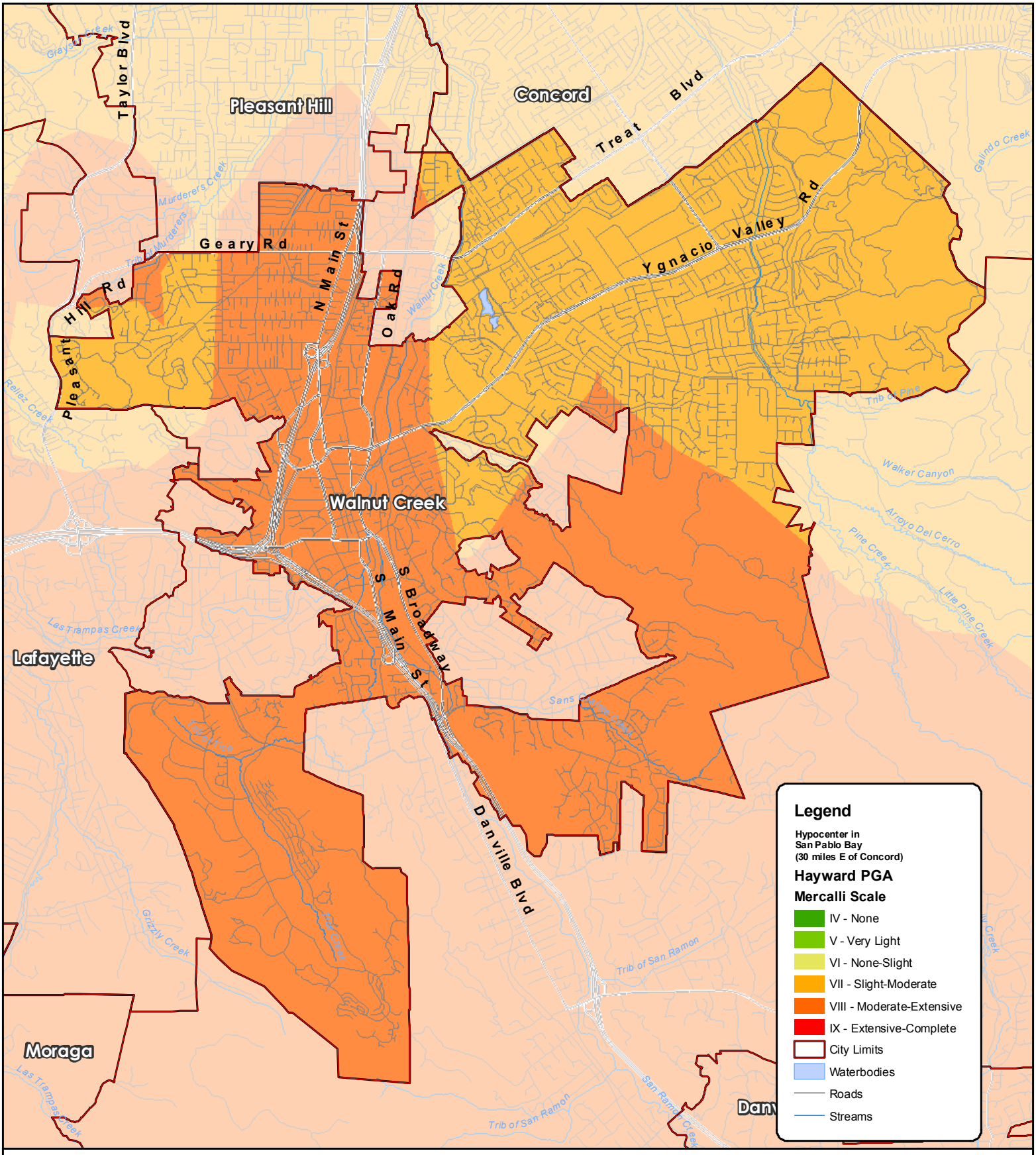


City of Walnut Creek

NEHRP (National Earthquake Hazards Reduction Program)
Soils

0 0.5 1 2
Miles

Source Contra Costa County GIS & NEHRP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Walnut Creek

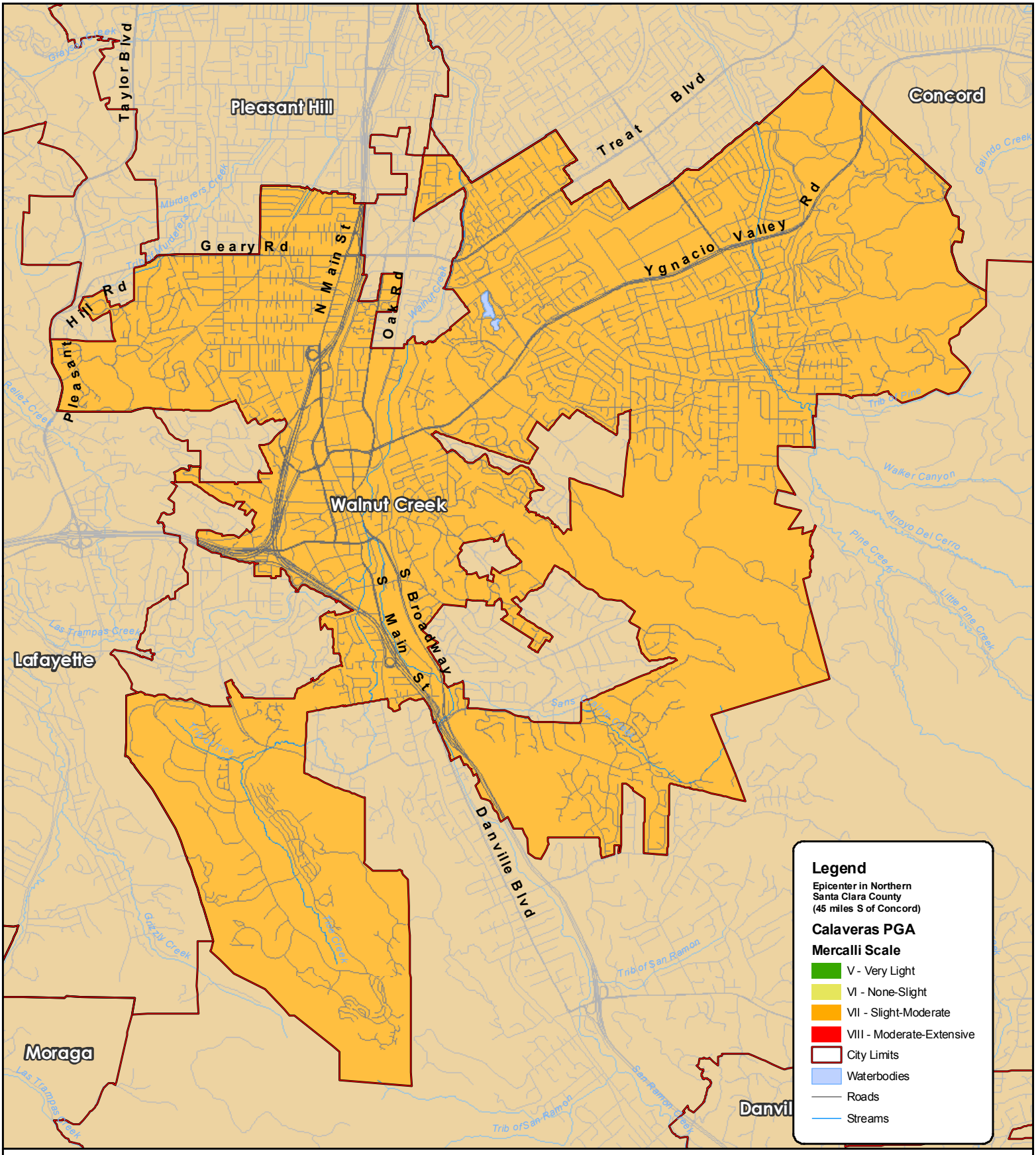
Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with a hypocenter located in San Pablo Bay

0 0.5 1 2
Miles

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Walnut Creek

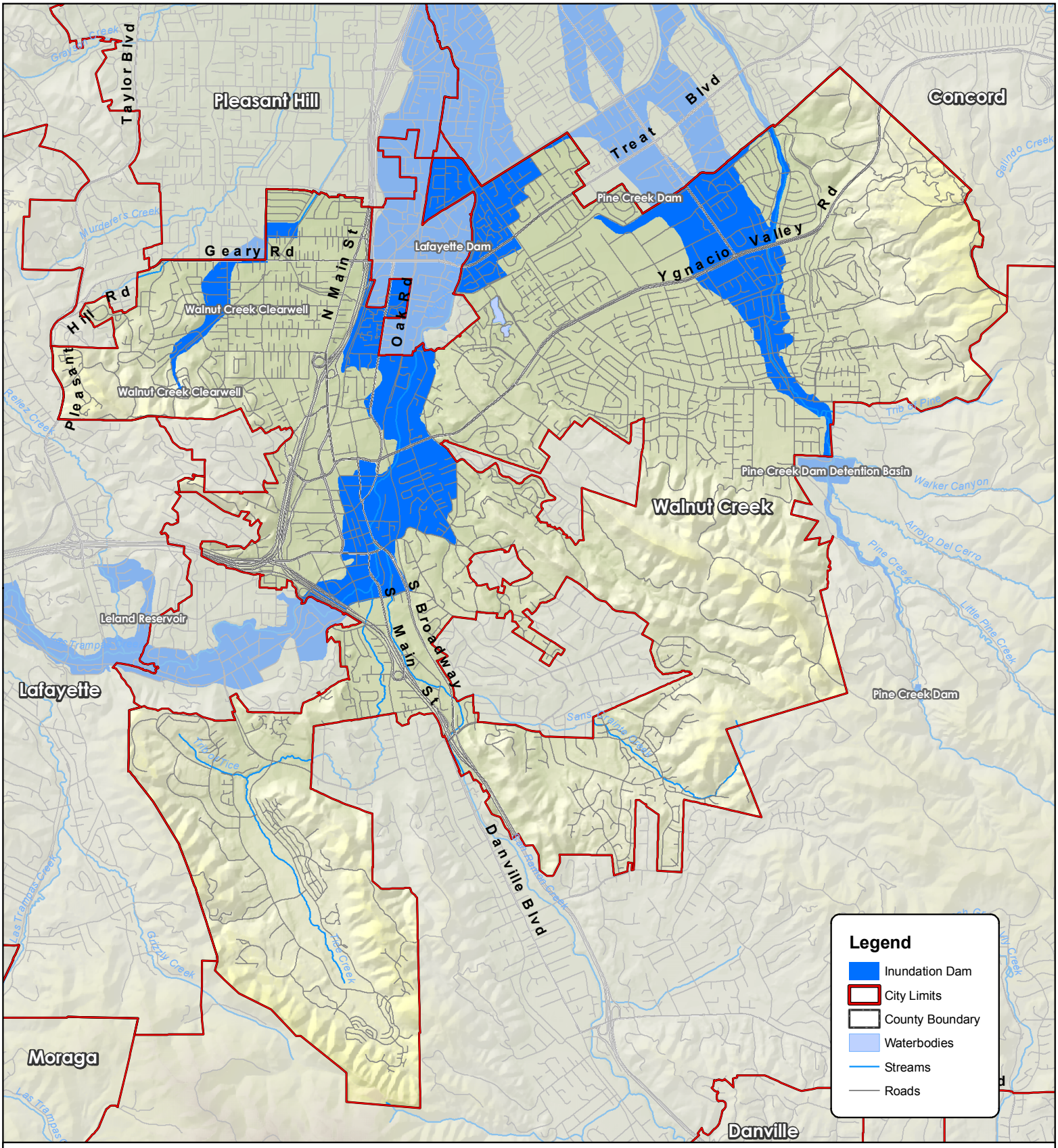
Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 0.5 1 2
Miles

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Walnut Creek

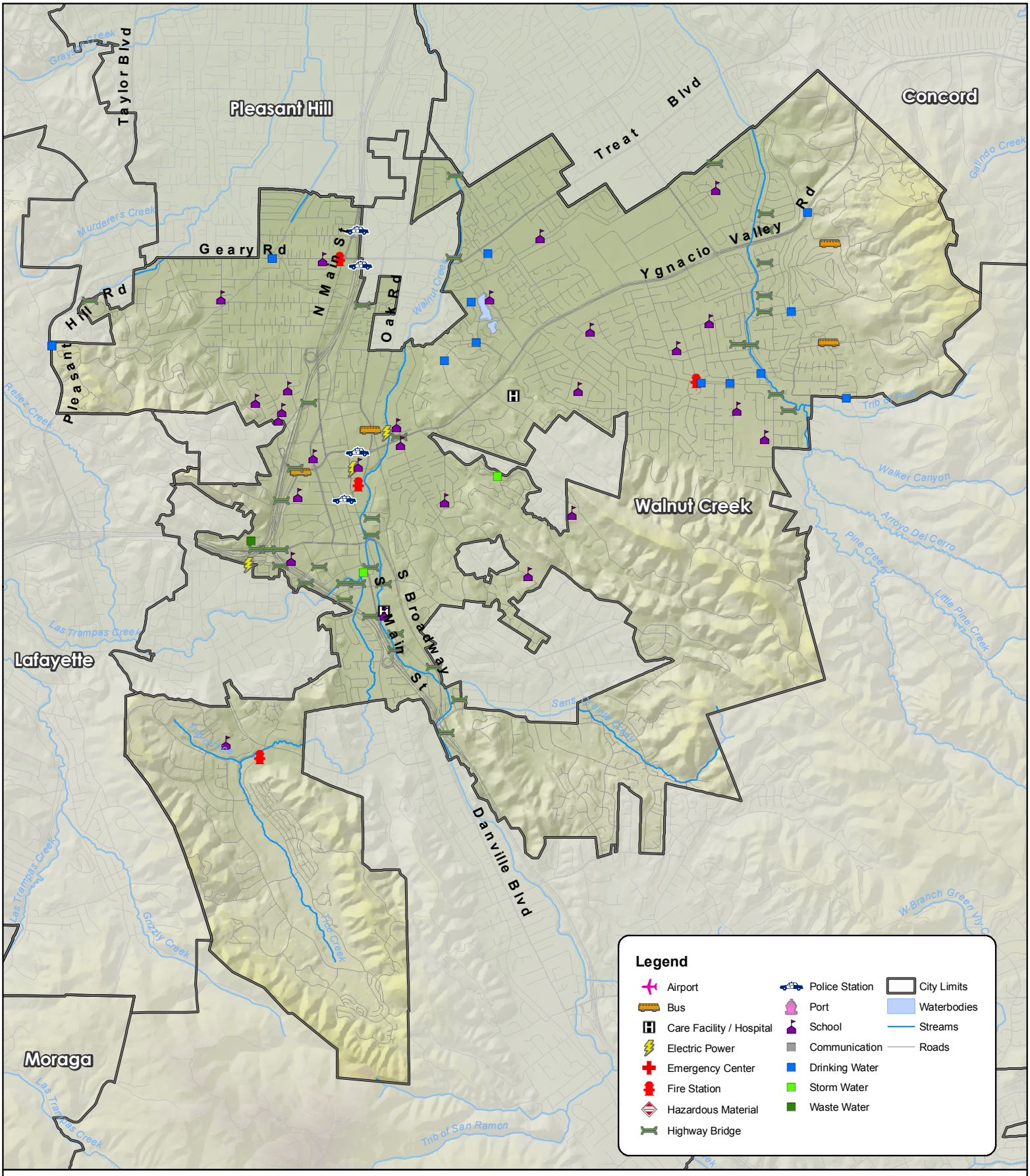
Dam Inundation Zone

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

0 0.5 1 2
Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane
California_III_FIPS_0403_Feet

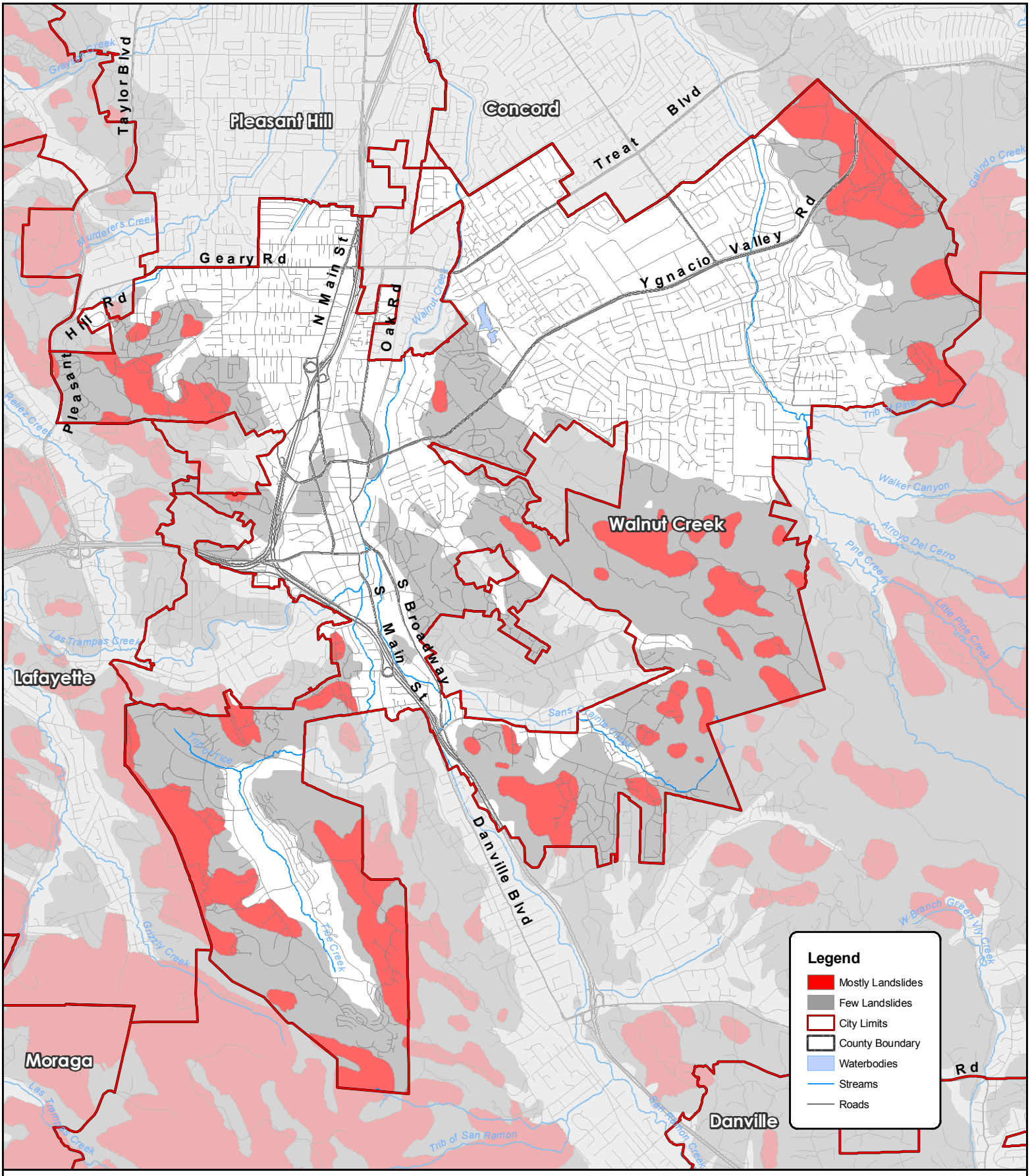


City of Walnut Creek

Critical Facilities

0 0.5 1 2
Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_
California_III_FIPS_0403_Feet



City of Walnut Creek

USGS Landslide Hazard Areas

0 0.5 1 2
Miles

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

PART 3—
ANNEXES FOR NEW MUNICIPAL PLANS

CHAPTER 9.
CITY OF ANTIOCH ANNEX

9.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Rick Marchoke, Police Lieutenant
300 L Street
Antioch, CA 94509
Telephone: 925-779-6903
e-mail Address: rmarchoke@ci.antioch.ca.us

Alternate Point of Contact

Allan Cantando, Police Captain
300 L Street
Antioch, CA 94509
Telephone: 925-779-6903
e-mail Address: acantando@ci.antioch.ca.us

9.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**February 6, 1872
- **Current Population—**100,957 as of January 2009
- **Location and Description—**Antioch is a city in the East Bay region of the San Francisco Bay area at the confluence of the Sacramento and San Joaquin Rivers, at the gateway to the agriculturally rich San Joaquin Delta. The city is slightly more than 50 miles east of San Francisco and 55 miles southwest of Sacramento (at 38°00'N, 121°48'21"W). The city has a total area of 28.16 square miles.

  Antioch is home to 31 parks covering 310 acres, with an additional 600 acres of city-owned open space. It has 11 miles of walking paths connecting communities to parks and schools. Within its boundaries, Antioch has Contra Loma Regional Park, the Antioch/Oakley Regional Shoreline and Black Diamond Mines Regional Park, and the Mokelumne Coast to Crest Trail and Delta De Anza Regional Trail. These three parks cover 6,493 acres; approximately 38 percent of Antioch's total area. Just outside Antioch's city limit is the 2,024-acre Round Valley Regional Preserve. In addition, established in 1980, the Antioch Dunes National Wildlife Refuge was the first national wildlife refuge in the country established for the purpose of protecting endangered plants and insects. It is located on the south shore of the San Joaquin River in Antioch.
- **Brief History—**In 1849, the town was founded by brothers William and Joseph Smith, who named the town Smith's Landing. On February 5, 1850, Joseph Smith died of malaria and his brother moved to a higher ground overlooking the river. On July 4, 1851, William Smith held a picnic for the town residents on the bluff near his home. They discussed naming the community and Smith finally suggested the biblical name of Antioch, a town in Syria where the Christians were first named. Antioch was the name chosen and dedicated to the memory of Joseph. Around 1859, coal was discovered in the hills south of Antioch, and coal mining formed the first substantial business in the area apart from farming and dairying. In 1872, Antioch incorporated as a General Law city. The town continued to prosper into the 1900s, becoming a "blue collar" factory community also supporting a fishing and commercial boating industry. In the latter part of the 1900s, as the factories began to close or move elsewhere, Antioch began to take on a new look. Today, Antioch is mainly a "bedroom" community, with most adults working in larger cities toward Oakland and San Francisco. The

town has seen an enormous amount of growth in the last 25 years as the population of the greater Bay Area continues to grow and real estate prices force families to move toward the suburbs

- **Climate—**The climate is mild, with annual temperatures ranging between a high of 96° and a low of 34°. Humidity levels are generally low and the City's riverfront location often provides cooling breezes. Annual rainfall is just over 15.4 inches, the majority of which falls between October and May. Average annual snowfall is essentially zero.
- **Governing Body Format—**The City of Antioch has a Council/Manger form of government. Policy making and legislative authority is vested in a five-member City Council consisting of a Mayor and four Council Members. The four Council Members are elected to four-year overlapping terms. The Mayor is directly elected to a four-year term. The City Council's main duties include passing ordinances, adopting the budget, appointing committees, and hiring both the City Manager and City Attorney. The City Manager is responsible for implementing the policies and enforcing the ordinances adopted by the City Council, overseeing day-to-day operations of city government, and appointing the heads of the various city departments.
- **Development Trends—**Over the past two years, the pace of residential development in the Bay Area and the state has slowed considerably, with negative consequences for local economies reliant on housing construction. Antioch's economy will not see as great a direct impact from the housing market slowdown because of Council- and voter-approved policies that had already reduced the rate of new residential development. The focus of development since 2003 has been primarily commercial development. The new office, commercial and flex-space developments have created the opportunity for well over 5,000 new jobs within the City. New jobs, over time, will lead to growth in the local economy. The expansion of Costco and the relocation of Markstein Beverage has further enhanced local employment prospects.

  The slowdown in the housing market, a tightening credit market, and the high cost of fuel, food, clothing and other essentials are current impediments to economic expansion. Housing foreclosures have provided another obstacle to expansion. The current state of the economy has impacted the City of Antioch's ability to continue the population and economic growth rate that were projected five years ago.

  To meet the challenges of the current economic trend, the City has had to lay off staff and utilize reserves to balance the general fund budget. As the City maintains a focus on the "safety" of the community and expansion of the Prewett Park Community Facility, additional operating commitments to the general fund will be recognized. City staff has been mandated to continue focusing on ways to improve efficiency, seek new ideas for saving and revenue generation, and continue with economic development.

  The City Council has other projects and plans that will enrich the City and make Antioch an even better place to live, work and play. In striving to continue positive "development trends," the following projects will be of focus:

  – Complete the Community Center at Prewett Park.
  – Seek funding for a Library Express as a component of the Community Center.
  – Widen Highway 4 to Hillcrest Avenue.
  – Deliver eBART service for all of Eastern Contra Costa County.
  – Revitalize the Rivertown area.
  – Establish a water transit system.

- Protect the City's water rights from state proposals.
- Propose alternative service provision for the Animal Control Program.
- Initiate long-term infrastructure planning.
- Seek grants as possible alternative funding for city projects.
- Remain committed to construction of a full-scale library facility at Prewett Park.
- Construct all-weather surface athletic facilities in the community.

9.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 9-1 lists all past occurrences of natural hazards within the jurisdiction. Repetitive loss records are as follows:

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

9.4 HAZARD RISK RANKING

Table 9-2 presents the ranking of the hazards of concern.

9.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 9-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 9-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 9-5. Classifications under various community mitigation programs are presented in Table 9-6.

9.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

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

9.7 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Antioch and 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 9-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Flooding	10/13/2009	No estimates available. Flooding resulted in road closures and flooding to some residences. This is a problem that has occurred multiple times and usually occurs in the O Street corridor.
Severe Weather[a]	Unknown	No estimates available
Earthquake[a]	Unknown	No estimates available
Wildfire[a]	Unknown	No estimates available
Landslide[a]	Unknown	No estimates available
Drought[a]	Unknown	No estimates available

a. The city of Antioch has had natural hazard events in this category, however no specifics are available. There is no documentation at the City or County 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.

TABLE 9-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	36
2	Earthquake	36
3	Drought	30
4	Flood	18
5	Landslide	12
6	Wildfire	6
7	Dam Failure	6

TABLE 9-3.
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	2007 California Building Code
Zoning Code	Y	N	N	Y	Ord. 897-C-S, passed 10-25-94
Subdivisions	Y	N	N	Y	Ord. 275-C-S, passed 3-11-75
Stormwater Management	Y	N	N	Y	Ord. 1035-C-S, passed 9-12-04
Post Disaster Recovery	Y	N	N	N	('66 Code, § 4-2.08) (Ord. 222-C-S, passed 7-26-73; Am. Ord. 911-C-S, passed 9-12-95)
Real Estate Disclosure	N	N	Y	Y	Ca. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property
Growth Management	Y	N	N	Y	Transportation Systems Management Measure C Growth Management Program Ord. 932-C-S, passed 12-9-97
Site Plan Review	Y	N	N	N	Adopted with Zoning Ordinance Ord. 897-C-S, passed 10-25-94; Am. Ord. 2023-C-S, passed 4-14-09
Special Purpose (flood management, critical areas)	Y	N	N	Y	Floodplain Management Ord. 708-C-S, passed 5-12-88. Am. Ord. 2025-C-S, passed 5-12-09
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	Adopted November 24, 2003
Floodplain or Basin Plan	Y	N	N	N	Drainage to ponding areas ('66 Code, § 9-4.625) (Ord. 275-C-S, passed 3-11-75)
Capital Improvement Plan	Y	N	N	N	CIP is a 5-year program updated annually with a 2-year budget
Habitat Conservation Plan	N	N	N	N	
Economic Development Plan	Y	N	N	N	ED Commission Ord. 1002-C-S, passed 1-28-03; Am. Ord. 2016-C-S, passed 6-10-08; Am. Ord. 2021-C-S, passed 1-27-09
Emergency Response Plan	Y	N	N	N	('66 Code, § 4-2.08) (Ord. 222-C-S, passed 7-26-73; Am. Ord. 911-C-S, passed 9-12-95)
Shoreline Management Plan	Y	N	N	N	Adopted with the General Plan November 24, 2003
Post Disaster Recovery Plan	Y	N	N	N	('66 Code, § 4-2.08) (Ord. 222-C-S, passed 7-26-73; Am. Ord. 911-C-S, passed 9-12-95)

TABLE 9-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Community Development & Public Works Departments/staff
Engineers or professionals trained in building or infrastructure construction practices	Y	Community Development & Public Works Departments/staff
Planners or engineers with an understanding of natural hazards	Y	Community Development & Public Works Departments/staff
Staff with training in benefit/cost analysis	N	
Floodplain manager	Y	Community Development & Public Works Departments/staff
Surveyors	N	
Personnel skilled or trained in GIS applications	Y	Community Development & Public Works Departments/staff
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	City Manager and Police Lieutenant/Office of Emergency Services (OES) Coordinator
Grant writers	Y	City Manager, Community Development & Public Works Departments/staff

TABLE 9-5.
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	No
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 9-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 9-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #A-1—Construct West Antioch Creek channel improvements, 4- new box culverts, to eliminate property and environmental damage caused by flooding.						
New	Flooding	1, 2, 9, 10, 13	Department of Capital Improvements	$4,400,000	Local Drainage Area Fees, HMGP, PDM	Short Term
Initiative #A-2—Finish construction of the Oakley/Trembath Detention Basin						
New & Existing	Flooding	1, 2, 9, 10, 13	Department of Capital Improvements	$5,700,000	Local Drainage Area Fees, HMGP, PDM	Short Term
Initiative #A-3—Construct Wilbur Avenue Culvert Crossing						
New	Flooding	1, 2, 9, 10, 13	Department of Capital Improvements	$1,400,000	Local Drainage Area Fees, HMGP	Long Term
Initiative #A-4—Complete construction of the Municipal Corporation Yard improvements						
New & Existing	Flooding, loss of Emergency Operations	1, 2, 10, 13	Department of Public Works	$2,500,000	General Funding, Redevelopment, City Water and Sewer Fund, HMGP, PDM	Short Term
Initiative #A-5—Seismic retrofit the City owned Historical Hard House building						
Existing	Earthquake	1, 2, 7, 12, 15, 16	Department of Public Works	$2,000,000	Redevelopment and HMGP	Short Term

TABLE 9-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #A-6—Construct Water Reservoir Maintenance Improvement projects						
New	Earthquake, flood, severe weather and drought	1, 2, 3, 7, 8	Department of Public Works	$1,000,000	Water fund, PDM, HMGP	Short Term
Initiative #A-7—Construct Water and Sewer pipeline projects to strengthen system and to ensure safe and reliable provisions of public water and sewer services						
New	Earthquake	1, 2, 3, 4, 5	Department of Capital Improvements	$10,000,000	Water and Sewer Bond proceeds	Short Term
Initiative #A-8—Up-Date Emergency Operations Plan						
New & Existing	All Hazards	2, 3, 13, 16	Office of Emergency Services	N/A	N/A	Short Term
Initiative #A-9—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-Term Ongoing
Initiative #A-10—Continue to maintain compliance and good standing under the National Flood Insurance Program.						
New and existing	Flood	4,5,6,7,11,12	Public Works	Low	General Fund	Ongoing
Initiative #A-11—Consider participation in the Community Rating System (CRS).						
New and Existing	Flood	3,4,5,7,9	Public Works	Low	General Fund	Short-Term
Initiative #A-12—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	4,5,14	OES & DCD	Low	General Fund	Early 2010 Short-Term
Initiative #A-13—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.						
Existing	All Hazards	3,7,15	Planning & Building Departments	High	FEMA Mitigation Grant funding with local match by property owner	Long-Term, depends on funding

TABLE 9-8.
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	5	Medium	High	Yes	Yes	No	Medium
2	5	Medium	High	Yes	Yes	No	Medium
3	5	Medium	High	Yes	Yes	No	Medium
4	4	Medium	High	Yes	Yes	No	Medium
5	6	Medium	High	Yes	Yes	No	Medium
6	5	Medium	High	Yes	Yes	No	Medium
7	5	Medium	High	Yes	No	No	Medium
8	4	Low	Low	Yes	No	Yes	High
9	16	Medium	Low	Yes	Yes	Yes	High
10	7	Medium	Low	Yes	No	Yes	High
11	5	Low	Low	Yes	No	Yes	High
12	3	Low	Low	Yes	No	Yes	High
13	3	High	High	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 9-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	8,9,12	6,13	9	12	8	6
Earthquake	5,7,8,9,12	5,7,13	9	12	8	5,7
Flood	1,2,3,4,6,8,9, 10,11, 2	1,2,3,4, 6,10,11,13	9,10,11	1,2,3,4, 6,10,11,12	4,8,10,11	1,2,3,46,,10 ,11
Landslide	8,9,12	13	9	12	8	
Severe Weather	6,8,9,12	6,13	9	6,12	8	6,
Tsunami	8,9,12	13	9	12	8	
Wild Fire	8,9,12	13	9	12	8	

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

City of Antioch

USGS Landslide Hazard Areas

Legend

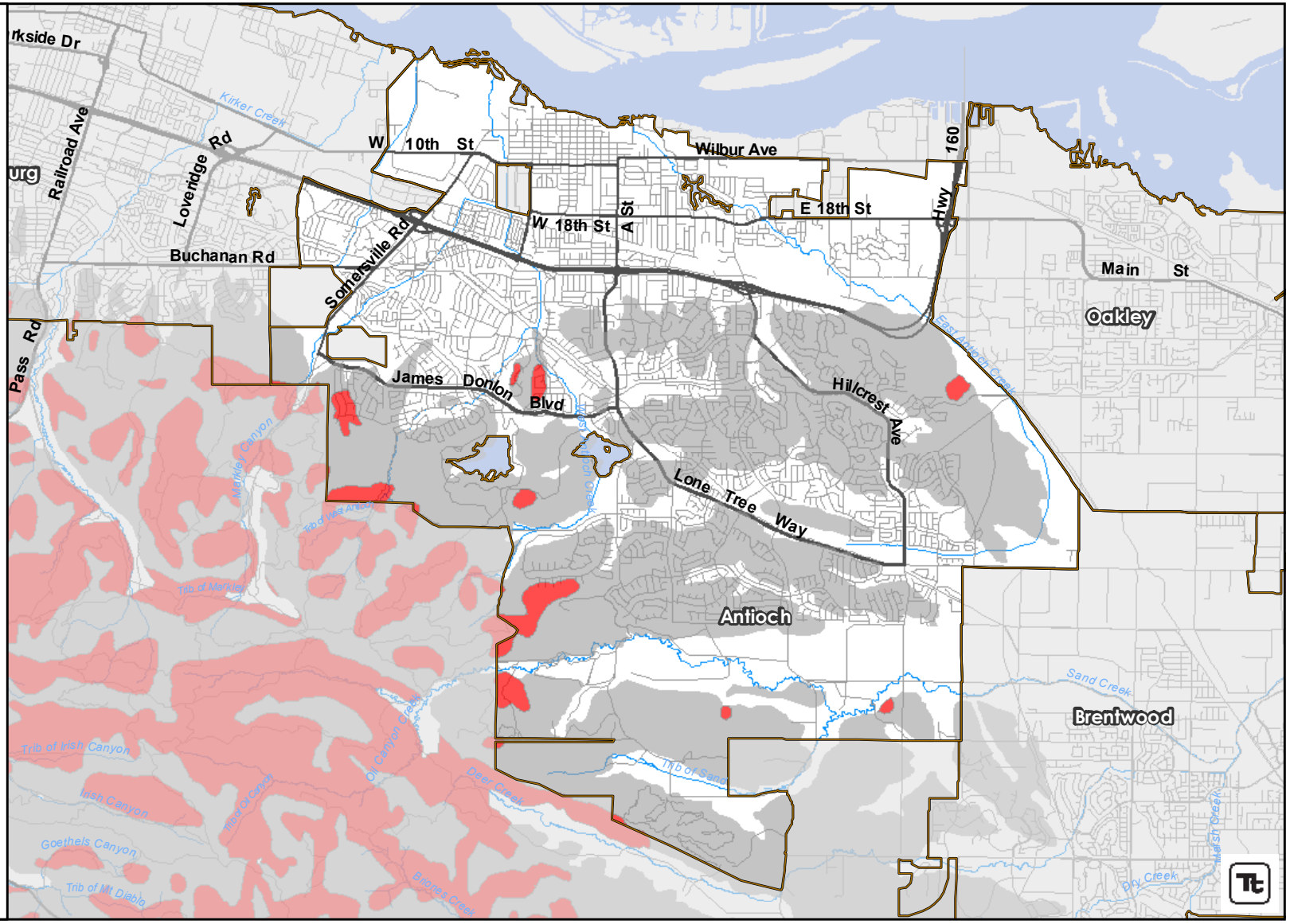
- Mostly Landslides
- Few Landslides
- City Limits
- Waterbodies
- Streams

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

0 1 2
Miles

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Antioch

NEHRP (National Earthquake Hazards Reduction Program) Soils

Legend

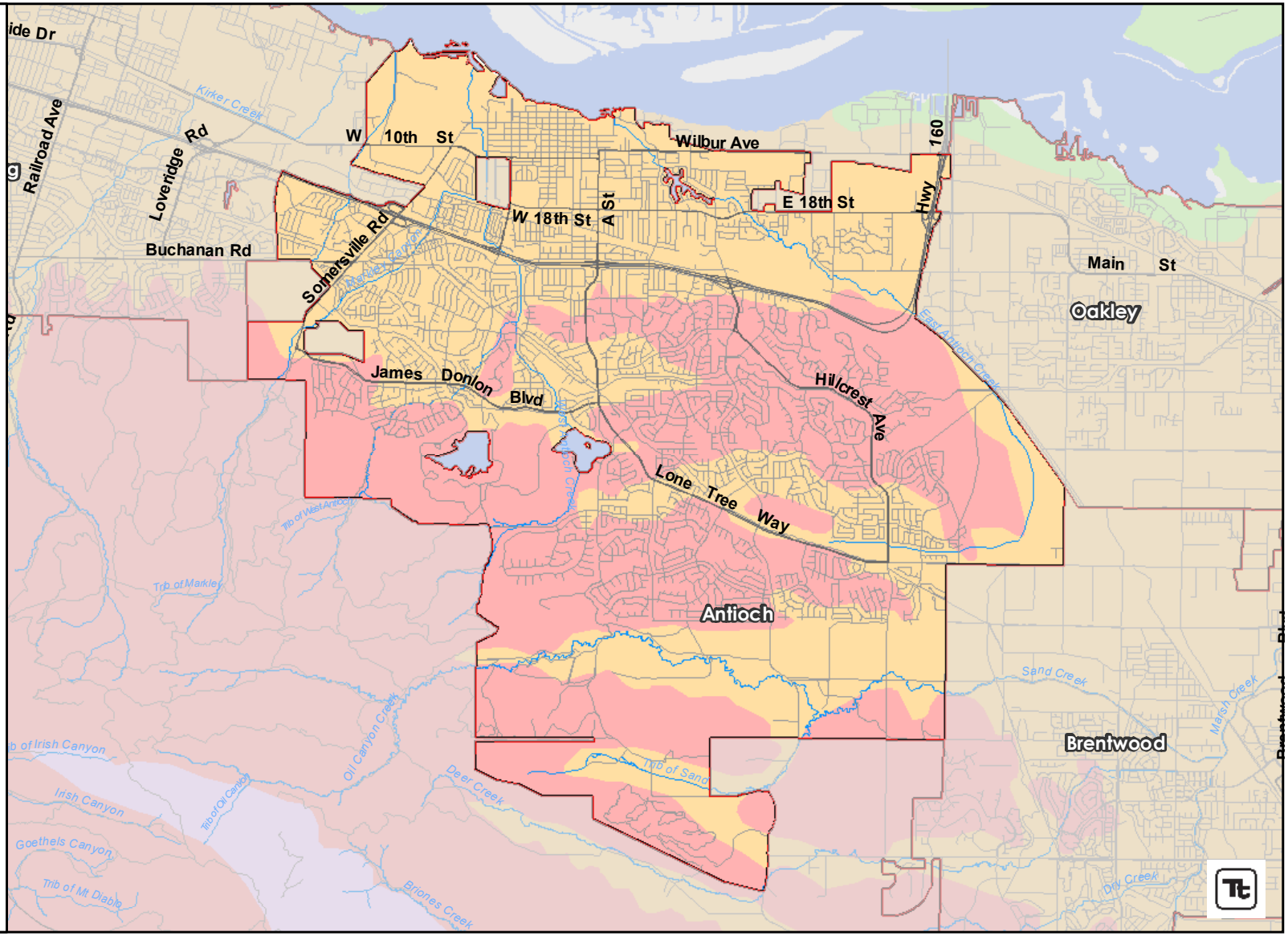
Soils

Type

- B - Rock
- C - Very Dense Soil and Soft Rock
- D - Stiff Soil
- E - Soft Soil
- City Limits
- Waterbodies
- Streams
- Roads

0 1 2
Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Antioch

Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend

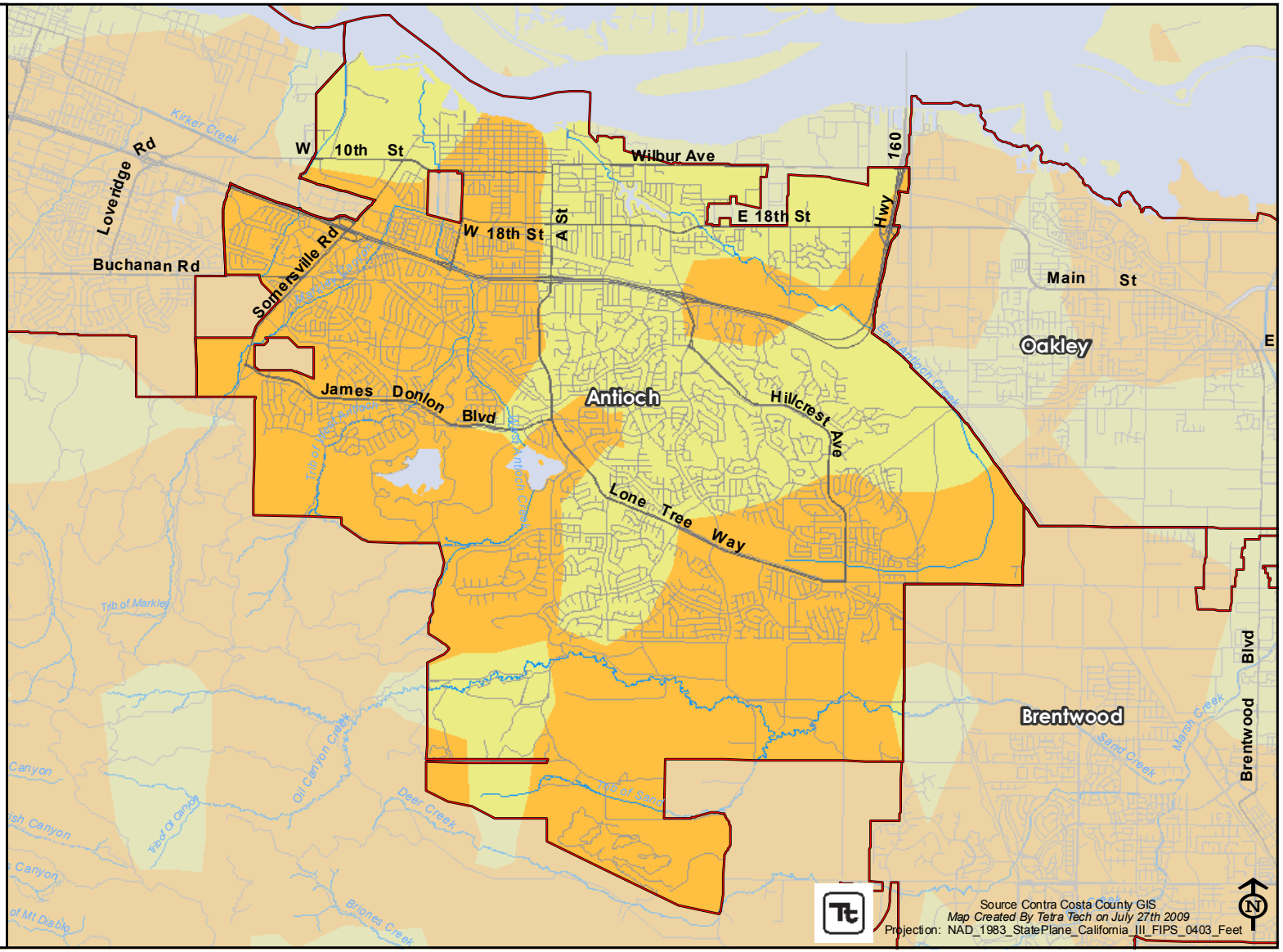
Hypocenter in San Pablo Bay (30 miles E of Concord)

Hayward PGA

Mercalli Scale

- IV - None
- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- IX - Extensive-Complete
- City Limits
- Waterbodies
- Roads
- Streams

0 0.5 1 2
Miles



Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of Antioch

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with
an epicenter of N37.45 W121.81

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

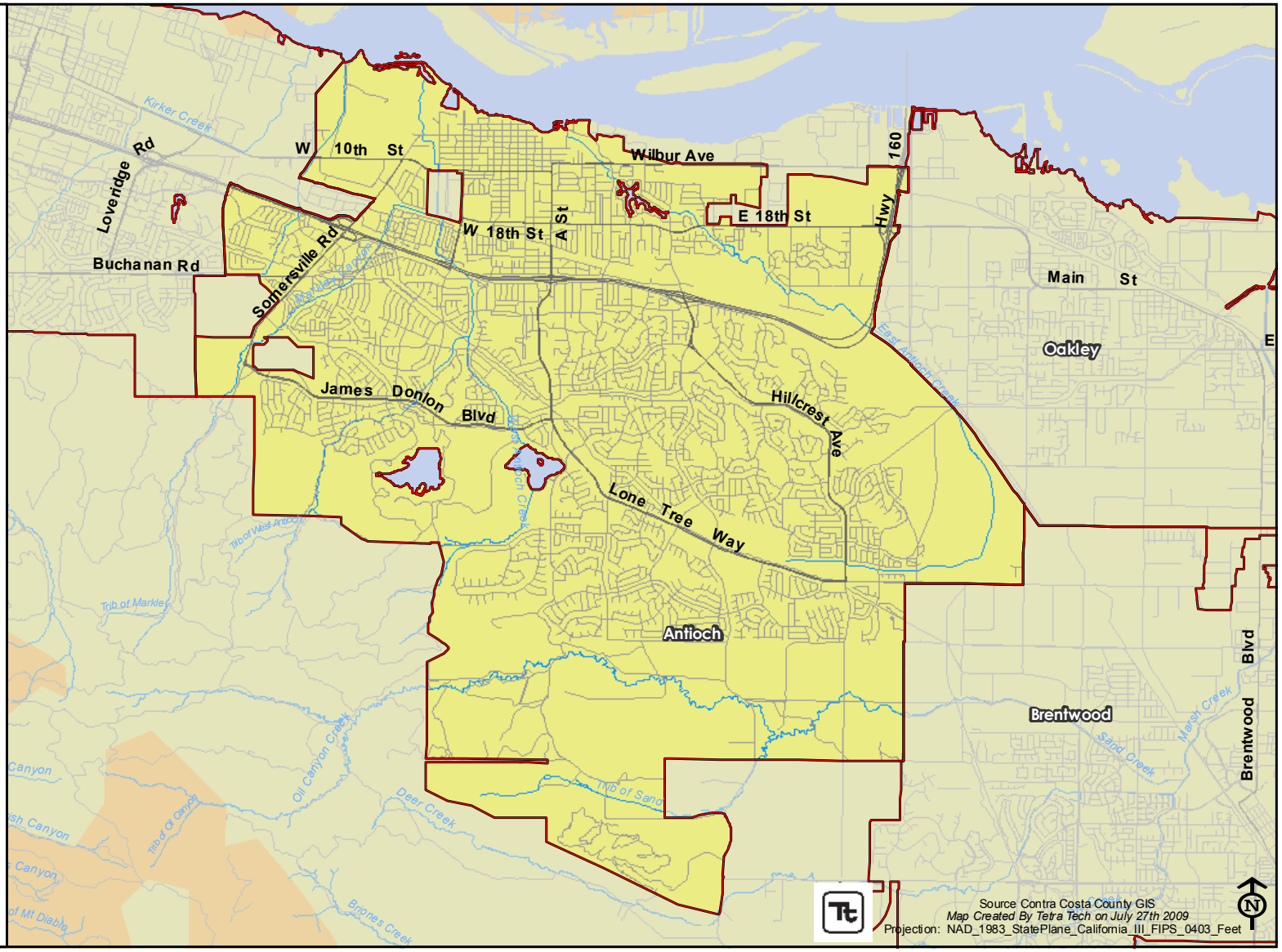
Legend
Epicenter in Northern
Santa Clara County
(45 miles S of Concord)

Calaveras PGA

Mercalli Scale

- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- City Limits
- Waterbodies
- Roads
- Streams

0 1 2
Miles



City of Antioch

Dam Inundation Zone

Legend

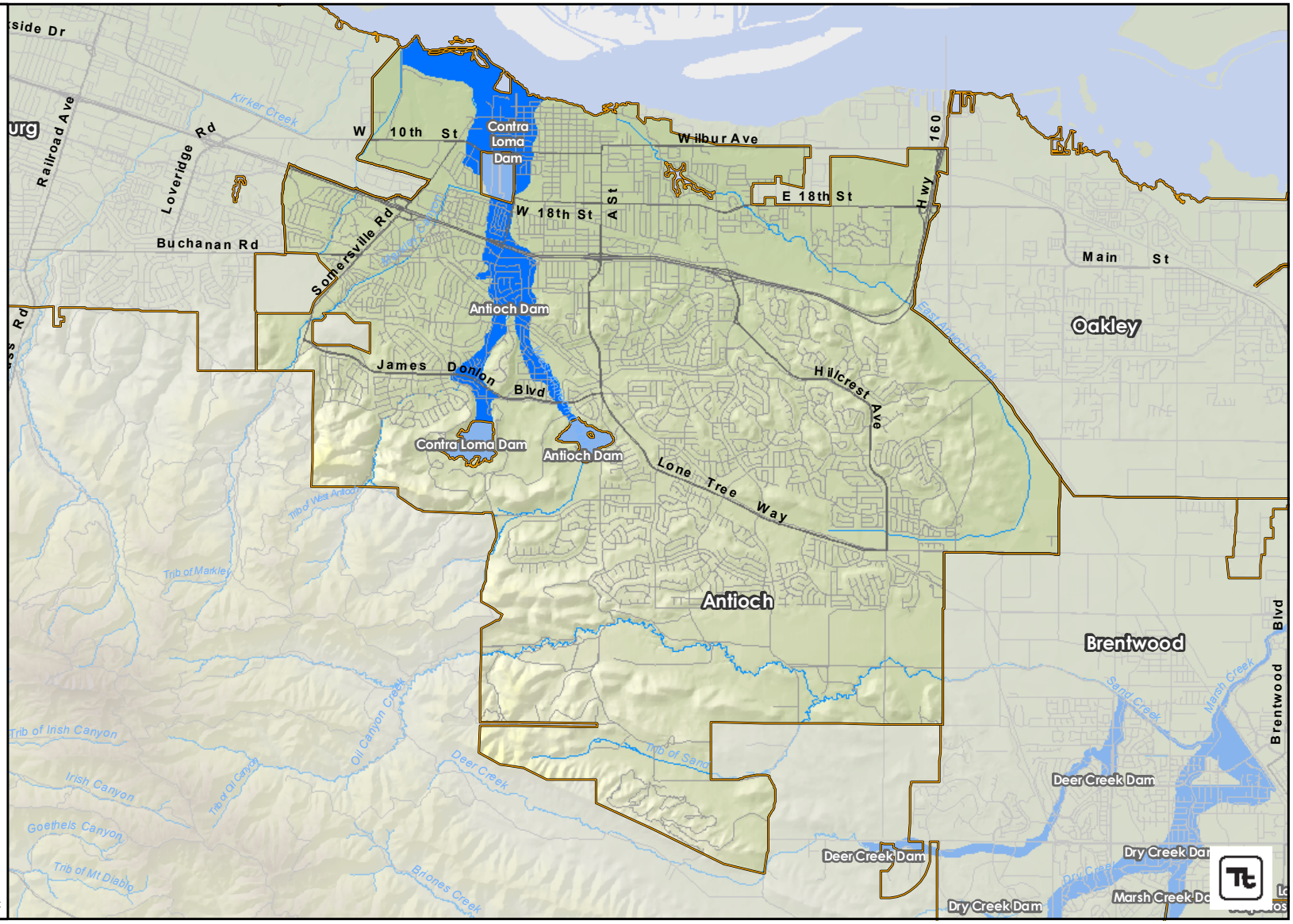
- Dam Inundation Zone
- City Limits
- Waterbodies
- Streams
- Roads

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

0 1 2
Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Antioch

Critical Facilities

Legend

Critical Facilities

- Airport
- Bus
- Care Facility / Hospital
- Electric Power
- Emergency Center
- Fire Station
- Hazardous Material
- Highway Bridge
- Police Station
- Port
- School
- Communication
- Drinking Water
- Storm Water
- Waste Water
- City Limits
- Waterbodies
- Roads
- Streams

