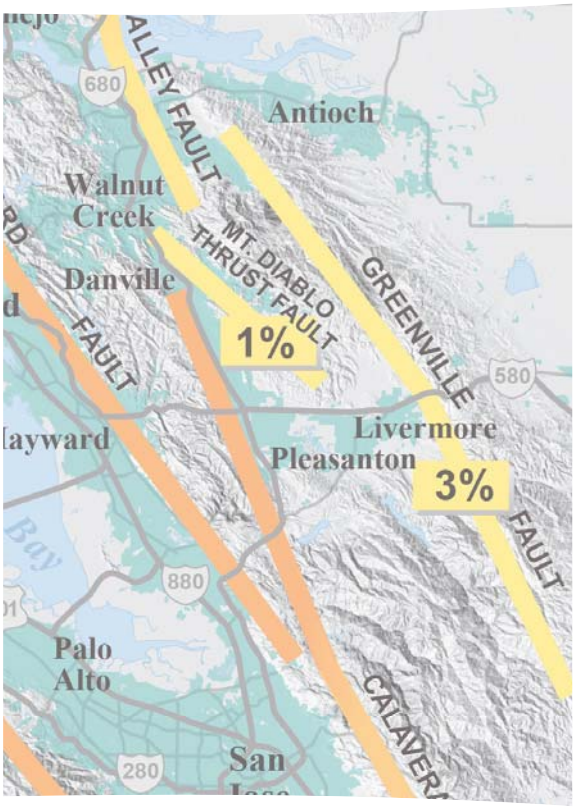
LIVERMORE CALIFORNIA

DUBLIN CALIFORNIA

THE CITY OF PLEASANTON

TRI-VALLEY LOCAL HAZARD MITIGATION PLAN

Volume 2—Planning Partner Annexes



September 2018

TETRA TECH

Tri-Valley Local Hazard Mitigation Plan

Volume 2—Planning Partner Annexes

September 2018

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INTRODUCTION

BACKGROUND

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. All participating jurisdictions must meet the requirements of Chapter 44 of the Code of Federal Regulations (44 CFR):

> "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))

For the Tri-Valley Local Hazard Mitigation Plan, a Planning Partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act (DMA) for as many eligible local governments 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 that participated in this process, with distinct needs and capabilities:

- Incorporated municipalities
- Special purpose districts.

Each participating planning partner has prepared a jurisdiction-specific annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume.

THE PLANNING PARTNERSHIP

Initial Solicitation and Letters of Intent

The planning team solicited the participation of all eligible municipalities and special purpose districts at the outset of this project. In June 2016, the Cities of Dublin, Livermore and Pleasanton identified eligible special districts within the planning area of the pending planning process and invited them to formally participate in the process. During the first Steering Committee meeting on March 7, 2017, the planning team introduced the opportunity for special purpose districts to participate as planning partners. A follow-up to the Steering Committee meeting was sent via email on April 17, 2017, listing potential special purpose district planning partners. This follow-up outlined planning partner expectations and sought commitment.

From these efforts, six interested local governments were provided with a list of planning partner expectations developed by the planning team outlining 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 and designated a point of contact for their jurisdiction. The planning team received formal commitment from all six invited planning partners.

Maps for each participating city are provided in the individual annex for that city in this volume. The regional maps in Volume 1 of this plan show the jurisdictional area of special purpose districts participating in this planning effort.

Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed by participating planning partners (see Appendix A for details):

- Complete administrative tasks:
  - Complete a letter of intent.
  - Designate points of contact.
  - Approve the steering committee.
- Participate, as able, in additional opportunities:
  - Attend steering committee meetings.
  - Attend or host public meetings or open houses.
  - Participate in and advertise the public review and comment period prior to adoption.
- Support the steering committee.
- Support the public involvement strategy.
- Complete the jurisdictional annex template:
  - Attend the mandatory workshop.
  - Perform a capability assessment.
  - Review the risk assessment.
  - Review area-wide mitigation recommendations.
  - Develop a mitigation action plan.
- Adopt the plan.

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

Linkage Procedures

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

ANNEX-PREPARATION PROCESS

Templates

Templates were created to help the Planning Partners prepare their jurisdiction-specific annexes. Since special purpose districts operate differently from incorporated municipalities, separate templates were created for the two

types of jurisdictions. The templates were created so that all criteria of Section 201.6 of 44 CFR would be met, based on the partners' capabilities and mode of operation. Templates available for the planning partners' use were specific as to whether the partner's annex is an update to a previous hazard mitigation plan or a first-time hazard mitigation plan. 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. Detailed instructions on the completion of these templates, including key definitions of required jurisdiction-specific components, were provided to all participating planning partners. Reviewers of this plan seeking to "cross-walk" plan content to the Section 201.6 44 CFR requirements are encouraged to review these instructions in conjunction with the content of this volume. The templates and their instructions can be found in Appendix C to this volume.

Jurisdictional annexes were completed in three phases. Phase 1 was initiated in July 2017 and Phase 3 concluded in December 2017. At the October 10, 2017, steering committee meeting, the planning team reviewed instructions for completing the Phase 3 portion of the annexes, which focuses on action plan development. All planning partners seeking DMA compliance under this plan attended the meeting. The following topics were discussed:

- Jurisdiction-specific natural events history
- Risk ranking
- Action plan development.

In the risk-ranking discussion, each planning partner was asked to review the ranked risk specifically for its jurisdiction, based on the impact on its population and/or facilities. Municipalities based this ranking on probability of occurrence and the potential impact on people, property and the economy. Special purpose districts based 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 area-wide risk ranking presented in Volume 1. The objectives of this exercise were to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation processes and to help prioritize types of mitigation actions that should be considered. Hazards that were ranked as "high" or "medium" for each jurisdiction as a result of this exercise were considered to be priorities for identifying appropriate mitigation actions, although jurisdictions also identified actions to mitigate "low" ranked hazards as appropriate.

Tool Kit

Each planning partner was provided with a tool kit to assist in completing the annex template and developing an action plan. The tool kits contained the following:

- Previous hazard mitigation plan annexes for those jurisdictions who are updating existing plans
- A catalog of mitigation best practices
- The goals and objectives developed for the update to the plan
- Information on the FEMA Hazard Mitigation Assistance grant program
- Information on past hazard events that have impacted the planning area
- County-wide and jurisdiction-specific maps for hazards of concern
- The risk assessment results developed for this plan
- Jurisdiction-specific annex templates, with instructions for completing them
- FEMA guidance on plan integration
- The results of the public survey conducted as part of the public involvement strategy

The toolkit provided each planning partner with resources to develop a mitigation action plan. Planning partners were asked to review the following to assist in the identification of actions:

- **The jurisdiction's capability assessment**—Reviewed to identify capabilities that the jurisdiction does not currently have but should consider pursuing, or capabilities that should be revisited and updated to

include best available information. Reviewed to determine how existing capabilities can be leveraged to increase or improve hazard mitigation in the jurisdiction. Additionally, planning partners used this capability assessment to identify existing capabilities that may be expanded or enhanced to better support the mitigation goals and objectives of this plan.

- **The jurisdiction's National Flood Insurance Program compliance table**—Reviewed to identify opportunities to increase floodplain management capabilities.
- **The jurisdiction's review of its adaptive capacity for climate change**—Reviewed to identify ways to leverage or continue to improve existing capacities and to improve understanding of other capacities.
- **The jurisdiction's identified opportunities for future integration**—Reviewed to identify specific integration actions to be included in the mitigation strategy.
- **Jurisdiction-specific vulnerabilities**—Reviewed to identify actions that will help reduce known vulnerabilities.
- **The mitigation best practices catalog**—Reviewed to identify actions that the jurisdiction should consider including in its action plan.
- **Public input**—Reviewed to identify potential actions and community priorities.

Prioritization

44 CFR requires actions identified in the action plan to be prioritized (Section 201.c.3.iii). The planning team and steering committee developed a methodology for prioritizing the action plans that meets the needs of the partnership and the requirements of 44 CFR. All identified actions were prioritized in two categories—implementation and grant pursuit—as defined by the following criteria:

- Implementation priority
  - **High Priority**—An action that meets multiple objectives, has benefits that exceed costs, and has a designated source of funding. Action can be completed in the short term (1 to 5 years). The key factors for high-priority actions are that they have designated funding sources and can be completed in the short term.
  - **Medium Priority**—An action that meets multiple objectives, has benefits that exceed costs, and does not have a designated source of funding but is eligible for funding. Action can be completed in the short term (1 to 5 years), once funding is secured. The key factors for medium-priority actions are that they are eligible for funding though no specific funding source has been designated, and they can be completed within the short term. Medium-priority actions become high-priority actions once funding is secured.
  - **Low Priority**—An action that will mitigate the risk of a hazard, has benefits that do not exceed the costs or are difficult to quantify, has no designated source of funding, and is not eligible for any known grant funding. Action can be completed in the long term (1 to 10 years). Low-priority actions are generally "wish-list" actions. Their financing is unknown and they have a long-term timeframe for completion. These actions may be eligible for grant funding from programs that have not yet been identified.

- Grant pursuit priority
  - **High Priority**—An action that meets identified grant eligibility requirements, has high benefits, and is listed as high or medium priority; local funding options are unavailable or available local funds could be used instead for actions that are not eligible for grant funding.
  - **Medium Priority**—An action that meets identified grant eligibility requirements, has medium or low benefits, and is listed as medium or low priority; local funding options are unavailable.
  - **Low Priority**—An action that has not been identified as meeting any grant eligibility requirements.

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 priority once a funding source has been identified. The prioritization schedule for this plan will be reviewed and updated as needed annually through the plan maintenance strategy.

Benefit/Cost Review

44 CFR requires the prioritization of the action plan to emphasize a benefit/cost analysis of the proposed actions. Because some actions may not be implemented for up to 10 years, benefit/cost analysis was qualitative and not of the detail required by FEMA for project grant eligibility under the Hazard Mitigation Assistance (HMA) 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 benefits and costs as follows:

- 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.
- 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.

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.

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

Analysis of Mitigation Actions

All planning partners reviewed their recommended actions to classify each action based on the hazard it addresses and the type of mitigation it involves. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.

- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Climate Resilient**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future-conditions projections in project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.
- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

These categories include categories identified in the Community Rating System (CRS) 2017 *CRS Coordinators Manual* (OMB No. 1660-0022, Figure 510-4). The CRS categories expand on the four categories in FEMA's 2013 *Local Mitigation Handbook*. They provide a more comprehensive range of options, thus increasing integration opportunities. The use of CRS guidance enhances the CRS credit potential for this plan, for the benefit of planning partners who participate in the CRS program.

In addition to the CRS categories, two other categories were included in the analysis. The climate resilient category was added to facilitate the incorporation of climate adaptation planning into hazard mitigation plans in accordance with California Senate Bill 379 (see Section 4.8.2 in Volume 1 of this plan). Community capacity building was added to clearly identify opportunities for expanding on existing capabilities.

COMPATIBILITY WITH PREVIOUS APPROVED PLANS

Of the six initially identified potential planning partners, four were covered by the FEMA-approved 2010 Association of Bay Area Governments hazard mitigation planning effort. Table 1 lists all the initial partners, the role this multi-jurisdictional plan will play in achieving compliance, and CRS status.

FINAL COVERAGE UNDER THE PLAN

Of the six planning partners that submitted letters of intent to participate, four fully met the participation requirements specified by the Steering Committee. The principal requirement not met by the other partners was completion of the jurisdictional annex template. Only the four partners that submitted completed templates 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 in order to achieve DMA compliance. Table 2 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

Table 1. Prior Plan Status

	Prior Plan Adoption Date	Will Be Covered by This Hazard Mitigation Plan?	CRS Community	This Hazard Mitigation Plan Will Become CRS Plan of Record?
City of Dublin	03/06/2012	Yes	No	N/A
City of Livermore	02/27/2012	Yes	Yes	Yes
City of Pleasanton	02/21/2012	Yes	Yes	Yes
Dublin San Ramon Services District	09/18/2012	Yes	N/A	N/A
Dublin Unified School District	N/A	No	N/A	N/A
Livermore Valley Joint Unified School District	N/A	No	N/A	N/A

Table 2. Planning Partner Status

	Letter of Intent Date	Attended Steering Committee Annex Completion Discussion?	Completed Template?	Covered by This Plan?
City of Dublin	4/11/2017	Yes	Yes	Yes
City of Livermore	4/11/2017	Yes	Yes	Yes
City of Pleasanton	4/11/2017	Yes	Yes	Yes
Dublin San Ramon Services District	4/11/2017	Yes	Yes	Yes
Dublin Unified School District	4/11/2017	No	No	No
Livermore Valley Joint Unified School District	4/11/2017	No	No	No

1. CITY OF DUBLIN

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Hazel L. Wetherford, Assistant to the City Manager
100 Civic Plaza
Dublin, CA 94568
Telephone: 925-833-6650
e-mail Address: hazel.wetherford@dublin.ca.gov

Alternate Point of Contact
Julie E. Carter, Human Resources Director
100 Civic Plaza
Dublin, CA 94568
Telephone: 925-833-6650
e-mail Address: julie.carter@dublin.ca.gov

1.2 JURISDICTION PROFILE

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

- **Date of Incorporation—**February 2, 1982
- **Current Population**—59,686 as of May 2017 (2017 Department of Finance estimates)
- **Population Growth**—According the California Department of Finance, the City of Dublin's population increased by 4% between January of 2016 and January of 2017. The City population has steadily increased over the past decade, averaging 15% per year since 2010.
- **Location and Description**—Dublin is a suburban city of the East Bay Area (San Francisco) and Tri-Valley regions of Alameda County, California, United States. Located along the north side of Interstate 580 and at the intersection of Interstate 680, roughly 35 miles (56 km) east of downtown San Francisco, 23 miles (37 km) east of downtown Oakland, and 31 miles (50 km) north of downtown San Jose. According to the United States Census Bureau, the city has a total area of 15.23 square miles (40 km2) of which 0.03% is water. The City of Dublin is generally bounded by the City of San Ramon to the north, Castro Valley to the west, the City of Pleasanton to the south, and the City of Livermore to the east.
- **Brief History**—Dublin has long been known as the Crossroads of the Bay Area. Dublin now sits at the crossroads of two major freeways: Interstate 580 and Interstate 680. However, the significance of the crossroads dates back more than 200 years when Dublin served as the crossroads of two important stage routes - one from the Bay Area to Stockton and the other from Martinez to San Jose. The Alamilla Spring, located in the Dublin area, provided a place for travelers to change horses and freshen up before continuing their journey. Dublin has a rich history dating back to 1772 when Pedro Fages led an expedition of 16 mounted men on a journey in search of a land route to Drake's Bay, now known as San Francisco Bay. Their return journey brought them through the Amador Valley.
  During the past 20 years, the rapidly expanding Tri-Valley area has become renowned as a place of prosperity, a center for internationally acclaimed business parks, and home to some of the world's largest corporations. The City of Dublin, located at the crossroads of the Tri-Valley, has contributed to the planned growth and forward thinking of the area. The City continues to look ahead to expand and enhance the quality of life for members of the community.
- **Climate**—Dublin enjoys a relatively mild climate, with an average rainfall of 15 inches and an average maximum temperature of 89º Fahrenheit in July and an average minimum temperature of 37ºF in

December. At its most extreme, winter temperatures can drop below freezing a few days each year, and summer temperatures hover around 100 degrees Fahrenheit during July and August. The temperate weather allows residents year-round opportunities to take advantage of outdoor activities such as hiking, cycling, and shopping in a robust downtown corridor.

- **Governing Body Format**—The City of Dublin is a general law city operating under a City Council / City Manager form of local government. This form of government combines an elected mayor and council and an appointed local government administrator. The City Council elections are nonpartisan. The Mayor serves a two-year term, and Council members serve four-year terms. The Mayor and City Council, as a collegial body, are responsible for setting policy, setting/prioritizing goals and objectives, and approving the budget. The Mayor, with confirmation by the City Council, makes appointments to the City's advisory commissions and committees.
  The Council appoints the City Manager, who is responsible for the day-to-day administrative operation of the City, including: delivery of services, hiring of personnel, implementation of capital projects and preparation. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

1.3 DEVELOPMENT TRENDS

The Planning Division coordinates the City's review of residential, commercial, office, and industrial development projects. This includes working with property owners, developers, business owners, and residents to ensure that their development proposals conform to City policies and guidelines.

Table 1-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

1.4 CAPABILITY ASSESSMENT

The City of Dublin has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 1-2.
- Development and permitting capabilities are presented in Table 1-3.
- An assessment of fiscal capabilities is presented in Table 1-4.
- An assessment of administrative and technical capabilities is presented in Table 1-5.
- An assessment of education and outreach capabilities is presented in Table 1-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 1-7.
- Classifications under various community mitigation programs are presented in Table 1-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 1-9.

The capability assessment was reviewed in order to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan and are identified as Community Capacity Building mitigation actions in the Analysis of Mitigation Actions table in Section 1.10.

Table 1-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	No N/A
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	No N/A N/A
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes Downtown Dublin is experiencing ongoing reinvestment and revitalization. Portions of that area lie within the Alquist-Priolo Earthquake Fault Zone and FEMA flood zones. There are undeveloped parcels along I-580 in the Eastern Dublin Specific Plan area located within a FEMA flood zone that are anticipated for future development
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	

	2012	2013	2014	2015	2016
Single Family	656	616	473	369	428
Multi-Family	29	10	60	29	33
Other (commercial, mixed use, etc.)	6	6	13	12	2

Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: 0 • Wildfire Risk Areas: 0 as defined by the CA Building Code; and 558 as defined by the City of Dublin. Development has occurred throughout the city during the performance period for this plan. For the landslide and liquefaction hazards, the city does not track the specific number of building permits issued. It is important to note, however, that all new development was consistent with General Plan policies and municipal code standards.
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	Approximately 21,000 existing housing units with approximately 6,600 remaining to reach buildout. Remaining commercial/industrial sites are located along I-580 between Tassajara Road and the eastern City Limits boundary.

Table 1-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Note: The Dublin Municipal Code is current through Ordinance 6-17, passed July 18, 2017.				
Building Code	Yes	No	Yes	No
Comment: Title 7, Chapter 7.32 DMC adopts The 2016 California Building Code, Part 2, Title 24 of the California Code of Regulations, a portion of the California Building Standards Code, as defined in the California State Health and Safety Code Section 18901 et seq. (hereinafter referred to as the "state code"), and any rules and regulations promulgated pursuant thereto including the International Building Code, 2015 Edition, including Appendix Chapters C, F, G, H, and I, as published by the International Code Council, and as referenced in and adopted pursuant to California State Health and Safety Code Sections 17922 and 18935, (hereinafter referred to as the "IBC") are hereby adopted and incorporated by reference herein.				
Zoning Code	Yes	No	Yes	No
Comment: Title 8, DMC, Chapters 8.04 to 8.144. The purpose of this Ordinance is to promote and protect the public health, safety, peace, comfort, convenience and general welfare and to preserve and enhance the aesthetic quality of the City by providing regulations to ensure an appropriate mix of land uses, and that each land use relates properly to adjacent land uses in an orderly manner, and for the following more particularly specified purposes.				
Subdivisions	Yes	No	Yes	No
Comment: Title 9, DMC, Chapters 9.04 to 9.56. This title shall regulate and control the design and improvement of subdivisions of land within the city and supplement the provisions of the Subdivision Map Act of the State of California set forth at Government Code Section 66410 et seq. concerning the design, improvement and survey data of subdivisions, the form and content of all maps provided for by the Subdivision Map Act, and the procedure to be followed in securing the official approval of the city regarding the maps.				
Stormwater Management	Yes	No	No	Yes
Comment: Title 7, Chapter 7.74 DMC. The purpose of this chapter is to ensure the future health, safety and general welfare of city of Dublin citizens by: (1) Eliminating non-stormwater discharges to the municipal separate storm sewer; (2) Controlling the discharge to municipal separate storm sewers from spills, dumping or disposal of materials other than stormwater; and (3) Reducing pollutants in stormwater discharges to the maximum extent practicable. The intention of this chapter is to protect and enhance the water quality of our watercourses, water bodies and wetlands, in a manner pursuant to and consistent with the Clean Water Act. Integration Opportunity: Pursue mitigation opportunities through green infrastructure planning.				
Post-Disaster Recovery	No	No	No	Yes
Comment: City currently does not have a code or ordinance that dictates its recovery operations following a disaster. This could be a core capability the City may consider as a mitigation action for this plan.				
Real Estate Disclosure	No	Yes	Yes	Yes
Comment: California State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property. To be implemented by sellers and realtors. Integration Opportunity: The information of hazards and risk contained in this plan could be used to support enforcement of this law.				
Growth Management	Yes	No	Yes	Yes
Comment: 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 General Plan for the City of Dublin was adopted February 11, 1985 and most recently amended November 14, 2016. The General Plan contains 12 elements that address many aspects of the community including: land use, housing, parks and open space, community design, infrastructure, safety, sustainability and conservation of resources. The General Plan is the City's overarching policy document. All City policies and ordinances must be consistent with the General Plan. The Planning Division is responsible for maintaining the General Plan and preparing amendments to the document as directed by the City Council. Integration Opportunity: Integrate the hazard mitigation plan in to the General Plan pursuant to CA AB2140 and SB 379.				
Site Plan Review	Yes	No	No	No
Comment: Title 9, Chapter 9.08 DMC. The form and contents, submittal and approval of tentative tract maps for the subdivision of five (5) or more parcels and tentative parcel maps for the subdivision of four (4) or fewer parcels shall be governed by the provisions of this chapter.				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Environmental Protection	Yes	No	No	No
Comment: *Title 7, Chapter 7.20, DMC: WATERCOURSE PROTECTION* *Title 7, Chapter 7.30, DMC: WASTE MANAGEMENT PLAN* *Title 7, Chapter 7.56, DMC: TREES* *Title 7, Chapter 7.94, DMC: GREEN BUILDING* *Title 5, Chapter 5.56, DMC. GREEN BUILDING PRACTICES FOR CITY PROJECTS*				
Flood Damage Prevention	Yes	No	No	Yes
Comment: *Title 7, Chapter 7.24, DMC. It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions*				
Emergency Management	Yes	No	No	Yes
Comment: *Title 2, Chapter 2.44, DMC. The declared purposes of this chapter are to provide for the preparation and carrying out of plans for the protection of persons and property within this city in the event of an emergency; the direction of the emergency organization; and the coordination of the emergency functions of this city with all other public agencies, corporations, organizations, and affected private persons. Integration Opportunity: This plan should fully support and integrate in to the City's Emergency Management program.*				
Climate Change	Yes	No	Yes	Yes
Comment: *The City Council adopted the Climate Action Plan in November 2010, and updated the plan in 2013. The City's Climate Action Plan outlines measures to reduce the City's greenhouse gas (GHG) emissions to 15% below 2010 GHG levels by 2020. The City will update the Climate Action Plan to meet 2030 and 2050 goals in fiscal year 2017-2018.*				
Other:	Yes	No	Yes	No
Comment: *The California Environmental Quality Act (CEQA) requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. California Senate Bill 379 requires that local government incorporate climate adaptation and resiliency strategies in the safety element of their general plans.*				
Planning Documents				
General Plan	Yes	No	Yes	No
Is the plan compliant with Assembly Bill 2140? Yes *Comment:* *The General Plan for the City of Dublin was adopted February 11, 1985 and most recently amended November 14, 2016. Chapter 8, section 8.3 of the General Plan includes the Safety Element. This section includes an emergency preparedness policy that states: In 2010 the City adopted a Local Hazard Mitigation Plan as an annex to the Comprehensive Emergency Management Plan to assess hazards and mitigate risks prior to a disaster event. The City will periodically review the Plan to prepare for emergencies.*				
Capital Improvement Plan	Yes	No	No	Yes
How often is the plan updated? Every 5-years. *Comment:* *Current CIP in effect for the City Covers Fiscal Year 2016-2017 through Fiscal Year 2020-2021. The projects as proposed in this document have been prioritized based on the need for infrastructure preservation, repair and safety, and critical planning for future city service delivery. Program Funding is allocated under the following categories: general improvements, community improvements, parks and streets. Integration opportunity: FEMA grant eligible projects within the CIP that will reduce risk from hazards assessed by this plan could be included in the City's action plan.*				
Floodplain or Watershed Plan	No	No	No	Yes
Comment: *The City is a participating community in the National Flood Insurance Program and implements the program thorough the Dublin Municipal Code, Chapter 7.24. The City does not currently have a stand-alone flood hazard management plan or watershed management plan. Integration Opportunity: If the City feels that the flood risk is sufficient to warrant a detailed look at causes and solutions to the flood problems identified, the City could consider the development of a Comprehensive Flood Hazard Management Plan as a mitigation action for this plan.*				
Stormwater Management Plan	Yes	Yes	Yes	Yes
Comment: *The City of Dublin Municipal code contains regulations pertaining to watercourse protection, flood control and stormwater management in Chapters 7.20, 7.24, and 7.74. The City is a permittee under the California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008.*				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Urban Water Management Plan	No	Yes	No	No
Comment: *The City receives retail water services from Dublin San Ramon Services District (DSRSD) and DSRSD receives wholesale water services from Zone 7 Water Agency (Zone 7). Both DSRSD and Zone 7 have collaborated together on their respective Urban Water Management Plans.*				
Habitat Conservation Plan	No	No	No	No
Comment: *N/A for the City of Dublin*				
Economic Development Plan	Yes	No	No	No
Comment: *The City's general plan includes an economic development element which was most recently amended on November 14, 2016.*				
Shoreline Management Plan	No	No	No	No
Comment: *N/A for the City of Dublin*				
Community Wildfire Protection Plan	Yes	No	No	Yes
Comment: *City of Dublin Wildfire Management Plan. Adopted July 9, 1996; revised March 5, 2002. Integration Opportunity: future updates to this plan should reference the wildfire risk assessment of this hazard mitigation plan. This plan is now considered to be integrated in to the Tri-Valley Hazard Mitigation plan by reference.*				
Forest Management Plan	No	No	No	No
Comment: *N/A for the City of Dublin*				
Climate Action Plan	Yes	No	Yes	Yes
Comment: *The City Council adopted the Climate Action Plan in November 2010, and updated the plan in 2013. The City's Climate Action Plan outlines measures to reduce the City's GHG emissions 20% below a business-as-usual scenario by 2020. Integration Opportunity: Pursuant to CA SB379, the city will integrate.*				
Comprehensive Emergency Management Plan	Yes	No	Yes	No
Comment: *The City Council adopted a Comprehensive Emergency Management Plan in January 2004, and has since approved Updates to the Plan in February 2004, August 2009, and June 2011.*				
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Yes	Yes	Yes
Comment: *This is identified in the City's Comprehensive Emergency Management Plan, section 12.1.4.*				
Post-Disaster Recovery Plan	Yes	Yes	Yes	Yes
Comment: *This is identified in the City's Comprehensive Emergency Management Plan, Annex H.*				
Continuity of Operations Plan	Yes	No	Yes	Yes
Comment: *This is identified in the City's Comprehensive Emergency Management Plan, Annex G.*				
Public Health Plan	No	Yes	No	No
Comment: *Alameda County Health Care Services Agency: mission of Health Care Services Agency is to provide fully integrated health care services through a comprehensive network of public and private partnerships that ensure optimal health and well-being and respect the diversity of all residents.*				
Other:	No	No	No	No
Comment:				

Table 1-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Building and Safety Division of the Community Development Department
Does your jurisdiction have the ability to track permits by hazard area?	No, the City does not currently track building permits issued by hazard area.
Does your jurisdiction have a buildable lands inventory?	Chapter 2, section 2.2 of the City's General Plan includes a "Land Use Development Potential Analysis." However, a traditional buildable lands analysis has not been performed at the time of this plan update.

Table 1-4. Fiscal Capability

Financial Resource	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, none of these services are city sponsored
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes, Surface Water Utility
Other	N/A

Table 1-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Department
Planners or engineers with an understanding of natural hazards	Yes	Community Development Department, Public Works Department; Geological Hazard Abatement Districts (GHAD)
Staff with training in benefit/cost analysis	Yes	Finance/Administrative Services Department
Surveyors	Yes	Can contract for these services
Personnel skilled or trained in GIS applications	Yes	Information Services Division
Scientist familiar with natural hazards in local area	Yes	Community Development Department
Emergency Manager	Yes	City Manager's Office
Grant writers	Yes	Finance/Administrative Services Department
Other	N/A	N/A

Table 1-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Links to the Tri-Valley hazard mitigation plan web site are provided on the City's Disaster preparedness page: http://www.dublin.ca.gov/94/Disaster-Preparedness
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes City utilizes "Next-door," Twitter and Facebook options for social media
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	No N/A
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes CERT, Alameda County Fire Department
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes The City has partnered with Alameda County on a new emergency notification system, "AC Alert," powered by EverBridge. It is an ultra-high-speed telephonic communication service used for emergency notifications.

Table 1-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Community Development Department, Building and Safety Division
Who is your floodplain administrator? (department/position)	Building Official
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended?	1996
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
When was the most recent Community Assistance Visit or Community Assistance Contact?	Visit was in 2014. Last contact 2016.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No N/A
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	No N/A Yes
How many flood insurance policies are in force in your jurisdiction?[a] • What is the insurance in force? • What is the premium in force?	123 $40,114,900 $217,765
How many total loss claims have been filed in your jurisdiction?[a] • How many claims are still open/were closed without payment? • What were the total payments for losses?	3 0/3 $0

a. According to FEMA statistics as of June 30, 2017

Table 1-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	2	4/22/2014
Public Protection	Yes	Unknown	Unknown
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 1-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Low
Comment: *None provided*	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: *None provided*	
Technical resources to assess proposed strategies for feasibility and externalities	Medium
Comment: *The City of Dublin has a professional staff with the capabilities to assess strategies. In addition, the State of California offers a variety of planning guidance and resources to assist local communities with climate change strategies.*	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: *The City of Dublin adopted a Climate Action Plan (CAP) to reduce GHG emissions in 2010 and adopted an updated CAP in 2013. The updated CAP includes a detailed emissions inventory for both community and municipal emissions. City staff is currently working on the 2015 GHG inventory.*	
Capital planning and land use decisions informed by potential climate impacts	Low
Comment: *The CAP contains a number of GHG emission reduction strategies pertaining to land use and the General Plan includes policies and actions related to reducing risk from natural hazard events, such as flood and wildfire, in the Safety Element; however, these strategies do not account for impacts from climate change. The City has a Capital Improvement Program in which all projects conform to the General Plan and the California Environmental Quality Act.*	
Participation in regional groups addressing climate risks	Medium
Comment: *The City joined the Alameda County Climate Protection Project in 2007 and is part of the Bay Area Air Quality Management District. City staff participates in regional committees such as the Bay Area Energy Resource Network, the goal of which is to develop successful climate, resource and sustainability programs.*	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: *There are a number of state actions and regulations that require local governments to consider climate change in public decision-making processes such as Senate Bill 379 (SB379), which requires that the impacts of climate change be addressed in local general plans. The CAP sets forth a number of areas where GHG emissions are considered in decision-making and development processes.*	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: *The City's 2013 CAP sets a GHG emissions reduction target of 15 percent below the 2010 inventory levels by 2020. The CAP identifies 45 reduction measures for community and/or municipal activities. The CAP includes a plan to implement, monitor and review the CAP to determine progress. City staff will update the CAP to meet the 2030/2050 goals in fiscal year 2017-2018.*	
Identified strategies for adaptation to impacts	Medium
Comment: *Although the CAP is focused on GHG reduction strategies rather than climate change adaptation, it identifies strategies that support co-benefits such as the Bay-Friendly Landscaping Policy to decrease heat island effect and control stormwater runoff and the City's Green Building Ordinance. In addition, the City's General Plan includes a sustainability element that includes policies related to drought tolerant landscaping, reduction of heat island effect and stormwater retention.*	

Criterion	Jurisdiction Rating[a]
Champions for climate action in local government departments	Low
Comment: *As part of the 2030 Climate Action Plan process, the City will select champions from the various City departments.*	
Political support for implementing climate change adaptation strategies	Low
Comment: *The City Council has a long history of supporting efforts related to climate change including the endorsement of the US Mayors' Climate Protection Agreement in 2005 and the adoption of the CAP in 2010 and 2013; however, a clear set of climate change adaptation strategies and directives have not yet been developed.*	
Financial resources devoted to climate change adaptation	Medium
Comment: *The City has allocated $70,000 for the update of the City's Climate Action Plan. This Plan will evaluate the climate change impacts on the City's operations and infrastructure.*	
Local authority over sectors likely to be negative impacted	Medium
Comment: *Dublin San Ramon Services District is the water utility for the City. The City shares responsibility for stormwater facilities with private property owners and the Alameda County Flood Control and Water Conservation District. The City is a participant in the NFIP and enforces the provisions of its flood damage prevention ordinance. The city maintains more than 40 acres of landscaping that may be vulnerable to drought. Fire protection services are contracted through the Alameda County Fire Department.*	
Public Capacity	
Local residents' knowledge of and understanding of climate risk	Medium
Comment: *The City is a leader in environmental stewardship and has placed emphasis on conservation efforts and the establishment of renewable energy resources. The CAP includes a number of strategies to increase the public's awareness of climate change and GHG reduction strategies; however, no public outreach program focused on climate change impacts and adaptation currently exists.*	
Local residents support of adaptation efforts	Low
Comment: *The City is a leader in environmental stewardship and has placed emphasis on conservation efforts and the establishment of renewable energy resources. The CAP includes a number of strategies to increase the public's awareness of climate change and GHG reduction strategies; however, no public outreach program focused on climate change impacts and adaptation currently exists.*	
Local residents' capacity to adapt to climate impacts	Medium
Comment: *The City of Dublin's population would be expected to be able to adapt to many climate impacts as residents are well educated with more than 54 percent of the adult population holding a bachelor's degree or higher, relatively well off with a median household income almost double the state average, relatively young with only 7 percent of the population 65 years and over, and relatively healthy with about 4 percent of residents under age 65 reporting a disability, which is less than half the national average. However, residents may not know what actions to take to adapt to climate change impacts.*	
Local economy current capacity to adapt to climate impacts	High
Comment: *The majority of the employed population in the City works in management, business, science and the arts, which would be likely to be able to adapt to the impacts of climate change. Only a very small portion of the population is employed in natural resource based industries such as farming or forestry.*	
Local ecosystems capacity to adapt to climate impacts	Unsure
Comment: *Local ecosystems ability to adapt to climate impacts at this time is unclear. The western hills are ecologically important and part of an area of regional significance identified by the National Park Service. Riparian areas, particularly in western Dublin, are important wildlife habitat. The General Plan identified policies for the conservation of these areas.*	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, The City of Dublin made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **City of Dublin General Plan**— the November 14, 2016 amendment to the City's General Plan includes an emergency preparedness policy that integrates the City's hazard mitigation plan.
- **City of Dublin Comprehensive Emergency Management Plan (CEMP)**— In 2010 the City adopted a Local Hazard Mitigation Plan as an annex to the Comprehensive Emergency Management Plan to assess hazards and mitigate risks prior to a disaster event.
- **Post-Disaster Recovery Program**—Future updates to the City's General Plan, CEMP or the Tri-Valley Hazard Mitigation Plan should consider the inclusion of a post-disaster recovery component. Since these three programs are already fully integrated, only one of these programs would need to include this component.
- **Flood Damage Prevention Ordinance**—The City should consider the inclusion of higher regulatory flood protection standards appropriate for the flood risk within the City as mitigation actions for this plan.
- **Climate Change**—Pursuant to CA SB379, all future updates to the City's General Plan and Climate Action Plan should address the adaptive capacity requirements of SB379 which includes full integration of the hazard mitigation plan.

Resources listed in Section 1.11 were used to provide information for this annex on hazard events and local capabilities within the jurisdiction.

1.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, the City of Dublin will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the midterm progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **City of Dublin General Plan**—Since this 2017 hazard mitigation planning effort differs substantially from the prior hazard mitigation plan of record for the City of Dublin, all future amendments to the General Plan should revisit hazard mitigation plan integration opportunities by adopting relevant policies in its safety element.
- **City of Dublin Comprehensive Emergency Management Plan (CEMP)**— All future updates to the City's CEMP should look to the 2017 Tri-Valley hazard mitigation plan as a major source of information on exposure and vulnerability to natural hazards of concern for the City.

- **Post-Disaster Recovery Program**—Future updates to the City's General Plan, CEMP or the Tri-Valley Hazard Mitigation Plan should consider the inclusion of a post-disaster recovery component. Since these three programs are already fully integrated, only one of these programs would need to include this component.
- **Flood Damage Prevention Ordinance**—The City should consider the inclusion of higher regulatory flood protection standards appropriate for the flood risk within the City as mitigation actions for this plan.
- **Climate Change**—Pursuant to CA SB379, all future updates to the City's General Plan and Climate action plan should address the adaptive capacity requirements of SB379 which includes full integration of the hazard mitigation plan.
- **Capital Improvements Program (CIP)**—The City should look to the Hazard Mitigation Plan as a possible source to grant funding that could leverage City's funding for grant eligible capital projects. This plan has the ability to fold in new capital projects through the plan maintenance strategy of the plan.
- **City of Dublin Wildfire Management Plan**—This document has been incorporated by reference in to this plan. However, should the City ever decide to update this plan, they should look to the 2017 Tri-Valley Hazard Mitigation Plan and its future updates as the source of risk information to the wildfire hazard.
- **City of Dublin Green Infrastructure Plan—**This plan is required by the Municipal Regional Stormwater NPDES Permit (MRP) and mandates the inclusion of low impact development drainage design into storm drain infrastructure. The intent of the plan is to describe how permittees under the MRP will shift their impervious surfaces and storm drain infrastructure from traditional storm drain infrastructure to a more resilient, sustainable system that slows runoff by dispersing it and/or infiltrating it. The goals, objectives and actions identified in this plan and the hazard mitigation plan should be coordinated and complementary, as appropriate.

1.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-10 lists past occurrences of natural hazards for which specific damage was recorded in the City of Dublin. Other hazard events that broadly affected the entire planning area, including the City of Dublin, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-10. Past Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Wildfire	N/A	10/17/2017	50-acre wildfire requiring automated alert system notification to 150 residents to evacuated to City sponsored Shelter. No Damage $0
Wildfire	N/A	8/22/2017	75-acre wildfire on Camp PARKS requiring road closures and automated alert system notification residents directed to City sponsored reunification center. No Damage $0
Drought	N/A	Years 2014-2015	CA Governor declared a state of emergency based on drought conditions in California; City proclaimed Local Emergency and mandatory conservation efforts to show support to water purveyors.
Gas Line Leak	N/A	June, 2006	Private undergrounded jet fuel gas line traversing City of Dublin sustained a leak.
Gasoline Spill	N/A	May, 2009	Privately operated gasoline tanker spill in neighboring jurisdiction leaked into City of Dublin storm-drain system. City had partial emergency operation center activation, provided temporary lodging vouchers and animal sheltering services to impacted neighborhoods.
Flash Flood	N/A	February, 1999	Weeks of severe winter weather and horizontal rain caused significant damage to public facilities.

1.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include the following:

- Storm drain conditions citywide need to be assessed and updated, as appropriate.

1.8 HAZARD RISK RANKING

Table 1-11 presents a local ranking for the City of Dublin of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Landslide[e]	54	High
2	Earthquake[a]	36	High
3	Severe weather[b]	33	Medium
4	Wildfire[c]	18	Medium
5	Flood[d]	12	Low
6	Drought[f]	9	Low
7	Dam failure[g]	6	Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

1.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
The City will continue annual sponsorship of Community Emergency Response Team (CERT) training (INFR-g-6, HSNG-k-6, ECON-j-5, GOVT-c-3, EDUC-c-3). The Fire Department is the lead agency for this activity. The City will accomplish this task with existing resources. This is an annual project.	Completed; Ongoing			N/A
Comment: The City works in partnership with Alameda County Fire Department to perform emergency preparedness services and increase community capability and self-sufficiency during a disaster.				
The City will continue to recruit community volunteers on an annual basis to remove litter and debris from the City's storm drain system (Econ-J-8). The City Manager's Office is the lead agency for this project. The City will accomplish this task with existing resources. This is an annual project.	Completed; Ongoing			N/A
Comment: The City holds a semi-annual creek cleanup as part of Dublin Pride activities and Creek Clean Up Day.				
The City will install, where appropriate, trash capture devices at storm drain inlets (INFR-d-7). The Public Works Department is the lead agency for this project. The City will seek grant funding to offset the cost of installation. Possible grant opportunities exist with ABAG also with the State of California's Used Oil Recycling Program. This is a five-year project.	Completed; Ongoing			N/A
Comment: The City adheres to the Municipal Regional NPDES permit which requires trash load reduction. Through this effort, the City installs trash capture devices and maintains them three times a year.				
The City will consider adoption of the 2010 California Building Code. The code will become effective January 1, 2011 and will apply to all construction activity within the City boundaries (HSNG-f-1, HSNG-g-6, ECON-e-3). The Community Development Department is the lead agency for this project. The City will accomplish this task with existing resources.	Completed			N/A
Comment:				
The City Council will consider adoption of a Climate Action Plan, which includes an inventory of community and municipal greenhouse gas emissions and sets a greenhouse gas reduction target (ENVI-b-2). The City Manager's Office is the lead agency for this project. The City will accomplish this task with existing resources and will be completed by 2011.	Completed			N/A
Comment: The City currently has a Climate Action Plan through 2020.				