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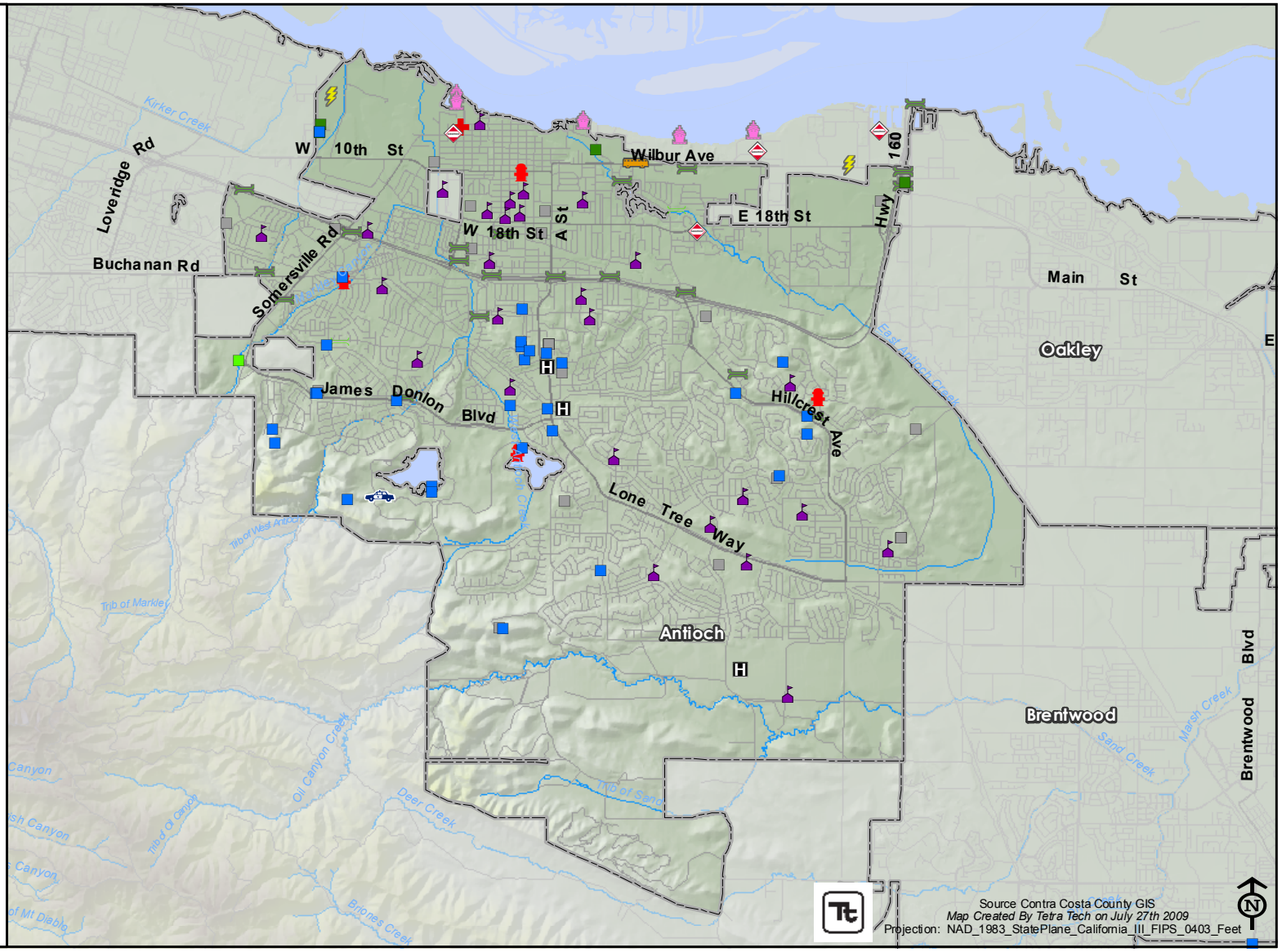
Miles



City of Antioch

FRAP Wildfire Hazard Boundaries

Legend

FRAP (Fire and Resource Assessment Program)
SRA data adopted in 2007
& LRA data recommended in 2008

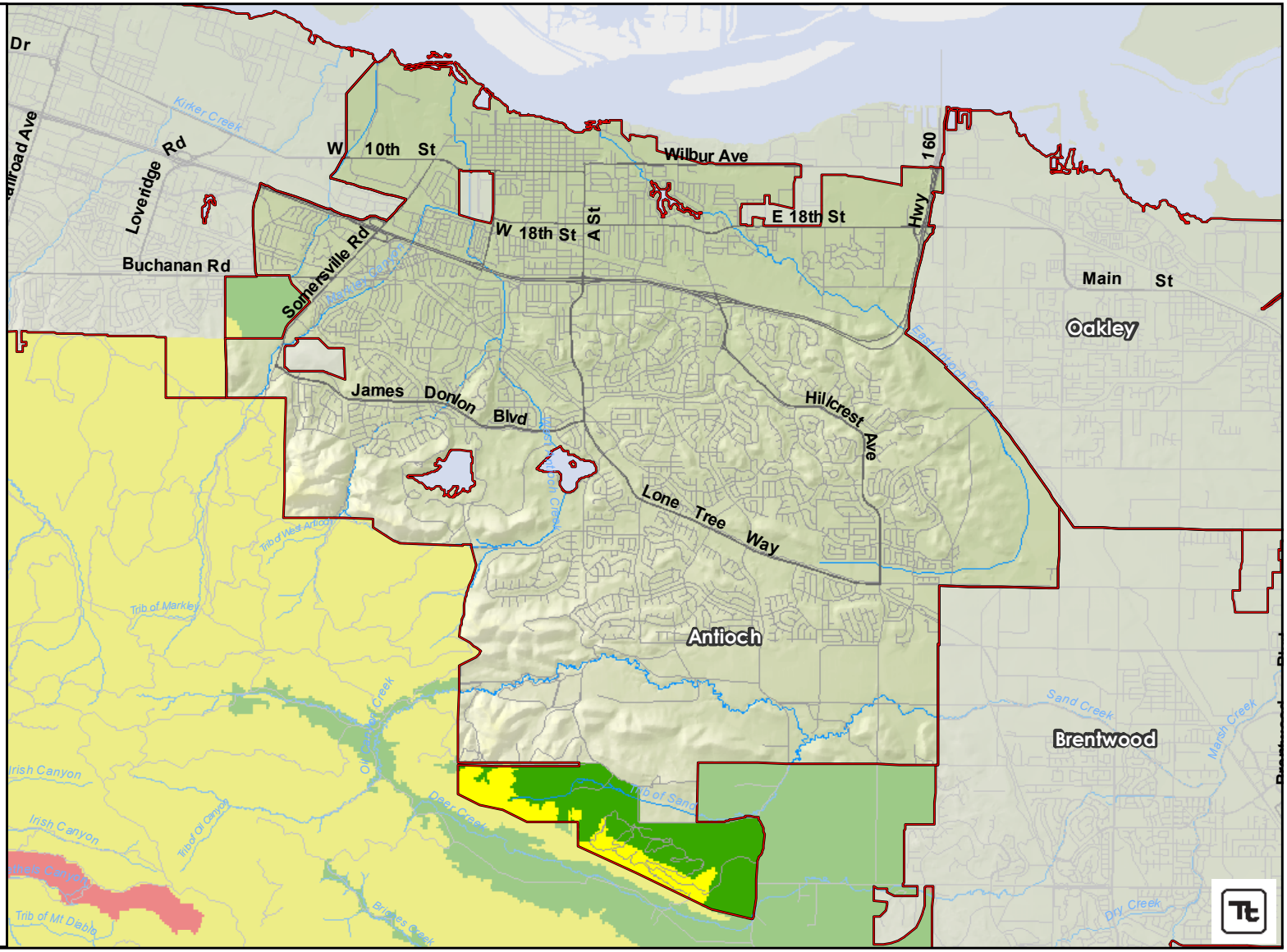
Wildfire Hazard Boundaries

Class

- Moderate
- High
- Very High
- County Boundary
- City Limits
- Waterbodies
- Streams
- Roads

0 1 2
Miles

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



CHAPTER 10.
CITY OF BRENTWOOD ANNEX

10.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Ben Tolero, Police Lieutenant
9100 Brentwood Blvd
Brentwood, CA 94513
Telephone: 925-634-6911
e-mail Address: btolero@ci.brentwood.ca.us

Alternate Point of Contact

James Martinez, Police Captain
9100 Brentwood Blvd
Brentwood, CA 94513
Telephone: 925-634-6911
e-mail Address: jmartinez@ci.brentwood.ca.us

10.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1948
- **Current Population—**50,386 as of June 2009
- **Population Growth—**The City of Brentwood experienced a period of tremendous growth from the mid-1990s to the mid-2000s. During this time, the population more than tripled. Since the end of that expansionary period, the City has seen little growth.
- **Location and Description—**The City of Brentwood is in the eastern portion of Contra Costa County, 7 miles southeast of the City of Antioch (center to center) and 32 miles east of the City of Oakland. It is situated along the San Joaquin Delta in the East Bay region of the San Francisco Bay Area. The major thoroughfare is US Highway 4, which traverses Contra Costa County east/west and provides access to San Joaquin County. The City of Brentwood has a total area of 11.67 square miles, of which 0.01 square miles is water. The landscape is marked by rolling hills, native grasses, oak trees and fruit orchards, with three public golf courses.
- **Brief History—**Brentwood began as a farming community in the late 1800s, and is known throughout the Bay Area for its agricultural products, primarily its cherries, corn and peaches. Brentwood was originally laid out on land donated from property owned by John Marsh, an East Contra Costa County pioneer. The city is named after Marsh's ancestral home, the town of Brentwood in the County of Essex, England. Many of the old farms have been replaced by suburban developments since 1990. Despite the decrease in farmland, the City of Brentwood remains a popular location for Bay area residents to visit to pick their own fruits and berries.
- **Climate—**Brentwood's weather is typical of the San Joaquin Valley region, with very cool winters and very hot summers. It is not uncommon to have periods of freezing temperatures in the winter and temperatures exceeding 100 degrees in the summer. Winter rains fall from November to April, with an annual average rainfall of 13 inches. Humidity averages between 50 and 60 percent. Prevailing winds are from the west and average 5-10 mph.
- **Governing Body Format—**The City of Brentwood has a Mayor-Council system of governance. Primary power lies with the five council members, divided into five wards. The Mayor has the power to appoint, as well as ceremonial duties; the job includes presiding over

council meetings, and meeting visiting dignitaries. Official city business is administered by the Office of the City Manager

- **Development Trends—**Brentwood was a typical small, bedroom/farming community until the mid-1990s, when the City experienced tremendous growth through the mid-2000s. During this time, the population of the City more than tripled. Since the end of that expansionary period, the City has seen little growth, and property valuations have fallen substantially from their peak. The City's property tax revenue is expected to decline during this fiscal year (2009/2010). This is the second consecutive year of such a decline, for an estimated total decline of 26 percent since the peak in FY 2007/08. In addition, rising unemployment, stock market losses and home valuation declines have caused residential development in the City to slow exponentially.

  Although the City continues to emphasize growth in the commercial, industrial and retail sectors, office and industrial development has also slowed over the past two years as a result of the recession. It is expected that the pace of new permits for office, industrial and retail construction will remain sluggish during the next several years as market absorption of existing and vacant space will need to take place before new construction is feasible.

  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, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan. The City of Brentwood adopted its general plan under this law in June 1993.

10.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

The only significant past occurrence of natural hazards in Brentwood was the winter storm and flooding event of January 2006, which resulted in $193,000 in damage. The City has no properties identified by FEMA as repetitive flood loss properties.

10.4 HAZARD RISK RANKING

Table 10-1 presents the ranking of the hazards of concern.

10.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 10-2. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 10-3. The assessment of the jurisdiction's fiscal capabilities is presented in Table 10-4. Classifications under various community mitigation programs are presented in Table 10-5.

10.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 10-6 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 10-7 identifies the priority for each initiative. Table 10-8 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

10.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

As Brentwood continues to grow and as technology advances, the City should evaluate and update the ways in which it disseminates information to the population.

The City of Brentwood has a large population of elderly citizens, with a significant amount of retirement residential developments and buildings. The City is also developing many low to very low income housing developments, which is new to the City's demographics. It would be very beneficial for the City to begin exploring ways to deal with these two populations during a disaster and identify any future training in this area for City staff.

The City is also seeing an increase in its animal population. It may be beneficial to begin planning on ways to deal with the animal population during a disaster.

10.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Brentwood and 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 10-1.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Drought	45
2	Flood	33
3	Severe Weather	33
4	Earthquake	27
5	Dam Failure	8
6	Wildfire	6
7	Landslide	6

TABLE 10-2.
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	2008 Building Code
Zoning Code	Y	N	N	Y	17.010.004 (Adopted 1987)
Subdivisions	Y	N	N	N	16.010.020 (Adopted 1990)
Stormwater Management	Y	N	N	N	14.20.010 (Adopted 2005)
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	N	N	Y	Y	Ca. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property
Growth Management	Y	N	N	Y	
Site Plan Review	Y	N	N	N	17.463.002 (Adopted 2008)
Special Purpose (flood management, critical areas)	Y	N	N	N	15.070.010 (Adopted 2001)
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	Adopted June 1993
Floodplain or Basin Plan	Y	N	N	N	15.070.010 (Adopted 2001)
Capital Improvement Plan	Y	N	N	N	Adopted May 2009
Habitat Conservation Plan	Y	N	Y	N	16.168.010 (Adopted 2007)
Economic Development Plan	Y	N	N	N	
Emergency Response Plan	Y	N	N	N	
Shoreline Management Plan	N	N	N	N	
Post Disaster Recovery Plan	N	N	N	N	

TABLE 10-3.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Engineering and Community Development Departments/Staff
Engineers or professionals trained in building or infrastructure construction practices	Y	Engineering and Public Works Departments/Staff
Planners or engineers with an understanding of natural hazards	Y	Engineering and Community Development Departments/Staff
Staff with training in benefit/cost analysis	Y	City Administration and Finance Departments/Staff
Floodplain manager	Y	Engineering and Community Development Departments/Staff
Surveyors	Y	Engineering and Public Works Departments/Staff
Personnel skilled or trained in GIS applications	Y	Engineering Department/GIS Coordinator
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	City Manager and Police Captain
Grant writers	N	

TABLE 10-4.
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	No
Incur Debt through Special Tax Bonds	Don’t know
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	No
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 10-5.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 10-6.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #B-1—Repair and/or replacement of City responsible sound walls which are damaged from either the ground settling, vehicular damage or as a result of other problems to avoid public safety issues						
Existing	Earthquake, Severe Weather	15	Dept. of Public Works	$125,000	Parks and LLD Replacement Fund	Long Term
Initiative #B-2—Replace power supplies at City wells 11, 12, 13 and 15 to ensure a safe, reliable disinfection system for the City's water supply						
Existing	All Hazards	1	Dept. of Public Works	$233,529	Water Enterprise Fund	Short Term
Initiative #B-3—Installation of new water and sewer facilities, rehabilitation/replacement of existing facilities in order to bring Downtown infrastructure up to current standards						
Existing	Earthquake, flood, severe weather	1	Dept. of Public Works	$4,953,600	Water Enterprise/Redevelopment funds	Short Term
Initiative #B-4—Construction to improve water flow throughout the City in order to stabilize volumes and pressure during peak demands						
Existing	Drought, Earthquake, Severe Weather, Wildfire	1	Dept. of Public Works	$297,700	Facility Fees	Short Term
Initiative #B-5—Install fueling system at Public Works Corp yard and future system at Police Station to increase storage capacity to aid in event of emergency						
New	All Hazards	1, 2	Dept. of Public Works	$330,000	Water Enterprise Fund	Short Term

TABLE 10-6 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #B-6—Install a trunk, reclaimed water system to irrigate golf courses and city owned vegetation						
Existing	Drought	1	Dept. of Public Works	$14,302,000	Facility Fees HMGP	Long Term
Initiative #B-7—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	Planning	Low	General fund	Short-Term, ongoing
Initiative #B-8—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	Planning	Low	General fund, FEMA Mitigation Grant Funding for 5-year update	Short-Term, ongoing
Initiative #B-9—Continue to maintain compliance and good standing under the National Flood Insurance Program						
New and existing	Flood	4,5,6,7,11,12	Public Works	Low	General Fund	Ongoing
Initiative #B-10—Consider participation in the Community Rating System						
New and Existing	Flood	3,4,5,7,9	Public Works	Low	General Fund	Short-Term
Initiative #B-11—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	4,5,14	OES & DCD	Low	General Fund	Early 2010 Short-Term
Initiative #B-12—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	3,7,15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-Term, depends on funding

TABLE 10-7.
MITIGATION STRATEGY PRIORITY SCHEDULE

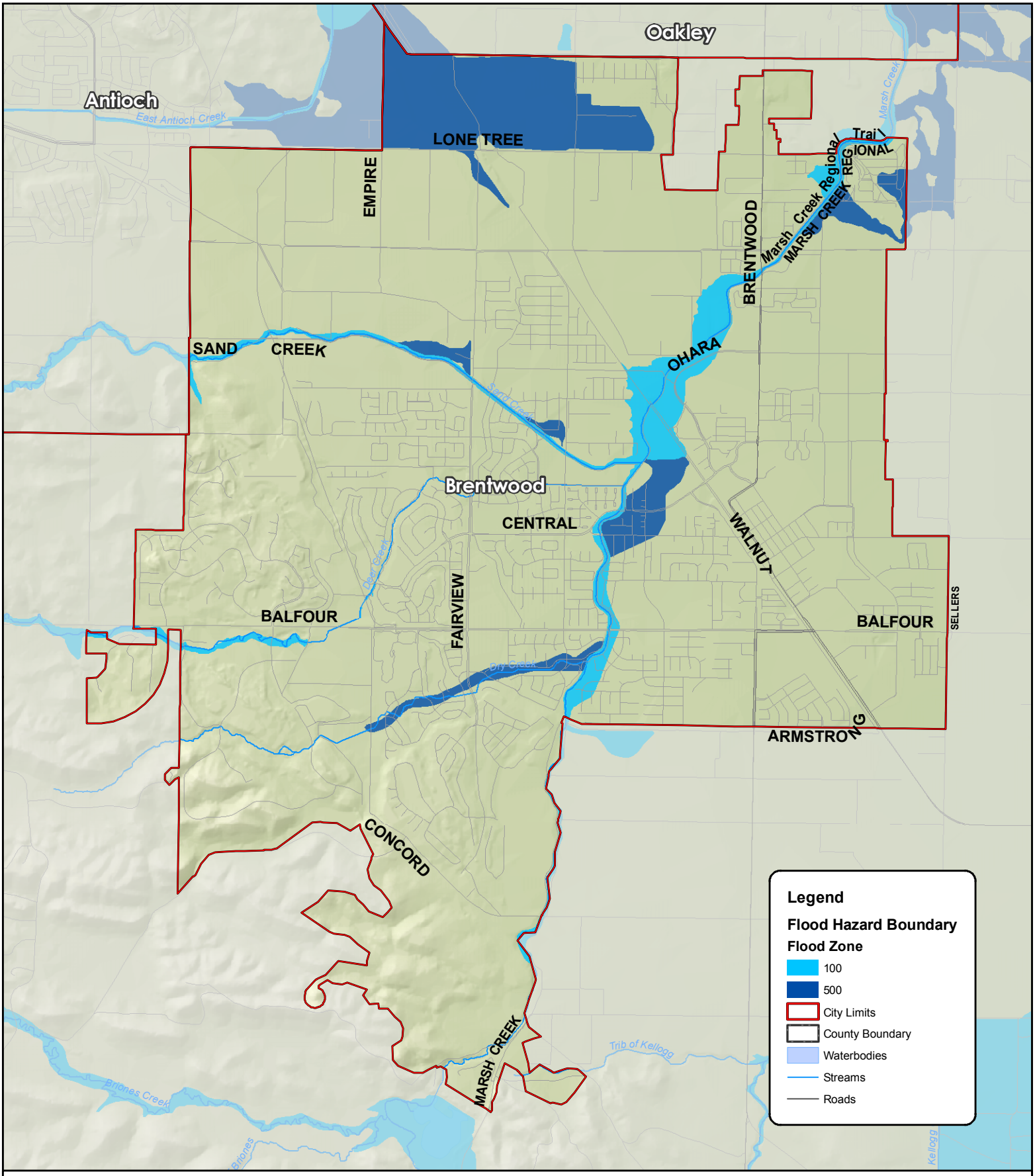
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/Budgets?	Priority[a]
1	1	High	Low	Yes	No	Yes	Medium
2	1	Medium	Medium	No	No	Yes	Medium
3	1	Low	Low	No	No	Yes	Medium
4	1	Medium	Medium	No	No	Yes	Medium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

a. Explanation of priorities
- 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).

TABLE 10-8.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	6, 8, 11	6, 12	7, 8	6, 11		
Earthquake	1, 2, 3, 8, 11	1, 3, 12	7, 8	2, 11	5	1
Flood	2, 3, 8, 9, 10, 11	3, 9, 10, 12	7, 8, 9, 10	2, 9, 10, 11	5, 9, 10	9, 10
Landslide	8, 11	12	7, 8	11	5	
Severe Weather	1, 2, 3, 8, 11	1, 3, 12	7, 8	2, 11	5	1
Tsunami	8, 11	12	7, 8	11		
Wild Fire	8, 11	12	7, 8	11	5	

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

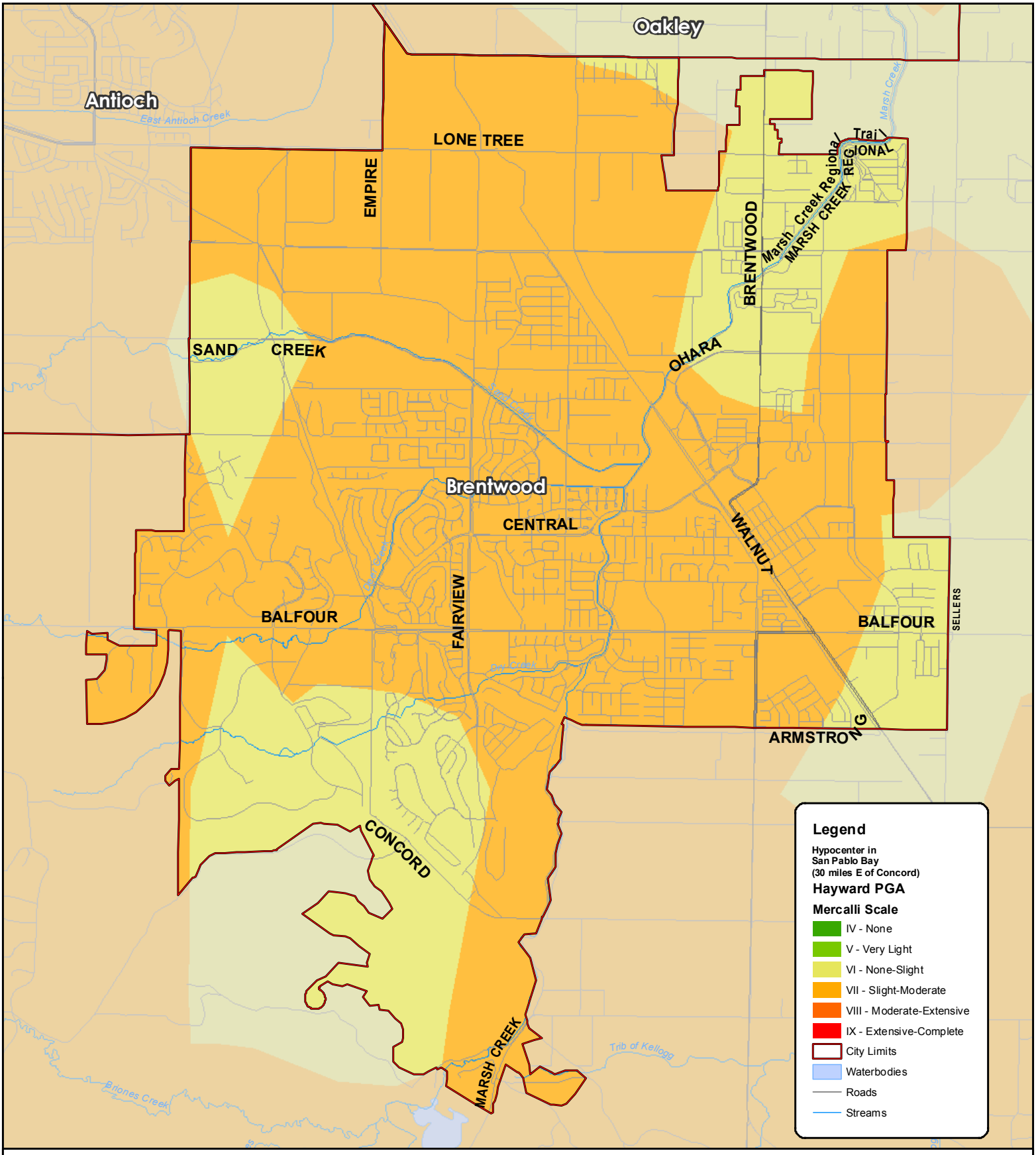


City of Brentwood

100 & 500 Year
Flood Hazard Boundaries

0 0.5 1
Miles

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Brentwood

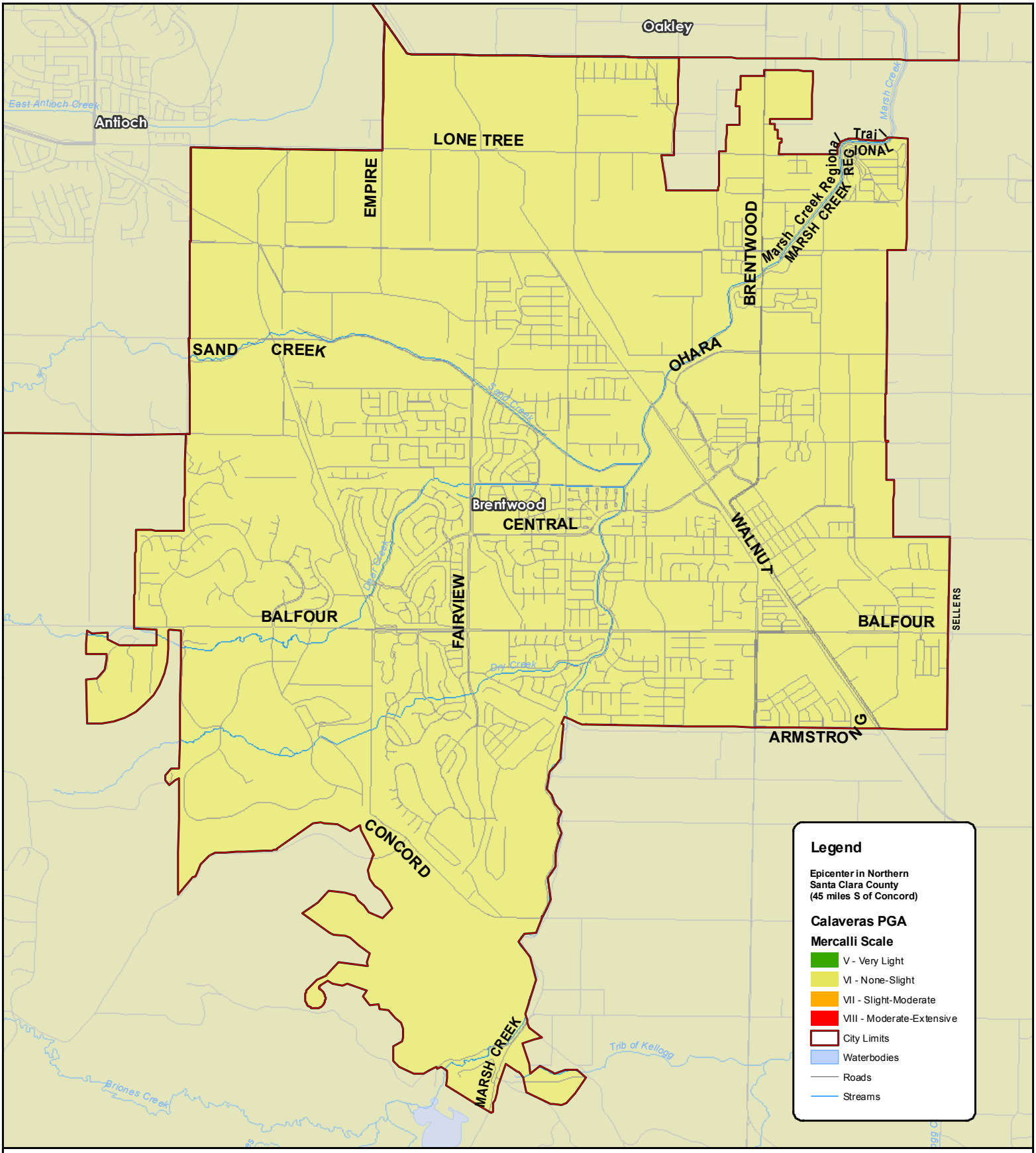
Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

0 0.5 1
Miles

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Brentwood

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 0.5 1
Miles

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
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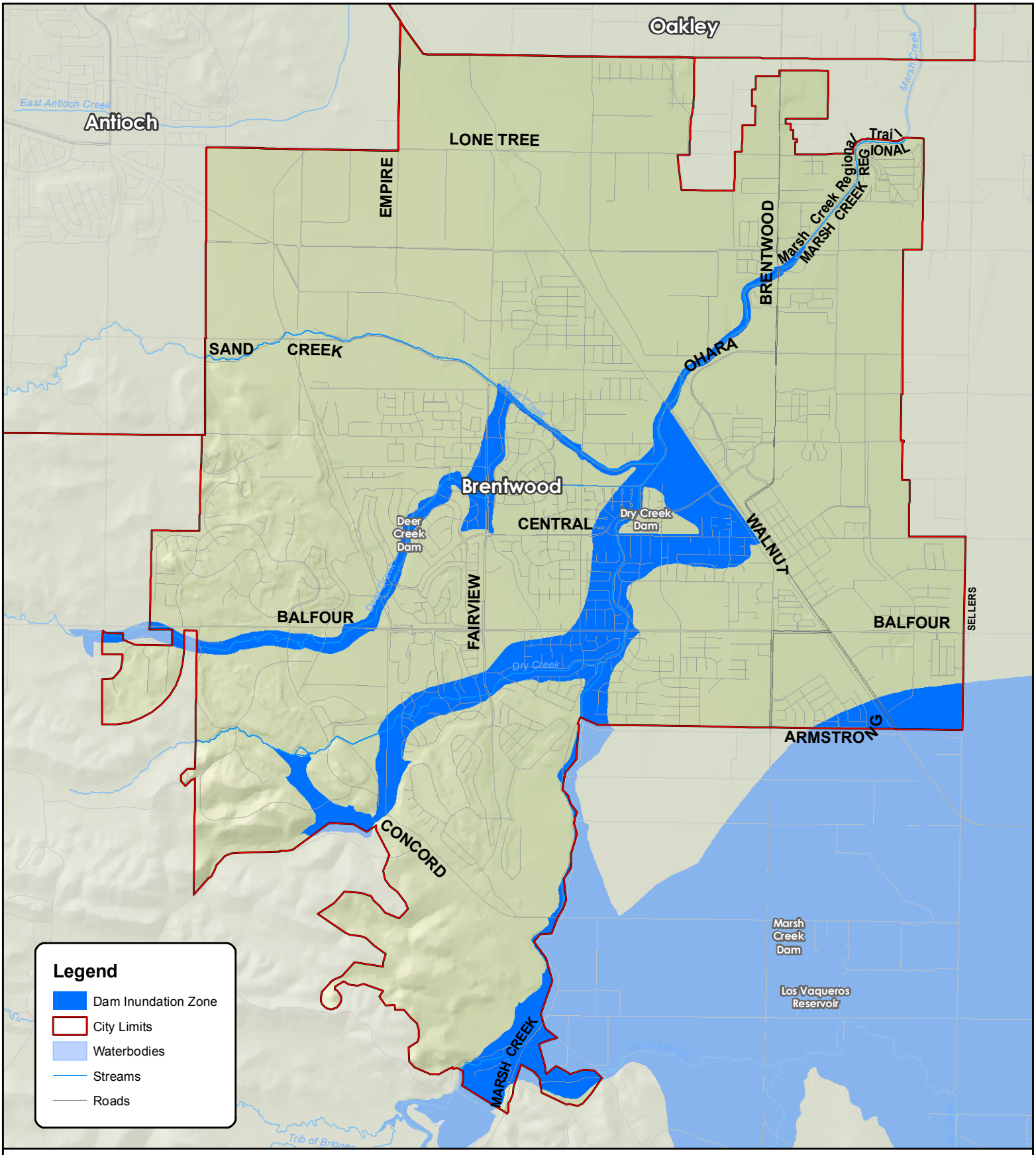


City of Brentwood

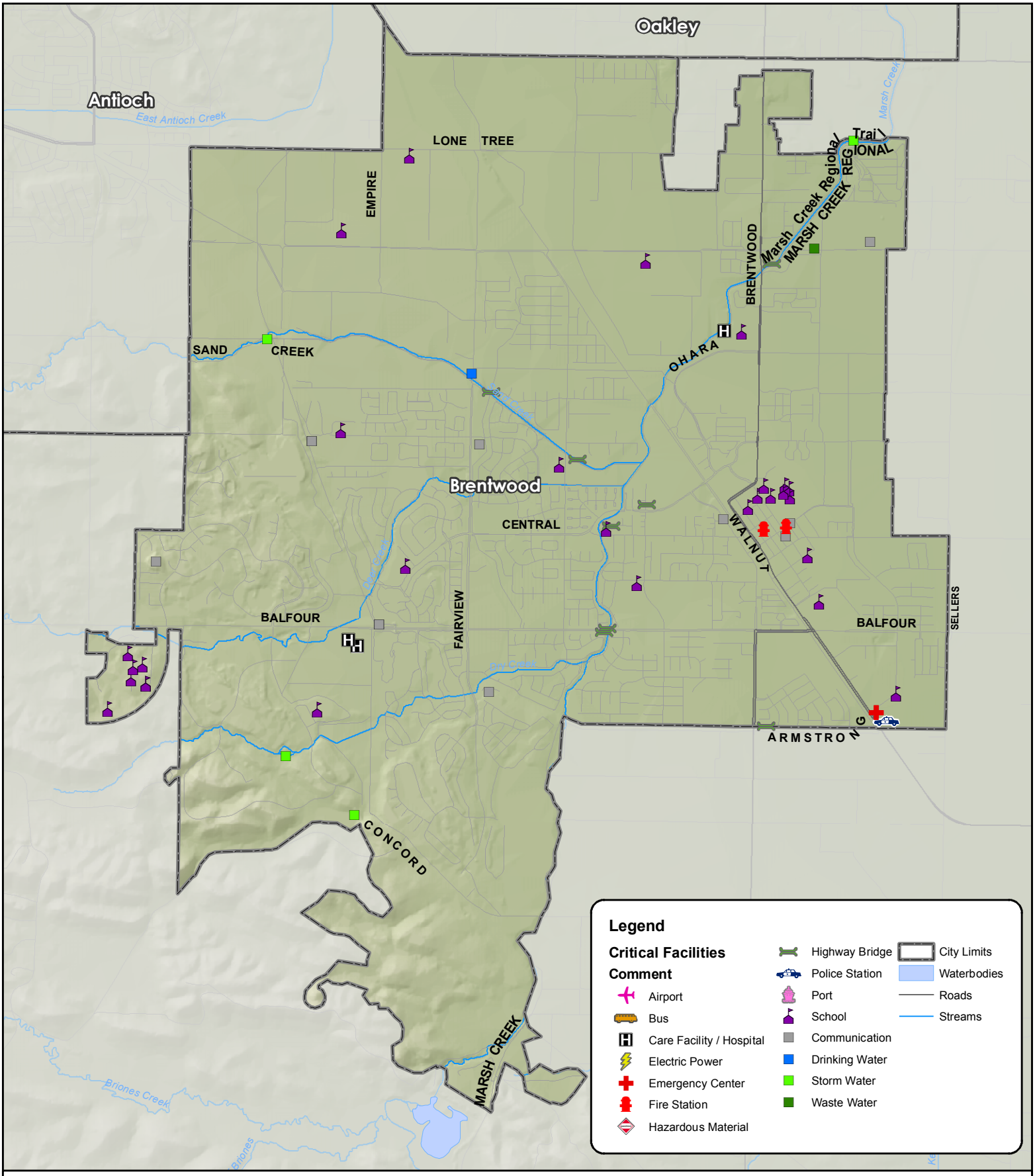
Dam Inundation Zone

0 0.5 1
Miles

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

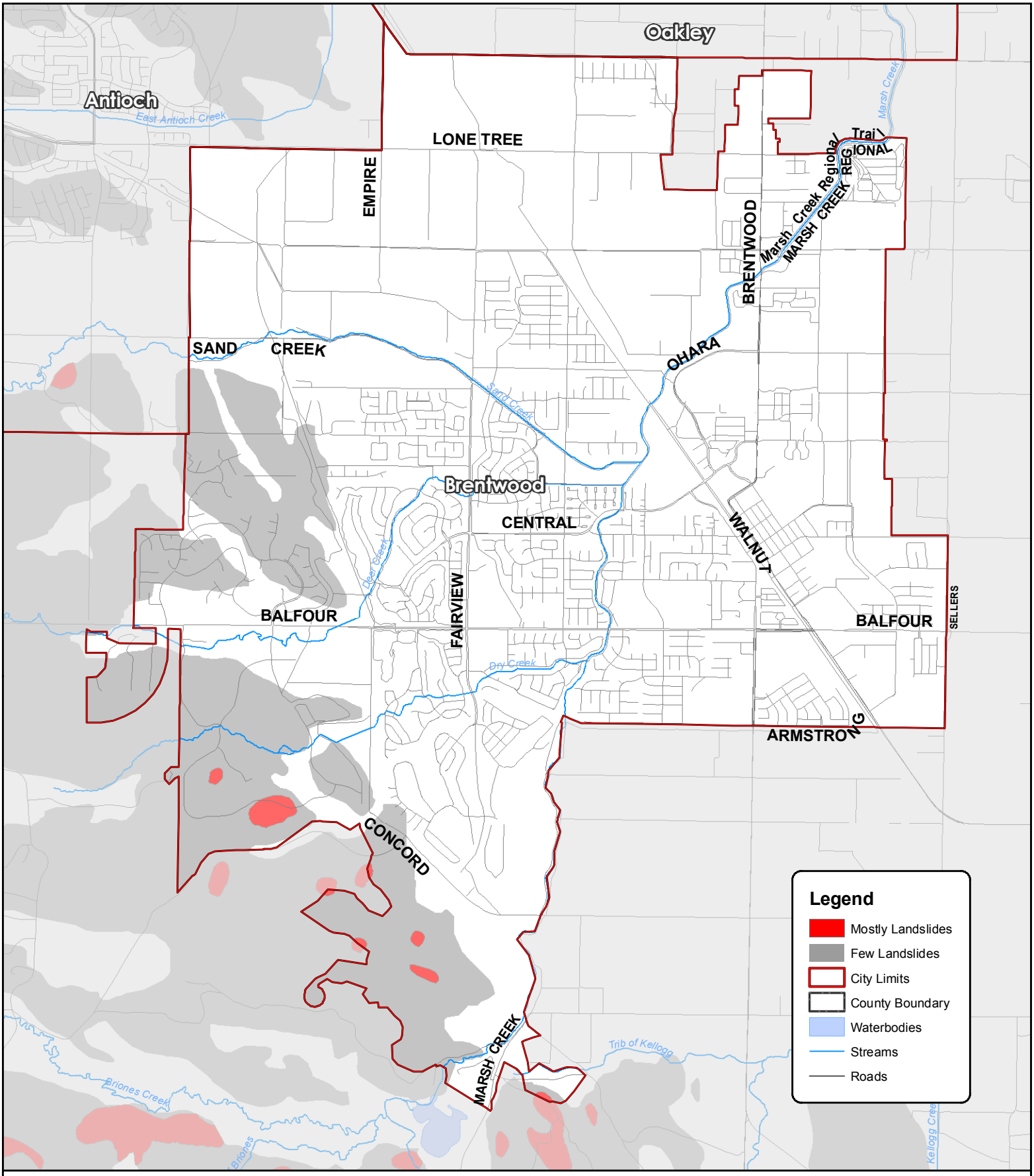


City of Brentwood

Critical Facilities

0 0.5 1
Miles

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Brentwood

USGS Landslide Hazard Areas

0 0.5 1
Miles

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

CHAPTER 11.
CITY OF MARTINEZ ANNEX

11.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Tim Tucker, City Engineer
525 Henrietta Street
Martinez, CA 94553
Telephone: 925-372-3562
e-mail Address: ttucker@cityofmartinez.org

Alternate Point of Contact

Eric Ghisletta, Commander
Telephone: 925-372-3447
e-mail Address: eghisletta@cityofmartinez.org

11.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1876
- **Current Population—**36,348
- **Location and Description—**Martinez is generally carved into rolling hills. The developed area ranges in elevation from sea level at the marina to approximately 500 feet above sea level at the southwest portion of town. Martinez is bordered to the west by East Bay Regional Park Land open space. The City of Pleasant Hill borders the town to the south and southwest. Shell Refinery property borders the town to the east from Pacheco Boulevard to the shoreline. The city is bisected by State Route 4. Two major rail lines (BNSF Railway and Union Pacific) with accompanying fuel lines also bisect the city. BNSF Railway runs through the central portion of the city, surrounded primarily by residential development; Union Pacific primarily runs parallel to the shoreline along the northern border of the downtown business district.
- **Brief History—**Incorporated in 1876, Martinez is the county seat of Contra Costa County. It is located along the Sacramento and San Joaquin Rivers in the central part of the county. The City's roots can be traced to the late 1840s, when it served as a ferryboat transit point across the Carquinez straits on the way to the gold fields. By the time of its incorporation, Martinez had evolved into one of the area's most significant trading posts and shipping ports. Today, the City covers 12.5 square miles and has approximately 36,700 residents. As one of California's first towns, Martinez retains a strong sense of history and family. The renowned naturalist John Muir made Martinez his home for nearly a quarter of a century and in 1915, the year after Muir's passing, baseball star Joe DiMaggio was born here. Many of the downtown shops retain their early 20th century look and charm, and some homes date back more than 125 years.

  Martinez has modernized both its infrastructure and its downtown. The City opened an award-winning Intermodal Facility in 2001 that has become a popular stop along the Amtrak line. It also completed a major restoration of Alhambra Creek that beautifies the downtown and controls flooding, and has embarked on a program to make Martinez a cultural-historical attraction as the home of the John Muir Festival Center. An outdoor amphitheater is the first realization of this long-term program.

- **Governing Body Format—**Martinez is governed by an elected Mayor and City Council. The City is run through a City Manager office. Current departments are Police Services, Finance, Administrative Services, City Attorney (contracted), Public Works (building and maintenance), and Community and Economic Development (engineering, planning, recreation and economic development).

  The City operates a water system managed through the Public Works Department. The water system serves approximately 10,000 customers, including unincorporated Alhambra Valley and the Mountain View area and a small portion of Pleasant Hill. Contra Costa Water District provides potable water to a southwestern portion of the City.

  Sanitary services are provided by two independent districts. Central Contra Costa Sanitary District serves the western and southwestern portion of Martinez. Sewage primarily flows via a gravity system to a pump station near the shoreline at the west end of town. Sewage is then pumped to the District's treatment facility in north Concord. Mt. View Sanitary District serves the eastern and southeastern portion of Martinez. Its system flows via a gravity system to a pump station east of Morello Avenue adjacent to the BNSF Railway right of way. Sewage is then pumped to a treatment plant on the west side of I-680 north of Pacheco Boulevard.

  Fire service is provided by Contra Costa County Fire Protection District, which staffs several fire stations in and round Martinez. Development plans for commercial and residential subdivisions are routed to the fire district for review. The District also provides routine and new construction inspections.

  The Contra Costa County Flood and Conservation District does not have jurisdiction or own or operate flood control improvements within the City. The City has adopted many of the flood district's standards. The Public Works Director is the City's floodplain manager. He implements FEMA flood protection requirements.

11.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 11-1 lists all past occurrences of natural hazards within the jurisdiction. The City has no properties identified by FEMA as repetitive flood loss properties.

11.4 HAZARD RISK RANKING

Table 11-2 presents the ranking of the hazards of concern.

11.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 11-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 11-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 11-5. Classifications under various community mitigation programs are presented in Table 11-6.

11.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 11-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 11-8 identifies the priority for each initiative. Table 11-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

11.7 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Martinez and 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 11-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Fire	September 6, 2009	$1,5000,000
Wild Fire	July 10, 2008	Information not available
Winter Weather	January 2007	
Flood	December 31, 2005/January 1, 2006	
Wild Fire	June 26, 2004	$800,000
Flood	February 2000	
Flood	February 1998	
Flood	December 1997	
Flood	January 1995	
Flood	January 1994	
Flood	November/December 1993	
Earthquake	October 18, 1989	
Freeze	December 1988	
Flood	February 1986	
Flood	January 1982	
Flood	January 1980	

TABLE 11-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	57
2	Severe Weather	45
3	Flood	36
4	Drought	28
5	Wild Fire	12
6	Landslide	12
7	Dam Failure	12

TABLE 11-3.
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	2007 (CBC)
Zoning Code	Y	N	N	N	Title 22 MMC
Subdivisions	Y	N	N	Y	Title 21 MMC
Post Disaster Recovery	Y	N	N	N	
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	Y	N	CCTA
Site Plan Review	Y	Y	N	N	
Special Purpose (flood management, critical areas)	Y	N	N	N	
Planning Documents					
General or Comprehensive Plan	N	N	Y	Y	
Floodplain or Basin Plan	Y	Y	Y	Y	FEMA, CA Water Resource Board, Basin Plan
Stormwater Plan	Y	Y	Y	Y	CA Water Resource Board, Basin Plan
Capital Improvement Plan	Y	N	N	N	5-Year CIP Required by CCTA
Habitat Conservation Plan	N	Y	Y	N	
Economic Development Plan	Y	N	N	N	
Emergency Response Plan	Y	N	N	N	
Shoreline Management Plan	N	Y	Y	Y	
Post Disaster Recovery Plan	Y	N	N	N	

TABLE 11-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Community and Economic Development Dept. (CEDD)
Engineers or professionals trained in building or infrastructure construction practices	Y	CEDD
Planners or engineers with an understanding of natural hazards	Y	CEDD
Staff with training in benefit/cost analysis	Y	CEDD, Engineering Division
Floodplain manager	Y	Public Works Dept., Building Division
Surveyors	N	
Personnel skilled or trained in GIS applications	Y	CEDD
Scientist familiar with natural hazards in local area	N	
Emergency manager	Y	Police/City Manager
Grant writers	N	

TABLE 11-5.
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 (Voter approval, Prop 218 regulated)
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes (Voter approval, Prop 218 regulated)
Incur Debt through Private Activity Bonds	Unknown
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Unknown
Development Impact Fees for Homebuyers or Developers	Yes
Other	FEMA Sponsored Grant

TABLE 11-6.
COMMUNITY CLASSIFICATIONS

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

TABLE 11-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #M-1—Raise public awareness about regional hazard						
Both	Multi-Hazard	3, 6, 7, 16	City	$10,000	Grants/Gen Rev	Initiate 2011 ongoing
Initiative #M-2—Promote the use of NOAA "All Hazards" radios for early warning and post-event information						
Both	Multi-Hazard	2, 8	City	$500	General Revenue	Initiate 2011 ongoing
Initiative #M-3—Maintain Political support for Hazard Mitigation and Response Programs.						
Both	Multi-Hazard	6, 12	City			
Initiative #M-4—Establish and continue partnerships between public and private sectors including CERT						
Existing	Multi-Hazard	3, 6, 0-16	City	$10,000	General Revenue	Ongoing
Initiative #M-5—Maintain the viability of all critical facilities and operations.						
Existing	Multi-Hazard	2, 6, 7, 11, 12, 0-15	City	Unknown	Grants/Gen Rev	As funding becomes available
Initiative #M-6—Promote water conservation programs						
Both	Drought	3, 6, 16	City-CCWD	$10,000	Water surplus fund	Ongoing
Initiative #M-7—Develop reclaimed water sources						
Both	Drought	1, 8, 10	City-CCWD-Mt. View San	Unknown	Water surplus fund	As funding becomes available

TABLE 11-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #M-8—Utilize native planting on City owned facilities						
Existing	Drought	1, 4	City	unknown	Park Bond – Gen Rev	As park bond projects are completed
Initiative #M-9—Reduce water system losses						
Existing	Drought	1, 7	City	$300,000	Water surplus fund	Ongoing
Initiative #M-10—Continue to Participate in National Flood Insurance Program						
Both	Flood	1, 9	City	none	N/A	Ongoing
Initiative #M-11—Participate in Community Rating System (CRS) and investigate possibility of increasing rating to reduce flood insurance rates						
Both	Flood	1, 9, 10	City	$5,000	NPDES Assessment	2011
Initiative #M-12—Mitigate potential increased run-off from new development						
New	Flood	1, 3, 4, 5, 6, 7, 10, 11, 12	City	N/A	Developer	Ongoing
Initiative #M-13—Install Alhambra Creek By-pass pipe						
	Flood	1, 4, 5, 7, 10, 15	City	$20 million	Grants	As funds become available
Initiative #M-14—Clear drainage facilities prior to rainy season						
	Flood	1, 6, 8	City	$20,000	NPDES Assessment	Ongoing
Initiative #M-15—Formalize/advertise advance flood warning predictions						
Existing	Flood	2, 3, 6	City/CC Flood Cont Dist	none	N/A	Ongoing
Initiative #M-16—Promote creek clean-up						
Existing	Flood	3, 4, 6, 8, 12	City	$4,000	NPDES Assessment	Ongoing
Initiative #M-17—Participate in Clean Water Program (NPDES)						
Both	Flood	3, 4, 6, 16	City	$500,000	NPDES Assessment	Ongoing

TABLE 11-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #M-18—Adopt International Building Code once ratified by the State						
New	Earthquake	1, 3, 6, 7	City	none	N/A	unknown
Initiative #M-19—Investigate funding for retrofit of URM buildings downtown						
Existing	Earthquake	1, 3, 4, 5, 7, 11, 15	City	unknown	Grants	Ongoing
Initiative #M-20—Evaluate Critical Facilities and retrofit as needed						
Existing	Earthquake	1, 3, 4, 5, 7, 15	City	unknown	Grants	As funding becomes available
Initiative #M-21—Train staff on HAZUS						
	Earthquake	6, 8	City	$2,000	General Revenues	2012
Initiative #M-22—Encourage purchase of earthquake insurance						
Both	Earthquake	2, 13	City	none	N/A	Ongoing
Initiative #M-23—Integrate landslide hazard maps into GIS						
Both	Landslide	3, 6, 8, 16	City	$5,000	General Revenues-grants	2011
Initiative #M-24—Review/adopt regulations prohibiting development in high risk landslide hazard zones						
New	Landslide	1, 4, 5, 7, 11, 14	City	$5,000	General Revenues	2012
Initiative #M-25—Bury utility cables in new developments, business zones and major transportation routes						
Both	Severe Weather	4, 5, 7, 8, 11	City	Unknown	PG&E Rule 20, Gas Tax, Developer	As funds become available
Initiative #M-26—Develop and maintain emergency access						
Both	Wildfire	1, 2, 5, 11, 12, 13, 16	City/CC Fire	$5,000	Gas tax	Ongoing
Initiative #M-27—Clear fuels in City Open Space in accordance with CC fire requirements						
N/a	Wildfire	1, 2, 5, 11, 12, 13, 16	City	$12,000	General Revenues	Ongoing
Initiative #M-28—Require private property owners to create defensible space around structures						
Existing	Wildfire	1, 2, 3, 5, 11, 13, 16	CC Fire	unknown	Tax	Ongoing

TABLE 11-8.
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	Medium	Medium	Yes	Yes	Yes	High
2	2	Medium	Low	Yes	Yes	Yes	Med.
3	2	Medium	Low	Yes	No	No	Med.
4	3	High	Low	Yes	No	Yes	High
5	6	High	High	Yes	Yes	No	Med.
6	3	High	Medium	Yes	No	Yes	High
7	3	High	High	Yes	No	No	Low
8	2	Low	Low	Yes	No	Yes	Med.
9	2	High	High	Yes	No	Yes	Med.
10	2	High	Low	Yes	No	Yes	High
11	3	High	Medium	Yes	No	No	Med.
12	9	Medium	Low	Yes	No	Yes	High
13	6	High	High	Yes	Yes	Yes	High
14	3	High	High	Yes	Yes	No	Med.
15	3	High	Low	Yes	No	Yes	High
16	5	High	Low	Yes	No	Yes	High
17	4	Medium	High	No	No	Yes	Mandated
18	6	High	Low	Yes	No	Yes	Med.
19	7	High	Medium	Yes	No	No	High
20	6	Medium	High	No	Yes	No	Med.
21	2	Medium	Low	Yes	No	Yes	Med.
22	2	Medium	Low	Yes	No	Yes	Low
23	4	Low	Low	Yes	No	No	Low
24	6	High	Low	Yes	No	No	Med.
25	5	Medium	High	No	No	Yes	Med.
26	7	Medium	Medium	Yes	No	No	Low
27	7	High	Medium	Yes	No	Yes	High
28	7	High	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 11-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	1, 2, 3, 6, 7, 8, 9	1, 6, 7	1, 3, 5, 6, 7, 9	1, 8, 27	1, 2, 5	1
Earthquake	1, 18, 19	1, 18, 19	1, 2, 3, 4, 5, 18, 19, 22	1	1, 2, 20	1, 2
Flood	1, 2, 12, 13, 14	1, 14, 16, 13	1, 2, 3, 4, 5, 10, 12, 14, 15, 16	1, 11, 16, 17	1, 2, 3, 4, 5	1, 13, 14, 16
Landslide	1, 19, 20, 23	1	1, 2, 4, 5, 19, 20, 23	1, 13, 14	1, 2, 3, 4, 5	1, 13, 14
Severe Weather	1, 18, 19, 26, 27, 28	1, 26, 28	1, 2, 3, 4, 5, 18, 19, 26, 28	1, 26, 28	1, 2, 3, 4, 5, 26	1
Tsunami	N/A	N/A	N/A	N/A	N/A	N/A
Wild Fire	1, 18, 19, 26, 27, 28	1, 26, 27, 28	1, 2, 3, 4, 5, 18, 19, 26, 27, 28	1, 26, 27, 28	1, 2, 3, 4, 5, 26, 27, 28	1