1.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-13 lists the actions that make up the City of Dublin hazard mitigation action plan. Table 1-14 identifies the priority for each action. Table 1-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
D-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	City of Dublin Public Works	N/A	High	HMGP, PDM, FMA	Short-term
D-2— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community as feasible.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	City of Dublin Community Development	N/A	Low	Staff Time, General Funds	Ongoing
D-3— Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	City of Dublin, Assistant to the City Manager	All City of Dublin departments identified as lead or support agencies	Low	Staff Time, General Funds	Short-term
D-4—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam failure	1, 4, 6, 9	City of Dublin Public Works/ Environmental Services	N/A	Low	Staff Time, General Funds	Ongoing
D-5—Identify and pursue strategies to increase adaptive capacity to climate change including but not limited to the following: Conduct a Climate Adaptation Evaluation and Develop a Climate Adaptation Plan.							
New and Existing	Dam failure, Drought, Flood, Landslide, Severe weather, Wildfire	1, 2, 5, 7, 8, 9, 10, 12	City of Dublin Public Works / Environmental Services	N/A	Low	Staff Time, General Funds	Short-term
D-6—Integrate flood protection mechanisms into the City's Green Infrastructure Plan.							
New and Existing	Drought, Flood, Severe weather	8, 10, 12	City of Dublin Public Works / Environmental Services	Zone 7	High	Staff time, general funds, HMGP, PDM, FMA, other grants	Short-term integration, long-term implement ation
D-7—Develop a Regional Catastrophic Debris Management Plan to minimize recovery time post-disaster.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 12	City of Dublin Public Works	Tri-Valley Agencies, Alameda County, City Franchised Waste Hauler, Other Waste Haulers	Low	Staff time, general funds	Short-term
D-8—Coordinate with existing GHADs, as applicable, on the mitigation of geological hazards, including landslides.							
New and Existing	Landslide, Earthquake	1, 7	City of Dublin Public Works	GHADs	Low	Staff time, GHAD and HMGP, PDM and other grants	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
D-9—Complete a Citywide Street Storm Drain Condition Assessment.							
Existing	Flood, Severe weather	1, 8	City of Dublin Public Works	N/A	High	Staff time, Capital Project with general funds	Short-term
D-10—Update City's Flood Damage Prevention Ordinance in accordance with State of California model.							
Existing	Dam failure, flood, severe weather	6, 8, 11	City of Dublin CDD/ Public Works	State of CA	Low	Staff time	Short-term
D-11—Utilize vegetation management to reduce risks in existing development and open space land.							
Existing	Wildfire, flood, severe weather, landslide	10, 12	City of Dublin Fire Prevention Bureau &Public Works Dept.	Alameda County Fire Department, Private Property Owners, East Bay Regional Park District	Low	Staff time	Ongoing
D-12—Reduce hazard vulnerabilities for non-City owned building throughout Dublin. Continually update and adopt building standard codes to incorporate the latest knowledge and design standard to protect people and property against know seismic, fire, flood and landslide risk in both structural and non-structural building and site components.							
Existing	Flood, Earthquake, Wildfire, Severe Weather, Landslide	1, 6, 11	City of Dublin CDD/Building	Alameda County Fire Department International Code Council	Low	Staff time	Ongoing
D-13—Streamline the permitting process to rebuild residential and commercial structures following disaster; prepare an informational handout for property owner and contractors on steps to rebuild following a major disaster.							
New and Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 7, 9	City of Dublin/CDD Building & Planning	Private Property & Landowners	Low	Staff Time	Short-term
D-14—Improve the disaster-resistance of natural gas delivery system to increase public safety and to minimize damage and service disruption following a disaster. Educate private property owners about gas line shut off procedures.							
New and Existing	Earthquake, Flood, Wildfire	1, 4, 9	City of Dublin/CDD	Alameda County Fire (CERT) PG&E Kinder Morgan Pipeline & Hazardous Material Safety Administration	Medium	Staff Time for education; HMGP, PDM	Short-term
D-15—Provide outreach activities related to hazard mitigation and disaster preparedness. Revitalize and maintain Tri-Valley Hazard Mitigation Plan website, create printed materials for public and business owners.							
New and Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 9	Tri-Valley Cities; City of Dublin	Alameda County Fire Department, Alameda County Sheriff	Low	Staff Time & General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
D-16—Establish cooling centers and encourage landscaping improvement to reduce Dublin's residents' vulnerability to extreme heat events, severe storms, and associated hazards. Integrate extreme heat readiness in to City operations, services and best practices.							
Existing	Severe weather, flood	8, 10, 12	City of Dublin Public Works & Parks and Community Services Departments	CA Office of Emergency Services	Low	Staff Time	Short-term
D-17—Coordinate disaster preparation and mitigation practices with private sector, public institutions and other public bodies. Maintain an emergency notification system (reverse 9-1-1) to deliver community alerts. Seek guidance from Cal OES and Alameda County OES how best to work and educate private sector about business resilience.							
New and Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 3, 7	City of Dublin City Manager's Office/ PIO/ Disaster Preparedness	County of Alameda CAL OES	Low	Staff Time	Short-term
D-18—Explore local legislation to regulate the storage of hazardous materials to be protected from flood zones. Continue to assess the potential impact from hazardous material stored and transported through Dublin.							
New and Existing	Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 4, 10	City of Dublin City Manager's Office	EPA, Alameda County OES, Ca OES, Alameda County Fire Dept.	Low	Staff Time	Short-term
D-19—Reduce hazard vulnerabilities for City owned building and public facilities throughout Dublin. Continue City's Injury and Illness Prevention Program and Safety Plan of Action including regular facility inspections including office spaces to eliminate hazards.							
Existing	Earthquake	4, 8	City of Dublin City Manager's Office / Disaster Preparedness	Safety Consultant, Alameda County Fire	Medium	Staff time, general funds	Short-term
D-20—Collaborate with Dublin San Ramon Services District (DSRSD), Zone 7, local, state, regional and federal partners to increase the security of Dublin's water supply from climate change impacts. Continue to encourage private and public water recycling, gray water use, and ensure compliance with State's Water Efficient Landscape Ordinance and Bay Friendly Landscaping Guidelines.							
New and Existing	Severe Weather, Drought	1, 2, 7	City of Dublin Public Works Dept. and City Manager's Office	DSRSD Zone 7 CA Dept. of Water Resources	Low	Staff Time	Short-term
D-21—Protect vulnerable electric systems and facilities and build resiliency so disruption to the system is minimized during and following disasters. Ensure adequate redundancy in the form of photovoltaic generation, battery storage systems, energy efficiency, and mobile generators including fuel is available to maintain critical facilities.							
New and Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	3, 4, 10	City of Dublin City Manager's Office, Public Works Dept., Facilities Development	Alameda County Offices of Emergency Services, Fire, Sheriff, and PG&E,	Low	Staff time, Capital Project with general funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
D-22—Conduct ongoing training for City Personnel to ensure they have necessary training and equipment to deal with a hazard (including natural and man-made disasters); Test and train City Disaster Service Workers and those assigned to Emergency Operations Center (R.A.C.E.S); pre-screen, train and educate Disaster Services Volunteers for same.							
New and Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	3, 7, 9	City of Dublin City Manager's Office	Alameda County Office of Emergency Services, Emergency Managers' Association, and General Public	Low	Staff time, Capital Project for new emergency operation center, general funds	Short-term

Table 1-14. Mitigation Action Priority

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

a. See the introduction to this volume for explanation of priorities.

Table 1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Landslide	2, 12, 18	1, 8, 11, 12	15		7, 17, 21	8		2, 3, 5, 8, 13, 21, 22
Earthquake	2, 12, 18	1, 8, 12, 19	14, 15		7, 17, 21			3, 8, 13, 14, 21, 22
Severe weather	2, 10, 12, 16, 18, 20	1, 11, 12	15	6	7, 17, 21		6, 16, 20	3, 5, 6, 13, 21, 22
Wildfire	2, 12, 18	1, 11, 12	14, 15		7, 17, 21			3, 5, 13, 14, 21, 22
Flood	2, 4, 9, 10, 12, 16, 18	1, 4, 9, 11, 12	4, 14, 15	6	7, 17, 21		6, 16	3, 5, 6, 9, 13, 14, 21, 22
Drought	2, 20		15	6			6, 20	3, 5, 6
Dam failure	2, 4, 10	1, 4	4, 15		7, 17, 21			3, 5, 13, 21, 22

a. See the introduction to this volume for explanation of mitigation types.

1.11 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

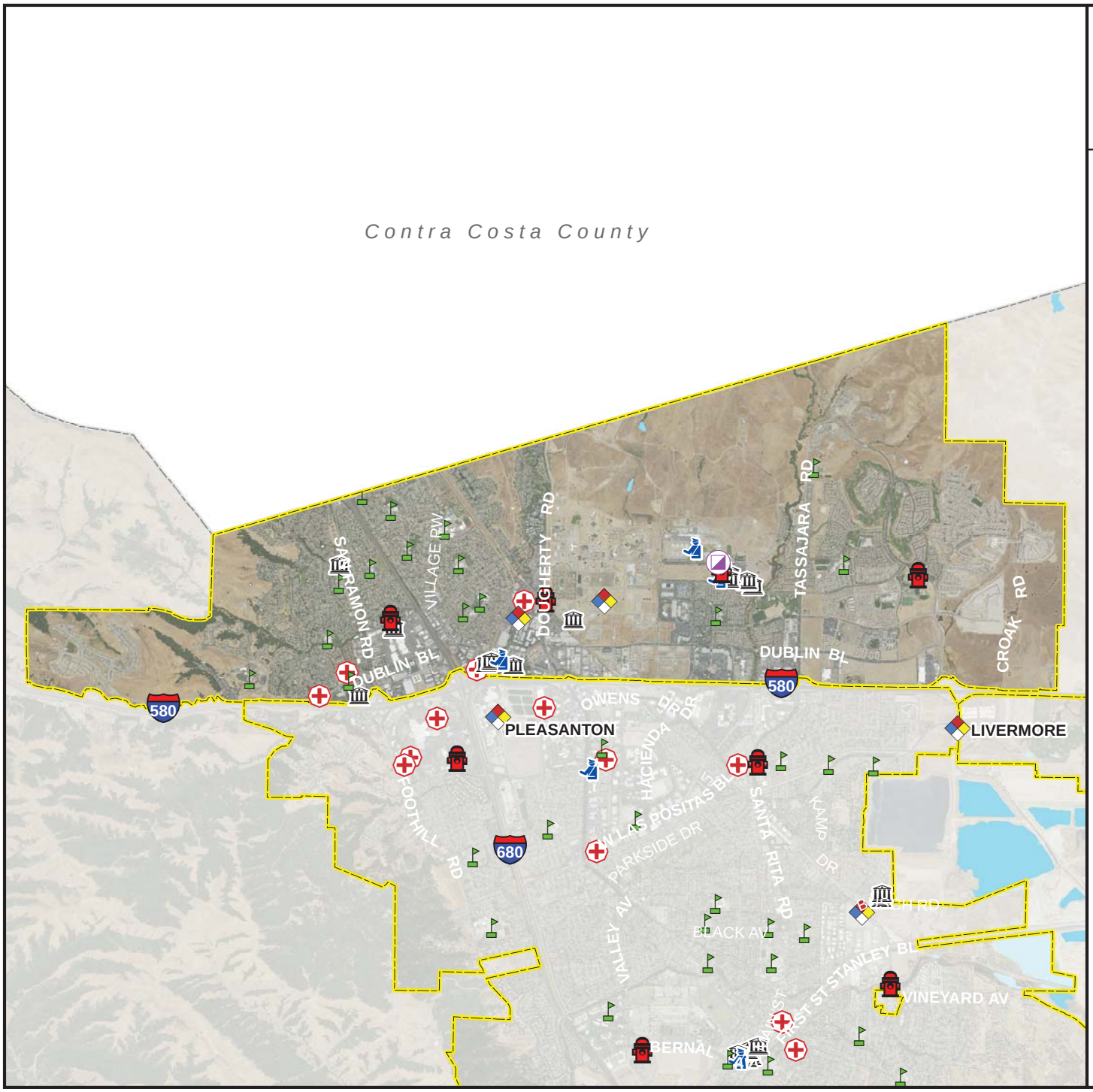
The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Dublin Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **City of Dublin Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Climate Action Plan (2013)**—The Climate Action Plan was used to develop ratings for the adaptive capacity assessment conducted as part of the capability assessment.
- **General Plan**—The General Plan was used to develop ratings for the adaptive capacity assessment conducted as part of the capability assessment.
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:

  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
  - **American FactFinder**—Information obtained via the American FactFinder website was used to develop ratings for the adaptive capacity assessment conducted as part of the capability assessment.
  - **Community and Economic Profile**—Information on the City of Dublin's website regarding the City's business profile was used to develop ratings for the adaptive capacity assessment conducted as part of the capability assessment.

City of Dublin

Critical Facilities



- Educational Facilities
- Emergency Services - EOC
- Emergency Services - Fire
- Emergency Services - Police
- Government / City Facilities
- Hazardous Materials
- Medical & Health Services
- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

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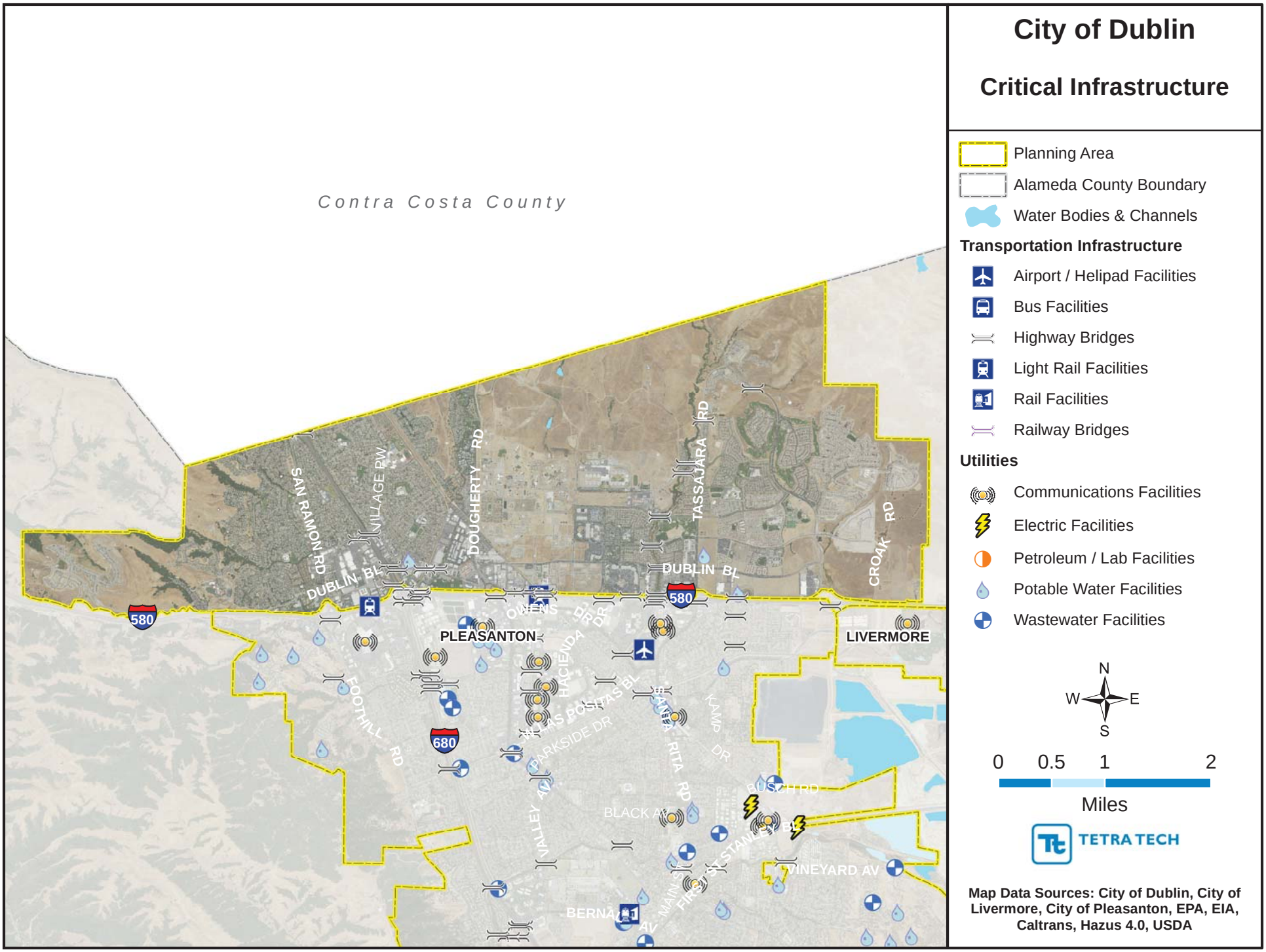
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Cal Healthcare Atlas, Hazus 4.0, USDA



City of Dublin

Critical Infrastructure

- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

Transportation Infrastructure

- Airport / Helipad Facilities
- Bus Facilities
- Highway Bridges
- Light Rail Facilities
- Rail Facilities
- Railway Bridges

Utilities

- Communications Facilities
- Electric Facilities
- Petroleum / Lab Facilities
- Potable Water Facilities
- Wastewater Facilities

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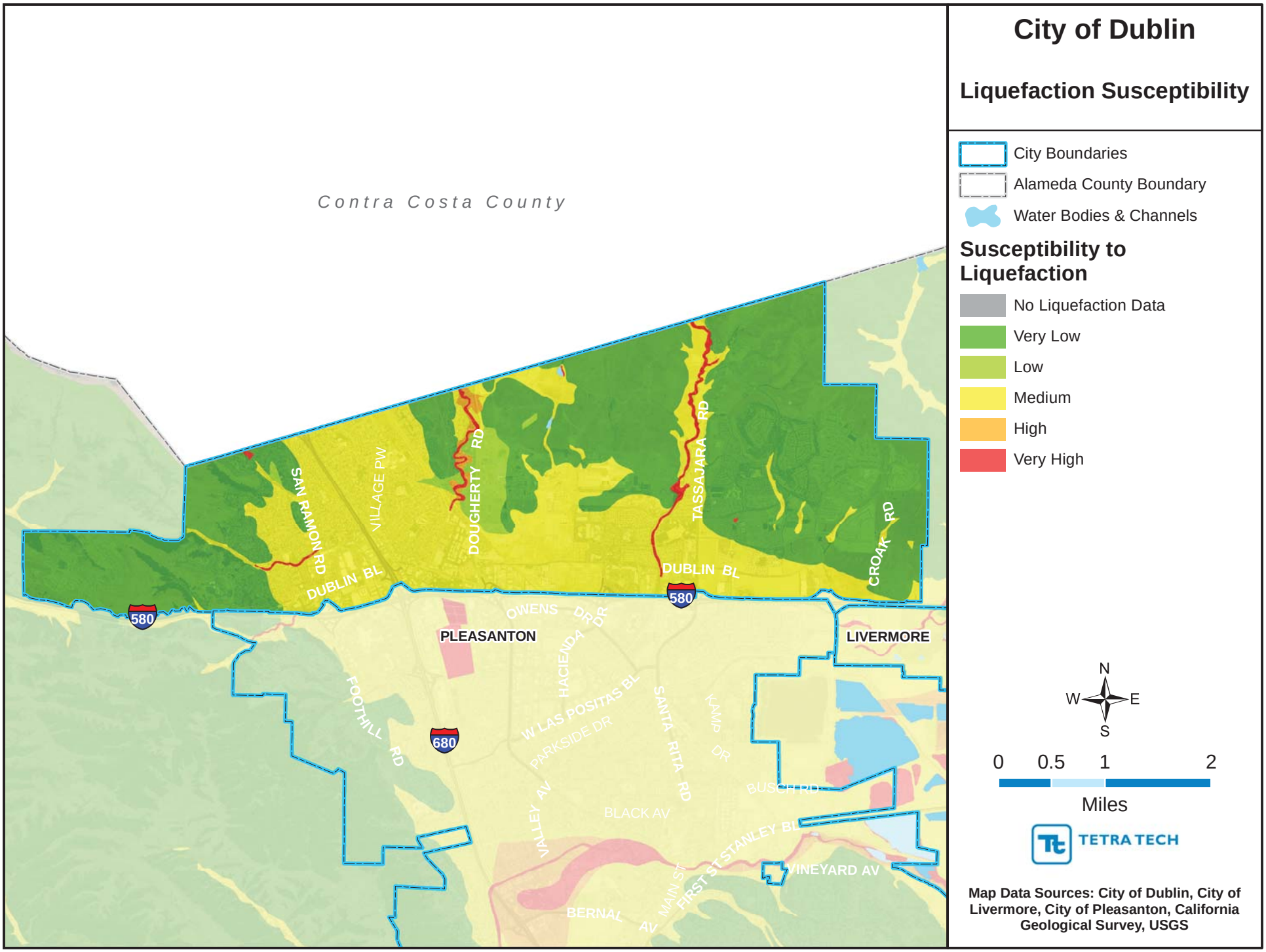
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Caltrans, Hazus 4.0, USDA


City of Dublin
Liquefaction Susceptibility
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Susceptibility to Liquefaction
No Liquefaction Data
Very Low
Low
Medium
High
Very High
Contra Costa County
SAN RAMON RD
VILLAGE PW
DOUGHERTY RD
TASSAJARA RD
CROAK RD
DUBLIN BL
580
PLEASANTON
LIVERMORE
OWENS DR
HACIENDA DR
FOOTHILL RD
680
W LAS POSITAS BL
PARKSIDE DR
SANTA RITA RD
KAMP DR
BUSCH RD
VALLEY AV
BLACK AV
STANLEY BL
VINEYARD AV
MAIN ST
FIRST ST
BERNAL AV
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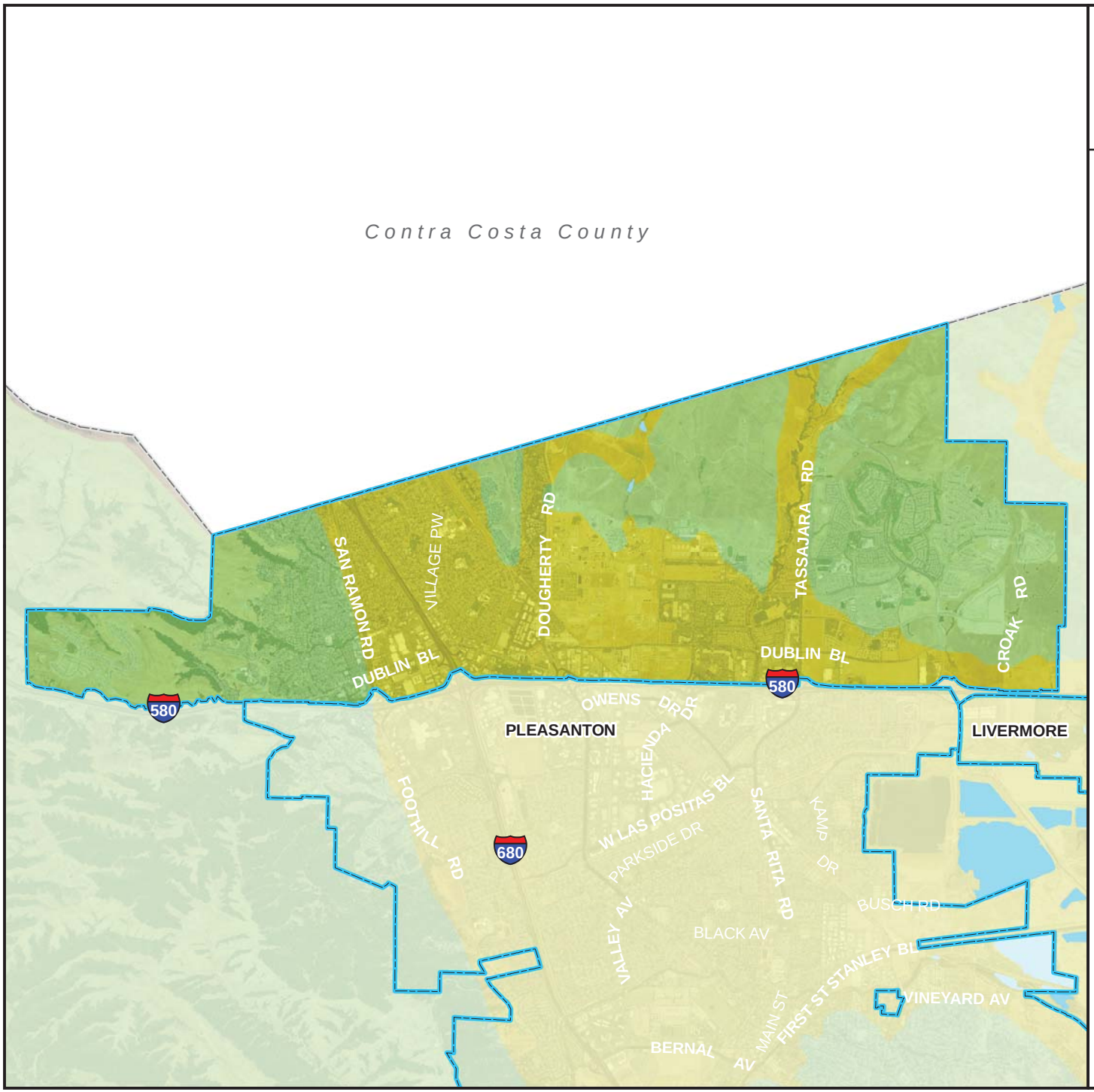
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS



City of Dublin

National Earthquake Hazards Reduction Program (NEHRP) Soil Classification

City Boundaries

Alameda County Boundary

Water Bodies & Channels

NEHRP Site Class / Soil Profile

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

Soil classification data provided by the California Department of Conservation. The data is based on surficial geology published at a scale of 1:250,000. The surficial geologic units were grouped into composite units with similar average shear wave velocity to 30 meters depth (Vs30) values. This data was prepared as part of the Probabilistic Seismic Hazard Map of California (Petersen, M., D. Beeby, W. Bryant, T. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan G., Taylor, T. Toppozada, J. Treiman, and C. Wills (1999) Seismic Shaking Hazard Maps of California: California Division of Mines and Geology Map Sheet 48).

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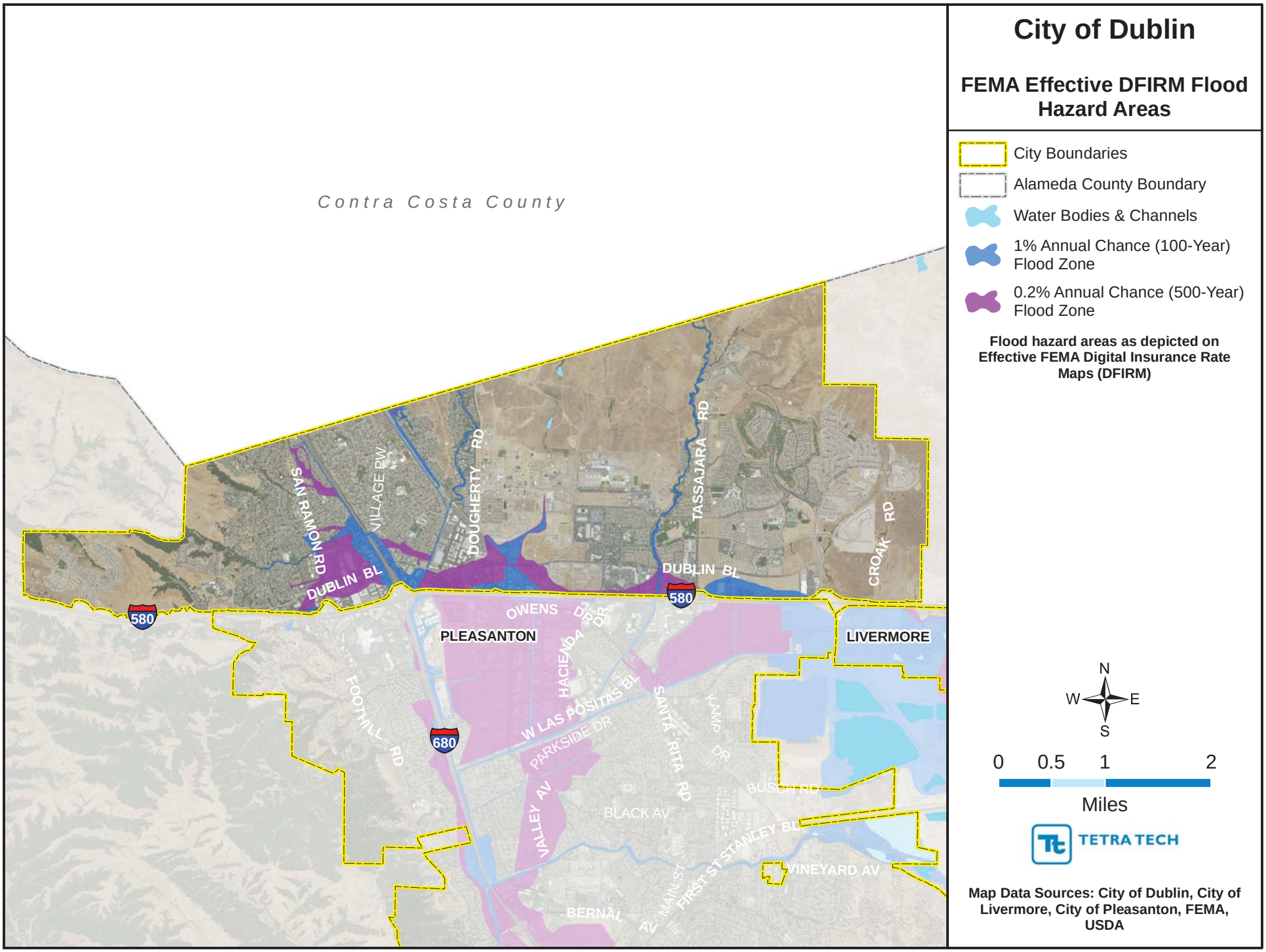
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Dept of Conservation, CGS, USGS



City of Dublin

FEMA Effective DFIRM Flood Hazard Areas

- City Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- 1% Annual Chance (100-Year) Flood Zone
- 0.2% Annual Chance (500-Year) Flood Zone

Flood hazard areas as depicted on Effective FEMA Digital Insurance Rate Maps (DFIRM)

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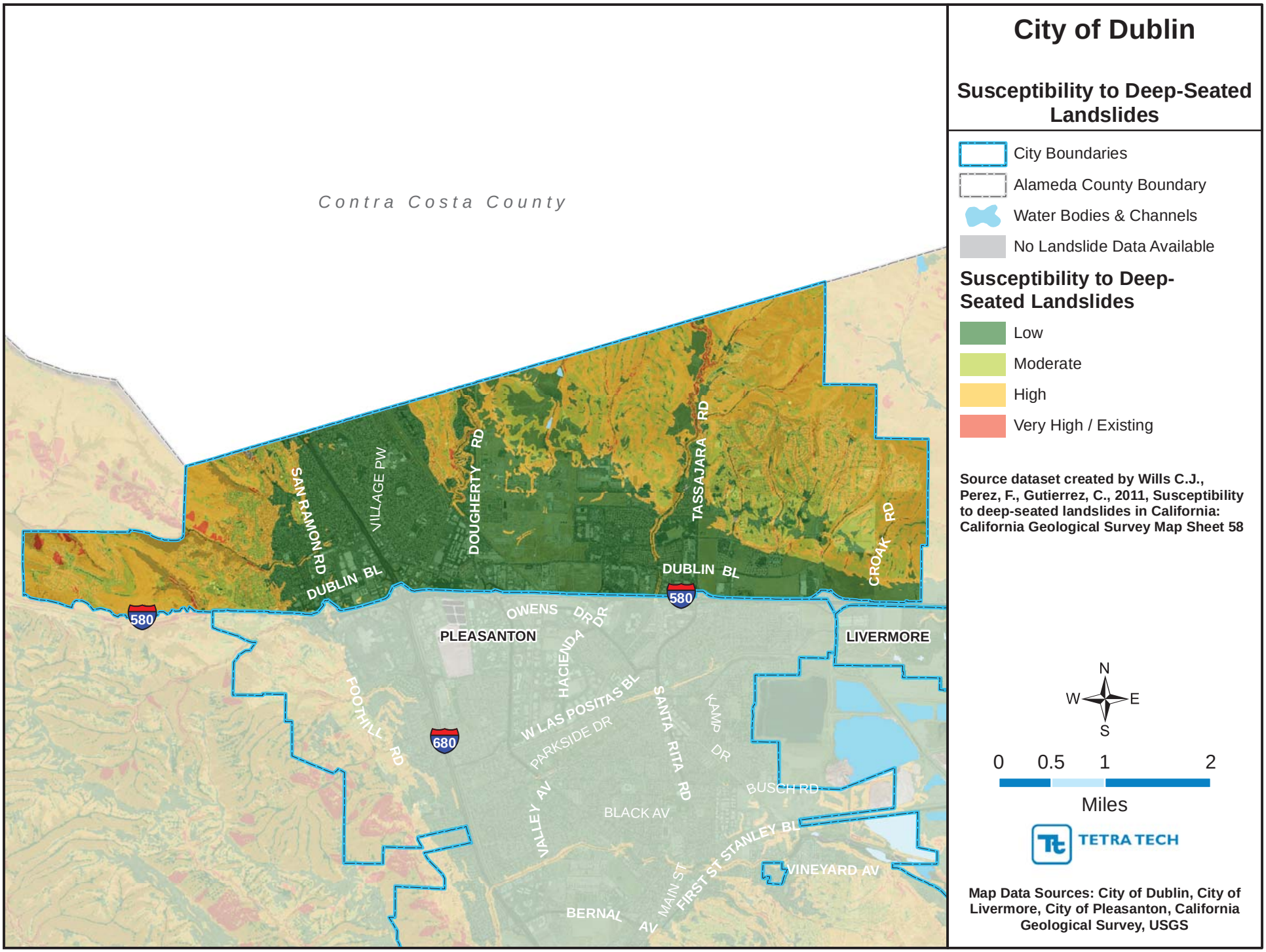
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, FEMA, USDA



City of Dublin

Susceptibility to Deep-Seated Landslides

- City Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- No Landslide Data Available

Susceptibility to Deep-Seated Landslides

- Low
- Moderate
- High
- Very High / Existing

Source dataset created by Wills C.J., Perez, F., Gutierrez, C., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey Map Sheet 58

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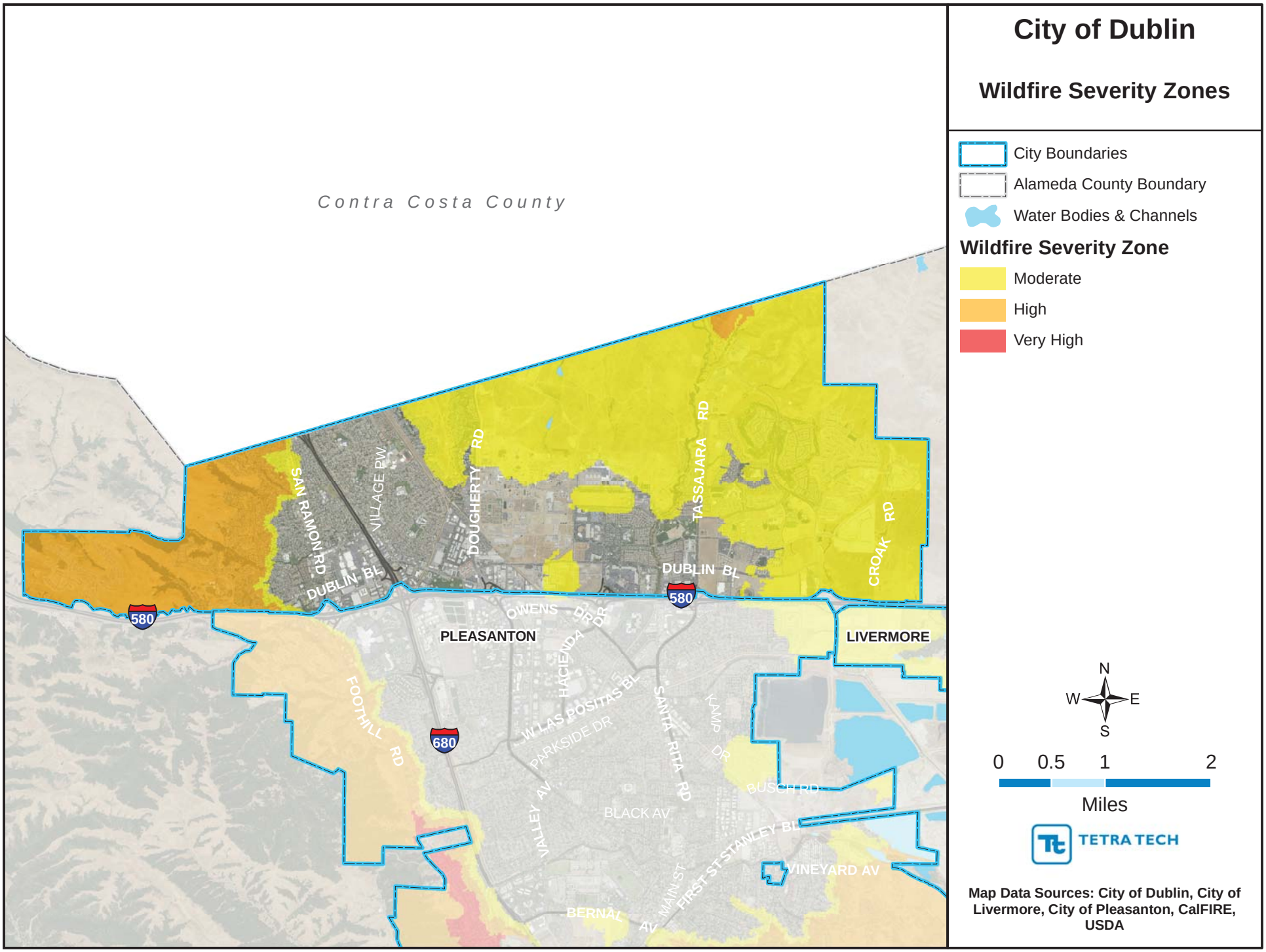
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS


City of Dublin
Wildfire Severity Zones
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Wildfire Severity Zone
Moderate
High
Very High
Contra Costa County
SAN RAMON RD
VILLAGE PW
DOUGHERTY RD
TASSAJARA RD
CROAK RD
DUBLIN BL
580
OWENS DR
PLEASANTON
LIVERMORE
HACIENDA DR
FOOTHILL RD
680
W LAS POSITAS BL
PARKSIDE DR
SANTA RITA RD
KAMP DR
VALLEY AV
BLACK AV
FIRST ST
STANLEY BL
VINEYARD AV
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Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, CalFIRE, USDA

2. CITY OF LIVERMORE

2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Marc Roberts, City Manager
City Manager's Office
1052 S. Livermore Avenue
Livermore, CA 94550
Telephone: 925-960-4040
e-mail Address: citymanager@cityoflivermore.net

Alternate Point of Contact
Paul Spence, Community Development Director
Livermore Community Development Department
1052 S. Livermore Ave.
Livermore, CA 94550
Telephone: 925-960-4400
e-mail Address: cedd@cityoflivermore.net

2.2 JURISDICTION PROFILE

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

- **Date of Incorporation**— April 1, 1876
- **Current Population**— 89,648 as of January 1, 2017, per the State of California Department of Finance
- **Population Growth**— Based on data provided by the state Department of Finance, Livermore's annual population growth is about 1.5% per year since 2010.
- **Location and Description**—Livermore is located in the Livermore Valley in eastern Alameda County about 43 miles southeast of San Francisco, 30 miles southeast of Oakland, and 29 miles northeast of San Jose. The Livermore Valley is edged to the north, south and east by rolling hills within which the urbanized area is located. Several creeks and arroyos traverse the city including Altamont Creek, Arroyo Seco, Arroyo Mocho, Arroyo Las Positas, Collier Canyon Creek and Arroyo del Valle. Livermore is bisected by Interstate 580 which runs east-west through Alameda County. The Union Pacific Railroad, which also serves the ACE train commuter rail service, roughly parallels the freeway to the south. The Livermore Municipal Airport, located on the western edge of the city, is a general aviation airport which primarily serves the Tri-Valley Area.
- **Brief History**—The City of Livermore was founded in 1869 by William Mendenhall. In the years leading up to incorporation in 1876, the Livermore Valley was used mainly for grazing land for cattle and sheep. Mendenhall named the city in honor of his friend Robert Livermore, a prominent rancher in the valley. Livermore's development as a city was based on the Western Pacific Railroad and the commerce the railroad brought with it, as well as cattle ranches and vineyards. Since its incorporation, Livermore has grown from its agricultural roots to a thriving suburban community. While retaining much of its agricultural heritage, Livermore now provides a variety of housing and employment opportunities. Major employers include Lawrence Livermore and Sandia National Laboratories, Valley Care Health Systems, US Foods and several local public agencies, including the City of Livermore, Livermore Area Recreation and Park District and the Livermore Valley Joint Unified School District.
- **Climate**—Livermore's climate is typical for inland Bay Area valleys with warm to hot, dry summers and mild to cool, wet winters. Summer daytime temperatures range from 75 to 85º F, sometimes reaching 100º F and higher. Summer nighttime temperatures average in the 50 to 60º F range. Winter daytimes

temperatures range 50 to 60º F with nighttime temperatures averaging in the 35 to 40º F range. Average annual rainfall is 14.6 inches occurring mainly from September to May.

- **Governing Body Format**—The City of Livermore operates under the Council/Manager form of government. The Council, as the legislative body, represents the entire community and is empowered under the General Law of California to formulate city-wide policy. The City Council is comprised of four Councilmembers and the Mayor. They are elected at-large by city voters. Councilmembers serve four-year terms and the Mayor serves a two-year term. The City Manager is appointed by the Council and serves as the chief executive officer responsible for day-to-day administration of city affairs and implementation of Council policies. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

2.3 DEVELOPMENT TRENDS

Under General Plan policies, residential development is limited to an average range between 140 to 700 units per year. Due to the Urban Growth Boundary, residential development has primarily been infill in recent years. Jobs have increased almost 10% between 2010 and 2015, with about 42,300 jobs in 2015. The Livermore General Plan anticipates about 41,000 residential units and 86,000 jobs at buildout.

Table 2-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

2.4 CAPABILITY ASSESSMENT

The City of Livermore has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 2-2.
- Development and permitting capabilities are presented in Table 2-3.
- An assessment of fiscal capabilities is presented in Table 2-4.
- An assessment of administrative and technical capabilities is presented in Table 2-5.
- An assessment of education and outreach capabilities is presented in Table 2-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 2-7.
- Classifications under various community mitigation programs are presented in Table 2-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 2-9.

The capability assessment was reviewed in order to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan and are identified as Community Capacity Building mitigation actions in the Analysis of Mitigation Actions table in Section 2.10.

Table 2-1. Recent and Expected Future Development Trends

Criterion	Response
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes 1,022 acres including Lawrence Livermore National Laboratory (627 acres), Sandia National Laboratory (390 acres) and two rural parcels (5 acres total).
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes Pending annexation applications: 0.62-acre vacant parcel for proposed single family dwelling and secondary unit; 9.34 acres with 19 existing single family units and 4 vacant lots; 79.4 acres with existing winery and vineyard; 0.1-acre vacant parcel for fast food restaurant; 2.53-acre vacant parcel for car wash/gas station/fast food; 21 acres for residential and park uses Alameda County
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes • Isabel Neighborhood Plan – Proposed neighborhood plan covering 1,138 acres including 4,095 dwelling units and 2 million square feet of commercial and office space. Areas of low to medium liquefaction susceptibility and moderate wildfire risks are within the plan area. • Arroyo Vista Neighborhood Plan – Approved neighborhood plan covering 28 acres and 456 dwelling units. Plan includes area of medium liquefaction risk. • Rincon/Pine Plan – Proposed plan for mixed use including 91 dwelling units and 15,000-square-foot commercial. Plan includes area of medium liquefaction risk. • First Street Corridor Plan – Approved neighborhood plan covering 24 acres for up to 350 units; first phase project of 100 units approved. Plan includes areas of low to medium liquefaction risk and 500-year flood zone.
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	

	2012	2013	2014	2015	2016
Single Family	110	96	71	272	140
Multi-Family	20	8	4	22	40
Other (commercial, mixed use, etc.)	8	7	15	13	4

Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: No new residential development permits were located within the 100 or 500-year flood zones. Approximately 13 new commercial permits were issued for development located in the 100-year flood zone. All commercial structures are part of Conditional Letter of Map Revision Case No. 08-09-1228R. The application will be submitted December 2017 to show the area out of the floodplain. • Landslide: The majority of the city is areas of low landslide susceptibility. No new development has occurred in areas of moderate, high or very high landslide susceptibility. • High Liquefaction Areas: The majority of the city is located in areas of very low to moderate liquefaction susceptibility. New industrial development has occurred in an area of high liquefaction south of the Airport. • Wildfire Risk Areas: Areas of moderate to high wildfire severity are located primarily on the edges of the city where urban development abuts agriculture/open space areas. New residential, commercial and industrial development has occurred in areas of moderate wildfire severity. No new development has occurred in areas of high wildfire severity. There are no areas of very high wildfire severity in the city limits.
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The Livermore General Plan anticipates approximately 41,000 dwelling units and 86,000 jobs at buildout. Buildout estimates include not only development of vacant parcels, but also redevelopment of underdeveloped parcels and intensification of uses in existing buildings

Table 2-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	No	Yes	Yes
Comment: Livermore Building Code adopted in 2016				
Zoning Code	Yes	No	Yes	Yes
Comment: Livermore Development Code adopted in 2010; updated through July 2017				
Subdivisions	Yes	No	Yes	Yes
Comment: Livermore Development Code adopted in 2010; updated through July 2017				
Stormwater Management	Yes	Yes	Yes	Yes
Comment: City Stormwater Master Plan for city-owned property; Zone 7 Stream Management Master Plan for Zone 7 owned facilities/property.				
Post-Disaster Recovery	No	No	No	Yes
Comment: Preparation of plan proposed.				
Real Estate Disclosure	Yes	No	Yes	Yes
Comment: City uses real estate disclosure to provide notice regarding special conditions and requirements on properties; Cal. Civ. Code §1102 et seq.				
Growth Management	Yes	No	Yes	Yes
Comment: General Plan includes policies and programs for residential growth management; Cal. Gov. Code §65300 et seq.				
Site Plan Review	Yes	No	No	Yes
Comment: Site Plan Approval required in Development Code for all new development and redevelopment projects.				
Environmental Protection	Yes	Yes	Yes	Yes
Comment: The City conforms to the requirements of the California Environmental Quality Act for development review as well as applicable environmental protection requirements for businesses. City coordinates with other agencies including Regional Water Quality Control Board, Bay Area Air Quality Management District, California Department of Fish and Wildlife, US Fish and Wildlife Service, and Alameda County Health Department.				
Flood Damage Prevention	Yes	Yes	Yes	Yes
Comment: The City has agreements with Zone 7 for stream management and flood protection projects. The city's floodplain ordinance implements NFIP requirements, plus 1' of freeboard and elevation certificates of new buildings adjacent to creeks.				
Emergency Management	Yes	Yes	Yes	Yes
Comment: Water Resources Division has a Water System Emergency Plan which needs to be updated. Livermore Emergency Management Plan adopted in 2005; Plan conforms with the state-mandated Standardized Emergency Management System and the National Incident Management System				
Climate Change	Yes	No	Yes	Yes
Comment: General Plan Climate Change Element adopted in 2009; Climate Action Plan adopted in 2012; California Senate Bill 379 requires cities to include climate adaptation and resiliency strategies in their general plans				
Other:	N/A	N/A	N/A	N/A
Comment: None identified				
Planning Documents				
General Plan	Yes	No	Yes	Yes
Is the plan compliant with Assembly Bill 2140? No				
Comment: Livermore General Plan was adopted in 2004. Comprehensive update scheduled for 2019. General plans required under Government Code Sec. 65300.				
Capital Improvement Plan	Yes	No	Yes	Yes
How often is the plan updated? Every 2 Years				
Comment: FY 2017-2019 CIP adopted in June 2017. The CIP is coordinated with Zone 7 and Livermore Area Recreation & Park District improvement plans.				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Floodplain or Watershed Plan	No	Yes	No	Yes
Comment: City coordinates with Zone 7 who is responsible for flood control. The city regulates the watershed by enforcing the Municipal Regional Permit and the NFIP requirements plus 1' freeboard and elevation certificates for all new buildings next to creeks. The city has a Stream Maintenance Program which allows the city to maintain all creeks within city limits including creeks owned by Livermore Area Recreation & Park District and Zone 7.				
Stormwater Plan	Yes	Yes	Yes	Yes
Comment: City Stormwater Master Plan adopted in 2004; Zone 7 Stream Management Master Plan adopted in 2006				
Urban Water Management Plan	Yes	Yes	Yes	Yes
Comment: 2015 Urban Water Management Plan applies in area served by city. California Water Service provides water to remaining areas of the city.				
Habitat Conservation Plan	No	Yes	No	No
Comment: City participates in the Eastern Alameda County Conservation Strategy.				
Economic Development Plan	Yes	No	No	Yes
Comment: General Plan includes an Economic Development and Fiscal Element.				
Shoreline Management Plan	No	No	No	No
Comment: Not applicable				
Community Wildfire Protection Plan	No	Yes	No	Yes
Comment: Alameda County				
Forest Management Plan	No	No	No	No
Comment: Not applicable				
Climate Action Plan	Yes	No	No	Yes
Comment: City CAP adopted in 2012. Update scheduled for 2018.				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment: Livermore Emergency Management Plan adopted in 2005. Plan conforms to the state-mandated Standardized Emergency Management System and the National Incident Management System.				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	No	No	Yes
Comment: THIRA may be developed within the performance period of this plan				
Post-Disaster Recovery Plan	No	No	No	Yes
Comment:				
Continuity of Operations Plan	Yes	No	No	Yes
Comment: 2017 Livermore Municipal Code; Annex on the Livermore Emergency Management Plan adopted in 2005				
Public Health Plan	No	Yes	Yes	Yes
Comment: Alameda County Public Health Department prepares a Community Health Improvement Plan				
Other:	N/A	N/A	N/A	N/A
Comment: None identified				

Table 2-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Building, Planning and Engineering Divisions of the Community Development Department (CDD); Water Resources Division of Public Works Department
Does your jurisdiction have the ability to track permits by hazard area?	Yes
Does your jurisdiction have a buildable lands inventory?	Yes Buildable lands inventory included in the 2015 Housing Element for residential development. Inventory of non-residential lands not available.