Notes:
1. 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.
2. 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.
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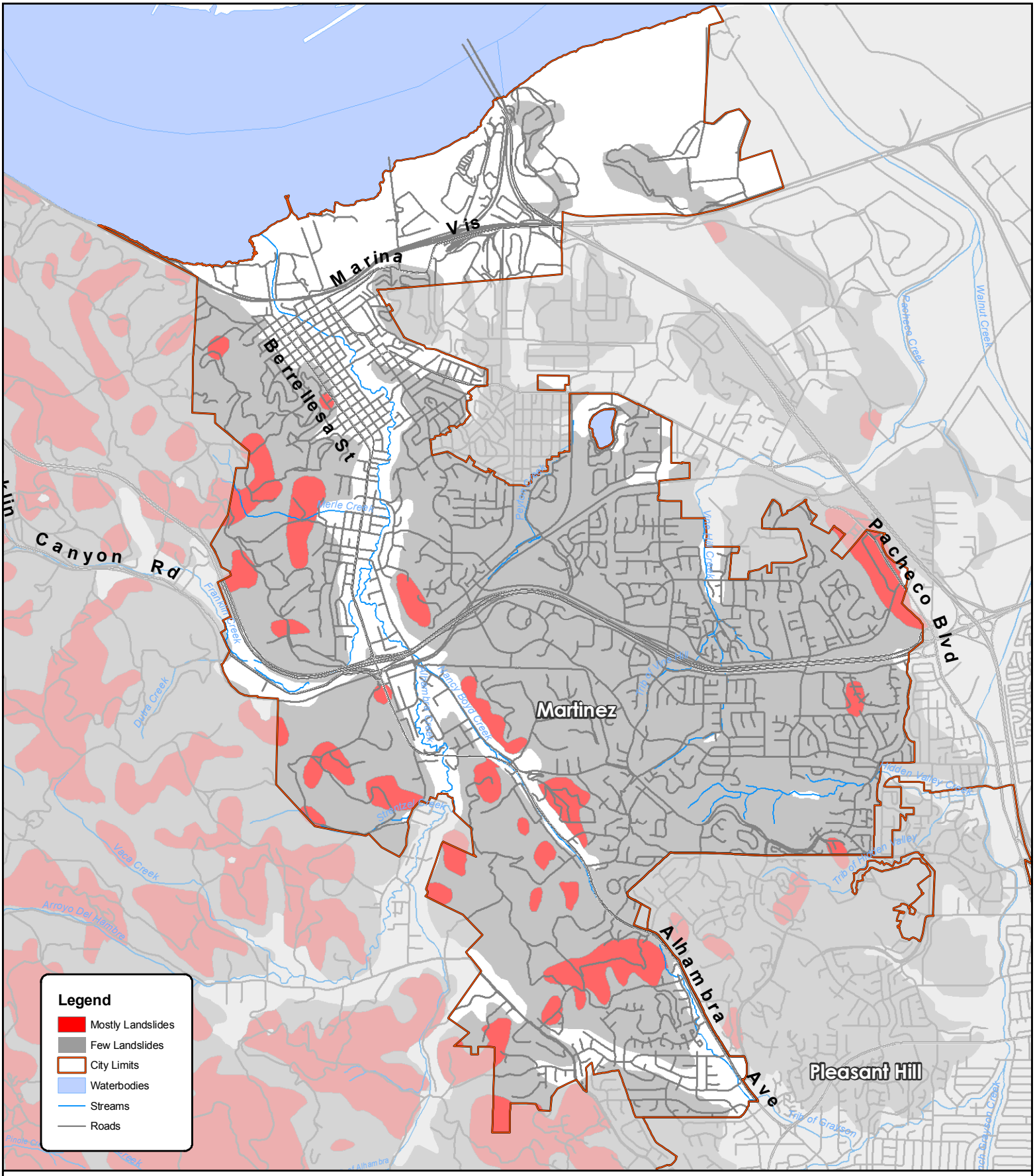


City of Martinez

USGS Landslide Hazard Areas

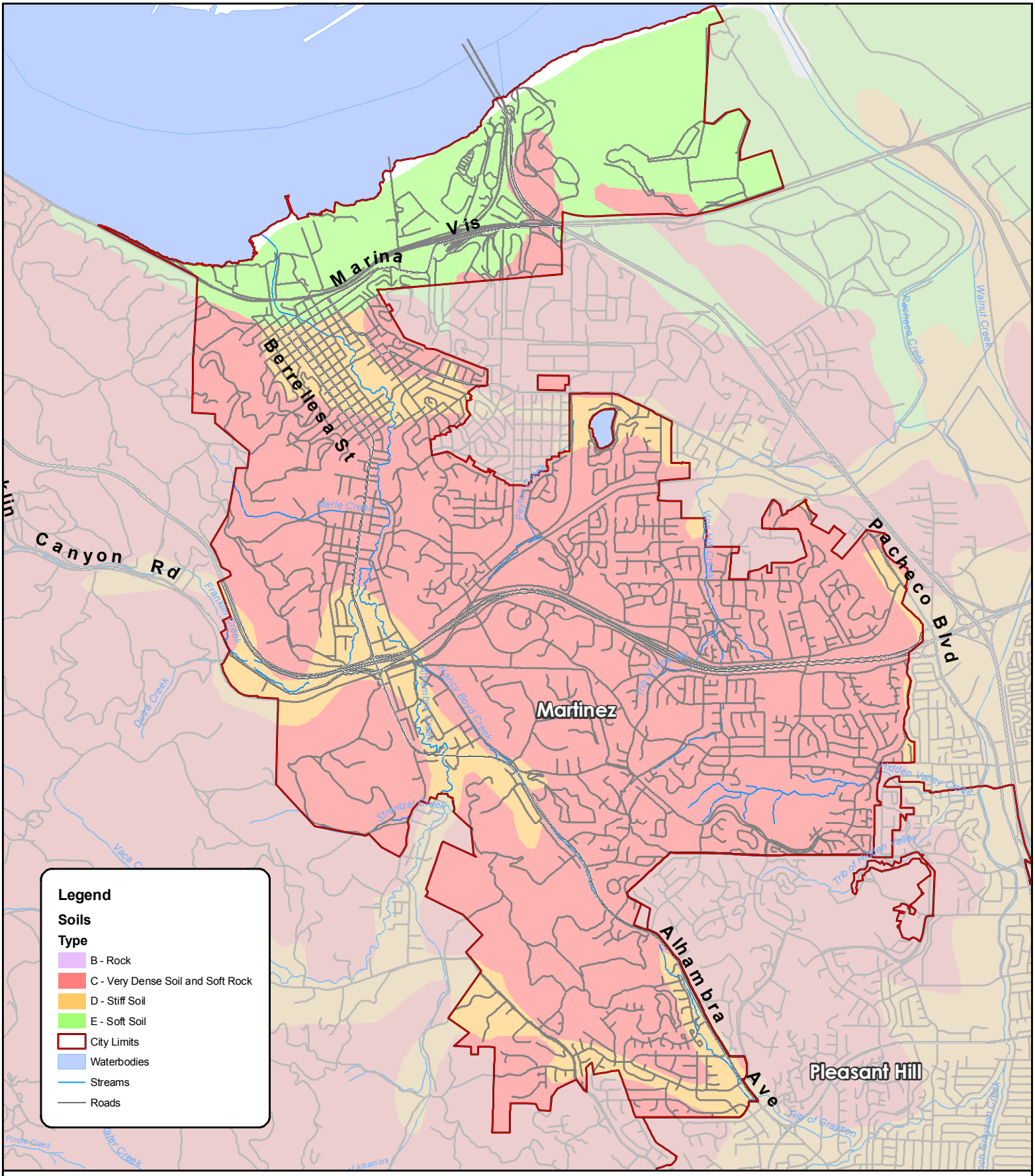
0 0.5 1 2

Miles

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



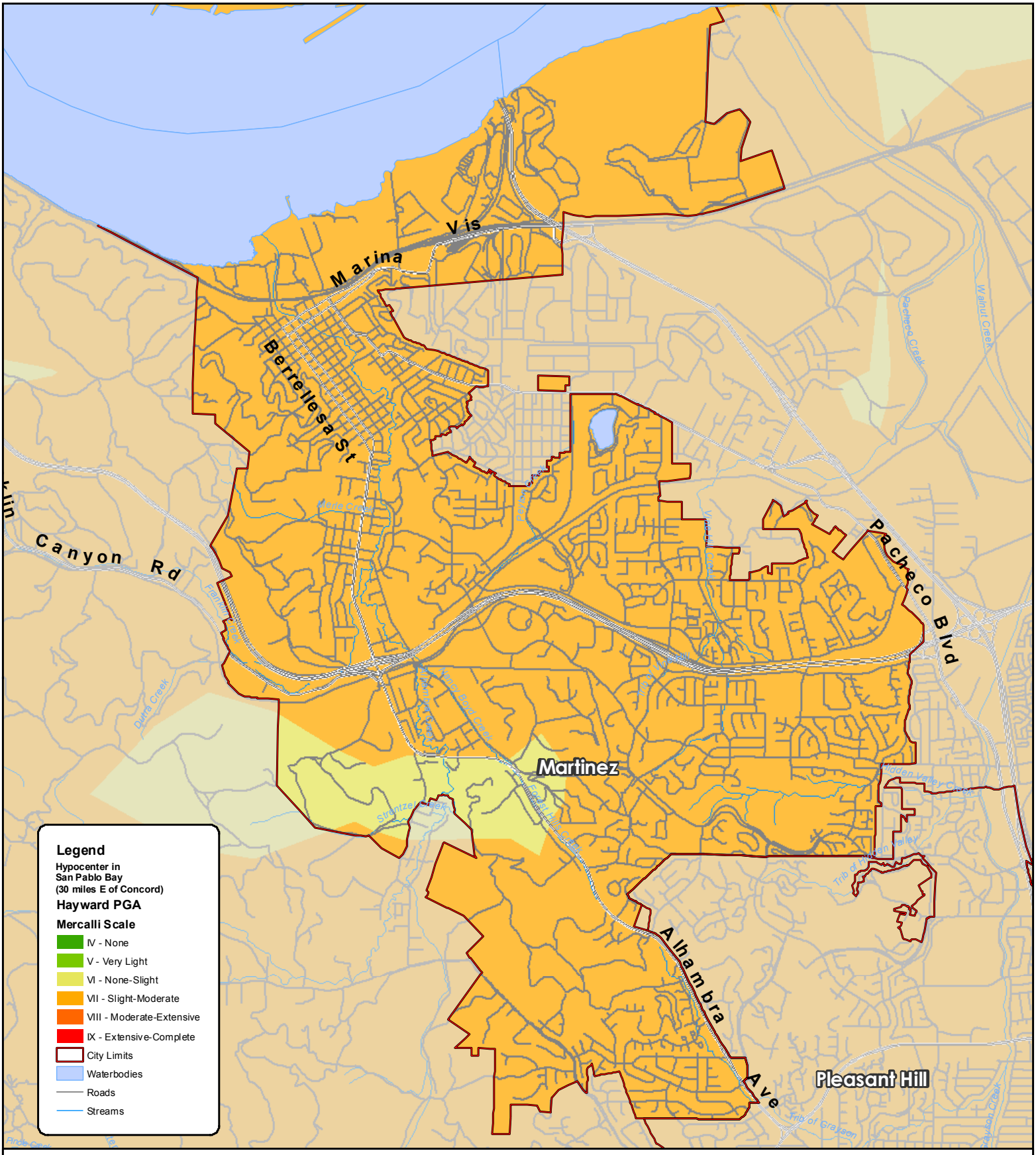
City of Martinez

NEHRP (National Earthquake Hazards Reduction Program) Soils

0 0.5 1 2

Miles

Source Contra Costa County GIS & NEHRP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Martinez

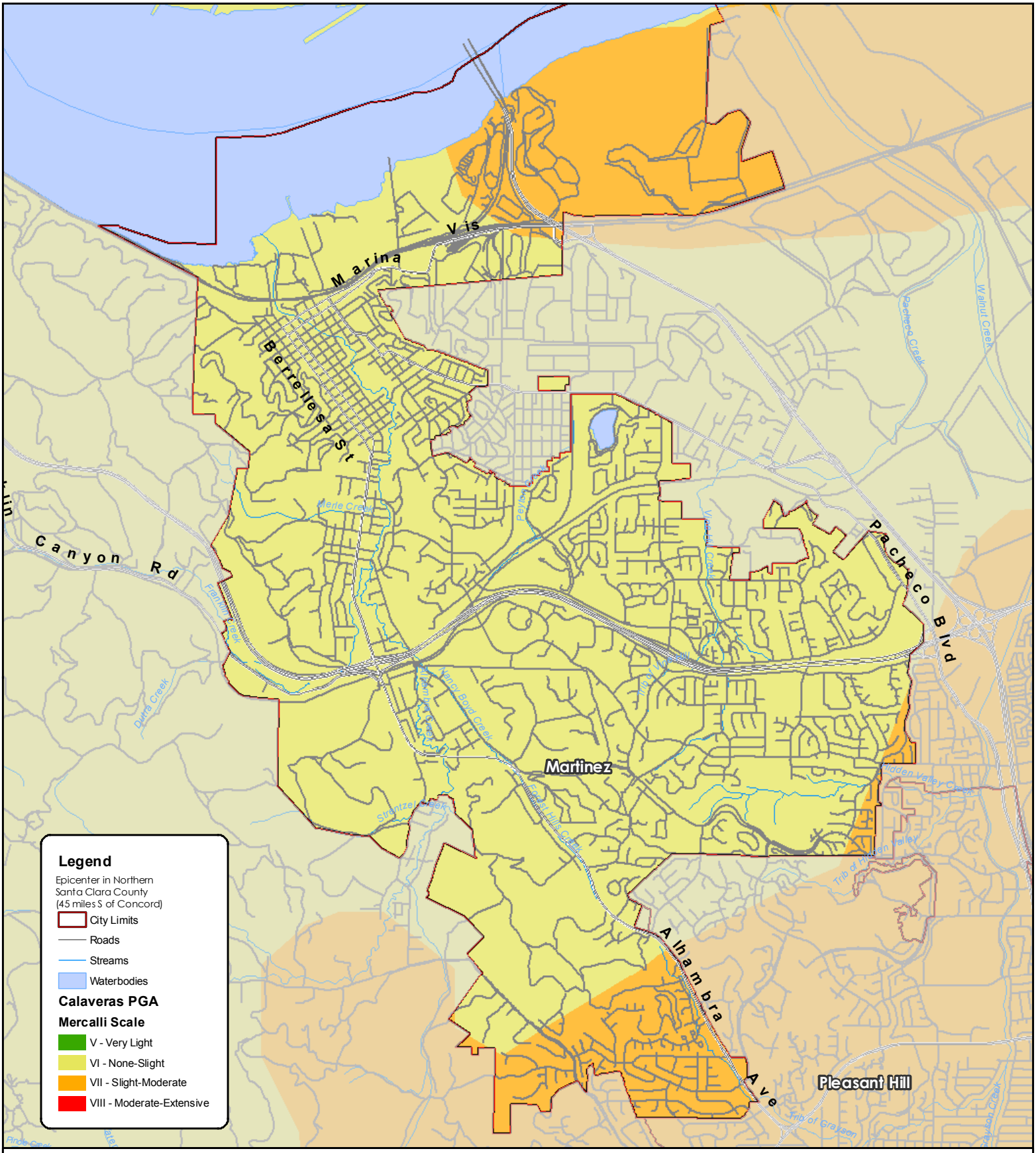
Northern Hayward Earthquake
2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

0 0.5 1 2
Miles

VI Felt by all; many run outside. Some heavy furniture moved.
VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Martinez

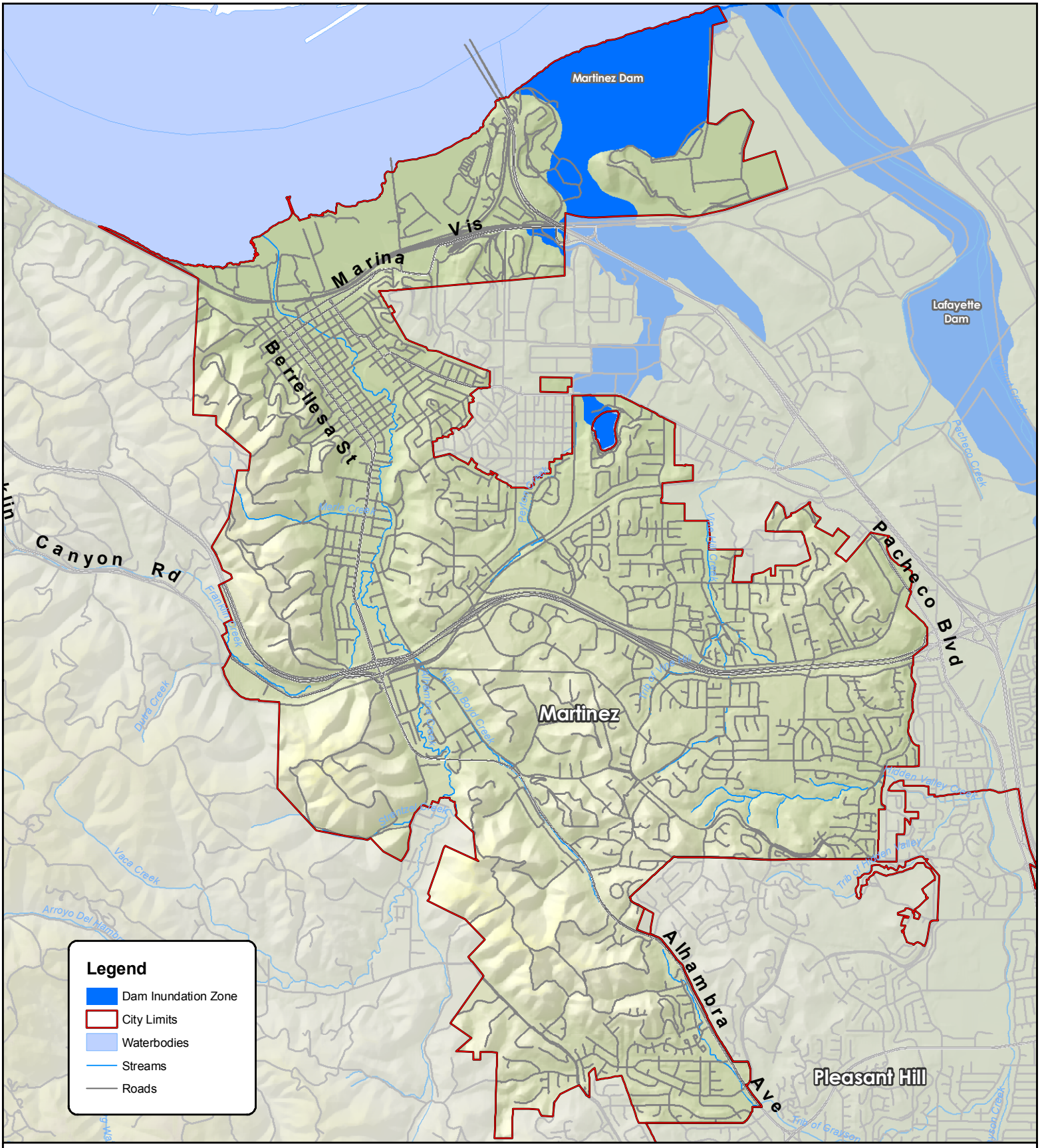
Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with an epicenter of N37.45 W121.81

0 0.5 1 2
Miles

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Martinez

Dam Inundation Zone

0 0.5 1 2

Miles

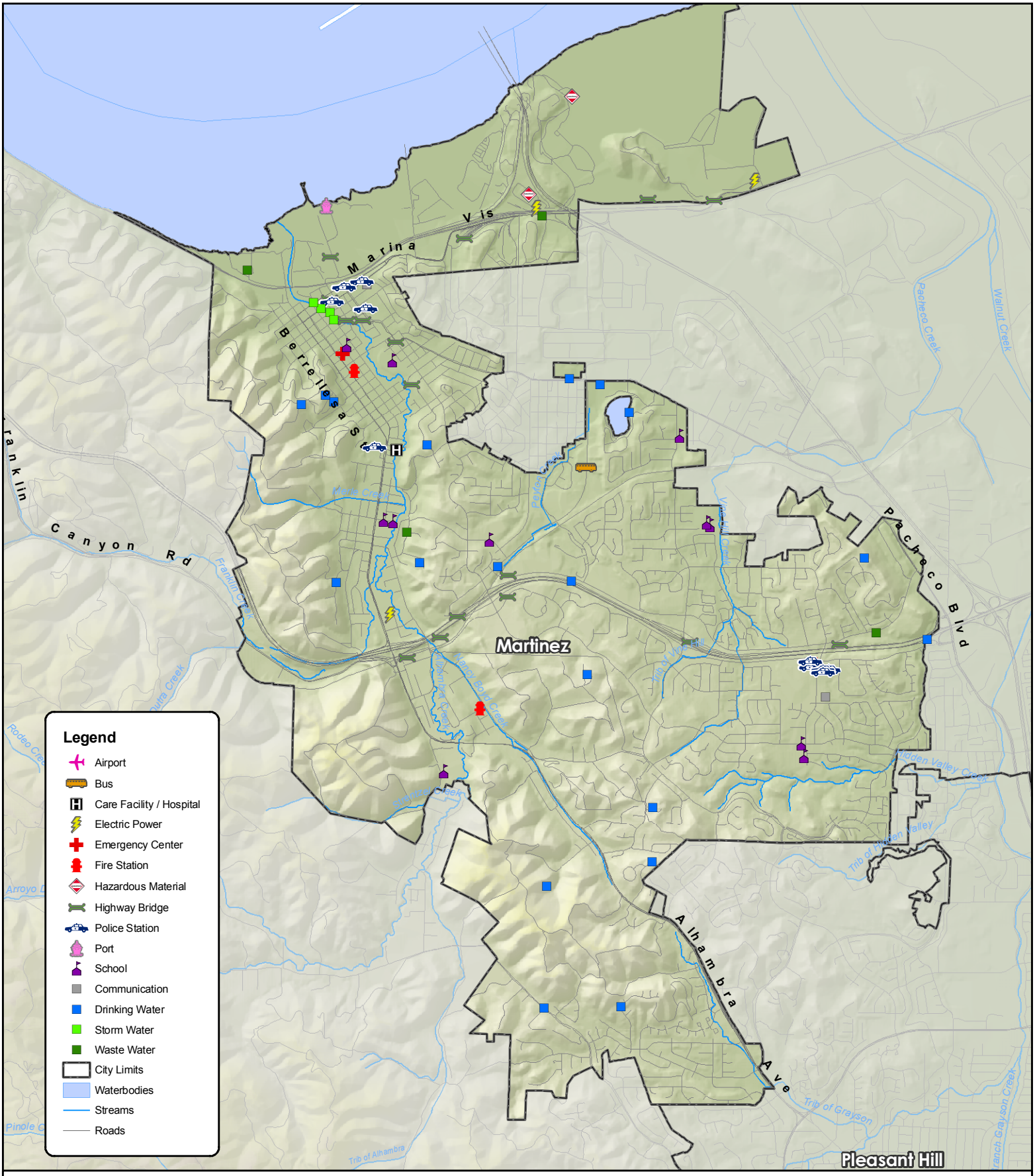
Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

Source Contra Costa County GIS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



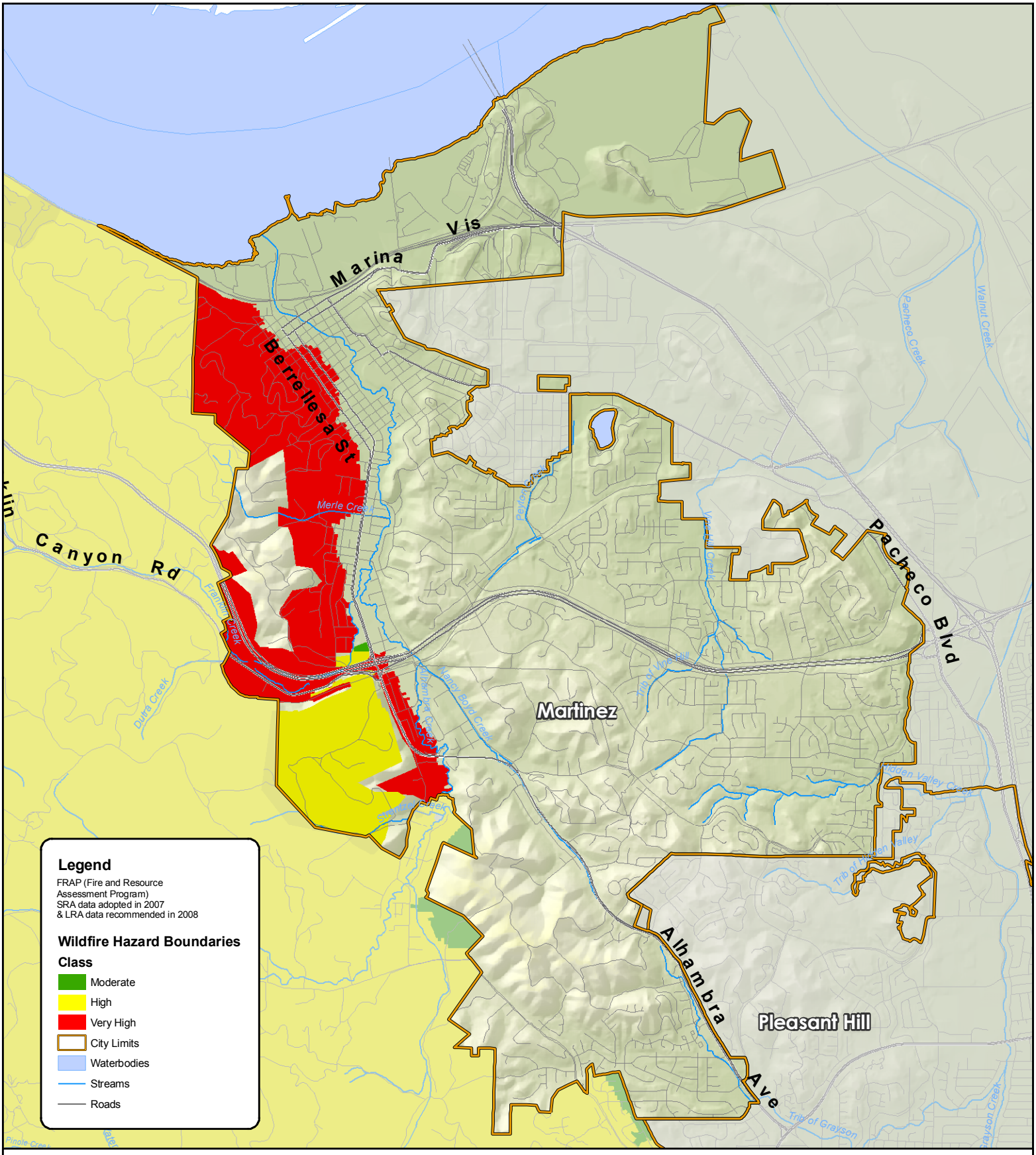
City of Martinez

Critical Facilities

0 0.5 1 2

Miles

Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Martinez

FRAP Wildfire Hazard Boundaries

0 0.5 1 2

Miles

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

CHAPTER 12.
CITY OF PINOLE ANNEX

12.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mr. Jim Parrott, Fire Chief
2131 Pear St.
Pinole, CA 94564
Telephone: (510) 724-8974
e-mail Address: jparrott@ci.pinole.ca.us

Alternate Point of Contact

Dean Allison, Director of Public Works
2131 Pear St.
Pinole, CA 94564
Telephone: (510) 724-9017
e-mail Address: dallison@ci.pinole.ca.us

12.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**1903
- **Current Population—**19,383 as of January 1, 2009
- **Population Growth—**The City has had an average annual growth rate of 0.52 percent per year since 1990.
- **Location and Description—**The City of Pinole is in western Contra Costa County, approximately 21 miles northeast of San Francisco. The City is bounded by San Pablo Bay on the north side, the City Hercules to the east, El Sobrante to the south, and San Pablo to the west. The City is located off of Interstate 80.
- **Brief History—**Pinole was incorporated in 1903. The City grew as a bedroom community for the workers of the California Powder Works Company in neighboring Hercules from the late 1800s to the early part of the 20th century. With the construction of Interstate 80 in 1958, the City of Pinole began to grow as a bedroom community for Oakland and San Francisco. The City has largely remained a bedroom community for the past 60 years.
- **Climate—**Pinole's weather is typical for the coastal Bay Area, with mild summers and cool, wet winters. It rarely freezes in the winter and it is mild in the summer, with average temperatures in the 60s. Annual average rainfall is 25.04 inches, with 25 percent of that falling in January.
- **Governing Body Format—**The City of Pinole is governed by a five-member City Council. This body will assume responsibility for the adoption and implementation of this hazard mitigation plan. The City consists of six departments: Finance, Community Development, Public Works, Police, Fire and the City Manager's Office. The City has four Committees, which report to the City Council.
- **Development Trends—**Based on data from the California Department of Finance, Pinole has experienced a relatively flat rate of growth. The overall population has increased by about 2 percent since 2000—from 19,039 in 2000 to 19,383 in 2009. With this rate of growth, the anticipated development trends for Pinole are considered low to moderate, consisting primarily of residential development and redevelopment of existing properties. The City has a total of 7,032 units with 5,172 as single-family detached homes and 498 attached

townhomes/condos. There is an average 2.79 persons per household in the City. The majority of recent development in the City of Pinole has been infill development.

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, subdivision and design review, redevelopment, and capital improvements, must be consistent with the plan The City of Pinole adopted its current general plan under this law in 1995. The City is currently preparing an updated General Plan which is expected to be adopted in June 2010.

12.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 12-1 lists all past occurrences of natural hazards within the jurisdiction. The City has no properties identified by FEMA as repetitive flood loss properties.

12.4 HAZARD RISK RANKING

Table 12-2 presents the ranking of the hazards of concern.

12.5 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 12-3. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 12-4. The assessment of the jurisdiction's fiscal capabilities is presented in Table 12-5. Classifications under various community mitigation programs are presented in Table 12-6.

12.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 12-7 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 12-8 identifies the priority for each initiative. Table 12-9 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

12.7 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for the City of Pinole and 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 12-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Sarita Court Flood	1/20/10	$250,000
Flood	12/2005 to 01/2006	Adobe Rd. Repair: $1 million
Flood	1996	
Freeze	1991	
Loma Prieta Earthquake	10/20/89	
Flood	1980	

TABLE 12-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	42
3	Landslide	24
4	Flood	18
4	Wildland Fire	18
5	Dam Failure	10
6	Drought	9

TABLE 12-3.
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	2007 California Building Code effective 1/1/08
Zoning Code	Y	N	N	Y	Title 17 of the Pinole Municipal Code
Subdivisions	Y	N	N	N	Title 16 of the Pinole Municipal Code
Stormwater Management	Y	Y	N	Y	Chapter 8.20 PMC (2004)
Post Disaster Recovery	N	N	N	N	—
Real Estate Disclosure	Y	N	Y	*Y*	CA. State Civil Code 1102 requires full disclosure on Natural hazard Exposure of the sale/re-sale of any and all real property.
Growth Management	Y	N	N	Y	Growth Management is contained in Section 9 of the 1995 General Plan
Site Plan Review	Y	N	N	N	County Code Titles 8,9,10
Special Purpose (flood management, critical areas)	Y	N	N	N	Flood Damage prevention-Chapter 15.48 PMC, 6/2009 Fire Severity Ordinance adopted in October 2009; The objective of the ordinance is to establish minimum standards for materials and material assemblies and provide a reasonable level of exterior wildfire exposure

TABLE 12-3 (continued).
LEGAL AND REGULATORY CAPABILITY

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	City of Pinole General Plan, adopted 1995, revised 5/2003 (currently being updated)
Floodplain or Basin Plan	N	N	N	N	—
Stormwater Plan	Y	N	N	N	Managed by Public Works. SB790 Stormwater Resources Act effective 1/1/2010.
Capital Improvement Plan	Y	N	N	N	Public Works Department-adopted in July 2009 for 2009-2014 for public improvements
Habitat Conservation Plan	N	N	N	N	—
Economic Development Plan	Y	N	N	N	Pinole Redevelopment Agency
Emergency Response Plan	Y	N	N	Y	Establishes criteria to minimize the potential for loss of life, injury, damage to property, economic and social dislocation and unusual public expense due to natural and manmade disasters.
Shoreline Management Plan	N	N	N	N	—
Post Disaster Recovery Plan	N	N	N	N	—
Other					
Other	Y	N	N	Y	Water Conservation/landscape Ordinance: This ordinance makes special provisions for water conservation in landscaping for commercial and residential development. Drought tolerant plantings and special irrigation systems which conserve water are required for new landscaping improvements in the City.

TABLE 12-4.
ADMINISTRATIVE AND TECHNICAL CAPABILITY

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Y	Community Development Department/Public Works Department
Engineers or professionals trained in building or infrastructure construction practices	Y	Community Development Department/Public Works Department
Planners or engineers with an understanding of natural hazards	Y	Community Development Department/Public Works Department
Staff with training in benefit/cost analysis	Y	Public Works Department
Floodplain manager	Y	City Manager/Fire Chief
Surveyors	Y	Community Development Department/Public Works Department
Personnel skilled or trained in GIS applications	Y	Finance Department
Scientist familiar with natural hazards in local area	N	Company on contract
Emergency manager	Y	Community Development Department/Public Works Department
Grant writers	Y	Community Development Department/Public Works Department

TABLE 12-5.
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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes

TABLE 12-6.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	10	To be rated in 2010
Public Protection	Yes	3	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 12-7.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #P-1—The FD to conduct a Mass Care and Shelter Drill which involve City, County Employees, Non-Government Agencies, CERT volunteers, and the public.						
New & Existing	All Hazards	2,3,6,13,16	FD	$15K Low	Potential Source-Red Cross, UASI	Annual Short-Term
Initiative #P-2—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and Existing	All Hazards	4,5,14	FD & PL	Low	Redevelopment	Short Term
Initiative #P-3—Enhance/Improve City Code language and enforcement including: City Building and Fire Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements within the City.						
New & Existing	Wildfire	4,5,11,16	FD BD	Low	General Fund	Short-Term Ongoing
Initiative #P-4—Ensure that new development be 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						
Existing	Flood, Dam Failure	4, 5, 10	Plan	Low	Code adoption Plan review	Long Term
Initiative #P-5—Provide sandbags and plastic sheeting to residents in anticipation of rainstorms or known Dam failure events, deliver materials to the disabled and elderly and provide public information on where these materials are stored and how to get them.						
Existing	Flood, Dam Failure	4, 5, 10	PW	Low	Emergency plan	ongoing, long term
Initiative #P-6—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 and Existing	All Hazard	2, 4, 15	FD, PD, PW	Low	General Fund	Long Term

TABLE 12-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #P-7—Require engineered plan sets for retrofitting of heavy two-story homes with living spaces over garages, split level homes, homes on hillsides.						
Existing	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Building Permit Application	Long Term
Initiative #P-8—Require engineered plan sets for retrofitting of soft story buildings						
Existing	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Building Permit Application	Long Term
Initiative #P-9—Require engineered plan sets for retrofitting of Unreinforced masonry buildings						
Existing	Earthquake	1, 4, 6, 8. 12, 17	BD	Low	Building Permit Application	Long Term
Initiative #P-#10—Require new homes in Wildland-Urban-Interface and VHFHSZ threatened communities to be constructed of fire resistant building materials to increase structural survivability and reduce ignitability						
New	Wildfire	2, 4, 5, 16	FD	Low	Code adoption	Long Term
Initiative #P-11—Increase efforts to reduce hazards in existing development in Very High Fire Hazard Fire Severity Zones (VHFHSZ) 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, 16	FD	Low	Code Adoption	Long Term
Initiative #P-12—Install hillside stabilization improvements at Shale Hill near intersection of San Pablo Avenue and Oak Ridge Road to prevent future mudslides/landslides and road blockage						
New	Earthquake, Landslide, Flood, Severe weather	4, 10, 16	PW	High	Capital Improvements Program	Long Term
Initiative #P-13—Stabilize Bridge 6 over Pinole Creek located on Pinole Valley Road southeast of the intersection of Pinole Valley Road and Wright Avenue						
Existing	Earthquake, Flood, Dam Failure	4, 10, 16	PW	High	Capital Improvements Program	Long Term
Initiative #P-14—Retrofit Existing Storm Drain system to insure full capacity is utilized						
Existing	Flood, Severe Weather	4, 10, 16	PW	High	Capital Improvements Program	Long Term
Initiative #P-15—Implement an automatic gas shut off valve installation program						
New and Existing	Earthquake, Wildfire	1, 4, 15	CDD	Med	Grants/General Fund	Long Term

TABLE 12-7 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #P-16—Incorporate a dam failure component into the city's emergency operations plan that include warning and evacuation procedures for dam failure scenarios as well as protocol for periodic communication checks with dam owners/operators						
New & Existing	Dam Failure	O-1, O-2, O-5, O-13, O-16	Pinole, CCCOES, EBMUD	Low	Emergency plan	Long-term
Initiative #P-17—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	Planning	Low	General fund	Short-term, ongoing
Initiative #P-18—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	CCCOES, CCC-Department of Public Works, Pinole Planning	Low	Pinole, FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing
Initiative #P-19—Continue to maintain compliance and good standing under the National Flood Insurance Program						
New and existing	Flood	4,5,6,7,11,12	Public Works	Low	Pinole	ongoing
Initiative #P-20—Consider participation in the Community Rating System						
New and Existing	Flood	3,4,5,7,9	Public Works	Low	Pinole	Long-term
Initiative #P-21—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	3,7,15	Planning & Building Departments	High	FEMA Hazard Mitigation Grant funding with local match provided by property owner contribution	Long-term depends on funding

TABLE 12-8.
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	5	High	Low	Yes	Yes	No	High
2	3	Medium	Low	Yes	Yes	Yes	High
3	4	Medium	Low	Yes	Yes	Yes	Med
4	3	Medium	Low	Yes	Yes	Yes	Low
5	3	Medium	Low	Yes	Yes	Yes	High
6	3	High	Low	Yes	Yes	Yes	High
7	6	High	Low	Yes	No	Yes	Low
8	6	High	Low	Yes	No	Yes	Low
9	6	High	Lowe	Yes	No	Yes	Low
10	4	Medium	Low	Yes	Yes	Yes	Med
11	4	Medium	Low	Yes	No	Yes	Med
12	3	High	High	Yes	Yes	Yes	High
13	3	High	High	Yes	Yes	Yes	Med
14	3	Medium	High	Yes	No	Yes	High
15	3	High	Medium	Yes	Yes	No	Med
16	16	High	Low	Yes	No	Yes	Medium
17	16	Medium	Low	Yes	Yes	Yes	High
18	6	Medium	Low	Yes	No	Yes	High
19	5	Low	Low	Yes	No	Yes	High
20	3	Medium	Low	Yes	No	Yes	Medium
21	3	High	High	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 12-9.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	2, 18	2,4, 5, 13, 21	2, 17	2,	1, 16, 17	13
Drought	1,2, 18	N/A	1,2, 17	N/A	1,2,6, 17	N/A
Earthquake	1, 2, 7, 8, 9, 12, 15, 18	7, 8, 9, 12, 15, 21	1, 2, 7, 8, 9, 15, 17	1	1,2,6, 17	4, 5, 12, 13
Flood	1, 2, 4, 5, 12, 18, 19, 20	4, 5, 12, 19, 20, 21	1, 2, 5, 17, 20	20	1,2, 6, 17, 20	12, 13, 14, 20
Landslide	1, 2, 4, 5, 18	6, 7, 8, 9, 21	1, 2, 17	5	1,2, 6, 17	6, 7, 8, 9, 13
Severe Weather	1, 2, 14, 18	4,5, 14, 21	1, 2, 5, 17	N/A	1,2, 6, 17	N/A
Wild Fire	1,3, 10,11, 18	10,11,21	1, 3, 17	3, 10, 11	1,2,6, 17	10, 11

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

City of Pinole

USGS Landslide Hazard Areas

Legend

- Mostly Landslides
- Few Landslides
- City Limits
- Waterbodies
- Streams
- Roads

Few Landslides: contains few, if any, large mapped landslides, but locally contains scattered small landslides and questionably identified larger landslides.

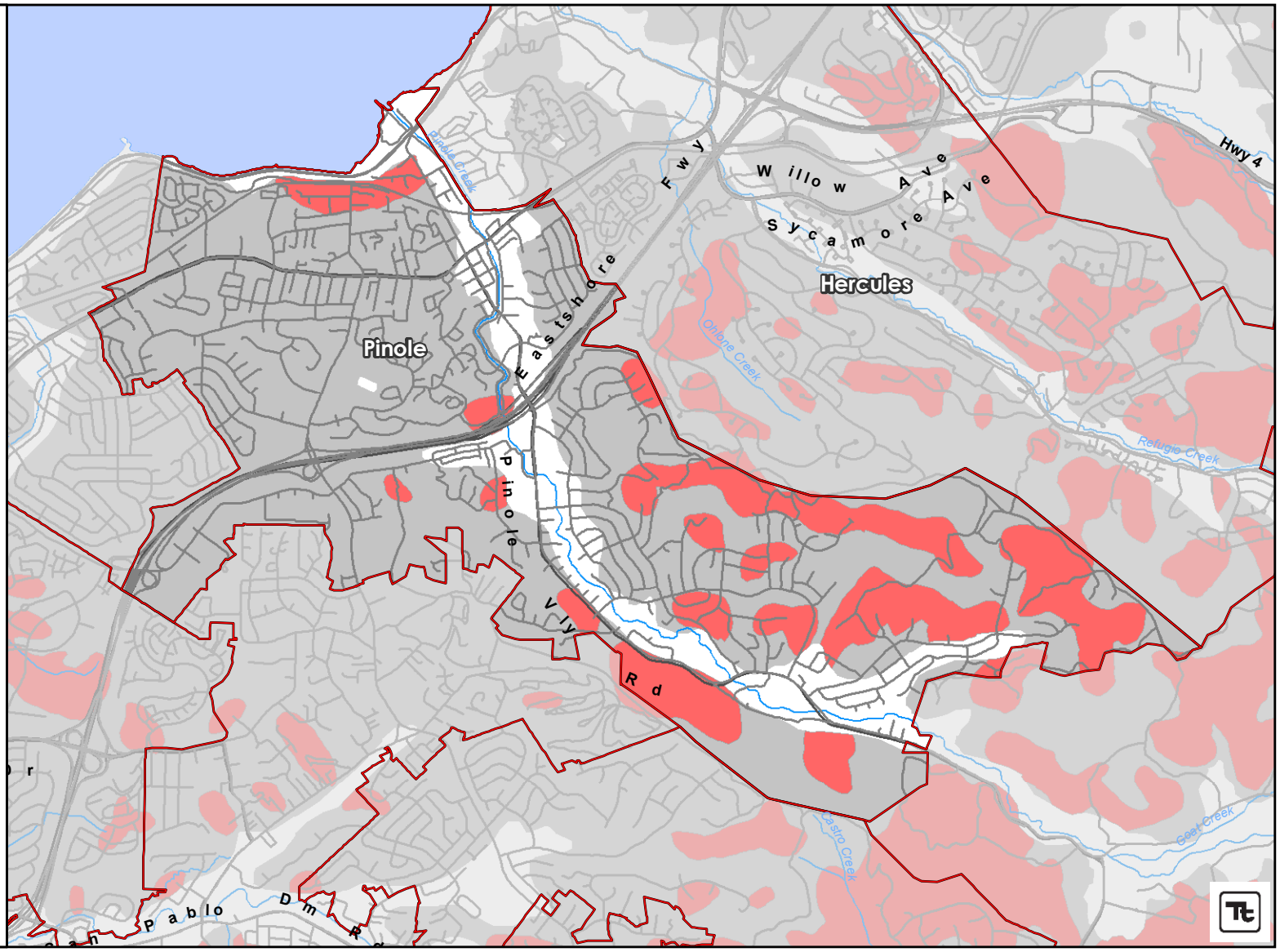
Mostly Landslides: consists of mapped landslides, intervening areas typically narrower than 1500 feet, and narrow borders around landslides.

N

0 1,000 2,000 4,000 6,000

Feet

Source Contra Costa County GIS & USGS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pinole

100 & 500 Year
Flood Hazard Boundaries

Legend

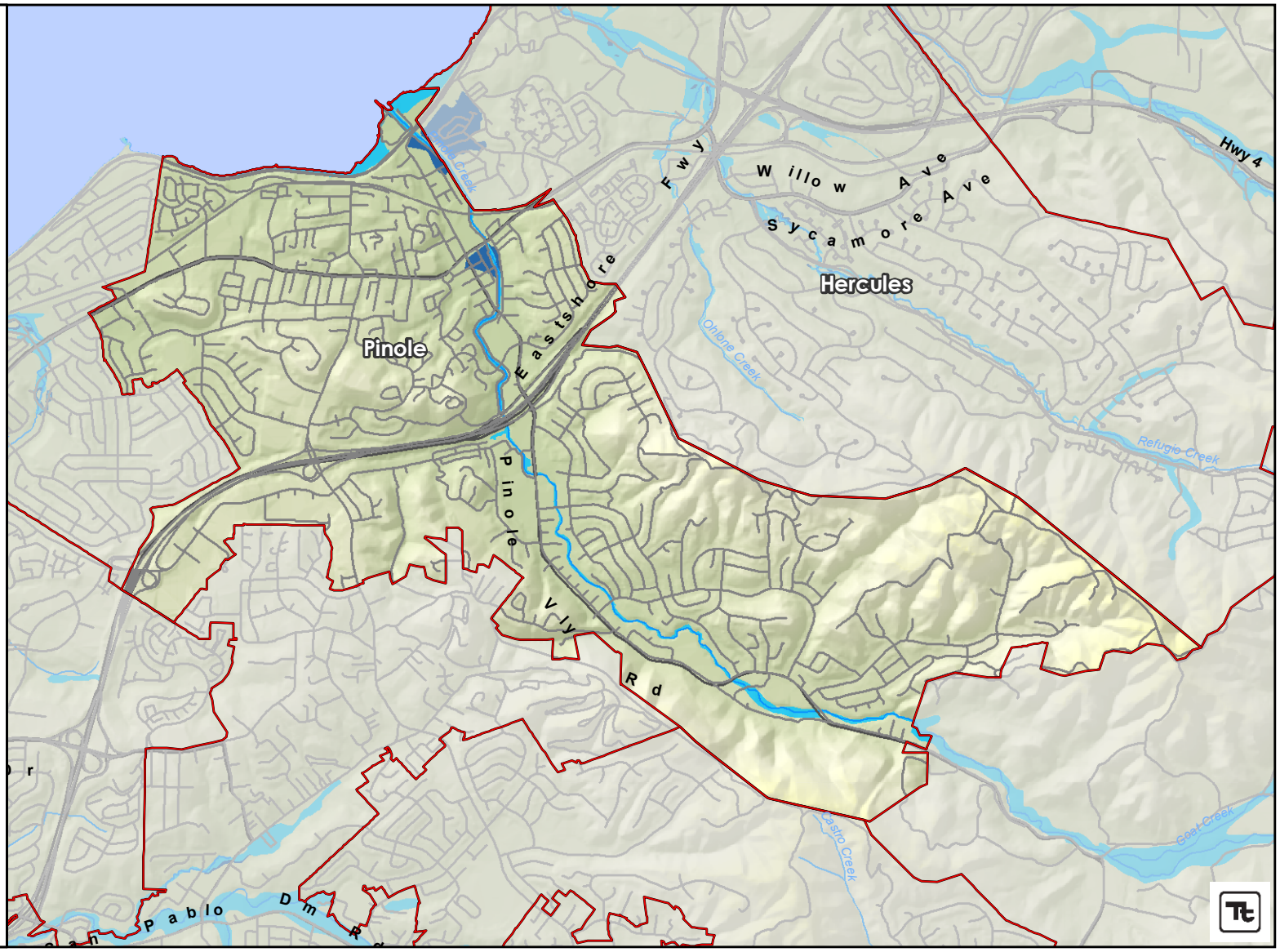
Flood Hazard Boundary

Flood Zone

- 100
- 500
- County Boundary
- City Limits
- Waterbodies
- Streams
- Roads

0 1,000 2,000 4,000 6,000
Feet

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pinole

NEHRP (National Earthquake Hazards Reduction Program) Soils

Legend

Soils

Type

- B - Rock
- C - Very Dense Soil and Soft Rock
- D - Stiff Soil
- E - Soft Soil
- Waterbodies
- City Limits
- Streams
- Roads

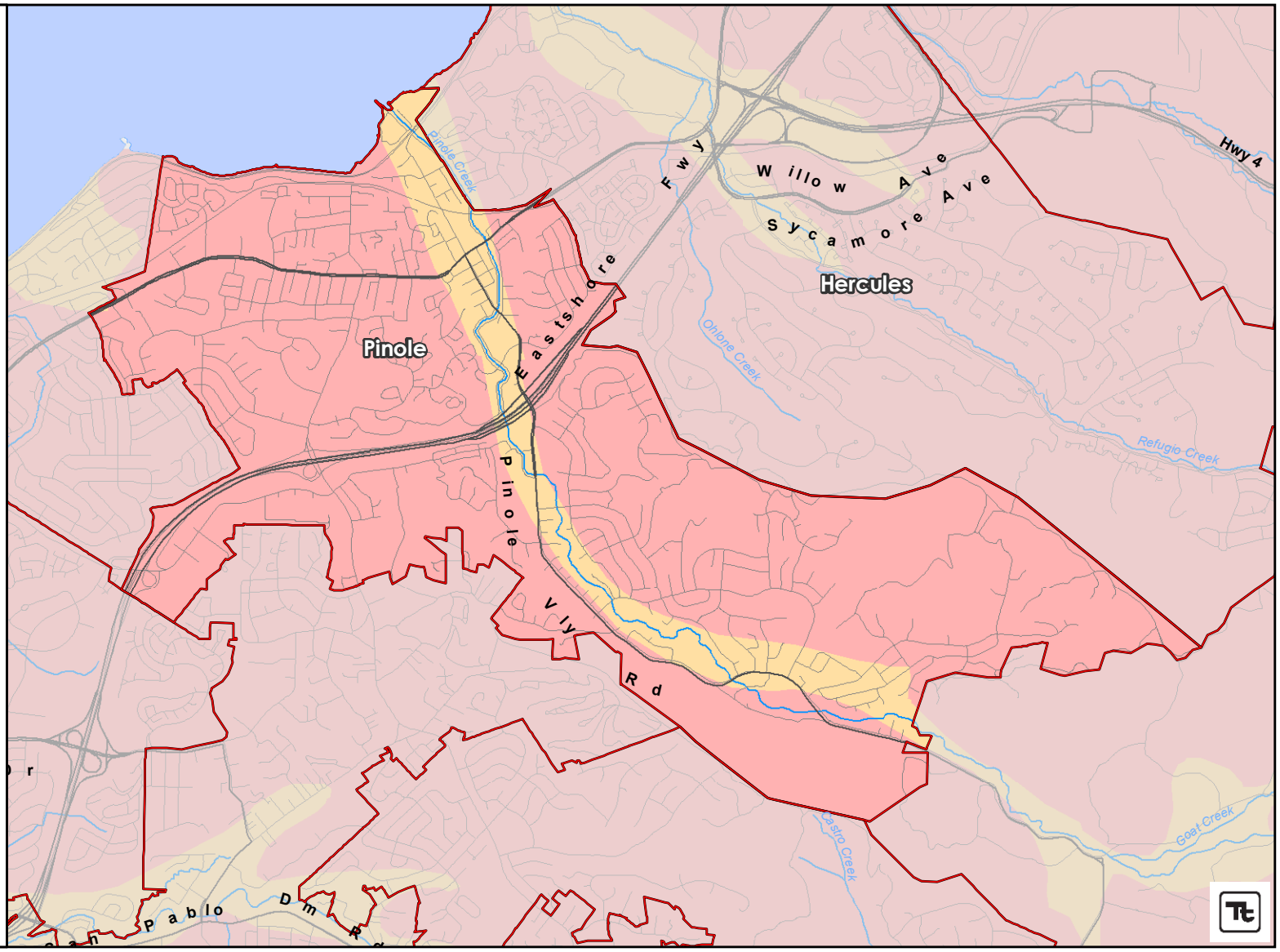
0 1,000 2,000 4,000 6,000

Feet

Source Contra Costa County GIS & NEHRP

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pinole

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2008 USGS Fault Scenario
Peak Ground Acceleration
Mercalli Scale

A 7.05 magnitude earthquake with
a hypocenter located in San Pablo Bay

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VII Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend

Hypocenter in San Pablo Bay (30 miles E of Concord)

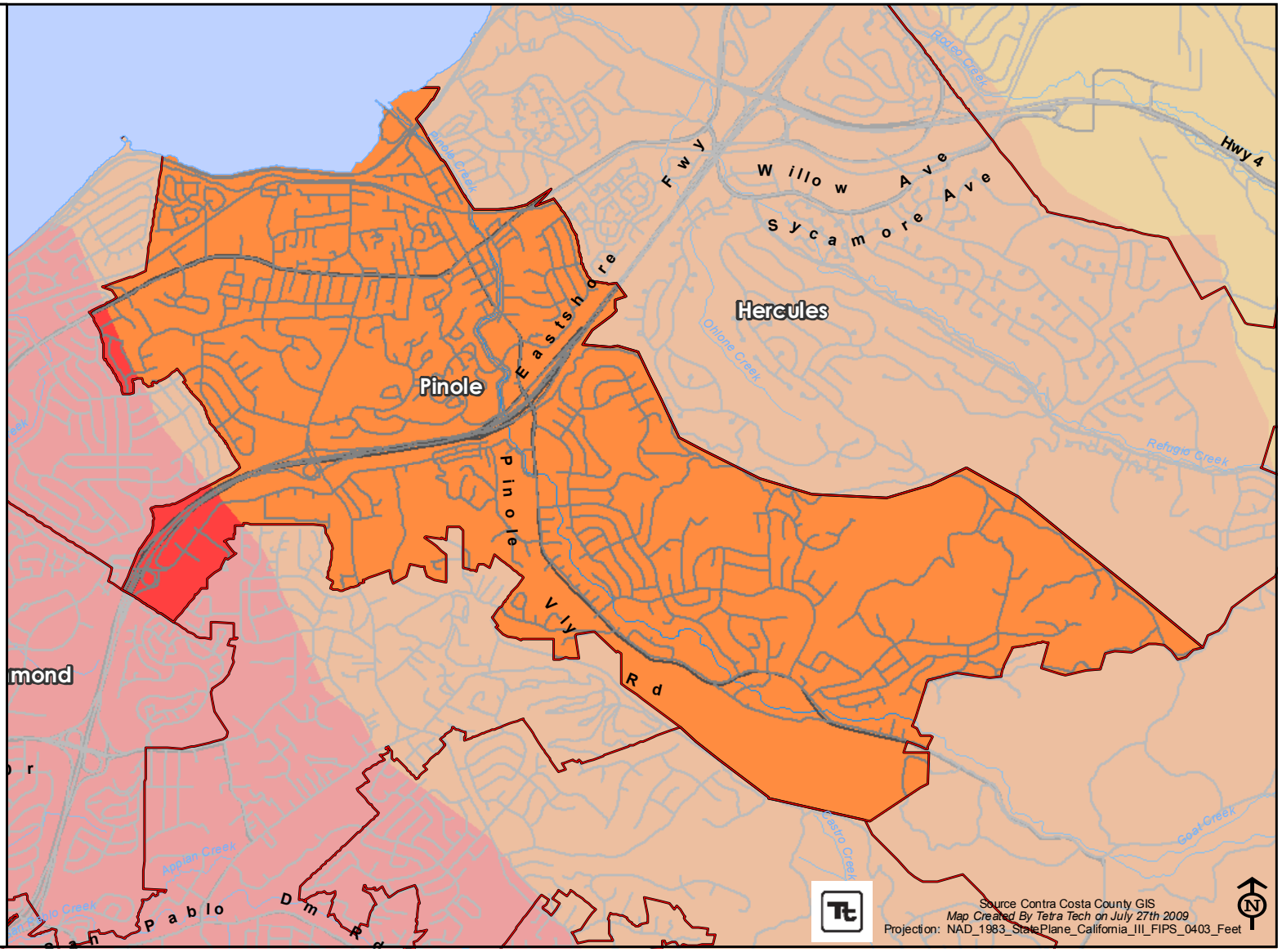
- Waterbodies
- City Limits
- Roads
- Streams

Hayward PGA

Mercalli Scale

- IV - None
- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- IX - Extensive-Complete

0 1,000 2,000 4,000 6,000
Feet



Source Contra Costa County GIS
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet

City of Pinole

Central & Northern Calaveras
Earthquake 2003 USGS
Scenario Peak
Ground Acceleration
Mercalli Scale

A 6.9 magnitude earthquake with
an epicenter of N37.45 W121.81

VII - Everyone runs outside. No damage in well-built buildings; moderate damage in ordinary structures; considerable damage in poorly constructed buildings.
VIII - Considerable damage except in specially constructed buildings. Disturbs people driving cars.
IX - Damage even in specially designed structures. Buildings shifted from foundations; ground cracked; underground pipes broken.

Legend

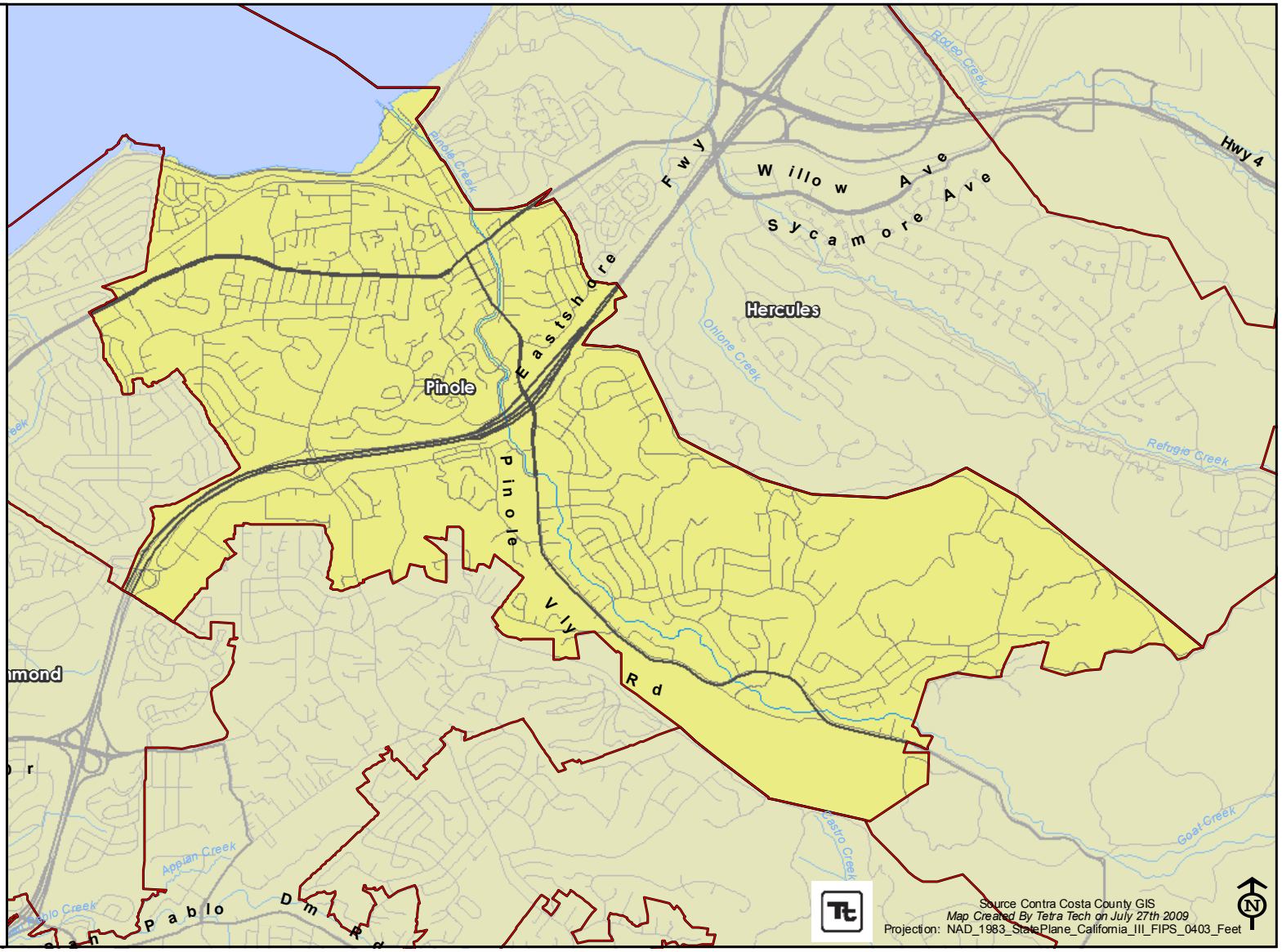
Epicenter in Northern
Santa Clara County
(45 miles S of Concord)

Calaveras PGA

Mercalli Scale

- V - Very Light
- VI - None-Slight
- VII - Slight-Moderate
- VIII - Moderate-Extensive
- City Limits
- Waterbodies
- Roads
- Streams

0 1,000 2,000 4,000 6,000
Feet



City of Pinole

Dam Inundation Zone

Legend

- Inundation Dam
- City Limits
- Waterbodies
- Streams
- Roads

Dam & Reservoir Facilities within Study Area:

Antioch Dam	Los Vaqueros Reservoir
Argyle No. 2 Reservoir	Maloney Reservoir
Bethany Dams	Marsh Creek Dam
Briones Dam	Martinez Dam
Clifton Court Forebay	Moraga Reservoir
Contra Loma Dam	North Reservoir
Danville Reservoir	Pine Creek Dam
Deer Creek Dam	Pine Creek Dam Detention Basin
Dry Creek Dam	San Pablo Clearwell
Fay Hill Reservoir	San Pablo Dam
Lafayette Dam	Schapiro Reservoir
Lake Anza Dam	Sobrante Clearwell
Lake Orinda Dam	Summit Reservoir
Leland Reservoir	Walnut Creek Clearwell

N

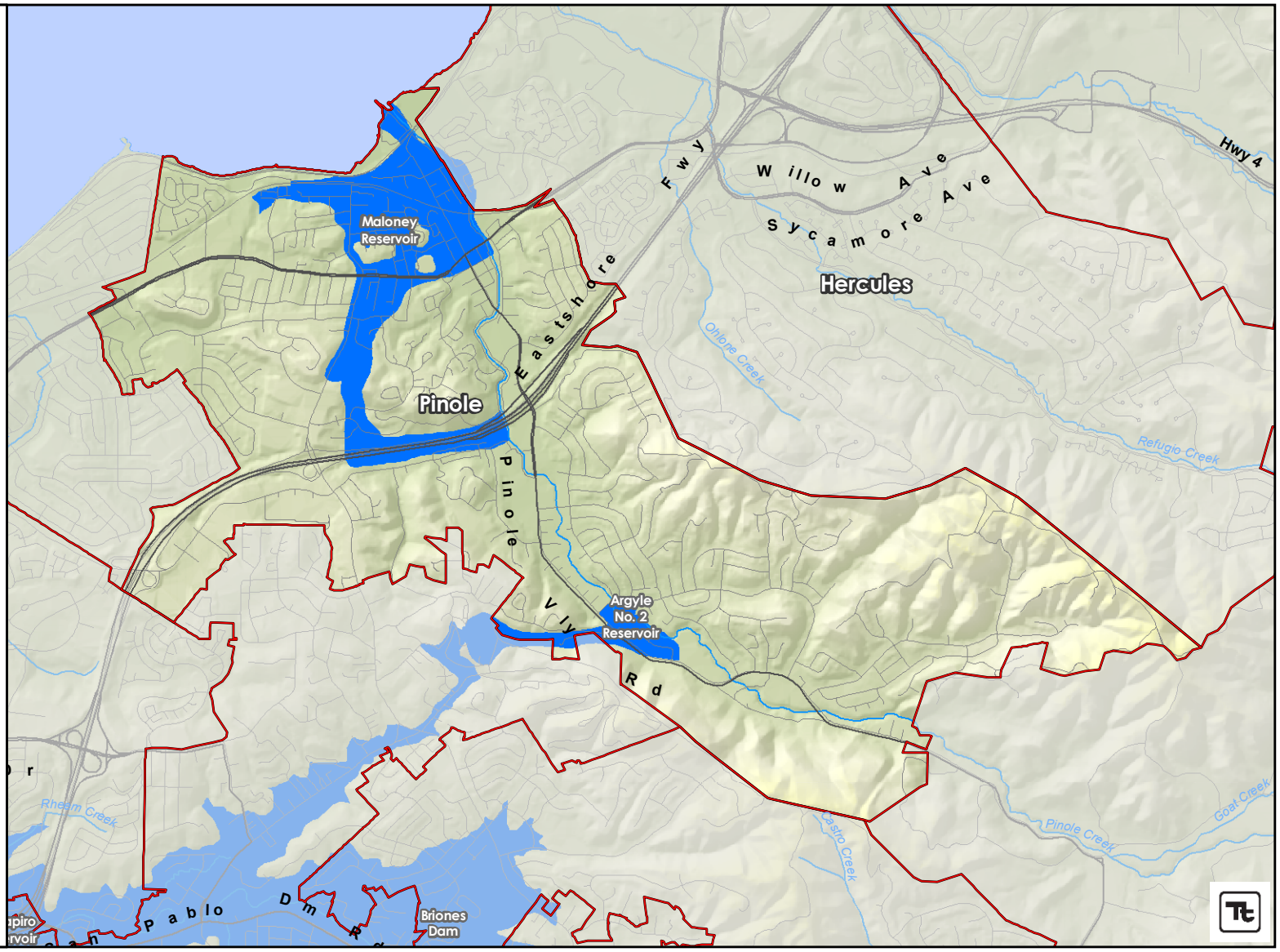
0 1,000 2,000 4,000 6,000

Feet

Source Contra Costa County GIS

Map Created By Tetra Tech on July 27th 2009

Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pinole

Critical Facilities

Legend

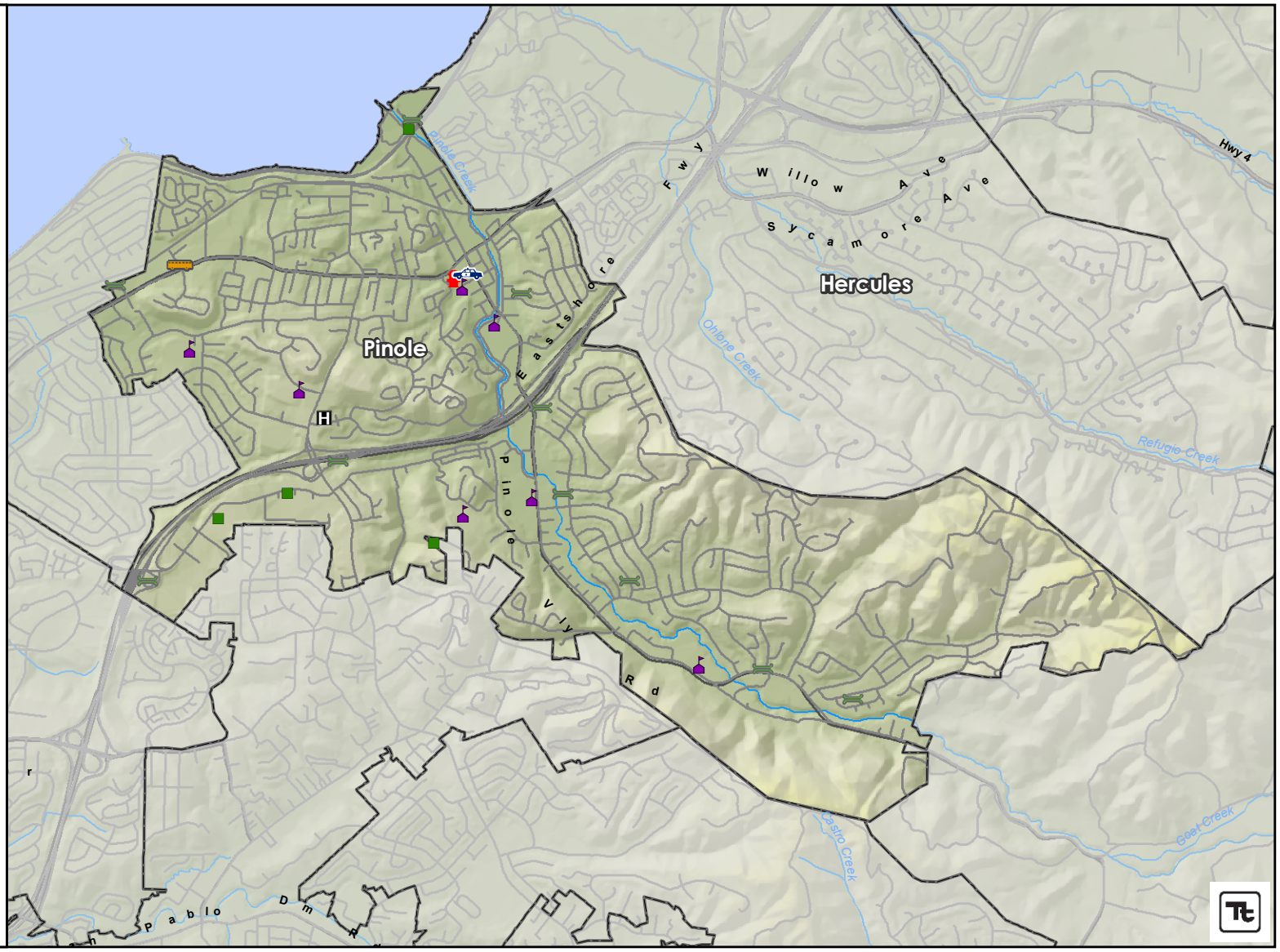
- Airport
- Bus
- Care Facility / Hospital
- Electric Power
- Emergency Center
- Fire Station
- Hazardous Material
- Highway Bridge
- Police Station
- Port
- School
- Communication
- Drinking Water
- Storm Water
- Waste Water
- City Limits
- Waterbodies
- Streams
- Roads

N

0 1,000 2,000 4,000 6,000

Feet

Source Contra Costa County GIS & DFIRM
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



City of Pinole

FRAP Wildfire Hazard Boundaries

Legend

FRAP (Fire and Resource Assessment Program)
SRA data adopted in 2007
& LRA data recommended in 2008

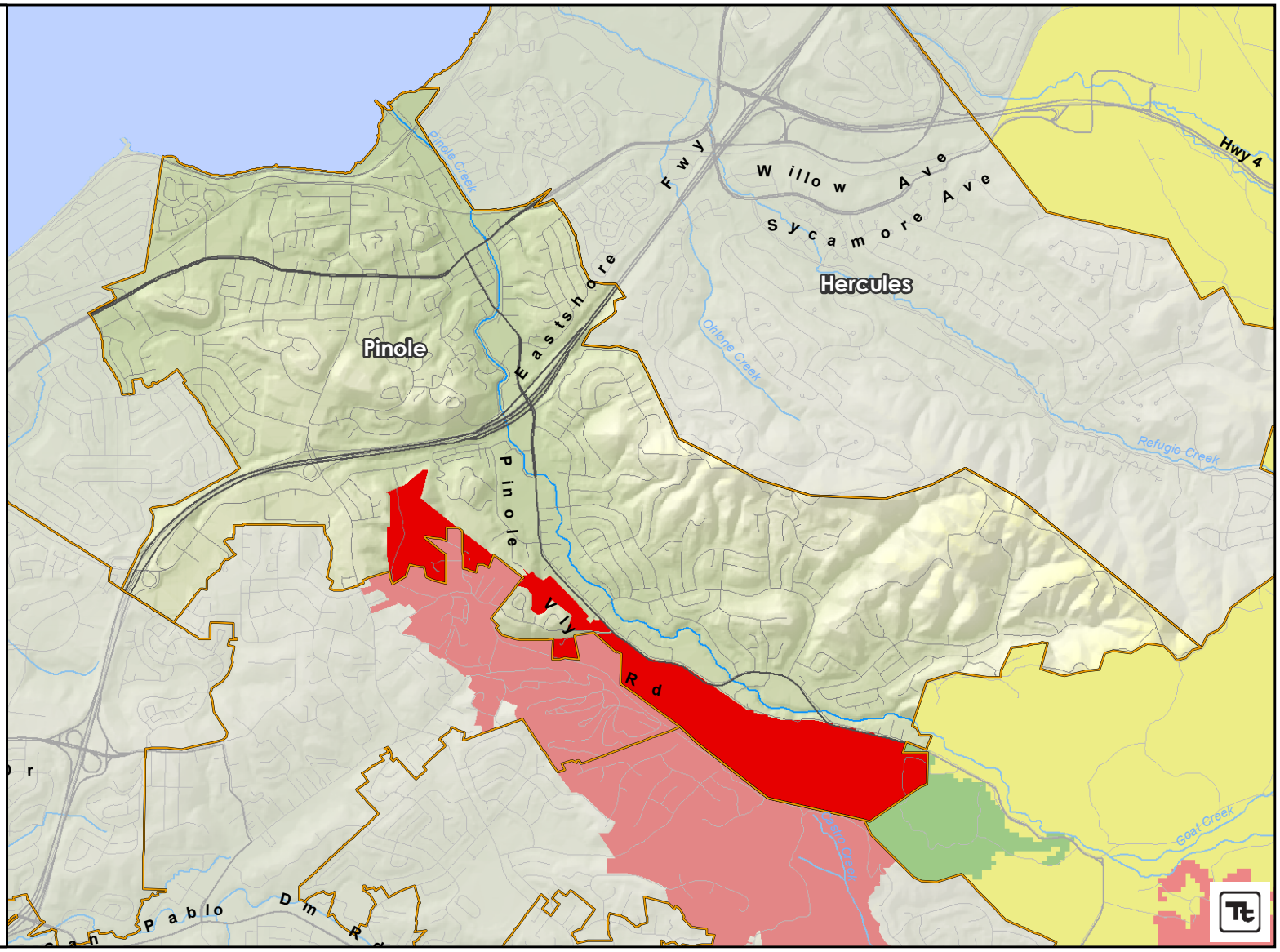
Wildfire Hazard Boundaries

Class

- Moderate
- High
- Very High
- City Limits
- Waterbodies
- Streams
- Roads

0 1,000 2,000 4,000 6,000
Feet

Source Contra Costa County GIS & FRAP
Map Created By Tetra Tech on July 27th 2009
Projection: NAD_1983_StatePlane_California_III_FIPS_0403_Feet



PART 4—
EDUCATION SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 13.
ANTIOCH UNIFIED SCHOOL DISTRICT ANNEX

13.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

David Kundert, Director M&O
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Antioch, CA 94509
Telephone: 925-779-7600, ext. 13998
925-250-8037 (mobile)
e-mail Address: davekundert@antioch.ki12.ca.us

Alternate Point of Contact

Tim Forrester, Executive Director Operations
Telephone: 925-779-2069
925-382-8826 (mobile)
e-mail Address: timforrester@antioch.ki12.ca.us

13.2 JURISDICTION PROFILE

Antioch Unified School District was established on July 7, 1925 and is located in Contra Costa County. The District provides educational services to the residents of the City of Antioch, plus a portion of the City of Oakley at the eastern boundary and a portion of the City of Pittsburg at the western boundary. The District consists of approximately 41 square miles, has an estimated population of 115,000, and is located approximately 35 miles northeast of Oakland, California. The District employee approximately 2000 Certificated and Classified staff and is a political subdivision of the State of California. The District has a five member Board of Education that has adoptive authority. A map is included showing the District boundaries along with all current established Community Facilities Districts within the District boundaries. The majority of the District's funding is supplied by the State of California based on Student Average Daily Attendance.

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

- **Population Served—**Approximately 20,000 students and serves approximately 115,000
- **Land Area Served—**Approximately 41 square miles or 26,880 acres
- **Value of Area Served—**The assessed value of the area served by the jurisdiction is approximately $9 billion.
- **Land Area Owned—**Approximately 265 acres or 11,543,400 square feet
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 47 Maintenance and Operations Vehicles/Equipment
  - 42 Transportation Buses
  - 22 Miscellaneous Support Vehicles
  - Central Services Offices
  - Central Office Annex – Maintenance and Operations, Equipment Storage, Transportation Storage, Materials Warehouse, Fleet Maintenance Facility
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $26,100,000 (scheduled value for insured items only).

- **List of Critical Facilities Owned by the Jurisdiction:**
  - Antioch High School
  - Antioch Middle School
  - Fremont Elementary School
  - Kimball Elementary School
  - Turner Elementary School
  - Park Middle School
  - Belshaw Elementary School
  - Marsh Elementary School
  - Mission Elementary School
  - Sutter Elementary School
  - Deer Valley High School
  - Black Diamond Middle School
  - Carmen Dragon Elementary School
  - MNO Grant Elementary School
  - London Elementary School
  - Dallas Ranch Middle School
  - Diablo Vista Elementary School
  - Lone Tree Elementary School
  - Muir Elementary School
  - Orchard Park K-8 School
  - Dozier-Libbey Medical High School
  - Bidwell High School
  - Bridges Program*
  - Live Oak High School
  - Prospects High School
  - Antioch Charter School 1
  - School Service Building
  - School Service Building Annex
  - Apollo Court
  - Deer Valley Meeting Center
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $508,910,370.
- **Current and Anticipated Service Trends—**The District is a K-12 school district servicing approximately 19,500 students. Student population is expected to level off around 20,000 over the next five years. There is a possibility that in the future the District would provide services for Pre-School aged children.

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

13.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 13-1 lists all past occurrences of natural hazards within the jurisdiction.

13.4 HAZARD RISK RANKING

Table 13-2 presents the ranking of the hazards of concern.

13.5 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 US Environmental Protection Agencies
- California State Division of State Architects
- Federal Endangered Species Act
- Contra Costa County Operational Area Hazard Mitigation Plan

- City Of Antioch Emergency Mitigation Plan
- City Of Oakley Emergency Mitigation Plan
- Antioch Unified School District Emergency Plan.

13.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 13-3.

13.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 13-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 13-5 identifies the priority for each initiative. Table 13-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

13.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The needs of the District for the future are for managers and emergency personnel to better understand the needs of special education children in the school system relative to emergencies. Identifying the most vulnerable students and their locations at the school sites and how to respond to their needs is critical to the safety of these students.

TABLE 13-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm, Flooding	N/A	1/2007	$25,000
Winter Storm, Flooding	N/A	12/2006	$100,000

TABLE 13-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	48
3	Drought	48
4	Landslide	12
5	Flood	12
6	Dam Failure	3

TABLE 13-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 13-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Earthquake retrofit District Facilities.						
Existing	Earthquake	1, 7, 15	Operations	High	HMGP, PDM	Long Term
Initiative #2—Create & maintain a hazard mitigation web page on the District's website.						
Existing	All Hazards	3, 4, 5, 6, 16	Technology	$500	District Funds	Short Term
Initiative #3—Partner with the City of Antioch Emergency Services Office for disaster response and preparedness, including updates to the Emergency Operations Plan, a post disaster action plan, training and support.						
Existing	All Hazards	8, 12, 16	Operations	$10,000	District Funds	Long Term
Initiative #4—Conduct public awareness education regarding hazards.						
Existing	All Hazards	3, 6	Operations/Technology	$5,000	District Funds	Short Term
Initiative #5—Have Maintenance & Operations workers CERT trained.						
Existing	All Hazards	2, 3	Operations	$2,000	District Funds, EMPG	Long Term
Initiative #6—Remove large trees near buildings and play areas.						
Existing	Severe Weather, Earthquakes	1, 2, 13, 14	Maintenance & Operations,	$200,000	HMGP, PDM, District Funds	Long Term
Initiative #7—Acquire emergency response equipment including portable fencing, sand bags, portable generators, portable pumps, other tools & equipment used for emergency response.						
Existing	All Hazards	1, 2, 4	Operations	$150,000	HMGP and PDM, District Funds	Short Term
Initiative #8—Repair & replace gutters and downspouts at schools sites.						
Existing	Severe Weather	1, 2, 4	Operations	$100,000	HMGP and PDM, District Funds	Short Term
Initiative #9—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds	Short Term, ongoing
Initiative #10—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 11—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	OES & DCD	Low	District Funds	Early 2010, Short Term

TABLE 13-5.
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	3	High	High	Yes	Yes	No	Medium
2	5	Medium	Medium	Yes	No	Yes	Low
3	3	High	Low	Yes	No	Yes	Medium
4	2	Medium	Medium	Yes	No	Yes	Low
5	2	High	Medium	Yes	No	Yes	Low
6	4	Medium	Medium	Yes	Yes	No	Medium
7	3	Medium	High	No	Yes	No	Medium
8	3	Medium	High	No	Yes	No	Medium
9	16	Medium	Low	Yes	No	No	High
10	16	Medium	Low	Yes	Yes	Yes	High
11	16	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 13-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	3, 4, 7, 10	1, 11	2, 3, 4, 9, 10	4	3, 5	
Drought	10		2, 3, 4, 9, 10	4	3, 5	
Earthquake	1, 3, 5, 6, 7, 10	1, 11	2, 3, 4, 9, 10	4	3, 5	1
Flood	10		2, 3, 4, 9, 10	4	3, 5	
Landslide	10		2, 3, 4, 9, 10	4	3, 5	
Severe Weather	2, 4, 7, 10	6, 7, 8, 11	2, 3, 4, 9, 10	4	3, 5	8, 6
Wild Fire	2, 4, 7, 10	6, 11	2, 3, 4, 9, 10	4	3, 5	

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 14.
BRENTWOOD UNION SCHOOL DISTRICT ANNEX

14.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Larry Sudweeks, Director of Maintenance & Operations
255 Guthrie Lane
Brentwood, CA 94513
925-513-6322
lsudweeks@brentwood.k12.ca.us

Alternate Point of Contact

Scott Anderson, Chief Business Official
255 Guthrie Lane
Brentwood, CA 94513
925-513-6306
sanderson@brentwood.k12.ca.us

14.2 JURISDICTION PROFILE

The Brentwood Union School District was established in 1886. The district has seen considerable growth and now serves approximately 8300 Kindergarten through 8th grade students. We currently have 10 school sites, seven K-5 elementary sites and three 6-8th grade middle school sites in addition to our district service center. The district has just begun construction on its eleventh school site which is expected to open in the 2011-12 school year. Our attendance area covers the City of Brentwood and small areas in both Antioch and Clayton. We receive our funding from the State of California.

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

- **Population Served—**43,918 according to the 2007 US Census-American Community Survey Report
- **Land Area Served—**56.53 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is approximately $10.02 billion based on the County assessed valuation for Brentwood
- **Land Area Owned—**153.63 acres
- **List of Critical Facilities Owned by the Jurisdiction:**
  - District Service Center - 33,314 sq. ft.
  - Adams Middle School - 107,996 sq. ft.
  - Bristow Middle School - 100,668 sq. ft.
  - Edna Hill Middle School - 110,246 sq. ft.
  - Brentwood Elementary School - 66,946 sq. ft.
  - Garin Elementary School - 55,780 sq. ft.
  - Krey Elementary School - 65,468 sq. ft.
  - Loma Vista Elementary School - 69,574 sq. ft.
  - Marsh Creek Elementary School - 58,521 sq. ft.
  - Pioneer Elementary School - 66,988 sq. ft.
  - Ron Nunn Elementary School - 53,053 sq. ft.

- **Total Value of Critical Facilities—**the total value of critical facilities owned by the jurisdiction is $165,611,085.
- **Current and Anticipated Service Trends—**Based on data tracked by California Office of financial Management, the City of Brentwood and its surrounding areas has experienced a high rate of growth over the past decade. The overall population in Brentwood increased by 125 percent from 2000 to 2009. Based on this rate of growth, the district projects that it will need two additional elementary schools and one additional middle school in order to accommodate the students from our boundary once the City of Brentwood is built to capacity.

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

14.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

The only natural hazard event reported to have affected the Brentwood USD is the winter storm with flooding in January 2006, which caused an estimated $193,000 in damage.

14.4 HAZARD RISK RANKING

Table 14-1 presents the ranking of the hazards of concern.

14.5 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 14-2.

14.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 14-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 14-4 identifies the priority for each initiative. Table 14-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 14-1.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	36
2	Severe weather	36
3	Flood	18
4	Dam Failure	9
5	Landslide	3
6	Wildfire	3
7	Drought	0

TABLE 14-2.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes[a]	4/9	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

a. PPG classification for East County Fire Protection District

TABLE 14-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #BUSD-1—Support County-wide initiatives identified in Volume 1.						
New and Existing	All	All	BUSD	Low	District Funds	Short-term, ongoing
Initiative #BUSD-2—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New and Existing	All	All	BUSD	Low	District Funds	Short-term, ongoing
Initiative #BUSD-3—Conduct public/staff training on emergency preparedness and response						
New and existing	All	3, 4, 12, 16	BUSD	Low	District funds	Short-term, ongoing
Initiative #BUSD-4—Non-structural seismic retrofit of identified vulnerable facilities						
Existing	Earthquake	1, 4, 7, 15	BUSD	High	District Funds, FEMA Hazard Mitigation grants	Long-term, depends on funding

TABLE 14-4.
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	16	Medium	Low	Yes	No	Yes	High
2	16	Medium	Low	Yes	No	Yes	High
3	4	High	Low	Yes	No	Yes	High
4	4	High	High	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 14-5.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 15.
CANYON ELEMENTARY SCHOOL DISTRICT ANNEX

15.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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P.O. Box 176
Canyon, CA 94516
Telephone: 925-247-0141
e-mail Address: bricoyle@earthlink.net

Alternate Point of Contact

Marguerite Lawry, District Superintendent
Telephone: 925-376-4671
e-mail Address: gfaircloth@canyonk12.ca.us

15.2 JURISDICTION PROFILE

Canyon Elementary School District ("The District" or CESD), established in 1918, serves the families of Canyon, an unincorporated community. It is Canyon's only critical facility. The District's five-member Governing Board adopts the annual budget and strategic policy, and will oversee this plan. The District has five full-time teachers, administrative staff, and a Superintendent, who will implement this plan. California state government supplies over 80 percent of the District's budget; the remainder comes from community contributions, a very high percentage. The District's five-member Governing Board adopts the annual budget and strategic policy. The District has 65 students and is situated in the San Leandro Creek watershed, on south-west facing slopes and bottom land.

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

- **Population Served—E**stimated 320
- **Land Area Served—**Approximately 10 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $20 million
- **Land Area Owned—**Approximately 6 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Steel water tank and distribution pipelines
  - Computer and laboratory equipment
  - Emergency broadcast equipment
  - T1 hub and IT network
  - Official student and administrative records
  - Institutional kitchen
  - Library and theater
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $2.4 million.
- **List of Critical Facilities Owned by the Jurisdiction:**

  - 2300 sq. ft. primary building
  - 800 sq. ft. secondary building
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $3.5 million.
- **Current and Anticipated Service Trends—**As an autonomous California School District, the CESD is responsible for the safety of its school children. Located within very high wildfire hazard boundaries, and Northern Hayward Earthquake 2008 USGS Fault Scenario Complete Failure boundaries, the District must ensure it adequately mitigates these hazards.

  The District serves a community with about 92 households and 140 units, many on slopes exceeding 10 degrees. As the only community institution, the CESD provides a physical meeting place for all community efforts; including CERT training, fire drills, and emergency amateur radio. As an information hub, community residents meet there to organize self-help groups. Local fast-growing vegetation encroaches roads and houses, so the community relies on self-help groups in its attempt to keep roads clear for emergency access. Future housing development is limited; most current structures are owner-built and individually maintained. Despite their hardy backgrounds, Canyon's population is aging, with implications for both vegetation removal and other maintenance. The District will actively work to maintain community mobilization, especially support for hazard mitigation.

The District coordinates are 37°49′54″N 122°11′16″W. The service area approximates a quad: 37.84N 122.176W; 37.835N 122.14W; 37.82N 122.14W; 37.826N 122.176W. The jurisdiction's boundaries are shown on Figure 1-1.

15.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 15-1 lists all past occurrences of natural hazards within the jurisdiction.

15.4 HAZARD RISK RANKING

Table 15-2 presents the ranking of the hazards of concern.

15.5 APPLICABLE REGULATIONS AND PLANS

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

- California Code of Regulations Title 24, California Building Standards Code, Section 1503.1:
  - Roof Coverings within Very High Fire Hazard Severity Zones. All new structures, and every existing structure when 50 percent or more of the total roof area is reroofed within a one-year period commencing on any date on or after January 1, 1997, within very high fire hazard severity zones designated by the California Department of Forestry and Fire Protection, or by a local agency, shall have at least a Class A roof covering.
- Title 5, California Code of Regulations, Division 1, Chapter 13, Subchapter 1, School Facilities Construction, Article 1. General Standards, §14001. Minimum Standards (f):
  - Educational facilities planned by school districts shall be designed to meet federal, state, and local statutory requirements for structure, fire, and public safety.
- Contra Costa County Operational Area Hazard Mitigation Plan
- Community Wildfire Protection Plan, Contra Costa County, California -Appendix F. Canyon Fire Council Wildfire Preparedness Plan:

- The following priorities for vegetation treatment were determined in meetings between the Canyon Fire Council, EBMUD, CDF, and MOFD:
  - Thin vegetation around homes and other structures and along roads and foot paths
  - Thin vegetation on public lands which fill between homes or roads and homes
  - Create and implement a strategic replanting plan
  - Increase water storage dedicated to firefighting
  - Increase coverage and participation in ham and FRS radio usage

15.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 15-3.

15.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 15-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 15-5 identifies the priority for each initiative. Table 15-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

15.8 ADDITIONAL COMMENTS

Initiative #1: The District has identified and prioritized areas of hazardous fuel reduction treatment to protect the community and essential infrastructure within District boundaries. We anticipate that 45 crew days, spread over three years, will need to be allotted for cutting and chipping vegetation.

Initiative #2: FEMA offers up to 75 percent Federal cost share grants for "structural retrofitting and non-structural retrofitting (e.g., storm shutters, hurricane clips, bracing systems) of existing public or private structures to meet or exceed applicable building codes relative to hazard mitigation."

TABLE 15-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
House Fires (one every 2.8 years[a])	N/A	1965-present	$50,000-$400,000
Flood	N/A	Mid 1980s	$250,000
Landslide	NA	1980	Old railway tunnel portal buried
Wildland Fire Caused by Pipeline Explosion	N/A	1970	>12 acres burned

*According to the U.S. Fire Administration/National Fire Data, the US averages 300,000 house fires annually, and the US residential, non-apartment housing stock is about 82.5 million, for a national average of one house fire every 275 years. Canyon's frequency is 100 times greater.

TABLE 15-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Wildfire	
2	Earthquake	
3	Flood	
4	Landslide	

TABLE 15-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 15-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Reduce and chip fire fuel and fire ladders						
Existing	Wildfire	1,7	CESD	$80,000	HMGP, PDM	Short Term
Initiative 2—Install Class A fire rated roof on primary District building						
Existing	Wildfire	1,7,15	CESD	$500,000	HMGP, PDM	Short Term
Initiative 3—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County Planning	Low	District Funds	Short Term, ongoing
Initiative 4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 5—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4,5,14	OES & DCD	Low	District Funds	Short Term

TABLE 15-5.
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	2	High	Medium	Yes	Yes	Yes	High
#2	3	High	High	Yes	Yes	Yes	High
#3	16	Medium	Low	Yes	No	No	High
#4	16	Medium	Low	Yes	Yes	Yes	High
#5	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 15-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	4, 5		3, 4			
Earthquake	4, 5		3, 4			
Flood	4, 5		3, 4			
Landslide	4, 5		3, 4			
Severe Weather	4, 5		3, 4			
Tsunami	4, 5		3, 4			
Wild Fire	1, 2, 4, 5	1, 2	1, 2, 3, 4	1, 2	1, 2	1, 2

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 16.
CONTRA COSTA COMMUNITY COLLEGE DISTRICT ANNEX

16.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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16.2 JURISDICTION PROFILE

The Contra Costa Community College District (CCCCD) is a community college district responsible for the management of community colleges in Contra Costa County, California. The District was founded by a public vote in December 1948 and first opened its doors in 1949. It is one of the largest multi-college community college districts in California.

The Contra Costa Community College District is governed by an elected five-member Governing Board who serve four-year terms. One student member, selected by student government, serves a one-year term on a rotational basis among the Colleges. The Chancellor, appointed by the Governing Board, carries out the policies of the District. The District employs approximately 1,812 full-time personnel. Funding is received from the State of California.

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

- **Population Served—**1,019,640 as of January 1, 2010
- **Land Area Served—**District boundaries encompass all but 48 of the 734-square-mile land area of Contra Costa County.
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is approximately same as the assessed value for Contra Costa County, $174.1 billion.
- **Land Area Owned—**312 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - District Office: 37,228 square feet, including technology equipment to support district facilities.
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $11,397,095.00
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Contra Costa College: 415,943 square feet of facilities
  - Diablo Valley College (Pleasant Hill Campus): 659,564 square feet of facilities
  - Diablo Valley College (San Ramon Campus): 80,000 square feet of facilities
  - Los Medanos College: 305,887 square feet of facilities

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $425,790,477.
- **Current and Anticipated Service Trends—**Based on the data tracked by California Office of Finance, Contra Costa should continue to experience a steady rate of growth with an estimated population increase of 29 percent by the year 2035. With this rate of growth, the anticipated trends for the county are considered to be moderate to high, consisting primarily of residential development. As the population increases within the County, the needs for higher education facilities will increase as well. In the short term, the Community College District has no immediate plans for expansion. Potential expansion by the district can be addressed under future updates to this plan.

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

16.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 16-1 lists all past occurrences of natural hazards within the jurisdiction.

16.4 HAZARD RISK RANKING

Table 16-2 presents the ranking of the hazards of concern.

16.5 APPLICABLE REGULATIONS AND PLANS

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

- Board Policy 2023: Safety Policy
- California Department of Public Health
- California and US Environmental Protection Agencies
- Federal Endangered Species Act
- California Code of Regulations
- Contra Costa County Hazard Mitigation Plan
- ABAG Hazard Mitigation Plan

16.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 16-3.

16.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 16-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 16-5 identifies the priority for each initiative. Table 16-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 16-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Earthquake	DR 845	10/17/1989	No estimates available
Flooding, Severe Weather	DR 1203	1998	No estimates available
Flooding, Severe Weather		2005	No estimates available
Wildfire		2005	No dollar loss

TABLE 16-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe weather	45
3	Land Slide	18
4	Flood	18
5	Wild Fire	12
6	Drought	9
7	Dam Failure	8

TABLE 16-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 16-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #CCCCD1—Perform Structural seismic retrofit of identified vulnerable buildings and infrastructure						
Existing	Earthquake	1, 2, 7, 15	CC Community College District	High	FEMA Mitigation Grant Funding, District Capital Facilities fund	Long-term, depends on funding
Initiative #CCCCD2—Perform non-structural seismic retrofit of identified vulnerable buildings						
Existing	Earthquake	1, 2, 7, 15	CC Community College District	High	FEMA Mitigation Grant Funding, District Capital Facilities fund	Long-term, depends on funding
Initiative #CCCCD3—Implement a hazard preparedness outreach campaign at District facilities						
New and existing	All Hazards	3, 6, 16	CC Community College District	Low	District Funds	Short-term, ongoing
Initiative #CCCCD4—Consider the development of a continuity of operations plan (COOP) that will sustain District operations following major disasters.						
New and Existing	All Hazards	1, 2, 16	CC Community College District	High	District Funds	Long-term, depends on funding
Initiative #CCCCD5—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	CC Community College District	Low	District funds	Short-term, ongoing
Initiative #CCCCD6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	Planning	Low	District funds, possibly FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing
Initiative #CCCCD7—Conduct design and feasibility studies for structural seismic retrofit of district critical facilities and infrastructure						
Existing	EQ	1, 2, 7, 15	CC Community College District	High	FEMA Mitigation Grant Funding, District Capital Facilities fund	Long-term, depends on funding

TABLE 16-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #CCCCD8—Enhance emergency response capability of the District by acquiring or upgrading emergency response equipment that is currently lacking or deficient. (radios, computers, software, generators, etc.)						
New and existing	All Hazards	1,2,16	CC Community College District	Medium	District Funds	Long-term, depends on funding
Initiative #CCCCD9—Address emergency communication deficiencies to enhance the district's capabilities to respond and recover from the impacts of natural disasters.						
New and existing	All Hazards	1,2,16	CC Community College District	Medium	District Funds	Long-term, depends on funding

TABLE 16-5.
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	High	Yes	Yes	No	Medium
2	4	High	High	Yes	Yes	No	Medium
3	4	Low	Low	Yes	No	Yes	High
4	3	High	High	Yes	No	No	Medium
5	16	Medium	Low	Yes	No	Yes	High
6	16	Medium	Low	Yes	No	Yes	High
7	4	High	High	Yes	Yes	No	Medium
8	3	Medium	Medium	Yes	Yes	No	Medium
9	3	Medium	Medium	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 16-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 17.
CONTRA COSTA COUNTY OFFICE OF EDUCATION ANNEX

17.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Pleasant Hill, CA 94523
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Alternate Point of Contact

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17.2 JURISDICTION PROFILE

The County Office of Education is an essential part of Contra Costa's outstanding public school system. Overall, Contra Costa County's students rank high on virtually every measure of achievement, from test scores to college entrance rates.

Within the County, the Office of Education's purpose is to support the success of Contra Costa's 18 school districts, schools and over 166,000 students.

The Office of Education provides the support that is needed by operating like a business. Customers in school districts can choose whether to use, or not use, most County Office services. Superintendents and other district staff choose these services and are highly satisfied with them because the Office of Education:

- Provides quality countywide programs for children with special needs
- Saves school districts money
- Helps districts do a better job
- Supports districts in meeting state and federal mandates

By working effectively and efficiently with Contra Costa's school districts, the County Office of Education strengthens the entire education system while saving dollars that can be used in local classrooms.

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

- **Population Served—**166,000 Kindergarten through adult students
- **Land Area Served—**802 square miles
- **Value of Area Served—**The value of the area served by the jurisdiction is undetermined
- **Land Area Owned—**23.07 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - The Stewart Building (Central Office) includes technology equipment that provides broadband internet service to all 18 school districts in Contra Costa County

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $1 million.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Stewart Building (Central Office) at 77 Santa Barbara Road, Pleasant Hill, California
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $12 million
- **Current and Anticipated Service Trends—**Relatively stable service population with increases in population served in the east and far eastern county areas as residential growth continues.

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

17.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

The only recorded past occurrence of natural hazard affecting the jurisdiction is the October 17, 1989 earthquake (FEMA Disaster #DR-845), which caused an estimated $2,000 in damage.

17.4 HAZARD RISK RANKING

Table 17-1 presents the ranking of the hazards of concern.

17.5 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 US Environmental Protection Agencies
- Federal Endangered Species Act
- California Code of Regulations
- Contra Costa County Operational Area Hazard Mitigation Plan

17.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 17-2.

17.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 17-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 17-4 identifies the priority for each initiative. Table 17-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 17-1.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	45
3	Landslide	24
4	Flood	18
5	Wildland Fire	14
6	Drought	12
7	Dam failure	8

TABLE 17-2.
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
Tsunami Ready	No	N/A	N/A

TABLE 17-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Earthquake retrofit District Facility (Stewart Building).						
Existing	Earthquake	1, 7, 15	Operations	?	HMGP, PDM	Long Term
Initiative 2—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds	Short Term, ongoing
Initiative 3—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 4—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	OES & DCD	Low	District Funds	Short Term

TABLE 17-4.
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	High	High	Yes	Yes	Yes	High
2	16	Medium	Low	Yes	No	No	High
3	16	Medium	Low	Yes	Yes	Yes	High
4	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 17-5.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 18.
LIBERTY UNION HIGH SCHOOL DISTRICT ANNEX

18.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
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18.2 JURISDICTION PROFILE

The Liberty Union High School District (LUHSD) was established and opened in 1902 in a two story building in Brentwood California. From that time the District has seen growth from the first graduating class of five students to over 500 in 2009 for Liberty High School. The District is identified a 9-12 High School District by the California Department of Education. There are three comprehensive campuses, one continuation, and one adult/independence school program with attendance of over 7,000 students and 800 employees. The attendance area has not changed over that time. The attendance area covers most of East Contra Costa County including the cities of Brentwood, Oakley, Knightsen, Byron and Discovery Bay. Funding is received from the State of California.

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

- **Population Served—**Approximately 150,000 persons as of 2009
- **Land Area Served—**224,000 acres, 350 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $15,784,099,925
- **Land Area Owned—**243 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Transportation Center 2,000 square feet of buildings and buses
  - District Office 10,000 square feet of buildings
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $2,500,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Liberty High School 230,000 square feet of buildings
  - Freedom High School 233,500 square feet of buildings
  - Heritage High School 237,035 square feet of buildings
  - La Paloma High School 15,000 square feet of buildings
  - Community Education Center 36,218 square feet of buildings

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $345,000,000
- **Current and Anticipated Service Trends—**The District will require two additional High Schools and one Continuation High School by 2025 for build out of the District according to anticipated growth information provided by the area cities and Contra Costa County.

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

The District covers the area from the Alameda County line to the South, San Joaquin County to the East, Sacramento County line to the North and county boundary educational map to the West.

18.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 18-1 identifies some known past occurrences of natural hazards within the jurisdiction.

18.4 HAZARD RISK RANKING

Table 18-2 presents the ranking of the hazards of concern.

18.5 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 US Environmental Protection Agencies
- California Code of Regulations
- California Environmental Quality Act (CEQA)
- Federal Endangered Species Act
- The Liberty Union High School District ("District") facilities are constructed, modernized or altered under the supervision of the Division of State Architect ("DSA"). All facilities were constructed under the provisions of the Field Act which governs structural safety and school building design construction to the highest standards of seismic safety. The 2007 California Building Code governs all facilities construction. All DSA reviews for new construction and additions require review by the California Geological Survey ("CGS"). CGS reviews geotechnical and geo-hazard reports for conformance to state school policies found in the Education Code.
- The District's sites and facilities are subject to review and approval by the California Department of Education ("CDE"). CDE certifies all sites, construction plans, and some renovations to existing sites for conformance to state standards in relation to site hazards.
- The District is subject to review by the California Department of Toxic Substances Control ("DTSC") in relation to environmental hazards.
- The District is not subject to local jurisdiction, except in relation to local fire review for access of fire vehicles on sites and local hydrants. The District is not subject to local building ordinances or codes. The District is not subject to county ordinances, codes or policies-with the exception of Environmental Health code enforcement.
- Structural Evaluation RP Gallagher Engineers, Liberty High School
- Design and approval Seismic Upgrade, Liberty High School

- State of California, Division of State Architect, AB 300 List of most vulnerable School Facilities. 2003

18.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 18-3.

18.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 18-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 18-5 identifies the priority for each initiative. Table 18-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

18.8 ADDITIONAL COMMENTS

The Liberty Union High School District is a State agency bound by DSA development and monitoring for safe schools. It does not appear by the information provided that the district is located in hazard areas other than earthquakes.

TABLE 18-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Flooding, Severe Weather	FEMA-1628-DR	1/1/2006	No estimates available
Severe Weather	NA	2/1998	No estimates available
Flooding, Severe Weather	NA	1/3/1982	No estimates available
Earthquake	NA	1/1980	No estimates available

TABLE 18-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	42
2	Severe Weather	12
3	Flood	6
4	Landslide	6
5	Drought	0
6	Dam Failure	0
7	Wildfire	0

TABLE 18-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	No	NA	NA
Storm Ready	No	NA	NA
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

TABLE 18-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #1—Seismic retrofit and structural upgrades to Liberty Union High School						
Existing	Earthquake	1, 2, 7, 13, 15	LUHSD	$5,000,000 High	District Funds, Local Bonds, State, HMGP, PDM	Long-term, depends on funding
Initiative #2—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short-term, ongoing
Initiative #3—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing
Initiative #4—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	1, 8, 12, 16	County	Low	District Funds	Short-term, ongoing

TABLE 18-5.
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	5	High	High	Yes	Yes	No	High
2	16	Medium	Low	Yes	No	No	High
3	16	Medium	Low	Yes	Yes	Yes	High
4	4	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 18-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 19.
MOUNT DIABLO UNIFIED SCHOOL DISTRICT ANNEX

19.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Pete Pedersen, Assistant Superintendent
1936 Carlotta Drive
Concord, CA 94519
Telephone: 925-682-8000, ext. 4092
e-mail Address: pedersenp@mdusd.k12.ca.us

Alternate Point of Contact

Jeff McDaniel, Facilities & Operations Project Manager
1480 Gasoline Alley
Concord, CA 94520
Telephone: 925-825-7440, ext. 3821
e-mail Address: mcdanielj@mdusd.k12.ca.us

19.2 JURISDICTION PROFILE

The Mount Diablo Unified School District was formed through a unification election in 1948. Mt. Diablo is one of the largest school district in the state of California, with over 56 school sites and programs. The school district consists of six comprehensive high schools, ten middle schools, 30 elementary schools, and two adult centers. The district employs 2,168 certificated and 1,575 classified employees and serves a K-12 student population of 34,737. It is governed by the Board of Education (five members). The district covers 150 square miles, including cities of Concord, Pleasant Hill, Clayton, portions of Walnut Creek and Martinez, and unincorporated areas including Lafayette, Pacheco, and Bay Point.

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

- **Population Served—**Approximately 34,737 students
- **Land Area Served—**150 square miles, including cities of Concord, Pleasant Hill, Clayton, portions of Walnut Creek and Martinez, and unincorporated areas including Lafayette, Pacheco, and Bay Point.
- **Value of Area Served—**Secured value from county assessor's office net of exemptions: $4,209,369,622
- **Land Area Owned—**Approximately 420 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Type 1 Buses: 63
  - Type 2 Buses: 36
  - Other Maintenance Vehicles: 130
  - Specialty Vehicles: 48
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $22,500,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - James W. Dent Education Center, 1936 Carlotta Drive, Concord, CA 94519
  - Central Services Complex, 1480 Gasoline Alley, Concord, CA 94520
  - Purchasing/Warehouse, 2326 Bisso Lane, Concord, CA 94520

- Transportation, 1490 Gasoline Alley, Concord, CA 94520
- Ayers Elementary, 5120 Myrtle Drive, Concord, CA 94521
- Bancroft Elementary, 2200 Parrish Drive, Walnut Creek, CA 94598
- Bel Air Elementary, 663 Canal Road, Bay Point, CA 94565
- Cambridge Elementary, 1135 Lacey Lane, Concord, CA 94520
- Clayton Valley High, 1101 Alberta Way, Concord, CA 94521
- College Park High, 201 Viking Drive, Pleasant Hill, CA 94523
- Concord High, 4200 Concord Blvd., Concord, CA 94521
- Delta View Elementary, 2916 Rio Verde, Pittsburg, CA 94565
- Diablo View Middle, 300 Diablo View Lane, Clayton, CA 94517
- Eagle Peak Montessori Charter, 800 Hutchinson Road, Walnut Creek 94598
- El Dorado Middle, 1750 West Street, Concord, CA 94521
- El Monte Elementary, 1400 Dina Drive, Concord, CA 94518
- Fair Oaks Elementary, 1400 Lisa Lane, Pleasant Hill, CA 94523
- Foothill Middle, 2775 Cedro Lane, Walnut Creek, CA 94598
- Glenbrook Middle, 2351 Olivera Road, Concord, CA 94520
- Gregory Gardens Elementary, 1 Corrintone Ct., Pleasant Hill, CA 94523
- Hidden Valley Elementary, 500 Glacier Drive, Martinez, CA 94553
- Highlands Elementary, 1326 Pennsylvania Blvd., Concord, CA 94521
- Holbrook Elementary, 3333 Ronald Way, Concord, CA 94519
- Meadow Homes Elementary, 1371 Detroit Avenue, Concord, CA 94520
- Monte Gardens Elementary, 3841 Larkspur Drive, Concord, CA 94519
- Loma Vista Adult Center, 1266 San Carlos Drive, Concord CA 94518
- Pleasant Hill Education Adult Center, One Santa Barbara Road, Pleasant Hill, CA 94523
- Mt. Diablo Elementary, 5880 Mt. Zion Drive, Clayton, CA 94517
- Mt. Diablo High, 2450 Grant Street, Concord, CA 94520
- Mountain View Elementary, 1705 Thornwood Drive, Concord, CA 94521
- Northgate High, 425 Castle Rock Rd., Walnut Creek, CA 94598
- Oak Grove Middle, 2050 Minert Rd., Concord, CA 94518
- Olympic Continuation High, 2730 Salvio Street, Concord, CA 94519
- Pine Hollow Middle, 5522 Pine Hollow Rd., Concord, CA 94521
- Pleasant Hill Elementary, 2097 Oak Park Blvd., Pleasant Hill, CA 94523
- Pleasant Hill Middle, One Santa Barbara Road, Pleasant Hill, CA 94523
- Rio Vista Elementary, 611 Pacifica Avenue, Bay Point, CA 94565
- Riverview Middle, 205 Pacifica Avenue, Bay Point, CA 94565

- Sequoia Elementary, 277 Boyd Road, Pleasant Hill, CA 94523
- Sequoia Middle, 265 Boyd Road, Pleasant Hill, CA 94523
- Shadelands Center, 1860 Silverwood Drive, Concord, CA 94519
- Shore Acres Elementary, 351 Marina Rd., Bay Point, CA 94565
- Silverwood Elementary, 1649 Claycord Ave., Concord, CA 94521
- Strandwood Elementary, 416 Gladys Drive, Pleasant Hill, CA 94523
- Sun Terrace Elementary, 2448 Floyd Lane, Concord, CA 94520
- Sunrise School, 1861 Silverwood Drive, Concord, CA 94519
- Valhalla Elementary, 530 Kiki Drive, Pleasant Hill, CA 94523
- Valle Verde Elementary, 3275 Peachwillow Lane, Walnut Creek, CA 94598
- Valley View Middle, 181 Viking Drive, Pleasant Hill, CA 94523
- Walnut Acres Elementary, 180 Cerezo Drive, Walnut Creek, CA 94598
- Westwood Elementary, 1748 West Street, Concord, CA 94598
- Willow Creek Center, 1026 Mohr Lane, Concord, CA 94518
- Woodside Elementary, 761 San Simeon Drive, Concord, CA 94518
- Wren Avenue Elementary, 3339 Wren Avenue, Concord, CA 94519
- Ygnacio Valley Elementary, 2217 Chalomar Road, Concord, CA 94518
- Ygnacio Valley High, 755 Oak Grove Road, Concord, CA 94518

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $871,988,422
- **Current and Anticipated Service Trends—**While the District is presently experiencing declining enrollment, the Concord Naval Weapons Station Re-Use Plan will result in a projected increase in enrollment of in excess of 4,000 students. This anticipated increase in enrollment will require a need to develop two elementary schools as well as a new middle and high school.