Table 2-4. Fiscal Capability

Financial Resource	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 – Water and Sewer services
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	Yes
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Yes – Landscape Maintenance Districts

Table 2-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	CDD/ Planning/Assistant, Associate, Senior Planners; Engineering/Assistant and Associate Engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	CDD; Building and Engineering
Planners or engineers with an understanding of natural hazards	Yes	CDD/ Planning/Assistant, Associate, Senior Planners; Engineering/Assistant and Associate Engineers
Staff with training in benefit/cost analysis	Yes	CDD/Engineering/ Assistant and Associate Engineers
Surveyors	Yes	CDD/Engineering/Contract
Personnel skilled or trained in GIS applications	Yes	Information Technology/Contract; CDD/Planning/ Assistant, Associate, Senior Planners; Engineering/Engineering Tech
Scientist familiar with natural hazards in local area	Yes	CDD/Planning/Contract
Emergency Manager	Yes	City Manager's Office/Management Analyst-Disaster Preparedness; LPFD/Disaster Preparedness Coordinator
Grant writers	Yes	CDD/ Planning/Assistant, Associate, Senior Planners; Engineering/Assistant and Associate Engineers
Other	-	-

Table 2-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes 2012 Hazard Mitigation Plan on LPFD website.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes Advertise CERT trainings; post family disaster preparedness tips
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	No N/A
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes Living Arroyos Program LPFD Public Education Program
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Next Door, Nixle, AC Alert

Table 2-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Community Development/Engineering
Who is your floodplain administrator? (department/position)	CDD/Senior Civil Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	2015
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds 1 ft. freeboard requirement, requires elevation certificates for new construction next to creeks
When was the most recent Community Assistance Visit or Community Assistance Contact?	2017
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	No N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	No Inundation due to storm drains.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes Training additional staff in duties of floodplain management
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes (Class 9) Yes N/A
How many flood insurance policies are in force in your jurisdiction?[a] • What is the insurance in force? • What is the premium in force?	108 $36,407,900 $104,928
How many total loss claims have been filed in your jurisdiction?[a] • How many claims are still open/were closed without payment? • What were the total payments for losses?	0 0 $0

a. According to FEMA statistics as of June 30, 2017

Table 2-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	9	05/1/15
Building Code Effectiveness Grading Schedule	Yes	2	2012
Public Protection	No	N/A	N/A
Storm Ready	Yes[a]	N/A	N/A
Firewise	No	N/A	N/A

a. At the time of this plan update, the City is in the process of verification for StormReady classification.

Table 2-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High
Comment: *A greenhouse gas inventory was conducted in 2008 using 2005 data. This supported the preparation and adoption of the Climate Change Element of the General Plan in 2009. The adoption of the Climate Action Plan followed in 2012.*	
Jurisdiction-level monitoring of climate change impacts	Medium
Comment: *The City has adopted a Climate Action Plan and the General Plan includes climate change policies. While climate change impacts are not specifically monitored, hazards are monitored via the local hazard mitigation plan.*	
Technical resources to assess proposed strategies for feasibility and externalities	Medium
Comment: *City staff and/or consultants are available to assess strategies for feasibility.*	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High
Comment: *City planning staff, with assistance from ICLEI, is conducting an update to the greenhouse gas inventory which will be completed by early 2018.*	
Capital planning and land use decisions informed by potential climate impacts	Medium
Comment: *Impacts relating to GHG emissions evaluated during environmental review*	
Participation in regional groups addressing climate risks	Medium
Comment: *Staff tracks discussions of regional (e.g. ABAG, MTC) and local (e.g. Stop Waste) agencies*	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comment: *While CEQA requires consideration of GHG emissions during environmental review there is no clear authority to otherwise consider climate change impacts during the decision-making process.*	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: *Climate Action Plan outlines strategies for reducing GHG emissions within the community and city operations.*	
Identified strategies for adaptation to impacts	Medium
Comment: *The GHG emissions inventory completed for the Climate Action Plan identified sectors with the greatest potential to reduce emissions. The city is also working with Stop Waste on identification of climate adaptation strategies available for further consideration.*	
Champions for climate action in local government departments	Low
Comment: *While some city staff has experience with climate action planning, there is not a coordinated program to address climate action planning.*	
Political support for implementing climate change adaptation strategies	Medium
Comment: *The city is supportive of resilient infrastructure projects but there is no specific program to identify climate adaptation projects.*	
Financial resources devoted to climate change adaptation	Low
Comment: *While many capital improvement projects can address climate adaption, there is no specific program to identify climate adaptation projects.*	

Criterion	Jurisdiction Rating[a]
Local authority over sectors likely to be negative impacted	Medium
Comment: *The city has authority over local public streets and infrastructure and coordinates with other public agencies, such as Zone 7, Regional Water Quality Control Board, CalTrans, Livermore Area Recreation and Park District, regarding hazard mitigation.*	
Public Capacity	
Local residents' knowledge of and understanding of climate risk	High
Comment: *Livermore residents are highly educated and aware of the issues and science relating to climate change.*	
Local residents support of adaptation efforts	Low
Comment: *Support of adaptation efforts is unknown as the city has not specifically addressed this issue.*	
Local residents' capacity to adapt to climate impacts	Low
Comment: *Unsure.*	
Local economy current capacity to adapt to climate impacts	Low
Comment: *Unsure.*	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: *Unsure.*	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

2.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

2.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Livermore made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Capital Improvement Program—**Incorporates hazard mitigation projects consistent with other adopted plans and programs
- **Living Arroyos Program—**Regional volunteer program for hands-on stream maintenance and restoration. Apprenticeship program for students at Las Positas Community College.
- **Zone 7 Stream Management Master Plan—** Multi-objective master plan addressing flood control, water quality, recycled water, and recreation.
- **Livermore Storm Management Plan—**City-wide program for maintaining creeks and outfalls.
- **Storm Drain Master Plan—**City master plan prioritizing capital improvements to storm drains.
- **Livermore General Plan**—The General Plan includes a Safety Element that addresses natural hazards.
- **Livermore Development Code—**The Development Code includes development requirements that can address hazard mitigation.
- **Livermore Municipal Code**—The Municipal Code includes development requirements that can address hazard mitigation.
- **Livermore Building Code—**The Building Code includes related State codes for hazard mitigation.

Resources listed in Section 2.12 were used to provide information for this annex on hazard events and local capabilities within the jurisdiction.

2.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Livermore will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the midterm progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future. Information from the risk assessment as well as goals, objectives and actions will be integrated into these plans and programs as appropriate at the time of their next update:

- **Design Standards and Guidelines—**The Design Standards and Guidelines provide design guidance for private and public developments. Acknowledgement of information from the hazard mitigation plan, including identification of potential hazards and mitigation requirements, will be incorporated into the next update of the Design Standards and Guidelines. The update will include identification of additional design elements that can address hazard mitigation.
- **Climate Action Plan—**The CAP provides an assessment of greenhouse gas emissions by the community and identifies strategies for reducing emissions. Discussion of climate change resiliency and adaptation and identification of appropriate community actions to address resiliency will be included in the next update of the CAP.
- **Capital Improvement Program—**Incorporates hazard mitigation projects consistent with other adopted plans and programs. Improvement plans and projects that address hazard mitigation will be identified.
- **Living Arroyos Program—**Regional volunteer program for hands-on stream maintenance and restoration. This is an apprenticeship program for students at Las Positas Community College. The City will work with the Community College to incorporate identification of natural hazards and mitigation opportunities in the curriculum of this program.
- **Livermore Storm Management Plan—** This is a city-wide program for maintaining creeks and outfalls. Information from the hazard mitigation plan will be incorporated into the plan including identification of projects that address hazard mitigation.
- **Storm Drain Master Plan—** This is the city master plan prioritizing capital improvements to storm drains. Information from the hazard mitigation plan will be incorporated into the plan including identification of projects that address hazard mitigation.
- **Livermore General Plan**—The General Plan includes a Safety Element that addresses natural hazards. The proposed General Plan update will be consistent with the requirements of AB 2140 and SB 379.
- **Livermore Development Code—**The Development Code includes zoning and subdivision regulations. Information from the hazard mitigation plan will be incorporated into the Development Code that addresses hazard mitigation.
- **Livermore Municipal Code—**The Municipal Code includes ordinances regarding city operations and other regulations. The Municipal Code will be updated, as appropriate, to incorporate the information from the hazard mitigation plan.
- **Urban Water Management Plan—**Consistent with the California Water Code, this plan provides long-term water supply and resource planning. The plan will be updated to include information from the hazard mitigation plan and identify appropriate hazard mitigation strategies and projects.
- **Threat and Hazard Identification and Risk Assessment**—The THIRA process helps to identify capability targets and resource requirements necessary to address anticipated and unanticipated risks. The THIRA will include information from and be consistent with the hazard mitigation plan.

- **Continuity of Operations Plan—**This plan ensures that agencies are able to perform essential functions during emergencies. Update to the plan will incorporate information from the hazard mitigation plan.
- **Continuity of Government Plan—**This plan ensures that government continues its essential functions during emergencies. Update to the plan will incorporate information from the hazard mitigation plan.
- **Post Disaster Recovery Plan—** This plan provides policies and actions for rebuilding and recovery after disasters. Update to the plan will incorporate information from the hazard mitigation plan.
- **Comprehensive Emergency Management Plan—**This plan ensures the city's ability to function during and after events including measures that provide for the safety of personnel and, if possible, of property and facilities. Update to the plan will incorporate information from the hazard mitigation plan.

2.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 2-10 lists past occurrences of natural hazards for which specific damage was recorded in the City of Livermore. Other hazard events that broadly affected the entire planning area, including the City of Livermore, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 2-10. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Severe winter storms, flooding and mudslides	DR-4308	4/1/2017	$11,715,000
Winter storm, Doolan Road tree damage	—	4/18/15	$5,000
Severe winter storms, flooding, landslides and mudslides	DR-1646	6/5/2006	Minor damage in the community
Flash Flood	DR-1203	2/2/1998	$28,052
Flash Flood	DR-1044	1/3/1995-2/10/1995	$13,796
Flash Flood	DR-1046	2/13/1995-4/19/1995	$147,737
Tornado	—	4/25/1994	Minor damage in the community
Earthquake – Greenville Fault	—	1/12/1980	Moderate structural damage in the community

2.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include the following:

- Storm drain pumps at road and railroad undercrossings (Isabel Ave., Murietta Blvd., P Street, L Street, Livermore Ave.) require back-up pumps and back-up power to ensure functions during storms.
- Road undercrossings (Isabel Ave./Stanley Blvd., Greenville Rd./Railroad overcrossing, Greenville Rd./I-580, Livermore Ave./Railroad overcrossing) need to be assessed to determine vulnerability during earthquakes.

- Bridge/Culverts over creeks (Arroyo Mocho at Concannon, Holmes, Arroyo Rd., Stanley Blvd.; Arroyo Las Positas at Vasco Rd., Central Ave., Heather Lane, Bluebell Ave.) need to be assessed to determine vulnerability during earthquakes.
- Doolan Road, which provides the sole access to rural properties and city-owned properties, could be blocked by falling trees due to high winds and heavy windfall. The health and stability of adjacent trees need to assessed.
- Cottonwood Creek along Doolan Road is severely incised and could be destabilized during heavy rainfall threatening the roadway and culvert. Stabilization measures for creek bank and roadway need to be identified.

2.8 HAZARD RISK RANKING

Table 2-11 presents a local ranking for the City of Livermore of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 2-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake[a]	36	High
2	Severe weather[b]	33	Medium
3	Wildfire[c]	18	Medium
4	Flood[d]	12	Low
4	Landslide[e]	12	Low
5	Drought[f]	9	Low
6	Dam failure[g]	6	Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

2.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 2-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 2-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
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. Water Resources Division. Have generators in water pump stations; need back-up power to keep entire Livermore Water Resources Plant running. On CIP. INFRA-a- (8)	No		X	L-20
Comment: Emergency generator for Water Resources in 2017-2019 CIP				
Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement. LPFD. (HSNG-g-(2). Funding and resources unavailable.	Yes; Ongoing		X	L-12, 30
Comment: Annual education provided				
Provide retrofit classes or workshops for homeowners. Community Development. HSNG-b-(7). Funding unavailable.	No	X		
Comment: Classes are available at local home improvement stores				
Offer the 20-hour basic CERT training to teachers and after-school personnel. LPFD Emergency Preparedness and Livermore School District. This strategy moved from category "existing" to deferred" due to resources on both sides of the partnership. EDUC-c-(3)	Yes; Ongoing		X	L-12, 30
Comment: Classes are offered multiple times annually to the general public.				
Offer the 20-hour basic CERT training course through the Adult School system and/or through the Community College system. LPFD Emergency Preparedness. This strategy moved from the category "existing" to "deferred" because there was a fee to utilize registration through the Adult School which was not acceptable when the program was granted U.S. Dept. of Homeland Security funding. EDUC-c-(5)	Yes; Ongoing		X	L-12, 30
Comment: Classes are offered multiple times annually to the general public.				
Explore ways to require that hazardous materials stored in the flood zone be elevated or otherwise protected from flood waters. Public Works. ENVI-a-(10)	No		X	L-1, L-8
Comment: This action was not implemented due to lack of funding.				
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. Unfunded. Maintenance Division. GOVT-a-(1)	No		X	L-1, 8
Comment: Expand on work completed for the Asset Management Program				
Retrofit or replace critical facilities that are shown to be vulnerable to damage in natural disasters. Unfunded. Maintenance Division. GOVT-a-(2)	No		X	L-1, 8
Comment: Lack of funding				
Install micro and/or surveillance cameras around critical public assets tied to web-based software, and develop a surveillance protocol to monitor these cameras. Unfunded. Maintenance Division. GOVT-a-(6)	No		X	L-1, 8
Comment: Lack of funding				
Develop unused or new pedestrian rights-of-way as walkways to serve as additional evacuation routes (such as fire roads in park lands). Public Works/Maintenance Division. INFRA-a-10.	No		X	L-12
Comment: This action was not implemented due to lack of funding.				

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
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. Not implemented; unfunded. INFRA-a-(3)	Yes; Ongoing			
Comment: *Water system maintains interties with neighboring agencies; City participates in CalWARN mutual aid network for wastewater agencies.*				
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. LPFD. HSNG-k-(9)	No	X		
Comment: This is not feasible given the liability of loaning power tools; start up and personnel costs of a new waste collection and chipper program prohibitive.				
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. LPFD. HSNG-k-(9) Previously moderate priority.	Yes		X	L-18
Comment: Information is offered through social media and public outreach. Weed abatement program includes wildfire safety approach.				
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. LPFD. ECON-j-(6)	No	X		
Comment: See explanation above				
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. Public Works. GOVT-a-(4)	No		X	L-1, 8
Comment: Expand on work completed for the Asset Management Program				
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. Community Development. HSNG-a-(1)	No		X	L-11
Comment: *Lack of funding*				

2.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 2-13 lists the actions that make up the City of Livermore hazard mitigation action plan. Table 2-14 identifies the priority for each action. Table 2-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 2-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
L-1— Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	Public Works	Community Development	High	HMGP, PDM, FMA	Long-term
L-2— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including General Plan, Development Code, Municipal Code, Design Standards and Guidelines, Specific Plans.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	Community Development	Public Works, Community Development, City Manager	Low	Staff Time, General Funds	Ongoing
L-3— Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Community Development	Livermore Pleasanton Fire Dept., City Manager	Low	Staff Time, General Funds	Short-term
L-4—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam failure	1, 4, 6, 9	Community Development	Public Works, City Manager	Low	Staff Time, General Funds	Ongoing
L-5—Identify and pursue strategies to increase adaptive capacity to climate change including, but not limited to, updates of the General Plan and Climate Action Plan.							
New and Existing	Dam failure, Drought, Flood, Landslide, Severe weather, Wildfire	1, 2, 5, 7, 8, 9, 10, 12	Community Development	City Manager	Low	Staff Time, General Funds	Short-term
L-6—Develop/update Continuity of Operations (COO) and Continuity of Government (COG) Plans to support organizational resiliency in the event of a disaster.							
New and Existing	Earthquake, Flood, Dam Failure, Wildfire, Severe Weather	1, 3, 5, 7, 9, 10	City Manager	Livermore Pleasanton Fire Dept., Police Dept.	Low	Staff Time, General Funds	Short-term
L-7—Develop a Post Disaster Recovery Plan that addresses all potential hazards and supports the efficient, timely and effective recovery of the community and public services and facilities. Ensure that Post Disaster Recovery Plan complies with U.S. Army Corps of Engineers, NRCS, FEMA, and state and local regulatory requirements to repair damage and receive public assistance in a timely manner.							
New and Existing	Earthquake, Flood, Dam Failure, Wildfire, Landslide, Severe Weather	7, 9, 12	City Manager	Community Development, Public Works	Medium	Staff time, General Funds	Short-Term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
L-8—Consider hazard mitigation when designing the new construction, rehabilitation, retrofitting and/or replacement of projects identified in the CIP, particularly critical facilities.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	9, 12	Community Development	Public Works	Low	Staff Time, General Funds	Ongoing
L-9—Update and maintain GIS mapping to include information for all mapped hazards that may affect properties in the community.							
New and Existing	Flood, Dam Failure, Landslide, Wildfire	1, 3, 4	Community Development	City Manager	Medium	Staff Time, General Funds	Ongoing
L-10—Support the area-wide initiatives identified in Volume 1 of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, ,4, 5, 6, 7, 8, 9, 10	Community Development	City Manager	Low	Staff-Time, General Funds	Short-term
L-11—Continue and expand public information and education activities for residents and businesses regarding hazard mitigation, emergency preparation, emergency response, and real estate disclosures.							
New and Existing	Earthquake, Flood, Dam Failure, Wildfire, Landslide, Severe Weather	3, 7, 9	Livermore Pleasanton Fire Dept., Community Development	City Manager	Low	Staff time, General Funds	Ongoing
L-12—Develop evacuation plan that addresses all members of the community including special needs populations including, but not limited to, seniors, low-income households, disabled, and non-English speaking households.							
New and Existing	Earthquake, Flood, Dam Failure, Wildfire, Severe Weather	1, 3, 5, 7, 8, 9, 10, 12	City Manager	Livermore Pleasanton Fire Dept.	Low	Staff time, General Funds	Short-term
L-13—Provide staff training as needed to support plan implementation, plan maintenance and reporting requirements. Coordinate training with plan partners.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 3, 5, 7, 10	City Manager	All	Low	Staff time, General Funds	Ongoing
L-14—Develop and implement a program to capture perishable data after significant events (e.g. high watermarks, preliminary damage estimates, and damage photos) to support future mitigation efforts including implementation and maintenance of the hazard mitigation plan.							
Existing	Earthquake, Severe Weather, Wildfire, Flood, Landslide, Dam Failure	1, 3, 5, 7, 9	City Manager	Livermore Pleasanton Fire Dept., Police Dept., Public Works	Medium	Staff time, General Funds	Ongoing
L-15—Participate in programs such as Firewise, StormReady and the Community Rating System.							
New and Existing	Dam Failure, Flood, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	City Manager	Livermore Pleasanton Fire Dept., Community Development	Low	Staff time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
L-16—Implement programs such as "Tree Watch" that proactively manage problem areas through use of selective removal of hazardous trees, tree replacement, trimming, etc.							
New and Existing	Severe Weather	5, 8, 10, 11, 12	Public Works	City Manager	Medium	Staff time, General Funds	Ongoing
L-17—Amend existing landscape and other related ordinances to encourage appropriate planting near overhead power, cable, and phone lines.							
New and Existing	Severe Weather	5, 8, 10, 11, 12	Community Development	Public Works	Low	Staff time, General Funds	Short-term
L-18—Continue Annual Weed Abatement program.							
New and Existing	Wildfire	5, 9, 10, 12	Livermore-Pleasanton Fire Dept.	City Manager	Low	Staff time, General Funds	Ongoing
L-19—Install emergency generators, or secure lease/rental agreements, in critical facilities, as identified in the CIP, including the Water Reclamation Plant, Fire Stations, and Airport facilities.							
Existing	Earthquake, Severe Weather, Wildfire, Flood	3, 4, 8, 10, 12	Public Works	Livermore Pleasanton Fire Dept.	Low	Staff time, General Funds, Airport funds	Short-term
L-20—Install backup battery systems for traffic signals as identified in the CIP.							
Existing	Earthquake, Severe Weather, Wildfire, Flood	3, 4, 8, 10, 12	Public Works	City Manager	Low	Staff time, General Funds	Short-Term
L-21—As part of the approved Civic Center Meeting Hall, include facilities for an Emergency Operations Center.							
New	Earthquake, Severe Weather, Wildfire, Flood, Dam Failure, Landslide	3, 4, 5, 9	City Manager	Community Development	Medium	Staff time, General Funds	Short-Term
L-22—Develop a Floodplain Management Plan to describe how city will maintain CRS Classification 9 and work towards Classification 8 and integrate flood damage reduction into public information, development and capital improvement processes.							
New and Existing	Flood	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Community Development	Public Works	Medium	Staff time, General Funds	Short-term
L-23—Develop a Climate Resiliency Plan as part of an update to the Climate Action Plan to identify weather trends and infrastructure subject to damage in increasingly severe weather events and identify mitigation projects.							
New and Existing	Flood, Severe Weather, Drought	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Community Development	Public Works	Medium	Staff time, General Funds	Short-Term
L-24—Maintain annual inspection records and update GIS and cost tracking process to reflect accurate city facility data.							
New and Existing	Earthquake, Flood, Severe Weather, Wildfire, Dam Failure	1, 9, 10	Public Works	Community Development	Low	Staff time, General Funds	Short-Term
L-25—Develop a Debris Management Plan that is coordinated with other regional agencies, addresses all potential hazards and supports the efficient, timely and effective recovery of the community and public services and facilities.							
New and Existing	Earthquake, Severe weather, Wildfire, Flood, Landslide, Dam Failure	1, 5, 7, 9, 10	Public Works	Community Development	Low	Staff time, General Funds	Short-term
L-26—Complete an inundation study to develop flood data for 2-year to 100-year storms that is integrated with the updated Zone 7 flood study.							
New and Existing	Flood	1, 2, 5, 7, 9, 10, 12	Community Development	City Manager	Low	Staff time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
L-27—Incorporate grant eligible capital improvement projects into the hazard mitigation plan annually.							
New	Earthquake, Severe weather, wildfire, flood, dam failure	8, 10, 12	Community Development	City Manager	Low	Staff time, General Funds	Short-term
L-28—Mitigate for landslide and flood damage on Collier Creek by adding to the CIP projects to design and construct a debris basin upstream of Collier Canyon Road and to grade and plant creek banks to restore capacity of Arroyo Las Positas through the Las Positas Golf Course.							
New and Existing	Flood, Landslide	8, 10, 12	Public Works	City Manager	High	HMGP	Short-Term
L-29—Continue and expand public education and outreach programs, including CERT, to provide consistent and accessible information regarding hazards and mitigation for residents and businesses.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	5, 7, 9, 12	City Manager	Livermore Pleasanton Fire Dept.	Low	Staff time, General funds	Short-term
L-30—Develop a restoration plan to preserve and restore Cottonwood Creek on the city owned property along Doolan Road. Plan would restore the drainage function of Cottonwood Creek and minimize loss to Doolan Road, public utilities and private property threatened by eucalyptus tree grove at the top of the creek bank.							
Existing	Flood, Landslide, Severe weather, wildfire	4, 6, 10, 12	Community Development	Public Works	Medium	Staff time, General Funds	Short-term
L-31— Complete the update to the Emergency Operations Plan.							
New and Existing	Earthquake, Flood, Dam failure, Landslide, Severe weather, Wildfire	1, 3, 7	City Manager	Livermore-Pleasanton Fire Dept., Police Dept.	Low	Staff Time, General Fund	Short-term
L-32— Develop a Threat & Hazard Identification & Risk Assessment (THIRA).							
New and Existing	Earthquake, Flood, Dam Failure, Landslide, Severe Weather, Wildfire	1, 3, 5, 7, 9, 10	City Manager	Livermore-Pleasanton Fire Dept., Police Dept.	Low	Staff Time, General Funds	Short-term
L-33— Install storm drain back-up pumps and back-up power at road and railroad undercrossings (Isabel Ave., Murietta Blvd., P Street, L Street, Livermore Avenue).							
Existing	Flood, Dam Failure	4, 10, 12	Public Works	City Manager	High	HMGP, PDM, FMA	Long-term
L-34— Assess the earthquake vulnerability of existing road undercrossings (Isabel Ave., Murietta Blvd., P Street, Livermore Avenue, Greenville Rd.) and overcrossings (First St./railroad, Mines Road/railroad, Vasco Road/railroad) and existing culverts and bridges over creeks(Arroyo Mocho at Concannon Blvd., Holmes St., Arroyo Rd., Stanley Blvd.; Arroyo Las Positas at Vasco Rd., Central Ave., Heather Lane, Bluebell Ave.) .							
New and Existing	Earthquake	4, 10, 12	Community Development	City Manager	High	HMGP, PDM, FMA	Long-term

Table 2-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
L-1	6	High	High	Yes	Yes	No	Medium	High
L-2	6	Medium	Low	Yes	No	Yes	High	Low
L-3	12	Low	Low	Yes	No	Yes	High	Low
L-4	4	Medium	Low	Yes	No	Yes	High	Low
L-5	8	Medium	Low	Yes	No	Yes	High	Medium
L-6	6	Medium	Low	Yes	No	Yes	Medium	Low
L-7	3	Low	Low	Yes	No	No	Medium	Low
L-8	2	Medium	Low	Yes	No	Yes	Medium	Low
L-9	4	Medium	Medium	Yes	No	No	Medium	Low
L-10	10	Medium	Low	Yes	No	No	High	Low
L-11	3	High	Low	Yes	No	Yes	High	Low
L-12	8	Medium	Low	Yes	No	No	Medium	Low
L-13	5	Low	Low	Yes	No	No	Low	Low
L-14	5	Medium	Low	Yes	No	No	Medium	Low
L-15	12	High	Low	Yes	No	Yes	High	Low
L-16	5	Medium	Low	Yes	No	Yes	Medium	Low
L-17	5	Medium	Low	Yes	No	Yes	Medium	Low
L-18	4	High	Low	Yes	No	Yes	High	Low
L-19	5	High	Medium	Yes	Yes	Yes	Medium	Medium
L-20	5	High	Medium	Yes	Yes	Yes	Medium	Medium
L-21	4	High	Medium	Yes	No	Yes	Medium	Low
L-22	12	High	Low	Yes	Yes	No	High	High
L-23	12	Medium	Medium	Yes	No	No	Medium	Low
L-24	3	Low	Low	Yes	No	No	Low	Low
L-25	5	High	Low	Yes	No	Yes	High	Low
L-26	7	High	Medium	Yes	No	Yes	Medium	Low
L-27	3	Medium	Low	Yes	No	Yes	Medium	Low
L-28	3	High	Medium	Yes	Yes	No	High	High
L-29	4	High	Low	Yes	No	Yes	High	Low
L-30	4	Medium	Medium	Yes	Yes	No	Medium	Medium
L-32	6	High	Medium	Yes	No	Yes	Medium	Low
L-33	3	High	Medium	Yes	Yes	No	Medium	Medium
L-34	3	High	Medium	Yes	Yes	No	Medium	Medium

a. See the introduction to this volume for explanation of priorities.

Table 2-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Earthquake	L-2, 3, 8, 10, 11, 14, 27, 32, 34	L-1, 8, 19, 20	L-2, 3, 10, 11, 12, 29, 32		L-6, 7, 11, 12, 19, 20, 21, 25, 31	L-21, 27, 28	L-2, 3	L-2, 3, 6, 10, 13, 14, 24
Severe weather	L-2, 3, 5, 8, 10, 11, 14, 15, 16, 17, 27	L-1, 8, 19, 20, 30	L-2, 3, 5, 10, 11, 12, 15, 29	L-16, 17, 30	L-6, 7, 11, 12, 19, 20, 21, 25	L-27, 30	L-2, 3, 5, 14, 23	L-2, 3, 5, 6, 10, 13, 14, 24
Wildfire	L-2, 3, 5, 8, 9, 10, 11, 14, 15, 18, 27, 32	L-1, 8, 19, 20, 30	L-2, 3, 5, 9, 10, 11, 12, 15, 29, 32	L-18, 30	L-6, 7, 11, 12, 19, 20, 21, 25, 31	L-27, 30	L-2, 3, 5, 14	L-2, 3, 5, 6, 10, 13, 14, 24
Flood	L-2, 3, 4, 5, 8, 9, 10, 11, 14, 15, 22, 26, 27, 28, 32	L-1, 8, 19, 20, 28, 30	L-2, 3, 4, 5, 9, 10, 11, 12, 15, 26, 29, 32	L-22, 28, 30	L-6, 7, 11, 12, 19, 20, 21, 25, 31	L-22, 27, 30, 33	L-2, 3, 5, 14, 23	L-2, 3, 5, 6, 10, 13, 14, 24
Landslide	L-2, 3, 5, 8, 9, 10, 11, 14, 28, 32	L-1, 8, 28, 30	L-2, 3, 5, 9, 10, 11, 29, 32	L-28, 30	L-7, 11, 21, 25, 31	L-28, 30	L-2, 3, 5, 14	L-2, 3, 5, 9, 10, 13, 14
Drought	L-2, 3, 5, 8, 10, 11	L-8	L-2, 3, 5, 10, 29				L-2, 3, 5, 14, 24	L-2, 3, 5, 10, 13, 14
Dam failure	L-2, 3, 5, 8, 9, 10, 11, 14, 15, 27, 32	L-1, 8	L-2, 3, 5, 9, 10, 11, 12, 29, 32		L-6, -7, 11, 12, 21, 25, 31	L-27, 33	L-2, 3, 5, 14	L-2, 3, 5, 6, 9, 10, 13, 14, 24

a. See the introduction to this volume for explanation of mitigation types.

2.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Recent disasters experienced in California and elsewhere in the Country (e.g. North Bay wildfires and hurricanes with associated flooding) provide extreme examples of the affects that natural disasters can have on emergency preparation, response and recovery actions. Lessons learned from these events will provide valuable information for future programs and actions to better protect and prepare our community against natural disasters.

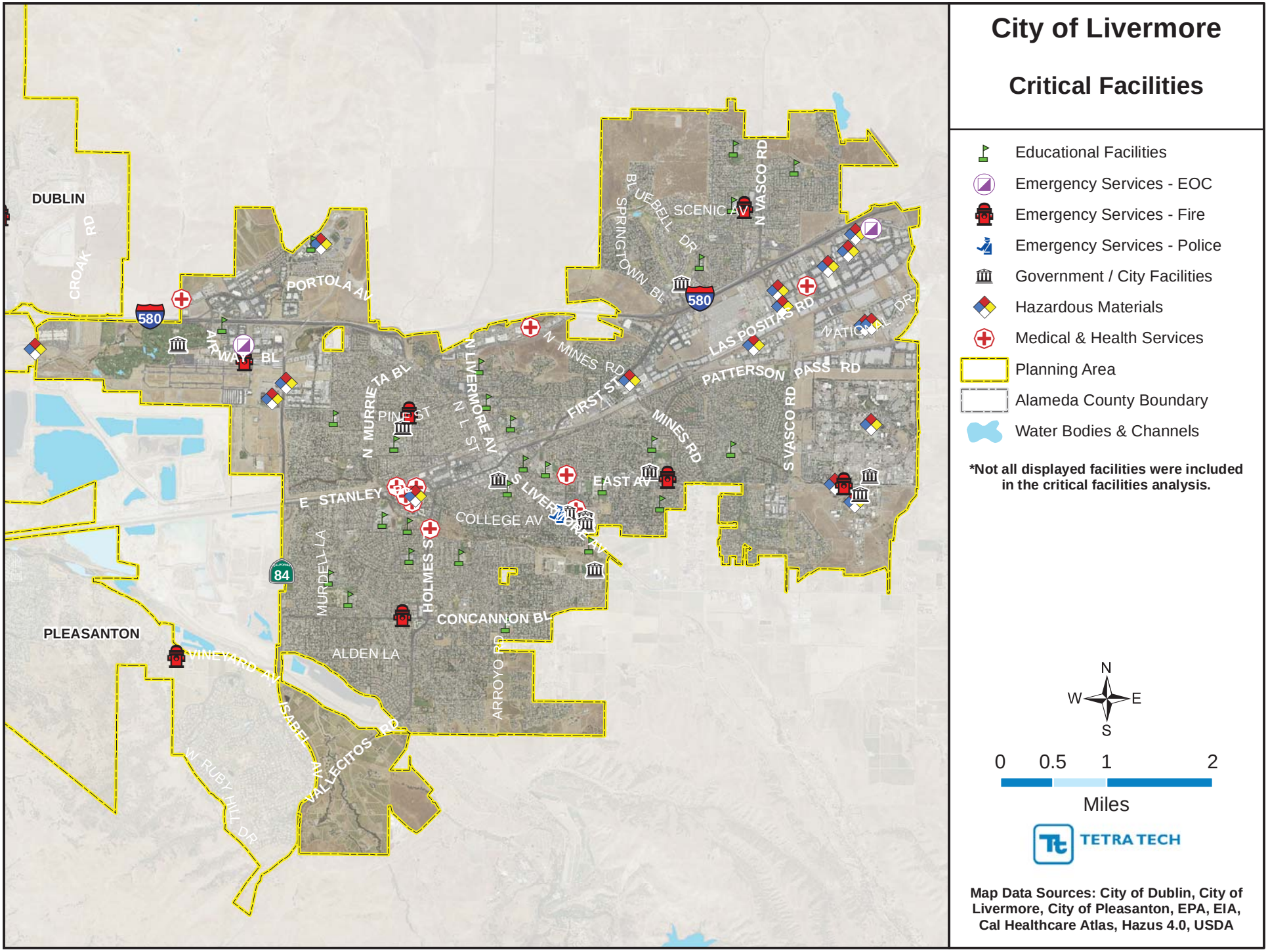
2.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Livermore Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Livermore Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Capital Improvement Program—**The CIP was reviewed for capital improvements that address hazard mitigation.
- **Livermore Storm Master Plan—**Reviewed plan for projects that address hazard mitigation.
- **Storm Drain Master Plan—**Reviewed plan for projects that address hazard mitigation.
- **Livermore General Plan—**The General Plan was reviewed for goals, objectives and policies supporting hazard mitigation.
- **Livermore Development Code**—The Development Code was reviewed for requirements supporting hazard mitigation.

- **Livermore Building Code**—The Building Code was reviewed for requirements supporting hazard mitigation.
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:

  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
  - **Living Arroyos Program—**The program was reviewed for opportunities to address hazard mitigation.
  - **Zone 7 Draft Hazard Mitigation Plan—**Reviewed draft plan for opportunities for coordination.
  - **2016 Alameda County Hazard Mitigation Plan—**Plan reviewed for opportunities for coordination.
  - **2013 California State Hazard Mitigation Plan—**Plan reviewed for opportunities for coordination.



City of Livermore

Critical Facilities

- Educational Facilities
- Emergency Services - EOC
- Emergency Services - Fire
- Emergency Services - Police
- Government / City Facilities
- Hazardous Materials
- Medical & Health Services
- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

***Not all displayed facilities were included in the critical facilities analysis.**

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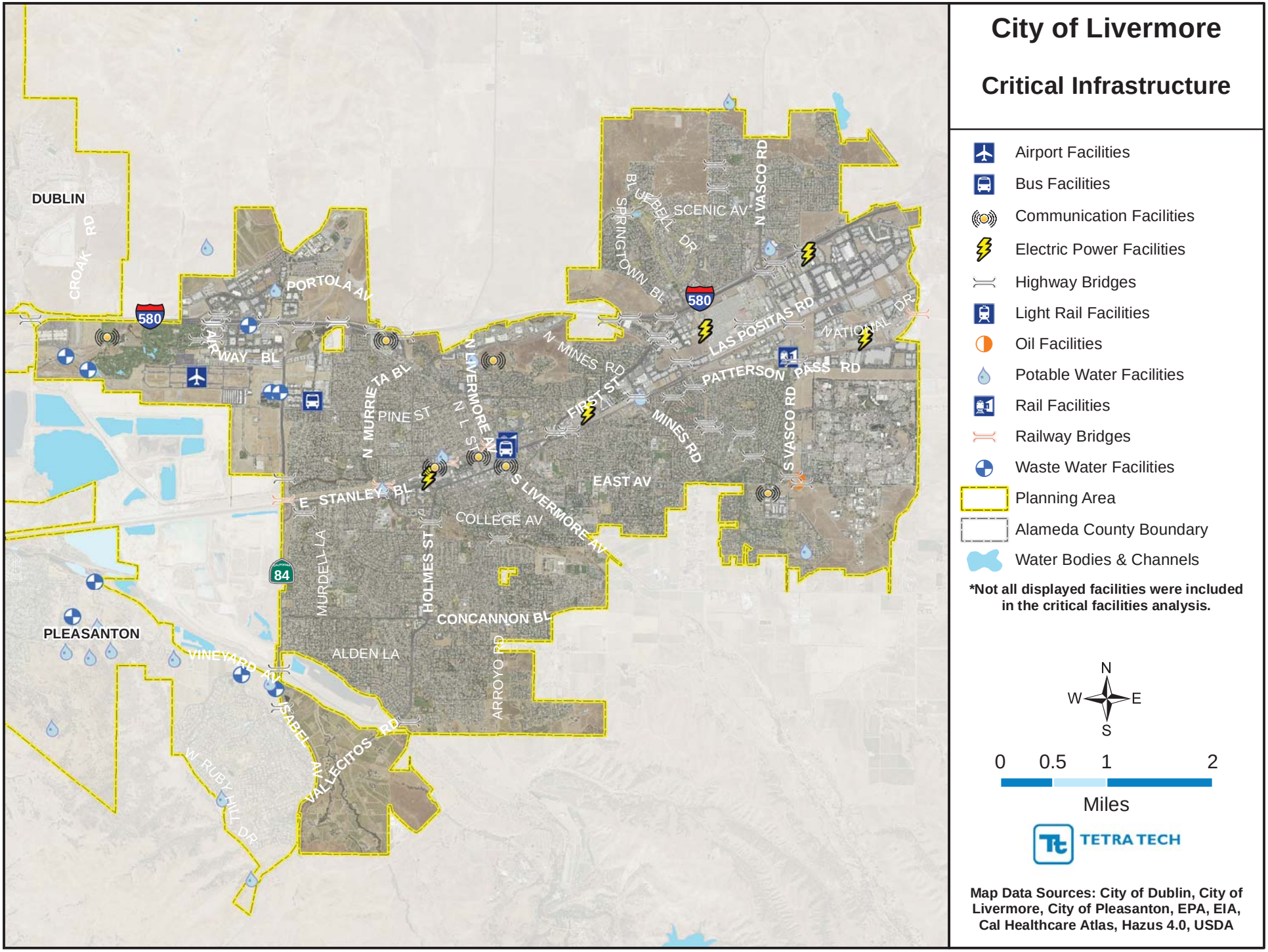
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Cal Healthcare Atlas, Hazus 4.0, USDA



City of Livermore

Critical Infrastructure

- Airport Facilities
- Bus Facilities
- Communication Facilities
- Electric Power Facilities
- Highway Bridges
- Light Rail Facilities
- Oil Facilities
- Potable Water Facilities
- Rail Facilities
- Railway Bridges
- Waste Water Facilities
- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

***Not all displayed facilities were included in the critical facilities analysis.**

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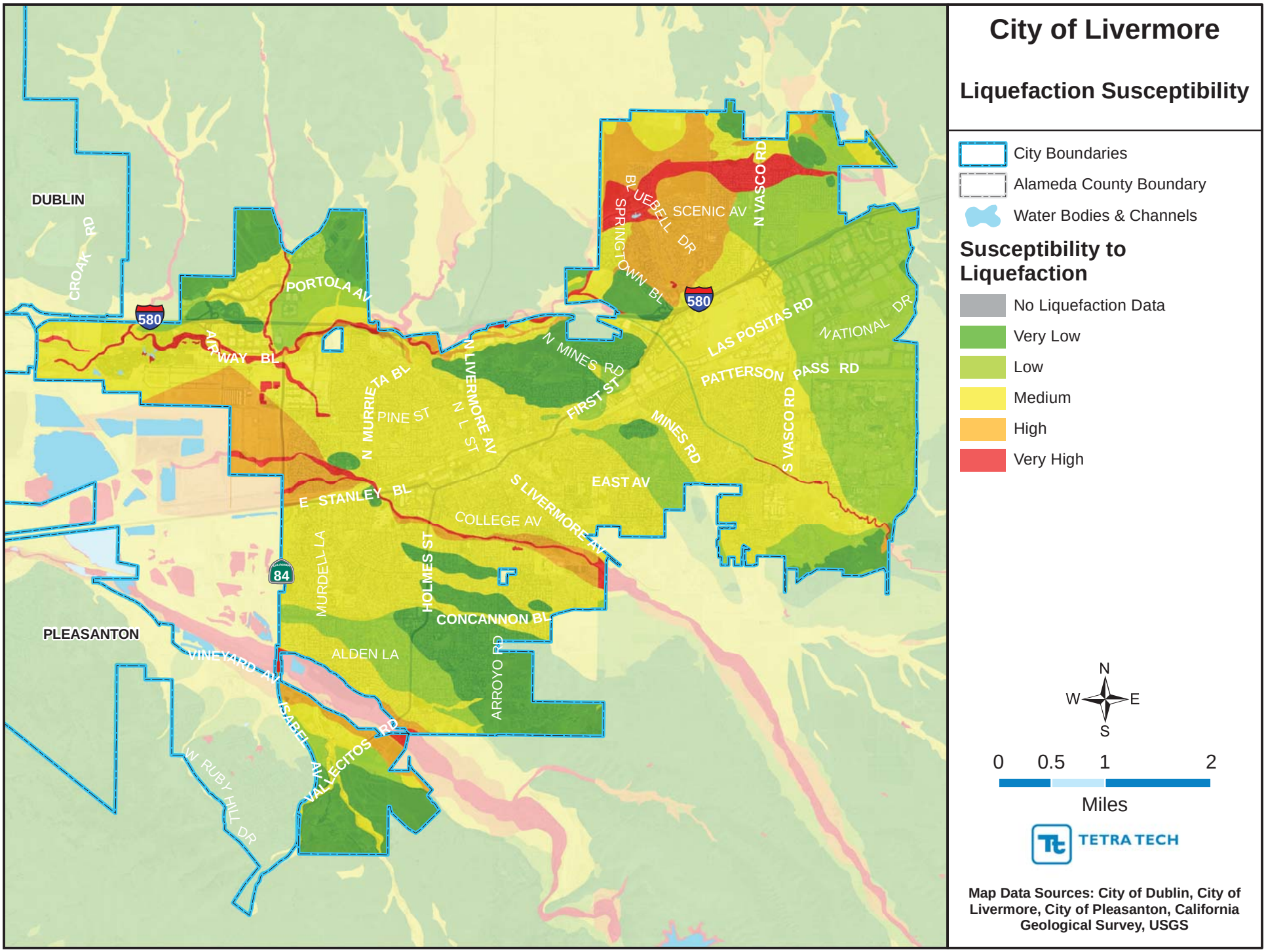
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Cal Healthcare Atlas, Hazus 4.0, USDA