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

19.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 19-1 lists all past occurrences of natural hazards within the jurisdiction.

19.4 HAZARD RISK RANKING

Table 19-2 presents the ranking of the hazards of concern.

19.5 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 US Environmental Protection Agencies

- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- California Department of Fish and Game
- California Department of Pesticide Regulations
- California Department of the State Architect
- California Building Code
- Contra Costa County Operational Area Hazard Mitigation Plan

19.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 19-3.

19.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 19-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 19-5 identifies the priority for each initiative. Table 19-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

19.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Given the seismic vulnerability associated with our service area, a comprehensive analysis of infrastructure and facilities is necessary to develop a meaningful mitigation plan. Absent such an analysis, the information presented herein has been included based on limited historical and accredited information.

TABLE 19-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Wind	NA	12/25/2008	$18,000
Flooding	NA	12/31/2005	$3,000
Flooding, Wind	NA	3/1/1995	$10,000
Flooding	NA	1/20/1993	$7,500
Flooding	NA	1/13/1993	$17,500
Flooding, Wind	NA	12/10/1992	$5,000
Flooding	NA	12/14/1992	$17,500
Wind	NA	12/13/1983	$5,000
Wind	NA	2/26/1983	$3,000
Wind	NA	12/22/1982	$7,000
Flooding	NA	1/3/1982	$10,000

TABLE 19-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Flood	48
3	Severe Weather	48
4	Drought	36
5	Landslide	36
6	Wildfire	36
7	Dam Failure	6

TABLE 19-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 19-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Conduct design & feasibility studies for retrofit of critical infrastructure						
Existing	Earthquake, Flood	1, 4, 7, 15	MDUSD	$85,000	HMGP District Fund	Short term
Initiative 2—Retrofit domestic water lines						
Existing	Earthquake, Flood, Drought	1, 4, 7, 15	MDUSD	$235,000	HMGP District Fund	Short term
Initiative 3—Dredge & stabilize banks of Grayson and Murderers Creeks						
Existing	Flood	1, 7, 10	MDUSD	$1,000,000	HMGP District Fund	Short term
Initiative 4—Conduct design & feasibility studies on facility seismic integrity						
Existing	Earthquake	1, 4, 7, 15	MDUSD	$150,000	HMGP District Fund	Short term
Initiative 5—Conduct public/staff training on emergency preparedness						
Existing	All Hazards	3, 4, 12, 16	MDUSD	$100,000	HMGP District Fund	Short term
Initiative 6—Acquire communication system for emergency preparedness						
Existing	All Hazards	2, 13	MDUSD	$200,000	HMGP District Fund	Short term
Initiative 7—Acquire emergency response equipment (e.g. generators, traffic plates, barricades, emergency lighting)						
Existing	All Hazards	2, 13	MDUSD	$50,000	HMGP District Fund	Short term
Initiative 8—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 9—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 10—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 19-5.
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	Medium	Medium	Yes	Yes	No	Medium
2	4	Medium	Medium	Yes	Yes	No	Medium
3	3	High	High	Yes	Yes	No	High
4	4	High	Medium	Yes	Yes	No	High
5	4	High	Medium	Yes	Yes	No	High
6	2	High	Medium	Yes	Yes	No	High
7	2	Medium	Medium	Yes	Yes	No	Medium
8	16	Medium	Low	Yes	No	No	High
9	16	Medium	Low	Yes	Yes	Yes	High
10	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 19-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 20.
WALNUT CREEK SCHOOL DISTRICT ANNEX

20.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Stuart House, Director, Construction & Maintenance
960 Ygnacio Valley Road
Walnut Creek, CA 94597
Telephone: 925-944-6850, ext. 2017
e-mail Address: shouse@wcsd.k12.ca.us

Alternate Point of Contact

Marcus Battle, Chief Business Official
Telephone: 925-944-6850, ext. 2010
e-mail Address: mbattle@wcsd.k12.ca.us

20.2 JURISDICTION PROFILE

Located in Walnut Creek, CA, the Walnut Creek School District (WCSD) is responsible for meeting the educational needs of approximately 3,450 students enrolled in kindergarten through eighth grade during the 2009 – 2010 school year. WCSD operates five K-5 neighborhood elementary schools: Buena Vista, Indian Valley, Murwood, Parkmead, and Walnut Heights; and one 6-8 intermediate school: Walnut Creek Intermediate. Grades K-5 are primarily self-contained, while the intermediate grades offer a mixture of core and elective classes. In addition to 157 administrative, paraprofessional, food service, clerical, custodial and maintenance staff, approximately 165 teachers are employed by the District. The Governing Board of the Walnut Creek School District, comprised of five elected members, assumes responsibility for the adoption of this plan while the school Superintendent will oversee its implementation through the Director of Construction & Maintenance.

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

- **Population Served—**The City of Walnut Creek's current population is approximately 64,000 based on the 2006-2008 American Community Survey 3-year Estimates. WCSD serves most of this population and a part of the Alamo Community which has a population of 5,697 according to the 2000 Census. That portion of the City not served by WCSD is served by the Mt. Diablo School District.
- **Land Area Served—**WCSD's service area includes most of the City of Walnut Creek and a portion of Alamo, CA. This area is approximately 12800 acres or 20 square miles. Associated Census Tracts are: 3381.00, 3382.01, 3382.02, 3383.02, 3390.00, 3400.01, 3400.02, 3410.00, and 3420.00 (Alamo, CA), 3430.01, 3430.02, 3430.03, 3511.00 and 3553.02.
- **Land Area Owned—**Walnut Creek School District owns approximately 87.84 acres or 3,826,310.4 square feet.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - District Administration
    - District Office
    - Maintenance building
    - 6 Storage Buildings
  - Buena Vista Elementary
    - Administration Office

    - Multipurpose Building
    - Library Building
    - 7 Classroom Buildings
    - 4 Portable Classrooms
    - 3 Daycare Portables
    - 1 Kindergarten Classrooms Building
    - 1 Kindergarten Storage Building
    - 1 Pump Storage Building
    - 1 Restroom/Storage Building
    - 3 Storage Containers
    - 1 Shade Structure
  - Indian Valley Elementary
    - Administration/Kindergarten/Classrooms Building
    - Multipurpose Building
    - Library Building
    - 1 Classroom Building
    - 3 Portable Classroom Buildings
    - 1 Daycare Building
    - 2 Storage Buildings
    - 1 Covered Walkway
  - Murwood Elementary
    - Main Building
    - 5 Portable Classroom Buildings
    - 1 Daycare Portable
    - 3 Storage Containers
    - 1 Covered Walkway
  - Parkmead Elementary
    - Administration/Multipurpose Building
    - 4 Classroom Buildings
    - 1 Kindergarten Classrooms Building
    - 3 Portable Classroom Buildings
    - 2 Daycare Portables
    - 2 Storage Buildings
    - 4 Storage Containers
    - 1 Covered Walkway
  - Walnut Heights Elementary
    - Administration/Multipurpose/Classroom Building
    - 3 Classroom Buildings
    - 3 Portable Classroom Buildings
    - 2 Daycare Portables

    - Staff Lounge/Restrooms Building
    - 4 Storage Containers
    - 1 Covered Walkway
  - Walnut Creek Intermediate
    - Administration
    - Library/Media Center
    - Multipurpose Building
    - Gymnasium
    - 9 Classroom Buildings
    - Locker Rooms Building
    - 12 Storage Containers
    - 1 Maintenance Trailer
    - 2 Covered Walkways
    - 2 Bridges
  - Dorris Eaton School (Leased)
    - Administration/Library Building
    - Multipurpose Building
    - Cottage Building
    - 4 Classroom Buildings
    - 2 Restroom/Storage Building
    - Covered Walkway
- **Total Value of Critical Facilities—**The value of critical facilities owned by the jurisdiction is as follows:

– District Administration	$2,461,303
– Buena Vista Elementary	$9,525,920
– Indian Valley Elementary	$9,076,722
– Murwood Elementary	$7,889,326
– Parkmead Elementary	$8,741,564
– Walnut Heights Elementary	$9,720,473
– Walnut Creek Intermediate	$22,536,466
– Dorris Eaton School (Leased)	$6,730,136
– **Total**	**$76,681,910**

- **Current and Anticipated Service Trends—**Although total population figures remain somewhat flat from the 2000 Census to 2008 estimates at about 64,000, WCSD has experienced a steady growth in student population. In the 2007-08 school year total enrollment was 3125; in 2008-09, it was 3238; and in 2009-10, it is 3309. To some extent, this is a reflection of the economic difficulties of families who have withdrawn their children from private schools to enroll them in WCSD's high achieving schools. It is expected the school district's student population will remain flat or grow slightly in the short term.

The jurisdiction's boundaries are shown on Figure 20-1.

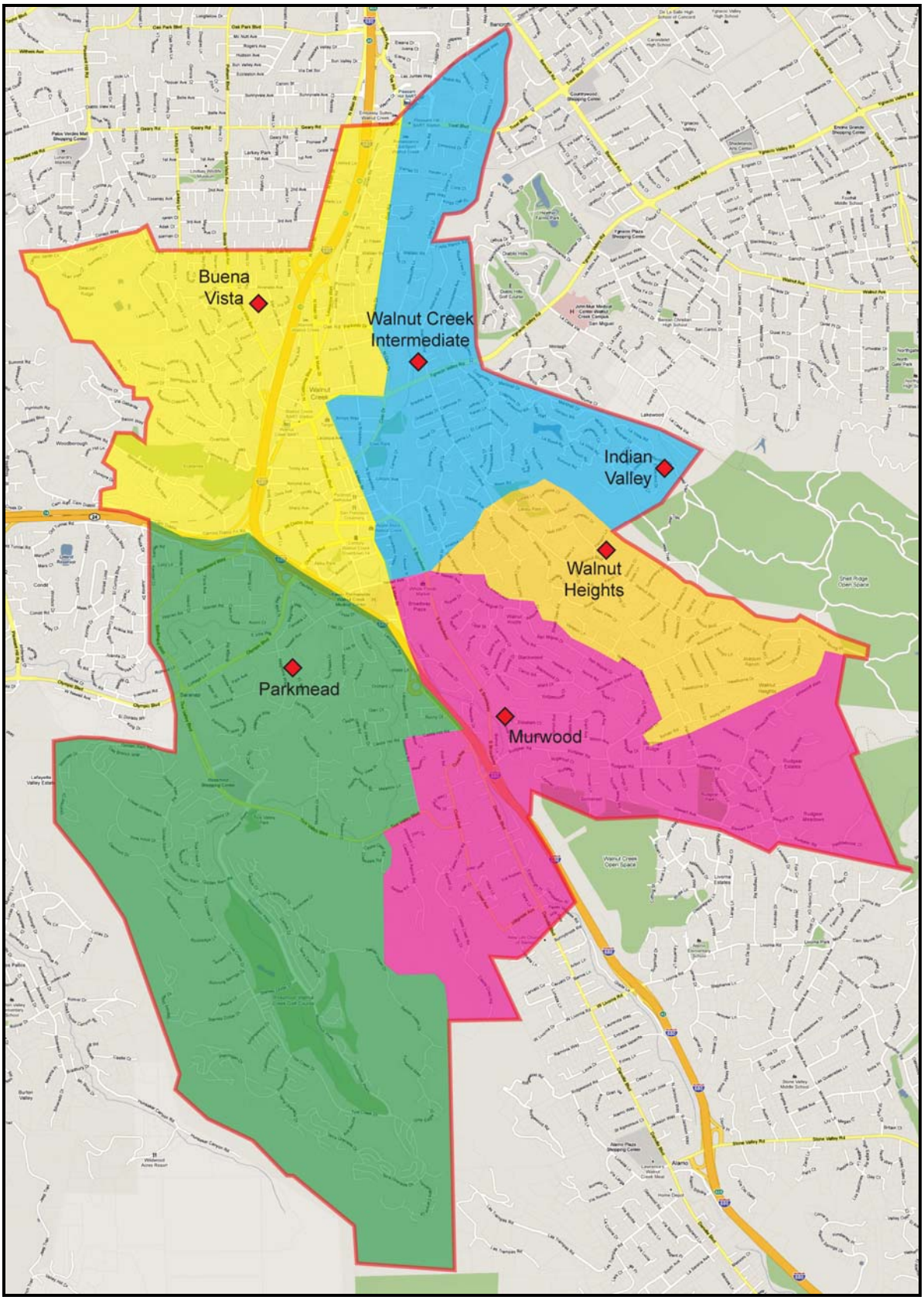

Figure 20-1. Walnut Creek School District Boundaries

20.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 20-1 lists all past occurrences of natural hazards within the jurisdiction.

20.4 HAZARD RISK RANKING

Table 20-2 presents the ranking of the hazards of concern.

20.5 APPLICABLE REGULATIONS AND PLANS

Walnut Creek School District has not previously been a planning partner for Hazard Mitigation. The City of Walnut Creek participates with the Association of Bay Area Governments (ABAG) and the Contra Costa County Planning Partners. The link for the current participation is: http://www.abag.ca.gov/cgi-bin/dbhazard/strat.pl The City produced a Local Hazards Mitigation Plan –Walnut Creek Annex Plan in April 2007. The link follows: http://quake.abag.ca.gov/mitigation/WalnutCreek-Annex.pdf

20.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 20-3.

20.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 20-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 20-5 identifies the priority for each initiative. Table 20-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

20.8 ADDITIONAL COMMENTS

- 0 acres are in the 100-year floodplain, while an additional 158 acres are in flood prone areas;
- 0 acres are subject to dam failure inundation;
- 10 acres are in areas of moderate, high, or very high liquefaction susceptibility;
- 1,089 acres are in areas of existing landslides; and 3,242 acres are in areas of few landslides;
- All 88 acres are in the highest two categories of shaking potential, in large part due to the City's proximity to the Hayward fault, Mt. Diablo Thrust Fault, Calaveras Fault, and the Concord/Green Valley Fault;
- All 88 acres are within the Earthquake Fault Study Zone mapped by the California Geological Survey.
- 40.34 acres are subject to high and very high wildfire threat at Indian Valley, Murwood and Parkmead because of their proximity to wooded areas and open spaces,
- Currently there is no mapping available for Contra Costa County Earthquake Liquefaction Study Zones and Earthquake Landslide Study Zones mapped by the California Geological Survey.
- All 88 acres are subject to drought.

TABLE 20-1.
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Wind – Strong Wind	12/25/2008	$13,500
Winter Weather – Frost/Freeze	12/17/2008	$4,000
Wind – Strong Wind	12/15/2008	$3,000
Winter Weather – Frost/Freeze	1/6/2007	0
Landslide	4/6/2006	$5,500,000
Flooding	1/1/2006	$22,000,000
Wind	12/30/2002	$120,000
Flooding	12/14/2002	0
Wind	11/7/2002	$200,000
Winter Weather	7/10/2002	$25,000
Wind	11/24/2001	$700,000
Wind – High Wind	12/18/2000	$550,000
Wind – High Wind	10/21/2000	0
Heat – Excessive Heat	6/14/2000	0
Flooding – Flash Flood	2/13/2000	$100,000
Wind – High Wind	12/21/1999	$62,500
Wind – High Wind	2/9/1999	$200,000
Wind – High Wind	12/16/1998	$25,000
Tornado	12/5/1998	$200,000
Wind – High Wind	6/16/1998	$1,000
Tornado	2/19/1998	$50,000
Flooding – Flash Flood	2/7/1998	0
Flooding – Flash Flood	2/3/1998	0
Landslide – El Nino Landslide	1/1/1997	$27,000,000
Wind – Winter Weather: Winter Storm, High Winds	12/9/1995	$6,000,000
Flooding–Severe Storm, Wind	3/1/1995	0
Winter Weather	2/16/1994	$1,282
Winter Weather	1/23/1994	$1,852
Winter Weather–Winter Storm	12/11/1993	$3,448
Wind – High Winds	11/13/1993	$62,500
Wind – High Winds	2/19/1993	$50,000
Flooding	1/20/1993	$12,500.00
Flooding	1/13/1993	$55,555.56
Winter Weather	1/8/1993	$8,333.33

TABLE 20-1 (continued).
NATURAL HAZARD EVENTS

Type of Event	Date	Preliminary Damage Assessment
Winter Weather	1/6/1993	$55,555.56
Flooding-Wind–Winter Storm, Flash Flooding	12/10/1992	$1,316.00
Winter Weather	12/6/1992	$1,563.00
Heat	8/13/1992	0
Flooding – Winter Weather	2/14/1992	$9,091.00
Flooding – Winter Weather	2/11/1992	$11,628.00
Winter Weather	2/9/1992	$893
Winter Weather	2/5/1992	0
Winter weather	12/20/1990	$86,207
Flooding	5/28/1990	$500,000
Winter Weather–Record Cold	2/5/1989	0
Wind	12/14/1988	$50,000
Wind	2/17/1988	$8,621.00
Wind	12/15/1987	$2,778.00
Flooding – Flash Flooding	2/17/1986	$5,000,000
Severe Storm/Heavy Rain	12/3/1983	$312,500
Severe Storm/Rain/Wind	2/26/1983	$10,417
Flooding – Severe Storm	1/25/1983	$384,615
Wind	12/22/1982	$1,041,667
Flooding	3/30/1982	$166,667
Flooding – Severe Storm	1/3/1982	$7,142,857
Winter weather	1/27/1981	$1,042.00
Severe Storm/Wind	1/9/1980	$1,042.00

TABLE 20-2.
HAZARD RISK RANKING

Rank	Hazard Type	Probability of Occurrence
1	Earthquake	High
2	Flooding	High
3	Severe Weather	High
4	Landslide	Medium
5	Wildfire	Medium
6	Drought	Medium
7	Dam Failure	Low

TABLE 20-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 20-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Seismic Structural Retrofit at three classroom buildings at Dorris Eaton School						
Existing	Building collapse from earthquake		WCSD	$500,000	State of CA; WCSD; FEMA	2011-2012
Initiative 2—Provide accessible storage units at all six schools and District office with adequate emergency supplies.						
Existing supplies inadequate; existing units inaccessible in an emergency.	Inability to expeditiously provide emergency medical, food and water for adequate duration.		WCSD	$175,000	State of CA; WCSD; FEMA	2010-2012
Initiative 3—Provide Emergency Vehicle Access Roads/ADA path at Walnut Heights School.						
New	Inaccessible path of entry at rear of school; means of egress for handicapped to upper hillside safety area.		WCSD	$200,000	State of CA; WCSD; FEMA	2011-2012
Initiative 4—Provide First Aid and CPR training for staff at all sites						
New	Lack of adequate staff training for Emergencies		WCSD	$10,000	WCSD, Red Cross, PTA	2010 -2012
Initiative 5—Purchase emergency communication and radio equipment.						
New	Adequate alternative emergency communication.		WCSD	$10,000	WCSD	2010-2012
Initiative 6—Purchase equipment to immediately respond to collapsed buildings: location devices, backhoe, cutting torches, metal cut off saws, and compressor & jackhammers.						
New	Building collapse from earthquake		WCSD	$100,000	WCSD, PTA, State of CA, FEMA	2010-2012

TABLE 20-5.
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.			$500,000	Yes	Yes	No	High
2.			$175,000	Yes	Yes	No	High
3.			$200,000	Yes	Yes	No	High
4.			$10,000	Yes	Yes	Yes	High
5.			$10,000	Yes	Yes	Yes	High
6.			$100,000	Yes	Yes	No	Medium

a. Explanation of priorities
- 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).

TABLE 20-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought			X		X	
Earthquake	X	X	X		X	X
Flood						
Landslide						
Severe Weather						
Tsunami	N/A	N/A	N/A	N/A	N/A	N/A
Wild Fire						

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 21.
WEST CONTRA COSTA
UNIFIED SCHOOL DISTRICT ANNEX

21.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Bill Savidge, Engineering Officer
1300 Potrero Avenue
Richmond, CA. 94804
Telephone: 510-307-4544
e-mail Address: bsavidge@wccusd.net

Alternate Point of Contact

Tony Catrino, Facilities Project Manager
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Richmond, CA. 94804
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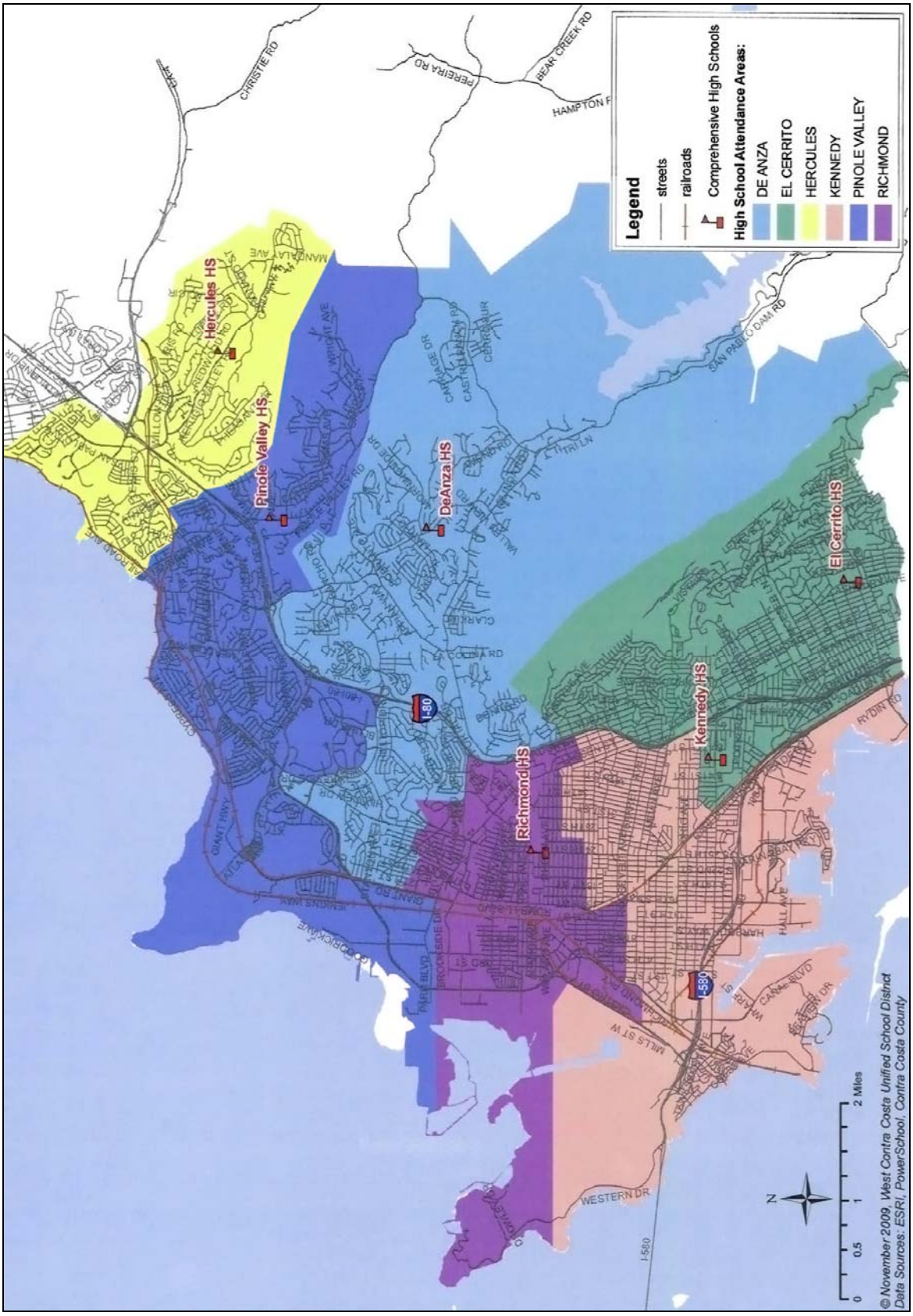
21.2 JURISDICTION PROFILE

The West Contra Costa Unified School District (WCCUSD) is a California K-12 public school district within the county of Contra Costa. The District is a Local Education Agency ("LEA") as recognized by the State of California and operates under the state's Education Code. I t was formed in 1965 under the name of Richmond Unified School District, and in 1990 the District's name was changed to the West Contra Costa Unified School District. The district's five member governing body is the West Contra Costa Unified School District Board of Education. This board will assume the responsibility for the adoption and implementation of this plan. The district has 2,820 employees located in 67 building locations. These buildings include 39 grammar schools, six middle schools, six high schools, six alternative and continuation education schools, and ten support facilities. The district has an area of 110 square miles, across five cities, and includes unincorporated areas of Contra Costa County.

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

- **Population Served—**Approximately 200,659
- **Land Area Served—**110 square miles (Hercules, Pinole, San Pablo, Richmond, El Cerrito, and unincorporated areas of the county)
- **Value of Area Served—**Assessed Evaluation $23,745,753,348
- **Land Area Owned—**574 acres (in 67 sites)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:** All relevant critical infrastructure is associated with critical facilities listed in Table 21-1
- **Total Value of Critical Infrastructure/Equipment—**Incorporated in Critical Facilities values in Table 21-1
- **List of Critical Facilities Owned by the Jurisdiction:** See Table 21-1
- **Total Value of Critical Facilities—**See Table 21-1
- **Current and Anticipated Service Trends—**The District has experienced overall declining enrollment from 1999 through 2010. Enrollment projections indicate flat to modest student population growth levels through 2016, as summarized in Table 21-2.

The jurisdiction's boundaries are shown on Figure 21-1.



Figurer 21-1. West Contra Costa Unified School District Boundaries

21.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 21-3 lists all past occurrences of natural hazards within the jurisdiction.

21.4 HAZARD RISK RANKING

Table 21-4 presents the ranking of the hazards of concern.

21.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- The West Contra Costa Unified School District ("District") facilities are constructed, modernized or altered under the supervision of the Division of State Architect ("DSA"). All facilities were constructed under the provisions of the Field Act which governs structural safety and school building design construction to the highest standards of seismic safety. The 2007 California Building Code governs all facilities construction. All DSA reviews for new construction and additions require review by the California Geological Survey ("CGS"). CGS reviews geotechnical and geo-hazard reports for conformance to state school policies found in the Education Code. For example, CGS reviews and approves geo-hazard reports related to liquefaction mitigation.
- The District's sites and facilities are subject to review and approval by the California Department of Education ("CDE"). CDE certifies all sites, construction plans, and some renovations to existing sites for conformance to state standards in relation to site hazards. For example, CDE would certify site safety in relation to known natural hazards such as landslides, dam inundation, etc.
- The District is subject to review by the California Department of Toxic Substances Control ("DTSC") in relation to environmental hazards. Natural hazards subject to DTSC review include naturally occurring asbestos (NOA) which is found adjacent to fault zones in the District.
- The District is not subject to local jurisdiction, except in relation to local fire review for access of fire vehicles on sites and locations of hydrants. The District is not subject to local building ordinances or codes. The District is not subject to county ordinances, codes or policies—with the exception of Environmental Health Code enforcement.
- Contra Costa County Operational Area Hazard Mitigation Plan
- The District's Natural Hazards Mitigation Plans are all associated with Seismic Evaluations and Geotechnical/Geohazard Reports for specific school sites. These reports have been used to provide priority seismic hazard mitigations and upgrades to existing schools as a part of the District's local bond funded facilities modernization program. In addition, in relation to geohazards, the District has landslide mitigations underway at one site and slope stability mitigations anticipated at another site.

- DASSE Design Structural Engineers, Structural Evaluations of the Measure M Elementary Schools. 2002.
- DASSE Design Structural Engineers, Structural Evaluations of the Measure D Secondary Schools. 2002.
- Board of Education West Contra Costa Unified School District Facilities Master Plan Measure M, Measure D, and Measure J Bond Programs.
- State of California, Division of State Architect, AB 300 List of Most Vulnerable School Facilities. 2003.
- Alan Kropp & Associates, Portola Middle School Geotechnical Engineering Investigation and Consultation: Potential Earthquake Induced Landslide Hazard. January 2006.
- Cal Engineering and Geology. Portola Middle School Geologic and Geotechnical Review of Kropp Study (Peer Review). April 2006
- Alan Kropp & Associates, Geotechnical Peer Review and Geologic Hazard Screening for 17 Elementary School Sites. 2006.
- Alan Kropp & Associates, Phase 1 Geotechnical and Geologic Hazards Study for Riverside Elementary, Washington Elementary, and Ellerhorst Elementary. 2006
- Alan Kropp & Associates, Phase 2A Geotechnical and Geologic Hazards Study for Riverside Elementary, 2008.
- Kleinfelder, Inc. Fault Rupture Study and Slope Stability Analysis for Pinole Valley High School. 2008.
- DASSE Design Structural Engineers, Charles Adams Middle School Academic Building Seismic Vulnerability Assessment. 2008.
- Alan Kropp & Associates, Probabilistic Seismic Hazard Assessment for Adams Middle School. 2009.
- Alan Kropp and Associates, Ground Motion Analysis Most Vulnerable Category 2 Buildings West Contra Costa Unified School District. July 2009.
- Thornton Tomasetti Structural Engineers. Seismic Vulnerability Assessment: Cameron Elementary School, El Cerrito CA. 2009.
- Thornton Tomasetti Structural Engineers. Seismic Vulnerability Study: Portola Middle School Main Classroom Building. 2009.

21.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 21-5.

21.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 21-6 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 21-7 identifies the priority for each initiative. Table 21-8 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 21-1.
WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT

School/Site	Site Area (acres)	Building Area (square feet)	Building Value
Adams Middle School	15.0	127,293	$29,211,759
Administration	1.033	34,160	$7,977,330
Alvarado Adult Education Center	3.75	22,399	$12,007,834
Bayview Elementary	9.2	54,415	$12,828,499
Book Depository/Paint Shop	See Gompers	13,326	
Cameron Special Education Center	See Castro	18,105	$3,806,573
Castro Elementary	9.1	41,151	$7,960,775
Cesar E Chavez Elementary	4.7	49,187	$10,120,493
Collins Elementary	10.9	63,575	$10,931,942
Coronado Elementary	2.9	45,497	$9,410,128
Crespi Middle School	14.1	123,542	$27,601,719
De Anza High	41.0	208,000	$91,500,000
Dover Elementary	5.0	68,000	$22,000,000
Edward M Downer Elementary	4.9	126,720	$24,870,230
El Cerrito High	15.7	204,961	$113,238,469
El Sobrante Elementary	6.3	41,228	$8,246,204
Ellerhorst Elementary	11.1	40,030	$20,330,323
Facilities Operation Center	0.23	9,832	$2,126,288
Fairmont Elementary	4.25	41,053	$8,500,000
Ford Elementary	2.1	60,329	$21,000,000
Furniture Warehouse	0.33	15,000	$2,815,373
Gompers Continuation High & Temp	3	104,554	$23,399,009
Grant Elementary	5.0	57,218	$11,276,074
Hanna Ranch Elementary	5.1	37,172	$10,615,750
Richmond College Prep	See Nystrom	9560	$1,050,594
Harding Elementary	4.5	51,928	$28,845,160
Harmon School/Knolls Center	9.5+	15,880	$1,607,809
Helms Middle School	15.4	120,000	$52,000,000
Lupine Hills Elementary	5.9	49,133	$13,091,433
Hercules Middle/High School	75	172,560	$43,176,337
Highland Elementary	9.0	49,116	$9,115,677
Kappa High	See Kennedy High	4,800	$1,517,202
Kennedy High	17.9	202,917	$42,583,468

TABLE 21-1 (continued).
WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT

School/Site	Site Area (acres)	Building Area (square feet)	Building Value
Kensington Elementary	9.5	42,520	$30,285,962
King Elementary	3.7	55,951	$16,000,000
Lake Elementary	9.3	47,048	$9,352,274
Leadership Public School	See Nystrom	19,200	$2,115,540
Lincoln Elementary	2.7	56,277	$32,329,686
Lovonya DeJean Middle School	17	116,541	$33,188,054
Madera Elementary	3.5	37,955	$9,203,597
Maintenance Shop		12,013	$3,173,149
Mira Vista Elementary	16.3	41,644	$22,029,476
Montalvin Manor Elementary	9.0	43,666	$22,453,080
Murphy Elementary	10.9	36,477	$7,853,228
Nutrition Center	3.5 +/-	34,763	$8,453,821
Nystrom Elementary	3.6	77,361	$16,805,354
Ohlone Elementary	9.2	39,817	5,368,063
Olinda Elementary	9.6	31,468	$6,320,781
Omega Continuation High	See Richmond High	9,720	$720,852
Operations Department	2.1 +/-	14,134	$3,397,025
Peres Elementary	7.0	59,210	$40,348,699
Pinole Middle	9.36	73,871	$50,055,958
Pinole Valley High	25.0	190,907	$36,069,220
Portola Middle	11.1	155,178	$30,238,518
Pupil Services Center, North Campus, Transition Learning Center	11.29	62,062	$13,476,118
Richmond High	12.0	222,747	$65,044,837
Riverside Elementary	4.4	40,061	$21,680,569
Seaview Elementary	8.3	26,141	$5,519,711
Serra Adult Education	2+	24,162	$4,348,002
Shannon Elementary	11.8	26,558	$6,411,940
Sheldon Elementary	8.4	46,505	$11,708,039
Sigma High	See Pinole Valley	2,880	$396,560
Staff Development (Vista Hills) Vista High	9.7	46,839	$6,808,817

TABLE 21-1 (continued).
WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT

School/Site	Site Area (acres)	Building Area (square feet)	Building Value
Stege Elementary	2.7	44,903	$9,124,924
Stewart Elementary	9.2	49,133	$12,995,499
Tara Hills Elementary	9.0	45,573	$9,559,720
Valley View Elementary	13.5	31,465	$6,134,669
Vehicle Storage & Repair		12,294	$1,232,700
Verde Elementary	8.0	40,880	$13,328,528
Warehouse/Maintenance/Operations	(.903) (.8)	46,243	$7,167,293
Washington Elementary	3.2	36,718	$18,834,033
Wilson Elementary	3.5	46,839	$7,436,436
Total	**574.143**	**4,157,805**	**$697,502,350**

TABLE 21-2.
ENROLLMENT PROJECTIONS THROUGH 2016

	Projected Enrollment			
Year	K-5	6-8	9-12	Total
2010-11	15,295	6,401	8,600	30,296
2011-12	15,324	6,401	8,421	30,146
2012-13	15,315	6,516	8,214	30,046
2013-14	15,371	6,647	8,035	30,054
2014-15	15,568	6,604	8,014	30,187
2015-16	15,766	6,525	8,092	30,383

TABLE 21-3.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Flash Flood (El Nino) - Wildcat Creek	NA	1997	Riverside Elementary $549,000
Landslide	NA	1968	Pinole Valley HS: $250,000
Earthquake (Loma Prieta)	FEMA-845	10/17/1989	Portola Middle School $1,000,000 El Portal Elementary School: $500,000

TABLE 21-4.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Flooding	48
3	Landslide	36
4	Wildfire	36
5	Dam Failure	12
6	Severe Weather	12
7	Drought	6

TABLE 21-5.
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
Tsunami Ready	No	N/A	N/A

TABLE 21-6.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—School Modernizations with Structural Upgrades 22 Elementary Sites, 5 Secondary—High School & Middle School Sites (Work completed at 18 Elementary, 1 High School)						
Existing	Earthquake, Landslide, Wildfire	1, 2, 6, 7, 12, 13, 15	WCCUSD	$985,000,000, Total budget for capital expenditures, Low	Local bonds, state school bonds, HMGP, PDM	Short Term
Initiative 2—Riverside Elementary School: Potential relocation of structures outside zone of failure along creek. Earthquake-induced Lateral Spreading-- Slope Stability at Wildcat Creek						
Existing	Earthquake	1, 2, 6, 7, 12, 13, 15	WCCUSD	$15,000,000 estimated cost, High	HMGP, PDM	Short Term

TABLE 21-6 (CONTINUED).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 3—Pinole Valley High School. Potential relocation of structures away from identified Landslide area at rear of campus.						
Existing	Earthquake, Landslide	1, 2, 6, 7, 12, 13, 15	WCCUSD	$65,000,000, High	HMGP, PDM	Project on hold pending funding.
Initiative 4—Washington Elementary School. Foundation Remediation for Earthquake-induced Liquefaction hazard						
Existing	Earthquake	1, 2, 6, 7, 12, 13, 15	WCCUSD	$8,000,000, High	HMGP, PDM	Project on hold pending funding.
Initiative 5—Portola Middle School Relocation outside of landslide zone: High ground motion. Main building identified as Most Vulnerable Category 2 School Building with collapse potential.						
Existing	Earthquake, Landslide	1, 2, 6, 7, 12, 13, 15	WCCUSD	$60,000,000, Low	Local bonds, state school bonds, HMGP, PDM	Short Term
Initiative 6—Adams Middle School –High ground motion zone, collapse potential identified in Structural Evaluation. School Closed 2009. Demolition required.						
Existing	Earthquake	1, 2, 6, 7, 12, 13, 15	WCCUSD	$3,500,000, Medium	HMGP, PDM	Short Term
Initiative 7—Emergency Operations Center Upgrades to EOC Generator, Data Support Center						
Existing	Earthquake Flooding Wildfire	1, 2, 13, 16	WCCUSD	$75,000	General Fund	Short Term
Initiative 8—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 9—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
Initiative 10—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 21-7.
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	7	High	Low	Yes	Yes	Yes	High
2	7	High	High	Yes	Yes	No	Medium
3	7	High	High	Yes	Yes	No	Medium
4	7	High	High	Yes	Yes	No	Medium
5	7	High	Low	Yes	Yes	Yes	High
6	7	High	Medium	Yes	Yes	No	Medium
7	4	Medium	Low	Yes	Yes	No	Medium
8	16	Medium	Low	Yes	No	No	High
9	16	Medium	Low	Yes	Yes	Yes	High
10	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 21-8.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

PART 5—
FIRE PROTECTION SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 22.
CONTRA COSTA COUNTY
FIRE PROTECTION DISTRICT ANNEX

22.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Rich Grace, Assistant Fire Chief
2010 Geary Road
Pleasant Hill, CA 94523
Telephone: (925) 941-3501
e-mail Address: rgrac@cccfpd.org

Alternate Point of Contact

John Ross, Assistant Fire Chief
2010 Geary Road
Pleasant Hill, CA 94523
Telephone: (925) 941-3500
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22.2 JURISDICTION PROFILE

Contra Costa County Fire Protection District (Con Fire) provides fire prevention, suppression, and emergency medical response for advanced and basic life support to nine cities and much of the unincorporated area in the central and western portions of Contra Costa County. Con Fire was formed on December 29, 1964 as a county-dependent district governed by the Contra Costa County Board of Supervisors. The principal act that governs the District is the Fire Protection District Law of 1987 (California). Since its inception, Con Fire has consolidated with several other fire districts with the most recent significant consolidation occurring in 1994. There were some subsequent detachments of portions of Con Fire between 1997 and 2001, but since 2001 Con Fire's service area has remained the same.

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

- **Population Served—**598,051
- **Land Area Served—**Approximately 300 square miles
- **Value of Area Served—**Total assessed property value (FY 09/10) for the area served by Con Fire is $67,647,071,600
- **Land Area Owned—**Approximately 48 acres (35 separate locations throughout Contra Costa County)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction** (the apparatus are located at 30 different sites (fire stations) all of which are in natural hazard risk zones):
  - 28 Type 1 engines
  - 2 Type 2 engines
  - 17 Type 3 engines
  - 1 Type 4 engine
  - 6 Quints
  - 4 specialty rescue vehicles
  - 1 rescue boat

- **Total Value of Critical Infrastructure/Equipment—**The total replacement cost value of critical infrastructure and equipment owned by the jurisdiction is $29,240,000.
- **List of Critical Facilities Owned by the Jurisdiction:** See Table 22-1
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $52,327,800
- **Current and Anticipated Service Trends—**The fire district has experienced a 28 percent increase in call volume since 2000, and this trend is expected to continue. Approximately 75 percent of the calls are for Emergency Medical Services (EMS). According to the Association of Bay Area Governments (ABAG) the projected growth rate from 2008 to 2030 is 16 percent. The largest area (approximately 5,000 acres) of future growth will be in the central portion of the county that was once part of the Concord Naval Weapons Station (CNWS). The planned development of the CNWS site will result in a significant increase in population density that will require an expansion of fire and emergency medical service resources to accommodate the increase in call volume. Other planned developments in the eastern portion of the fire district will necessitate additional fire and emergency medical resources to handle population growth, as well as mitigate emergency response times.

TABLE 22-1.
DISTRICT-OWNED CRITICAL FACILITIES

Station #/ Building Name	Location	Station #/ Building Name	Location
1	1330 Civic Drive, Walnut Creek, CA 94596	22	5050 Crystal Ranch Road, Concord, CA 94521
2	2012 Geary Road, Pleasant Hill, CA 94523	69	4640 Appian Way, El Sobrante, CA 94803
3	1520 Rossmoor Parkway, Walnut Creek, CA 94595	70	13928 San Pablo Avenue, San Pablo, CA 94806
4	700 Hawthorne Drive, Walnut Creek, CA 94596	81	315 West 10th Street, Antioch, CA 94509
5	205 Boyd Road, Pleasant Hill, CA 94523	82	196 Bluerock Drive, Antioch, CA 94531
6	2210 Willow Pass Road, Concord, CA 94520	83	2717 Gentrytown Drive, Antioch, CA 94509
7	1050 Walnut Avenue, Walnut Creek, CA 94598	84	1903 Railroad Ave., Pittsburg, CA 94565
8	4647 Clayton Road, Concord, CA 94521	85	2331 Loveridge Road, Pittsburg, CA 94565
9	209 Center Street, Pacheco, CA 94553	86	3000 Willow Pass Road, Pittsburg, CA 94565
10	2955 Treat Boulevard, Concord, CA 94518	87	800 West Leland Drive, Pittsburg, CA 94565
11	6500 Center Street, Clayton, CA 94517	88	4288 Folsom Drive, Antioch, CA 94531
12	1240 Shell Avenue, Martinez, CA 94553	Administration	2010 Geary Road, Pleasant Hill, CA 94523
13	251 Church Street, Martinez, CA 94553	Fire Prevention East	4527 Deerfield Drive, Antioch, CA 94531
14	521 Jones Street, Martinez, CA 94553	Apparatus Shop	2951 Treat Boulevard, Concord, CA 94518
15	3338 Mt. Diablo Boulevard, Lafayette, CA 94549	Apparatus Annex	2951 Treat Boulevard, Concord, CA 94518
16	4007 Los Arabis Road, Lafayette, CA 94549	Supply Warehouse	2955 Treat Boulevard, Concord, CA 94518
17	620 St. Mary's Road, Lafayette, CA 94549	EMS Division	2945 Treat Boulevard, Concord, CA 94518
18	145 Sussex Street, Clyde, CA 94520	Training Complex	2945 Treat Boulevard, Concord, CA 94518
		Communication Center	2900 Dorothy Drive, Pleasant Hill, CA 94523

The Con Fire boundaries encompass the central and northern portions of Contra Costa County, extending from the City of Antioch in the east to the eastern boundary of the City of Richmond in the west, and as far south as the northern boundary of the Town of Moraga. The jurisdiction's boundaries are shown on Figure 1-1.

22.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 22-2 lists all past occurrences of natural hazards within the jurisdiction.

22.4 HAZARD RISK RANKING

Table 22-3 presents the ranking of the hazards of concern.

22.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- California Building Code, Chapter 7a: Standards intended to prevent ignition of structures from wildland fire exposure. These building standards relate to roof assemblies and materials, windows, siding, decks and eave vents all of which are prone to ignition from burning embers.
- Contra Costa County Ordinance 2007-47 (adopting of Fire Code): Under Chapter 3 (General Precautions Against Fires), it provides for landscaping/vegetation management requirements to reduce and/or prevent the spread of wildland fires.
- Contra Costa County Operational Area Hazard Mitigation Plan

22.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 22-4.

22.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 22-5 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 22-6 identifies the priority for each initiative. Table 22-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

22.8 ADDITIONAL COMMENTS

Con Fire is currently (FY 09/10) experiencing a drastic decrease in our property tax revenues. Since property taxes account for approximately 85 percent of the District's total revenue, thus the fire district is faced with unprecedented budgetary challenges. It is anticipated that property tax revenues will not recover and/or increase until FY 11/12. Therefore, implementation of hazard mitigation initiatives will be subject to these extreme budgetary constraints.

TABLE 22-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Wind	NA	12/25/2008	$13,500
Wind	NA	12/15/2008	$3,000
Flood	NA	1/1/2006	$22,000,000
Flood	FEMA-1628	12/31/2005	$22,000,000
Wildfire	NA	6/20/2004	$500,000
Wind	NA	11/7/2002	$200,000
Wind	NA	12/18/2000	$550,000
Wind	NA	11/24/2000	$700,000
Flood	NA	2/14/2000	$100,000
Wind	NA	12/22/1999	$62,500
Wind	NA	2/9/1999	$200,000
Severe Weather	NA	12/12/1995	$6,000,000
Wind	NA	11/14/1993	$62,500
Wind	NA	2/19/1993	$50,000
Severe Weather	NA	12/25/1990	$86,206
Flood	NA	5/28/1990	$500,000
Severe Weather	NA	12/3/1983	$312,500
Wind	NA	12/22/1982	$1,041,666
Flood, Severe Weather	NA	1/3/1982	$7,142,857

Note: Con Fire responds to an average of approximately 285 wildland fires per year and many of those threaten residential structures.

TABLE 22-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	18
3	Wildfire	6
4	Flood	6
5	Drought	6
6	Landslide	2
7	Dam Failure	1

TABLE 22-4.
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
Tsunami Ready	No	N/A	N/A

Notes:

Con Fire participates in the Diablo Fire Safe Council planning and outreach efforts primarily in the central and western portions of the fire district.
Public protection: ISO 3/8 *Higher classification applies to when subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized fire station.

TABLE 22-5.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Continue with installation of emergency generators at fire stations						
New & Existing	All	1,2,13	Con Fire	Low	Capital Funds	Short-Term, Ongoing
Initiative 2—Structural seismic retrofit of fire facilities						
Existing	Earthquake/Severe Weather	1,2,7,13,14	Con Fire	High	Grants/Fire Facilities Fees	Long-Term
Initiative 3—Adoption of Fire Hazard Maps – "Very High Fire Hazard Severity Zone" (VHFHSZ) maps currently under development						
New & Existing	Wildfire	1,2,3,6,12, 16	Con Fire	Low	General Fund	Short-Term, Ongoing
Initiative 4—Enhance/Improve County Code language and enforcement including: County Building Codes to increase compliance with SB 1369 Defensible Space and Other Fire Safe Requirements in the unincorporated county areas						
New & Existing	Wildfire	3,4,5,11,16	County OES/Planning-Fire District	Low	General Fund	Short-Term, Ongoing
Initiative 5—Improve, expand and develop new programs that increase awareness of and reduce risk to wildfires including: Support of Diablo Fire Safe Council vegetation management workshops and chipper program						
New & Existing	Wildfire	3,4,16	Con Fire	Medium	No-Match Grants	Long-Term
Initiative 6—Implementation of projects listed in the Community Wildfire Protection Plan (CWFPP)						
Existing	Wildfire	3,15, 16	County OES/Plannning	Low	Existing funding-grants where eligible	Short-Term, Ongoing

TABLE 22-5 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 7—Participate in annual multi-agency Wildland Fire Training						
Existing	Wildfire	2,3,6,13,16	Fire Depts	Low	General Fund	Short-Term, Ongoing
Initiative 8—Pursue implementation of projects listed in Con Fire Capital Improvement Plan						
New & Existing	All	1,2,3,7,13,15, 16	Con Fire	High	Grants, Fire Facilities Fees	Long-Term
Initiative 9—Educate the public on the risks associated with natural hazards and methods to prepare for and mitigate those risks						
New & Existing	All	2,3,6,16	Con Fire	Medium	General Fund, Grants	Short-Term, depends on funding
Initiative 10—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds	Short Term, ongoing
Initiative 11—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 12—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4,5,14	OES & DCD	Low	District Funds	Short Term

TABLE 22-6.
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	5	High	High	Yes	Yes	No	Low
3	6	Medium	Low	Yes	No	Yes (not entirely)	Medium
4	5	Medium	Low	Yes	No	Yes	High
5	3	Low	Low	Yes	No	Yes (not entirely)	Medium
6	3	High	Low	Yes	Yes	Yes	Medium
7	5	Low	Low	Yes	No	Yes	High
8	8	High	High	Yes	Yes	No	Medium
9	4	High	Medium	Yes	Yes	No	Medium
10	16	Medium	Low	Yes	No	No	High
11	16	Medium	Low	Yes	Yes	Yes	High
12	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 22-7.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	11, 12	None	9, 10, 11	None	1, 8, 9	None
Drought	11, 12	None	9, 10, 11	None	None	None
Earthquake	8, 11, 12	2	9, 10, 11	None	1, 2, 8, 9	None
Flood	11, 12	None	9, 10, 11	None	1, 2, 8, 9	None
Landslide	5, 11, 12	None	9, 10, 11	None	1, 8, 9	None
Severe Weather	2, 8, 11, 12	2, 8	9, 10, 11	None	1, 2, 8, 9	None
Wild Fire	4,8, 11, 12	4	5, 9, 10, 11	None	1, 3, 4, 5, 6, 8, 9	None

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 23.
EAST CONTRA COSTA
FIRE PROTECTION DISTRICT ANNEX

23.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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e-mail Address: hhenderson@eccfpd.org

23.2 JURISDICTION PROFILE

The East Contra Costa Fire Protection District (ECCFPD) was formed in 2002 as a county-dependent district through the consolidation of the Bethel Island, East Diablo and Oakley fire districts. Included in the ECCFPD are the cities of Oakley, Brentwood, a portion of Antioch and Clayton, the unincorporated communities of Bethel Island, Byron, Discovery Bay, Knightsen, and other areas of unincorporated Contra Costa, 238 square miles.

The District's staff consists of 55 full-time staff and 25 paid on-call staff. The sworn permanent staff includes 53 full-time equivalents (FTEs), and the civilian staff is composed of two FTEs. The Fire Chief is responsible for organizational productivity and accountability, and is directly responsible for finance and personnel. The District is organized into divisions for operations, administration, EMS and training, and fire prevention. Three battalion chiefs report directly to the Fire Chief; battalion chiefs are responsible for operations, fleet, training, and reserves. The District provides EMS services until AMR, a privately owned ambulance company, arrives to provide advanced life support and ambulance transport services. The District contracts with Contra Costa Fire Protection District for dispatch, radio, information and fire prevention services. ECCFPD contracts with CAL FIRE to provide fire protection service to the Marsh Creek area of the District.

ECCFPD relies on property taxes for 94 percent of its revenue, and receives a below average share of property taxes compared with other fire districts in the County. Its share of property taxes (net of redevelopment) is seven percent in Brentwood, five percent in Oakley, and nine percent in unincorporated areas; by comparison, the average fire district share was 12 percent in incorporated areas and 13 percent in unincorporated areas. There are no feasible opportunities whereby the District would elicit a portion of the property tax share received by other local agencies (e.g., the cities, the County or the schools).

Residential population growth in the ECCFPD boundary is projected to be significantly faster than the countywide average. Brentwood is projected to be the fastest-growing city in the County. Growth in Oakley is projected to be on par with neighboring Antioch and Pittsburg. Residential growth areas include Trilogy at the Vineyards, Rose Garden, Palmilla, Cypress Corridor, the Lakes and Cecchini Ranch in Discovery Bay, Byron Airport, and Delta Coves in Bethel Island. In the long-term, growth is expected to increase the population from 106,386 in 2008 to 158,515 in 2030.

Commercial growth is also projected to be significantly faster in ECCFPD than the countywide average. Oakley and Brentwood are projected to have the highest job creation rates in the County, outpacing

neighboring Antioch and Pittsburg. In the long-term, growth is expected to increase the job base from 17,480 in 2008 to 34,251 in 2030.

The District's facility needs have evolved rapidly in the last decade due to consolidation of formerly separate fire districts, a shift from on-call to staffed stations in much of the service area, and rapid growth. There are as many stations and personnel serving the Discovery Bay and Byron area (with a combined population of about 13,368 and 673 annual service calls) as the cities of Oakley and Brentwood (with a combined population of about 84,000 and 3,500 annual service calls). A number of the fire stations are no longer strategically located to minimize both costs and response times. At a minimum, FS 54, FS 58 and FS 93 (Oakley) are not strategically located. The District is working on relocation sites for FS 54 and 93.

In the urban areas, ECCFPD provides minimally adequate service levels. Stations 54 and Station 93 have three person engines otherwise; ECCFPD staffs fire stations with two personnel per station regardless of whether a station is located in an urban area or outlying town; by contrast, four personnel per apparatus is the recommended urban staffing level. The District does not offer paramedic services. Response times meet certain guidelines some of the time, but fall short of meeting guidelines 90 percent of the time. ECCFPD's staffing level of 0.5 sworn staff per 1,000 people is substantially lower than the countywide average (0.8), as well as the Bay Area average for urban fire providers (0.9). Based on staff certification levels, ECCFPD staff credentials and skills appear to be adequate. Training hours per sworn staff member are lower than the countywide average.

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

- **Population Served—**105,000 as of January 1, 2009
- **Land Area Served—**The ECCFPD covers more than 250 square land miles and more than 100 miles of waterway. There are two incorporated cities within the District (Brentwood and Oakley) and five distinct unincorporated communities (Bethel Island, Byron, Discovery Bay, Knightsen, and Morgan Territory-Marsh Creek Corridor). The ECCFPD is responsible for providing first responder fire and emergency medical services.
- **Value of Area Served—**The estimated value of the area served by the District is approximately $14.8 billion based on assessed valuations of the incorporated population centers of the District.
- **Land Area Owned—**District owned and operated facilities occupy approximately 100 acres within its service area.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 11 type 1 engine. One at each and two (2) Reserve Engines at Station 94, one at 57.
  - 1 type 2 at Station 94
  - 6 type 3 engines. Station 52, 54, 57, 59, 93, 95.
  - Four utility vehicles Station 93, 95, 59, 5180
  - Five staff vehicles. Four (4) used 24-7 by the Acting Chief and Battalion Chiefs, one back up unit at Station 50**.**
  - Five Type 1 water tenders. Four owned by the District (Stations 52, 54, 58, and 94) One owned by Ca EMA (OES) and stationed at 93.
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is not known at this time.
- **List of Critical Facilities Owned by the Jurisdiction:**

- Station 50, 134 Oak Street Brentwood, CA 94513
- Station 51, 1240 Marsh Creek Road Clayton, CA 94517
- Station 52*, 201 John Muir Parkway Brentwood, CA 94513.
- Station 53, 16711 Marsh Creek Road Brentwood, CA 94513
- Station 54, 739 First Street Brentwood, CA 94513
- Station 57, 3024 First Street Byron, CA 94514
- Station 58, 1535 Discovery Bay Blvd. Discovery Bay, CA 94505
- Station 59, 1681 Bixler Road Discovery Bay, CA 94561
- Station 93, 212 2nd Street Oakley, CA 94561
- Station 94 15 A-Street Knightsen, CA 94548
- Station 95, 3045 Ranch Lane, Bethel Island, CA 94511

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is estimated at $15 million.
- **Current and Anticipated Service Trends—**A slowdown in new building and density of land uses will represent a minor to moderate increase in population and thus a projected low increase in call volume. The District currently has no plans for expansion.

The District's boundaries are Sacramento County on the north, San Joaquin County on the east, Alameda County on the south and the City of Antioch on the west. See Figure 1-1 for an illustration of the service area boundaries for this District.

23.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 23-1 lists all past occurrences of natural hazards within the jurisdiction.

23.4 HAZARD RISK RANKING

Table 23-2 presents the ranking of the hazards of concern.

23.5 APPLICABLE REGULATIONS AND PLANS

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

- Statewide Mutual Aid System, Automatic Aid with Contra Costa County Fire Protection District, California Fire Code, California Building Code.
- Contra Costa County Community Wildfire Protection Plan

23.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 23-3.

23.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 23-4 lists the initiatives that make up the District's hazard mitigation plan. Table 23-5 identifies the priority for each initiative. Table 23-6 summarizes the initiatives by hazard of concern and mitigation type.

TABLE 23-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storms/Flooding	NA	1/2006	N/A
Earthquake (Loma Prieta)	DR-845	10/17/1989	N/A

TABLE 23-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	45
3	Flood	15
4	Dam Failure	12
5	Wildfire	12
6	Drought	6
7	Landslide	0

TABLE 23-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	4/9	2000
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

TABLE 23-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	District	Low	District Funds	Short Term, ongoing
Initiative 2—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
Initiative 3—Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development						
New & Existing	Wildfire	1,2,4,5	District	Med	District Funds	Short Term ongoing
Initiative 4—Develop and maintain a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard						
New & Existing	Wildfire	2,6, 13,16	District	Low	District Funds	Short Term ongoing
Initiative 5—Facilitate and/or coordinate the distribution of materials that are prepared by others, such as by placing materials in District, city or utility newsletters, websites, or on community access channels, as appropriate.						
New & Existing	All Hazards	1,2,16	District	Low	District Funds	Short Term ongoing
Initiative 6—consider adoption of "Firewise" policies and programs within the District service area.						
New and Existing	Wildfire	1,2,16	District	Low	District Funds	Long term
Initiative E7—Comply with all applicable building and fire codes, as well as other regulations (such as State requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities						
New & Existing	All Hazards	1,2,7,15	District	Med	District Funds	Short Term ongoing

TABLE 23-5.
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	16	Medium	Low	Yes	No	No	High
2	16	Medium	Low	Yes	Yes	Yes	High
3	4	High	Medium	Yes	Yes	No	Med
4	4	High	Low	Yes	No	Yes	Med
5	3	Low	Low	Yes	Yes	Yes	High
6	4	High	Low	Yes	Yes	No	Med
7	4	Medium	Medium	Yes	Yes	No	Med

a. Explanation of priorities
- 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).

TABLE 23-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 24.
KENSINGTON FIRE PROTECTION DISTRICT ANNEX

24.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Michael J. Bond, Battalion Chief/Fire Marshal
10900 San Pablo Avenue
El Cerrito, CA 94530
Telephone: 510-215-4450
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Alternate Point of Contact
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El Cerrito, CA 94530
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24.2 JURISDICTION PROFILE

Kensington Fire Protection District is a relatively small fire district that serves the small unincorporated community of Kensington which is located in Western Contra Costa County. The community is neighbored by the City of El Cerrito on the west and north, the City of Berkeley on the south and East Bay Regional Parks open area on the east. The Kensington Fire Protection District serves approximately One point One square miles with about 2, 300 homes and businesses. The population of Kensington is approximately 5,250 people and has an assessed value of over $1,650, 000,000.

The unincorporated town of Kensington began a volunteer fire department in 1928. Twenty-four years later, the Kensington Fire Protection District (formed in 1937) hired a staff of professional firefighters under the supervision of a fire chief. In 1995, the District entered into a contract with the City of El Cerrito whereby El Cerrito would provide all fire prevention, fire suppression and emergency services within Kensington for an annual fee. Currently, the Kensington Fire Protection District has one employee who serves as the Districts Administrator.

The early fire department was housed in a small, quaint English country-style building next to the Chevron Oil gas station on the Arlington. The current public safety building, owned by the District, was constructed in 1970 and substantially renovated in 1998-1999. In addition to seismic upgrading of the Public Safety Building, the Board of Directors works to enhance public safety. As a result, the District owns two fire engines. These fire engines are specifically engineered for the steep, narrow streets of Kensington and the urban interface fire situation that the community faces. One of these fire engines is a Type I engine for structural firefighting and the other engine is a "Type III" or wildland fire engine for use during high fire season.

The district initiated paramedic service in 2001. It offers the first engine-based Advanced Life Support service in West Contra Costa County, bringing medications and equipment to a patient's side in under five minutes on average. In addition to our paramedic service, we are able to provide a timely and appropriate level of response by active participation with other West Contra Costa County fire agencies in automatic response agreements that use the combined resources of all agencies to serve the area irrespective of jurisdictional lines.

To help ensure our communities safety, the District developed, operates a Community Emergency Response Team (CERT) training program. This program has been offered to the community since 1995 and has trained several hundred community members to be prepared and self sustaining for several days after a major disaster.

The District is governed by a five-person Board of Directors elected by the voters of Kensington and is funded by property tax revenues as well as a special tax approved by the voters in 1980.

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

- **Population Served—**Approximately 5, 253 people with a median age of 47 years
- **Land Area Served—**1.1 square miles. The Kensington Fire Protection District is located atop the East Bay Hills. The district is bisected by the Hayward Fault and is surrounded by many active faults known as the Bay Area Dirty Dozen. These faults include but are not limited to; Hayward, San Andreas and the Rogers Faults.
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,650,000,000
- **Land Area Owned—**Approximately one half acre
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Two fire engines and associated equipment
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $1,500,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Public Safety Building (this structure houses the Fire Department and the Police Department)
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $5,500,000.
- **Current and Anticipated Service Trends—**The Kensington Fire Protection District provides all risk service, providing firefighting, paramedic, vehicle extrication, hazardous materials response and any other emergency perceived by the community. In addition to emergency response, the district provides a host of preventive and preparedness activities. These include fire safety inspections for all mercantile, educational, residential care facilities to name a few. In addition, home inspections are done on request as well as smoke detector installation/replacement for the elderly.

  The district provides emergency preparedness training for residents as well. This training comes mainly in the form of CERT (Community Emergency Response Team) training, CPR and First Aid training.

  The Kensington Fire Protection District is landlocked and has a very limited growth potential which is not likely to increase calls for service.

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

24.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 24-1 lists all past occurrences of natural hazards within the jurisdiction.

24.4 HAZARD RISK RANKING

Table 24-2 presents the ranking of the hazards of concern.

24.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- The Kensington Fire Protection District currently is subject to the California Building Codes and falls within the Very High Fire Severity Zone and all new building is subject to the California Wildland Urban Interface Codes.
- The district also has adopted "Vegetation Management Standards" that all property owners must comply with.
- The district also is bisected by the Hayward Fault and has been classified as a High Risk Seismic Zone (formerly Seismic Zone 4)
- Contra Costa County Operational Area Hazard Mitigation Plan
- Contra Costa County, Community Wildfire Protection Plan (CWPP)

24.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 24-3.

24.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 24-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 24-5 identifies the priority for each initiative. Table 24-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 24-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather	NA	2/17/2009	No estimates available
Severe Weather, Winter Storm	FEMA-1203-DR	2/9/1998	No estimates available
Earthquake	FEMA-845	10/17/1989	No estimates available

TABLE 24-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Wildfire	54
3	Landslide	54
4	Severe Weather	54
5	Dam Failure	0
6	Flood	0
7	Drought	0

TABLE 24-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	ISO 3	June 2004
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 24-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 2—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New and existing	All Hazards	4, 5, 14	KFPD	Low	General Fund	Late 2010, Short Term
Initiative 3—Upgrade the Emergency Operations Center's (EOC) internal communication system and maintain it in a fully functional state						
Existing	All Hazards	1, 2, 15	KFPD	50,000, High	Potential sources General Fund, EOC Grant	Long term

TABLE 24-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 4—Develop and conduct multi hazard seasonal public awareness program to include exercises						
Existing	All Hazards	2, 3, 6, 13, 16	KFPD	Low	Potential sources Citizen Prep-UASI	Late 2010, Short Term
Initiative 5—Conduct a mass care and shelter Drill which involve; district, city, county, CERTs and NGOs						
New and Existing	All Hazards	2, 3, 6, 13, 16	KFPD	15,000 Low	Potential sources-Red Cross, UASI	Short Term, ongoing
Initiative 6—Enhance/Improve District Code language and enforcement including: District Fire Codes to Increase Compliance with SB 1369 Defensible Space and Other Fire Safe Requirements within the City.						
New	Fire	4, 5, 11, 16	KFPD	Low	General Fund	Short Term, ongoing
Initiative 7—Improve, expand and develop new programs that increase awareness of and reduce risk to wildfires including: Support Diablo Fire Safe Council & Fire Dept Chipper Program						
New Existing	Fire	3, 15, 16	KFPD	Low	General Fund, DFSC Grants	Long Term, depends on funding
Initiative 8—Ensure that government-owned facilities are subject to the same or more stringent regulations as imposed on privately owned development						
Existing	All Hazards	1, 4, 5, 7, 8	KFPD	Low	Code Adoption	Long Term
Initiative 9—Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant hazards						
Existing	All Hazards	1, 4, 5, 7, 8	KFPD	Low	Policy	Long Term
Initiative 10—Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities for various departments within local government organization, and that outlines o structure and process for policy-making involving elected and appointed advisory committees						
Existing	All Hazards	2, 9, 15	KFPD	Medium	Grant, General Fund, 50,000	In Emergency Plan, Long Term
Initiative 11—Establish a goal for the resumption of local government services that may vary from function to function						
Existing	All Hazards	2, 9, 15	KFPD	Medium	Grant, General Fund 50,000	In Emergency Plan, Long Term

TABLE 24-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 12—Maintain and update as necessary the local government's Standardized Emergency Management System Plan						
Existing	All Hazards	2, 4, 15, 18	KFPD	Low	General Fund	In Emergency Plan Long Term,
Initiative 13—Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate						
Existing	All Hazards	2, 4, 15	KFPD	Medium	General Fund, Grants	Long Term
Initiative 14—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						
Existing	All Hazards	2, 4, 15	KFPD	Low	General fund	Long Term
Initiative 15—Develop a business continuity plan that includes backup storage of vital records, such as essential medical records and financial information						
Existing	All Hazards	2, 4, 15	KFPD	High	General Fund, Grants	Long Term,
Initiative 16—Increase efforts to reduce hazards in existing development in Very High Fire Hazard Fire Severity Zones (VHFHSZ) 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, 16	KFPD	Low	Code Adoption	Long Term
Initiative 17—Require new homes in Wildland-Urban-Interface and VHFHSZ threatened communities to be constructed of fire resistant building materials to increase structural survivability and reduce ignitability						
Existing	Wildfire	2, 4, 5, 16	KFPD	Low	Code Adoption	Long Term
Initiative 18—Ensure new development provides required improvements to the storm drainage system necessary to accommodate increased flows from the development						
Existing	Flood	4, 5, 10	KFPD	Low	Code Adoption	Long Term
Initiative 19—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing

TABLE 24-5.
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	16	Medium	Low	Yes	Yes	No	High
2	3	Low	Low	Yes	No	Yes	High
3	3	High	High	Yes	No	No	Medium
4	5	High	Low	Yes	Yes	Yes	High
5	5	High	Low	Yes	Yes	Yes	High
6	4	Medium	Low	Yes	Yes	Yes	High
7	4	Low	Low	Yes	No	Yes	High
8	5	Low	Yes	No	Yes	Yes	High
9	5	Low	Low	Yes	No	Yes	High
10	3	Low	Low	Yes	No	No	Medium
11	3	Low	Low	Yes	No	No	Medium
12	4	Low	Low	Yes	No	Yes	High
13	3	Medium	Medium	Yes	Yes	Yes	High
14	3	Medium	Medium	Yes	Yes	Yes	High
15	3	Medium	Medium	Yes	Yes	No	Medium
16	4	High	Medium	Yes	Yes	No	Medium
17	3	High	Low	Yes	No	Yes	High
18	3	High	Low	Yes	No	Yes	High
19	16	Medium	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 24-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	1, 2	NA	1, 19	NA	NA	
Earthquake	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16
Flood	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16, 18
Landslide	1, 2, 14, 19	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 12, 13, 15	8, 16, 18
Severe Weather	1, 2, 9, 14	1, 2, 11, 13	1, 4, 5, 7, 19	9	3, 4, 5, 10, 13, 14, 15	8, 16, 18
Dam Failure	1, 2	NA	1, 19	NA	NA	NA
Wild Fire	1, 2, 6, 14, 17, 19	1, 2, 10, 13, 17	1, 4, 5, 7, 19	9	3, 4, 5, 10, 13, 15	7, 8, 16, 17

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 25.
RODEO-HERCULES FIRE PROTECTION DISTRICT ANNEX

25.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Alan Biagi, Interim Chief
1680 Refugio Valley Road
Hercules, CA 94547
Telephone: 510-799-4561
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Alternate Point of Contact

Donna Heymans, Administrative Assistant
1680 Refugio Valley Road
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Telephone: 510-799-4561
e-mail Address: heymans@rhfd.org

25.2 JURISDICTION PROFILE

The Rodeo Fire District was formed on February 26, 1937 as an independent special district. The District was formed to provide fire protection services in the unincorporated community of Rodeo. The District Board of Directors changed the name of the District from the Rodeo Fire Protection District to the Rodeo-Hercules Fire Protection District (RHFPD) in the 1980s.

The principal act that governs the District is the Fire Protection Law of 1987. The principal act empowers fire districts to provide fire protection, rescue, emergency medical, hazardous material responses, ambulance and any other services relating to the protection of lives and property.

The land area of RHFPD includes the City of Hercules in the southwest, the community of Rodeo in the north, and other areas of unincorporated Contra Costa County to the east. The District has a boundary area of approximately 32 square miles, of which 14 square miles is submerged in San Pablo Bay to the west and approximately 17 square miles is land area.

The District has a five-member governing body. Board members are elected at large to staggered four-year terms. Board meetings are held monthly. A Community Advisory Panel assists the District with community outreach and functions as a sounding board to help gauge the reactions of the community to issues and actions of concern. The panel meets monthly. The District's staff consists of 21 full-time staff and up to 20 paid on-call staff.

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

- **Population Served—**Approximately 33,119 residents
- **Land Area Served—**17.6 square miles of land and 14 square miles of waterway (San Pablo Bay)
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $4,901,512,371
- **Land Area Owned—**Less than one acre (Station 75, located at 326 Third Street, Rodeo)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Three type 1 engine. Two at Station 75, one at 76.
  - Three type 3 engines. Two at Station 75, one at 76.

  - One 75' Quint Latter Truck. At Station 76.
  - One Medium Rescue Rig. At Station 75.
  - One heavy-duty pick-up. At station 76.
  - Three staff vehicles. Two used 24-7 by the Chief and Assistant, one at Station 76.
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $4,660,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Station 75, 326 Third Street, Rodeo.
  - Station 76, 1680 Refugio Valley Road, Hercules.
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $4,721,500
- **Current and Anticipated Service Trends**
  - No potential for the service area to expand throughout the immediate future.
  - Extreme growth within the city of Hercules boundaries is predicted within the near future (next ten years).
  - There is an anticipated need to expand existing facilities and or to relocate existing facilities to accommodate a shift in growth and increase of population to the Hercules waterfront area. The Hercules General Plan calls for an additional six million square feet of residential and commercial development within the Redevelopment Area.
  - Call volume has steadily increased at an average of 2 percent per year for the last five years.

The land area of RHFPD includes the City of Hercules in the southwest, the community or Rodeo in the north, and other areas of unincorporated Contra Costa County to the east, as shown on Map 13-1. The District has a boundary area of approximately 32 square miles, of which 14 square miles is submerged in the San Pablo By to the west and 17.6 square miles is land area. The jurisdiction's boundaries are shown on Figure 1-1.

25.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 25-1 lists all past occurrences of natural hazards within the jurisdiction.

25.4 HAZARD RISK RANKING

Table 25-2 presents the ranking of the hazards of concern.

25.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act

- California Environmental Quality Act (CEQA)
- Statewide Mutual Aid System
- Automatic Aid with Contra Costa County Fire Protection District, City of Pinole Fire Department, Crockett Carquinez Fire Protection District
- California Fire Code
- California Building Code
- Contra Costa County Operational Area Hazard Mitigation Plan

25.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 25-3.

25.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 25-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 25-5 identifies the priority for each initiative. Table 25-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 25-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Earthquake	NA	Multiple events	No estimates available
Severe Weather	NA	3/2/2009	No estimates available
Severe Weather	NA	2/17/2009	No estimates available
Severe Weather	NA	10/23/2007	No estimates available
Storm, Severe Weather, Landslides	FEMA-1628-DR	12/2005-1/2006	No estimates available
Storm, Severe Weather	NA	1/1997-12/1998	No estimates available
Storm, Severe Weather	NA	3/1/1995	No estimates available
Storm, Severe Weather, Landslides	FEMA-979	1/20/1993	No estimates available
Storm, Severe Weather	NA	11/19/1991	No estimates available
Storm, Severe Weather, Landslides	FEMA-758	2/17/1986	No estimates available
Storm, Severe Weather	NA	2/26/1983	No estimates available
Storm, Severe Weather	NA	1/25/1983	No estimates available
Storm, Severe Weather	NA	3/30/1982	No estimates available
Storm, Severe Weather	NA	1/3/1982	No estimates available

TABLE 25-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	48
3	Landslide	48
4	Flood	36
5	Wildfire	18
6	Drought	12
7	Dam Failure	6

TABLE 25-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	ISO 3	2006
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 25-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 2—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 3—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing
Initiative 4—CERT training						
Existing	All Hazards	2, 3, 13, 16	District	Low	District Funds, EMPG, HMGP	Short Term, ongoing
Initiative 5—Public education and outreach program (including fire prevention)						
Existing	All Hazards	2, 3, 13, 16	District	Low	District Funds, HMGP	Short Term, ongoing

TABLE 25-5.
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	16	Medium	Low	Yes	No	No	High
2	16	Medium	Low	Yes	Yes	Yes	High
3	3	Low	Low	Yes	No	Yes	High
4	4	High	Low	Yes	Yes	Yes	High
5	4	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities
- 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).

TABLE 25-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 26.
SAN RAMON VALLEY FIRE PROTECTION DISTRICT ANNEX

26.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mike Picard, Battalion Chief
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Alternate Point of Contact

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e-mail Address: bcollins@srvfire.ca.gov

26.2 JURISDICTION PROFILE

The San Ramon Valley Fire Protection District (SRVFPD) is an autonomous Special District as defined under the Fire Protection District Law of 1987, Health and Safety Code, Section 13800, of the State of California. The SRVFPD is responsible for providing the highest level of emergency and non-emergency services to the community in an effort to protect life, the environment and property. The early beginnings of the SRVFPD took place during a meeting on March 19, 1912 when the Danville Farm Defense Fire District was established. Numerous reorganizations and mergers have resulted in the San Ramon Valley Fire Protection District as it exists today.

A five-member elected Board of Directors, each serving a staggered four year term, governs the SRVFPD. The Fire Chief oversees general operations of the SRVFPD in accordance with the policy direction prescribed by the Board of Directors. The Fire Chief also serves as Treasurer for the District. The primary source of revenue for the operation of the SRVFPD is generated through the collection of secured, unsecured, and supplemental property taxes (92 percent), with most remaining revenue coming from ambulance service fees and interest income.

The SRVFPD employs nearly 200 personnel, in addition to approximately fifty volunteers serving in four separate volunteer programs. The SRVFPD maintains ten fire stations, two annex buildings, one training site and one administrative building. Of the ten fire stations, nine house paid firefighters and one remote station is staffed by fifteen volunteer personnel. There are also approximately eleven reserve firefighters. The SRVFPD staffs fifteen companies, including structure and wildland engines, three truck companies, five transport Advanced Life Support (ALS) ambulances, and specialized Hazardous Materials, Urban Search and Rescue, Mobile Communications, and other support units. In addition, the SRVFPD operates its own nationally accredited (NAEMD) 9-1-1 Communications Center staffed daily with three Dispatchers. All other Administrative personnel reside at the Administrative Office.

The SRVFPD service area encompasses approximately 155 square miles, covering the communities of Alamo, Blackhawk, the Town of Danville, Diablo, the City of San Ramon, the southern area of Morgan Territory and the Tassajara Valley. Within the boundaries of the SRVFPD are expansive wildland areas, large single-family homes and multi-residential complexes, hotels, a regional hospital, numerous convalescent/assisted living facilities, equestrian areas, hiking trails, rock climbing areas, and a facility housing a low-level nuclear reactor. The SRVFPD is also bisected by a major interstate highway (I-680).

The total population served by the SRVFPD in 2009 exceeded 167,500. On business days, this figure grows by another 30,000 to include people employed in the Bishop Ranch Business Park, a 585 acre

development with nine million square feet of office space located in San Ramon. Since its inception in 1984, the Business Park has evolved into a nationally recognized premier business center, comprised of over 300 diverse companies ranging from established Global 500 companies such as the corporate headquarters of Chevron Corporation to innovative start-ups in high growth fields.

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

- **Population Served—**In 2009, the SRVFPD population exceeded 167,500 which grows by another 30,000 on business days to include people employed in the Bishop Ranch Business Park.
- **Land Area Served—**Approximately 155 square miles
- **Value of Area Served—**In fiscal year 2009, total assessed value of taxable property in SRVFPD was $35,197,421,497
- **Land Area Owned—**Approximately 15.1 acres or 659,085 square feet of land
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Eighteen Type I Engines
  - Three Type I Tractor Drawn Aerial Ladder Trucks
  - Ten wildland units
  - Three water tenders
  - One Type I Mobile Communications unit
  - One Type II Hazardous Materials Response unit
  - One Type II Urban Search and Rescue unit
  - One Air & Light unit
  - Five Advanced life Support (ALS) modular ambulances
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $18,637,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Ten Fire Stations
  - One Communications Center
  - One administrative office building
  - Two annex buildings
  - One Training site
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $24,786,201
- **Current and Anticipated Service Trends—**A slowdown in new building and density of land uses will represent a minor to moderate increase in population and thus a projected low increase in call volume. The SRVFPD has experienced a steady average annual increase in call volume, however for fiscal year 2009 there was a decrease in call volume of 2.94 percent.

The jurisdiction's boundaries are shown on Figure 1-1. The boundaries are generally as follows:

- Northern boundary: Alamo/Unincorporated Contra Costa County (Walnut Creek) border
- Eastern boundary: Los Vaqueros Reservoir and East Contra Costa County Fire District border
- Southern boundary: Contra Costa County/Alameda County line
- Western boundary: Contra Costa County/Alameda County line

26.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 26-1 lists all past occurrences of natural hazards within the jurisdiction.

26.4 HAZARD RISK RANKING

Table 26-2 presents the ranking of the hazards of concern.

26.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- SRVFPD Ordinances # 16, 18, 22
- SRVFPD Resolution 99-05
- Contra Costa County Operational Area Hazard Mitigation Plan
- San Ramon Valley Fire Protection District Disaster Mitigation Plan
- SRVFPD 2009 Standards of Cover
- SRVFPD 2009 Damage Assessment Guide
- Contra Costa County Community Wildfire Protection Plan

26.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 26-3.

26.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 26-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 26-5 identifies the priority for each initiative. Table 26-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 26-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Landslide	NA	2008	No estimates available
Wind	NA	2008	No estimates available
Frost Damage	NA	2007	No estimates available
Landslide	NA	2006	No estimates available
Landslide	NA	2005	No estimates available
Landslide	NA	2004	No estimates available
Flood	NA	2003	No estimates available
Frost Damage/Wind	NA	2002	No estimates available
Landslide	NA	2001	No estimates available
Wind	NA	2001	No estimates available
Landslide	NA	2000	No estimates available
Heat/Wind	NA	2000	No estimates available
Landslide	NA	1999	No estimates available
Wind	NA	1999	No estimates available
Landslide	NA	1998	No estimates available
Wind	NA	1998	No estimates available
Severe Storm/Wind	NA	1995	No estimates available
Frost Damage	NA	1994	No estimates available
Wind	NA	1993	No estimates available
Heat/Wind/Frost Damage	NA	1992	No estimates available
Frost Damage	NA	1990	No estimates available
Frost Damage	NA	1989	No estimates available
Wind	NA	1988	No estimates available
Wind	NA	1987	No estimates available
Severe Storm/Wind	NA	1983	No estimates available
Wind	NA	1982	No estimates available
Frost Damage	NA	1981	No estimates available
Severe Storm	NA	1980	No estimates available

TABLE 26-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Wildfire	54
2	Earthquake	48
3	Flood	36
4	Landslide	36
5	Severe Weather	12
6	Drought	6
7	Dam Failure	0

TABLE 26-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 26-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 2—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 3—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 26-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 4—Pre-position emergency power generation capacity in critical buildings to maintain continuity of government and services						
New & Existing	All Hazards	12, 13	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 5—Comply with all applicable building and fire codes, as well as other regulations (such as State requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities						
New & Existing	All Hazards	1, 2, 7, 15	SRVFPD	Med	District Funds	Short Term ongoing
Initiative 6—Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake						
New & Existing	Earthquake	2, 13	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 7—Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development						
New & Existing	Wildfire	1, 2, 4, 5	SRVFPD	Med	District Funds	Short Term ongoing
Initiative 8—Develop and maintain a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard						
New & Existing	Wildfire	2, 6, 13, 16	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 9—Develop a defensible space vegetation program that includes the clearing or thinning of (a) non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, or (b) all non-native species (such as eucalyptus and pine, but not necessarily oaks) within 30 feet of access and evacuation roads and routes to critical facilities.						
New & Existing	Wildfire	11, 12	SRVFPD	Low	District Funds, PDM, HMGP	Short Term ongoing
Initiative 10—Ensure all dead-end segments of public roads in high hazard areas have at least a "T" intersection turn-around sufficient for typical wildland fire equipment.						
New & Existing	Wildfire	11, 12	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 11—Enforce a minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on all driveways and road segments greater than 50 feet in length in wildfire hazard areas.						
New & Existing	Wildfire	11, 12	SRVFPD	Med	District Funds	Short Term ongoing

TABLE 26-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 12—Require that development in high fire hazard areas provide adequate access roads (with width and vertical clearance that meet the minimum standards of the Fire Code or relevant local ordinance), onsite fire protection systems, evacuation signage, and fire breaks.						
New & Existing	Wildfire	4, 11, 12	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 13—Ensure adequate fire equipment road or fire road access to developed and open space areas.						
New & Existing	Wildfire	11, 12, , 14	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 14—Maintain fire roads and/or public right-of-way roads and keep them passable at all times.						
New & Existing	Wildfire	11, 12	SRVFPD	Low	District Funds	Short Term ongoing
Initiative 15—Continue maintenance efforts to keep drains, storm drains and creeks free of obstructions, while retaining vegetation in the channel (as appropriate), to allow for free flow of water						
New & Existing	Flood	1, 2, 10	SRVFPD	Low	District Funds, HMGP, PDM	Short Term ongoing
Initiative 16—Facilitate and/or coordinate the distribution of materials that are prepared by others, such as by placing materials in District, city or utility newsletters, websites, or on community access channels, as appropriate.						
New & Existing	All Hazards	1, 2, 16	SRVFPD	Low	District Funds	Short Term ongoing

TABLE 26-5.
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	16	Medium	Low	Yes	No	No	High
2	16	Medium	Low	Yes	Yes	Yes	High
3	3	Low	Low	Yes	No	Yes	High
4	3	High	Low	Yes	Yes	Yes	High
5	4	Medium	Medium	Yes	Yes	No	Med
6	2	Medium	Low	Yes	Yes	Yes	High
7	4	High	Medium	Yes	Yes	No	Med
8	4	High	Low	Yes	No	Yes	Med
9	2	Medium	Low	Yes	Yes	No	Med
10	2	Medium	Low	Yes	No	Yes	Low
11	2	Medium	Medium	Yes	No	Yes	Low
12	3	Medium	Low	Yes	Yes	No	Med
13	3	Medium	Low	Yes	Yes	No	Med
14	2	Medium	Low	Yes	Yes	No	Med
15	3	Low	Low	Yes	Yes	Yes	High
16	3	Low	Low	Yes	Yes	Yes	High

a. Explanation of priorities
- 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).

TABLE 26-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	2, 3		1, 2			
Earthquake	2, 3, 5, 8	5	1, 2, 6, 16		4, 5	5
Flood	2, 3, 5, 15	15	1, 2, 6, 16	15	15	15
Landslide	2, 3, 5	5	1, 2, 6		5	
Severe Weather	2, 3, 5	5	1, 2, 6		4, 5	
Dam Failure						
Wild Fire	2, 3, 7, 9, 12	8, 9, 12	1, 2, 6, 16	8, 13	10, 11, 12, 13, 14	

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

PART 6—
WATER/SANITARY SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 27.
CENTRAL CONTRA COSTA SANITARY DISTRICT ANNEX

27.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Shari Deutsch, Safety & Risk Management Administrator
5019 Imhoff Place
Martinez, CA 94553
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27.2 JURISDICTION PROFILE

The Central Contra Costa Sanitary District (CCCSD) receives its legal authority from the California Health and Safety Code, Division 6, Part 1. This statute is referred to as the Sanitary District Act of 1923. CCCSD is a Special District created in 1946 to provide wastewater collection and treatment to the residents and businesses in the central area of Contra Costa County. Over time, the District's service area has expanded to incorporate areas of new development and those areas where sewers have been constructed to replace septic systems. The District is governed by a five-member elected Board of Directors. The Board of Directors assumes responsibility for the adoption of this plan while the General Manager will oversee its implementation.

The District currently serves approximately 450,000 residents and 3,000 businesses in 10 cities within the central county area.

The District's headquarters and treatment plant are based in Martinez. The treatment plant is capable of treating 54 million gallons of wastewater per day and has handled up to 240 million gallons per day in wet weather. The District's collections system operation is based in Walnut Creek which allows crews to respond to emergencies within the service area in less than one hour. The collections system operation is responsible for the cleaning, maintenance and repair of the District's 1,500 miles of underground pipeline and its 18 pumping stations.

The District also operates a household hazardous waste collection facility, provides recycled water to customers for irrigation and other industrial uses, and manages a source control program with enforcement authority to prevent pollution from entering area waters.

Funding comes primarily through annual sewer service charges, ad valorem taxes, and sewer connection permit fees. However, the District has occasionally issued revenue bonds to finance capital improvements.

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

- **Population Served—**Approximately 450,000 residents and 3,000 businesses
- **Land Area Served—**146 square miles
- **Value of Area Served—**N/A

- **Land Area Owned—**Approximately 420 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 37 process structures $42,109,898
  - 12 power structures $30,956,026
  - Piping throughout plant $47,907,981
  - 1500 miles of pipe throughout the District $663,693,000
  - 19 Pump Stations $26,456,644
  - 28 Tanks $181,526,889
  - 102 vehicles $5,463,600
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $998,114,038.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - 13 Process Buildings $163,816,588
  - 12 Other Buildings $50,881,075
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $203,149,453.
- **Current and Anticipated Service Trends—**According to County and City planners, the District's service area is comprised of high value land. As a result, development trends indicate higher residential densities and more compact commercial developments. Population growth will come from lot splits, infill development, construction of in-law units and a rise in multi-generational households. As a result, the District is focused on increasing the capacity of its current collections and treatment systems rather than on construction of new pipe segments.

The jurisdiction's boundaries are shown on Figure 27-1.

27.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 27-1 lists all past occurrences of natural hazards within the jurisdiction.

27.4 HAZARD RISK RANKING

Table 27-2 presents the ranking of the hazards of concern.

27.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)

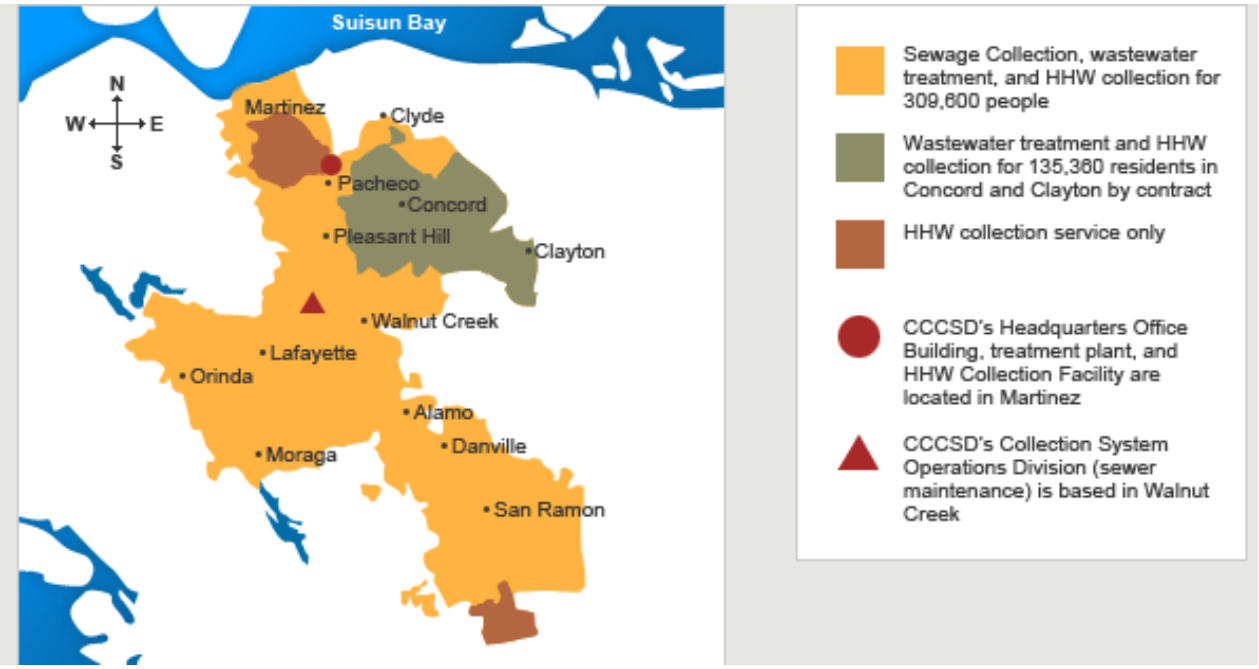

Figure 27-1. Central Contra Costa Sanitary District Boundaries

- National Pollutant Discharge Elimination System (NPDES)
- Statewide General Waste Discharge Requirements
- Contra Costa County Operational Area Hazard Mitigation Plan
- 10 Year Capital Improvement Plan
- Sewer System Management Plan
- Collections System Master Plan
- Treatment Plant Master Plan

27.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 27-3.

27.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 27-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 27-5 identifies the priority for each initiative. Table 27-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

27.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Ongoing research to evaluate the impact of new legislative or regulatory requirements on the collections system and treatment plant insofar as they affect the location and operations of facilities and equipment in areas exposed to natural hazards.

More detailed seismic risk assessments of major pipelines and pump stations along the Hwy 24 corridor and in the central Walnut Creek area.

Further study of soil stability in areas previously affected by wet weather events and identification of projects to reduce the risk of pipe failure in those areas.

27.9 ADDITIONAL COMMENTS

The Central Contra Costa Sanitary District is an award winning agency with a mission to protect public health and the environment and a commitment to excellence and continuous improvement. Our commitment is evident in the District's violation-free operation, awards and recognition, expanded programs and services and its outreach and education programs:

- Awards: In recent years the District has received the following awards and recognitions:
  - National Association of Clean Water Agencies' (NACWA) Peak Performance Platinum Award for eleven years of violation-free operations
  - California Water Environment Association 2008 awards for
    - Large Treatment Plant of the Year
    - Engineering Research Achievement Award for the Aeration Air Renovations Project
    - Large Collection System of the Year
  - California Association of Sanitation Agencies (CASA) 2008 Innovation Award for development of a Wastewater and Water Operator Training Program
- Expanded Services and Programs: In addition to collecting and treating wastewater, the District also:
  - Operates a Household Hazardous Waste Collection Facility
  - Supports area pharmaceutical collections programs to keep drugs out of the water system
  - Sponsors job training by offering college-level courses in Wastewater and Water Operator Training through a local community college.
- Community Education and Outreach: The District also sponsors a number of programs to educate and inform our community about our services, our goals and our environmental stewardship. These programs include:
  - Sponsorship of "Sewer Science" classes in area high schools and "Water Wizards" classes in area elementary schools.
  - Sponsorship of the "Delta Discovery" program, a day cruise on the Delta that shows children how water ecosystems work. Over 2,000 children participate in this program every year.
  - Production of numerous publications and information sheets on a variety of topics including a tri-annual newsletter sent to all households and businesses in the service area
  - Speakers Bureau
  - Plant Tours
  - Support of the Integrated Pest Management program and Master Gardener program through the University of California Extension

TABLE 27-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather	NA	3/2/2009	$1,600
Severe Weather	NA	2/17/2009	$1,600
Severe Weather	NA	10/23/2007	$1,600
Storm, Severe Weather, Landslides	NA	12/2005-1/2006	$648,900
Storm, Severe Weather, Landslides	NA	1/1997-12/1998	$621,000
Landslide	NA	3/2006	$185,000
Storm, Severe Weather, Landslides	NA	3/1/1995	$180,000
Storm, Severe Weather, Landslides	FEMA-979	1/20/1993	$248,000
Storm, Severe Weather, Landslides	NA	11/19/1991	$215,000
Storm, Severe Weather, Landslides	FEMA-758	2/17/1986	$260,500
Storm, Severe Weather, Landslides	NA	2/26/1983	$394,200
Storm, Severe Weather, Landslides	NA	1/25/1983	$629,200
Storm, Severe Weather, Landslides	NA	3/30/1982	$658,600
Storm, Severe Weather, Landslides	NA	1/3/1982	$549,000

TABLE 27-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	36
3	Landslide	36
4	Flood	36
5	Wildfire	12
6	Drought	12
7	Dam Failure	6

TABLE 27-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 27-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—District Building Seismic Improvements						
Existing	Earthquake, Severe Weather, Flood	1, 2, 7, 10, 13	CCCSD	$6 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM, HMGP	Short Term
Initiative 2—Collections System Renovations (Short Term)						
Existing	Earthquake, Severe Weather, Landslide, Flood	1, 6, 10, 13	CCCSD	$14.6 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM Program	Short Term
Initiative 3—Collections System Renovations (Long Term)						
Existing	Earthquake, Severe Weather, Landslide, Flood	1, 6, 10, 13	CCCSD	$38 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM Program	Long Term
Initiative 4—Wet Weather Bypass Improvements						
New	Earthquake, Severe Weather, Flood	1, 10, 13	CCCSD	$3.3 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, ARRA Grants, PDM Program	Short Term

TABLE 27-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 5—EBMUD Watershed Pump Stations and Force Main Improvements/Upgrades						
Existing	Earthquake, Severe Weather, Landslide, Flood	1, 10, 13, 16	CCCSD	$5.1 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM Program	Long Term
Initiative 6—Treatment Plant Seismic Improvements						
Existing	Earthquake, Severe Weather, Flood	1, 2, 7, 13	CCCSD	$8 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM, HMGP	Long Term
Initiative 7—Primary Treatment Expansion						
New	Earthquake, Severe Weather, Flood	1, 10, 13	CCCSD	$26 m	Property Tax, Sewer Service Charges, Debt Financing, Interest on Investments, PDM Program	Long Term
Initiative 8—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 9—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 10—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 27-5.
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	5	High	Medium	Yes	Yes	Yes	High
2	3	Medium	Low	Yes	Yes	Yes	High
3	4	Medium	Medium	Yes	Yes	Yes	Medium
4	3	High	Low	Yes	Yes	Yes	High
5	4	Medium	Medium	Yes	Yes	Yes	Medium
6	4	Medium	Medium	Yes	Yes	Yes	Medium
7	3	Medium	Medium	Yes	Yes	Yes	Low
8	16	Medium	Low	Yes	No	No	High
9	16	Medium	Low	Yes	Yes	Yes	High
10	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 27-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 28.
DELTA DIABLO SANITATION DISTRICT ANNEX

28.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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28.2 JURISDICTION PROFILE

The Delta Diablo Sanitation District (District) was formed in 1976 to protect the health of the public and environment by collecting and treating wastewater in the East Contra Costa County area. The District owns and operates a sub-regional wastewater conveyance, treatment, and effluent disposal system for domestic, commercial, and industrial wastewater generated by the cities of Antioch and Pittsburg, and the unincorporated area of Bay Point. The District also owns and operates a recycled water production and distribution system for industrial use and landscape irrigation. The wastewater treatment plant and recycled water facility are located off the Pittsburg-Antioch Highway in northwest Antioch. The District employs 75 personnel including engineering, operation, maintenance, and administrative staff, and is governed by a three-member Board consisting of one representative each from the city council of Antioch and Pittsburg, and one supervisor from the Contra Costa County Board of Supervisors. Revenue to the District Is a combination of wastewater service charges, capital facility capacity charges, ad valorem taxes, and interest earned on reserves.

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

- **Population Served—**Approximately 200,000 citizens
- **Land Area Served—**Approximately 32,700 acres or 51 square miles
- **Value of Area Served—**The value of the area served by the jurisdiction is unknown
- **Land Area Owned:**
  - Bridgehead Pump Station — 4.13 acres
  - Antioch Pump Station — 1.75 acres
  - Treatment Plant and Recycled Water Facility — 57.21 acres
  - Shore Acres Pump Station — 3.06 acres
  - **Total — 66.15 acres**
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Wastewater Treatment Plant Facility
  - Recycled Water Facility

  - Wastewater Pumping Stations (4)
  - Wastewater Diversion Facility
  - Wastewater Conveyance Pipelines
  - Recycled Water Distribution Pipelines
  - Recycled Water Return Pipelines
  - Wastewater Collection System (Bay Point)
- **Total Value of Critical Infrastructure/Equipment—**Replacement cost is unknown; estimated in the hundreds of millions of dollars.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Plant Operations Center
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $10,000,000. Replacement cost is unknown.
- **Current and Anticipated Service Trends—**Growth and development in the District's service area is currently very low due to the widespread depressed economic conditions. Historically, the District experiences steady residential and commercial growth resulting in an increase of wastewater influent of 2 percent per year. This growth trend is expected to return upon recovery from the current economic situation. The District's wastewater capital expansion fund provides the revenue for meeting the needs associated with the long-term growth and development.

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

28.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 28-1 lists all past occurrences of natural hazards within the jurisdiction.

28.4 HAZARD RISK RANKING

Table 28-2 presents the ranking of the hazards of concern.

28.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- National Pollutant Discharge Elimination System (NPDES)
- Statewide General Waste Discharge Requirements
- National Environmental Protection Act
- Contra Costa County Operational Area Hazard Mitigation Plan

28.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 28-3.

28.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 28-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 28-5 identifies the priority for each initiative. Table 28-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 28-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather, Landslides	NA	1997	No estimates available
Earthquake	FEMA-845	10/17/1989	$20,000

TABLE 28-2.
HAZARD RISK RANKING

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

TABLE 28-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 28-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Maintenance and Emergency Equipment Storage Structure (CA-13)						
New and Existing	Earthquake, Flood, Landslide, Severe Weather	1, 2, 3, 4	DDSD	$250,000	District Funds, HMGP, PDM	Short Term
Initiative 1—Bridgehead Phase IV Expansion (E-15)						
New	Earthquake, Flood	1, 2, 4	DDSD	$2,650,000	District Funds	Short Term
Initiative 2—Broadway Conveyance and Diversion Upgrade (E-16)						
New and Existing	Earthquake, Flood, Severe Weather	1, 2, 4	DDSD	$5,800,000	District Funds	Short Term
Initiative 4—Pittsburg Pump Station Capacity Improvements (E-17)						
New and Existing	Earthquake, Flood, Severe Weather	1, 2, 4	DDSD	$3,200,000	District Funds	Short Term
Initiative 5—Shore Acres Pump Station Capacity Improvements (E-19)						
New and Existing	Earthquake, Flood, Severe Weather	1, 2, 4	DDSD	$2,700,000	District Funds	Short Term
Initiative 6—Conveyance and Treatment System Reliability Improvements (CA-7)						
Existing	Earthquake, Flood, Landslide, Severe Weather	1, 2, 3, 4	DDSD	$500,000	District Funds	Short Term
Initiative 7—Antioch Pump Station Diversion Upgrades (CA-15)						
Existing	Earthquake, Flood, Severe Weather	1, 2, 4	DDSD	$100,000	District Funds	Short Term
Initiative 8—Back-up Diesel Generator Automatic Transfer System (CA-19)						
Existing and New	Earthquake, Flood, Severe Weather	1, 2, 4, 7	DDSD	$150,000	District Funds	Short Term

TABLE 28-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 9—Conveyance System Rehabilitation and Improvements (CAR-12)						
Existing	Earthquake, Flood, Landslide, Severe Weather	1, 2, 3, 4	DDSD	$275,000	District Funds	Short Term
Initiative 10—Emergency Back-up Power Generator (RW-15)						
Existing and New	Earthquake, Flood Severe Weather	1, 2, 4	DDSD	$500,000	District Funds	Short Term
Initiative 11—Rehabilitation Projects (BP-8)						
Existing	Earthquake, Flood, Severe Weather	1, 2, 4	DDSD	$1,200,000	District Funds	Short Term
Initiative 12—Emergency Supply Storage Facility						
Existing and New	Earthquake, Flood, Landslide, Severe Weather	1, 2, 3, 4	DDSD	$50,000	District Funds, HMGP, PDM	Short Term
Initiative 13—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 14—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 15—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 28-5.
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	Yes	Yes	High
2	3	Low	High	No	No	Yes	Low
3	3	Low	High	No	No	Yes	Low
4	3	Low	High	No	No	Yes	Low
5	3	Low	High	No	No	Yes	Low
6	4	High	Medium	Yes	No	Yes	High
7	3	High	Medium	Yes	No	Yes	High
8	4	Low	Low	Yes	No	Yes	Low
9	4	High	Medium	Yes	No	Yes	High
10	3	High	High	Yes	No	Yes	Low
11	3	High	Low	Yes	No	Yes	High
12	4	High	Medium	Yes	No	Yes	High
13	16	Medium	Low	Yes	No	No	High
14	16	Medium	Low	Yes	Yes	Yes	High
15	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 28-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	14, 15		13, 14			
Earthquake	3, 4, 5, 6, 9, 14, 15	1, 2, 3, 4, 5, 6, 7, 9, 11	13, 14		1, 8, 10	12
Flood	3, 4, 5, 6, 9, 14, 15	1, 2, 3, 4, 5, 6, 7, 9, 11	13, 14		1, 8, 10	12
Landslide	6, 9, 14, 15	1, 6, 9, 11	13, 14		1	12
Severe Weather	3, 4, 5, 6, 9, 14, 15	1, 3, 4, 5, 6, 7, 9, 11	13, 14		1, 8, 10	12
Tsunami	14, 15		13, 14			
Wild Fire	14, 15		13, 14			

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 29.
DIABLO WATER DISTRICT ANNEX

29.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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29.2 JURISDICTION PROFILE

Diablo Water District (DWD) is a special district created in 1953 to provide water to the City of Oakley and surrounding unincorporated lands located in the northeastern corner of Contra Costa County including the Town of Knightsen, service areas of Bethel Island, Beacon West (M-26 and, Willow Park Marina (M-27).

A five member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan while the General Manager, through his staff, will oversee its implementation. As of April 2009, the District serves 9,943 water connections and has a staff of 14 full time employees. Funding comes primarily through water rates and developer connection fees.

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

- **Population Served—**Approximately 35,000 people
- **Land Area Served—**Land area served is approximately 18,650 acres. Distribution pipeline network grid is 136 miles consisting of 10 inch to 24 inch mains and secondary feeder pipelines of 2 inch and 8 inch mains. Pipeline grid is fed by 24 inch and 30 inch mains from Randall-Bold Water Treatment Plant and DWD Blending Facility. Three storage reservoirs are fed from 24 inch main. DWD has three water wells and four separate small water well systems in surrounding unincorporated areas.
- **Value of Area Served—**The assessed valuation of the area served by the jurisdiction is $4,771,000,000.
- **Land Area Owned—**Approximately 17 acres of land
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 136 miles of pipeline
  - Seven water wells with service pumps
  - Six hydro pneumatic tanks
  - Three steel water storage tanks. (1- 2.5 million gallons, 2 - 5 million gallons)
  - Three generators
  - Four high service pumps

  - Four variable service pumps
  - One combination vacuum and value turner trailer
  - One combination vehicle with valve turner and pump
  - Twelve vehicles
  - Administration office equipment
  - DWD SCADA System
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $85 million.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Three water inter-ties with the City of Antioch
  - Randall-Bold Water Treatment Plant jointly owned by Contra Costa Water District and Diablo Water District
  - Corporation Yard compound and buildings
  - Glen Park Well Station
  - Blending Facility Station
  - Summer Lakes Well Station (Southpark)
  - Beacon West (M-26) Well Station
  - Willow Park Marina (M-27) Well Station
  - Knightsen (M-25) Well Station
  - Emergency Well Station at the Corporation Yard
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $35 million.
- **Current and Anticipated Service Trends—**Currently DWD serves approximately 35,000 residents. The City of Oakley adopted the General Plan. Table 29-1 summarizes estimated future populations. The total build out population will be approximately 68,000. In addition DWD will serve Knightsen and some or all of Bethel Island. The total build out population was estimated at 75,000. Residents with estimated dwelling units at 25,453 average. Identified potential growth in the City of Oakley and surrounding areas west and east of Jersey Island and Bethel Island capital cost will be approximately $111,700,000.

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

TABLE 29-1. POPULATION PROJECTION ESTIMATES FOR AREA SERVED BY DWD	
2005	28,000
2010	34,715
2015	41,430
2020	48,145
2025	54,860
2030	61,575
2035	68,290
2040	75,000

29.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 29-2 lists all past occurrences of natural hazards within the jurisdiction.

29.4 HAZARD RISK RANKING

Table 29-3 presents the ranking of the hazards of concern.

29.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- Contra Costa County Environmental Health
- California Department of Water Resources
- American Water Works Association Standards
- Contra Costa County Operational Area Hazard Mitigation Plan
- DWD Vulnerability Assessment
- DWD Facilities Plan
- DWD Emergency Plan
- DWD Health and Safety Plan
- California Department of Health Services Crisis & Emergency Risk Communication
- California Rural Water Association Emergency Response Plan and Drought Management

29.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 29-4.

29.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 29-5 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 29-6 identifies the priority for each initiative. Table 29-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 29-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather, Freeze	NA	12/20/1990	$50,000
Drought	NA	6-9/1991	No estimates available

TABLE 29-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	51
3	Flood	51
4	Drought	48
5	Landslide	6
6	Wildfire	6
7	Dam Failure	6

TABLE 29-4.
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
Tsunami Ready	No	N/A	N/A

TABLE 29-5.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Emergency Response Equipment						
New	All Hazards	1, 2, 7, 10, 13	DWD	$2,000	DWD	Short Term
Initiative 2—Drought Education						
New	Drought	3, 6, 12, 13, 16	DWD	$5,000	DWD	Short Term,
Initiative 3—Retrofit Reservoir 1						
Existing	Earthquake, Severe Weather, Flood	1, 2, 7, 10, 13, 15	DWD	$650,000	HMGP	Long Term
Initiative 4—Retrofit Reservoir 4						
Existing	Earthquake, Severe Weather, Flood	1, 2, 7, 10, 13, 15	DWD	$850,000	HMGP	Long Term
Initiative 5—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 7—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 29-6.
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	5	Low	Low	Yes	Yes	No	Low
2	5	Low	Low	Yes	Yes	No	Low
3	6	High	High	Yes	Yes	No	High
4	6	High	High	Yes	Yes	No	High
5	16	Medium	Low	Yes	No	No	High
6	16	Medium	Low	Yes	Yes	Yes	High
7	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 29-7.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 30.
IRONHOUSE SANITARY DISTRICT ANNEX

30.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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30.2 JURISDICTION PROFILE

The Ironhouse Sanitary District (ISD), created in 1945, provides sewage collection, treatment and disposal services to the City of Oakley, the unincorporated area of Bethel Island, and other unincorporated areas within ISD's service boundary. ISD is bounded by the San Joaquin River to the north, Highway 160 and the City of Antioch to the west, the unincorporated Town of Knightsen and the City of Brentwood to the south and the unincorporated area in Holland Tract to the east. A five-member elected Board of Directors governs the District. The District serves 10,800 sewer connections with the current staff of 31. Funding comes primarily from annual sewer use charges. ISD owns Jersey Island, 3,500 acres, and disposes of its reclaimed water on the Island, as well as on approximately 155 acres on its Oakley property. ISD also grows and markets hay as part of its wastewater reclamation process and has a 2,000 head cattle operation on Jersey Island.

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

- **Population Served—**Estimated population of 38,000
- **Land Area Served—**23,400 acres or 37 square miles, with a sphere of influence of an additional 2.4 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $5,221,000.
- **Land Area Owned—**285 acres in Oakley and 3,500 acres on Jersey Island
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 120 miles of sewer collection main, plus related easements
  - 34 pump stations
  - Rolling stock, 31 vehicles
  - 28 pieces of heavy equipment and farm tractors
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $67,788,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - 2.7-mgd sewer treatment plant

  - Ongoing construction of 4.3 MGD treatment plant
  - 350 acre feet, or 114 million gallon storage ponds for treated wastewater
  - Main office compound and shop with vehicle and parts storage facilities
  - Jersey Island, consisting of 3,500 acres
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $8,987,800
- **Current and Anticipated Service Trends—**Currently under construction is a 4.3 MGD Treatment Plant. Anticipated growth is at 300 EDUs per year. Total build out of service area is 8.6 MDUs.

Service area bounded by the San Joaquin River on the north, Bethel Island and Holland Tract on the east, city of Brentwood on the south, Highway 160 and the City of Antioch on the west. The jurisdiction's boundaries are shown on Figure 1-1.