City of Livermore
Liquefaction Susceptibility
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Susceptibility to Liquefaction
No Liquefaction Data
Very Low
Low
Medium
High
Very High
DUBLIN
PLEASANTON
580
84
PORTOLA AV
AIRWAY BL
N MURRIETA BL
PINE ST
N LIVERMORE AV
N L ST
N MINES RD
FIRST ST
SPRINGTOWN BL
BLUEBELL DR
SCENIC AV
N VASCO RD
LAS POSITAS RD
NATIONAL DR
PATTERSON PASS RD
S VASCO RD
MINES RD
EAST AV
E STANLEY BL
COLLEGE AV
S LIVERMORE AV
MURDELL LA
HOLMES ST
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ALDEN LA
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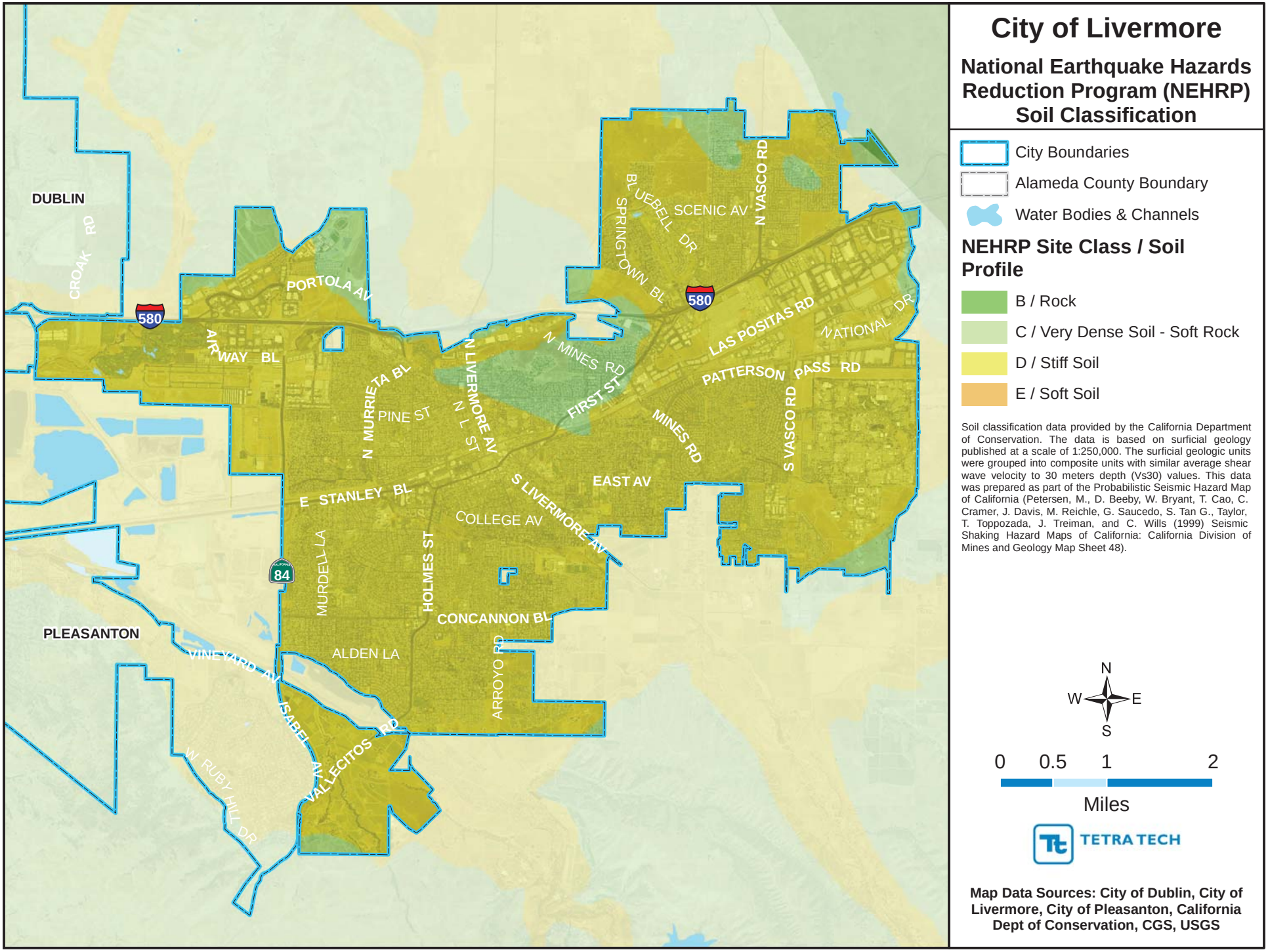
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS



City of Livermore

National Earthquake Hazards Reduction Program (NEHRP) Soil Classification

City Boundaries

Alameda County Boundary

Water Bodies & Channels

NEHRP Site Class / Soil Profile

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

Soil classification data provided by the California Department of Conservation. The data is based on surficial geology published at a scale of 1:250,000. The surficial geologic units were grouped into composite units with similar average shear wave velocity to 30 meters depth (Vs30) values. This data was prepared as part of the Probabilistic Seismic Hazard Map of California (Petersen, M., D. Beeby, W. Bryant, T. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan G., Taylor, T. Toppozada, J. Treiman, and C. Wills (1999) Seismic Shaking Hazard Maps of California: California Division of Mines and Geology Map Sheet 48).

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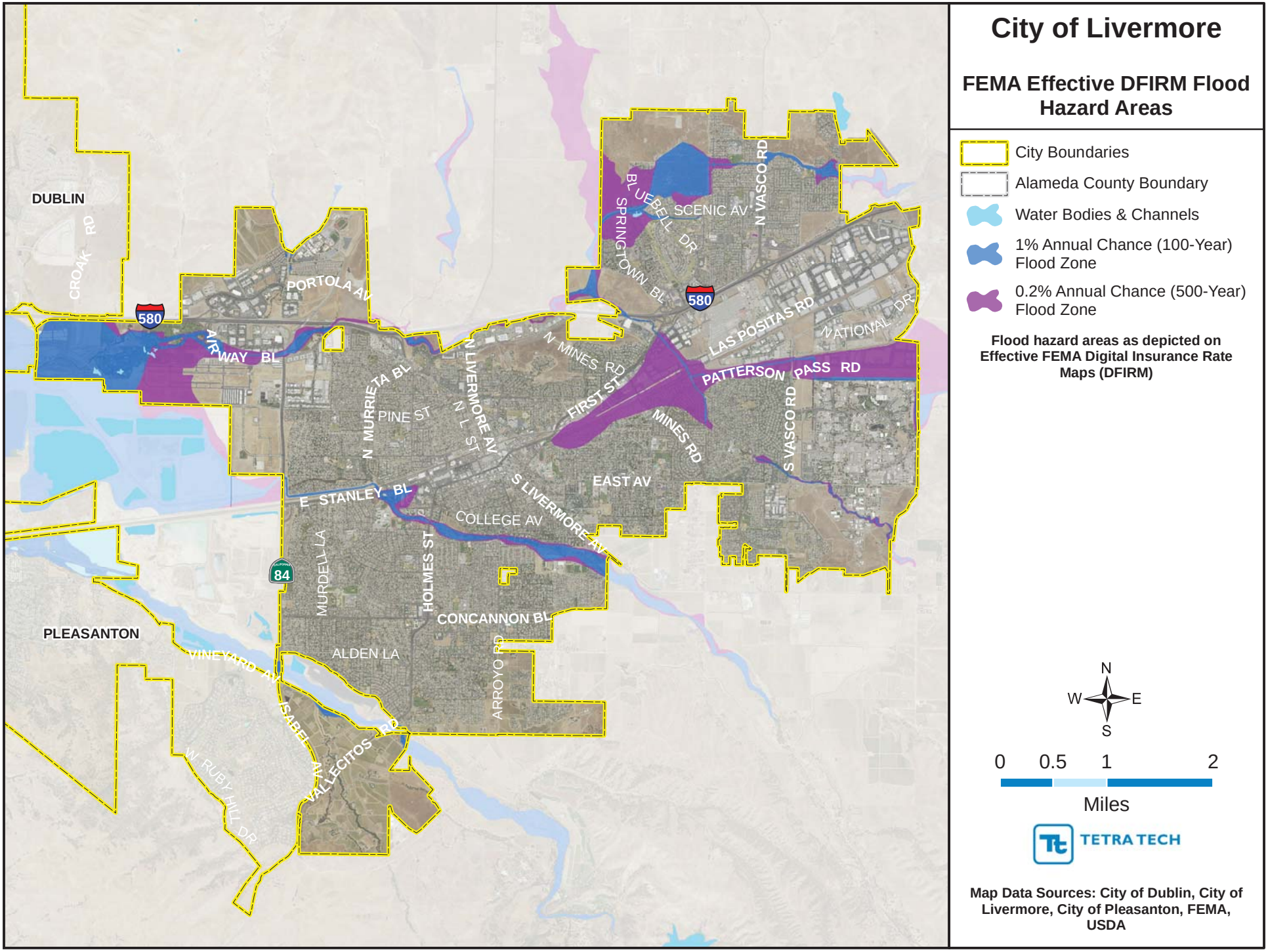
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Dept of Conservation, CGS, USGS



City of Livermore

FEMA Effective DFIRM Flood Hazard Areas

- City Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- 1% Annual Chance (100-Year) Flood Zone
- 0.2% Annual Chance (500-Year) Flood Zone

Flood hazard areas as depicted on Effective FEMA Digital Insurance Rate Maps (DFIRM)

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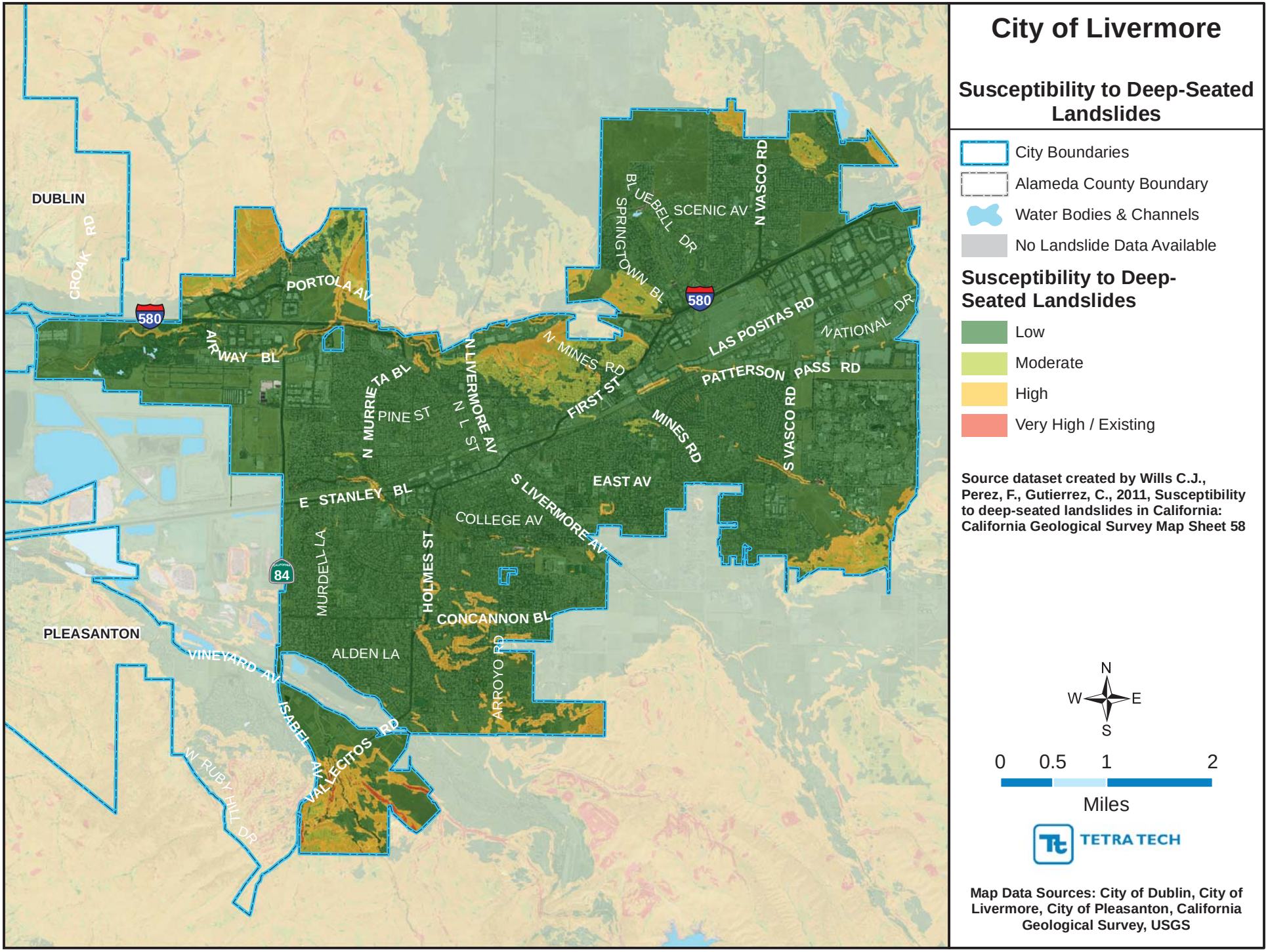
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, FEMA, USDA



City of Livermore

Susceptibility to Deep-Seated Landslides

City Boundaries

Alameda County Boundary

Water Bodies & Channels

No Landslide Data Available

Susceptibility to Deep-Seated Landslides

Low

Moderate

High

Very High / Existing

Source dataset created by Wills C.J., Perez, F., Gutierrez, C., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey Map Sheet 58

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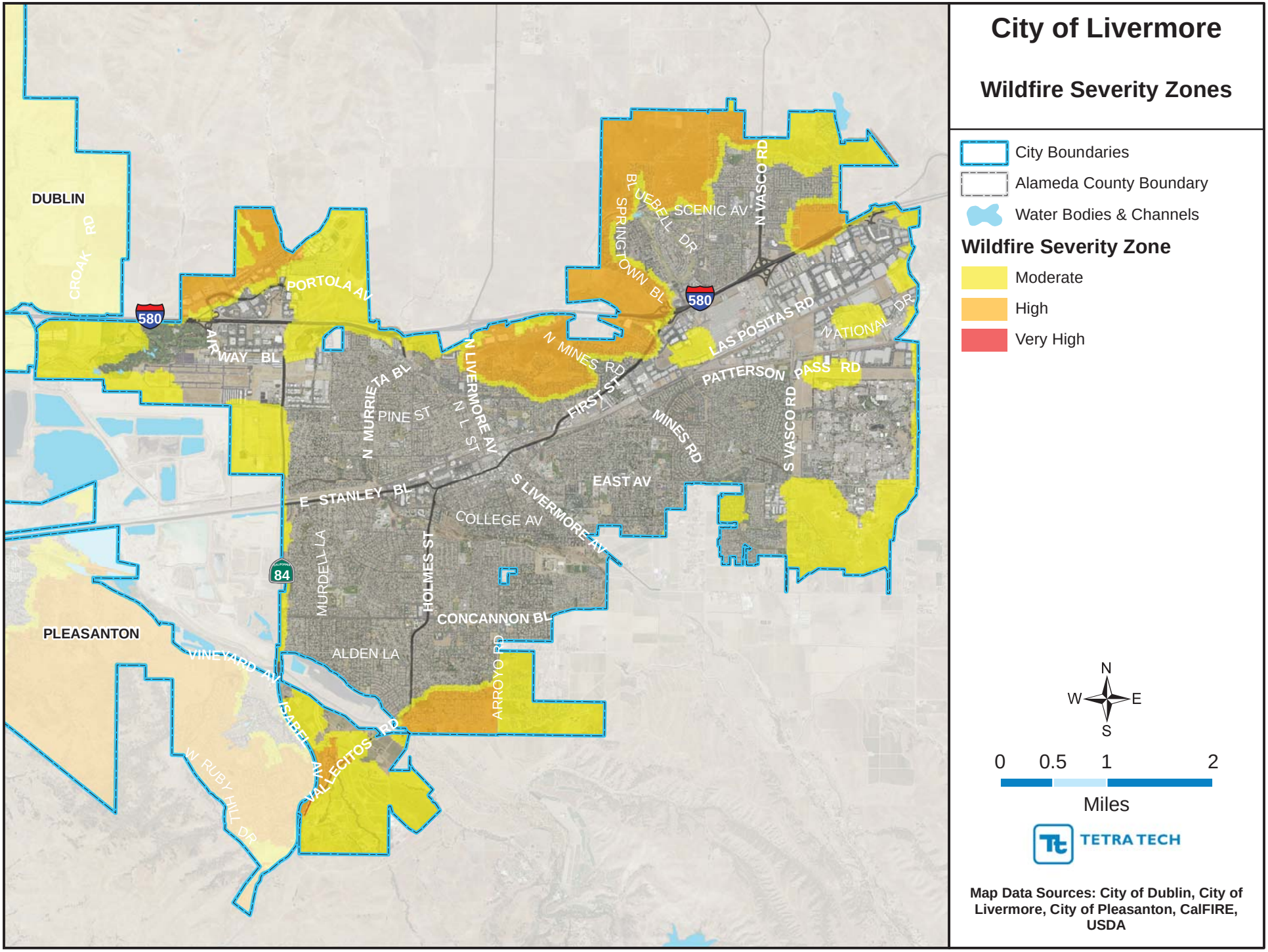
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS


City of Livermore
Wildfire Severity Zones
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Wildfire Severity Zone
Moderate
High
Very High
DUBLIN
PLEASANTON
580
84
PORTOLA AV
AIRWAY BL
N MURRIETA BL
PINE ST
N LIVERMORE AV
N L ST
N MINES RD
FIRST ST
LAS POSITAS RD
PATTERSON PASS RD
NATIONAL DR
MINES RD
S VASCO RD
N VASCO RD
SCENIC AV
BLUEBELL DR
SPRINGTOWN BL
E STANLEY BL
EAST AV
COLLEGE AV
S LIVERMORE AV
HOLMES ST
MURDELL LA
CONCANNON BL
ALDEN LA
ARROYO RD
VINEYARD AV
ISABEL AV
VALLECITOS RD
N RUBY HILL DR
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Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, CalFIRE, USDA

3. CITY OF PLEASANTON

3.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Shweta Bonn, Senior Planner
P.O. Box 520
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Telephone: (925) 931-5611
e-mail Address: sbonn@cityofpleasantonca.gov

Alternate Point of Contact
Gerry Beaudin, Director of Community Development
P.O. Box 520
Pleasanton, CA 94566
Telephone: (925) 931-5606
e-mail Address: gbeaudin@cityofpleasantonca.gov

3.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—1894
- **Current Population**—75,916 as of January 2017 (CA Department of Finance, May 2017)
- **Population Growth**— Based on data tracked by the state Department of Finance, Pleasanton experienced an approximate 6.6 percent increase in the five years between January 2012 and January 2017 (an increase of 4,703 persons).
- **Location and Description**— Pleasanton is located within Alameda County, one of nine Bay Area counties bordering the San Francisco Bay. Within city limits, Pleasanton comprises generally flat land that was once covered with native vegetation and agriculture, and is now mostly developed with urban land uses. To the east of city limits lie sand and gravel quarries – a result of alluvial deposits from prehistoric streams flowing through the Tri-Valley – which in the future will convert to water conservation and recreational uses. To the south are vineyards along Vineyard Avenue and a series of gently to steeply sloping hills – the Southeast Hills – which sustain grazing lands and cattle. Finally, to the west, the seismically active Pleasanton and Main Ridges rise sharply, providing recreational and grazing areas. Downtown Pleasanton boasts some buildings from the late 1890s, and is generally the center of community activities.
- **Brief History**— Although the area around Pleasanton was long inhabited by people before settlement by Europeans in 1769, the City's population remained modest in the four decades after the City's incorporation in 1894. By the late 1930s and early 1940s the population in Pleasanton was about 1,200 people. However, World War II triggered growth, and the City's population doubled between 1940 and 1950. The National Highway Act passed in 1956 brought Interstates 580 and 680 to the Tri-Valley, allowing for new economic activity. Also contributing to the rapid regional population growth was the federal government's sponsorship of the establishment of what is now Lawrence Livermore National Laboratory in 1950. This time period saw the development of tract neighborhoods outside the immediate downtown area, including: Amaral Acres on Kottinger Avenue, Jensen Tract on Santa Rita Road across from Amador Valley High School, Pleasanton Valley Estates near Santa Rita Road and Black Avenue, Heritage Valley, Pleasanton Heights, and Vintage Hills. The decades subsequent to the 1950s would see rapid population growth and expansion of the city limits to the north and east. The population of the City

in the 1960s was estimated to be 4,200 people. Growth in Pleasanton was further supported by the construction of Hacienda – a major business park – which began in 1982, and construction of Stoneridge Shopping Center.

- **Climate**— Pleasanton enjoys a relatively mild climate, with an average rainfall of 15 inches and average maximum temperature of 89º Fahrenheit in July and average minimum temperature of 37º in December. At its most extreme, winter temperatures can drop below freezing a few days each year, and summer temperatures hover around 100 degrees Fahrenheit during July and August. The temperate weather allows residents year-round opportunities to take advantage of outdoor activities such as hiking the Pleasanton Ridge, cycling along trails and roadways, shopping in the historic downtown district and patio dining at restaurants.
- **Governing Body Format**— The City Council, comprising the Mayor and four City Councilmembers, is the governing body of the city, with all the regulatory and corporate powers of a municipal corporation provided under California State Law. In general, the Council supervises the operations of the City government by establishing policies and programs and appropriating funds for each service function, and the City Manager oversees implementation. Members of the City Council are elected at-large. Councilmembers are elected for a term of four-years, and the Mayor is elected to a term of two-years. A Vice Mayor is selected by the Mayor each calendar year. The Mayor and Council are subject to term limits of eight years. The City has 10 committees, commissions, and task forces, which report to the City Council, and 13 departments (inclusive of the City Manager's and City Attorney's Office). The City Council would review and adopt this plan, and the City Manager would oversee its implementation.

3.3 DEVELOPMENT TRENDS

The number of housing permits issued in 2016 is 287, which is significantly lower than the 891 permits issued in 2015 (for reference, 332 permits were issued in 2014). Housing production, as regulated by the City's Growth Management Ordinance, is expected to continue as a result of an improved economic climate, recent development activity, interest in sites rezoned for high density development, and the City's efforts to encourage housing through implementation of the Housing Element's new policies and programs. New commercial development is located in various areas of Pleasanton. Examples of large scale projects include Workday, which is currently constructing a six-story, approximately 410,000 square foot office building, parking garage, and other improvements near Stoneridge Mall; and an approximately 112,000 square foot new shopping center located in the eastern part of the City near the intersection of Stoneridge Drive and El Charro Road. The City of Pleasanton adopted its General Plan in 2009, and City actions, such as those relating to land use allocations, annexations, zoning, subdivision, design review, redevelopment, and others must be consistent with the General Plan.

Table 3-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 3-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes Since February 2012 (date of City Council adoption of resolution of previous hazard mitigation plan), the City has processed 2 annexations (Balch and Linfoot-Mix-Marks), resulting in a total of 22 acres annexed to the City. This consists of 5 parcels.					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes Yes, the City is expecting to annex areas on the outskirts of Pleasanton over the next 5 years. These areas are primarily in the Happy Valley and West of Foothill area, and are generally occupied by lower-density residential units. The County currently has permitting authority in these areas.					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes Redevelopment activities are focused around transit stations, with few hazard risks other than geotechnical and dam inundation hazards.					
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2012	2013	2014	2015	2016
	Single Family	83	62	68	87	74
	Multi-Family	5	3	8	33	23
	Other (commercial, mixed use, etc.)	5	5	6	12	12
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	Development has occurred throughout the city during the performance period for this plan. The city does not have the ability to track the specific number of building permits issued by hazard area. It is important to note, however, that all new development was consistent with General Plan policies and municipal code standards.					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	The City of Pleasanton is substantially built out; however, several in-fill lots have not been developed, both with potential residential and non-residential uses.					

3.4 CAPABILITY ASSESSMENT

The City of Pleasanton has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 3-2.
- An assessment of fiscal capabilities is presented in Table 3-3.
- Development and permitting capabilities are presented in Table 3-4.
- An assessment of administrative and technical capabilities is presented in Table 3-5.
- An assessment of education and outreach capabilities is presented in Table 3-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 3-7.
- Classifications under various community mitigation programs are presented in Table 3-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 3-9.

Table 3-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code	Yes	Yes	Yes	Yes
Comment: Pleasanton Building Code, last amended in 2016, (PMC § 20.08, Building Code)				
Zoning Code	Yes	No	Yes	Yes
Comment: Pleasanton Municipal Code, last amended in 2016 (PMC Title 18, Zoning)				
Subdivisions	Yes	No	Yes	Yes
Comment: Pleasanton Municipal Code, last amended in 2016 (PMC Title 19 Subdivisions)				
Stormwater Management	Yes	Yes	Yes	Yes
Comment: Pleasanton Municipal Code, last amended in 2016 (PMC § 9.14, Stormwater Management and Discharge Control)				
Post-Disaster Recovery	Yes	Yes	No	Yes
Comment: Preparation of subject plan in process				
Real Estate Disclosure	Yes	Yes	Yes	Yes
Comment: Cal. Civ. Code §1102 et seq.				
Growth Management	Yes	Yes	No	No
Comment: Cal. Gov. Code §65300 et seq.; (PMC § 17.36, Growth Management Program)				
Site Plan Review	Yes	No	No	Yes
Comment: Site Plan Review is completed with entitlements such as Design Review and/or Planned Unit Development review for new development projects				
Environmental Protection	Yes	Yes	Yes	Yes
Comment: California Environmental Quality Act (CEQA)				
Flood Damage Prevention	Yes	Yes	Yes	Yes
Comment: The City coordinates with Zone 7 Water Agency for stream management and flood protection.				
Emergency Management	Yes	Yes	Yes	Yes
Comment: Pleasanton Municipal Code, last updated 2016 (PMC § 2.44 Emergency Organization)				
Climate Change	Yes	Yes	Yes	Yes
Comment: California SB 379 requires cities to include climate adaptation and resiliency strategies in their general plans.				
Other:	N/A	N/A	N/A	N/A
Comment: None identified				
Planning Documents				
General Plan	Yes	Yes	Yes	Yes
Is the plan compliant with Assembly Bill 2140? No				
Comment: Pleasanton's General Plan was adopted in 2009.				
Capital Improvement Plan	Yes	Yes	No	Yes
How often is the plan updated? Every 2 years				
Comment: The CIP was last updated in May 2017 for fiscal years 2017-18 through 2020-21				
Floodplain or Watershed Plan	No	Yes	Yes	Yes
Comment: The City coordinates with Zone 7 Water Agency for stream management and flood protection.				
Stormwater Plan	Yes	Yes	Yes	Yes
Comment: Pleasanton Municipal Code, last amended in 2016				
Urban Water Management Plan	Yes	Yes	Yes	Yes
Comment: Pleasanton Municipal Code, last amended in 2016 (PMC § 9.30 Water Management Plan)				
Habitat Conservation Plan	No	Yes	No	No
Comment: Pleasanton participates in the Eastern Alameda County Conservation Strategy				
Economic Development Plan	Yes	No	No	No
Comment: Pleasanton's General Plan includes an Economic and Fiscal Element				

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Shoreline Management Plan	No	No	No	No
Comment: Not applicable				
Community Wildfire Protection Plan	No	Yes	Yes	Yes
Comment: Alameda County				
Forest Management Plan	No	No	No	No
Comment: Not applicable				
Climate Action Plan	Yes	Yes	Yes	Yes
Comment: General Plan Air Quality and Climate Change Element adopted in 2009; Climate Action Plan adopted in 2012 and is scheduled to be updated in 2018				
Comprehensive Emergency Management Plan	Yes	Yes	Yes	Yes
Comment: The City is in the process of updating its Emergency Management Plan, which will include the critical elements of the Standardized Emergency Management System (SEMS), the National Incident Management System, the National Response Framework and the Incident Command System.				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	Yes	No	No
Comment: Bay Area Urban Areas Security Initiative				
Post-Disaster Recovery Plan	No	Yes	No	Yes
Comment: ABAG, Bay Area Regional Disaster Resilience Action Plan Initiative				
Continuity of Operations Plan	No	No	No	No
Comment: None identified				
Public Health Plan	No	Yes	No	Yes
Comment: Alameda County Public Health Department				
Other:	N/A	N/A	N/A	N/A
Comment: None identified				

Table 3-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Community Development Block Grants	No – the City uses Community Development Block Grants to fund NPOs
Capital Improvements Project Funding	Yes – eligible but requires City Council approval
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes, Water and Sewer funds can be used for eligible projects & fees can be increased with City Council approval for that purpose.
Incur Debt through General Obligation Bonds	Yes – requires 2/3 voter approval
Incur Debt through Special Tax Bonds	Yes – requires 2/3 voter approval
Incur Debt through Private Activity Bonds	Yes – requires either City Council or voter approval
Withhold Public Expenditures in Hazard-Prone Areas	Yes – requires City Council action
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes, if the project was included in fee study as required to mitigate full build-out of the City's General Plan
Other	No

Table 3-4. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Community Development
Does your jurisdiction have the ability to track permits by hazard area?	No
Does your jurisdiction have a buildable lands inventory?	Yes

Table 3-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development Department and Engineering Department
Planners or engineers with an understanding of natural hazards	Yes	Community Development Department
Staff with training in benefit/cost analysis	Yes	Finance Department
Surveyors	Yes	Engineering Department
Personnel skilled or trained in GIS applications	Yes	Information technology
Scientist familiar with natural hazards in local area	No	N/A
Emergency Manager	Yes	LPFD
Grant writers	Yes	Various Departments
Other	No	N/A

Table 3-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes Hazard Mitigation Plan website
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	No N/A
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	No N/A
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes City newsletter
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes Social media

Table 3-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Engineering/Building
Who is your floodplain administrator? (department/position)	Adam Nelkie, Senior Civil Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
What is the date that your flood damage prevention ordinance was last amended?	January 1, 2014, Ord No. 2083
Does your floodplain management program meet or exceed minimum requirements?	Meets
• If exceeds, in what ways?	N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	February 2016
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?	No
• If so, please state what they are.	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction?	Yes
• If no, please state why.	N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program?	Yes
• If so, what type of assistance/training is needed?	Additional staff trained.
Does your jurisdiction participate in the Community Rating System (CRS)?	Yes (Class 8)
• If yes, is your jurisdiction interested in improving CRS Classification?	Yes
• Is your jurisdiction interested in joining the CRS program?	N/A
How many flood insurance policies are in force in your jurisdiction?[a]	139
• What is the insurance in force?	$50,728,000
• What is the premium in force?	$101,768
How many total loss claims have been filed in your jurisdiction?[a]	22
• How many claims are still open/were closed without payment?	1/13
• What were the total payments for losses?	$154,583

a. According to FEMA statistics as of June 30, 2017

Table 3-8. Community Classifications

	Participating?	Classification	Date Classified
Community Rating System	Yes	8	10/1/97
Building Code Effectiveness Grading Schedule	Yes	3	March 2012
Public Protection	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A

Table 3-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comment: *A greenhouse gas inventory was conducted for 2005 data. This analysis supported preparation and adoption of the Climate Action Plan (CAP) in 2012. The Air Quality and Climate Change Element of the General Plan was modified concurrently with adoption of the CAP.*	
Jurisdiction-level monitoring of climate change impacts	Low
Comment: *The City has adopted a Climate Action Plan and the General Plan includes climate change policies. While climate change impacts are not specifically monitored, hazards are monitored via the local hazard mitigation plan.*	
Technical resources to assess proposed strategies for feasibility and externalities	Medium
Comment: *City staff and if needed, consultants are available to assess strategies for feasibility.*	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comment: *The City is planning an update to its Climate Action Plan. This effort is expected to commence in 2018.*	
Capital planning and land use decisions informed by potential climate impacts	Medium
Comment: *Impacts related to air quality and greenhouse gas emissions are evaluated on a project-by-project basis during environmental review.*	
Participation in regional groups addressing climate risks	Low
Comment: *The City would participate in regional groups that are initiated for this effort.*	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Medium
Comment: *Impacts related to air quality and greenhouse gas emissions are evaluated on a project-by-project basis during environmental review.*	
Identified strategies for greenhouse gas mitigation efforts	High
Comment: *The CAP provides strategies and implementation measures to reduce greenhouse gas emissions.*	
Identified strategies for adaptation to impacts	Low
Comment: *These strategies could be incorporated into an update to the Climate Action Plan.*	
Champions for climate action in local government departments	Low
Comment: *At this time, there is no dedicated staff to climate action planning. However, with the planned update to the CAP commencing in 2018, the City anticipates setting up a* city-wide Green Team comprised of representatives from various departments.	
Political support for implementing climate change adaptation strategies	High
Comment: *The city is supportive of measures outlined in the CAP and their strategic implementation.*	
Financial resources devoted to climate change adaptation	Medium
Comment: *While funds have not been specifically dedicated to climate change adaptation, implementation of such measures are carried forward on an as feasible basis for city projects.*	
Local authority over sectors likely to be negative impacted	Medium
Comment: *The city has authority over local public streets and related infrastructure.*	
Public Capacity	
Local residents' knowledge of and understanding of climate risk	Medium
Comment: *Local residents are well-informed and aware of local, regional, state-wide, and greater issues relating to climate change.*	
Local residents support of adaptation efforts	Low
Comment: *Local residents are generally supportive of measures to address climate change, but the city has not recently specifically solicited public feedback on this topic.*	
Local residents' capacity to adapt to climate impacts	Low
Comment: *This is not known at this time.*	

Criterion	Jurisdiction Rating[a]
Local economy current capacity to adapt to climate impacts	Low
Comment: This is not known at this time.	
Local ecosystems capacity to adapt to climate impacts	Low
Comment: This is not known at this time.	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

3.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

3.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, the City of Pleasanton made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **General Plan**—Includes policies related to flooding, geotechnical concerns, wildfire, and other hazards
- **Capital Improvement Plan**—Includes infrastructure that incorporates climate change adaptation strategies
- **Climate Action Plan**—Increases resilience to climate change
- **Emergency Operations Plan—**Addresses operational needs and procedures during an emergency
- **Pleasanton Municipal Code—**The Pleasanton Municipal Code includes development requirements that can address hazard mitigation.

Resources listed in Section 3.12 were used to provide information for this annex on hazard events and local capabilities within the jurisdiction.

3.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, the City of Pleasanton will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the midterm progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Capital Improvement Program**—Incorporate hazard mitigation projects consistent with other adopted plans and programs.
- **Pleasanton General Plan**—Enhance to address hazard mitigation policies, including climate adaptation and resiliency as required by State law
- **Climate Action Plan**—Enhance to increase local resiliency to climate change

- **Emergency Operations Plan**—Update to better address operational needs and procedures during an emergency
- **Pleasanton Municipal Code –** The Pleasanton Municipal Code includes development requirements that can address hazard mitigation, including site plan review completed with entitlements such as Design Review and Planned Unit Development review. Continue to look for opportunities to further integrate hazard mitigation goals and objectives into the Municipal Code.
- **Continuity of Operations Plan—**Plan to ensure that agencies are able to perform essential functions during emergencies.
- **Continuity of Government Plan—**Plan to ensure that government continues its essential functions during emergencies
- **Post Disaster Recovery Plan**—Develop plan and policies for rebuilding and recovery after disasters

3.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-10 lists past occurrences of natural hazards for which specific damage was recorded in the City of Pleasanton. Other hazard events that broadly affected the entire planning area, including the City of Pleasanton, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 3-10. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Drought	-	2013-2016	N/A
Severe Winter Storms, Flooding	DR-1155	11/17/96	N/A
Loma Prieta Earthquake	DR-845	10/17/89	N/A

3.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: 0
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 0
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: 0

Other noted vulnerabilities include the following:

- Areas of Pleasanton are likely to experience flooding and effects of climate change.
- Petroleum product and natural gas pipelines, as well as PG&E transmission lines traverse through Pleasanton.
- The Union Pacific / Southern Pacific and Western Pacific Railroads consult rail operations through Pleasanton, which includes cargoes of electronics, fabricated metals, plastics, precision machinery, agricultural chemicals, construction materials, rock/sand/gravel aggregates, and other hazardous materials. A spill of bulk hazardous materials could result in fire, explosion, toxic cloud, or direct contamination of people and property.
- Although not located within the Pleasanton Planning Area boundary, the Livermore Municipal Airport affects land uses in Pleasanton in the form of noise and safety. These concerns are addressed by the Alameda County Airport Land Use Commission (ALUC) in its *Airport Land Use Compatibility Plan*

(ALUCP). As part of the ALUCP, the ALUC has adopted seven safety compatibility zones. Three of the zones, 4, 6, and 7, extend into Pleasanton.

3.8 HAZARD RISK RANKING

Table 3-11 presents a local ranking for the City of Pleasanton of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 3-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Wildfire[c]	39	High
2	Earthquake[a]	36	High
3	Severe weather[b]	33	Medium
4	Landslide[e]	26	Medium
5	Dam failure[g]	18	Medium
6	Flood[d]	12	Low
7	Drought[f]	9	Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

3.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 3-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

3.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 3-13 lists the actions that make up the City of Pleasanton hazard mitigation action plan. Table 3-14 identifies the priority for each action. Table 3-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 3-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement. LPFD Fire Prevention. Resource shortage. (HSNG-g-2)	Yes; Ongoing		Yes	P6
Comment: This is completed annually.				
Install micro and/or surveillance cameras around critical public assets tied to web-based software, and develop a surveillance protocol to monitor these cameras. Pleasanton Police Dept., (GOVT-a-6).	No	Yes	No	
Comment: Unfunded.				
Ongoing Activities	X			
Comment: The 2010 plan included an extensive list of ongoing activities as part of the mitigation strategy. Based upon review, these strategies are addressed by the objectives identified as part of this plan update and/or are identified in the core capability assessment for the City of Pleasanton.				

Table 3-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
P-1— Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	City of Pleasanton, Community Development Department, Engineering Department	LPFD	High	HMGP, PDM, FMA	Short-term
P-2— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including the City's General Plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	City of Pleasanton, Community Development Department, Engineering Department	LPFD	Low	Staff Time, General Funds	Ongoing
P-3— Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	City of Pleasanton-All Departments	LPFD	Low	Staff Time, General Funds	Short-term
P-4—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam failure	1, 4, 6, 9	City of Pleasanton, Engineering Department	LPFD	Low	Staff Time, General Funds	Ongoing

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
P-5—Identify and pursue strategies to increase adaptive capacity to climate change including but not limited to the following: update and implementation of the Climate Action Plan and update the General Plan to address recent legislation and establish policies related to climate change adaptability.							
New and Existing	Dam failure, Drought, Flood, Landslide, Severe weather, Wildfire	1, 2, 5, 7, 8, 9, 10, 12	City of Pleasanton-All Departments	Adjacent cities/County	Low	Staff Time, General Funds	Short-term
P-6— Tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.							
New and Existing	Wildfire	1, 2, 5, 6, 11, 12	LPFD	City of Pleasanton	Medium	Staff Time, General Funds	Ongoing
P7— Prohibit construction of habitable structures within at least 50 feet of an identified active fault trace where the fault has been specifically located in site-specific geologic studies							
New	Landslide, Earthquake	2, 4, 5, 6, 11	City of Pleasanton Community Development Department, Engineering Department	None	Low	General Funds, Staff Time	Ongoing
P8— Prohibit new development of sites with structures intended for human occupancy in any landslide-prone areas unless the landslide risk can be eliminated. Permit development in landslide prone areas only when sites can be shown to be stable during adverse conditions such as saturated soils, ground shaking, and during grading of the site for roads, installation of infrastructure, and creation of building pads. Engineering studies shall demonstrate that structures in landslide prone areas would sustain no more damage due to slope instabilities than damage sustained by a similar building in the Pleasanton Planning Area constructed to current CBC standards and located on soils with a low susceptibility to failure when exposed to moderate ground shaking.							
New	Landslide, Earthquake	2, 4, 5, 6, 11	City of Pleasanton Community Development Department, Engineering Department	None	Low	General Funds, Staff Time	Ongoing
P9—Require fire mitigation measures in new and existing developments that reduce the fire threat to the structure and occupants. Require development outside the five-minute travel time and in Special Fire Protection Areas to provide effective fire prevention measures.							
New	Wildfire	2, 3, 7	LPFD	City of Pleasanton	Medium	General Funds, Staff Time, Private Development Investment	Ongoing
P10—Continue to conduct public meetings and issue press releases regarding Del Valle Dam evacuation.							
Existing	Dam failure	3, 7, 9	City of Pleasanton Community Development Department, Engineering Department	None	Low	General Funds	Ongoing
P11—Encourage replacing aboveground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that, on a case-by-case basis, all new phone and electrical lines are installed underground.							
New and Existing	Severe weather, Landslide, dam failure, flood, wildfire	4, 8	City of Pleasanton Community Development	None	Low	General Funds; Possible PG&E Underground Fund; HMGP, PDM	Ongoing

Table 3-14. Mitigation Action Priority

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

a. See the introduction to this volume for explanation of priorities.

Table 3-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Wildfire	2	1, 6, 9, 11	6		9		5	2, 3, 5, 6
Earthquake	2, 7	1						2, 3, 5
Severe weather	2	1, 11					5	2, 3, 5
Landslide	2, 7, 8	1, 8, 11					5	2, 3, 5
Dam failure	2, 4	1, 4, 11	4, 10				5	2, 3, 4, 5
Flood	2, 4	1, 4, 11	4				5	2, 3, 4, 5
Drought	2						5	2, 3, 5

a. See the introduction to this volume for explanation of mitigation types.

3.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

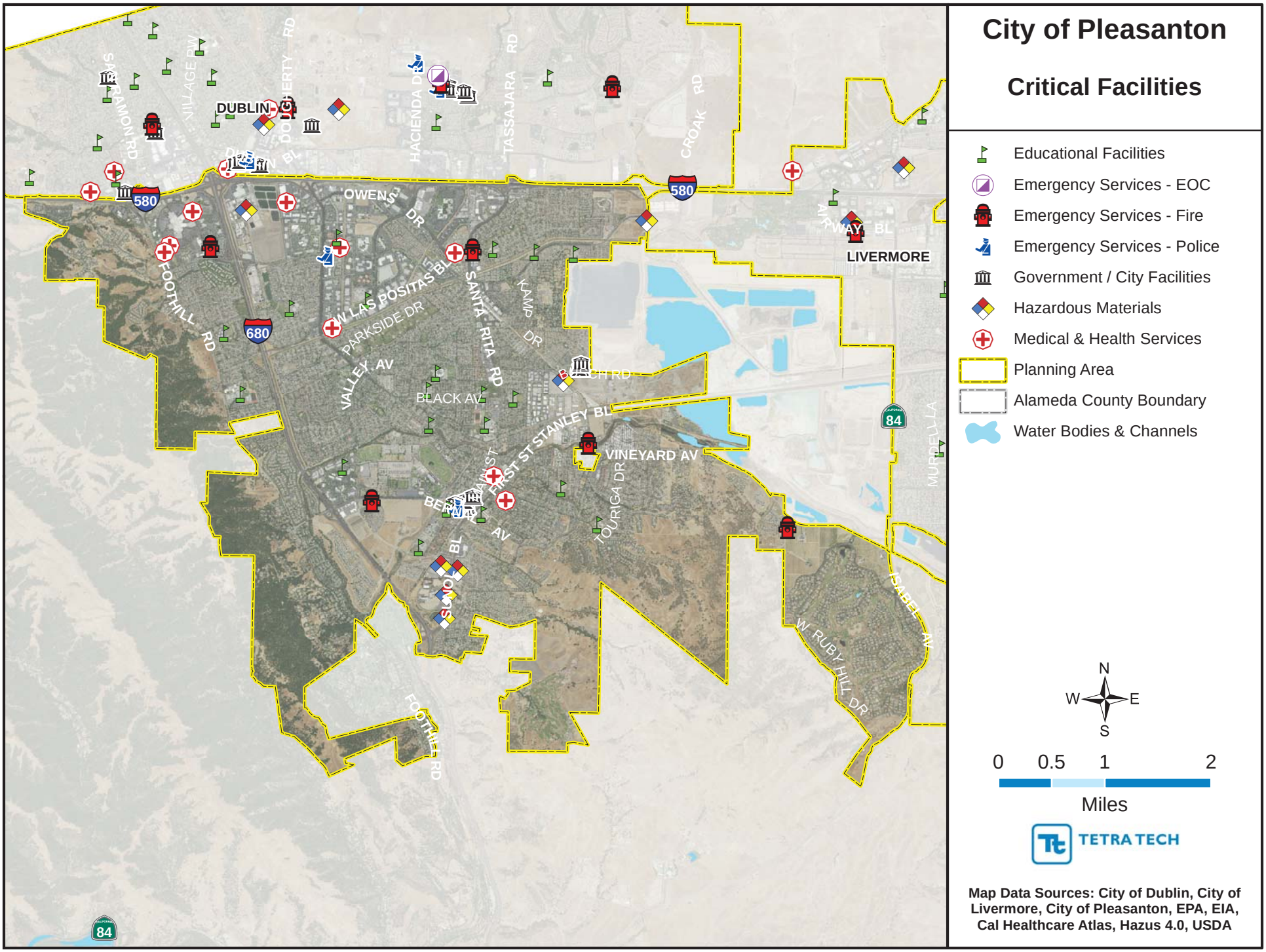
The City could benefit from a multi-disciplinary plan identifying ways in which climate change will affect Pleasanton in the future, and ways to address/mitigate this change.

3.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **City of Pleasanton Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.

- **City of Pleasanton Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **City of Pleasanton General Plan—**The General Plan was reviewed to identify applicable policies that promote hazard mitigation.
- **City of Pleasanton Climate Action Pla**n—The Climate Action Plan was reviewed to ascertain approaches to achieving climate change resilience.
- **Technical Reports and Information—**The following outside resources and references were reviewed:
  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
  - **Current State Law**—State law (e.g., SB 379, SB 1241) was reviewed regarding recent requirements that relate to hazards and hazard mitigation.
  - **State Office Department of Planning and Research, General Plan Guidelines**—The Guidelines were reviewed to identify new approaches to integrating hazard planning into General Plans.



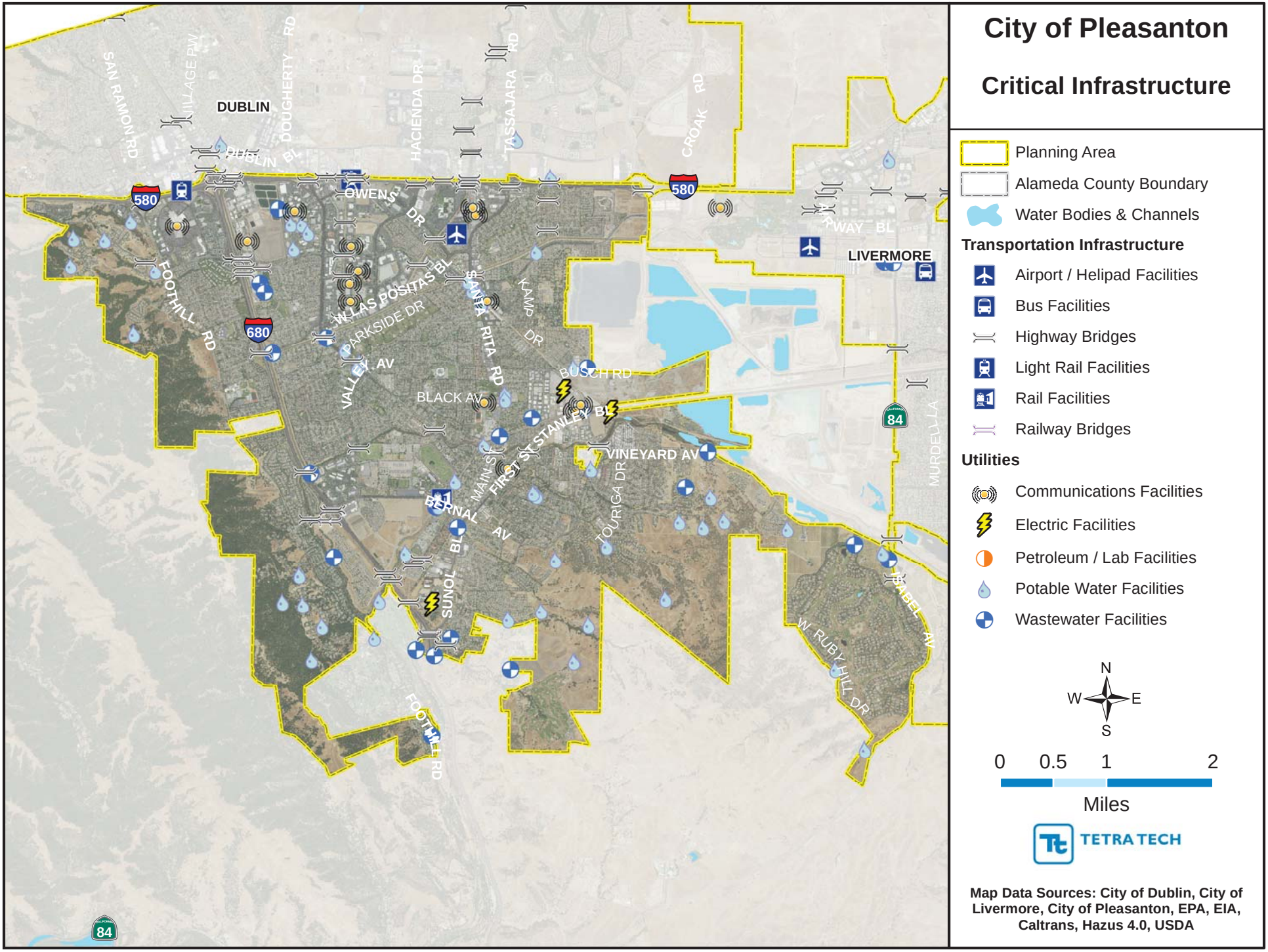
City of Pleasanton

Critical Facilities

- Educational Facilities
- Emergency Services - EOC
- Emergency Services - Fire
- Emergency Services - Police
- Government / City Facilities
- Hazardous Materials
- Medical & Health Services
- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Cal Healthcare Atlas, Hazus 4.0, USDA



City of Pleasanton

Critical Infrastructure

- Planning Area
- Alameda County Boundary
- Water Bodies & Channels

Transportation Infrastructure

- Airport / Helipad Facilities
- Bus Facilities
- Highway Bridges
- Light Rail Facilities
- Rail Facilities
- Railway Bridges

Utilities

- Communications Facilities
- Electric Facilities
- Petroleum / Lab Facilities
- Potable Water Facilities
- Wastewater Facilities

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Miles

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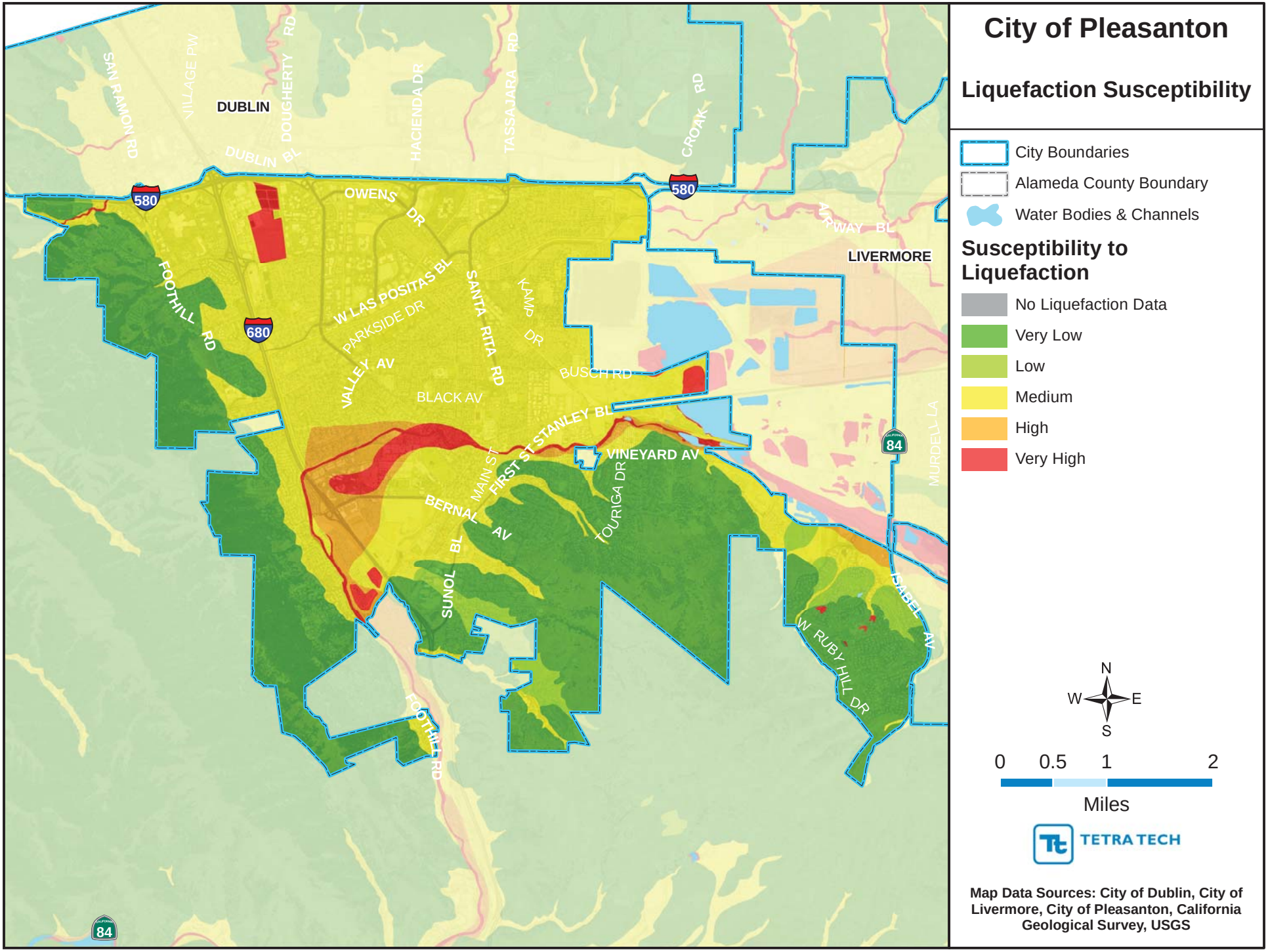
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, EPA, EIA, Caltrans, Hazus 4.0, USDA


City of Pleasanton
Liquefaction Susceptibility
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Susceptibility to Liquefaction
No Liquefaction Data
Very Low
Low
Medium
High
Very High
DUBLIN
LIVERMORE
SAN RAMON RD
VILLAGE PW
DOUGHERTY RD
HACIENDA DR
TASSAJARA RD
CROAK RD
DUBLIN BL
OWENS DR
AIRWAY BL
FOOTHILL RD
W LAS POSITAS BL
PARKSIDE DR
SANTA RITA RD
KAMP DR
VALLEY AV
BLACK AV
BUSCH RD
FIRST ST
STANLEY BL
VINEYARD AV
MAIN ST
BERNAL AV
TOURIGA DR
SUNOL BL
MURDELL LA
ISABEL AV
W RUBY HILL DR
580
680
84
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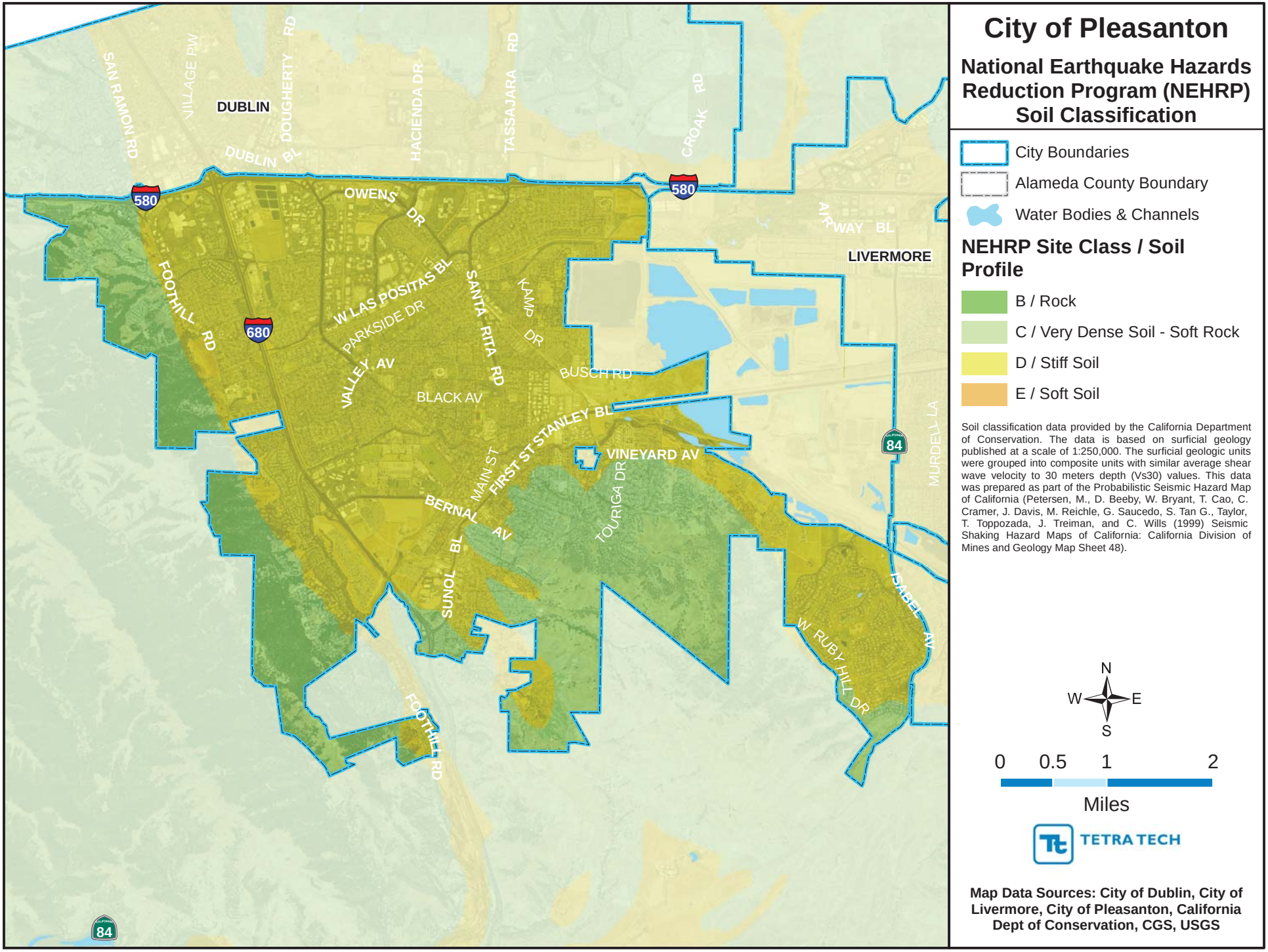
Miles
TETRA TECH
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS



City of Pleasanton

National Earthquake Hazards Reduction Program (NEHRP) Soil Classification

City Boundaries

Alameda County Boundary

Water Bodies & Channels

NEHRP Site Class / Soil Profile

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

Soil classification data provided by the California Department of Conservation. The data is based on surficial geology published at a scale of 1:250,000. The surficial geologic units were grouped into composite units with similar average shear wave velocity to 30 meters depth (Vs30) values. This data was prepared as part of the Probabilistic Seismic Hazard Map of California (Petersen, M., D. Beeby, W. Bryant, T. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan G., Taylor, T. Toppozada, J. Treiman, and C. Wills (1999) Seismic Shaking Hazard Maps of California: California Division of Mines and Geology Map Sheet 48).

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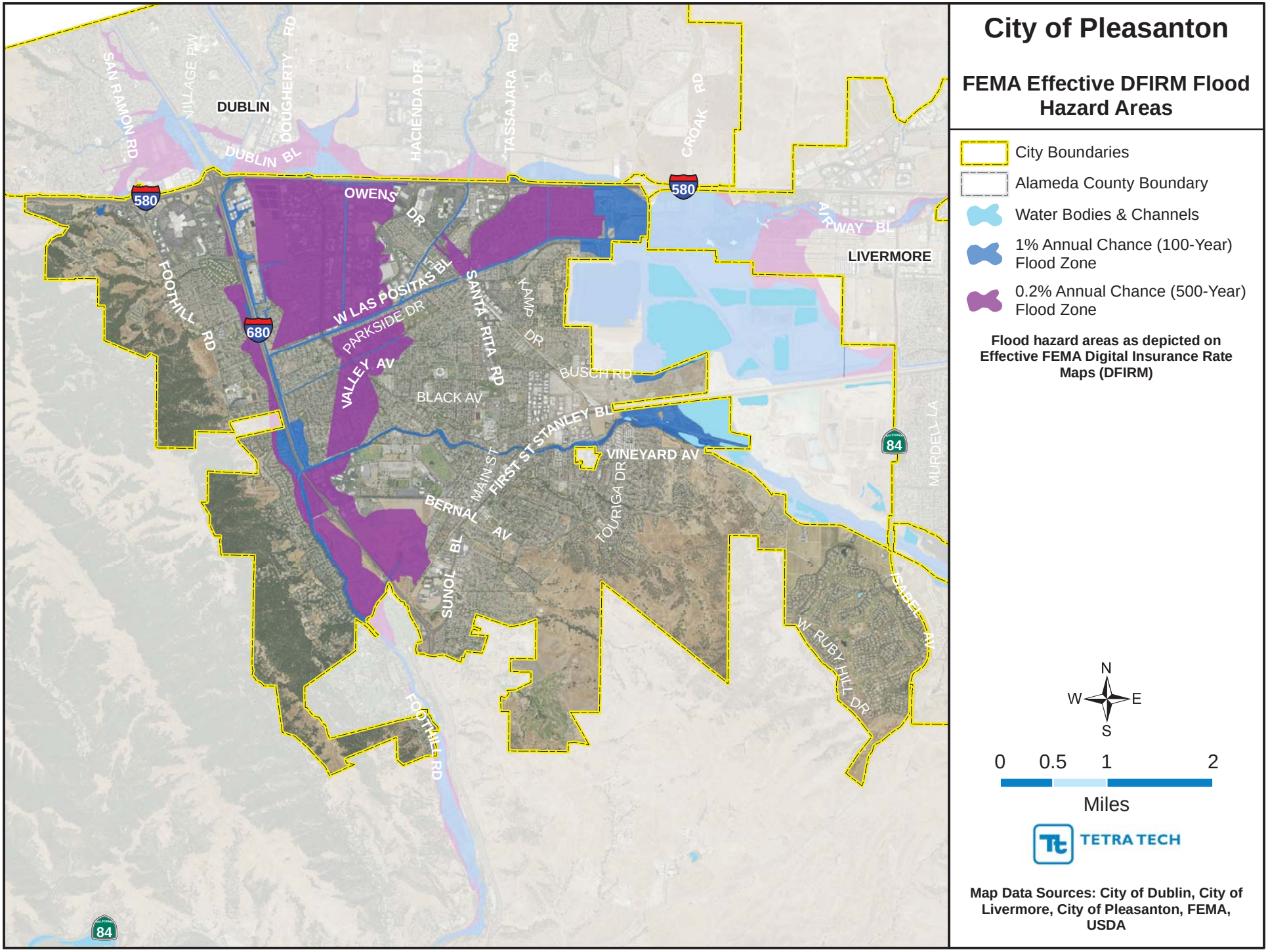
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Dept of Conservation, CGS, USGS



City of Pleasanton

FEMA Effective DFIRM Flood Hazard Areas

- City Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- 1% Annual Chance (100-Year) Flood Zone
- 0.2% Annual Chance (500-Year) Flood Zone

Flood hazard areas as depicted on Effective FEMA Digital Insurance Rate Maps (DFIRM)

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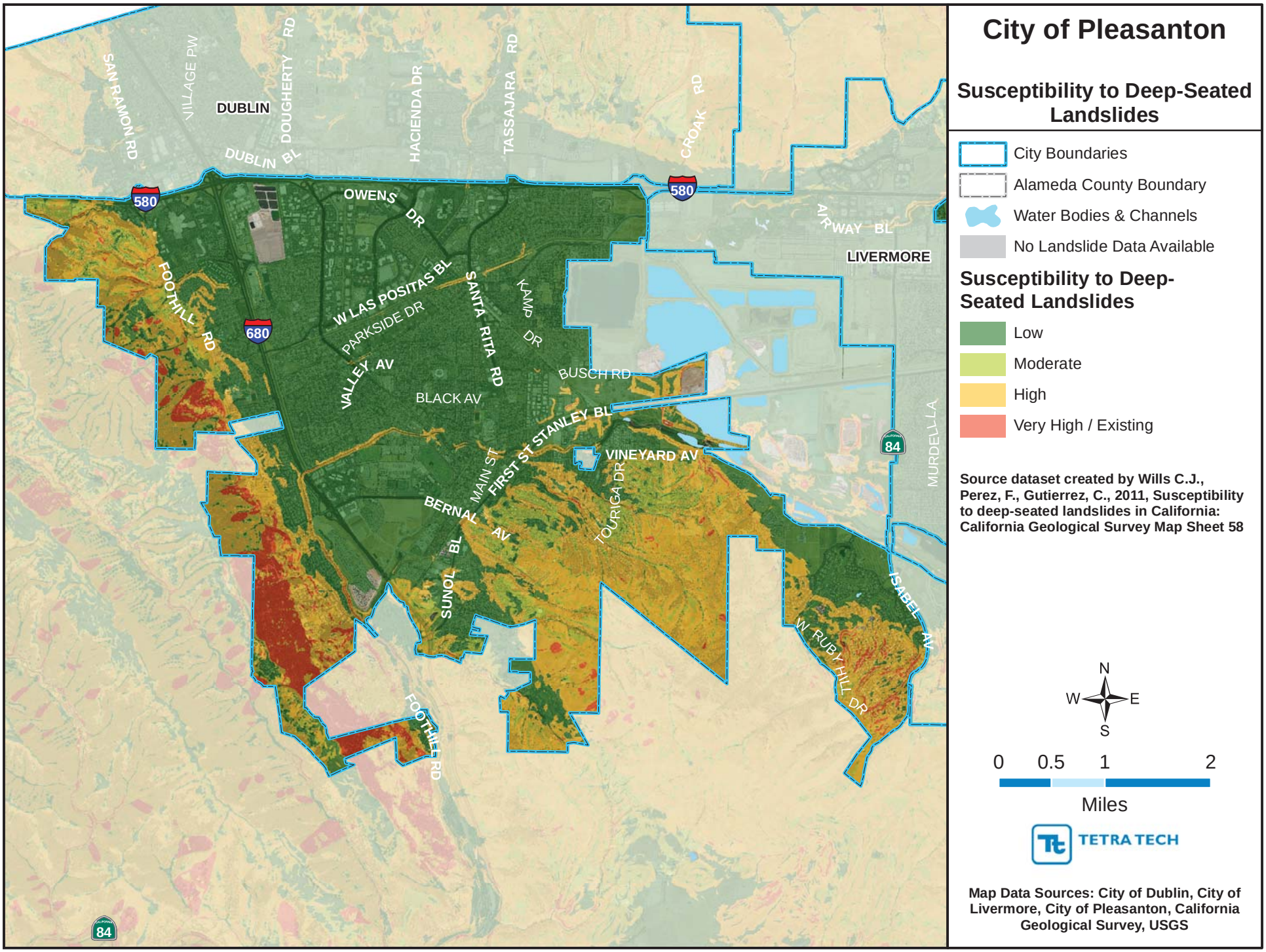
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, FEMA, USDA



City of Pleasanton

Susceptibility to Deep-Seated Landslides

- City Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- No Landslide Data Available

Susceptibility to Deep-Seated Landslides

- Low
- Moderate
- High
- Very High / Existing

Source dataset created by Wills C.J., Perez, F., Gutierrez, C., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey Map Sheet 58

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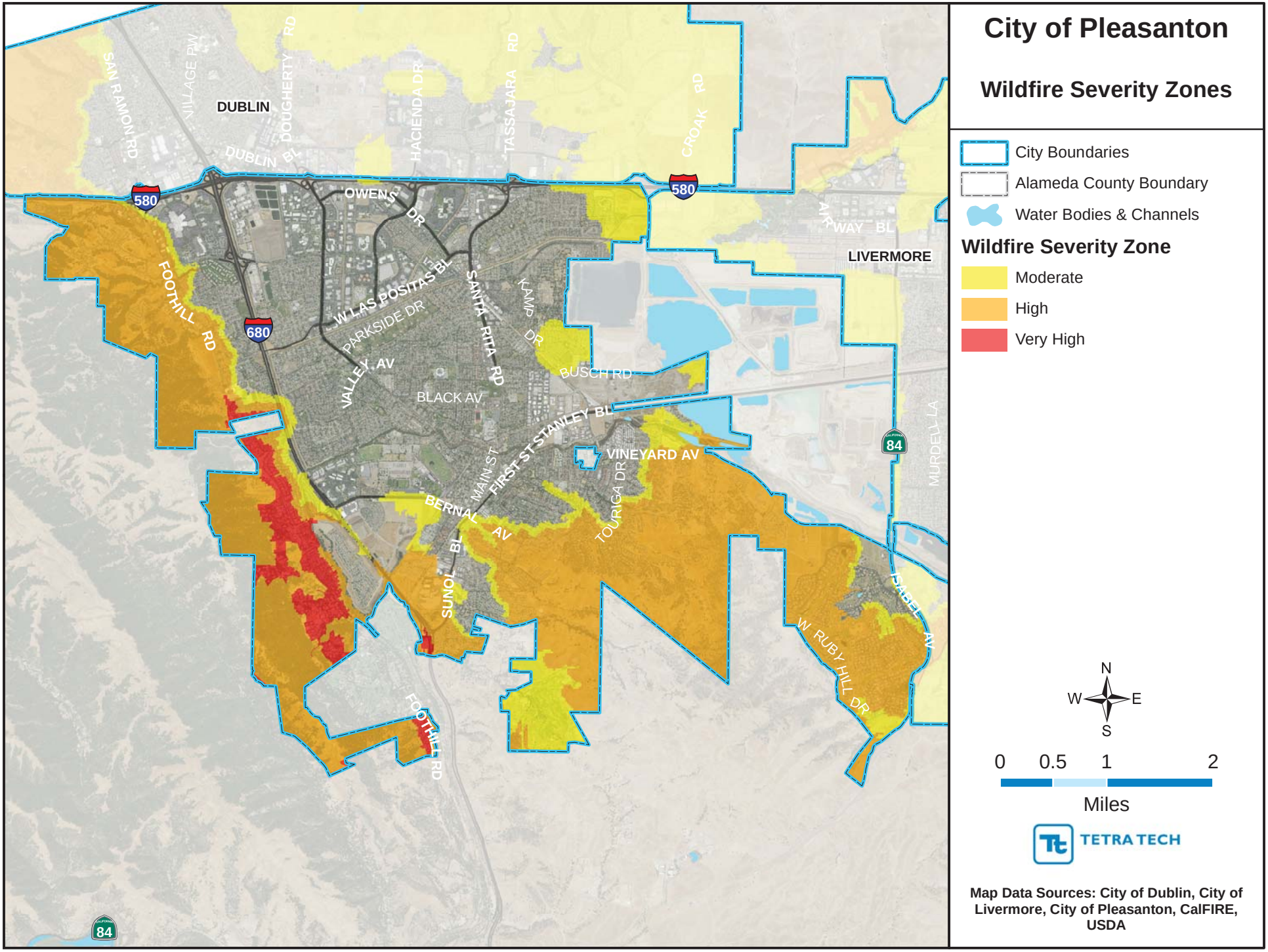
Miles

TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS


City of Pleasanton
Wildfire Severity Zones
City Boundaries
Alameda County Boundary
Water Bodies & Channels
Wildfire Severity Zone
Moderate
High
Very High
DUBLIN
LIVERMORE
SAN RAMON RD
VILLAGE PW
DOUGHERTY RD
HACIENDA DR
TASSAJARA RD
CROAK RD
DUBLIN BL
AIRWAY BL
OWENS DR
W LAS POSITAS BL
PARKSIDE DR
SANTA RITA RD
KAMP DR
FOOTHILL RD
VALLEY AV
BLACK AV
BUSCH RD
FIRST ST
STANLEY BL
VINEYARD AV
MAIN ST
BERNAL AV
TOURIGA DR
SUNOL BL
MURRELL LA
ISABEL AV
W RUBY HILL DR
580
680
84
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TETRA TECH
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, CalFIRE, USDA

4. DUBLIN SAN RAMON SERVICES DISTRICT

4.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Stanley Kolodzie, Associate Engineer
7051 Dublin Blvd.
Dublin, California 94568
Telephone: 925-875-2253
e-mail Address: kolodzie@dsrsd.com

Alternate Point of Contact
Rhodora Biagtan, Principal Engineer
7051 Dublin Blvd.
Dublin, California 94568
Telephone: 925-875-2255
e-mail Address: biagtan@dsrsd.com

4.2 JURISDICTION PROFILE

4.2.1 Overview

The Dublin San Ramon Services District is a special district created in 1953 to provide water and sewer service to an unincorporated area of Contra Costa County and Alameda County. The name of the District was originally the Parks Community Service District and eventually became Dublin San Ramon Services District. The unincorporated area of Contra Costa County eventually became part of the city of San Ramon, and the unincorporated area of Alameda County eventually became part of the city of Dublin. The District's service area expanded throughout the years to include the Dougherty Valley area of San Ramon in Contra Costa County; the entirety of the city of Dublin in Alameda County, and the sites of the Wastewater Treatment Plant and Dedicated Land Disposal in the city of Pleasanton in Alameda County.

A five-member elected Board of Directors governs the District. The Board assumes responsibility for adoption of this plan, the General Manager will oversee its implementation.

4.2.2 Service Area and Trends

As of January 1, 2017, the District serves 21,837 potable water accounts, 421 recycled water accounts and 20,934 single family residential wastewater tax roll assessments (excludes commercial, industrial and institutional accounts), with a current staff of 115. Funding comes primarily through water, recycled water and wastewater capacity charges for new development, rate charges and revenue bonds.

The District distributes drinking water to approximately 80,000 people and provides wastewater collection and treatment for approximately 150,000 people in Dublin, southern San Ramon and the city of Pleasanton. Since 1999 the District produced and distributed recycled water for landscape irrigation and construction to the cities of Dublin and San Ramon. The District distributes 5.22 million gallons per day of potable water, 2.7 million gallons per day of recycled water and treats an average of 9.96 million gallons of day of wastewater. The District anticipates increased demand for potable water and recycled water; and increased flows of wastewater to be treated as additional development occurs in eastern Dublin. The District's service area has reached its expected limits and is approximately 26 square miles.

4.2.3 Assets

Table 4-1 summarizes the critical assets of the district and their value.

Table 4-1. Special Purpose District Assets

Asset	Value
Property	
203 acres of land	$50,000,000
Critical Infrastructure and Equipment	
308 miles of potable water pipe and 3,256 hydrants	$187,052,000
16 potable water pump stations	$10,335,000
64 miles of recycled water pipe and 20 hydrants	$38,868,000
4 recycled water pump stations	$3,612,000
206 miles of wastewater pipes	$201,595,000
2 sanitary sewer lift stations	$144,000
14 potable water reservoirs capable of storing 27 million gallons	$28,029,000
2 recycled water reservoirs capable of storing 2 million gallons	$12,080,000
Wastewater Treatment Plant capable of processing 17 million gallons per day	$85,637,000
Recycled Water Plant capable of producing 12.7 million gallons per day	$16,100,000
5 Potable Water Turnout Delivery Facilities	$1,935,000
6 Emergency Interconnect Facilities	$775,000
Total:	$586,164,000
Critical Facilities	
Administrative Building – District Offices	$6,588,000
Administrative Building – Field Operations Center	$5,500,000
Total:	$12,088,000

4.3 CAPABILITY ASSESSMENT

Upon completion, the capability assessment was reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan and are identified as Community Capacity Building mitigation actions in the Analysis of Mitigation Actions table in Section 4.9.

4.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 4-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 4-2. Planning and Regulatory Capability

	Recent Update	Comment
District Code of the Dublin San Ramon Services District (District Code)	11/2/2010; effective 12/1/2010	The District Code is modified with new ordinances adopted by the Board from time to time as needed.
Dublin San Ramon Services District Standard Procedures, Specifications and Drawings	12/2016	The Standard Specs contain the required specifications for DSRSD infrastructure and equipment. The Standard Specs are update as needed by DSRSD staff.
Dublin San Ramon Services District Emergency Response Plan (ERP)	5/1/2012	This policy is P300-16-2 and it designates the District Emergency Manager and authorizes that person to manage emergency operations.
Dublin San Ramon Services District Risk Management for District Agreements with Contractors and Consultants	8/19/2014	This is policy P100-14-4 and it determines the risk management system that provides for the required types of insurance, limits of coverage and other provisions for agreements with contractors and consultants who do business with the District.
Dublin San Ramon Services District Construction Project Acceptance by the General Manager	10/21/2014	This is policy P200-14-3 and it allows the General Manager to accept construction projects.
Dublin San Ramon Services District Green Business Policy	7/17/2017	This is policy P200-07-1 and it includes directions for environmental compliance, pollution prevention, energy conservation and solid waste reduction.
Dublin San Ramon Services District Water Recycling Policy	9/7/2010	This is policy P300-10-3 and it includes directions for provision of Recycled Water service both within and outside the District.
Dublin San Ramon Services District Water Supply, Storage, Conveyance, Quality and Conservation Policy	10/20/2015	This is policy P300-15-1 and it provides guidance for addressing water supply challenges.
Dublin San Ramon Services District Infrastructure Responsibilities and Funding Policy	1/19/2010	This is policy P600-15-3 and it defines responsibility for major and non-major infrastructure planning design and construction.
Dublin San Ramon Services District Security Policy	4/6/2010	This is policy P700-14-2 and its intent is to ensure security of District facilities to provide safe and reliable water and wastewater services.
Dublin San Ramon Services District Safety Programs	8/16/2016	This is policy P700-16-1 and its intent is to provide a safe work environment for all employees; regular, part-time, limited-term, interns, temporary, contract, consultant, and elected officials.
Dublin San Ramon Services District Recycled Water Use Guidelines and Requirements	8/16/2016	These guidelines contain DSRSD regulations and guidelines for the design, installation, operation and maintenance of on-site recycled water facilities for irrigation and water features, transport and use of recycled water for dust control and surface cleaning; and use of recycled water in dual-plumbed buildings and industrial facilities.
Dublin San Ramon Services District Capital Improvement Program	6/2/2015	This is a ten-year Capital Plan for fiscal years ending 2016 through 2025 and a two-year Budget for fiscal years ending 2016 and 2017. The District's CIP defines the projects to: 1) protect human health and the environment, 2) maintain and rehabilitate existing assets, 3) respond to regulatory requirements, 4) accommodate planed future growth.
Dublin San Ramon Services District Asset Management Plan	Continuously updated	The District maintains a Computerized Maintenance and Management System (CMMS) which inventories all the District assets, their date of installation and asset condition information. The District maintains rehabilitation and replacement models for the sewer collection system, water system and wastewater treatment plant. These models identify critical assets and indicate when they should be replaced.
Dublin San Ramon Services District Geographic Information System	Continuously updated	The District maintains a Geographic Information System that maps the location of the District's infrastructure as aligned with the local transportation system (streets, highways); water features (creeks, canals, streams); and fault lines. This system assists the District in determining the infrastructure most vulnerable to hazards such as flooding or earthquakes.

4.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 4-3. Administrative and technical capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 4-4.

Table 4-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	No
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
State-Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Federal Grant Programs	Yes
Other	No

Table 4-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering / Assistant-Associate Civil Engineer – SME Engineering / Principal Engineer - Supervisory
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering / Assistant-Associate Civil Engineer – SME Engineering / Principal Engineer - Supervisory
Planners or engineers with an understanding of natural hazards	No	
Staff with training in benefit/cost analysis	Yes	Engineering / Assistant-Associate Civil Engineer – SME Engineering-Operations / Administrative Analyst II
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Engineering / GIS Analyst II Engineering / Engineering/GIS Technician II
Scientist familiar with natural hazards in local area	No	
Emergency manager	No	
Grant writers	Yes	Engineering-Operations / Administrative Analyst II
Other	No	

4.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 4-5.

Table 4-5. Education and Outreach

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes
Do you have personnel skilled or trained in website development?	Yes
Do you have hazard mitigation information available on your website? • If yes, please briefly describe	Yes District has an "Emergency" button on its home page that opens a portal to information about emergencies.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe	No N/A
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify	No N/A
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe	No N/A
Do you have any established warning systems for hazard events? • If yes, please briefly describe	No N/A

4.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 4-6 summarizes the District's adaptive capacity for climate change.

4.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

4.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, the Dublin San Ramon Services District made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Dublin San Ramon Services District Water Supply, Storage, Conveyance, Quality and Conservation Policy**—Last updated October 20, 2015. This is policy P300-15-1. During its last review, District staff included consideration of water demands during water supply disruptions such as droughts and strategies to meet the water demands in the service area during the periods of disruption.
- **Dublin San Ramon Services District Recycled Water Use Guidelines and Requirements**—Last updated August 16, 2016. The District has always regarded recycled water as a valuable replacement for potable water now used as outdoor irrigation. The implementation of recycled water irrigation programs thus helps mitigate shortages of potable water whether caused by as drought or other natural disasters.

Table 4-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	Medium
Comments/Additional Information: None provided	
Jurisdiction-level monitoring of climate change impacts	Low
Comments/Additional Information: None provided	
Technical resources to assess proposed strategies for feasibility and externalities	Low
Comments/Additional Information: None provided	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	Low
Comments/Additional Information: None provided	
Capital planning and land use decisions informed by potential climate impacts	Low
Comments/Additional Information: None provided	
Participation in regional groups addressing climate risks	Medium
Comments/Additional Information: Operations Manager is member of Alameda County Coastal Hazards Adaptation Resiliency Group.	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	Low
Comments/Additional Information: District has no formal policy on planning fees	
Identified strategies for greenhouse gas mitigation efforts	Low
Comments/Additional Information: None provided	
Identified strategies for adaptation to impacts	Medium
Comments/Additional Information: District's Urban Water Management Plan considers effect of Climate Change on Water Supply.	
Champions for climate action in local government departments	Low
Comments/Additional Information: None provided	
Political support for implementing climate change adaptation strategies	Medium
Comments/Additional Information: None provided	
Financial resources devoted to climate change adaptation	Low
Comments/Additional Information: None provided	
Local authority over sectors likely to be negative impacted	Low
Comments/Additional Information: None provided	
Public Capacity	
Local residents' knowledge of and understanding of climate risk	Low
Comments/Additional Information: None provided	
Local residents support of adaptation efforts	Low
Comments/Additional Information: None provided	
Local residents' capacity to adapt to climate impacts	Medium
Comments/Additional Information: None provided	
Local economy current capacity to adapt to climate impacts	Medium
Comments/Additional Information: None provided	
Local ecosystems capacity to adapt to climate impacts	Medium
Comments/Additional Information: None provided	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

- **Dublin San Ramon Services District Capital Improvement Program**—Last updated June 2, 2015. This is a ten-year Capital Plan for fiscal years ending 2016 through 2025 and a two-year budget for fiscal years ending 2016 and 2017. The District's CIP defines the projects to: 1) protect human health and the environment, 2) maintain and rehabilitate existing assets, 3) respond to regulatory requirements, 4) accommodate planed future growth. Pertinent projects in the CIP program that deal with public health issues of wastewater collection and treatment and water supply were reviewed for facility reliability, diversifying the District's potable water supply and the prospects of extending potable water supply by creating and using additional recycled water.

Resources listed in Section 4.10 were used to provide information on hazard events and local capabilities within the jurisdiction.

4.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, the Dublin San Ramon Services District will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the mid-term progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Dublin San Ramon Services District Standard Procedures, Specifications and Drawings**—latest update was December 2016. The Standard Specs contain the required specifications for DSRSD infrastructure and equipment. The Standard Specs will be reviewed and update with a strategy of rehabilitating or rebuilding District facilities as quickly as necessary following damage during a disaster.
- **Dublin San Ramon Services District Emergency Response Plan (ERP)** —Last updated May 1, 2012. This policy will be reviewed and updated with a strategy to coordinate response to a disaster with other entities. This will mitigate damage to specific facilities as much as possible and minimize harmful effects to public health from future disasters.
- **Dublin San Ramon Services District Asset Management Plan** —Now under development. This plan will include provisions for prioritizing the rehabilitation of District facilities that are disabled by various hazards. The goal will be to maintain public health during and after an emergency.

4.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-7 lists past occurrences of natural hazards for which specific damage was recorded in the Dublin San Ramon Services District. Other hazard events that broadly affected the entire planning area, including the Dublin San Ramon Services District, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 4-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Severe winter storm	DR-4308	Feb. 7 thru Feb. 21, 2017	Per FEMA Disaster Designation 4308, this storm and resultant mudslides caused damage in the affected area. DSRSD monitored potential flooding and disruption to operations at the wastewater treatment plant.
Severe winter storm	DR-4305	Jan 22, 2017	Per FEMA Disaster Designation 4305, this storm and resultant mudslides caused damage in the affected area. DSRSD monitored potential flooding and disruption to operations at the wastewater treatment plant.
Severe winter storm	DR-4301	Jan 3 thru Jan 7, 2017	Per FEMA Disaster Designation 4301, this storm and resultant mudslides caused damage in the affected area. DSRSD monitored potential flooding and disruption to operations at the wastewater treatment plant.
Severe Drought	N/A	2014 thru 2016	This drought required water conservation and severe water restrictions. DSRSD suffered severe loss of revenue. Landscaping including turf and trees in the DSRSD area died or were removed.
Severe winter storm	N/A	February 6, 2015	This storm brought 0.96 inches of rain in13 hours, with wind gusts of 32 mph. DSRSD monitored potential flooding and disruption to wastewater treatment plant operations.
Severe winter storm	N/A	December 30-31, 2014	This storm brought 0 inches of rain over 19 hrs. with wind gusts of 43 mph. DSRSD monitored potential flooding and disruption to wastewater treatment plant operations.
Severe winter storm	N/A	December 2, 2014	This storm brought 1.41 inches of rain over 16 hrs. with wind gusts of 23 mph. DSRSD monitored potential flooding and disruption to wastewater treatment plant operations.
Severe winter storm	N/A	October 13, 2009	Per 6-hour rainfall intensity, this storm was a 17-year storm. DSRSD monitored potential flooding and disruption to operations at the wastewater treatment plant.
Severe winter storm	N/A	January 3-5, 2008	Per 6-hour rainfall intensity, this storm was a 12-year storm. DSRSD monitored potential flooding and disruption to operations at the wastewater treatment plant.
Drought	N/A	September 2007	N/A

4.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Pump Station Vulnerability—Two of the District's potable water pump stations, PS 4A and PS 4B, are located in less developed area with high wildfire severity. During a high wind and wildfire event these two pump stations could be damaged and hinder potable water transfer to areas of western Dublin.
- Sewer Trunk Main Vulnerability—A major sewer trunk main crosses above Alamo Creek in an area susceptible to a 1 percent annual chance flood. A severe flood might damage this sewer main from debris flows in Alamo Creek.
- Wastewater Treatment Plant Vulnerability—The District's Wastewater Treatment Plant is located adjacent to Alamo Creek in Pleasanton. A severe flood in Alamo Creek could hinder operations of the Wastewater Treatment Plant.