30.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 30-1 lists all past occurrences of natural hazards within the jurisdiction.

30.4 HAZARD RISK RANKING

Table 30-2 presents the ranking of the hazards of concern.

30.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- State and Regional Water Quality Control Boards
- California Environmental Quality Act
- California Department of Water Resources
- State Lands Commission
- California Fish and Game
- Contra Costa County Operational Area Hazard Mitigation Plan
- Sewer Master Plan
- Wastewater Facilities Plan Update.

30.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 30-3.

30.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 30-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 30-5 identifies the priority for each initiative. Table 30-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 30-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Electric panel damage (pelican shorted power lines)	NA	2001	$1,600
Power outage, severe weather	NA	Approximately 2 times/year	$0 damage (operating costs for generators and labor)

TABLE 30-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Flood	51
3	Severe Weather	48
4	Wildfire	6
5	Drought	6
6	Landslide	0
7	Dam Failure	0

TABLE 30-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 30-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Installation of redundant force main from Bethel Island						
New	All Hazards	1, 13	ISD	$3 mil	ISD	Long Term
Initiative 2—Installation of East Cypress corridor redundant collection system						
New	All Hazards	1, 13	ISD	$0 ISD	Developers	Long Term
Initiative 3—Solar panels for emergency power						
New	All Hazards	1, 13,16	ISD	$0 ISD	Power Purchase Agreement	Long Term
Initiative 4—Acquire additional emergency response equipment						
New	All Hazards	2, 13	ISD	$10,000	ISD	Short Term
Initiative 5—Acquire additional portable generators						
New	All Hazards	2, 13	ISD	$120,000	ISD	Short Term
Initiative 6—Acquire additional 6” pump						
New	All Hazards	2, 13	ISD	$60,000	ISD	Short Term
Initiative 7—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 8—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 9—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 30-5.
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	2	Medium	Medium	Yes	No	No	Medium
2	2	Medium	Medium	Yes	No	No	Medium
3	3	Medium	Medium	Yes	No	No	Medium
4	2	Medium	Medium	Yes	No	No	Medium
5	2	Medium	Medium	Yes	No	No	Medium
6	2	Medium	Medium	Yes	No	No	Medium
7	16	Medium	Low	Yes	No	No	High
8	16	Medium	Low	Yes	Yes	Yes	High
9	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 30-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

PART 7—
DRAINAGE/FLOOD CONTROL SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 31.
BETHEL ISLAND
MUNICIPAL IMPROVEMENT DISTRICT ANNEX

31.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Steve Spence, District Manager
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Bethel Island, CA 94511
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Alternate Point of Contact
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Telephone: 925-684-3254
e-mail Address: lawry@prodigy.net

31.2 JURISDICTION PROFILE

Bethel Island Municipal Improvement District (BIMID) was formed in 1960 by the California State Legislature. The newly formed BIMID absorbed Reclamation District 1619. Bethel Island, California, is located in the unincorporated portion of East Contra Costa County; the only access to the island by road is across the Bethel Island Bridge, which is owned and maintained by Contra Costa County. The island is not a city and thus relies on a combination of private and county public services. BIMID is a special act district that has powers similar to a city.

BIMID is responsible for the maintenance and rehabilitation of 11.5 miles of earthen levee which completely surround Bethel Island (3 miles of the additional levee currently are part of the Delta Coves Project which is presently on hold and not under control of this District), thus protecting the island's 3500 acres of agricultural and residential properties (all below sea-level) and over 3700 year-round residents from flood inundation from the waters of the San Joaquin-Sacramento River Delta. (Note: The new Delta Coves development, when fully built out, will add about 495 new homes and 60 condos to the Bethel Island community.) BIMID also provides habitat mitigation, park services, as well as storm drain maintenance and repair for Bethel Island.

The majority of BIMID funding comes from ad valorem tax which is collected by Contra Costa County and is used to compete for State funding (in the form of cost share work agreements) from the Department of Water Resources.

Currently, BIMID has five employees, consisting of a District Manager, two field workers and two office workers. The Board of Directors for BIMID consists of five elected members, each director serving for a period of four years.

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

- **Population Served—**3,700 year-round residents
- **Land Area Served—**Approximately 3,500 acres
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $724,575,605.

- **Land Area Owned—**BIMID owns approximately 107 acres located near the center of the island. 46 acres of this property are used for the BIMID mitigation site and borrow site. BIMID also owns approximately 1.5 acres on Stone Road which serves as the location for the District's administrative offices and equipment/maintenance yard.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - One main pump station with three stationary pumps, one secondary pump station with one stationary pump, 19.1 miles of drainage ditch and canal easements, 14.5 miles of levee easements, three community warning sirens, two dump trucks, one water truck, one equipment trailer, five pieces of earth-moving equipment, one boat, two pickups, one service truck, one flood fight supply container and one archive storage container
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $446,250,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Maintenance Shop
  - BIMID Hall (containing the District's administrative offices and archived records)
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $400,000.
- **Current and Anticipated Service Trends—**The BIMID has not experienced any substantial growth for a long time. This District expects the Delta Coves project, which is currently in bankruptcy proceedings, when completely built out, will increase the population of Bethel Island by 30 to 40 percent. The completion of the project will also result in the transfer of responsibility to this District of 3 miles of levee, 4 pump stations and the breach structure.

The Bethel Island Municipal Improvement District consists of unincorporated territory in Contra Costa County, bounded and described as follows:

- Beginning at the northwest corner of the bridge constructed originally around 1915, across the dredge cut at or near the head of what is commonly called Taylor Slough; then following the easterly bank of said Taylor Slough with its meanderings to the junction of said Taylor Slough with what is commonly called Piper Slough; then following the southerly and westerly back of said Piper Slough to its junction with Sand Mound Slough; then following the northerly bank of said Sand Mound Slough to its junction with the place of beginning.

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

31.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 31-1 lists all past occurrences of natural hazards within the jurisdiction.

31.4 HAZARD RISK RANKING

Table 31-2 presents the ranking of the hazards of concern.

31.5 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 US Environmental Protection Agencies

- California State Division of State Architects
- Federal Endangered Species Act
- HMP Standard
- PL 84-99 Standard
- Contra Costa County Operational Area Hazard Mitigation Plan.

31.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 31-3.

31.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 31-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 31-5 identifies the priority for each initiative. Table 31-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

31.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The District needs to complete a levee assessment and sheet pile design study.

TABLE 31-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather/Wind/Rain	DR-1628	1/1/2006	$542,000
Flooding	N/A	2/13/2000	$27,000
Severe Weather/Wind/Rain	N/A	12/21/1999	$10,000
Severe Weather/Wind/Rain	NA	12/1998	$90,000
Earthquake	DR-845	10/17/1989	$2,000
Severe Weather/Wind/Rain	N/A	2/17/1986	$2,000
Severe Weather/Wind/Rain	N/A	12/3/1983	$4,000
Severe Weather/Wind/Rain	N/A	1/3/1982	$7,000
Severe Weather/Wind/Rain	N/A	1/20/1967	$180,000

TABLE 31-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Earthquake	54
3	Severe Weather	48
4	Wildfire	27
5	Drought	9
6	Dam Failure	0
7	Landslide	0

TABLE 31-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 31-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Elevate Main and Secondary pump stations						
Existing	Flood, earthquake, severe weather	1, 2, 10, 13, 15	BIMID	1.4 million - High	Tax revenue, USDA grant, HMGP, PDM	Short Term
Initiative 2—Raise 2400 lf. of levee from HMP standards to PL 84-99 standards						
Existing	Flood, severe weather	1, 2, 7, 10, 13	BIMID	128,000 - Medium	Tax revenues, DWR work agreement, USDA grant	Short Term
Initiative 3—Rip rap 10 miles of levee						
Existing	Flood, severe weather	1, 2, 7, 10, 13	BIMID	800,000 - High	Tax revenues, DWR work agreement, USDA grant	Long Term
Initiative 4—Remove existing vegetation/clear line of sight, vegetation management						
Existing	Flood, severe weather	1, 2, 13	BIMID	20,000 - Low	Tax revenues, DWR work agreement, USDA grant, HMGP, PDM	Short Term
Initiative 5—Replace existing drainage culverts						
Existing	Flood, severe weather	1, 4, 7, 10, 13, 15	BIMID	960,000 - High	Tax revenues, HMGP, PDM	Long Term
Initiative 6—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds	Short Term, ongoing
Initiative 7—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 8—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	OES & DCD	Low	District Funds	Early 2010, Short Term

TABLE 31-5.
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	5	Medium	High	No	Yes	No	Low
2	5	High	High	Yes	Yes	No	High
3	5	High	High	Yes	Yes	No	Medium
4	3	Medium	Low	Yes	Yes	Yes	High
5	6	Medium	Medium	Yes	Yes	No	Medium
6	16	Medium	Low	Yes	No	No	High
7	16	Medium	Low	Yes	Yes	Yes	High
8	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 31-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 32.
CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT ANNEX

32.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Paul R. Detjens, Senior Civil Engineer
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Alternate Point of Contact

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32.2 JURISDICTION PROFILE

The Contra Costa Flood Control and Water Conservation District (District) is a dependent Special District, first formed by an act of the State legislature in 1951. Its governing document is the Contra Costa County Flood Control and Water Conservation District Act, last amended in 1992, which grants the District various powers such as the ability to acquire and hold property; sue and be sued; conserve, store and import water; control flood waters; issue bonds; levy taxes and assessments and use eminent domain. The governing board of the District is the County's five-member Board of Supervisors, which are elected to four year terms. Each Supervisor represents a specific area of the County.

The District plans, constructs and maintains major flood protection infrastructure to reduce flooding risk. The District's jurisdiction encompasses all of Contra Costa County, including all nineteen incorporated cities.

The District's funding comes from a combination of ad-valorem taxes and fees paid by developers upon creation of impervious surfaces. The District has approximately 20 staff, and relies on other specialists from the Contra Costa County Public Works Department, with whom they share office space.

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

- **Population Served—**1,060,435 residents as of January 1, 2009 (California Department of Finance)
- **Land Area Served—**720 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $174,133,000
- **Land Area Owned—**2,600 acres in fee, 1450 acre easement
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 21 Drop Structures — $46 million
  - 89,650 feet of Concrete Channels — $225 million
  - 4 Dams — $112 million
  - 34,600 feet of Levees — $35 million

  - 12 Detention Basins $10 million
  - Various Specialized equipment and trucks $1 million
- **Total Value of Critical Infrastructure/Equipment—**The total replacement cost value of critical infrastructure and equipment owned by the jurisdiction is $383 million.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - CC Rich Building, Glacier Drive (District main office)
  - Waterbird Maintenance Yard
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $10 million.
- **Current and Anticipated Service Trends—**The District's service area is broken up into three distinct regions of the County: west, central and east. The west and central portions of the county are nearing their full development potential. Service demands are expected to increase in these areas not because of added population, but primarily because of increased customer demands for more ecologically sensitive flood protection, including potential removal of concrete lining of channels and restoration of the resulting streams. Other factors expected to increase demands for District services include the effect of global climate change on low-lying areas, increased regulatory requirements on operation and maintenance of existing facilities, and new clean water requirements on trash and other pollutants.
- The eastern portion of the District's service area includes the fast-growing cities of Pittsburg, Antioch, Oakley and Brentwood. Here, population growth means significantly increased runoff and customer demands for improved levels of protection as agricultural lands are converted to residential and commercial uses. Additionally, this eastern portion of the County has the same issues noted for central and west portions noted above.

The area served includes all of Contra Costa County, including all nineteen incorporated cities. The jurisdiction's boundaries are shown on Figure 1-1.

32.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 32-1 lists all past occurrences of natural hazards within the jurisdiction.

32.4 HAZARD RISK RANKING

Table 32-2 presents the ranking of the hazards of concern.

32.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- Regulatory permits
- Contra Costa County Operational Area Hazard Mitigation Plan

- The District has a business plan, an expenditure policy and a Capital Improvement Plan. The expenditure policy sets the following order of priorities: system preservation, public safety, and system expansion. This relates to hazard mitigation plan because it emphasizes repair and rehabilitation of existing facilities to ensure they remain able to reduce flood risk and minimize the risk of dam failure.

32.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 32-3.

32.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 32-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 32-5 identifies the priority for each initiative. Table 32-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

32.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

The District has number of areas where lack of information limits smart planning efforts:

- East county floodplain maps are approximate - have good topography, but need a detailed two dimensional floodplain analysis.
- Kellogg Creek FIRM does not correctly show the effect of the Los Vaqueros Reservoir. Need to revisit this analysis and update.
- District reservoirs are nearing 50 years old, and will likely need rehabilitation including a seismic vulnerability analysis. Needed to keep probability of dam failure low.
- District capital improvement plan (CIP) needs to be updated.
- District funding sources are insufficient to meet new or expected clean water mandates, such as trash and mercury total maximum daily loads (TMDL).
- Some District levees no longer enjoy FEMA accreditation, and the District lacks the resources to study and potentially improve these levees be re-accredited.

TABLE 32-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather, Flood, Landslides	FEMA-1628	12/31/2005	$1,900,000
Severe Weather, Flood	FHWA	12/16/2002	No data
Severe Weather, Flood, Landslides	FEMA-1203	2/2/1998	$1,200,00
El Nino Storm, Flood, Landslides	FEMA-1155	1/1/1997	$973,000
Severe Weather, Flood	FEMA-1046	3/1995	$753,000
Severe Weather, Flood	FEMA-1044	1/1995	$1,100,000
Severe Weather, Flood	FEMA-979	1/1993	$911,000
Severe Weather, Flood, Landslides	FEMA-758	2/17/1986	$63,000
Severe Weather, Flood	NA	3/1980	$150,000
Severe Weather, Flood, Landslides	NA	11/21/1977	No data

TABLE 32-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	45
2	Flood	39
3	Landslide	36
4	Drought	36
5	Earthquake	32
6	Dam Failure	12
7	Wildfire	6

TABLE 32-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 32-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Repair bank erosion, various sites countywide (Green Valley Creek at Buckeye Lane, Grayson Creek at County Quarry, etc).						
Existing	Landslide/Bank Failure/Severe Weather	1, 10	FCD	Medium to low	FCD Zone 3B, FCD Zone 1, other FCD Zones	Short term
Initiative 2—Construct/expand detention basins (implement basin construction as identified in FCD CIP).						
New and existing	Flood/Dam Failure/Severe Weather	1, 10	FCD	Medium	FCD Zone 3B, FCD Zone 1, other FCD Zones	Short term
Initiative 3—Expand Upper Sand Creek detention basin to significantly reduce flood risk for downstream communities. Construct Upper Sand Creek dam to state Division of Dam Safety requirements.						
Existing	Flood/Dam Failure/Severe Weather	1, 10	FCD	High	Drainage Area 130, FCD Zone 1	Short term
Initiative 4—Repair bank erosion, various sites countywide (Green Valley Creek at Buckeye Lane, Grayson Creek at County Quarry, etc).						
Existing	Landslide/Bank Failure/Severe Weather	1, 10	FCD	Medium to low	FCD Zone 3B, FCD Zone 1, other FCD Zones	Short term
Initiative 5—Widen creeks/channels and raise/rehabilitate levees (implement projects as identified in FCD CIP: Marsh Creek, East and West Antioch Creeks, etc.).						
Existing	Flood/Severe Weather	1, 10	FCD	Medium	FCD Zone 3B, FCD Zone 1, other FCD Zones	Short term
Initiative 6—Assess condition of Wildcat and San Pablo Creek levees to determine seek levee re-accreditation .						
Existing	Flood/Bank Failure/Severe Weather	1, 10	FCD	Medium to low	FCD Zone 6 and FCD Zone 7	Short term
Initiative 7—Remove sediment from channels and detention basins (implement projects as identified in FCD CIP. i.e.: Kubicek Basin, Walnut Creek, Grayson Creek, etc).						
New and existing	Flood	1, 10	FCD	Medium	FCD Zone 3B, FCD Zone 1, other FCD Zones	Short term
Initiative 8—Seismic assessment of existing dams.						
Existing	Earthquake/Dam Failure	1, 10	FCD	Medium	FCD Zone funds	Long term

TABLE 32-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 9—Seismic rehabilitation/retrofitting of existing dams (may combine with FCD5 above).						
Existing	Earthquake/Dam Failure	1, 10	FCD	High	FCD Zone funds, National Dam Safety Grant, FEMA PDM grant, DHS Urban Area Security Initiative Grant, other grants.	Long term
Initiative 10—Acquire floodplain easements over privately held parcels at various sites District-wide (i.e.: Trembath floodplain on East Antioch Creek, floodplains on Marsh Creek, Walnut Creek overflow area at Pacheco Creek, etc).						
New and Existing	Flood	1, 10	FCD, Cities	Medium	FCD Zone funds, FEMA HMGP & PDM grants, other grants	Short term and long term.
Initiative 11—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds	Short Term, ongoing
Initiative 12—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County, Planning	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing

TABLE 32-5.
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[c]
1	2	High	Low	Yes	Yes	Yes	High
2	2	High	Medium	Yes	Yes	Yes	High
3	2	High	Medium	Yes	Yes	Yes	High
4	2	High	Low	Yes	Yes	Yes	High
5	2	Medium	Low	Yes	Yes[b]	Yes	Medium
6	2	High[a]	High	Yes	Yes	No	Medium
7	2	Medium	Medium	Yes	Yes	Yes	Medium
8	2	Medium	Low	Yes	Yes[b]	Yes	High
9	2	High[a]	High	Yes	Yes	No	Medium
10	3	Low	Low	Yes	No	Yes	High
11	2	Medium	Medium	Yes	Yes	Yes	Medium
12	16	Medium	Low	Yes	Yes	Yes	High

a. Assumes deficiencies are uncovered in Initiative 5, as expected.
b. Grant-eligible if combined with Initiative 6
c. Explanation of priorities
- 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).

TABLE 32-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	2, 5, 6, 9, 10, 12	2, 6	8, 9, 11	2	6	2, 3, 4, 6
Drought	9, 10, 12		8, 9, 11			
Earthquake	5, 6, 9, 10, 12	6	8, 9, 11		6	6
Flood	1, 2, 3, 4, 6, 7, 9, 10, 12	1, 2, 3, 4, 7	8, 9, 11	1, 2, 3, 4, 7		1, 2, 3, 4
Landslide	1, 6, , 9, 10, 12	1	8, 9, 11	1		1, 2, 3, 4
Severe Weather	1, 2, 3, 9, 10, 12	1, 2, 3	8, 9, 11	1		1, 2, 3
Wild Fire	9, 10, 12		8, 9, 11			

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 33.
KNIGHTSEN COMMUNITY SERVICES DISTRICT ANNEX

33.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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33.2 JURISDICTION PROFILE

The Knightsen Town Community Services District (KCSD) was created in 2005 and encompasses approximately 5,131 acres. It was formed to provide flood control and water quality (drainage services) for the community of Knightsen, which is a low area that receives runoff flow from nearby areas.

The District's boundaries and sphere of influence (SOI) are coterminous. The KCSD is authorized to provide only flood control and water quality (drainage services). The KCSD was formed to provide a funding mechanism to fund Phase II Feasibility.

Study and construction plan, provide the needed facilities, and enhance the basic water quality flood control services. The District has a cap of $200.00 annual tax for developed parcels and $100.00 annual tax for undeveloped parcels. A five-member board of directors chosen in District-wide elections governs the CSD. The KCSD has two part time employees, a general manager and secretary. The KCSD has adoptive authority.

The Knightsen area had flooding and drainage problems in 1947, 1950s, 1980s, 1990s in photo documentation and 2000s. Levees are on most sides underground ECCID (East Contra Costa Irrigation) pipes dispersed throughout and East Bay Mud lines on the south side of Orwood Road, flood control is crucial Reclamation Districts 799, 2025, 2065, 2121 and 2024 very definitely would impact Knightsen. The Holland tract levee breach was held by Veal Track or the community of Knightsen would have sustained substantial damage. The Knightsen elevation ranges from 25 to 30 feet above sea level. Except for the immediate down town area all of Knightsen is zoned A2 or A3 and is outside of the Urban Limit Land. Knightsen contributes approximately 40-45 percent of Contra Costa agriculture.

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

- **Population Served—**Although the 2000 census identifies the population as 861, the present population residing within the District is estimated to be 1,000.
- **Land Area Served—**Approximately 5131 acres
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $205,509,937, land value plus improvements.
- **Land Area Owned—**The Service District does not own any property at this time. The KCSD flood control plan will have multiple bio filters/wetlands in probably various sites.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:** No infrastructure or equipment other than general office equipment

- **List of Critical Facilities Owned by the Jurisdiction:** The KCSD has a rental agreement with the Knightsen Garden Club for using their Community Center for meetings.
- **Total Value of Critical Facilities—**The Knightsen Garden Club Community Center is valued at $1,200,000.
- **Current and Anticipated Service Trends—**Future population growth will depend on a number of factors, including the County general plan for the area that currently calls for continued low density, rural land use in Knightsen. Projected growth for the Knightsen Town CSD is expected to be less than one percent annually. Density will greatly increase the need for flood control. Knightsen is outside of the urban limit line so growth and development is limited.

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

33.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 33-1 lists all past occurrences of natural hazards within the jurisdiction.

33.4 HAZARD RISK RANKING

Table 33-2 presents the ranking of the hazards of concern.

33.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- County Building codes & ordinances
- Public Works Dept- Flood Control
- Contra Costa Storm Water C3
- Clean Water Program
- Community Development SWCP
- State Water Resources Control Board
- Contra Costa Watershed Program
- Real estate disclosures
- Contra Costa County Operational Area Hazard Mitigation Plan
- Knightsen Feasibility Study was done by Philip Williams & Associates. The study was revisited and updated, broken down into uncompleted tasks that can be combined and costs of each tasks noted in 2010 dollars. The District continues working at the end goal of an established system.

- East County Integrated Regional Water Management Plan has the Knightsen bio-filter plan for possible 2008-2013 funding.
- Planning Partner, Public Works Floodplain Manager Rich Lierly
- Agreement of Understanding between KCSD and Ronald Nunn Farms, aid emergency pumping of storm water.
- Planning and Agreement between KCSD and Veale Tract Reclamation District
- KCSD is beginning work on a preparedness plan for the Knightsen area.
- Publish informational flyers or notices

33.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 33-3.

33.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 33-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 33-5 identifies the priority for each initiative. Table 33-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

33.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

- More detailed and accurate recording of hazard events in the KCSD is needed.
- Better understanding of the multitude of levees around the district.
- More information is needed about the potential disaster from the Los Vaqueros Dam expansion to better prepare for any ramifications.

33.9 ADDITIONAL COMMENTS

Knightsen Service District has only been in existence since July of 2005. There were not any official records or statistics kept on any hazards.

Some historic photos documented there had been flooding and drainage issues since and probably prior to 1940s. All agricultural losses have been blended with other governances and listed as county losses. The ability to parse out data by town, district or zip code is nearly impossible. The local surrounding communities, county agencies, state departments and national agencies have been contacted to isolate just the Knightsen area or Knightsen/Brentwood area. The Farm Bureau, County Agriculture Department, State Ag Dept., Sheldus-calling HVRI in South Carolina, NASS and finally Chief Commissioner County Ag was consulted and agreed to examine the Contra Costa Agriculture Report for 2008 listing crop losses and calculated an estimated percent our area represented in the county. Property losses were untraceable without individual property owner names.

TABLE 33-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment[a]
Flooding	NA	1/1/2006	No estimates available
Flooding	NA	12/31/2005	No estimates available
Flooding	NA	2/13/2000	No estimates available
Severe Weather, Wind	NA	12/9/1995	$500,000
Flooding	NA	1/20/1993	No estimates available
Flooding	NA	1/13/1993	$55,556
Flooding	NA	5/28/1990	No estimates available
Flooding	FEMA-758	2/17/1986	No estimates available
Severe Weather	NA	12/3/1983	$3,125
Severe Weather, Thunderstorm, Wind	NA	2/26/1983	$104
Severe Weather, Flooding	NA	1/25/1983	$3,846
Flooding	NA	3/30/1982	$167
Flooding	NA	1/3/1982	$714
Severe Weather, Flooding	NA	1/9/1980	$1,041

a. Source of data is Sheldus. Only crop losses are in the "estimated damages" column. Knightsen crops are 35% of each loss in the "Estimated Damages Column". Irretrievable property damages

TABLE 33-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flooding	54
2	Severe Weather	54
3	Drought	54
4	Earthquake	51
5	Dam Failure	9
6	Landslide	0
7	Wildfire	6

TABLE 33-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 33-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Study, design and construct drainage system						
New	Flood, Severe Weather, Earthquake	5, 11, 15, 16	KCSD	2.5 M, +land ,	HMGP, ECIRWMP, other	Short-term
Initiative 2—Retrofit Knightsen Garden Club Community Center						
Existing,	Flood, Severe Weather, Earthquake	6, 16	KCSD	$250,000	PDM, HMGP	Short-term
Initiative 3—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 5—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 33-5.
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	5	High	High	Yes	Yes	No	High
2	2	High	High	Yes	Yes	No	High
3	16	Medium	Low	Yes	No	No	High
4	16	Medium	Low	Yes	Yes	Yes	High
5	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 33-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 34.
RECLAMATION DISTRICT 800 (BYRON TRACT) ANNEX

34.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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34.2 JURISDICTION PROFILE

Reclamation District 800, Byron Tract (RD 800) is one of 60 major islands or tracts ranging in size from a few acres to 15,000 acres that make up the Sacramento/San Joaquin Delta. The District itself is 6,933 acres protected by 18.9 miles of levees.

In 1909, the West-Wilhoit Company, based in Stockton, petitioned the Board of Supervisors of Contra Costa County to have the lands bounded by Italian Slough on the south, Old River on the east and Indian Slough on the north to be formed into a reclamation district in accordance with the provisions of the Political Code of the State of California. The enactment of this petition formed the bulk of Reclamation District 800 as we know it today.

Reclamation District 800 is a Special District and is responsible for the operation and maintenance of its levee system. The District also manages drainage and water circulation within the lakes and lagoons of Discovery Bay by returning the water back into the Delta. Reclamation District 800 also reviews construction on and around levees and slopes within the District. The Reclamation District is governed by a 5-member Board of Trustees who are elected by the landowners within the District boundaries. The annual operating budget for RD 800 is approximately one million dollars. Funding for the District is from assessments, property taxes and reimbursements from the State of California.

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

- **Population Served—**Approximately 10,000 as of 2009
- **Land Area Served—**Approximately 6,933 acres or 10.8 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,298,647,420
- **Land Area Owned—**Willow Lake and various other small parcels throughout Discovery Bay
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 18.9 Miles of Levees Approximately $100,000,000
  - 3 pumping stations Approximately $2,500,000
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $102,500,000

- **Current and Anticipated Service Trends—**There is no growth currently, however the district anticipates new development within the next 10 years.

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

The district is located in Contra Costa County, approximately 20 miles west of Stockton and 60 miles east of San Francisco. District land is bordered by the Italian Slough on the south, Old River on the east and Indian Slough on the north. Portions of Highway 4 are within the district's boundaries.

34.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 34-1 identifies some known past occurrences of natural hazards within the jurisdiction.

34.4 HAZARD RISK RANKING

Table 34-2 presents the ranking of the hazards of concern.

34.5 APPLICABLE REGULATIONS AND PLANS

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

- US Army Corps of Engineers
- California Department of Public Health
- California and US Environmental Protection Agencies
- California Environmental Quality Act
- Federal Endangered Species Act
- California Department of Water Resources
- RD 800's Flood Emergency Operations Manual
- California Department of Water Resources Flood Emergency Operations Manual

34.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 34-3.

34.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 34-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 34-5 identifies the priority for each initiative. Table 34-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 34-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Flooding	FEMA-1628-DR	1/1/2006	No estimates available
Flooding, Severe Weather	NA	1/3/1982	No estimates available
Earthquake	NA	1/1980	No estimates available

TABLE 34-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood- Including Levee Failure	32
2	Earthquake	14
3	Severe Weather	13
4	Dam Failure	0
5	Landslide	0
6	Drought	0
7	Wildfire	0

TABLE 34-3.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	No	NA	NA
Storm Ready	No	NA	NA
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

TABLE 34-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #1—Retrofit levees and equipment to achieve 200-year flood protection						
New & Existing	Flood	1, 2, 7, 10, 15	RD 800	$3,000,000	District Funds, Assessments, Taxes	Long-term
Initiative #2—Adopt higher standards to meet 200-year flood protection criteria						
New	Flood	10, 11, 12, 13	RD 800	Low	District Funds, Assessments, Taxes, HMGP	Long-term
Initiative #3—Support County-wide initiatives identified in Volume 1						
New & Existing	All Hazards	All	County	Low	District Funds	Short-term, ongoing
Initiative #4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short-term, ongoing
Initiative #5—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	1, 8, 12, 16	County	Low	District Funds	Short-term, ongoing

TABLE 34-5.
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	5	High	High	Yes	No	Yes	High
2	4	High	Low	Yes	Yes	No	High
3	16	Medium	Low	Yes	No	No	High
4	16	Medium	Low	Yes	Yes	Yes	High
5	4	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 34-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 35.
RECLAMATION DISTRICT 830 (JERSEY ISLAND) ANNEX

35.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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35.2 JURISDICTION PROFILE

Reclamation District No. 830 was formed on March 11, 1911 as an independent special district. The District was formed to provide levee and drainage maintenance services to Jersey Island. Jersey Island is a 3,572 acre island located 6 miles east of Antioch in the western Sacramento-San Joaquin Delta. RD No. 830 maintains 16 miles of levee. The District is governed by a three member elected Board of Trustees voted on by the land owners. The District levy's an annual Operation and Maintenance Assessment on landowners and easement holders in order to fund maintenance of the levee system. The District also receives funds from the California Department of Water Resources to reimburse maintenance costs and fund levee rehabilitation projects. These funds are from the DWR Subventions Program and Special Projects Program. There are no District employees. Employees and equipment are contracted with Ironhouse Sanitary District.

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

- **Population Served—**Not applicable
- **Land Area Served—**3,572 acres, 16 miles of levee and 420 acres of easements
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $17,500,000
- **Land Area Owned—**Ironhouse Sanitary District owns 3,527 acres and Delta Properties Inc. owns 50 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 16 miles of levee infrastructure
  - 3 discharge pumps
  - 1 CAT Dozer
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $16,400,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Office and Shop area
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $200,000.

- **Current and Anticipated Service Trends—**Current service protects Jersey Island from flooding. There is no possibility of expanding the service area as it is an island.

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

35.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 35-1 lists all past occurrences of natural hazards within the jurisdiction.

35.4 HAZARD RISK RANKING

Table 35-2 presents the ranking of the hazards of concern.

35.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- Regional Water Quality Board
- California Department of Water Resources
- US Army Corps of Engineers
- California Fish and Game
- US Coast Guard
- Contra Costa County Operational Area Hazard Mitigation Plan
- Jersey Island Management Plan

35.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 35-3.

35.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 35-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 35-5 identifies the priority for each initiative. Table 35-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 35-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Severe Weather, Levee Damage	NA	2006	$450,000
Severe Weather, Levee Damage	NA	1997	$300,000
Severe Weather, Levee Damage	NA	1983	$200,000

TABLE 35-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Earthquake	54
3	Severe Weather	54
4	Wildfire	6
5	Drought	6
6	Landslide	0
7	Dam Failure	0

TABLE 35-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 35-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Rehabilitate 10 miles of levee						
Existing	Earthquake, Flood, Severe Weather	1, 2, 7, 13, 15, 16	RD 830	$10 mil	RD 830, DWR	Long Term
Initiative 2—Relocate discharge pump station						
Existing	Flood	1, 2, 7, 13, 15, 16	RD 830	$1 mil	RD 830, DWR, HMGP, PDM	Long Term
Initiative 3—Mitigation for vegetation removal						
Existing	Flood	1, 10, 13, 16	RD 830	$1 mil	RD 830, DWR	Short Term
Initiative 4—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 5—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 6—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 35-5.
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	6	High	Medium	Yes	No	No	Medium
2	6	High	Medium	Yes	Yes	No	Medium
3	5	High	Medium	Yes	No	No	Medium
4	16	Medium	Low	Yes	No	No	High
5	16	Medium	Low	Yes	Yes	Yes	High
6	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 35-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

PART 8—
PARKS AND MULTI-PURPOSE SPECIAL PURPOSE DISTRICT ANNEXES

CHAPTER 36.
KENSINGTON POLICE PROTECTION AND COMMUNITY SERVICE DISTRICT ANNEX

36.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Gregory E. Harman, General Manager/Chief of Police
217 Arlington Avenue
Kensington, CA 94707
Telephone: 510-526-4141
e-mail Address: gharman@kensingtoncalifornia.org

36.2 JURISDICTION PROFILE

The Kensington Police Protection and Community Services District (KPPCSD) provides police protection, waste collection, and park services to the unincorporated community of Kensington. KPPCSD was formed in 1946 as the Kensington Police District under the Health and Safety Code. The District expanded its services to include park and recreation services in 1955. In 1981, voters approved adding trash collection and disposal. In 1933, voters approved changing the name of the District to Kensington Police Protection and Community Services District.

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

- **Population Served—**The District serves a population of just over 5,000, with a projected population growth rate from 2008 to 2030 of 2 percent.
- **Land Area Served—**Kensington is a special district that consists of approximately one square mile in west Contra Costa County, bordered by the cities of Berkeley, Albany, El Cerrito, and Tilden Park.
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,200,000,000 based on 2008 property tax values.
- **Land Area Owned—**The District owns a 10-acre park, which contains three buildings used for public use, tennis courts, basketball courts, picnic areas, and a children's playground.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - The Community Center- This building is also designated as an evacuation shelter
  - The Annex Building- This building has been used as an Emergency Operations Center in the past
  - Building E- Currently leased to the Kensington Community Council for recreational programs
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $952,500 per insurance coverage to replace listed buildings.

- **Current and Anticipated Service Trends—**The District will continue to provide law enforcement protection to the community as well as provide park and recreational services and solid waste collection.

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

36.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 36-1 lists all past occurrences of natural hazards within the jurisdiction.

36.4 HAZARD RISK RANKING

Table 36-2 presents the ranking of the hazards of concern.

36.5 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 US Environmental Protection Agencies
- California Code of Regulations
- Federal Endangered Species Act
- California Environmental Quality Act (CEQA)
- Contra Costa County Operational Area Hazard Mitigation Plan
- City of El Cerrito Emergency Operations Plan; Kensington Annex dated February 2007

36.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 36-3.

36.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 36-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 36-5 identifies the priority for each initiative. Table 36-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 36-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster #	Date	Preliminary Damage Assessment
Earthquake	NA	10/30/2007	No estimates available
Wildfire	NA	10/20/1991	No damage in Kensington/Fire stopped at Berkeley border
Earthquake	FEMA-845	10/17/1989	$1,000,000

TABLE 36-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Wildfire	54
3	Dam Failure	54
4	Landslide	54
5	Flood	6
6	Severe Weather	6
7	Drought	6

TABLE 36-3.
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
Tsunami Ready	No	N/A	N/A

TABLE 36-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative 1—Structural Engineers Analysis of Community Center						
Existing	Earthquake	1, 2, 3, 7	KPPCSD	$10,000	KPPCSD, PDM, Private, HMGP	Short-term
Initiative 2—Structural Retrofit of Community Center						
Existing	Earthquake	1, 2, 3, 7	KPPCSD	$100,000	KPPCSD, PDM, Private, HMGP	Short-term
Initiative 3—Structural Engineers Analysis of Annex Building						
Existing	Earthquake	1, 2, 3, 7	KPPCSD	$2,500	KPPCSD, EBRPD, PDM, HMGP	Short-term
Initiative 4—Structural Retrofit of Annex Building						
Existing	Earthquake	1, 2, 3, 7	KPPCSD	$25,000	KPPCSD, EBRPD, PDM, HMGP	Short-term
Initiative 5—Fuel Reduction along EBRPD border						
Existing	Wildfire	1, 2, 3, 7	KPPCSD	$100,000	PDM	Short-term
Initiative 6—Utility undergrounding						
Existing	Earthquake/ Wildfire	1, 2, 3, 7	KPPCSD	$39 Million	PDM, District Bond	Long-term
Initiative 7—Support County-wide initiatives identified in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds	Short Term, ongoing
Initiative 8—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	County	Low	District Funds, FEMA Mitigation Grant Funding for 5-year update	Short Term, ongoing
Initiative 9—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan						
New & Existing	All Hazards	4, 5, 14	County	Low	District Funds	Short Term, ongoing

TABLE 36-5.
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	Yes	Yes	High
2	4	High	Low	Yes	Yes	Yes	High
3	4	High	Low	Yes	Yes	Yes	Medium
4	4	High	Low	Yes	Yes	Yes	Medium
5	4	High	High	Yes	Yes	No	Low
6	4	High	High	Yes	Yes	No	Low
7	16	Medium	Low	Yes	No	No	High
8	16	Medium	Low	Yes	Yes	Yes	High
9	3	Low	Low	Yes	No	Yes	High

a. Explanation of priorities
- 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).

TABLE 36-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

CHAPTER 37.
PLEASANT HILL RECREATION AND PARK DISTRICT ANNEX

37.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mr. Bob Berggren, General Manager
147 Gregory Lane
Pleasant Hill, CA 94523
Telephone: (925)682-0896
e-mail Address: bberggren@pleasanthillrec.com

Alternate Point of Contact

Mr. Mark Blair, Accounting Supervisor
147 Gregory Lane
Pleasant Hill, CA 94523
Telephone: (925)682-0896
e-mail Address: mblair@pleasantrec.com

37.2 JURISDICTION PROFILE

Pleasant Hill Recreation and Parks District is a special taxing district within Contra Costa County established in January of 1951 by citizens who desired recreational opportunities and park facilities within their community. The District is committed to providing park facilities, open space, programs, and activities to the citizens of Contra Costs County. The District is governed by the Public Resources Code of the State of California and operates as a Special District, an independent local governmental agency separate from the City of Pleasant Hill. A Board of Directors establishes policy for the District. The Board of Directors is made up of five elected officials. They are elected by residents within District boundaries during the general election of the even years in November. Each member serves a four-year term and the terms are staggered so as to have three members' terms expire in one election and the remaining members on the alternative date. There is also an appointed ex-officio member from a high school in the District. Board members serve on board committees and work with the staff on youth-related activities. Day to day operations of the District are overseen by a general manager.

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

- **Population Served—**Approximately 40,000 as of January 1, 2010
- **Land Area Served—** The entirety of the City of Pleasant Hill. Portions of the district include small areas of the cities of Lafayette, Walnut creek and the unincorporated area of Walden. The jurisdictional area of the District encompasses approximately 8.8 square miles, or 5,616 acres.
- **Value of Area Served—**The total assessed value for the City of Pleasant hill as of January 2010 was $4,049,489,000.
- **Land Area Owned—** 269 acres of park land is owned and maintained by the District.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Pleasant Hill Community Center, 320 Civic Dr., Pleasant Hill
  - Pleasant Hill Senior Center, 233 &249 Gregory Lane, Pleasant Hill
  - Winslow Center, 2590 Pleasant Hill Road, Pleasant Hill
  - District Office, 147 Gregory Lane, Pleasant Hill

  - School House, 2050 Oak Park Blvd, Pleasant Hill
  - Kidstop, 200 Harriet Dr., Pleasant Hill
  - Rogers Ranch, 315 Corsten Rd., Pleasant Hill
  - Pleasant Hill Park, 147 Gregory Lane, Pleasant Hill
  - Rodgers-Smith Park, Grayson Road, Pleasant Hill
  - Pleasant Oaks Park, Santa Barbara Road, Pleasant Hill
  - Paso Nagal Park, Paso Nagal Road, Pleasant Hill
  - Brookwood Park, Taylor Blvd. & Withers Ave., Pleasant Hill
  - Frank Salfingere Park, Taylor Blvd. &Ruth Ave., Pleasant Hill
  - Chilpancingo Park, Golf Club Road, Pleasant Hill
  - Shadowood Park, Spar Court, Pleasant Hill
  - Shannon Hills Park, Devon Ave., Pleasant Hill
  - Dinosaur Park, Taylor Blvd, Pleasant Hill

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $15,750,000
- **Current and Anticipated Service Trends—**Current and anticipated service trends are projected to be relatively flat with annual population growth projected at only 1%. However, the voters passed a $28 million general obligation bond measure in 2009 for facility upgrades (new Community Center, new Senior Center, new Teen Center and upgrades at various park sites). Construction of these new facilities will begin in 2011 with scheduled completion dates ranging from 2013 to 2015 for various projects. It is anticipated that these new facilities will increase participation in District programs and events that will draw from both within the District and the surrounding communities. It should be noted that all new facilities will be sited and constructed taking risk and vulnerability information contained in this plan into consideration.

The Pleasant Hill Recreation and Park District facilities and boundaries can be viewed on-line at:

- http://www.360villagevirtualtours.com/phparks/phparkstour.html

37.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 37-1 lists all past occurrences of natural hazards within the jurisdiction.

37.4 HAZARD RISK RANKING

Table 37-2 presents the ranking of the hazards of concern.

37.5 APPLICABLE REGULATIONS AND PLANS

The District does not possess permit authority for the construction of habitable structures. Construction Codes administered by the municipalities for which the District has facilities located will be adhered to according to their building permit protocol.

37.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 37-3.

37.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 37-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 37-5 identifies the priority for each initiative. Table 37-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

37.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Pleasant Hill Park and Pleasant Oaks Park are both located within the Contra Costa County identified flood hazard area. Any efforts to address these flood concerns would need to be coordinated with numerous other agencies for drainage improvement plans.

37.9 ADDITIONAL COMMENTS

The bond measure passed by voters in 2009 will fund the construction new facilities which will replace existing district facilities, some of which range up to 60 years old and demonstrate safety concerns for the District. This bond measure provides an opportunity for the district to leverage this funding with mitigation grant opportunities. These updated facilities will not only benefit the district and its customers, they will also be available for the general public in need of shelter in the event of a natural disaster.

TABLE 37-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Landslide	N/A	December, 2005	$21,000
Landslide	N/A	January, 1999	$25,000
Earthquake		10/17/1989	No major damage sustained by District facilities.

TABLE 37-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	21
2	Landslide	18
3	Flood	12
4	Dam Failure	12
5	Severe weather	12
6	Wildfire	9
7	Drought	6

TABLE 37-3.
COMMUNITY CLASSIFICATIONS

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

TABLE 37-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #PHRPD-1— Perform a seismic structural retrofit of the Winslow Center.						
Existing	Earthquake	1,7,15	PHRPD Board	High	FEMA mitigation grant, loans, bond measure	Short-term, depends on funding
Initiative # PHRPD-2— Perform a seismic structural retrofit of Schoolhouse.						
Existing	Earthquake	1,7,15	PHRPD Board	High	FEMA mitigation grant, loans, bond measure	Short-term, depends on funding
Initiative # PHRPD-3—Perform a seismic structural retrofit of District Office						
Existing	Earthquake	1, 7, 15	PHRPD Board	High	FEMA mitigation grant, loans, bond measure	Short-term, depends on funding
Initiative # PHRPD-4—Implement appropriate flood control/drainage improvement project to reduce the impacts of flooding on Pleasant Hill Park.						
Existing	Flood, Dam Failure	1, 10	PHRPD Board, CCCFCD	High	FEMA mitigation grant, loans, bond measure	Long-term, depends on funding
Initiative # PHRPD-5— Implement appropriate flood control/drainage improvement project to reduce the impacts of flooding on Pleasant Hill Park.						
Existing	Flood, Dam Failure	1, 10	PHRPD Board, CCCFCD	High	FEMA mitigation grant, loans, bond measure	Long-term, depends on funding
Initiative # PHRPD-6— Support County-wide initiatives identified in Volume 1						
New & Existing	All Hazards	All	PHRPD Board	Low	General fund	Short-term, ongoing

TABLE 37-4 (continued).
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative # PHRPD-7— Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1.						
New & Existing	All Hazards	All	PHRPD Board	Low	General fund, FEMA mitigation grant funding for 5-year update	Short-term, ongoing
Initiative #PHRPD-8— Partner with other local governments in educating the citizens on the potential consequences associated with natural hazards and the opportunities to mitigate their impacts.						
New and Existing	All Hazards	3,6,16	PHRPD Board	Low	District General Fund	Short-term, ongoing

TABLE 37-5.
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]
PHRPD-1	3	High	High	Yes	Yes	No	Medium
PHRPD-2	3	High	High	Yes	Yes	No	Medium
PHRPD-3	3	High	High	Yes	Yes	No	Medium
PHRPD-4	2	High	High	Yes	Yes	No	Medium
PHRPD-5	2	High	High	Yes	Yes	No	Medium
PHRPD-6	16	Medium	Low	Yes	No	Yes	High
PHRPD-7	16	Medium	Low	Yes	No	Yes	High
PHRPD-8	3	Low	Low	Yes	Yes	Yes	High

a. Explanation of priorities
- 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).

TABLE 37-6.
ANALYSIS OF MITIGATION INITIATIVES

	Initiative Addressing Hazard, by Mitigation Type					
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Drought	PHRPD6, PHRPD7		PHRPD8			
Earthquake	PHRPD6, PHRPD7	PHRPD1, PHRPD2, PHRPD3	PHRPD8			
Flood	PHRPD6, PHRPD7		PHRPD8			PHRPD4, PHRPD5
Landslide	PHRPD6, PHRPD7		PHRPD8			
Severe Weather	PHRPD6, PHRPD7		PHRPD8			
Dam Failure	PHRPD6, PHRPD7		PHRPD8			
Wild Fire	PHRPD6, PHRPD7		PHRPD8			

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

Contra Costa County

Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

APPENDIX A.
PLANNING PARTNER EXPECTATIONS

May 2011

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 10 individual plans or 1 large plan that has a chapter for each partner jurisdiction, the following items must be addressed to achieve DMA compliance for each Coalition member:

- ✓ **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.**

- ✓ **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 compliment the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).**

- ✓ **Personalize the Risk Assessment for each jurisdiction. Remove hazards not associated with the defined jurisdictional area or redefine 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.**

- ✓ **Each jurisdiction must present the Plan to the public for comment at least once, within 2 weeks prior to adoption.**

- ✓ **Plan must be adopted**

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 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 Humboldt County 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, media such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy formed 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 tracked. These attendance records will be used to track and 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 opportunities.

F. There will be 1 ***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.

H. All technical studies, plans, ordinances specific to hazards identified within the defined planning area. Each partner will be expected to perform a "consistency review" of all such documents to determine the existence of plans, studies or ordinances 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 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.

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

Crescent City-Del Norte County Hazard Mitigation Planning Partnership
C/O Rob Flaner, Tetra Tech, Inc.
90 South Blackwood Ave.
Eagle, ID 83616

Dear Contra Costa County Planning Partnership,

Please be advised that the _____ (***insert City or district name***) is committed to participating in the update to the Contra Costa County All 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

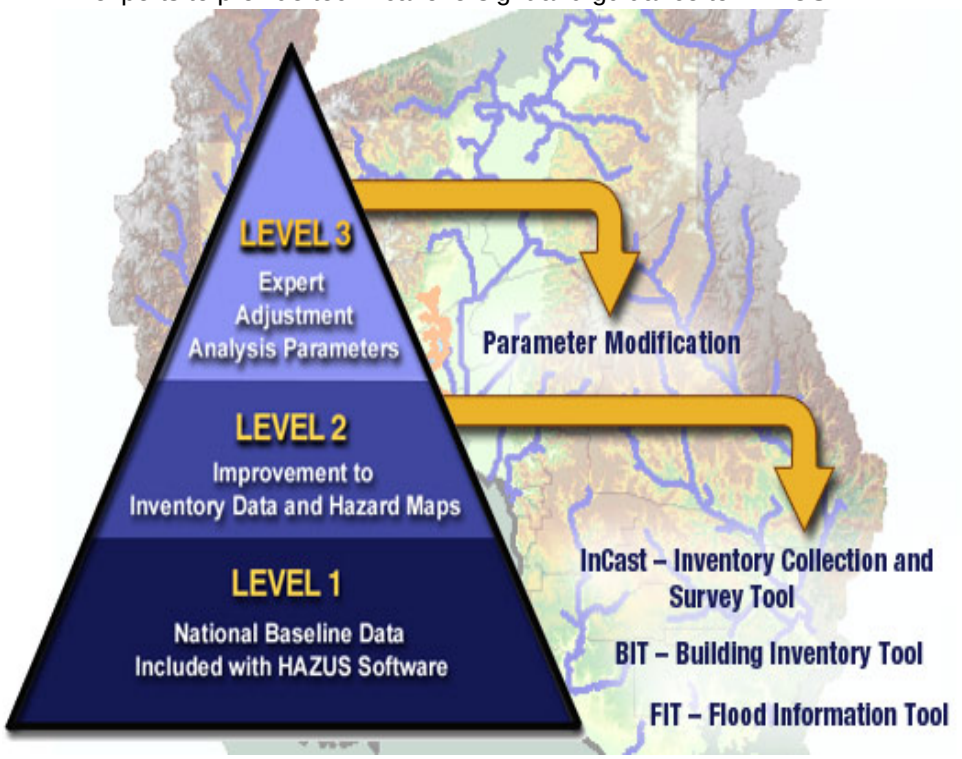
Name	Role	Representing	Address	Phone	e-mail
Rob Flaner	Project Manager	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	Rob.flaner@tetratech.com
Rich Lierly	County POC	Department of Public Works	Flood Control Division 255 Glacier Dr. Martinez, CA 94533-4825	(925)313-2348	rlier@pw.cccounty.us
Chris Boyer	Emergency Management Lead	OES	50 Glacier Dr. Martinez, CA 94553	(925)646-4461	cboye@so.cccounty.us
Ed Whitford	GIS/HAZUS	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.



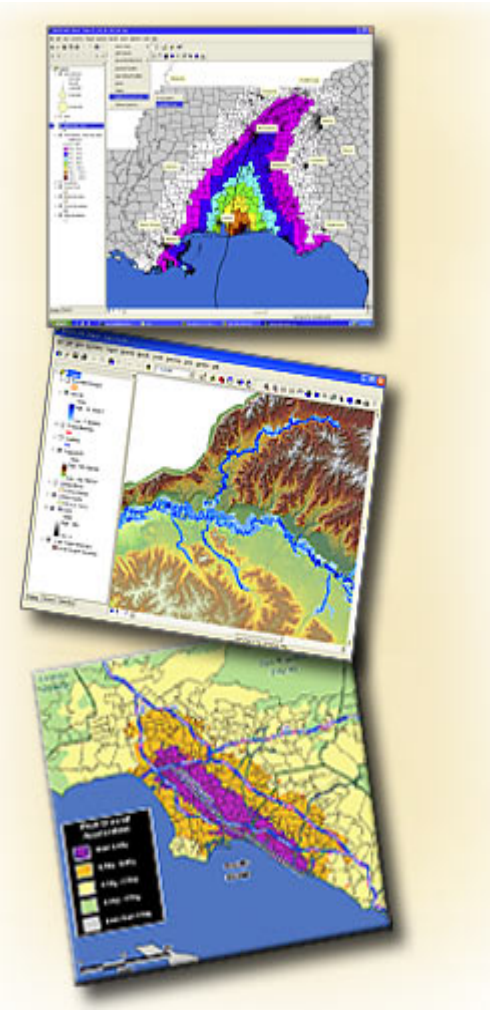
HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations. The 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.

Find brochures, presentations, and additional information about HAZUS-MH at the HAZUS Library.

Contra Costa County

Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

APPENDIX B. PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

May 2011

APPENDIX B.
PROCEDURES FOR LINKING TO THE HAZARD MITIGATION PLAN

Not all eligible local governments within Contra Costa County are included in the Contra Costa County Hazard Mitigation Plan. It is assumed that some or all of these non-participating local governments may chose to "link" to the Plan at some point to gain eligibility for programs under the DMA. 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 44CFR.

INCREASING THE PARTNERSHIP THROUGH LINKAGE

The annual time period for the linkage process will be from February 1 to the last calendar work day of April 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 (44CFR), 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 the California Office of Emergency Services (CAOES).
- Plans approved and accepted by the Steering Committee will be forwarded to the CAOES 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.
- CAOES will reviews plans for federal compliance. Non-Compliant plans are returned to the Lead agency for correction. Compliant plans are forwarded to FEMA Region IX office for review with annotation as to the adoption status.

- FEMA Region IX reviews the new jurisdiction's plan in association with the approved plan to ensure DMA compliance. Region IX notifies new jurisdiction of results of review with copies to CAOES and approved planning authority.
- New jurisdiction corrects plans shortfalls (if necessary) and resubmits to CAOES through the approved plan lead agency.
- For plans with no shortfalls from the Region IX review that have not been adopted, the new jurisdiction governing authority adopts the plan (if not already accomplished) and forwards adoption resolution to Region IX with copies to lead agency and CAOES.
- Region IX 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 CAOES and FEMA Region IX 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. It should be noted that 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 Partners 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 5 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.

Contra Costa County

Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

APPENDIX C.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE FOR MUNICIPALITIES

May 2011

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 jurisdiction

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.

(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 or Comprehensive Plan					
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
Habitat Conservation Plan					
Economic Development Plan					
Emergency Response Plan					
Shoreline Management Plan					
Post Disaster Recovery 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			
Tsunami Ready			

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. Explanation of priorities
- 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).

TABLE X-9.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

Contra Costa County

Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

APPENDIX D.
JURISDICTIONAL ANNEX INSTRUCTIONS AND TEMPLATE FOR MUNICIPALITY UPDATES

May 2011

INSTRUCTIONS FOR COMPLETING MUNICIPALITY UPDATE 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 jurisdiction

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.

(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).
- Enter "Yes" or "No" to indicate whether this initiative was included in the previous version of this hazard mitigation plan.

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.

STATUS OF PREVIOUS PLAN INITIATIVES

In this section, provide a status report of actions recommended in your previous hazard mitigation plan. You must be able to reconcile your original action plan to meet FEMA requirements for plan updates. Enter all the recommended actions from your previous plan in Table X-10 and put an X in one of the following three columns for each action to indicate its status:

- **Completed**—If the action has been completed, place a check mark in this column and enter a brief explanation in the "Comments" column (e.g., "Action #WC31 was completed by the Public Works Department on 3/12/2009"). Ongoing actions, such as annual outreach projects or maintenance activities, should also be indicated as "Completed," with a statement about the ongoing nature of the action provided in the "Comments" column (e.g., "Ongoing action, implemented annually by Community Development Department").
- **Carry Over to Plan Update**—If you did not complete an action and want to carry it over to your updated action plan, place a check mark in this column, and enter an explanatory statement in the comment section (e.g., "Action carried over as Action #WC14 in updated action plan").
- **Removed; No Longer Feasible**—If you want to remove an action because you have determined that it is no longer feasible, place a check mark in this column. "No longer feasible" means that you have determined that you do not have the capability to implement the action or that the action does not serve the best interest of your jurisdiction. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., "Action no longer considered feasible due to lack of political support to complete it.:)

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 STATUS OF PREVIOUS PLAN INITIATIVES

Table X-10 summarizes the initiatives that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

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.
LEGAL AND REGULATORY CAPABILITY

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

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	Included in Previous Plan?
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. Explanation of priorities
- 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).