4.7 HAZARD RISK RANKING

Table 4-8 presents a local ranking for the Dublin San Ramon Services District of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 4-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake[a]	36	High
1	Landslide[e]	36	High
2	Severe weather[b]	33	Medium
3	Drought[f]	27	Medium
3	Wildfire[c]	27	Medium
4	Flood[d]	12	Low
5	Dam failure[g]	6	Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

4.8 STATUS OF PREVIOUS PLAN ACTIONS

Table 4-9 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 4-9. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update	
			Check if Yes	Enter Action #
Complete Potable Water Emergency Interties with East Bay Municipal Utility District, City of Pleasanton and City of Livermore			X	DSRSD-6
Comment:				
Retrofit DSRSD Pumping Stations for Portable Emergency Power			X	DSRSD-7
Comment:				
Stockpile Necessary Treating Chemical and Repair Equipment for Local Shortages			X	DSRSD-8
Comment:				
Central Dublin Recycled Water Retrofit	June 1, 2013			
Comment:				

4.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 4-10 lists the actions that make up the Dublin San Ramon Services District hazard mitigation action plan. Table 4-11 identifies the priority for each action. Table 4-12 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 4-10. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
DSRSD-1—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing Wastewater Treatment Plant structures and other structures which have experienced repetitive losses.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	DSRSD - Engineering	N/A	High	HMGP, PDM, FMA	Short-term
DSRSD-2—Integrate the hazard mitigation plan into other plans, ordinances and programs within the District.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	DSRSD – Planning Division	N/A	Low	Staff Time, General Funds	Short-term
DSRSD-3—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 9	Emergency Management	N/A	Medium	Staff Time, General Funds	Short-term
DSRSD-4—Support the Tri-Valley Area –wide initiatives identified in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
DSRSD-5—Actively participate in the plan maintenance protocols outlined in Volume 1 of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
DSRSD-6—Complete Potable Water Emergency Interties with East Bay Municipal Utility District, City of Pleasanton and City of Livermore.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 4, 6, 8, 10, 11	DSRSD - Engineering	East Bay Municipal Utility District, City of Pleasanton, and City of Livermore	Medium	HMGP, PDM, FMA, Staff Time, General Funds	Short-term
DSRSD-7—Retrofit DSRSD Pumping Stations for Potable Emergency Power.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 4, 6, 8, 10, 11,	DSRSD - Engineering	Any Supporting Departments	Medium	HMGP, PDM, Staff Time, General Funds	Short-term
DSRSD-8—Stockpile Necessary Treating Chemical and Repair Equipment for Local Shortages.							
Existing	Dam failure, Earthquake, Flood, Wildfire	1, 4, 6, 8, 10, 11	DSRSD – Field Operations	N/A	Low	HMGP, Staff Time, General Funds	Short-term
DSRSD-9—Require subdivision water mains to be “looped” to maintain water supplies after landslides and earthquakes							
Existing	Earthquake, Landslide, Wildfire	1, 4, 6, 8, 10, 11,	DSRSD - Engineering	Any Supporting Departments	Medium	Staff Time, General Funds	Short-term
DSRSD-10—Map and Assess DSRSD Facilities Vulnerable to Landslides.							
Existing	Landslides, Wildfire	1, 4, 6, 8, 10, 11	DSRSD – Field Operations	N/A	Low	HMGP, Staff Time, General Funds	Short-term

Table 4-11. Mitigation Action Priority

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

a. See the introduction to this volume for explanation of priorities.

Table 4-12. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure	DSRSD-2, 3, 4, 5, 10	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8, 9			DSRSD-3, 4, 6, 8, 9, 10
Drought	DSRSD-2, 3, 4, 5	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8			DSRSD-3, 4, 6
Earthquake	DSRSD-2, 3, 4, 5, 10	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8, 9			DSRSD-3, 4, 6, 8, 9, 10
Flood	DSRSD-2, 3, 4, 5	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8			DSRSD-3, 4, 6, 8
Landslide	DSRSD-2, 3, 4, 5, 9, 10	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8, 9			DSRSD-3, 4, 6, 9, 10
Severe Weather	DSRSD-2, 3, 4, 5	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8			DSRSD-3, 4, 6
Wildfire	DSRSD-2, 3, 4, 5, 10	DSRSD-1	DSRSD-4		DSRSD-6, 7, 8, 9, 10			DSRSD-3, 4, 6, 8, 9, 10

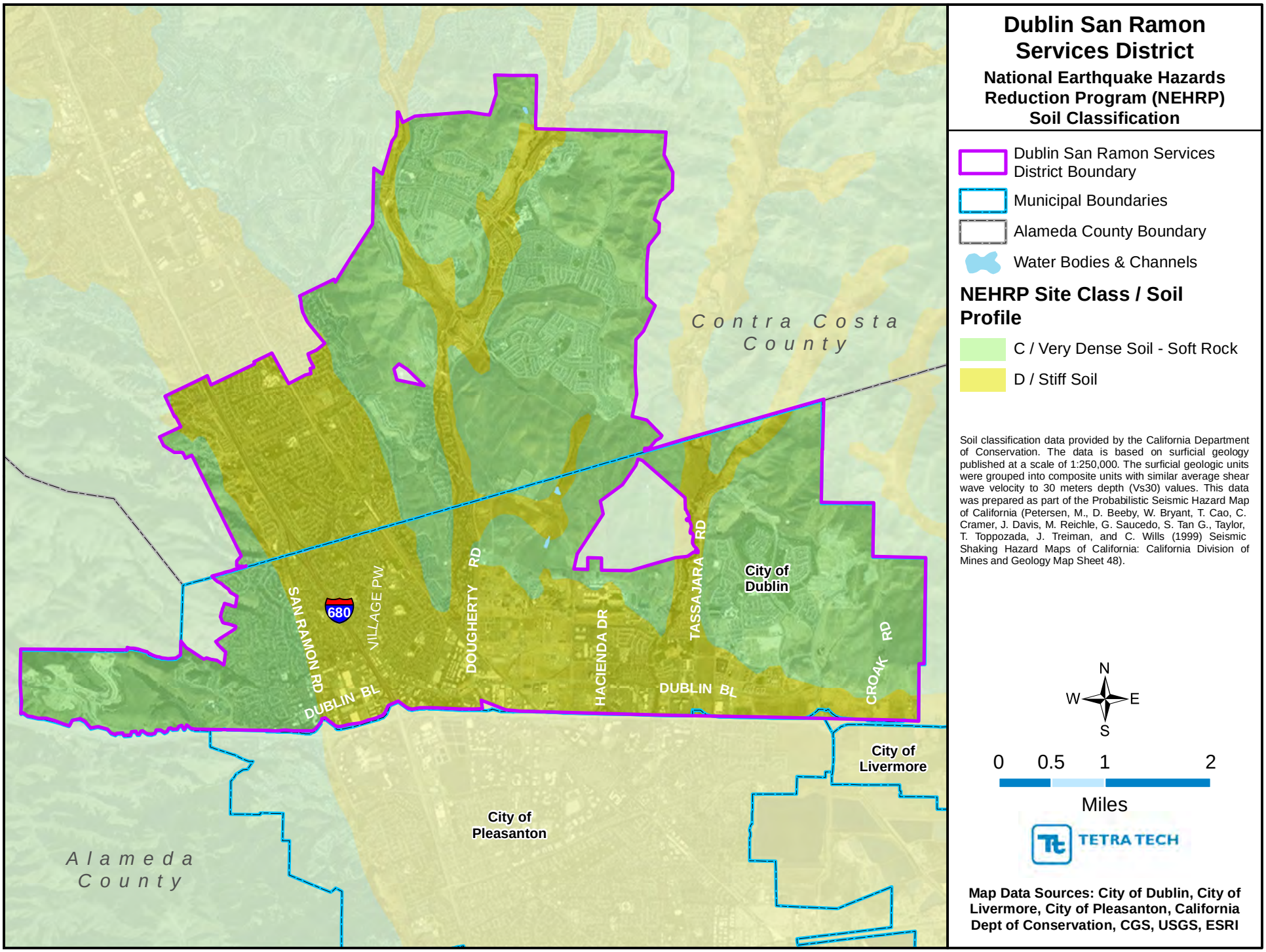
a. See the introduction to this volume for explanation of mitigation types.

4.10 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Dublin San Ramon Services District Emergency Response Plan (ERP)** —Reviewed to identify possible mitigation actions.
- **Dublin San Ramon Services District Asset Management Program**—update in progress. This program designates the critical infrastructure for continued DSRSD operations and prioritizes the facilities for rehabilitating the facilities to be repaired after a disaster. The Asset Management Program was used to identify the critical infrastructure.

- **Dublin San Ramon Services District 2016 Urban Water Management Plan**—last update June 2016. Reviewed as part of the capability assessment.
- **Dublin San Ramon Services District Wastewater Collection System Master Plan Update**—last update June 2005. Reviewed to identify possible mitigation actions.
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.



Dublin San Ramon Services District

National Earthquake Hazards Reduction Program (NEHRP) Soil Classification

- Dublin San Ramon Services District Boundary
- Municipal Boundaries
- Alameda County Boundary
- Water Bodies & Channels

NEHRP Site Class / Soil Profile

- C / Very Dense Soil - Soft Rock
- D / Stiff Soil

Soil classification data provided by the California Department of Conservation. The data is based on surficial geology published at a scale of 1:250,000. The surficial geologic units were grouped into composite units with similar average shear wave velocity to 30 meters depth (Vs30) values. This data was prepared as part of the Probabilistic Seismic Hazard Map of California (Petersen, M., D. Beeby, W. Bryant, T. Cao, C. Cramer, J. Davis, M. Reichle, G. Saucedo, S. Tan G., Taylor, T. Toppozada, J. Treiman, and C. Wills (1999) Seismic Shaking Hazard Maps of California: California Division of Mines and Geology Map Sheet 48).

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Miles

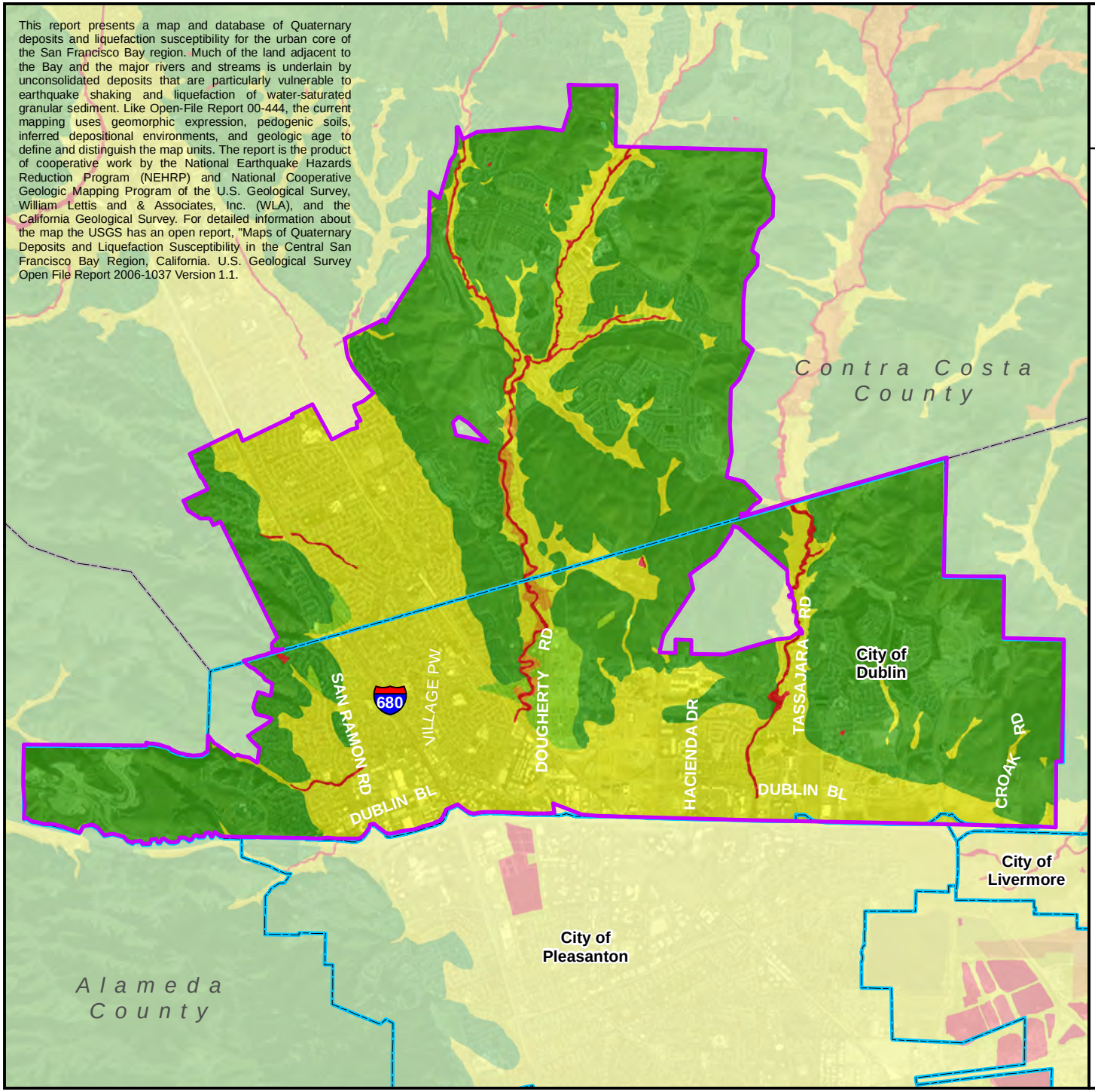
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Dept of Conservation, CGS, USGS, ESRI

Dublin San Ramon Services District

Liquefaction Susceptibility

This report presents a map and database of Quaternary deposits and liquefaction susceptibility for the urban core of the San Francisco Bay region. Much of the land adjacent to the Bay and the major rivers and streams is underlain by unconsolidated deposits that are particularly vulnerable to earthquake shaking and liquefaction of water-saturated granular sediment. Like Open-File Report 00-444, the current mapping uses geomorphic expression, pedogenic soils, inferred depositional environments, and geologic age to define and distinguish the map units. The report is the product of cooperative work by the National Earthquake Hazards Reduction Program (NEHRP) and National Cooperative Geologic Mapping Program of the U.S. Geological Survey, William Lettis and & Associates, Inc. (WLA), and the California Geological Survey. For detailed information about the map the USGS has an open report, "Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California. U.S. Geological Survey Open File Report 2006-1037 Version 1.1.



Dublin San Ramon Services District Boundary

Municipal Boundaries

Alameda County Boundary

Water Bodies & Channels

No Liquefaction Data Available

Susceptibility to Liquefaction

- Very Low
- Low
- Medium
- High
- Very High

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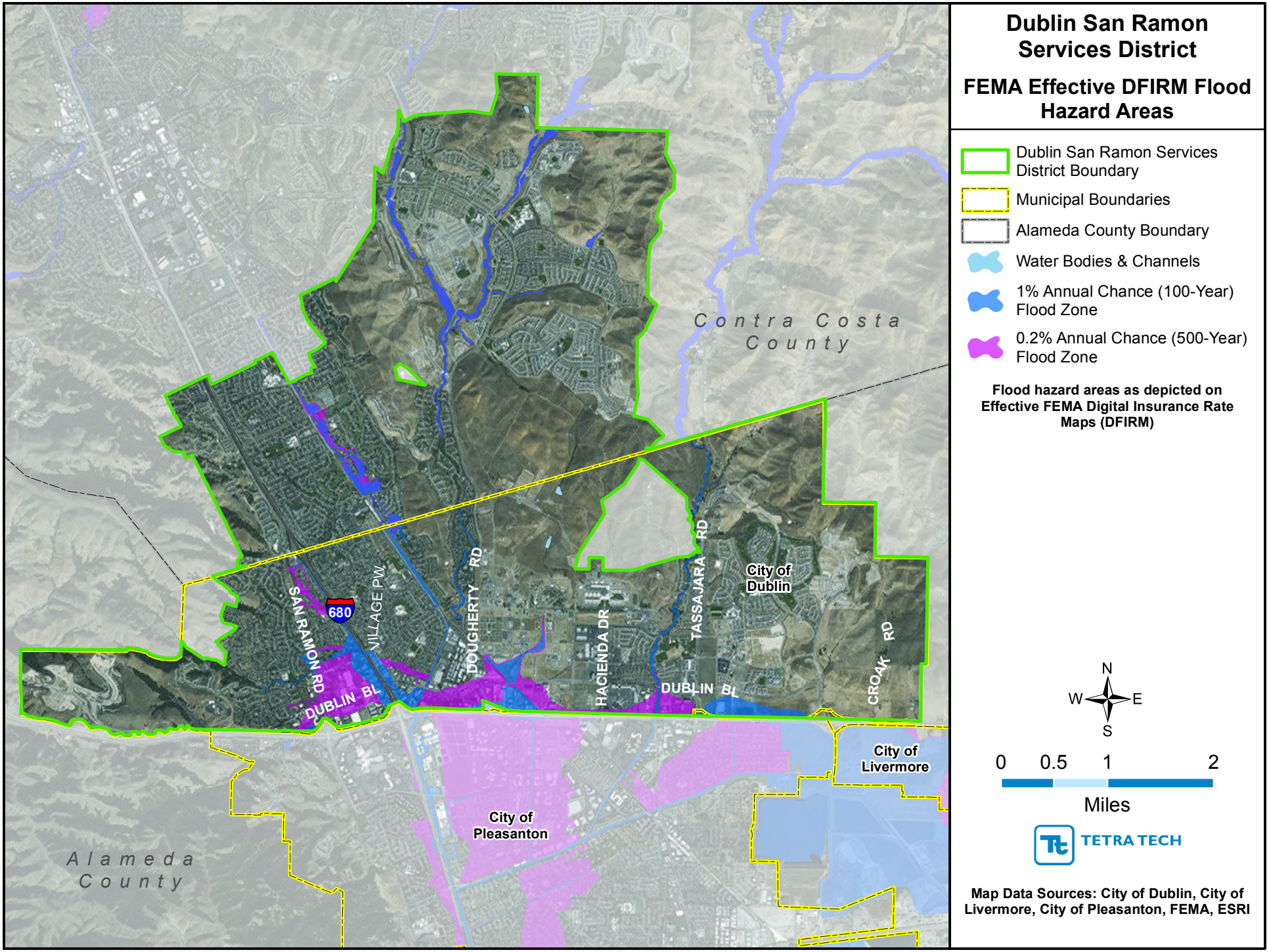
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS, ESRI



Dublin San Ramon Services District

FEMA Effective DFIRM Flood Hazard Areas

- Dublin San Ramon Services District Boundary
- Municipal Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- 1% Annual Chance (100-Year) Flood Zone
- 0.2% Annual Chance (500-Year) Flood Zone

Flood hazard areas as depicted on Effective FEMA Digital Insurance Rate Maps (DFIRM)

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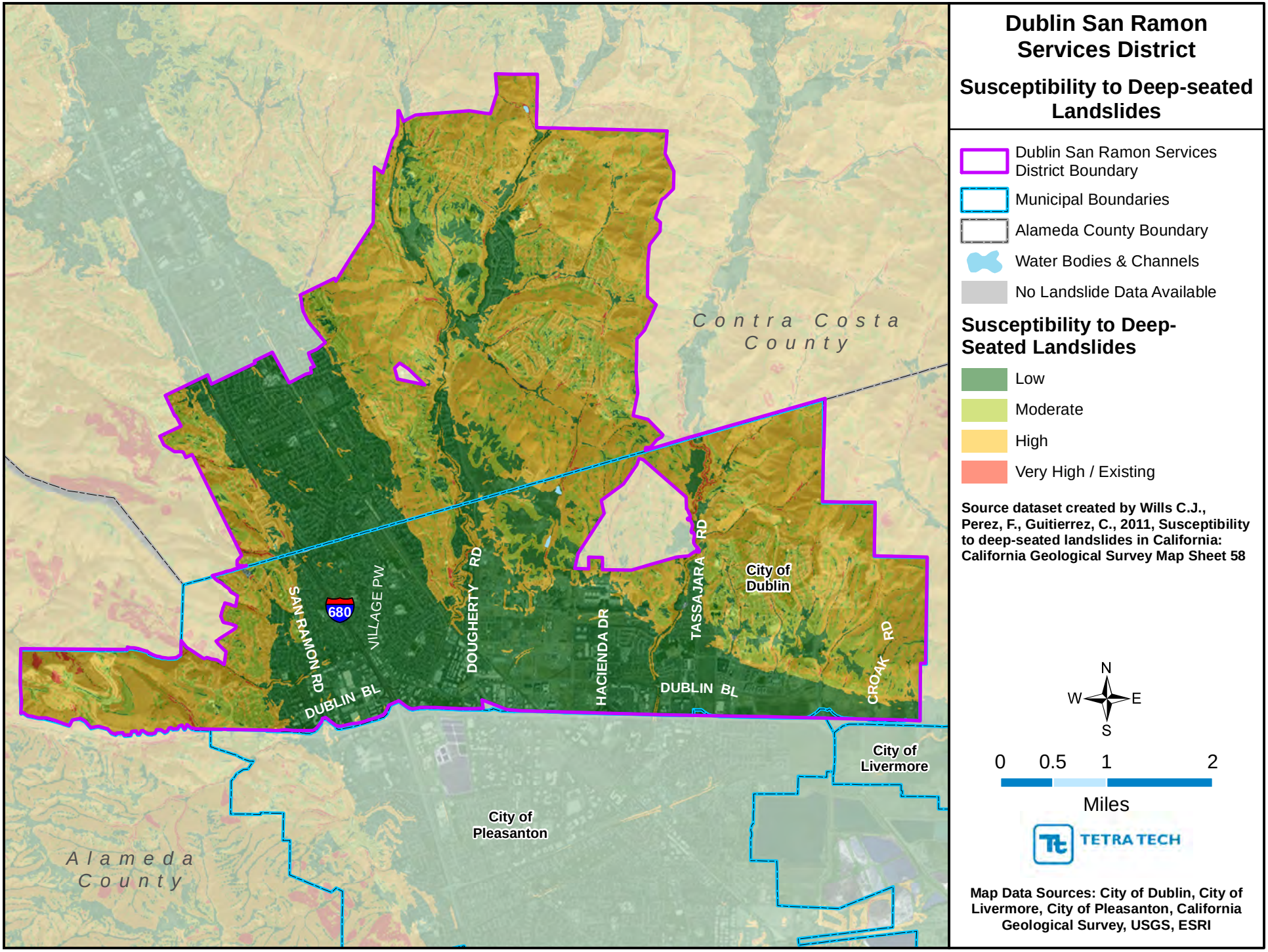
TETRA TECH

Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, FEMA, ESRI



Dublin San Ramon Services District

Susceptibility to Deep-seated Landslides

- Dublin San Ramon Services District Boundary
- Municipal Boundaries
- Alameda County Boundary
- Water Bodies & Channels
- No Landslide Data Available

Susceptibility to Deep-Seated Landslides

- Low
- Moderate
- High
- Very High / Existing

Source dataset created by Wills C.J., Perez, F., Guitierrez, C., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey Map Sheet 58

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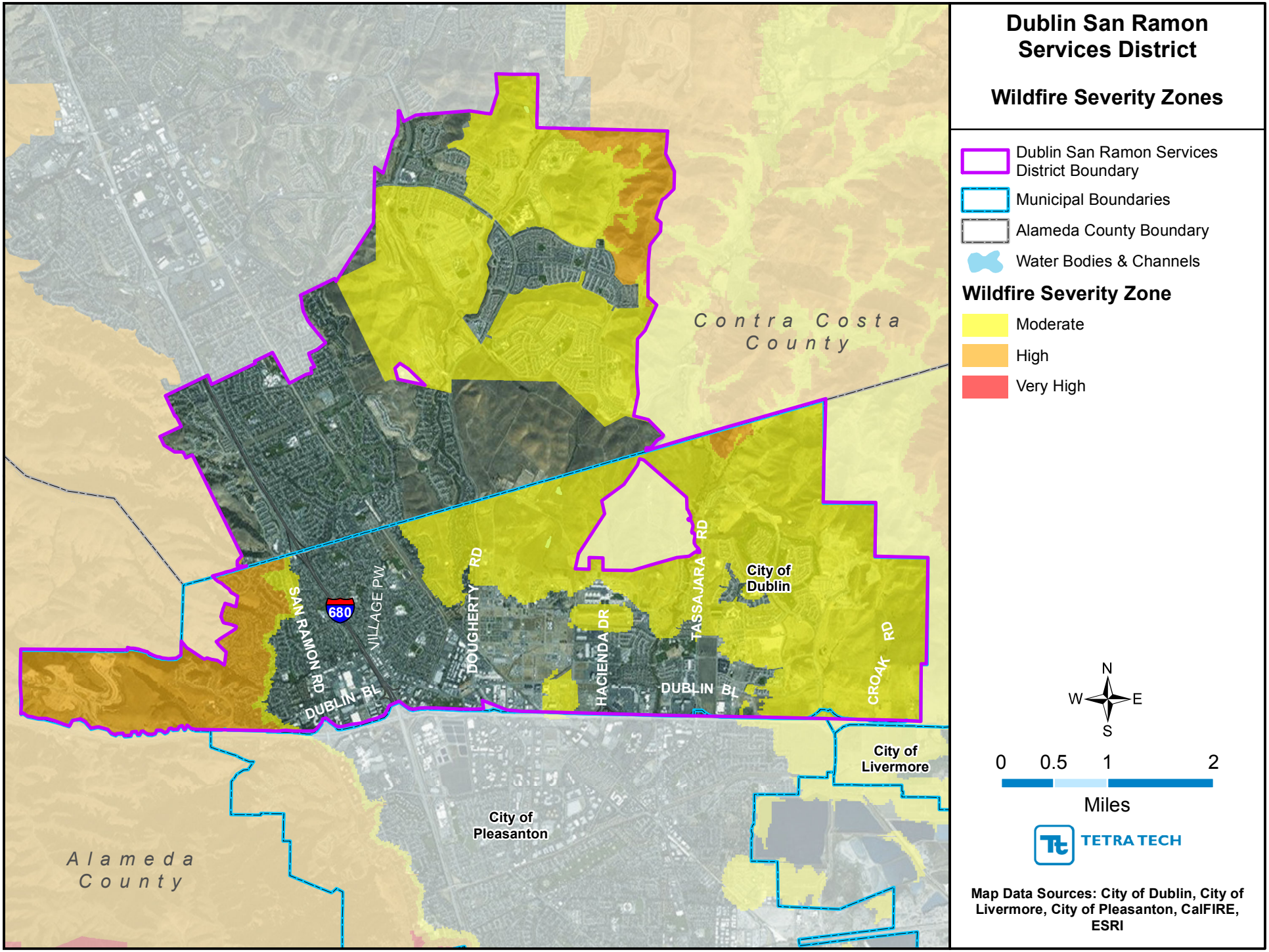
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, California Geological Survey, USGS, ESRI


Dublin San Ramon Services District
Wildfire Severity Zones
Dublin San Ramon Services District Boundary
Municipal Boundaries
Alameda County Boundary
Water Bodies & Channels
Wildfire Severity Zone
Moderate
High
Very High
Contra Costa County
Alameda County
City of Dublin
City of Livermore
City of Pleasanton
680
SAN RAMON RD
VILLAGE PW
DOUGHERTY RD
HACIENDA DR
TASSAJARA RD
CROAK RD
DUBLIN BL
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TETRA TECH
Map Data Sources: City of Dublin, City of Livermore, City of Pleasanton, CalFIRE, ESRI

Appendix A. Planning Partner Expectations

A. PLANNING PARTNER EXPECTATIONS

Achieving DMA Compliance for All Planning Partners

The federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390), commonly known as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. This act required state and local governments to develop hazard mitigation plans as a condition for federal grant assistance. Among other things, this legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide. DMA 2000 is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Prior to 2000, federal legislation provided funding for disaster relief, recovery, and some hazard mitigation planning. The DMA improves upon the planning process by emphasizing the importance of communities planning for disasters before they occur.

The Disaster Mitigation Act defines a "local government" as:

Any county, municipality, city, town, 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.

Any local government wishing to pursue funding afforded under FEMA Hazard Mitigation Grant Programs must have an approved hazard mitigation plan in order to be eligible to apply for these funds.

One of the goals of the multi-jurisdictional approach to hazard mitigation planning is to achieve compliance with the 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 a planning process generates 10 individual plans or one large plan that has a chapter for each partner jurisdiction, the following items must be addressed by each planning partner to achieve DMA compliance:

- **Participate in the process.** It must be documented in the plan that each planning partner "participated" in the process that generated the plan. There is flexibility in defining "participation." Participation can vary based on the type of planning partner (i.e.: City vs. a Special Purpose District). However, the level of participation must be defined and the extent for which this level of participation has been met for each partner must be contained in the plan context.
- **Consistency Review.** Review existing documents pertinent to each jurisdiction to identify policies or recommendations that are not consistent with documents reviewed in producing the "parent" plan or that have policies and recommendations that complement the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).
- **Action Review.** For plan updates, review the strategies from the prior action plan to determine those that have been accomplished and how they were accomplished; and why those that have not been accomplished were not completed.

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

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

- **Capability assessment.** Each planning partner must identify and review their individual regulatory, technical and financial capabilities with regards to the implementation of hazard mitigation actions.
- **Personalize mitigation recommendations.** Identify and prioritize mitigation recommendations specific to each jurisdiction's defined area.
- **Create an Action Plan.**
- **Incorporate Public Participation.** Each jurisdiction must present the plan to the public for comment at least once, within two weeks prior to adoption.
- **Plan must be adopted by each jurisdiction.**

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

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

A. A "Letter of Intent to participate" or resolution to participate submitted to the Planning Team (see Exhibit A).

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

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

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

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

a. Steering Committee meetings

b. Public meetings or open houses

c. Workshops/ Planning Partner specific training sessions

d. Public review and comment periods prior to adoption

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

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

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

H. Each partner will be expected to perform a "consistency review" of all technical studies, plans, ordinances specific to hazards to determine the existence of any not consistent with the same such documents reviewed in the preparation of the parent plan.

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

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

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

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

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

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

**** Note**: Once this plan is completed, and DMA compliance has been determined for each partner, maintaining that eligibility will be dependent upon each partner implementing the plan implementation-maintenance protocol identified in the plan. At a minimum, this means completing the ongoing 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.

Eligible entities that do not wish to participate in the 2016 multi-jurisdictional planning process or fail to meet the requirements contained in this document may choose to link to the plan in pursuit of future adoption after the completion of the 2016 effort.

Exhibit A.
Example Letter of Intent to Participate

Tri-Valley Multi-Jurisdiction Hazard Mitigation Planning Partnership
C/O Jessica Cerutti, Tetra Tech, Inc.
1999 Harrison St.
Oakland, CA 94612

Dear Tri-Valley Planning Team,

Please be advised that the _____ (***insert district name***) is committed to participating in the update to the Tri-Valley Multi-Jurisdiction Hazard Mitigation Plan. As the jurisdictional representative tasked with this planning effort, I certify that we 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 our jurisdiction's point of contact for this process and they can be reached at ***(insert: address, phone number and e-mail address)***.

Sincerely,

Name _____

Title _____

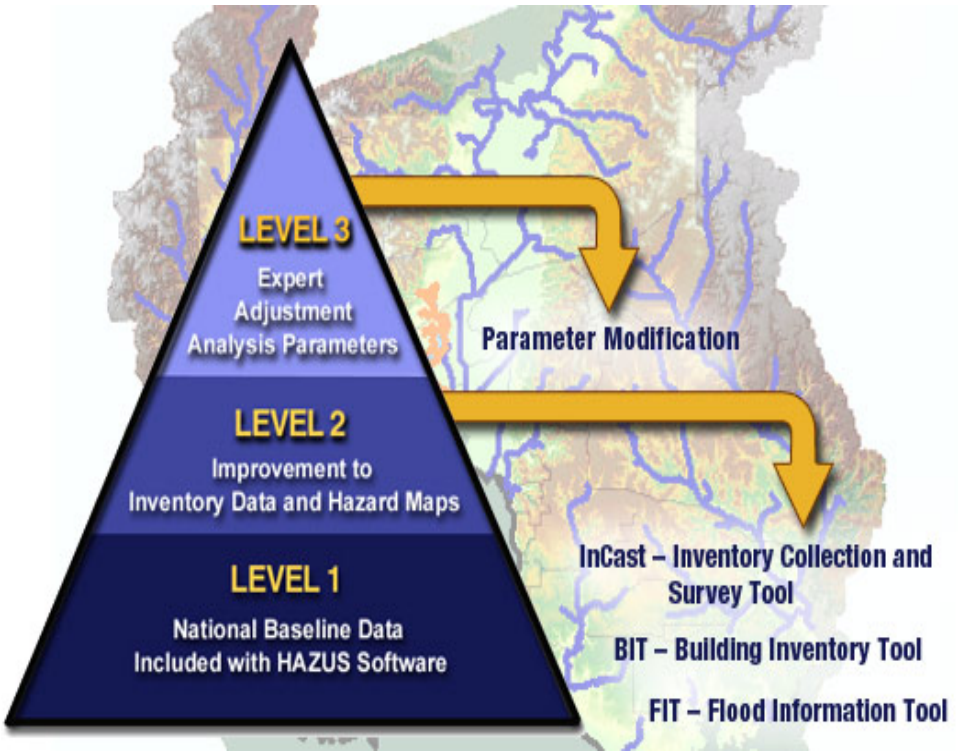
Exhibit B.
Planning Team Contact information

Name	Representing	Address	e-mail
Tracy Hein	Livermore-Pleasanton Fire Department	3560 Nevada St, Pleasanton, CA 94566	THein@lpfire.org
Hazel Wetherford	Dublin	100 Civic Plaza, Dublin, CA 94568	hazel.wetherford@dublin.ca.gov
Shweta Bonn	Pleasanton	P.O. Box 520 Pleasanton, CA 94566	sbonn@cityofpleasantonca.gov
Janice Stern	Pleasanton	P.O. Box 520 Pleasanton, CA 94566	jstern@cityofpleasantonca.gov
Stephen Reilly	Livermore	1052 S Livermore Ave, Livermore, CA 94550	spriley@cityoflivermore.net
Jessica Cerutti	Tetra Tech, Inc.	1999 Harrison St., Ste. 500 Oakland, CA 94612	jessica.cerutti@tetratech.com
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	rob.flaner@tetratech.com
Stephen Veith	Tetra Tech, Inc.	1020 SW Taylor St., Ste. 530 Portland, Oregon 97205	stephen.veith@tetratech.com

Exhibit C.
Overview of HAZUS

Overview of HAZUS-MH (Multi-Hazard)

http://www.fema.gov/hazus/dl_mhpres.shtm**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.

Appendix B. Procedures for Linking to Hazard Mitigation Plan

B. PROCEDURES FOR LINKING TO HAZARD MITIGATION PLAN

Not all eligible local governments are included in the Tri-Valley Local Hazard Mitigation Plan. Some or all of these non-participating local governments may choose to "link" to the Plan at some point to gain eligibility for programs under the federal Disaster Mitigation Act (DMA). The following "linkage" procedures define the requirements established by the planning team for dealing with an increase in the number of planning partners linked to this plan. No currently non-participating jurisdiction within the defined planning area is obligated to link to this plan. These jurisdictions can choose to do their own "complete" plan that addresses all required elements of Section 201.6 of Chapter 44 of the Code of Federal Regulations (44 CFR).

INCREASING THE PARTNERSHIP THROUGH LINKAGE

Eligibility

Eligible jurisdictions located in the planning area may link to this plan at any point during the plan's performance period (5 years after final approval). Eligibility will be determined by the following factors:

- The linking jurisdiction is a local government as defined by the Disaster Mitigation Act.
- The boundaries or service area of the linking jurisdiction is completely contained within the boundaries of the planning area established during the 2016 hazard mitigation plan development process.
- The linking jurisdiction's critical facilities were included in the critical facility and infrastructure risk assessment completed during the 2016 plan development process.

Requirements

It is expected that linking jurisdictions will complete the requirements outlined below and submit their completed template to the Livermore-Pleasanton Fired District for review within six months of beginning the linkage process:

- The eligible jurisdiction requests a "Linkage Package" by contacting the plan point of contact (POC):

  Tracy Hein, Disaster Preparedness Coordinator
  Livermore Pleasanton Fire Department
  3560 Nevada Street
  Pleasanton, CA 94566
  (925) 454-2317
  THein@lpfire.org

- The POC will provide a linkage procedure package that includes linkage information and a linkage tool-kit:

  - Linkage Information

  - Procedures for linking to the multi-jurisdictional hazard mitigation plan
  - Planning partner's expectations for linking jurisdictions
  - A sample "letter of intent" to link to the multi-jurisdictional hazard mitigation plan
  - A copy of Section 201.6 of 44 CFR, which defines the federal requirements for a local hazard mitigation plan.

- Linkage Tool-Kit

  - Copy of Volume 1 and 2 of the plan
  - A special purpose district or municipality template and instructions
  - A catalog of hazard mitigation alternatives
  - A sample resolution for plan adoption

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

  - Goals and objectives
  - The planning area risk assessment
  - Comprehensive review of alternatives
  - Area-wide actions
  - Plan implementation and maintenance procedures.

  Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC.

- The development of the new jurisdiction's annex must not be completed by one individual in isolation. The jurisdiction must develop, implement and describe a public involvement strategy and a methodology to identify and vet jurisdiction-specific actions. The original partnership was covered under a uniform public involvement strategy and a process to identify actions that covered the planning area described in Volume 1 and Volume 2 of this plan. Since new partners were not addressed by these strategies, they will have to initiate new strategies and describe them in their annex. For consistency, new partners are encouraged to develop and implement strategies similar to those described in this plan.
- The public involvement strategy must ensure the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must solicit public opinion on hazard mitigation at the onset of the linkage process and hold one or more public meetings to present the draft jurisdiction-specific annex for comment at least two weeks prior to adoption by the governing body. The POC will have resources available to aid in the public involvement strategy, including:

  - The questionnaire utilized in the plan development
  - Presentations from public meeting workshops and the public comment period
  - Press releases used throughout the planning process
  - The plan website.

- The methodology to identify actions should include a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard and a description of the process by which chosen actions were identified. As part of this process, linking jurisdictions should coordinate the selection of actions amongst the jurisdiction's various departments.
- Once their public involvement strategy and template are completed, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the multi-jurisdictional plan format and linkage procedure requirements.
- The POC will review for the following:

  - Documentation of public involvement and action plan development strategies
  - Conformance of template entries with guidelines outlined in instructions
  - Chosen actions are consistent with goals, objectives and mitigation catalog of the Tri-Valley Local Hazard Mitigation Plan
  - A designated point of contact
  - A completed FEMA plan review crosswalk.

- Plans will be reviewed by the POC and submitted to California Governor's Office of Emergency Services (Cal OES) for review and approval.
- Cal OES will review plans for state compliance. Non-compliant plans are returned to the lead agency for correction. Compliant plans are forwarded to FEMA for review with annotation as to the adoption status.
- FEMA reviews the linking jurisdiction's plan in association with the approved plan to ensure DMA compliance. FEMA notifies the new jurisdiction of the results of review with copies to Cal OES and the approved plan lead agency.
- Linking jurisdiction corrects plan shortfalls (if necessary) and resubmits to Cal OES through the approved plan lead agency.
- For plans with no shortfalls from the FEMA review that have not been adopted, the new jurisdiction governing authority adopts the plan and forwards adoption resolution to FEMA with copies to lead agency and Cal OES.
- FEMA regional director notifies the new jurisdiction's governing authority of the plan's approval.

The new jurisdiction plan is then included with the multi-jurisdiction hazard mitigation plan and the linking jurisdiction is committed to participate in the ongoing plan maintenance strategy identified in Section 19.5 of Volume 1 of the hazard mitigation plan.

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 Cal OES and FEMA in writing that the partner in question is no longer covered by the Tri-Valley Local 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 in Volume 1 of the plan. Each partner agreed to these terms by adopting the plan.

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

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

Appendix C. Annex Instructions and Templates

INSTRUCTIONS FOR COMPLETING MUNICIPAL ANNEX TEMPLATE

The jurisdictional annex templates for the 2017 Tri-Valley Hazard Mitigation Plan update will be completed in three phases. **This document provides instructions for completing all phases of the template for municipalities.**

If your jurisdiction completed and submitted Phase 1 and/or Phase 2, Phase 3 has been added to the end of your document. Any planning team comments, questions or suggestions have been included as blue highlighted notes and/or comments. Any text edits were made with changes tracked for review. Any yellow highlights indicate areas where missing information should be filled in.

If your jurisdiction did not complete Phase 1 or Phase 2, please complete all phases at this time.

The target timeline for phase completion is as follows:

- **Phase 1** – Jurisdictional profile
  - Deployed: early July
  - Due: early August
- **Phase 2** – Capability assessment
  - Deployed: late August
  - Due: September 26, 2017
- **Phase 3** – Risk ranking and action plan development
  - Deployed: Mid-October
  - Workshop: October steering committee meeting
  - Due: November 17, 2017

Any questions on completing the template should be directed to:

Kristen Gelino
Tetra Tech, Inc.
(917) 426-4594 or (646) 576-4029
E-mail: kristen.gelino@tetratech.com

Municipality Annex:

This document provides instructions for completing **all phases** of the jurisdictional annex template for municipalities. **Templates should be completed by Friday, November 17, 2017.** Your completed template should be submitted to:

Kristen Gelino
Tetra Tech, Inc.
(917) 426-4594 or (646) 576-4029
E-mail: kristen.gelino@tetratech.com

A Note About Formatting:

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

PHASE 1 INSTRUCTIONS

CHAPTER TITLE

In the chapter title at the top of Page 1, type in the complete official name of your municipality (City of Pleasantville, West County, etc.). Please do not change the chapter number. Revise only the jurisdiction name.

HAZARD MITIGATION PLAN POINT OF CONTACT

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.

Note: Both of these contacts should match the contacts that were designated in your jurisdiction's letter of intent to participate in this planning process. If you have changed the primary or secondary contact, please let the planning team know by inserting a comment into the document.

JURISDICTION PROFILE

Provide information specific to your jurisdiction as indicated, in a style similar to the example provided in the box below. This should be information that will not be 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).

Example Jurisdiction Profile:

- **Date of Incorporation**—1858
- **Current Population**—17,289 as of July 2014 (2014 Department of Finance estimates)
- **Population Growth**—Based on state Department of Finance data, Smithburg has experienced a flat rate of growth. The population increased only 3.4% since 2010 and growth averaged 0.74% per year from 2000 to 2014.
- **Location and Description—**The City of Smithburg is on the Pacific coast, 760 miles north of Los Angeles and 275 miles north of San Francisco. The nearest seaport is Eureka, five miles south on Humboldt Bay. Smithburg is the home of Smithburg State University and is situated between the communities of Murphy 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 Smithburg area was settled during the 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. Smithburg was incorporated in 1858 and by 1913 the Smithburg Teachers College, a predecessor to today's Smithburg State University was founded. Recently, the presence of the college has come to shape Smithburg's population into a young, liberal, and educated crowd. In 1981 Smithburg developed the Smithburg Marsh and Wildlife sanctuary, an environmentally friendly sewage treatment enhancement system.
- **Climate**—Smithburg'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 from November through April. The average year-round temperature is 59ºF. Humidity averages 72 to 87 percent. Prevailing winds are from the north, and average 5 mph.
- **Governing Body Format**—The City of Smithburg 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 commissions and task forces, which report to the City Council. The City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.

Phase 2 Instructions

DEVELOPMENT TRENDS

Please note that we have made some modifications to the template based on our most current feedback from the State and FEMA. You may have already completed a portion of the development trends section during Phase 1. If so, we have moved the information you provided into the appropriate section of the document.

In the yellow-highlighted text that says "Describe trends in general," provide a brief description of your jurisdiction's recent development trends similar to the following example:

> Anticipated development levels for Smithburg 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 Smithburg 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 the plan. Future growth and development in the City will be managed as identified in the general plan.

Complete the table titled "Recent and Expected Future Development Trends" to demonstrate the development that occurred during the past 5 years, including a description of any development which may be located within a hazard zone. Provide additional information on any anticipated development**. Please note that we are specifically looking for development permits for new construction.** If your jurisdiction does not have the ability to differentiate between permit types, please list the total number of permits and include a note or comment in the document indicating what you have provided.

If your jurisdiction does not have the ability to track the number of permits for each hazard area, please insert a qualitative description of where development has occurred similar to the following:

> Development has occurred throughout the city during the performance period for this plan. For those hazards with a clearly defined extent and location, the City cannot estimate specific development impacts. For those hazards with impacts city-wide, it is safe to assume that this new development could be subject to impacts from those hazards. However, it is important to note that all new development was consistent with General Plan policies and municipal code standards and as a result most development has occurred outside of identified hazard zones.

CAPABILITY ASSESSMENT

Please note that it is unlikely that you will be able to complete all sections of the capability assessment on your own. You will likely need to reach out to other departments within your local government, such as planning, finance, public works, etc. It may be beneficial to provide these individuals with background information about this planning process, as you will want input from them again during Phase 3 of your annex development.

Legal and Regulatory Capability

In the table titled "Legal and Regulatory Capability," 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, ordinance number, or plan name and its date of adoption in the

comments column. ***Note: If you are entering yes, please be sure that you are providing a comment with the appropriate code, ordinance or plan.***

- **Other Jurisdiction Authority**—Enter "Yes" if there are any regulations that may impact your jurisdiction that are enforced or administered by another agency (e.g., a state agency or special purpose district) or if you know that there are any state or federal regulations or laws that would prohibit local implementation of the identified item; otherwise, enter "No." ***Note: If you answer yes, please indicate the other agency in the comments.***
- **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." ***Note: If you are entering yes, please be sure that you are providing a comment.***
- **Integration Opportunity**—Enter "Yes" if your jurisdiction has opportunities for integration of the code, ordinance or plan with the hazard mitigation plan. Consider entering "Yes" in the Integration Opportunity column if you answer "yes" to any of the following:

  - If you answered "Yes" in the Local Authority column for this code, ordinance or plan:

    - Does the code, ordinance or plan already address hazards and their potential impacts?
      - If so, should it be updated or revised to reflect new information about risk?
      - If not, will (or should) the code, ordinance or plan be updated over the performance period of the hazard mitigation plan (5 years)?
    - Does the code, ordinance or plan include specific projects that should be reviewed to incorporate hazard mitigation goals?
    - Does the code, ordinance or plan include specific projects that should be included as action items in the hazard mitigation action plan?

  - If you answered "No" in the Local Authority column for this code, ordinance or plan:

    - Will your jurisdiction develop the code, ordinance or plan during the performance period of the hazard mitigation plan?

  Note: Each capability with a "Yes" answer to Integration Opportunity will be discussed in more detail later in the annex. You may wish to keep notes when assessing the Integration Opportunity or review the "Integration with Other Planning Initiatives" section below.

- **Comments**—Enter the code number and adoption date for any local code indicated as being in place; provide other comments as appropriate to describe capabilities for each entry.
- For the categories "General Plan" and "Capital Improvement Plan," answer the specific questions shown, in addition to completing the four columns indicating level of capability.

Development and Permit Capabilities

Complete the table titled "Development and Permitting Capabilities." Examples of qualitative descriptions of buildout in the jurisdiction are as follows:

- The Town is close to being built out. Most new projects involve the demolition of an existing residence and construction of a new replacement residence. A few subdivisions are processed each year.
- There are five parcels of underdeveloped land within the city limits. According to the General Plan, the total potential units for these parcels is 33 units.

Fiscal Capability

Complete the table titled "Fiscal Capability" 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.

Administrative and Technical Capability

Complete the table titled "Administrative and Technical Capability" 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. If you have contract support staff with these capabilities, you can still answer "Yes." Indicate in the department column that this resource is provided through contract support.

Education and Outreach Capabilities

Complete the table titled "Education and Outreach" to indicate your jurisdiction's capabilities and existing efforts regarding natural hazard mitigation education and outreach.

National Flood Insurance Program Compliance

Complete the table titled "National Flood Insurance Program Compliance" by indicating your jurisdiction's capabilities related to each question in the table.

Classification in Hazard Mitigation Programs

Complete the table titled "Community Classifications" 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 the third and fourth columns if your jurisdiction is not participating.

Tetra Tech has completed this table for classification programs that have classification information available online:

- **Community Rating System**— https://www.fema.gov/media-library/assets/documents/15846
- **Storm Ready**— https://www.weather.gov/stormready/communities
- **Firewise**— http://www.firewise.org/usa-recognition-program/map-of-active-participants.aspx

For two of the programs, we are not able to access information pertaining to your jurisdiction. If you are unfamiliar with the programs, please visit the websites below:

- **Building Code Effectiveness Grading Schedule (BCEGS)**— https://www.isomitigation.com/bcegs/iso-s-building-code-effectiveness-grading-schedule-bcegs.html
- **Public Protection Classification**— https://firechief.iso.com/FCWWeb/mitigation/ppc0001.jsp

Adaptive Capacity for Climate Change

Consider the climate change impact concerns identified for the planning area:

- Increased temperature
- Reduced precipitation
- Sea level rise – coastal inundation and erosion

- Public health – heat and air pollution
- Reduced agricultural productivity
- Inland flooding
- Reduced tourism.

With those impacts in mind, complete the table titled "Adaptive Capacity for Climate Change" by indicating that your jurisdiction's capacity for each listed criterion as follows:

- **High**—The capacity exists and is in use.
- **Medium**—The capacity may exist, but is not used or could use some improvement.
- **Low**—The capacity does not exist or could use substantial improvement.
- **Unsure**—Not enough information is known to assign a rating.

This is a subjective assessment, but providing a few words of explanation is useful. It is highly recommended that you complete this table with an internal planning team and that you review the results of the other capability assessment tables before completing.

INTEGRATION WITH OTHER PLANNING INITIATIVES

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

After reviewing the plans, programs and ordinances identified in the capability assessment tables, identify all plans and programs that have already been integrated with the goals and recommendations of the hazard mitigation plan, and those that offer opportunities for future integration. The simplest way to do this is to review the Legal and Regulatory Capabilities table to see which items were marked as "Yes" under the Integration Opportunity column.

Existing Integration

List the items for which you entered "Yes" under the Integration Opportunity column because the plan or ordinance already addresses potential impacts or includes specific projects that should be included as action items in the mitigation action plan. Provide a brief description of how the plan or ordinance is integrated. For plan updates, it is required that at least one item be listed or that you explicitly state that no integration occurred. Examples are as follows:

- **Capital Improvement Plan**—The capital improvement plan includes projects can help mitigate potential hazards. The City will act to ensure consistency between the hazard mitigation plan and the current and future capital improvement plans. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on results of the risk assessment.

- **Building Code and Fire Code**—The City's adoption of the 2016 California Building and Fire codes incorporated local modifications to account for the climatic, topographic and geographic conditions that exist in the City.
- **General Plan 2030**—The general plan includes a "Safety, Services, and Infrastructure" element to protect the community from unreasonable risk by establishing policies and actions to avoid or minimize the following hazards:

  - Geologic and seismic hazards
  - Fire hazards
  - Hazardous materials
  - Flood control
  - Impacts from climate change.

- **Climate Action Plan**—The City's Climate Action Plan includes projects for reducing greenhouse gas emissions and adapting to likely impacts of climate change. These projects were reviewed to identify cross-planning initiates that serve both adaptation and mitigation objectives. ***Note: Any plans that fall into this category should be reviewed during the development of the mitigation strategy in Phase 3 and included as appropriate.***

Opportunities for Future Integration

List any remaining items that say "Yes" in the Integration Opportunity column in the Legal and Regulatory Capabilities and explain the process by which integration will occur. Examples follow:

- **Zoning Code**—The City of Smithburg is conducting a comprehensive update to its zoning code. The opportunity to incorporate additional mitigation and abatement measures will be contemplated for inclusion into the Code.
- **Capital Improvement Projects**—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- **Post-Disaster Recovery Plan**—Smithburg does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the mitigation goals and objectives identified in the mitigation plan.

After you have accounted for all items marked as "Yes" under the Integration Opportunity column, consider other programs you may have in place in your jurisdiction that include routine consideration and management of hazard risk. Examples of such programs may include: tree pruning programs, right-of-way mowing programs, erosion control or stream maintenance programs, etc. Please add any such programs to the integration discussion and provide a brief description of how these program manage (or could be adapted to manage) risk from hazards.

Phase 3 Instructions

JURISDICTION-SPECIFIC NATURAL EVENT HISTORY

In the table titled "Past Natural Hazard Events," list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction. Include the date of the event and the estimated dollar amount of damage it caused. You are welcome to include any events, but special attention should be made to include major storms and federally declared disasters. Please refer to the table below that lists Presidential Disaster Declarations for the County. We recommend including most large-scale disasters, unless you know that there were no impacts to your jurisdiction. Specifically, we recommend that you include these events if you have damage estimate information or can provide a brief description of impacts that occurred within your community. In addition to these events, please refer to the NOAA storm events database included in the tool kit. We recommend conducting

a search for the name of your jurisdiction in order to identify events with known impacts. Other 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.)
- Resident input.

If you do not have estimates for dollars of damage caused, please list "Not Available" in the appropriate column or simply list a brief description of the damages (e.g. Main Street closed as a result of flooding, downed trees and residential damages). Please note that tracking such damages is a valid and useful mitigation action if your jurisdiction does not currently track such information.

Presidential Disaster Declarations for Alameda County

Type of Event	FEMA Disaster #	Declaration Date
Severe Winter Storms, Flooding, and Mudslides	DR-4308	4/1/2017
Severe Winter Storms, Flooding, and Mudslides	DR-4305	3/16/2017
Severe Winter Storms, Flooding, and Mudslides	DR-4301	2/14/2017
Severe Storms, Flooding, Landslides, and Mudslides	DR-1646	6/5/2006
Severe Storms, Flooding, Mudslides, and Landslides	DR-1628	2/3/2006
Hurricane Katrina Evacuation	EM-3248	9/13/2005
Severe Winter Storms and Flooding	DR-1203	2/9/1998
Severe Storms, Flooding, Mud and Landslides	DR-1155	1/4/1997
Severe Winter Storms, Flooding Landslides, Mud Flow	DR-1046	3/12/1995
Severe Winter Storms, Flooding, Landslides, Mud Flows	DR-1044	1/10/1995
Oakland Hills Fire	DR-919	10/22/1991
Severe Freeze	DR-894	2/11/1991
Loma Prieta Earthquake	DR-845	10/18/1989
Severe Storms & Flooding	DR-758	2/21/1986
Coastal Storms, Floods, Slides & Tornadoes	DR-677	2/9/1983
Severe Storms, Flood, Mudslides & High Tide	DR-651	1/7/1982
Drought	EM-3023	1/20/1977
Forest & Brush Fires	DR-295	9/29/1970
Severe Storms & Flooding	DR-283	2/16/1970

Note: EM = Emergency Declaration; DR = Disaster Declaration

JURISDICTION-SPECIFIC VULNERABILITIES

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, Tetra Tech will insert the following information based on data provided by FEMA:

- The number of any FEMA-identified repetitive-loss properties in your jurisdiction.

- The number of any FEMA-identified severe-repetitive-loss properties in your jurisdiction.
- The number (if any) of repetitive-loss or severe-repetitive-loss properties in your jurisdiction that have been mitigated. Mitigated for this exercise means that flood protection has been provided to the structure.

Please note that if your jurisdiction has any repetitive loss properties, we would strongly encourage you to include a mitigation action that addresses mitigating these properties.

Other Vulnerabilities

We would strongly encourage you to review the results of the risk assessment included in the tool kit, your jurisdiction's natural events history, and any relevant public comments/input and develop a few sentences that discuss specific risks. You do not need to develop a sentence for every single parameter, but review the results and identify a few issues you would like to highlight. For example:

- Only about 2 percent of the jurisdiction's population is estimated to reside in the 1 percent annual chance flood hazard area; however, 45 percent of the population is estimated to reside in the 0.2 percent annual chance flood hazard area where flood insurance is generally not required.
- A magnitude 7.5 earthquake on the Smithburg Fault may produce nearly 1 million tons of structure debris.
- Over the past 10 years, the jurisdiction has experienced more than $6 million in estimated damages from severe storm events.
- More than 50 buildings are located in areas that will be permanently inundated with 12 inches of sea level rise.
- The results of the public survey indicated that 40 percent of Smithburg residents would not be able to be self-sufficient for 5 days following a major event.

In addition, please list any noted vulnerabilities in your jurisdiction related to hazard mitigation that may not be apparent from the risk assessment and other information provided. This may include things such as the following:

- An urban drainage issue that results in localized flooding every time it rains.
- An area of the community that frequently loses power due to a lack of tree maintenance.
- A critical facility, such as a police station, that is not equipped with a generator.
- A neighborhood that has the potential to have ingress and egress cut off as the result of a hazard event, such as a flood or earthquake (e.g. bridge only access).
- Substantial number of buildings in one area of the community are unreinforced masonry or soft-story construction.
- An area along the river is eroding and threatening public and/or private property.
- A large visitor population that may not be aware of tsunami risk.

Spending some time thinking about the results of the risk assessment and other noted vulnerabilities will be a big help in the development of your mitigation strategy. The items you list in this section should cross-walk back to the mitigation action that you have selected. Two examples are shown in the table below.

Noted Vulnerability	Example Mitigation Action
Only about 2 percent of the jurisdiction's population is estimated to reside in the 1 percent annual chance flood hazard area; however, 45 percent of the population is estimated to reside in the 0.2 percent annual chance flood hazard area where flood insurance is generally not required.	Develop and implement an annual public information initiative that targets residents in the 0.2 percent annual chance flood hazard area. Provide information on the availability of preferred risk flood insurance policies.

Noted Vulnerability	Example Mitigation Action
An urban drainage issue that results in localized flooding every time it rains.	Replace undersized culverts that are contributing to localized flooding. Priority areas include: • The corner of Main Street and 1st Street • Old Oak subdivision.

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.

The risk ranking for each jurisdiction is included in the Risk Ranking Summary tab in the Loss Matrix included in the toolkit. Tetra Tech has filled in the results for each 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 your template and include what you believe the rank should be and why. For example, drought was ranked as low; however, the jurisdiction's economy is heavily reliant on water using industries, such as agriculture or manufacturing, so you believe it should be ranked as medium.

Also keep in mind that one of the purposes of this exercise is to support the selection and prioritization of actions in your plan. If you identify an action with a high priority that mitigates the risk of a hazard you have ranked low, that project may not be as competitive in the grant arena. On the other hand, **you will need to have at least one true mitigation action for each hazard ranked as "high" or "medium."** This is discussed in more detail in the Hazard Mitigation Action Plan section of these instructions.

The instructions below describe the methodology for how these rankings were derived. Please review before providing any comments.

Risk Ranking Methodology

Review Risk Ranking in Template

Review the hazard risk ranking information that Tetra Tech has provided. The hazard with the highest risk rating is listed at the top of table titled "Hazard Risk Ranking" in your template and was given a rank of 1; the hazard with the second highest rating is listed second with a rank of 2; and so on. Two hazards with equal risk ratings were given the same rank. "High," Medium," and "Low" assignments were given for each hazard of concern based on the total score (probability x impact). It is important to note, that this is determined by the scores rather than assigning a certain number of hazards to each category.

When reviewing the risk ranking results, it is important to remember that this exercise is about categorizing hazards into broad levels of risk (e.g. high, medium, low). It is not an exercise in precision.

Review Risk Ranking in Loss Matrix

The following sections discuss the methodology used to develop the results included in your template. Please refer to the Loss Matrix provided in your tool kit in order to follow along.

Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. The probability of occurrence of a hazard event is generally based on past hazard events in an area, although weight can be given to expected future probability of occurrence based on established return intervals and changing climate conditions. 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. Each hazard was assigned a 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)

Potential Impacts of Each Hazard

The impact of each hazard is divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories are 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.

Impact factors for each category (people, property, economy) are described below:

- **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. Impact factors were assigned as follows:

  - High—25 percent or more of the population is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the population is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent 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)

- **Property**—Values are assigned based on the percentage of the total ***property value exposed*** to the hazard event:

  - High—25 percent or more of the total replacement value is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the total replacement value is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent or less of the total replacement value is exposed to the hazard (Impact Factor = 1)
  - No impact—None of the total replacement value is exposed to a hazard (Impact Factor = 0)

- **Economy**—Values were 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 replacement value of the property exposed to the hazard. For some hazards, such as wildfire and landslide, vulnerability may be considered to be the same or a portion of exposure due to the lack of loss estimation tools specific to those hazards.

  - High—Estimated loss from the hazard is 10 percent or more of the total replacement value (Impact Factor = 3)

- Medium—Estimated loss from the hazard is 5 percent to 9 percent of the total replacement value (Impact Factor = 2)
- Low—Estimated loss from the hazard is 4 percent or less of the total replacement value (Impact Factor = 1)
- No impact—No loss is estimated from the hazard (Impact Factor = 0).

The following sections provide information on completing the risk ranking for your jurisdiction.

Impacts on People

The percent of the total population exposed to each hazard of concern with a defined extent and location (e.g. floodplain) can be found in the loss estimate matrix in the **green highlighted column.** For those hazards that do not have a defined extent and location (e.g. severe weather) the entire population is generally considered to be exposed. For the drought hazard, it is common for jurisdictions to list "low" or "none," because all people in the planning area would be exposed to drought, but impacts to the health and safety of individuals are expected to be minimal.

Impacts on Property

The percent of the total value exposed to each hazard of concern with a defined extent and location (e.g. floodplain) can be found in the loss estimate matrix in the **blue highlighted column.** For those hazards that do not have a defined extent and location (e.g. severe weather) the entire building stock is generally considered to be exposed. For the drought hazard, it is common for jurisdictions to list "low" or "none," because all structures in the planning area would be exposed to drought, but impacts to structures are expected to be minimal.

Impacts on the Economy

The loss estimates for each hazard of concern that was modeled (i.e. dam failure, flood, earthquake) can be found in the loss estimate matrix in the **purple highlighted column.** For those hazards that have a defined extent and location, but do not have modelled loss results, loss estimates can be the same as exposure or a portion thereof. For example, a large percentage of the building stock may be exposed to landslide or wildfire risk, but it would not be expected that one event that resulted in loss to all exposed structures would occur. For those hazards that do not have a defined extent and location (e.g. severe weather) the entire building stock is generally considered to be exposed, but impacts are generally considered to be "low."

Risk Rating for Each Hazard

A risk rating for each hazard was 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}

This is the number that is shown in the risk ranking table in your template.

STATUS OF PREVIOUS PLAN ACTIONS

Please note that this section only applies to jurisdictions that are conducting updates to previously approved hazard mitigation plans. If your jurisdiction has not previously participated in an approved plan, this section will not appear in your annex template. Also, please note that if you completed the Phase 2 annex, you likely already filled out this table. You will need to revisit this section to fill in the Action # section after competing your action plan in the following section.

All action items identified in prior mitigation planning efforts must be reconciled in this plan update. Action items must all be marked as ONE of the following; check the appropriate box (place an X) and provide the following information:

- **Completed—**If an action was completed during the performance period of the prior plan, please check the appropriate box and provide a date of completion in the comment section. If an action has been initiated and is an ongoing program (e.g. annual outreach event), you may mark it as completed and note that it is ongoing in the comments. When removing such actions from your action plan, please consider including them in the existing integration section above. If you have an action that addresses an ongoing program you would like to continue to include it in your action plan, please see the Carried Over to Plan Update section below.
- **Removed—**If action items are to be removed because they are no longer feasible, a reason must be given. 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."). If the wording and/or intent of a previously identified action is unclear, this can be a reason for removal. A change in community priorities may also be a reason for removal and should be discussed in the comments.
- **Carried Over to Plan Update—**If an action is in progress, ongoing or has not been initiated and you would like to carry it over to the plan update, please check the "Check if Yes" column under "Carried Over to Plan Update." Selecting this option indicates that the action will be included in the mitigation action plan for the 2017 plan. The last column "Enter Action #" will be addressed when you develop your actions plan in the following sections. You will need to revisit it after completing the action plan.

HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

This section is the heart of your jurisdictional annex. This is where you will identify the actions your jurisdiction would like to pursue with this plan. All of the work that you have done thus far should provide you with a plethora of ideas for actions. With this in mind, we recommend that you review the following and develop a list of potential actions:

- **Capability Assessment Section of Annex—**Review the Legal and Regulatory Capability table, the Development and Permitting Capability table, the Fiscal Capability table, the Administrative and Technical Capability table, the Education and Outreach table, and the Community Classification table.
  - For any capability that you indicated that you did not have, ask yourself – should we have this capability? If yes, consider including an action to develop/acquire the capability.
  - Example: Ensure a staff person from public works and planning are trained in the use of FEMA's benefit-cost analysis software.

Wording Your Action Descriptions:

Descriptions of your actions 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 action:

- **Action 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.
- **Action 2—**Perform a non-structural, seismic retrofit of City Hall.
- **Action 3—**Acquire floodplain property in the Smith subdivision.
- **Action 4—**Enhance the County flood warning capability by joining the NOAA "Storm Ready" program.

- Review the Legal and Regulatory capabilities. If any have not been reviewed and updated a capability in more than 10 years, consider an action to review and update the capability and, as appropriate, incorporate hazard mitigation principles or information obtained in the risk assessment (Note: actions such as this should also be identified in the opportunities for future integration section). Also, consider including projects or actions that have been identified in other plans and programs such as Capital Improvement Plans, Strategic Plans, etc. as actions in this plan.
- For any capability that you indicated you do have, consider how this capability can be leveraged to increase or improve hazard mitigation in the jurisdiction.

- **National Flood Insurance Program Compliance Table of this Annex**—Review the table and consider the following:

  - If you have no certified floodplain managers and you have flood risk, consider adding an action to provide key staff members with training appropriate to obtain certification.
  - If your flood damage prevention was last updated in or before 2004, you should identify an action to update your ordinance to ensure it is compliant with NFIP requirements.
  - If you have any outstanding NFIP compliance issues, be sure to add an action to address them.
  - If flood hazard maps do not adequately address the flood risk within your jurisdiction, consider actions to request new mapping or conduct studies.
  - If you don't participate in CRS or you would like to improve your classification, consider this as an action.
  - If the number of flood insurance polices in your jurisdiction is low relative to the number of structures in the floodplain, consider an action that will promote flood insurance in your jurisdiction.

- **Adaptive Capacity for Climate Change Section of this Annex**—Consider your responses to this section. For those criterion that you listed as medium or low, think of ways you could improve this rating (see adaptive capacity portion of the mitigation best practices catalog). For those criterion you listed as high, think about how you can leverage this capacity to improve or enhance mitigation or continue to improve this capacity. For those criterion that you were unable to provide responses for, consider ways you could improve your understanding of this capacity (see mitigation best practices and adaptive capacity catalog).
- **Opportunities for Future Integration Section in this Annex**—Review the items you identified in this section. For those items that address land use include them in the prepopulated Action in your template that reads as follows: Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including _____. For other items listed in this section, consider an action that specifically says what the plan, code, ordinance etc. is and how it will be integrated.
- **Jurisdiction-Specific Vulnerabilities Section in this Annex—**Review the items that you have identified in this section and consider actions that will help reduce these vulnerabilities (see mitigation best practices catalog).
- **Mitigation Best Practices Catalog**—A catalog that includes FEMA and other agency identified best practices, steering committee and other stakeholder recommendations was developed as part of the plan development process and included in your tool kit. Review the catalog and identify those actions that your jurisdiction should consider including in its action plan.
- **Public Input**—Review input received during the process, specifically the public survey results included in your toolkit.
- **Prior Mitigation Planning Efforts**—If your jurisdiction participated in a previous hazard mitigation plan, please be sure to remember to include any actions that were identified as "carry over" actions. Once you have carried them over, return to the Status of Previous Actions table and record the new action number (see discussion below).

Be sure to consider the following factors in your selection of actions:

- Select actions that are consistent with the overall purpose, goals, and objectives of the hazard mitigation plan.
- Identify actions where benefits exceed costs.
- Include any action that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) grants (see fact sheet provided in toolkit). If you have actions that are not HMGP, PDM or FMA 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.
- **You must identify at least one true mitigation action (i.e. not a preparedness or response action) that is clearly defined and actionable for hazards ranked as "high" or medium."**

Recommended Actions

We recommend that every planning partner strongly consider the following actions. The specifics of these actions should be adjusted as needed for the particulars of each community. You will note that five of these actions have been prepopulated in your annex template. These five actions should be included in every annex and should not be removed.

- Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.
- Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.
- Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.
- Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements:

  - Enforce the flood damage prevention ordinance.
  - Participate in floodplain identification and mapping updates.
  - Provide public assistance/information on floodplain requirements and impacts.

- Identify and pursue strategies to increase adaptive capacity to climate change.
- Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.
- Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.
- Consider the development of a post-disaster recovery plan and a debris management plan.
- Develop and/or update plans that support or enhance continuity of operations following disasters.

Complete the Table

Complete the table titled "Hazard Mitigation Action Plan Matrix" for all the actions you have identified and would like to include in the plan:

Action Item Numbering:

- Please use the following action item numbering conventions:
  - Dublin—D-1
  - Livermore—L-1
  - Pleasanton—P-1

- Enter the action number and description .
- Indicate whether the action mitigates hazards for new and/or existing assets.
- Identify the specific hazards the action will mitigate (note: you must list the hazards, simply indicating all hazards is not deemed acceptable).
- Identify by number the mitigation plan objectives that the action addresses (see toolkit).
- Indicate who will be the lead in administering the action. This will most likely be a department within your jurisdiction (e.g. planning or public works). If you wish to indicate more than one department, please ensure that it is clear who the lead agency will be (i.e. note with an *)
- Enter an estimated cost in dollars if known; otherwise, enter "High," "Medium" or "Low" as determined for the prioritization process described in the following section.
- Identify funding sources for the action. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment to identify possible sources of funding and refer to the table below for project eligibility for FEMA's hazard mitigation assistance grant program.
- Indicate the time line as "short-term" (1 to 5 years) or "long-term" (5 years or greater) or ongoing (a continual program)

Eligible Activities	HMGP	PDM	FMA
Mitigation Projects			
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction	√	√	√
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√
Generators	√	√	
Localized Flood Risk Reduction Projects	√	√	√
Non-Localized Flood Risk Reduction Projects	√	√	
Structural Retrofitting of Existing Buildings	√	√	√
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildfire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Advance Assistance	√		
5 Percent Initiative Projects*	√		
Aquifer and Storage Recovery**	√	√	√
Flood Diversion and Storage**	√	√	√

Eligible Activities	HMGP	PDM	FMA
Floodplain and Stream Restoration**	√	√	√
Green Infrastructure**	√	√	√
Miscellaneous/Other**	√	√	√
Hazard Mitigation Planning	√	√	√
Technical Assistance			√
Management Costs	√	√	√

Notes: HMGP = Hazard Mitigation Grant Program; PDM = Pre-Disaster Mitigation; FMA = Flood Mitigation Assistance

* FEMA allows increasing the 5% Initiative amount up to 10% for a Presidential major disaster declaration under HMGP. The additional 5% Initiative funding can be used for activities that promote disaster-resistant codes for all hazards. As a condition of the award, either a disaster-resistant building code must be adopted or an improved Building Code Effectiveness Grading Schedule is required.

**Indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.

Source: https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart

Please see the table below for examples of some of the recommended actions above:

Example Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
EX-1—Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas and prioritize those structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	Planning		High	HMGP, PDM, FMA	Short-term
EX-2—Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions within the community.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	Planning		Low	Staff Time, General Funds	Ongoing
EX-3—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 9	Emergency Management		Medium	Staff Time, General Funds	Short-term
EX-4—Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.							

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-5—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-6—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforcement of the flood damage prevention ordinance • Participate in floodplain identification and mapping updates • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam Failure	1, 4, 6, 9	Floodplain Administration Department		Low	Staff Time, General Funds	Ongoing
EX-7—Work with building officials to identify ways to improve the jurisdictions' BCEGS classification.							
New	Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 10, 11	Building and Development Services		Low	Staff Time, General Funds	Short-term
EX-8—Develop a post-disaster recovery plan and a debris management plan.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 3, 7, 10	Emergency Management		Medium	EMPG	Long-term
EX-9—Participate in programs such as Firewise, StormReady and the Community Rating System.							
New and Existing	Dam Failure, Flood, Severe weather, Wildfire	5, 7, 9	Emergency Management	Public Works	Low	Staff Time, General Funds	Short-term
EX-10—Identify and pursue strategies to increase adaptive capacity to climate change.							
New and Existing	Dam failure, Drought, Flood, Landslide, Severe weather, Wildfire	1, 2, 5, 7, 8, 9, 10, 12	Planning		Low	Staff Time, General Funds	Short-term

Prioritization of Mitigation Actions

Complete the information in the table titled "Mitigation Strategy Priority Schedule" as follows:

- **Action #**—Indicate the action number from the previous annex table (Hazard Mitigation Action Plan Matrix).
- **# of Objectives Met**—Enter the number of objectives the action will meet.
- **Benefits**—Enter "High," "Medium" or "Low" as follows:

  - High: Action will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Action will have a long-term impact on the reduction of risk exposure to life and property, or action 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.

- **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 action.
  - 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 action would have to be spread over multiple years.
  - Low: Possible to fund under existing budget. Action is or can be part of an existing ongoing program.

  If you know the estimated cost of an action 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 Action Grant-Eligible?**—Enter "Yes" or "No." Refer to the fact sheet on HMGP, PDM and FMA and the table above.
- **Can Action Be Funded Under Existing Program Budgets?**—Enter "Yes" or "No." In other words, is this action currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- **Implementation Priority**— Enter "High," "Medium" or "Low" as follows:

  - High Priority—An action that meets multiple objectives, has benefits that exceed cost, has funding secured or is an ongoing action and meets eligibility requirements for a grant program. High priority actions can be completed in the short term (1 to 5 years). The key factors for high priority actions are that they have funding secured and can be completed in the short term.
  - Medium Priority—An action that meets multiple objectives, that has benefits that exceed costs, and for which funding has not yet been secured, but is eligible for funding. Action can be completed in the short term, once funding is secured. Medium priority actions will become high priority actions once funding is secured. The key factors for medium priority actions are that they are eligible for funding, but do not yet have funding secured, and they can be completed within the short term.
  - Low Priority—An action that will mitigate the risk of a hazard, that has benefits that do not exceed the costs or are difficult to quantify, for which funding has not been secured, that is not eligible for grant funding, and for which the time line for completion is long term (1 to 10 years). Low priority actions may be eligible for grant funding from other programs that have not yet been identified. Low priority actions are generally "blue-sky" or "wish-list." actions. Financing is unknown, and they can be completed over a long term.

- **Grant Pursuit Priority**— Enter "High," "Medium" or "Low" as follows:

- High Priority—An action that has been identified as meeting grant eligibility requirements, assessed to have high benefits, is listed as high or medium priority, and where local funding options are unavailable or where dedicated funds could be utilized for actions that are not eligible for grant funding.
- Medium Priority—An action that has been identified as meeting grant eligibility requirements, assessed to have medium or low benefits, is listed as medium or low priority, and where local funding options are unavailable.
- Low Priority—An action that has not been identified as meeting grant eligibility requirements, or has low benefits.

This prioritization is a simple way to determine that your identified actions meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM /FMA action grants. The prioritization will identify any actions whose probable benefits will not exceed the probable costs. Those actions identified as high-priority grant funding actions should be closely reviewed for consideration when grant funding opportunities arise.

Note: If a jurisdiction wishes to identify an action as high priority that is outside of the prioritization scheme for high priorities. A note indicting so should be inserted and a rationale should be provided.

Please see the example below based off the recommended actions:

Table 0-9. Mitigation Strategy Priority Schedule

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

Analysis of Mitigation Actions

Complete the table titled "Analysis of Mitigation Actions" summarizing the mitigation actions by hazard of concern and the following eight mitigation types. Please note that an action can be more than one mitigation type:

- **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 residents 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, wetland restoration and preservation, and green infrastructure.
- **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.
- **Climate Resilient**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future conditions projections in project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.
- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

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

Please see the example below based off the recommended actions, but please note that these recommendations are heavy on generalized actions on the prevention spectrum and light in other areas and specificity. Planning partners should aim to identify at least one action in each category (although this is not required) and should make sure there is at least one action to address "high" ranked hazards:

Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure	EX-2, 3, 4, 5, 6	EX-1, 6	EX-4, 6		EX-8			EX-3, 4, 8, 9, 10
Drought	EX-2	EX-1	EX-4					EX-3, 4, 8, 9, 10
Earthquake	EX-2, 3, 4, 5, 7	EX-1, 7	EX-4		EX-8			EX-3, 4, 8, 9
Flood	EX-2, 3, 4, 5, 6, 7	EX-1, 6, 7	EX-4, 6	EX-9	EX-8			EX-3, 4, 8, 9, 10
Landslide	EX-2, 3, 4, 5, 7	EX-1, 7	EX-4		EX-8			EX-3, 4, 8, 9, 10

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Severe weather	EX-2, 3, 4, 5, 7	EX-1, 7, 9	EX-4		EX-8, 9			EX-3, 4, 8, 9, 10
Wildfire	EX-2, 3, 4, 5, 7	EX-1, 7, 9	EX-4, 9	EX-9	EX-8			EX-3, 4, 8, 9, 10

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. Please note that this section is optional.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template. Please note that this section is optional.

REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

This section should describe what resources you used to complete the annex and how you used them. Several items are started for you, but please be sure to update and enhance any descriptions. This may seem trivial or unimportant, but it is a requirement to pass the state and FEMA review process.

NEXT STEPS

After all jurisdictions have submitted their annexes, the draft plan will be submitted for public comment. Following the public comment period and any revisions responsive to public comment, the plan will be submitted to the California Governor's Office of Emergency Services (Cal OES) for review. After their review and approval, Cal OES will submit the plan to FEMA Region IX for plan review and approval. At that point planning partners will be asked to begin making preparations to formally adopt the plan. Each participating planning partner must have the governing board of their jurisdiction adopt via resolution or ordinance. Once FEMA has reviewed the plan and issued an approved pending adoption (APA) notice, planning partners will be asked to go forth and adopt the plan. Once adopted, planning partners will submit adoption information to Tetra Tech, who will submit the proof of adoption to FEMA. Once such adoption has been received, FEMA will issue final approval via a letter for those planning partners who have adopted the plan. It is very important to understand that approval is not final until proof of adoption has been received by FEMA and they have issued a letter specifically naming your jurisdiction. More information on the review and approval process, along with adoption support materials, will be provided at a later date.

1. JURISDICTION NAME

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

Alternate Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

1.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—
- **Current Population**—
- **Population Growth**—
- **Location and Description**—
- **Brief History**—
- **Climate**—
- **Governing Body Format**—___[general description]___. The __[name of adopting body]___ assumes responsibility for the adoption of this plan; __[name of oversight agency]__ will oversee its implementation.

1.3 DEVELOPMENT TRENDS

_DESCRIBE TRENDS IN GENERAL__.

Table 1-1 summarizes development trends in the performance period since development of the previous hazard mitigation plan and expected future development trends.

Table 1-1. Recent and Expected Future Development Trends

Criterion	Response					
Has your jurisdiction annexed any land since the development of the previous hazard mitigation plan? • If yes, give the estimated area annexed and estimated number of parcels or structures.	Yes/No _____					
Is your jurisdiction expected to annex any areas during the performance period of this plan? • If yes, please describe land areas and dominant uses. • If yes, who currently has permitting authority over these areas?	Yes/No _____ _____					
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe, including whether any of the areas are in known hazard risk areas	Yes/No _____					
How many permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?		2011	2012	2013	2014	2015
	Single Family	__	__	__	__	__
	Multi-Family	__	__	__	__	__
	Other (commercial, mixed use, etc.)	__	__	__	__	__
Please provide the number of new-construction permits for each hazard area or provide a qualitative description of where development has occurred.	• Special Flood Hazard Areas: # • Landslide: # • High Liquefaction Areas: # • Tsunami Inundation Area: # • Wildfire Risk Areas: #					
Please describe the level of buildout in the jurisdiction, based on your jurisdiction's buildable lands inventory. If no such inventory exists, provide a qualitative description.	_____					

1.4 CAPABILITY ASSESSMENT

Jurisdiction Name has performed an inventory and analysis of existing capabilities, plans, programs and policies that enhance its ability to implement mitigation strategies. The introduction at the beginning of this volume of the hazard mitigation plan describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of legal and regulatory capabilities is presented in Table 1-2.
- Development and permitting capabilities are presented in Table 1-3.
- An assessment of fiscal capabilities is presented in Table 1-4.
- An assessment of administrative and technical capabilities is presented in Table 1-5.
- An assessment of education and outreach capabilities is presented in Table 1-6.
- Information on National Flood Insurance Program (NFIP) compliance is presented in Table 1-7.
- Classifications under various community mitigation programs are presented in Table 1-8.
- The community's adaptive capacity for the impacts of climate change is presented in Table 1-9.

The capability assessment was reviewed in order to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan and are identified as Community Capacity Building mitigation actions in the Analysis of Mitigation Actions table in Section 1.10.

Table 1-2. Legal and Regulatory Capability

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Codes, Ordinances, & Requirements				
Building Code *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Zoning Code *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Subdivisions *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Stormwater Management *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Post-Disaster Recovery *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Real Estate Disclosure *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Growth Management *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Site Plan Review *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Environmental Protection *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Flood Damage Prevention *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Emergency Management *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Climate Change *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Other: *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Planning Documents				
General Plan *Is the plan compliant with Assembly Bill 2140?* *Yes/No* *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Capital Improvement Plan *How often is the plan updated?* _____ *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Floodplain or Watershed Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Stormwater Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Urban Water Management Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Habitat Conservation Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Economic Development Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Shoreline Management Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
Community Wildfire Protection Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Forest Management Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Climate Action Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Comprehensive Emergency Management Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Threat & Hazard Identification & Risk Assessment (THIRA) *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Post-Disaster Recovery Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Continuity of Operations Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Public Health Plan *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No
Other: *Comment:*	Yes/No	Yes/No	Yes/No	Yes/No

Table 1-3. Development and Permitting Capability

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes/No _____
Does your jurisdiction have the ability to track permits by hazard area?	Yes/No
Does your jurisdiction have a buildable lands inventory?	Yes/No

Table 1-4. Fiscal Capability

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

Table 1-5. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes/No	Insert appropriate information
Engineers or professionals trained in building or infrastructure construction practices	Yes/No	Insert appropriate information
Planners or engineers with an understanding of natural hazards	Yes/No	Insert appropriate information
Staff with training in benefit/cost analysis	Yes/No	Insert appropriate information
Surveyors	Yes/No	Insert appropriate information
Personnel skilled or trained in GIS applications	Yes/No	Insert appropriate information
Scientist familiar with natural hazards in local area	Yes/No	Insert appropriate information
Emergency Manager	Yes/No	Insert appropriate information
Grant writers	Yes/No	Insert appropriate information
Other	Yes/No	Insert appropriate information

Table 1-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes/No
Do you have personnel skilled or trained in website development?	Yes/No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes/No Insert appropriate information
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	Yes/No Insert appropriate information
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	Yes/No Insert appropriate information
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe.	Yes/No Insert appropriate information
Do you have any established warning systems for hazard events? • If yes, please briefly describe.	Yes/No Insert appropriate information

Table 1-7. National Flood Insurance Program Compliance

Criterion	Response
What local department is responsible for floodplain management?	Insert appropriate information
Who is your floodplain administrator? (department/position)	Insert appropriate information
Are any certified floodplain managers on staff in your jurisdiction?	Yes/No
What is the date that your flood damage prevention ordinance was last amended?	Insert appropriate information
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets/Exceeds Insert appropriate information
When was the most recent Community Assistance Visit or Community Assistance Contact?	Insert appropriate information
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, please state what they are.	Yes/No Insert appropriate information
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If no, please state why.	Yes/No Insert appropriate information

Criterion	Response
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes/No Insert appropriate information
Does your jurisdiction participate in the Community Rating System (CRS)? • If yes, is your jurisdiction interested in improving CRS Classification? • Is your jurisdiction interested in joining the CRS program?	Yes/No Yes/No Yes/No
How many flood insurance policies are in force in your jurisdiction?[a] • What is the insurance in force? • What is the premium in force?	Insert appropriate information $_____ $_____
How many total loss claims have been filed in your jurisdiction?[a] • How many claims are still open/were closed without payment? • What were the total payments for losses?	Insert appropriate information Insert appropriate information $_____

a. According to FEMA statistics as of MONTH XX, 201X

Table 1-8. Community Classifications

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

Table 1-9. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High/Medium/Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	High/Medium/Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	High/Medium/Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High/Medium/Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	High/Medium/Low
Comment:	
Participation in regional groups addressing climate risks	High/Medium/Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High/Medium/Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	High/Medium/Low
Comment:	
Identified strategies for adaptation to impacts	High/Medium/Low
Comment:	

Criterion	Jurisdiction Rating[a]
Champions for climate action in local government departments	High/Medium/Low
Comment:	
Political support for implementing climate change adaptation strategies	High/Medium/Low
Comment:	
Financial resources devoted to climate change adaptation	High/Medium/Low
Comment:	
Local authority over sectors likely to be negative impacted	High/Medium/Low
Comment:	
Public Capacity	
Local residents knowledge of and understanding of climate risk	High/Medium/Low
Comment:	
Local residents support of adaptation efforts	High/Medium/Low
Comment:	
Local residents' capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local economy current capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	High/Medium/Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.5 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.5.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, Jurisdiction Name made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

Resources listed in Section 1.13 were used to provide information for this annex on hazard events and local capabilities within the jurisdiction.

1.5.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, Jurisdiction Name will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan in actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

1.6 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-10 lists past occurrences of natural hazards for which specific damage was recorded in Jurisdiction Name. Other hazard events that broadly affected the entire planning area, including Jurisdiction Name, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-10. Past Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____

1.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. This section provides information on a few key vulnerabilities for the jurisdiction.

Repetitive loss records are as follows:

- Number of FEMA-identified Repetitive-Loss Properties: XX
- Number of FEMA-identified Severe-Repetitive-Loss Properties: XX
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: XX

Other noted vulnerabilities include the following:

- Insert as appropriate.
- Insert as appropriate.
- Insert as appropriate.

1.8 HAZARD RISK RANKING

Table 1-11 presents a local ranking for Jurisdiction Name of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-11. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	_____	_____	High/Medium/Low
2	_____	_____	High/Medium/Low
3	_____	_____	High/Medium/Low
4	_____	_____	High/Medium/Low
5	_____	_____	High/Medium/Low
6	_____	_____	High/Medium/Low
7	_____	_____	High/Medium/Low
8	_____	_____	High/Medium/Low
9	_____	_____	High/Medium/Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

1.9 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-12 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-12. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#

1.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-13 lists the actions that make up the Jurisdiction Name hazard mitigation action plan. Table 1-14 identifies the priority for each action. Table 1-15 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-13. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #— Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12	TBD	TBD	High	HMGP, PDM, FMA	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #— Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including _____							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	TBD	TBD	Low	Staff Time, General Funds	Ongoing
Action #— Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	TBD	TBD	Low	Staff Time, General Funds	Short-term
Action #—Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.							
New and Existing	Flood, Dam failure	1, 4, 6, 9	TBD	TBD	Low	Staff Time, General Funds	Ongoing
Action #—Identify and pursue strategies to increase adaptive capacity to climate change including but not limited to the following _____.							
New and Existing	Dam failure, Drought, Flood, Landslide, Severe weather, Wildfire	1, 2, 5, 7, 8, 9, 10, 12	TBD	TBD	Low	Staff Time, General Funds	Short-term
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							

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

Table 1-14. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
TBD	6	High	High	Yes	Yes	No	Medium	High
TBD	6	Medium	Low	Yes	No	Yes	High	Low
TBD	12	Low	Low	Yes	No	Yes	High	Low
TBD	4	Medium	Low	Yes	No	Yes	High	Low
TBD	8	Medium	Low	Yes	No	Yes	High	Medium

a. See the introduction to this volume for explanation of priorities.

Table 1-15. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
_____								
_____								
_____								
_____								
_____								
_____								
_____								

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
_____								
_____								

a. See the introduction to this volume for explanation of mitigation types.

1.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Insert text, if any; otherwise, delete section

1.12 ADDITIONAL COMMENTS

Insert text, if any; otherwise, delete section

1.13 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- **Jurisdiction Name Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **Jurisdiction Name Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- **Technical Reports and Information—**The following **o**utside resources and references were reviewed:
  - **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.
  - <INSERT DOCUMENT AND DESCRIPTION OF HOW IT WAS USED>

Tetra Tech Will Insert Jurisdiction-Specific Hazard Maps Prepared for This Plan

INSTRUCTIONS FOR COMPLETING SPECIAL PURPOSE DISTRICT ANNEX TEMPLATE

The jurisdictional annex templates for the 2017 Tri-Valley Hazard Mitigation Plan will be completed in three phases. **This document provides instructions for completing all phases of the template for special purpose districts.**

If your jurisdiction completed and submitted Phase 1 and/or Phase 2, Phase 3 has been added to the end of your document. Any planning team comments, questions or suggestions have been included as blue highlighted notes and/or comments. Any text edits were made with changes tracked for review. Any yellow highlights indicate areas where missing information should be filled in.