TABLE X-9.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

TABLE X-10.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments

Contra Costa County

Hazard Mitigation Plan

Volume 2: Planning Partner Annexes

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

May 2011

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			
Tsunami Ready			

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. Explanation of priorities
- 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).

TABLE X-6.
ANALYSIS OF MITIGATION INITIATIVES

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

Notes:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

Contra Costa County
Hazard Mitigation Plan
Volume 2: Planning Partner Annexes

APPENDIX F.
STRATEGY LIST FROM ASSOCIATION OF BAY AREA GOVERNMENTS LOCAL HAZARD MITIGATION PLAN

May 2011

APPENDIX F.
STRATEGY LIST FROM ASSOCIATION OF BAY AREA GOVERNMENTS LOCAL HAZARD MITIGATION PLAN

Number	Specific Mitigation Strategy
Infrastructure: Multi-Hazard	
INFR-a-1	Assess the vulnerability of critical facilities designated by lifeline operators to damage in natural disasters or security threats, including facilities owned outside of the Bay Area that can impact service delivery within the region. **Note** - Lifeline agencies, departments, and districts are those that operate transportation and utility facilities and networks.
INFR-a-2	Comply with State of California and federal requirements to assess the vulnerability of dams to damage from earthquakes, seiches, landslides, liquefaction, or security threats.
INFR-a-3	Encourage the cooperation of utility system providers and cities, counties, and other special districts to develop strong and effective mitigation strategies for infrastructure systems and facilities.
INFR-a-4	Retrofit or replace critical lifeline facilities and/or their backup facilities that are shown to be vulnerable to damage in natural disasters.
INFR-a-5	Support and encourage efforts of ***other*** (lifeline) agencies as they plan for and arrange financing for seismic retrofits and other disaster mitigation strategies. (For example, a city might pass a resolution in support of a transit agency's retrofit program.)
INFR-a-6	Plan for speeding the repair and functional restoration of lifeline systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water Agency Response Network (WARN).
INFR-a-7	Engage in, support, and/or encourage research by others on measures to further strengthen transportation, water, sewer, and power systems so that they are less vulnerable to damage in disasters.
INFR-a-8	Pre-position emergency power generation capacity (or have rental/lease agreements for these generators) in critical buildings of cities, counties, and special districts to maintain continuity of government and services.
INFR-a-9	Have back-up emergency power available for critical intersection traffic lights.
INFR-a-10	Develop unused or new pedestrian rights-of-way as walkways to serve as additional evacuation routes (such as fire roads in park lands).
INFR-a-11	Coordinate with PG&E and others to investigate ways of minimizing the likelihood that power interruptions will adversely impact vulnerable communities, such as the disabled and the elderly.
INFR-a-12	Encourage replacing aboveground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new phone and electrical utility lines are installed underground.
INFR-a-13	Coordinate with the State Division of Safety of Dams to ensure an adequate timeline for the maintenance and inspection of dams, as required of dam owners by State law.
INFR-a-14	Encourage communication between State OES, FEMA, and utilities related to emergencies occurring outside of the Bay Area that can affect service delivery in the region.
INFR-a-15	Ensure that transit operators, private ambulance companies, cities, and/or counties have mechanisms in place for medical transport during and after disasters that take into consideration the potential for reduced capabilities of roads following these same disasters.

Number	Specific Mitigation Strategy
INFR-a-16	Effectively utilize the Transportation Management Center (TMC), the staffing of which is provided by Caltrans, the CHP and MTC. The TMC is designed to maximize safety and efficiency throughout the highway system. It includes the Emergency Resource Center (ERC) which was created specifically for primary planning and procedural disaster management.
Infrastructure: Earthquakes	
INFR-b-1	Expedite the funding and retrofit of seismically-deficient city- and county-owned bridges and road structures by working with Caltrans and other appropriate governmental agencies.
INFR-b-2	Establish a higher priority for funding seismic retrofit of existing transportation and infrastructure systems (such as BART) than for expansion of those systems.
INFR-b-3	Include "areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture" in the list of criteria used for determining a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history).
INFR-b-4	Install specially-engineered pipelines in areas subject to faulting, liquefaction, earthquake-induced landsliding, or other earthquake hazard.
INFR-b-5	Replace or retrofit water-retention structures that are determined to be structurally deficient.
INFR-b-6	Install portable facilities (such as hoses, pumps, emergency generators, or other equipment) to allow pipelines to bypass failure zones such as fault rupture areas, areas of liquefaction, and other ground failure areas (using a priority scheme if funds are not available for installation at all needed locations).
INFR-b-7	Install earthquake-resistant connections when pipes enter and exit bridges.
INFR-b-8	Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities.
INFR-b-9	Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake.
INFR-b-10	Examine the feasibility of developing a water-borne transportation "system" -- comprised mainly of relatively inexpensive barges -- across the Bay for use in the event of major earthquakes. Implementation of such a system could prove extremely useful in the event of structural failure of either the road-bridge systems or BART and might serve as an adjunct to existing transportation system elements in the movement of large numbers of people and/or goods.
Infrastructure: Wildfire	
INFR-c-1	Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development.
INFR-c-2	Develop a coordinated approach between fire jurisdictions and water supply agencies to identify needed improvements to the water distribution system, initially focusing on areas of highest wildfire hazard.
INFR-c-3	Develop a defensible space vegetation program that includes the clearing or thinning of (a) non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, or (b) all non-native species (such as eucalyptus and pine, but not necessarily oaks) within 30 feet of access and evacuation roads and routes to critical facilities.
INFR-c-4	Ensure all dead-end segments of public roads in high hazard areas have at least a "T" intersection turn-around sufficient for typical wildland fire equipment.
INFR-c-5	Enforce minimum road width of 20 feet with an additional 10-foot clearance on each shoulder on ***all*** driveways and road segments greater than 50 feet in length in wildfire hazard areas.

Number	Specific Mitigation Strategy
INFR-c-6	Require that development in high fire hazard areas provide adequate access roads (with width and vertical clearance that meet the minimum standards of the *Fire Code* or relevant local ordinance), onsite fire protection systems, evacuation signage, and fire breaks.
INFR-c-7	Ensure adequate fire equipment road or fire road access to developed and open space areas.
INFR-c-8	Maintain fire roads and/or public right-of-way roads and keep them passable at all times.
Infrastructure: Flooding	
INFR-d-1	Conduct a watershed analysis of runoff and drainage systems to predict areas of insufficient capacity in the storm drain and natural creek system.
INFR-d-2	Develop procedures for performing a watershed analysis to look at the impact of development on flooding potential downstream, including communities outside of the jurisdiction of proposed projects.
INFR-d-3	Conduct a watershed analysis at least once every three years.
INFR-d-4	Assist, support, and/or encourage the U.S. Army Corp of Engineers, various Flood Control and Water Conservation Districts, and other responsible agencies to locate and maintain funding for the development of flood control projects that have high cost-benefit ratios (such as through the writing of letters of support and/or passing resolutions in support of these efforts).
INFR-d-5	Pursue funding for the design and construction of storm drainage projects to protect vulnerable properties, including property acquisitions, upstream storage such as detention basins, and channel widening with the associated right-of-way acquisitions, relocations, and environmental mitigations.
INFR-d-6	Continue to repair and make structural improvements to storm drains, pipelines, and/or channels to enable them to perform to their design capacity in handling water flows as part of regular maintenance activities.
INFR-d-7	Continue maintenance efforts to keep storm drains and creeks free of obstructions, while retaining vegetation in the channel (as appropriate), to allow for the free flow of water.
INFR-d-8	Enforce provisions under creek protection, stormwater management, and discharge control ordinances designed to keep watercourses free of obstructions and to protect drainage facilities to confirm with the Regional Water Quality Control Board's Best Management Practices.
INFR-d-9	Develop an approach and locations for various watercourse bank protection strategies, including for example, (1) an assessment of banks to inventory areas that appear prone to failure, (2) bank stabilization, including installation of rip rap, (3) stream bed depth management using dredging, and (4) removal of out-of-date coffer dams in rivers and tributary streams.
INFR-d-10	Use reservoir sediment removal as one way to increase storage for both flood control and water supply.
INFR-d-11	Elevate critical bridges affected by flooding to increase stream flow and maintain critical access and egress routes.
INFR-d-12	Provide a mechanism to expedite the repair or replacement of levees that are vulnerable to collapse from earthquake-induced shaking or liquefaction, rodents, and other concerns, particularly those protecting critical infrastructure.
INFR-d-13	Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage.
INFR-d-14	Determine whether or not wastewater treatment plants are protected from floods, and if not, investigate the use of flood-control berms to not only protect from stream or river flooding, but also increasing plant security.
INFR-d-15	Work cooperatively with water agencies, flood control districts, Caltrans, and local transportation agencies to determine appropriate performance criteria for watershed analysis.

Number	Specific Mitigation Strategy
INFR-d-16	Work for better cooperation among the patchwork of agencies managing flood control issues.
INFR-d-17	Work cooperatively with upstream communities to monitor creek and watercourse flows to predict potential for flooding downstream.
Infrastructure: Landslides	
INFR-e-1	Include "areas subject to ground failure" in the list of criteria used for determining a replacement schedule (along with importance, age, type of construction material, size, condition, and maintenance or repair history) for pipelines.
INFR-e-2	Establish requirements in zoning ordinances to address hillside development constraints in areas of steep slopes that are likely to lead to excessive road maintenance or where roads will be difficult to maintain during winter storms due to landsliding.
Infrastructure: Building Reoccupancy	
INFR-f-1	Ensure that critical buildings owned or leased by special districts or private utility companies participate in a program similar to San Francisco's Building Occupancy Resumption Program (BORP). The BORP program permits owners of buildings to hire qualified structural engineers[1] to create facility-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster. This program allows rapid reoccupancy of the buildings. **Note** - A qualified structural engineer is a California licensed structural engineer with relevant experience.
Infrastructure: Public Education	
INFR-g-1	Provide materials to the public related to planning for power outages.
INFR-g-2	Provide materials to the public related to family and personal planning for delays due to traffic or road closures.
INFR-g-3	Provide materials to the public related to coping with reductions in water supply or contamination of that supply.
INFR-g-4	Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment.
INFR-g-5	Facilitate and/or coordinate the distribution of materials that are prepared by others, such as by placing materials in city or utility newsletters, or on community access channels, as appropriate.
Health: Hospitals and Other Critical Health Care Facilities	
HEAL-a-1	Work with critical health care facilities operators to ensure that critical facilities are structurally sound and have nonstructural systems designed to remain functional following disasters (as required for acute-care hospitals for earthquakes by State law).
HEAL-a-2	Encourage hospitals to work with the California Office of Statewide Health Planning and Development (OSHPD) to formalize arrangements with structural engineers to report to the hospital, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco's Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. OSHPD, rather than city/county building departments, has the authority and responsibility for the structural integrity of hospital structures.
HEAL-a-3	Ensure health care facilities are adequately prepared to care for victims with respiratory problems related to smoke and/or particulate matter inhalation.
HEAL-a-4	Ensure these health care facilities have the capacity to shut off outside air and be self-contained.
HEAL-a-5	Ensure that hospitals and other major health care facilities have auxiliary water and power sources.

Number	Specific Mitigation Strategy
HEAL-a-6	Work with health care facilities to institute isolation capacity should a need for them arise following a communicable disease epidemic.
HEAL-a-7	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging employees of these critical health care facilities to have family disaster plans and conduct mitigation activities in their own homes.
Health: Ancillary Health-Related Facilities	
HEAL-b-1	Work with State of California licensing agencies to identify these ancillary facilities in your community.
HEAL-b-2	Encourage these facility operators to develop disaster mitigation plans.
HEAL-b-3	Encourage these facility operators to create, maintain, and/or continue partnerships with local governments to develop response and recovery plans.
Health: Interface with National and State Health Care Initiatives	
HEAL-c-1	Designate locations for the distribution of antibiotics to large numbers of people should the need arise, as required to be included in each county's Strategic National Stockpile Plan.
HEAL-c-2	Ensure that you know the Metropolitan Medical Response System (MMRS) cities in your area. For example, Oakland and Fremont are the MMRS cities in Alameda County. MMRS cities are those cities that are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel.
HEAL-c-3	Know if any National Disaster Medical System (NDMS) uniformed or non-uniformed personnel are within one-to-four hours of your community. These federal resources include veterinary, mortuary, and medical personnel.
HEAL-c-4	Plan to utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agencies and Department of Defense laboratories in Berkeley (Lawrence Berkeley National Laboratory) or Livermore (Lawrence Livermore National Laboratory and Sandia) for confirmation of radiological agents.
Health: Environmental Health	
HEAL-d-1	Create discussion forums for food and health personnel, including, for example, medical professionals, veterinarians, and plant pathologists, to develop safety, security, and response strategies for food supply contamination.
HEAL-d-2	Train appropriate personnel to understand that the Metropolitan Medical Response System (MMRS) cities in your area. For example, Oakland and Fremont are the MMRS cities in Alameda County. MMRS cities are those cities that are provided with additional federal funds for organizing, equipping, and training groups of local fire, rescue, medical, and other emergency management personnel.
HEAL-d-3	Train appropriate personnel to know if any National Disaster Medical System (NDMS) uniformed or non-uniformed personnel are within one-to-four hours of your community. These federal resources include veterinary, mortuary, and medical personnel.
HEAL-d-4	Train appropriate personnel to know to utilize the State of California Department of Health Services laboratory in Richmond for confirmation of biological agents and Department of Defense laboratories in Berkeley (Lawrence Berkeley National Laboratory) or Livermore (Lawrence Livermore National Laboratory and Sandia) for confirmation of radiological agents.
Housing: Multi-Hazard	
HSNG-a-1	Be aware of past problems of inadequate hazard disclosure and work with real estate agents to improve enforcement of real estate disclosure requirements for those hazards covered by this plan, for example, by making those agents and the disclosure firms aware of the hazard maps incorporated in this plan and available on the ABAG web site at http://quake.abag.ca.gov/mitigation/, as well as locally developed maps.

Number	Specific Mitigation Strategy
HSNG-a-2	Create incentives for owners of historic or architecturally significant residential buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation*.
Housing: Single-Family Homes Vulnerable to Earthquakes	
HSNG-b-1	Utilize or recommend adoption of a retrofit standard that includes standard plan sets and construction details for voluntary bolting of homes to their foundations and bracing of outside walls of crawl spaces (cripple walls), such as that being developed by a committee representing the East Bay-Peninsula-Monterey Chapters of the International Code Council (ICC), California Building Officials (CALBO), the Structural Engineers Association of Northern California (SEAONC), the Northern California Chapter of the Earthquake Engineering Research Institute (EERI-NC), and ABAG's Earthquake Program.
HSNG-b-2	Require engineered plan sets for retrofitting of heavy two-story homes with living areas over garages, as well as for split level homes, until standard plan sets and construction details become available.
HSNG-b-3	Require engineered plan sets for retrofitting of homes on steep hillsides.
HSNG-b-4	Encourage local government building inspectors to take classes on a periodic basis (such as the FEMA-developed training classes offered by ABAG) on retrofitting of single-family homes.
HSNG-b-5	Encourage private retrofit contractors and home inspectors doing work in your area to take retrofit classes on a periodic basis(such as the FEMA-developed training classes offered by ABAG) on retrofitting of single-family homes.
HSNG-b-6	Conduct demonstration projects on common existing housing types demonstrating structural and nonstructural mitigation techniques as community models for earthquake mitigation.
HSNG-b-7	Provide retrofit classes or workshops for homeowners.
HSNG-b-8	Establish tool-lending libraries with common tools needed for retrofitting for use by homeowners with appropriate training.
HSNG-b-9	Provide financial incentives to owners of applicable homes to retrofit.
Housing: Soft-Story Multi-Family Residential Structures Vulnerable to Earthquakes	
HSNG-c-1	Require engineered plan sets for voluntary or mandatory soft-story retrofits until a standard plan set and construction details become available.
HSNG-c-2	Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory soft-story building retrofits.
HSNG-c-3	Work to educate condominium and apartment owners, local government staff, engineers, and contractors on soft-story retrofit procedures and incentives using materials such as those developed by ABAG (see http://quake.abag.ca.gov/fixit/) and the City of San Jose.
HSNG-c-4	Conduct an inventory of existing or suspected soft-story residential structures.
HSNG-c-5	Use the soft-story inventory to require owners to inform all existing tenants that they live in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will live in this type of building prior to signing a lease.
HSNG-c-6	Use the soft-story inventory to require owners to inform all existing tenants that they should be prepared to live elsewhere following an earthquake if the building has not been retrofitted.
HSNG-c-7	Investigate and adopt appropriate financial, procedural, and land use incentives for owners of soft-story buildings to facilitate retrofit such as those developed by ABAG (see http://quake.abag.ca.gov/fixit/).
HSNG-c-8	Explore development of local ordinances or State regulations to require or encourage owners of soft-story structures to strengthen them.
HSNG-c-9	Provide technical assistance in seismically strengthening soft-story structures.

Number	Specific Mitigation Strategy
Housing: Unreinforced Masonry Housing Stock	
HSNG-d-1	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform property owners that they own this type of hazardous structure.
HSNG-d-2	Accelerate retrofitting of unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory versus voluntary, retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.
HSNG-d-3	Require owners to inform all existing tenants that they live in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will live in this type of building prior to signing a lease.
HSNG-d-4	Require owners to inform all existing tenants that they should be prepared to live elsewhere following an earthquake even if the building has been retrofitted, for it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.
Housing: Other Privately-Owned Structurally Suspicious Residential Buildings and Earthquakes	
HSNG-e-1	Identify and work toward tying down mobile homes used as year-round permanent residences using an appropriate cost-sharing basis (for example, 75% grant, 25% owner).
HSNG-e-2	Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally suspicious residential buildings.
HSNG-e-3	Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory retrofit of seismically vulnerable buildings.
HSNG-e-4	Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned structurally deficient residential buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use and procedural incentives, or (f) technical assistance.
Housing: New Construction and Earthquakes	
HSNG-f-1	Continue to require that all new housing be constructed in compliance with structural requirements of the most recently adopted version of the *California Building Code*.
HSNG-f-2	Conduct appropriate employee training and support continued education to ensure enforcement of building codes and construction standards, as well as identification of typical design inadequacies of housing and recommended improvements.
Housing: Wildfire and Structural Fires	
HSNG-g-1	Increase efforts to reduce hazards in existing development in high wildfire hazard areas (identified as wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat) through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies.
HSNG-g-2	Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.
HSNG-g-3	Require that new homes in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat be constructed of fire-resistant building materials (including roofing and exterior walls) and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability. **Note** - See Structural Fire Prevention Field Guide for Mitigation of Wildfires at http://osfm.fire.ca.gov/structural.html.

Number	Specific Mitigation Strategy
HSNG-g-4	Develop financial incentives for homeowners to be "model" defensible space homes in neighborhoods that are wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
HSNG-g-5	Consider fire safety, evacuation, and emergency vehicle access when reviewing proposals to add secondary units or additional residential units in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
HSNG-g-6	Adopt and/or amend, as needed, updated versions of the *California Building and Fire Codes* so that optimal fire-protection standards are used in construction and renovation projects.
HSNG-g-7	Create a mechanism to enforce provisions of the *California Building and Fire Codes* and local housing codes that require the installation of smoke detectors and/or fire-extinguishing systems by making installation a condition of (a) finalizing a permit for any work on existing properties valued at over a fixed amount, such as $500 or $1000, and/or (b) a condition for the transfer of property if these changes are determined cost-effective strategies.
HSNG-g-8	Work to ensure a reliable source of water for fire suppression in rural-residential areas through the cooperative efforts of water districts, fire districts, and residents.
HSNG-g-9	Expand vegetation management programs in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat to more effectively manage the fuel load through roadside collection and chipping, mechanical fuel reduction equipment, selected harvesting, use of goats or other organic methods of fuel reduction, and selected use of controlled burning.
HSNG-g-10	Promote the installation of early warning fire alarm systems in homes wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat connected to fire department communication systems.
HSNG-g-11	Establish a Fire Hazard Abatement District to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.
HSNG-g-12	Work with residents in rural-residential areas to ensure adequate access and evacuation in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
HSNG-g-13	Require fire sprinklers in new homes located more than 1.5 miles or a 5-minute response time from a fire station or in an identified high hazard wildland-urban-interface wildfire area.
HSNG-g-14	Require fire sprinklers in all new or substantially remodeled multifamily housing, regardless of distance from a fire station.
HSNG-g-15	Require sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas.
HSNG-g-16	Compile a list of high-rise and high-occupancy buildings which are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.
HSNG-g-17	Conduct periodic fire-safety inspections of all multi-family buildings, as required by State law.
HSNG-g-18	Ensure that fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard.
HSNG-g-19	Create a mechanism to require the bracing of water heaters and flexible couplings on gas appliances, and/or (as specified under "a. Single-family homes vulnerable to earthquakes" above) the bolting of homes to their foundations and strengthening of cripple walls to reduce fire ignitions due to earthquakes.

Number	Specific Mitigation Strategy
HSNG-g-20	Work with the State Fire Marshall, the California Seismic Safety, PEER, and other experts to identify and manage gas-related fire risks of soft-story residential or mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. **Note** - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. **Also note** - any values that are installed may need to have both excess flow and seismic triggers (hybrid valves).
Housing: Flooding	
HSNG-h-1	To reduce flood risk, and thereby reduce the cost of flood insurance to property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.
HSNG-h-2	Balance the housing needs of residents against the risk from potential flood-related hazards.
HSNG-h-3	Ensure that new development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development.
HSNG-h-4	Provide sandbags and plastic sheeting to residents in anticipation of rainstorms, and deliver those materials to the disabled and elderly upon request.
HSNG-h-5	Provide public information on locations for obtaining sandbags and/or deliver those sandbags to those various locations throughout a city and/or county prior to and/or during the rainy season.
HSNG-h-6	Apply floodplain management regulations for development in the floodplain and floodway.
HSNG-h-7	Ensure that new subdivisions are designed to reduce or eliminate flood damage by requiring lots and rights-of-way are laid out for the provision of approved sewer and drainage facilities, providing on-site detention facilities whenever practicable.
HSNG-h-8	Encourage home and apartment owners to participate in home elevation programs.
HSNG-h-9	As funding opportunities become available, encourage home and apartment owners to participate in acquisition and relocation programs for areas within floodways.
HSNG-h-10	Encourage owners of properties in a floodplain to consider purchasing flood insurance. For example, point out that most homeowners' insurance policies do not cover a property for flood damage.
Housing: Landslides and Erosion	
HSNG-i-1	Increase efforts to reduce landslides and erosion in existing and future development by improving appropriate code enforcement and use of applicable standards, such as those appearing in the *California Building Code*, California Geological Survey *Special Report 117 - Guidelines for Evaluating and Mitigating Seismic Hazards in California*, American Society of Civil Engineers (ASCE) report *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California*, and the California Board for Geologists and Geophysicists *Guidelines for Engineering Geologic Reports*. Such standards should cover excavation, fill placement, cut-fill transitions, slope stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance.
HSNG-i-2	Increase efforts to reduce landslides and erosion in existing and future development through continuing education of design professionals on mitigation strategies.
Housing: Building Reoccupancy	
HSNG-j-1	Develop and enforce an ordinance for disaster-damaged structures to ensure that residential buildings are repaired in an appropriate and timely manner and retrofitted concurrently to avoid a recurrence.
Housing: Public Education	
HSNG-k-1	Provide information to residents of your community on the availability of interactive hazard maps showing your community on ABAG's web site.

Number	Specific Mitigation Strategy
HSNG-k-2	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging residents to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines.
HSNG-k-3	Better inform residents of comprehensive mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in high wildfire threat and wildfire-urban-interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.
HSNG-k-4	Develop a public education campaign on the cost, risk, and benefits of earthquake, flood, and other hazard insurance.
HSNG-k-5	Use disaster anniversaries, such as April (Earthquake Month and the 1906 earthquake), September (9/11), and October (Loma Prieta earthquake and Oakland Hills fire), to remind the public on safety and security mitigation activities.
HSNG-k-6	Sponsor the formation and training of Community Emergency Response Teams (CERT) training. [Note - these programs go by a variety of names in various cities and areas.]
HSNG-k-7	Include flood fighting technique session based on California Department of Water Resources training to the list of available public training classes offered by CERT.
HSNG-k-8	Institute the neighborhood watch block captain and team programs outlined in the Citizen Corps program guide.
HSNG-k-9	Assist residents in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
HSNG-k-10	Train homeowners to locate and shut off gas valves if they smell or hear gas leaking.
HSNG-k-11	Distribute NOAA weather radios to high-risk, limited-income families living in flood hazard areas.
HSNG-k-12	Develop a program to provide at-cost NOAA weather radios to residents of flood hazard areas.
HSNG-k-13	Make use of the materials on the ABAG web site at http://quake.abag.ca.gov/fixit/ and other web sites to increase residential mitigation activities related to earthquakes. (ABAG plans to continue to improve the quality of those materials over time.)
HSNG-k-14	Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging businesses and residents to keep storm drains in their neighborhood free of debris.
HSNG-k-15	Encourage the formation of a community- and neighborhood-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program*.
HSNG-k-16	Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
HSNG-k-17	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the http://www.preparenow.org web site.
Economy: Multi-Hazard	
ECON-a-1	Be aware of past problems of inadequate hazard disclosure and work with real estate agents to improve enforcement of real estate disclosure requirements for those hazards covered by this plan, for example, by making those agents and the disclosure firms aware of the hazard maps incorporated in this plan and available on the ABAG web site at http://quake.abag.ca.gov/mitigation/, as well as locally developed maps.
ECON-a-2	Create incentives for owners of historic or architecturally significant buildings to undertake mitigation to levels that will minimize the likelihood that these buildings will need to be demolished after a disaster, particularly if those alterations conform to the federal Secretary of the Interior's *Guidelines for Rehabilitation*.

Number	Specific Mitigation Strategy
Economy: Soft-Story Commercial Buildings Vulnerable to Earthquakes	
ECON-b-1	Require engineered plan sets for voluntary or mandatory soft-story retrofits until a standard plan set and construction details become available.
ECON-b-2	Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory soft-story building retrofits.
ECON-b-3	Work to educate building owners, local government staff, engineers, and contractors on soft-story retrofit procedures and incentives using materials such as those developed by ABAG (see http://quake.abag.ca.gov/fixit/) and the City of San Jose.
ECON-b-4	Conduct an inventory of existing or suspected soft-story commercial and industrial structures.
ECON-b-5	Use the soft-story inventory to require owners to inform all existing tenants that they work in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will work in this type of building prior to signing a lease.
ECON-b-6	Use the soft-story inventory to require owners to inform all existing tenants that they should be prepared to work elsewhere following an earthquake if the building has not been retrofitted.
ECON-b-7	Investigate and adopt appropriate financial, procedural, and land use incentives for owners of soft-story buildings to facilitate retrofit.
ECON-b-8	Explore development of local ordinances or State regulations to require or encourage owners of soft-story structures to strengthen them.
ECON-b-9	Provide technical assistance in seismically strengthening soft-story structures.
Economy: Unreinforced Masonry Buildings in Older Downtown Areas	
ECON-c-1	Continue to actively implement existing State law that requires cities and counties to maintain lists of the addresses of unreinforced masonry buildings and inform property owners that they own this type of hazardous structure.
ECON-c-2	Accelerate retrofitting of unreinforced masonry structures that have not been retrofitted, for example, by (a) actively working with owners to obtain structural analyses of their buildings, (b) helping owners obtain retrofit funding, (c) adopting a mandatory versus voluntary, retrofit program, and/or (d) applying penalties to owners who show inadequate efforts to upgrade these buildings.
ECON-c-3	Require owners to inform all existing tenants that they work in this type of building and the standard to which it may have been retrofitted, as well as require owners to inform tenants that they will work in this type of building prior to signing a lease.
ECON-c-4	Require owners to inform all existing tenants that they should be prepared to work elsewhere following an earthquake even if the building has been retrofitted, for it has probably been retrofitted to a life-safety standard, not to a standard that will allow occupancy following major earthquakes.
Economy: Privately-Owned Structurally Suspicious Buildings	
ECON-d-1	Inventory non-ductile concrete, tilt-up concrete, and other privately-owned structurally suspicious buildings.
ECON-d-2	Adopt the 2003 International Existing Building Code, the 1997 UBC, or the latest applicable code standard for the design of voluntary or mandatory retrofit of seismically vulnerable buildings.
ECON-d-3	Adopt one or more of the following strategies as incentives to encourage retrofitting of privately-owned structurally suspicious commercial and industrial buildings: (a) waivers or reductions of permit fees, (b) below-market loans, (c) local tax breaks, (d) grants to cover the cost of retrofitting or of a structural analysis, (e) land use and procedural incentives, or (f) technical assistance.

Number	Specific Mitigation Strategy
Economy: Wildfire and Structural Fires	
ECON-e-1	Increase efforts to reduce fire in existing development through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on mitigation strategies.
ECON-e-2	Require that new business and office buildings in high fire hazard areas be constructed of fire-resistant building materials and incorporate fire-resistant design features (such as minimal use of eaves, internal corners, and open first floors) to increase structural survivability and reduce ignitability.
ECON-e-3	Adopt and amend as needed updated versions of the *California Building and Fire Codes* so that optimal fire-protection standards are used in construction and renovation projects.
ECON-e-4	Create a mechanism to enforce provisions of the *California Building and Fire Codes* and other local codes that require the installation of smoke detectors and fire-extinguishing systems by making installation a condition of (a) finalizing a permit for any work on existing properties valued at over a fixed amount, such as $500 or $1000, and/or (b) on any building over 75 feet in height, and/or (b) as a condition for the transfer of property.
ECON-e-5	Expand existing vegetation management programs in commercial and/or industrial areas.
ECON-e-6	Establish a Fire Hazard Abatement District to fund reduction in fire risk of existing properties through vegetation management that includes reduction of fuel loads, use of defensible space, and fuel breaks.
ECON-e-7	Establish a Fire Hazard Abatement District to fund fire-safety inspections of private properties, roving firefighter patrols on high fire-hazard days, and public education efforts.
ECON-e-8	Compile a list of high-rise and high-occupancy buildings that are deemed, due to their age or construction materials, to be particularly susceptible to fire hazards, and determine an expeditious timeline for the fire-safety inspection of all such structures.
ECON-e-9	Conduct periodic fire-safety inspections of all commercial and institutional buildings.
ECON-e-10	Work with the State Fire Marshall, the California Seismic Safety, PEER, and other experts to identify and manage gas-related fire risks of soft-story mixed use buildings that are prone to collapse and occupant entrapment consistent with the natural gas safety recommendations of Seismic Safety Commission Report SSC-02-03. **Note** - See http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf. **Also note** - any values that are installed may need to have both excess flow and seismic triggers (hybrid valves).
ECON-e-11	Ensure that fire-preventive vegetation-management techniques and practices for creek sides and high-slope areas do not contribute to the landslide and erosion hazard.
ECON-e-12	Work with insurance companies to create a public/private partnership to give a discount on fire insurance premiums to "Forester Certified" *Fire Wise* landscaping and fire-resistant building materials.
Economy: Flooding	
ECON-f-1	To reduce flood risk, thereby reducing the cost of flood insurance to property owners, work to qualify for the highest-feasible rating under the Community Rating System of the National Flood Insurance Program.
ECON-f-2	Balance the needs for commercial and industrial development against the risk from potential flood-related hazards.
ECON-f-3	Ensure that new development pays its fair share of improvements to the storm drainage system necessary to accommodate increased flows from the development, ***or*** does not increase runoff by draining water to pervious areas or detention facilities.
ECON-f-4	Provide sandbags and plastic sheeting to businesses in anticipation of rainstorms, and deliver those materials to the disabled and elderly upon request.
ECON-f-5	Provide public information on locations for obtaining sandbags and deliver those sandbags to those various locations throughout a city and/or county.

Number	Specific Mitigation Strategy
ECON-f-6	Apply floodplain management regulations for development in the floodplain and floodway.
ECON-f-7	Encourage business owners to participate in building elevation programs.
ECON-f-8	Encourage business owners to participate in acquisition and relocation programs for areas within floodways.
ECON-f-9	Require an annual inspection of approved flood-proofed buildings to ensure that (a) all flood-proofing components will operate properly under flood conditions and (b) all responsible personnel are aware of their duties and responsibilities as described in their building's *Flood Emergency Operation Plan* and *Inspection & Maintenance Plan*.
Economy: Landslides and Erosion	
ECON-g-1	Increase efforts to reduce landslides and erosion in existing and future development by improving appropriate code enforcement and use of applicable standards, such as those appearing in the *California Building Code*, California Geological Survey *Special Report 117 - Guidelines for Evaluating and Mitigating Seismic Hazards in California*, American Society of Civil Engineers (ASCE) report *Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California*, and the California Board for Geologists and Geophysicists *Guidelines for Engineering Geologic Reports*. Such standards should cover excavation, fill placement, cut-fill transitions, slope stability, drainage and erosion control, slope setbacks, expansive soils, collapsible soils, environmental issues, geological and geotechnical investigations, grading plans and specifications, protection of adjacent properties, and review and permit issuance.
ECON-g-2	Increase efforts to reduce landslides and erosion in existing and future development through continuing education of design professionals on mitigation strategies.
Economy: Construction	
ECON-h-1	Continue to require that all new commercial and industrial buildings be constructed in compliance with structural requirements of the most recently adopted version of the *California Building Code*.
ECON-h-2	Conduct appropriate employee training and support continued education to ensure enforcement of construction standards.
ECON-h-3	Recognize that many strategies that increase earthquake resistance also decrease damage in an explosion. In addition, recognize that ventilation systems can be designed to contain airborne biological agents.
Economy: Building Reoccupancy	
ECON-i-1	Institute an aggressive program similar to San Francisco's Building Occupancy Resumption Program (BORP). This program permits owners of private buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as City/County inspectors for these buildings in the event of an earthquake or other disaster.
ECON-i-2	Actively notify owners of historic or architecturally significant buildings of the availability of the local BORP-type program and encourage them to participate to ensure that appropriately qualified structural engineers are inspecting their buildings, thus reducing the likelihood that the buildings will be inappropriately evaluated following a disaster.
ECON-i-3	Actively notify owners of educational facility buildings of the availability of the local BORP-type program and encourage them to participate to ensure that appropriately qualified structural engineers are inspecting their buildings, thus reducing the likelihood that the buildings will be inappropriately evaluated following a disaster.
ECON-i-4	Allow owners to participate in a BORP-type program as described above, but not actively encourage them to do so.
ECON-i-5	Develop and enforce an ordinance for disaster-damaged structures to ensure that damaged buildings are repaired in an appropriate and timely manner.

Number	Specific Mitigation Strategy
ECON-i-6	Establish preservation-sensitive measures for the repair and reoccupancy of historically significant structures, including requirements for temporary shoring or stabilization where needed, arrangements for consulting with preservationists, and expedited permit procedures for suitable repair or rebuilding of historically or architecturally valuable structures.
Economy: Public Education	
ECON-j-1	Provide information to business owners and employees on the availability of interactive hazard maps on ABAG's web site.
ECON-j-2	Develop printed materials, utilize existing materials (such as developed by FEMA and the American Red Cross), conduct workshops, and/or provide outreach encouraging businesses' employees to have family disaster plans that include drop-cover-hold earthquake drills, fire and storm evacuation procedures, and shelter-in-place emergency guidelines.
ECON-j-3	Develop printed materials, conduct workshops, and provide outreach to Bay Area businesses focusing on business continuity planning.
ECON-j-4	Better inform Bay Area business owners of mitigation activities, including elevation of appliances above expected flood levels, use of fire-resistant roofing and defensible space in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat, structural retrofitting techniques for older buildings, and use of intelligent grading practices through workshops, publications, and media announcements and events.
ECON-j-5	Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses. [Note - these programs go by a variety of names in various cities and areas.]
ECON-j-6	Assist businesses in the development of defensible space through the use of, for example, "tool libraries" for weed abatement tools, roadside collection and/or chipping services (for brush, weeds, and tree branches) in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat.
ECON-j-7	Make use of the materials developed by others (such as found on ABAG's web site at http://quake.abag.ca.gov/business/) to increase mitigation activities related to earthquakes. ABAG plans to continue to improve the quality of those materials over time.
ECON-j-8	Develop a "Maintain-a-Drain" campaign, similar to that of the City of Oakland, encouraging businesses and residents to keep storm drains in their neighborhood free of debris.
ECON-j-9	Encourage the formation of a community-based approach to wildfire education and action through local Fire Safe Councils and the *Fire Wise Program*.
ECON-j-10	Encourage businesses and laboratories handling hazardous materials or pathogens increase security to a level high enough to create a deterrent to crime and terrorism, including active implementation of "cradle-to-grave" tracking systems.
ECON-j-11	Encourage joint meetings of security and operations personnel at major employers to develop innovative ways for these personnel to work together to increase safety and security.
ECON-j-12	Inform shoreline-property owners of the possible long-term economic threat posed by rising sea levels.
ECON-j-13	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the http://www.preparenow.org web site.
Government: Focus on Critical Facilities	
GOVT-a-1	Assess the vulnerability of critical facilities (such as city halls, fire stations, community service centers, seaports, and airports) to damage in natural disasters and make recommendations for appropriate mitigation.
GOVT-a-2	Retrofit or replace critical facilities that are shown to be vulnerable to damage in natural disasters.

Number	Specific Mitigation Strategy
GOVT-a-3	Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake.
GOVT-a-4	Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major natural disasters.
GOVT-a-5	Encourage joint meetings of security and operations personnel at critical facilities to develop innovative ways for these personnel to work together to increase safety and security.
GOVT-a-6	Install micro and/or surveillance cameras around critical public assets tied to web-based software, and develop a surveillance protocol to monitor these cameras.
GOVT-a-7	Identify and undertake cost-effective retrofit measures on critical facilities (such as moving and redesigning air intake vents and installing blast-resistant features) when these buildings undergo major renovations.
GOVT-a-8	Coordinate with the State Division of Safety of Dams to ensure that cities and counties are aware of the timeline for the maintenance and inspection of dams whose failure would impact their jurisdiction.
GOVT-a-9	As a secondary focus, assess the vulnerability of non-critical facilities to damage in natural disasters based on occupancy and structural type, make recommendations on priorities for structural improvements or occupancy reductions, and identify potential funding mechanisms.
GOVT-a-10	Ensure that government-owned facilities are subject to the same or more stringent regulations as imposed on privately-owned development.
GOVT-a-11	Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling government-owned facilities.
GOVT-a-12	Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant hazards.
Government: Maintain and Enhance Local Government's Emergency Response and Recovery Capacity	
GOVT-b-1	Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities of various departments within the local government organization, and that outlines a structure and process for policy-making involving elected officials and appointed advisory committees.
GOVT-b-2	Prepare a basic Recovery Plan that outlines the major issues and tasks that are likely to be the key elements of community recovery, as well as integrate this planning into response planning.
GOVT-b-3	Establish a goal for the resumption of local government services that may vary from function to function.
GOVT-b-4	Develop a plan for short-term and intermediate-term sheltering of impacted residents.
GOVT-b-5	Periodically assess the need for new or relocated fire or police stations and other emergency facilities, changes in staffing levels, and additional or updated supplies, equipment, technologies, and in-service training classes.
GOVT-b-6	Ensure that fire and police department personnel have adequate radios, breathing apparatuses, protective gear, and other equipment to respond to a major disaster.
GOVT-b-7	Develop and maintain a system of interoperable communications for first responders from cities, counties, special districts, state, and federal agencies.
GOVT-b-8	Harden emergency response communications, including, for example, building redundant capacity into public safety alerting and/or answering points, replacing or hardening microwave and simulcast systems, adding digital encryption for programmable radios, and ensuring a plug-and-play capability for amateur radio.

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GOVT-b-9	Purchase command vehicles for use as mobile command/EOC vehicles if current vehicles are unsuitable or inadequate.
GOVT-b-10	Maintain the local government's emergency operations center in a fully functional state of readiness.
GOVT-b-11	Expand or participate in expanding traditional disaster exercises involving city and county emergency personnel to include airport and port personnel, transit and infrastructure providers, hospitals, schools, park districts, and major employers.
GOVT-b-12	Maintain and update as necessary the local government's Standardized Emergency Management System Plan.
GOVT-b-13	Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to fires, floods, earthquakes, and other disasters.
GOVT-b-14	Install an alert and warning system with outdoor sirens, coordinating them, to the extent possible, with those of neighboring jurisdictions.
GOVT-b-15	Conduct periodic tests of the alerting and warning system's outdoor sirens no less frequently than once per month.
GOVT-b-16	Regulate and enforce the location and design of street-address numbers on buildings and minimize the naming of short streets (that are actually driveways) to single homes.
GOVT-b-17	Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers.
GOVT-b-18	Establish regional protocols on how to respond to the NOAA Monterey weather forecasts, such as the identifying types of closures, limits on work that could cause ignitions, and prepositioning of suppression forces). A multi-agency coordination of response also helps provide unified messages to the public about how they should respond to these periods of increased fire danger.
GOVT-b-19	Increase local patrolling during periods of high fire weather.
GOVT-b-20	Create and maintain an automated system of rain and flood gauges that is web enabled and publicly accessible.
GOVT-b-21	Place remote sensors in strategic locations for early warning of hazmat releases or use of weapons of mass destruction.
GOVT-b-22	Investigate the use of phone-based warning systems for selected geographic areas.
GOVT-b-23	Review and update, as necessary, procedures pursuant to the *State Dam Safety Act* for the emergency evacuation of areas located below major water-storage facilities.
GOVT-b-24	Develop procedures for the emergency evacuation of areas identified on tsunami evacuation maps as these maps become available.
GOVT-b-25	Develop a business continuity plan that includes back-up storage of vital records, such as essential medical records and financial information.
Government: Participate in National, State, Multi-Jurisdictional and Professional Society Efforts to Identify and Mitigate Hazards	
GOVT-c-1	Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities.
GOVT-c-2	Recognize that emergency services is more than the coordination of police and fire response, for it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services.
GOVT-c-3	Recognize that a multi-agency approach is needed to mitigate flooding by having flood control districts, cities, counties, and utilities meet at least annually to jointly discuss their a capital improvement programs for most effectively reducing the threat of storm-induced flooding.

Number	Specific Mitigation Strategy
GOVT-c-4	As new flood-control projects are completed, request that FEMA revise its flood-insurance rate maps and digital geographic information system data to reflect flood risks as accurately as possible.
GOVT-c-5	Participate in FEMA's National Flood Insurance Program.
GOVT-c-6	Participate in multi-agency efforts to mitigate fire threat, such as the Hills Emergency Forum (in the east Bay), various *Fire Safe Council* programs, and city-utility task forces.
GOVT-c-7	Work with major employers and agencies that handle hazardous materials to coordinate mitigation efforts for the possible release of these materials due to a natural disaster such as an earthquake, flood, fire, or landslide.
GOVT-c-8	Encourage staff to participate in efforts by professional organizations to mitigate earthquake and landslide disaster losses, such as the efforts of the Northern California Chapter of the Earthquake Engineering Research Institute, the East Bay-Peninsula Chapter of the International Code Council, the Structural Engineers Association of Northern California, and the American Society of Grading Officials.
GOVT-c-9	Conduct and/or promote attendance at local or regional hazard conferences and workshops for elected officials to educate the officials on the critical need for programs in mitigating earthquake, wildfire, flood, and landslide hazards.
GOVT-c-10	Cooperate with researchers working on government-funded projects to refine information on hazards, for example, by expediting the permit and approval process for installation of seismic arrays, gravity survey instruments, borehole drilling, fault trenching, landslide mapping, flood modeling, and/or damage data collection.
Education: Focus on Critical Facilities	
EDUC-a-1	Assess the vulnerability of critical education facilities to damage in natural disasters and make recommendations for appropriate mitigation.
EDUC-a-2	Retrofit or replace critical education facilities that are shown to be vulnerable to damage in natural disasters.
EDUC-a-3	Conduct comprehensive programs to identify and mitigate problems with facility contents, architectural components, and equipment that will prevent critical buildings from being functional after major disasters.
EDUC-a-4	As a secondary focus, assess the vulnerability of non-critical educational facilities to damage in natural disasters based on occupancy and structural type, make recommendations on priorities for structural improvements or occupancy reductions, and identify potential funding mechanisms.
EDUC-a-5	Participate in or facilitate adoption of a program to formalize arrangements with structural engineers to report to the district, assess damage, and determine if the buildings can be reoccupied. The program should be similar to San Francisco's Building Occupancy Resumption Program (BORP) that permits owners of buildings to hire qualified structural engineers to create building-specific post-disaster inspection plans and allows these engineers to become automatically deputized as inspectors for these buildings in the event of an earthquake or other disaster. Unlike the buildings of most special districts, however, these plans should be developed with the review and guidance of the Division of the State Architect because this agency has the authority and responsibility for the structural integrity of these structures.
Education: Use of Educational Facilities as Emergency Shelters	
EDUC-b-1	Work cooperatively with the American Red Cross and others to set up memoranda of understanding for use of education facilities as emergency shelters following disasters.
EDUC-b-2	Work cooperatively to ensure that school district personnel and relevant staff understand and are trained that being designated by the American Red Cross or others as a potential emergency shelter does not mean that the school has had a hazard or structural evaluation to ensure that it can be used as a shelter following any specific disaster.

Number	Specific Mitigation Strategy
EDUC-b-3	Work cooperatively to ensure that school district personnel understand and are trained that they are designated as disaster service workers and must remain at the school until released.
Education: Use of Schools as Conduits for Information to Families About Emergencies	
EDUC-c-1	Work on and/or support efforts by schools, local governments, and other agencies to utilize their unique ability to reach families through educational materials on hazards, mitigation, and preparedness, particularly after disasters and at the beginning of the school year. These efforts will not only make the entire community more disaster-resistant, but speed the return of schools from use as shelters to use as teaching facilities.
EDUC-c-2	Work on and/or support joint efforts of schools and fire jurisdictions to develop plans for evacuation or sheltering in place of school children during periods of high fire danger, thereby recognizing that overloading of streets near schools by parents attempting to pick up their children during these periods can restrict access by fire personnel and equipment.
EDUC-c-3	Offer the 20-hour basic CERT training to teachers and after-school personnel.
EDUC-c-4	Offer the 20-hour basic CERT training to middle school and/or high school students as a part of the basic science or civics curriculum, as an after school club, or as a way to earn public service hours.
EDUC-c-5	Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system.
EDUC-c-6	Develop and maintain the capacity for schools to take care of the students for the first 48 hours after a disaster, and notify parents that this capacity exists.
EDUC-c-7	Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the http://www.preparenow.org web site.
Environment: Environmental Sustainability and Pollution Reduction	
ENVI-a-1	Continue to enforce State-mandated requirements, such as the *California Environmental Quality Act*, to ensure that mitigation activities for hazards, such as vegetation clearance programs for fire threat and seismic retrofits, are conducted in a way that reduces environmental degradation such as air quality impacts, noise during construction, and loss of sensitive habitats and species, while respecting the community value of historic preservation.
ENVI-a-2	Encourage regulatory agencies to work collaboratively with safety professionals to develop creative mitigation strategies that effectively balance environmental and safety needs, particularly to meet critical wildfire, flood, and earthquake safety levels.
ENVI-a-3	Continue to enforce and/or comply with State-mandated requirements, such as the *California Environmental Quality Act* and environmental regulations to ensure that urban development is conducted in a way to minimize air pollution. For example, air pollution levels can lead to global warming, and then to drought, increased vegetation susceptibility to disease (such as pine bark beetle infestations), and associated increased fire hazard.
ENVI-a-4	Develop and implement a comprehensive program for watershed maintenance, optimizing forest health with water yield to balance water supply, flooding, fire, and erosion concerns.
ENVI-a-5	Balance the need for the smooth flow of storm waters versus the need to maintain wildlife habitat by developing and implementing a comprehensive Streambed Vegetation Management Plan that ensures the efficacy of flood control efforts and maintains the viability of living rivers.
ENVI-a-6	Stay informed of emerging scientific information on the subject of rising sea levels, especially on additional actions that local governments can take to mitigate this hazard.
ENVI-a-7	Monitor the science associated with global warming to be able to act promptly when data become available to warrant special design and engineering of government-owned facilities located in low-lying areas, such as wastewater treatment plants, ports, and airports.

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ENVI-a-8	Comply with applicable performance standards of any *National Pollutant Discharge Elimination System* municipal stormwater permit that seeks to manage increases in stormwater run-off flows from new development and redevelopment construction projects.
ENVI-a-9	Enforce and/or comply with the grading, erosion, and sedimentation requirements by prohibiting the discharge of concentrated stormwater flows by other than approved methods that seek to minimize associated pollution.
ENVI-a-10	Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters.
ENVI-a-11	Enforce and/or comply with the hazardous materials requirements of the State of California Certified Unified Program Agency (CUPA).
ENVI-a-12	Provide information on hazardous waste disposal and/or drop off locations.
ENVI-a-13	Develop and implement a program to control invasive and exotic species that contribute to fire and flooding hazards (such as eucalyptus, cattails, and cordgrass).
ENVI-a-14	Enforce provisions under creek protection, stormwater management, and discharge control ordinances designed to keep watercourses free of obstructions and to protect drainage facilities to confirm with the Regional Water Quality Control Board's Best Management Practices.
Environment: Agricultural and Aquaculture Resilience	
ENVI-b-1	Maintain a variety of crops in rural areas of the region to increase agricultural diversity and crop resiliency.
ENVI-b-2	Promote and maintain the public-private partnerships dedicated to preventing the introduction of agricultural pests into regionally-significant crops, such as the glassy-winged sharpshooter into vineyards.
ENVI-b-3	Remove septic tanks and other sources of contamination adjacent to economically-significant aquacultural and agricultural resources.
ENVI-b-4	Encourage livestock operators to develop an early-warning system to detect animals with communicable diseases (due to natural causes or bioterrorism).
Land Use: Earthquake Hazard Studies for New Developments	
LAND-a-1	Enforce and/or comply with the State-mandated requirement that site-specific geologic reports be prepared for development proposals within Alquist-Priolo Earthquake Fault Zones, and restrict the placement of structures for human occupancy. (This Act is intended to deal with the ***specific*** hazard of active faults that extend to the earth's surface, creating a surface rupture hazard.)
LAND-a-2	Require preparation of site-specific geologic or geotechnical reports for development and redevelopment proposals in areas subject to earthquake-induced landslides or liquefaction as mandated by the State Seismic Hazard Mapping Act in selected portions of the Bay Area where these maps have been completed, and condition project approval on the incorporation of necessary mitigation measures related to site remediation, structure and foundation design, and/or avoidance.
LAND-a-3	Recognizing that some faults may be a hazard for surface rupture, even though they do not meet the strict criteria imposed by the Alquist-Priolo Earthquake Fault Zoning Act, identify and require geologic reports in areas adjacent to locally-significant faults.
LAND-a-4	Recognizing that the California Geological Survey has not completed earthquake-induced landslide and liquefaction mapping for much of the Bay Area, identify and require geologic reports in areas mapped by others as having significant liquefaction or landslide hazards.
LAND-a-5	Support and/or facilitate efforts by the California Geological Survey to complete the earthquake-induced landslide and liquefaction mapping for the Bay Area.
LAND-a-6	Require that local government reviews of geologic and engineering studies are conducted by appropriately trained and credentialed personnel.

Number	Specific Mitigation Strategy
Land Use: Wildfire and Structural Fires	
LAND-b-1	Review development proposals to ensure that they incorporate required and appropriate fire-mitigation measures, including adequate provisions for occupant evacuation and access by emergency response personnel and equipment.
LAND-b-2	Develop a clear legislative and regulatory framework at both the state and local levels to manage the wildland-urban-interface consistent with *Fire Wise* and sustainable community principles.
Land Use: Flooding	
LAND-c-1	Establish and enforce requirements for new development so that site-specific designs and source-control techniques are used to manage peak stormwater runoff flows and impacts from increased runoff volumes.
LAND-c-2	Incorporate FEMA guidelines and suggested activities into local government plans and procedures for managing flood hazards.
LAND-c-3	Provide an institutional mechanism to ensure that development proposals adjacent to floodways and in floodplains are referred to flood control districts and wastewater agencies for review and comment (consistent with the NPDES program).
LAND-c-4	Establish and enforce regulations concerning new construction (and major improvements to existing structures) within flood zones in order to be in compliance with federal requirements and, thus, be a participant in the Community Rating System of the *National Flood Insurance Program*.
Land Use: Landslides and Erosion	
LAND-d-1	Establish and enforce provisions (under subdivision ordinances or other means) that geotechnical and soil-hazard investigations be conducted and filed to prevent grading from creating unstable slopes, and that any necessary corrective actions be taken prior to development approval.
LAND-d-2	Require that local government reviews of these investigations are conducted by appropriately trained and credentialed personnel.
LAND-d-3	Establish and enforce grading, erosion, and sedimentation ordinances by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation prior to development approval.
LAND-d-4	Establish and enforce provisions under the creek protection, storm water management, and discharge control ordinances designed to control erosion and sedimentation.
LAND-d-5	Establish requirements in zoning ordinances to address hillside development constraints, especially in areas of existing landslides.
Land Use: Hillsides - Multi-hazard	
LAND-e-1	Establish a buffer zone between residential properties and landslide or wildfire hazard areas.
LAND-e-2	Discourage, add additional mitigation strategies, or prevent construction on slopes greater than a set percentage, such as 15%, due to landslide or wildfire hazard concerns.
Land Use: Smart Growth to Revitalize Urban Areas and Promote Sustainability	
LAND-f-1	Prioritize retrofit of infrastructure that serves urban areas over constructing new infrastructure to serve outlying areas.
LAND-f-2	Work to retrofit homes in older areas to provide safe housing close to job centers.
LAND-f-3	Work to retrofit older downtown areas to protect architectural diversity and promote disaster-resistance.
LAND-f-4	Protect as open space areas susceptible to extreme hazards.

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LAND-f-5	Provide new buffers and preserve existing buffers between development and existing users of large amounts of hazardous materials, such as major industry, due to the potential for catastrophic releases due to an earthquake or terrorism. (Flooding might also result in release or spread of these materials, however it is unlikely.)