If your jurisdiction did not complete Phase 1 or Phase 2, please complete all phases at this time.

The target timeline for phase completion is as follows:

- **Phase 1** – Jurisdictional profile
  - Deployed: early July
  - Due: early August
- **Phase 2** – Capability assessment
  - Deployed: late August
  - Due: September 26, 2017
- **Phase 3** – Risk ranking and action plan development
  - Deployed: Mid-October
  - Workshop: October steering committee meeting
  - Due: November 17, 2017

Any questions on completing the template should be directed to:

Kristen Gelino
Tetra Tech, Inc.
(917) 426-4594 or (646) 576-4029
E-mail: kristen.gelino@tetratech.com

Special Purpose District Annex:

This document provides instructions for completing **all phases** of the jurisdictional annex template for special purpose districts. **Templates should be completed by Friday, November 17, 2017.** Your completed template should be submitted to:

Kristen Gelino
Tetra Tech, Inc.
(917) 426-4594 or (646) 576-4029
E-mail: kristen.gelino@tetratech.com

A Note About Formatting:

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

Phase 1 Instructions

CHAPTER TITLE

In the chapter title at the top of Page 1, type in the complete official name of your district (e.g. West County Fire Protection District #1, Johnsonville Flood Protection District, etc.). Please do not change the chapter number. Revise only the jurisdiction name.

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.

Note: Both of these contacts should match the contacts that were designated in your jurisdiction's letter of intent to participate in this planning process. If you have changed the primary or secondary contact, please let the planning team know by inserting a comment into the document.

JURISDICTION PROFILE

Overview

Please provide a brief summary description of your jurisdiction. Please be sure to 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),
- a description of who the district's customers are,
- an overview of current service area trends, including an approximation of current users/subscribers,
- a summary description of previous growth trends in service area, and anticipated future increase/decrease in services (if applicable),
- an approximation of area served in square miles,
- a geographical decription of the service area, and
- the type of governing body, and who has adoptive authority.

Example Jurisdiction Narrative Profile:

The Johnsonville Community Services District is a special district created in 1952 to provide water and sewer service to the unincorporated area east of the City of Smithburg known as Johnsonville. The District's designated service area expanded throughout the years to include other unincorporated areas of Jones County: Creeks Corner, Jones 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, 2016, 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.

Provide information similar to the example provided in the box above. This should be information that is specific to your jurisdiction and will not be provided in the overall, planning area-wide mitigation plan document.

Fire Districts should complete the yellow highlighted portions of the following sentence that is included in the annex: The District participates/does not participate in the Public Protection Class Rating System and currently has a rating of #.

All other types of special purpose districts should delete this sentence.

ASSETS

Please provide an approximate value for the noted areas within the table. Include the sum total value for identified assets for each section in the "Total" line for the section.

Property

Provide an approximate value for the land owned by the District.

Critical Infrastructure and Equipment

List types of equipment an infrastructure owned by the District that are used in times of emergency or, if incapacitated, has the potential to severely impact the service area. Provide an approximate **aggregate replacement value** for each type. For water and sewer, include mileage of pipeline under this category.

Critical Facilities

List types of district structures vital to maintain services to the designated service area. Provide an approximate **aggregate replacement value** for each line. The Steering Committee has decided upon the following definition of Critical Facilities for this planning process:

> Critical facilities and infrastructure are those assets, systems, and networks, whether physical or virtual, considered so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination, per the Department of Homeland Security. For this hazard mitigation plan, the 16 critical infrastructure sectors as defined by the Department of Homeland Security will be used. The 16 sectors are:
>
> - Chemical
> - Commercial Facilities
> - Communications
> - Critical Manufacturing
> - Dams
> - Defense Industrial Base
> - Emergency Services
> - Energy
> - Financial Services
> - Food and Agriculture
> - Government Facilities
> - Healthcare and Public Health
> - Information Technology
> - Nuclear Reactors, Materials, and Waste
> - Transportation Systems
> - Water and Wastewater Systems.

Please use this definition as a guideline when selecting critical facilities.

SAMPLE COMPLETED TABLE – SPECIAL DISTRICT ASSETS	
Asset	Value
Property	
11.5 Acres	$5,750,000
Critical Infrastructure and Equipment	
Total length of pipe 40 miles ($1.32 million per mile X 40 miles)	$52,800,000
4 Emergency Generators	$250,000
Total:	**$53,050,000**
Critical Facilities	
2 Administrative Buildings	$2,750,000
4 Pump Station Buildings	$377,000
Total:	**$3,127,000**

Phase 2 Instructions

CAPABILITY ASSESSMENT

Planning and Regulatory Capability

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements related to hazard mitigation. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction. Please provide the date of last update. A few examples follow:

- **District Design Standards**—Last updated 2010.
- **Capital Improvement Program**—Updated and approved annually, covers 5 year timeframe.
- **Emergency Operations Plan**—Last updated 2000.
- **Facility Maintenance Manual**—Last updated 1990.
- **California Building Code**—Last updated 2016.
- **California State Division of State Architects—**Review and approval of all building and site design features is required prior to construction.
- **Habitat Conservation Plan**—All development impacting critical habitat must meet federal and state requirements pertaining to the protection of endangered species.

Fiscal, Administrative and Technical Capabilities

Fiscal Capability

Complete the table titled "Fiscal Capability" 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.

Administrative and Technical Capability

Complete the table titled "Administrative and Technical Capability" 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. If you have contract support staff with these capabilities, you can still answer "Yes." Indicate in the department column that this resource is provided through contract support.

Education and Outreach Capabilities

Complete the table titled "Education and Outreach" to indicate your jurisdiction's capabilities and existing efforts regarding natural hazard mitigation education and outreach.

Adaptive Capacity for Climate Change

Consider the climate change impact concerns identified for the planning area:

- Increased temperature
- Reduced precipitation
- Sea level rise – coastal inundation and erosion
- Public health – heat and air pollution
- Reduced agricultural productivity
- Inland flooding
- Reduced tourism.

With those impacts in mind, complete the table titled "Adaptive Capacity for Climate Change" by indicating that your jurisdiction's capacity for each listed criterion as follows:

- **High**—The capacity exists and is in use.
- **Medium**—The capacity may exist, but is not used or could use some improvement.
- **Low**—The capacity does not exist or could use substantial improvement.
- **Unsure**—Not enough information is known to assign a rating.

This is a subjective assessment, but providing a few words of explanation is useful. It is highly recommended that you complete this table with an internal planning team and that you review the results of the other capability assessment tables before completing.

INTEGRATION WITH OTHER PLANNING INITIATIVES

The goal of plan integration is to ensure that the potential impact of hazards is considered in planning for future development. FEMA recommends integration as follows:

- Integrate hazard mitigation plan goals with community objectives (e.g. incorporate the goals for risk reduction and safety into the policies of other plans).
- Use the risk assessment to inform plans and policies (e.g. incorporate risk assessment findings into land use plans, site plan review, emergency operations plans).
- Implement mitigation actions through existing mechanisms (e.g. include mitigation projects in the capital improvement plan).
- Think about mitigation before and after a disaster (e.g. build recovery planning on existing mitigation plans and goals).

After reviewing the plans, programs and ordinances identified in the capability assessment, identify all plans and programs that have already been integrated with the goals and recommendations of the hazard mitigation plan, and those that offer opportunities for future integration.

Existing Integration

Provide a brief description of how the plan or ordinance is integrated. For plan updates, it is required that at least one item be listed or that you explicitly state that no integration occurred. Examples are as follows:

- **Capital Improvement Plan**—The capital improvement plan includes projects that can help mitigate potential hazards. The District will act to ensure consistency between the hazard mitigation plan and the current and future capital improvement plans. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based on results of the risk assessment.
- **Emergency Operations Plan**—The results of the risk assessment were used in the development of the emergency operations plan.
- **Facilities Plan**—The results of the risk assessment and mapped hazard areas are used in facility planning for the district. Potential sites are reviewed for hazard risks and appropriate mitigation measures are considered in building and site design.

Opportunities for Future Integration

List any plans or program that offer the potential for future integration and describe the process by which integration will occur. Examples follow:

- **Capital Improvement Projects**—Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- **Post-Disaster Recovery Plan**—The District does not have a recovery plan and intends to develop one as a mitigation planning action during the next five years. The plan will build on the mitigation goals and objectives identified in the mitigation plan.

Consider other programs you may have in place in your jurisdiction that include routine consideration and management of hazard risk. Examples of such programs may include: tree pruning programs, right-of-way mowing programs, erosion control or stream maintenance programs, etc. Please add any such programs to the integration discussion and provide a brief description of how these program manage (or could be adapted to manage) risk from hazards.

Phase 3 Instructions

If your jurisdiction participated in a previously approved hazard mitigation plan, we have transferred relevant content to the Phase 3 portion of your annex. All pre-populated content should be reviewed for accuracy and completeness.

JURISDICTION-SPECIFIC NATURAL EVENT HISTORY

In the table titled "Past Natural Hazard Events," list in chronological order (most recent first) any natural hazard event that has caused damage to your jurisdiction. Include the date of the event and the estimated dollar amount of damage it caused. You are welcome to include any events, but special attention should be made to include major storms and federally declared disasters. Please refer to the table below that lists Presidential Disaster Declarations for the County. We recommend including most large-scale disasters, unless you know that there were no impacts to your jurisdiction. Specifically, we recommend that you include these events if you have damage estimate information or can provide a brief description of impacts that occurred within your community. In addition to these events, please refer to the NOAA storm events database included in the tool kit. We recommend conducting a search for the name of your jurisdiction or those jurisdictions in your service area in order to identify events with known impacts. Other 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.)
- Resident input.

If you do not have estimates for dollars of damage caused, please list "Not Available" in the appropriate column or simply list a brief description of the damages (e.g. Power out to 35,000 customers for 24 hours). Please note that tracking such damages, is a valid and useful mitigation action if your jurisdiction does not currently track such information.

Presidential Disaster Declarations for Alameda County

Type of Event	FEMA Disaster #	Declaration Date
Severe Winter Storms, Flooding, and Mudslides	DR-4308	4/1/2017
Severe Winter Storms, Flooding, and Mudslides	DR-4305	3/16/2017
Severe Winter Storms, Flooding, and Mudslides	DR-4301	2/14/2017
Severe Storms, Flooding, Landslides, and Mudslides	DR-1646	6/5/2006
Severe Storms, Flooding, Mudslides, and Landslides	DR-1628	2/3/2006
Hurricane Katrina Evacuation	EM-3248	9/13/2005
Severe Winter Storms and Flooding	DR-1203	2/9/1998
Severe Storms, Flooding, Mud and Landslides	DR-1155	1/4/1997
Severe Winter Storms, Flooding Landslides, Mud Flow	DR-1046	3/12/1995
Severe Winter Storms, Flooding, Landslides, Mud Flows	DR-1044	1/10/1995
Oakland Hills Fire	DR-919	10/22/1991
Severe Freeze	DR-894	2/11/1991
Loma Prieta Earthquake	DR-845	10/18/1989
Severe Storms & Flooding	DR-758	2/21/1986
Coastal Storms, Floods, Slides & Tornadoes	DR-677	2/9/1983
Severe Storms, Flood, Mudslides & High Tide	DR-651	1/7/1982
Drought	EM-3023	1/20/1977
Forest & Brush Fires	DR-295	9/29/1970
Severe Storms & Flooding	DR-283	2/16/1970

Note: EM = Emergency Declaration; DR = Disaster Declaration

JURISDICTION-SPECIFIC VULNERABILITIES

We would strongly encourage you to review the results of the risk assessment included in the tool kit, your jurisdiction's natural events history, and any relevant public comments/input and develop a few sentences that discuss specific risks. You do not need to develop a sentence for every single parameter, but review the results and identify a few issues you would like to highlight. For example:

- One of the District's wastewater treatment plants is located in an area likely to be permanently inundated by sea level rise by 2030.
- Three of the District's five fire stations are located in very high landslide risk areas.

- The vast majority of the service area for the district is located on high liquefaction potential soils, which has the potential to severely disrupt service for an extended period following even a moderate earthquake event.
- The District headquarters is more likely than not to be extensively damaged during a Smithburg fault M7.0 event.

In addition, please list any noted vulnerabilities in your jurisdiction related to hazard mitigation that may not be apparent from the risk assessment and other information provided. This may include things such as the following:

- An area of the community that frequently loses power due to a lack of tree maintenance.
- A critical facility, such as a police station, that is not equipped with a generator.
- A neighborhood that has the potential to have ingress and egress cut off as the result of a hazard event, such as a flood or earthquake (e.g. bridge only access).

Spending some time thinking about the results of the risk assessment and other noted vulnerabilities will be a big help in the development of your mitigation strategy. The items you list in this section should cross-walk back to the mitigation action that you have selected. Two examples are shown in the table below.

Noted Vulnerability	Example Mitigation Action
One of the District's wastewater treatment plants is located in an area likely to be permanently inundated by sea level rise by 2030.	Conduct a detailed assessment of the wastewater treatment plant vulnerability to sea level rise. Determine adaptation actions that can be implemented in the near- and long-term.
A critical facility, such as a police station, that is not equipped with a generator.	Unsure all critical facilities within the District have backup power generation capabilities. Priority facilities include: • Main street pump station • Old Oak subdivision pump station.

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.

Tetra Tech has brought forward the risk ranking results from the 2011 plan for each jurisdiction that participated in that planning effort. For those jurisdictions that did not participate in the 2011 planning effort, a draft risk ranking using the parameters outlined below has been developed for each planning partner. 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 your template and include what you believe the rank should be and why. For example, drought was ranked as low; however, the jurisdiction is a water supply district, so you believe it should be ranked as high.

Also keep in mind that one of the purposes of this exercise is to support the selection and prioritization of actions in your plan. If you identify an action with a high priority that mitigates the risk of a hazard you have ranked low, that action may not be as competitive in the grant arena. On the other hand, you will need to have at least one true mitigation action for each hazard ranked as "high."

The instructions below describe the methodology for how these rankings were derived. Please review before providing any comments.

Risk Ranking Methodology

Review Risk Ranking in Template

Review the hazard risk ranking information that Tetra Tech has provided. The hazard with the highest risk rating is listed at the top of table titled "Hazard Risk Ranking" in your template and was given a rank of 1; the hazard with the second highest rating is listed second with a rank of 2; and so on. Two hazards with equal risk ratings were given the same rank. "High," Medium," and "Low" assignments were given for each hazard of concern based on the total score (probability x impact). It is important to note, that this is determined by the scores rather than assigning a certain number of hazards to each category.

When reviewing the risk ranking results, it is important to remember that this exercise is about categorizing hazards into broad levels of risk (e.g. high, medium, low). It is not an exercise in precision.

Review Risk Ranking in Loss Matrix

The following sections discuss the methodology used to develop the results included in your template. Please refer to the risk assessment results provided for more information.

Probability of Occurrence for Each Hazard

A probability factor is assigned based on how often a hazard is likely to occur. The probability of occurrence of a hazard event is generally based on past hazard events in an area, although weight can be given to expected future probability of occurrence based on established return intervals and changing climate conditions. 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. Each hazard was assigned a 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)

Potential Impacts of Each Hazard

The impact of each hazard is divided into three categories: impacts on people, impacts on property, and impacts on the economy. These categories are 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.

Impact factors for each category (people, property, economy) are described below:

- **People**—Values are assigned based on the percentage of the total ***population exposed*** in your service area 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. Impact factors were assigned as follows:

  - High—25 percent or more of the population is exposed to a hazard (Impact Factor = 3)

- Medium—10 percent to 24 percent of the population is exposed to a hazard (Impact Factor = 2)
- Low—9 percent 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)

- **Property**—Values are assigned based on the percentage of the total ***district assets exposed*** to the hazard event:

  - High—25 percent or more of the total replacement value of assets is exposed to a hazard (Impact Factor = 3)
  - Medium—10 percent to 24 percent of the total replacement value of assets is exposed to a hazard (Impact Factor = 2)
  - Low—9 percent or less of the total replacement value of assets is exposed to the hazard (Impact Factor = 1)
  - No impact—None of the total replacement value is exposed to a hazard (Impact Factor = 0)

- **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 by Hazus (see toolkit) or subjectively assigned an impact 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).

Risk Rating for Each Hazard

A risk rating for each hazard was 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}

This is the number that is shown in the risk ranking table in your template.

STATUS OF PREVIOUS PLAN ACTIONS

Please note that this section only applies to jurisdictions that are conducting updates to previously approved hazard mitigation plans. If your jurisdiction has not previously participated in an approved plan, this section will not appear in your annex template. Also, please note that if you completed the Phase 2 annex, you likely already filled out this table. You will need to revisit this section to fill in the Action # section after competing your action plan in the following section.

All action items identified in prior mitigation planning efforts must be reconciled in this plan update. Action items must all be marked as ONE of the following; check the appropriate box (place an X) and provide the following information:

- **Completed—**If an action was completed during the performance period of the prior plan, please check the appropriate box and provide a date of completion in the comment section. If an action has been initiated and is an ongoing program (e.g. annual outreach event), you may mark it as completed and note that it is ongoing in the comments. When removing such actions from your action plan, please consider including them in the existing integration section above. If you have an action that addresses an ongoing program you would like to continue to include it in your action plan, please see the Carried Over to Plan Update section below.

- **Removed—**If action items are to be removed because they are no longer feasible, a reason must be given. 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."). If the wording and/or intent of a previously identified action is unclear, this can be a reason for removal. A change in community priorities may also be a reason for removal and should be discussed in the comments.
- **Carried Over to Plan Update—**If an action is in progress, ongoing or has not been initiated and you would like to carry it over to the plan update, please check the "Check if Yes" column under "Carried Over to Plan Update." Selecting this option indicates that the action will be included in the mitigation action plan for the 2017 plan. The last column "Enter Action #" will be addressed when you develop your actions plan in the following sections. You will need to revisit it after completing the action plan.

HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

This section is the heart of your jurisdictional annex. This is where you will identify the actions your jurisdiction would like to pursue with this plan. All of the work that you have done thus far should provide you with a plethora of ideas for actions. With this in mind, we recommend that you review the following and develop a list of potential actions:

Wording Your Action Descriptions:

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

- **Action 1—**Address repetitive-loss properties. Through targeted mitigation, acquire, relocate or retrofit the nine pump stations that have been repetitively damaged.
- **Action 2—**Perform a non-structural, seismic retrofit of the administrative building.
- **Action 3—**Develop a schedule to underground overhead powerlines.

- **Capability Assessment Section of Annex—**Review the Planning and Regulatory Capability table, the Fiscal Capability table, the Administrative and Technical Capability table, and the Education and Outreach table.
  - For any capability that you indicated that you did not have, ask yourself – should we have this capability? If yes, consider including an action to develop/acquire the capability.
  - Example: Ensure a staff person is trained in the use of FEMA's benefit-cost analysis software.
  - Review the Legal and Regulatory capabilities. If you have not reviewed and updated a capability in more than 10 years, consider an action to review and update the capability and, as appropriate, incorporate hazard mitigation principles or information obtained in the risk assessment (Note: actions such as this should also be identified in the opportunities for future integration section). Also, consider including projects or actions that have been identified in other plans and programs such as Capital Improvement Plans, Strategic Plans, etc. as actions in this plan.
  - For any capability that you indicated you do have, consider how this capability can be leveraged to increase or improve hazard mitigation in the jurisdiction.

- **Adaptive Capacity for Climate Change Section of this Annex**—Consider your responses to this section. For those criterion that you listed as medium or low, think of ways you could improve this rating (see adaptive capacity portion of the mitigation best practices catalog). For those criterion you listed as high, think about how you can leverage this capacity to improve or enhance mitigation or continue to

improve this capacity. For those criterion that you were unable to provide responses for, consider ways you could improve your understanding of this capacity (see mitigation best practices).

- **Opportunities for Future Integration Section in this Annex**—Review the items you identified in this section. Consider an action that specifically says what the plan, code, ordinance etc. is and how it will be integrated.
- **Jurisdiction-Specific Vulnerabilities Section in this Annex—**Review the items that you have identified in this section and consider actions that will help reduce these vulnerabilities (see mitigation best practices catalog).
- **Mitigation Best Practices Catalog**—A catalog that includes FEMA and other agency identified best practices, steering committee and other stakeholder recommendations was developed as part of the plan development process and included in your tool kit. Review the catalog and identify those actions that your jurisdiction should consider including in its action plan.
- **Public Input**—Review input received during the process, specifically the public survey results included in your toolkit.
- **Prior Mitigation Planning Efforts**—If your jurisdiction participated in a previous hazard mitigation plan, please be sure to remember to include any actions that were identified as "carry over" actions. Once you have carried them over, return to the Status of Previous Actions table and record the new action number (see discussion below).

Be sure to consider the following factors in your selection of actions:

- Select actions that are consistent with the overall purpose, goals, and objectives of the hazard mitigation plan.
- Identify actions where benefits exceed costs.
- Include any action that your jurisdiction has committed to pursuing regardless of grant eligibility.
- Know what is and is not grant-eligible under the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) grants (see fact sheet provided in toolkit). If you have actions that are not HMGP, PDM or FMA 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.
- **You must identify at least one true mitigation action (i.e. not a preparedness or response action) that is clearly defined and actionable for hazards ranked as "high" or medium."**

Recommended Actions

We recommend that every planning partner strongly consider the following actions. The specifics of these actions should be adjusted as needed for the particulars of each jurisdiction. You will note that two of these actions have been prepopulated in your annex template. These two actions should be included in every annex and should not be removed.

- Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing structures that have experienced repetitive losses.
- Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.
- Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.
- Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.
- Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.
- Consider the development of a post-disaster recovery plan and a debris management plan.
- Develop and/or update plans that support or enhance continuity of operations following disasters.

- Identify and pursue strategies to increase adaptive capacity to climate change.

Complete the Table

Complete the table titled "Hazard Mitigation Action Plan Matrix" for all the actions you have identified and would like to include in the plan:

Action Item Numbering:

- Please use the following action item numbering conventions:
  - Dublin Unified School District: DUSD-1
  - Dublin San Ramon Services District: DSRSD-1
  - Livermore Valley Joint Unified School District: LVJUSD-1

- Enter the action number and description .
- Indicate whether the action mitigates hazards for new and/or existing assets.
- Identify the specific hazards the action will mitigate.
- Identify by number the mitigation plan objectives that the action addresses (see toolkit).
- Indicate who will be the lead in administering the action. This will most likely be a department within your jurisdiction (e.g. planning or public works). If you wish to indicate more than one department, please ensure that it is clear who the lead agency will be (i.e note with an *)
- Enter an estimated cost in dollars if known; otherwise, enter "High," "Medium" or "Low" as determined for the prioritization process described in the following section.
- Identify funding sources for the action. If it is a grant, include the funding sources for the cost share. Refer to your fiscal capability assessment to identify possible sources of funding and refer to the table below for project eligibility for FEMA's hazard mitigation assistance grant program.
- Indicate the time line as "short-term" (1 to 5 years) or "long-term" (5 years or greater) or ongoing (a continual program)

Eligible Activities	HMGP	PDM	FMA
Mitigation Projects			
Property Acquisition and Structure Demolition	√	√	√
Property Acquisition and Structure Relocation	√	√	√
Structure Elevation	√	√	√
Mitigation Reconstruction	√	√	√
Dry Floodproofing of Historic Residential Structures	√	√	√
Dry Floodproofing of Non-residential Structures	√	√	√
Generators	√	√	
Localized Flood Risk Reduction Projects	√	√	√
Non-Localized Flood Risk Reduction Projects	√	√	
Structural Retrofitting of Existing Buildings	√	√	√
Non-structural Retrofitting of Existing Buildings and Facilities	√	√	√
Safe Room Construction	√	√	
Wind Retrofit for One- and Two-Family Residences	√	√	
Infrastructure Retrofit	√	√	√
Soil Stabilization	√	√	√
Wildfire Mitigation	√	√	
Post-Disaster Code Enforcement	√		
Advance Assistance	√		
5 Percent Initiative Projects*	√		

Eligible Activities	HMGP	PDM	FMA
Aquifer and Storage Recovery**	√	√	√
Flood Diversion and Storage**	√	√	√
Floodplain and Stream Restoration**	√	√	√
Green Infrastructure**	√	√	√
Miscellaneous/Other**	√	√	√
Hazard Mitigation Planning	√	√	√
Technical Assistance			√
Management Costs	√	√	√

Notes: HMGP = Hazard Mitigation Grant Program; PDM = Pre-Disaster Mitigation; FMA = Flood Mitigation Assistance

* FEMA allows increasing the 5% Initiative amount up to 10% for a Presidential major disaster declaration under HMGP. The additional 5% Initiative funding can be used for activities that promote disaster-resistant codes for all hazards. As a condition of the award, either a disaster-resistant building code must be adopted or an improved Building Code Effectiveness Grading Schedule is required.

**Indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.

Source: https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart

Please see the table below for an examples of some of the recommended actions above:

Example Action Plan Matrix							
Applies to new or existing assets	**Hazards Mitigated**	**Objectives Met**	**Lead Agency**	**Support Agency**	**Estimated Cost**	**Sources of Funding**	**Timeline**
EX-1— Where appropriate, support retro-fitting, purchase or relocation of structures located in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Earthquake, Flood, Landslide, Severe weather, Wildfire	4, 6, 8, 10, 11, 12			High	HMGP, PDM, FMA	Short-term
EX-2—Integrate the hazard mitigation plan into other plans, ordinances and programs within the community.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11			Low	Staff Time, General Funds	Ongoing
EX-3—Develop and implement a program to capture perishable data after significant events (e.g. high water marks, preliminary damage estimates, damage photos) to support future mitigation efforts including the implementation and maintenance of the hazard mitigation plan.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 9	Emergency Management		Medium	Staff Time, General Funds	Short-term

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
EX-4—Support the County-wide initiatives identified in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-5—Actively participate in the plan maintenance protocols outlined in Volume I of the hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Lead Contact Department for Plan	Any Supporting Departments	Low	Staff Time, General Funds	Short-term
EX-6—Develop a post-disaster recovery plan and a debris management plan.							
Existing	All Hazards	6, 13	Emergency Management		Medium	EMPG	Long-term

Prioritization of Mitigation Actions

Complete the information in the table titled "Mitigation Strategy Priority Schedule" as follows:

- **Action #**—Indicate the action number from the previous annex table (Hazard Mitigation Action Plan Matrix).
- **# of Objectives Met**—Enter the number of objectives the action will meet.
- **Benefits**—Enter "High," "Medium" or "Low" as follows:

  - High: Action will have an immediate impact on the reduction of risk exposure to life and property.
  - Medium: Action will have a long-term impact on the reduction of risk exposure to life and property, or action 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.

- **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 action.
  - 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 action would have to be spread over multiple years.
  - Low: Possible to fund under existing budget. Action is or can be part of an existing ongoing program.

  If you know the estimated cost of a action 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 Action Grant-Eligible?**—Enter "Yes" or "No." Refer to the fact sheet on HMGP, PDM and FMA.
- **Can Action Be Funded Under Existing Program Budgets?**—Enter "Yes" or "No." In other words, is this action currently budgeted for, or would it require a new budget authorization or funding from another source such as grants?
- **Implementation Priority**— Enter "High," "Medium" or "Low" as follows:

  - High Priority—An action that meets multiple objectives, has benefits that exceed cost, has funding secured or is an ongoing action and meets eligibility requirements for a grant program. High priority actions can be completed in the short term (1 to 5 years). The key factors for high priority actions are that they have funding secured and can be completed in the short term.
  - Medium Priority—An action that meets multiple objectives, that has benefits that exceed costs, and for which funding has not yet been secured, but is eligible for funding. Action can be completed in the short term, once funding is secured. Medium priority actions will become high priority actions once funding is secured. The key factors for medium priority actions are that they are eligible for funding, but do not yet have funding secured, and they can be completed within the short term.
  - Low Priority—An action that will mitigate the risk of a hazard, that has benefits that do not exceed the costs or are difficult to quantify, for which funding has not been secured, that is not eligible for grant funding, and for which the time line for completion is long term (1 to 10 years). Low priority actions may be eligible for grant funding from other programs that have not yet been identified. Low priority actions are generally "blue-sky" or "wish-list." actions. Financing is unknown, and they can be completed over a long term.

- **Grant Pursuit Priority**— Enter "High," "Medium" or "Low" as follows:

  - High Priority—An action that has been identified as meeting grant eligibility requirements, assessed to have high benefits, is listed as high or medium priority, and where local funding options are unavailable or where dedicated funds could be utilized for actions that are not eligible for grant funding.
  - Medium Priority—An action that has been identified as meeting grant eligibility requirements, assessed to have medium or low benefits, is listed as medium or low priority, and where local funding options are unavailable.
  - Low Priority—An action that has not been identified as meeting grant eligibility requirements, or has low benefits.

This prioritization is a simple way to determine that your identified actions meet one of the primary objectives of the Disaster Mitigation Act. It is not the detailed benefit/cost analysis required for HMGP/PDM /FMA action grants. The prioritization will identify any actions whose probable benefits will not exceed the probable costs. Those actions identified as high-priority grant funding actions should be closely reviewed for consideration when grant funding opportunities arise.

Note: If a jurisdiction wishes to identify a action as high priority that is outside of the prioritization scheme for high priorities. A note indicting so should be inserted and a rationale should be provided.

Please see the example below based off the recommended actions:

Table 0-9. Mitigation Strategy Priority Schedule

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Action Grant-Eligible?	Can Action Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
EX-1	6	High	High	Yes	Yes	No	Medium	High
EX-2	6	Medium	Low	Yes	No	Yes	High	Low
EX-3	2	Low	Medium	No	No	Maybe	Low	Low
EX-4	12	Low	Low	Yes	No	Yes	High	Low
EX-5	12	Low	Low	Yes	No	Yes	High	Low
EX-8	4	Medium	Medium	Yes	Yes	No	Medium	High

Analysis of Mitigation Actions

Complete the table titled "Analysis of Mitigation Actions" summarizing the mitigation actions by hazard of concern and the following eight mitigation types. Please note that an action can be more than one mitigation type:

- **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 residents 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, wetland restoration and preservation, and green infrastructure.
- **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.
- **Climate Resilient**—Actions that incorporate methods to mitigate and/or adapt to the impacts of climate change. Includes aquifer storage and recovery activities, incorporating future conditions projections in project design or planning, or actions that specifically address jurisdiction-specific climate change risks, such as sea level rise or urban heat island effect.
- **Community Capacity Building**—Actions that increase or enhance local capabilities to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. Includes staff training, memorandums of understanding, development of plans and studies, and monitoring programs.

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

Please see the example below based off the recommended actions, but please note that these recommendations are heavy on generalized actions on the prevention spectrum and light in other areas and specificity. Planning partners should aim to identify at least one action in each category (although this is not required) and should make sure there is at least one action to address "high" ranked hazards:

Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
Dam Failure	EX-2, 3, 4, 5	EX-1	EX-4					EX-3, 4, 6
Drought	EX-2	EX-1	EX-4					EX-3, 4, 6
Earthquake	EX-2, 3, 4, 5	EX-1	EX-4					EX-3, 4, 6
Flood	EX-2, 3, 4, 5	EX-1	EX-4					EX-3, 4, 6
Landslide	EX-2, 3, 4, 5	EX-1	EX-4					EX-3, 4, 6
Severe weather	EX-2, 3, 4, 5	EX-1	EX-4		EX-6			EX-3, 4, 6
Wildfire	EX-2, 3, 4, 5	EX-1	EX-4					EX-3, 4, 6

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. Please note that this section is optional.

ADDITIONAL COMMENTS

Use this section to add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template. Please note that this section is optional.

REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

This section should describe what resources you used to complete the annex and how you used them. Several items are started for you, but please be sure to update and enhance any descriptions. This may seem trivial or unimportant, but it is a requirement to pass the state and FEMA review process.

NEXT STEPS

After all jurisdictions have submitted their annexes, the draft plan will be submitted for public comment. Following the public comment period and any revisions responsive to public comment, the plan will be submitted to the California Governor's Office of Emergency Services (Cal OES) for review. After their review and approval, Cal OES will submit the plan to FEMA Region IX for plan review and approval. At that point planning partners will be asked to begin making preparations to formally adopt the plan. Each participating planning partner must have the governing board of their jurisdiction adopt via resolution or ordinance. Once FEMA has

reviewed the plan and issued an approved pending adoption (APA) notice, planning partners will be asked to go forth and adopt the plan. Once adopted, planning partners will submit adoption information to Tetra Tech, who will submit the proof of adoption to FEMA. Once such adoption has been received, FEMA will issue final approval via a letter for those planning partners who have adopted the plan. It is very important to understand that approval is not final until proof of adoption has been received by FEMA and they have issued a letter specifically naming your jurisdiction. More information on the review and approval process, along with adoption support materials, will be provided at a later date.

1. DISTRICT NAME

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

Alternate Point of Contact
Name, Title
Street Address
City, State ZIP
Telephone: xxx-xxx-xxxx
e-mail Address: xxx@xxx.xxx

1.2 JURISDICTION PROFILE

1.2.1 Overview

Insert Narrative Profile Information, per Instructions. The __[name of adopting body]___ assumes responsibility for the adoption of this plan; __[name of oversight agency]__ will oversee its implementation.

For fire districts please be sure to include the following sentence (Non-fire Special Purpose Districts may delete the sentence):

The District participates/does not participate in the Public Protection Class Rating System and currently has a rating of #.

1.2.2 Service Area and Trends

The district serves a population of _ population_. Its service area covers an area of _area_.

Insert summary description of service trends.

1.2.3 Assets

Table 1-1 summarizes the critical assets of the district and their value.

Table 1-1. Special Purpose District Assets

Asset	Value
Property	
number acres of land	$_value_
Critical Infrastructure and Equipment	
description	$_value_
description	$_value_
description	$_value_
description	$_value_
description	$_value_
Total:	*$_value_*
Critical Facilities	
description	$_value_
description	$_value_
description	$_value_
description	$_value_
description	$_value_
description	$_value_
Total:	*$_value_*

1.3 CAPABILITY ASSESSMENT

Upon completion, the capability assessment was reviewed to identify opportunities to expand, initiate or integrate capabilities to further hazard mitigation goals and objectives. Where such opportunities were identified and determined to be feasible, they are included in the action plan and are identified as Community Capacity Building mitigation actions in the Analysis of Mitigation Actions table in Section 1.9.

1.3.1 Planning and Regulatory Capabilities

Jurisdictions develop plans and programs and implement rules and regulations to protect and serve residents. When effectively prepared and administered, these plans, programs and regulations can support the implementation of mitigation actions. Table 1-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

Table 1-2. Planning and Regulatory Capability

	Date of Most Recent Update	Comment
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____
Name of code, ordinance, policy, program or plan	____	____

1.3.2 Fiscal, Administrative and Technical Capabilities

Fiscal capability is an indicator of a jurisdiction's ability to fulfill the financial needs associated with hazard mitigation projects. An assessment of fiscal capabilities is presented in Table 1-3. Administrative and technical

capabilities represent a jurisdiction's staffing resources for carrying out the mitigation strategy. An assessment of administrative and technical capabilities is presented in Table 1-4.

Table 1-3. Fiscal Capability

Financial Resource	Accessible or Eligible to Use?
Capital Improvements Project Funding	Yes/No
Authority to Levy Taxes for Specific Purposes	Yes/No
User Fees for Water, Sewer, Gas or Electric Service	Yes/No
Incur Debt through General Obligation Bonds	Yes/No
Incur Debt through Special Tax Bonds	Yes/No
Incur Debt through Private Activity Bonds	Yes/No
State-Sponsored Grant Programs	Yes/No
Development Impact Fees for Homebuyers or Developers	Yes/No
Federal Grant Programs	Yes/No
Other	Yes/No (if yes, please specify)

Table 1-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes/No	Insert appropriate information
Engineers or professionals trained in building or infrastructure construction practices	Yes/No	Insert appropriate information
Planners or engineers with an understanding of natural hazards	Yes/No	Insert appropriate information
Staff with training in benefit/cost analysis	Yes/No	Insert appropriate information
Surveyors	Yes/No	Insert appropriate information
Personnel skilled or trained in GIS applications	Yes/No	Insert appropriate information
Scientist familiar with natural hazards in local area	Yes/No	Insert appropriate information
Emergency manager	Yes/No	Insert appropriate information
Grant writers	Yes/No	Insert appropriate information
Other	Yes/No	Insert appropriate information

1.3.3 Education and Outreach Capabilities

Outreach and education capability identifies the connection between government and community members, which opens a dialogue needed for a more resilient community. An assessment of education and outreach capabilities is presented in Table 1-5.

Table 1-5. Education and Outreach

Criterion	Response
Do you have a Public Information Officer or Communications Office?	Yes/No
Do you have personnel skilled or trained in website development?	Yes/No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe	Yes/No Insert appropriate information
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe	Yes/No Insert appropriate information

Criterion	Response
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly specify	Yes/No Insert appropriate information
Do you have any other programs already in place that could be used to communicate hazard-related information? • If yes, please briefly describe	Yes/No Insert appropriate information
Do you have any established warning systems for hazard events? • If yes, please briefly describe	Yes/No Insert appropriate information

1.3.4 Adaptive Capacity for Climate Change

Given the uncertainties associated with how hazard risk may change with a changing climate, a jurisdiction's ability to track such changes and adapt as needed is an important component of the mitigation strategy. Table 1-6 summarizes the District's adaptive capacity for climate change.

Table 1-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts	High/Medium/Low
Comment:	
Jurisdiction-level monitoring of climate change impacts	High/Medium/Low
Comment:	
Technical resources to assess proposed strategies for feasibility and externalities	High/Medium/Low
Comment:	
Jurisdiction-level capacity for development of greenhouse gas emissions inventory	High/Medium/Low
Comment:	
Capital planning and land use decisions informed by potential climate impacts	High/Medium/Low
Comment:	
Participation in regional groups addressing climate risks	High/Medium/Low
Comment:	
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes	High/Medium/Low
Comment:	
Identified strategies for greenhouse gas mitigation efforts	High/Medium/Low
Comment:	
Identified strategies for adaptation to impacts	High/Medium/Low
Comment:	
Champions for climate action in local government departments	High/Medium/Low
Comment:	
Political support for implementing climate change adaptation strategies	High/Medium/Low
Comment:	
Financial resources devoted to climate change adaptation	High/Medium/Low
Comment:	
Local authority over sectors likely to be negative impacted	High/Medium/Low
Comment:	

Criterion	Jurisdiction Rating[a]
Public Capacity	
Local residents knowledge of and understanding of climate risk	High/Medium/Low
Comment:	
Local residents support of adaptation efforts	High/Medium/Low
Comment:	
Local residents' capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local economy current capacity to adapt to climate impacts	High/Medium/Low
Comment:	
Local ecosystems capacity to adapt to climate impacts	High/Medium/Low
Comment:	

a. High = Capacity exists and is in use; Medium = Capacity may exist, but is not used or could use some improvement; Low = Capacity does not exist or could use substantial improvement; Unsure= Not enough information is known to assign a rating.

1.4 INTEGRATION WITH OTHER PLANNING INITIATIVES

The information on hazards, risk, vulnerability and mitigation contained in this hazard mitigation plan is based on the best available data. Plan integration is the incorporation of this information into other relevant planning mechanisms, such as general planning and capital facilities planning. It includes the integration of natural hazard information and mitigation policies, principles and actions into local planning mechanisms and vice versa. Additionally, plan integration is achieved though the involvement of key staff and community officials in collaboratively planning for hazard mitigation.

1.4.1 Existing Integration

In the performance period since adoption of the previous hazard mitigation plan, District Name made progress on integrating hazard mitigation goals, objectives and actions into other planning initiatives. The following plans and programs currently integrate components of the hazard mitigation strategy:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

Resources listed in Section 1.12 were used to provide information on hazard events and local capabilities within the jurisdiction.

1.4.2 Opportunities for Future Integration

As this hazard mitigation plan is implemented, District Name will use information from the plan as the best available science and data on natural hazards. The capability assessment presented in this annex identifies codes, plans and programs that provide opportunities for integration. The area-wide and local action plans developed for this hazard mitigation plan include actions related to plan integration, and progress on these actions will be reported through the progress reporting process described in Volume 1. New opportunities for integration also will be identified as part of the annual progress report. The capability assessment identified the following plans and programs that do not currently integrate goals or recommendations of the hazard mitigation plan but provide opportunities to do so in the future:

- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description
- **Plan or Program Name**—Description

1.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-7 lists past occurrences of natural hazards for which specific damage was recorded in District Name. Other hazard events that broadly affected the entire planning area, including District Name, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 1-7. Natural Hazard Events

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____
Insert event type	_____	Date	$_____

1.6 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this hazard mitigation plan provides complete risk assessments for each identified hazard of concern. Noted vulnerabilities within the district include the following:

- Insert as appropriate.
- Insert as appropriate.
- Insert as appropriate.

1.7 HAZARD RISK RANKING

Table 1-8 presents a local ranking for District Name of all hazards of concern for which Volume 1 of this hazard mitigation plan provides complete risk assessments. This ranking summarizes how hazards vary for this jurisdiction. As described in detail in Volume 1, the ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property and the economy.

Table 1-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	_____	_____	High/Medium/Low
2	_____	_____	High/Medium/Low
3	_____	_____	High/Medium/Low
4	_____	_____	High/Medium/Low
5	_____	_____	High/Medium/Low
6	_____	_____	High/Medium/Low
7	_____	_____	High/Medium/Low
8	_____	_____	High/Medium/Low
9	_____	_____	High/Medium/Low

a. Based on the "Haywired" (Hayward Fault Scenario M7.05)
b. Severe weather is assessed more qualitatively than other hazards. Assumptions for risk ranking include high probability, medium impact on people, medium impact on property and low impact on economy.
c. Based on Very High and High Fire Severity Zones.
d. Based on 1 percent-annual-chance flood zone (otherwise known as the special flood hazard area)
e. Based on Very High, High, and Moderate Landslide Susceptibility Zones
f. Drought is assessed more qualitatively than other hazards. Generally, drought does not cause injury or death to people or result in property damage. Assumptions for risk ranking include high probability, no impact on people, low impact on property and low impact on economy for those jurisdictions with limited agriculture.
g. Based on the Del Valle Dam inundation scenario.

1.8 STATUS OF PREVIOUS PLAN ACTIONS

Table 1-9 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Table 1-9. Status of Previous Plan Actions

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#
Insert Action Text *Comment:*				Action#

Action Item	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Enter Action #
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				
Insert Action Text				Action#
Comment:				

1.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 1-10 lists the actions that make up the District Name hazard mitigation action plan. Table 1-11 identifies the priority for each action. Table 1-12 summarizes the mitigation actions by hazard of concern and mitigation type.

Table 1-10. Hazard Mitigation Action Plan Matrix

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline
Action #—Where appropriate, support retrofitting or relocation of structures in high hazard areas, prioritizing structures that have experienced repetitive losses.							
Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 6, 8, 10, 11	TBD	TBD	High	HMGP, PDM, FMA	Short-term
Action #—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.							
New and Existing	Dam failure, Drought, Earthquake, Flood, Landslide, Severe weather, Wildfire	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	TBD	TBD	Low	Staff Time, General Funds	Short-term
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							
Action #—Description							

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

Table 1-11. Mitigation Action Priority

Action #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Implementation Priority[a]	Grant Pursuit Priority[a]
TBD	6	High	High	Yes	Yes	No	Medium	High
TBD	12	Low	Low	Yes	No	Yes	High	Low

a. See the introduction to this volume for explanation of priorities.

Table 1-12. Analysis of Mitigation Actions

Hazard Type	Action Addressing Hazard, by Mitigation Type[a]							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								
_____								

a. See the introduction to this volume for explanation of mitigation types.

1.10 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Insert text, if any; otherwise, delete section

1.11 ADDITIONAL COMMENTS

Insert text, if any; otherwise, delete section

1.12 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

The following technical reports, plans, and regulatory mechanisms were reviewed to provide information for this annex.

- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- <INSERT PLAN/PROGRAM AND DESCRIPTION OF HOW IT WAS USED>
- **Hazard Mitigation Plan Annex Development Tool-kit**—The tool-kit was used to support the development of this annex including past hazard events, noted vulnerabilities, risk ranking and action development.