

**RESOLUTION NO. 2018/24**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ANTIOCH  
AUTHORIZING THE ADOPTION OF THE CONTRA COSTA COUNTY  
OPERATIONAL AREA HAZARD MITIGATION PLAN UPDATE  
(PW 705)**

**WHEREAS**, all of Contra Costa County has exposure to natural hazards that increase the risk to life, property, environment and the County's economy; and

**WHEREAS**; pro-active mitigation of known hazards before a disaster event can reduce or eliminate long-term risk to life and property; and

**WHEREAS**, The Disaster Mitigation Act of 2000 (Public Law 106-390) established new requirements for pre- and post-disaster hazard mitigation programs; and

**WHEREAS**; a coalition of Contra Costa County, Cities, Towns and Special Districts with like planning objectives has been formed to pool resources and create consistent mitigation strategies within the Contra Costa County Operational Area planning area; and

**WHEREAS**, the coalition has completed a planning process that engages the public, assesses the risk and vulnerability to the impacts of natural hazards, develops a mitigation strategy consistent with a set of uniform goals and objectives, and creates a plan for implementing, evaluating and revising this strategy;

**NOW THEREFORE, BE IT RESOLVED** by the City Council of the City of Antioch that it does hereby authorize and approve:

- 1.) Adopts in its entirety, Volume I and the introduction and chapter 2 - the City of Antioch jurisdictional annex (Exhibit "A"), and the appendices of Volume II of the Contra Costa County Operational Area Hazard Mitigation Plan (HMP).
- 2.) Will use the adopted and approved portions of the HMP to guide pre- and post-disaster mitigation of the hazards identified.
- 3.) Will coordinate the strategies identified in the HMP with other planning programs and mechanisms under its jurisdictional authority.
- 4.) Will continue its support of the Steering Committee and continue to participate in the Planning Partnership as described by the HMP.
- 5.) Will help to promote and support the mitigation successes of all HMP Planning Partners.

\* \* \* \* \*

**I HEREBY CERTIFY** that the foregoing resolution was adopted by the City Council of the City of Antioch at a regular meeting thereof held on the 27<sup>th</sup> day of February 2018, by the following vote:

**AYES:** Council Members Wilson, Tiscareno, Ogorchock and Mayor Pro Tem Thorpe

**NOES:** None

**ABSENT:** Mayor Wright

**ABSTAIN:** None



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**ARNE SIMONSEN, CMC**  
**CITY CLERK OF THE CITY OF ANTIOCH**

**Exhibit "A"**

**Introduction to Volume II and the Antioch Jurisdictional Annexation  
of the Contra Costa County Operational Area Hazard Mitigation Plan  
Update**

INTRODUCTION

BACKGROUND

The purpose of this document is to provide an overview of the Antioch Jurisdictional Annexation of the Contra Costa County Operational Area Hazard Mitigation Plan Update. This document is intended to provide information to the public regarding the process and the results of the annexation. The annexation is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The annexation is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The annexation is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update.

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THE PLANNING PARTNERSHIP

The planning partnership is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The planning partnership is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The planning partnership is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The planning partnership is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update. The planning partnership is a result of the Antioch City Council's decision to annex the area of the Operational Area Hazard Mitigation Plan Update.

# INTRODUCTION

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## 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 Contra Costa County 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 (cities, towns and the County)
- 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. A kickoff meeting was held on December 2, 2015 to identify potential stakeholders and planning partners for this process. The purpose of the meeting was to introduce the planning process to jurisdictions in the County that could have a stake in the outcome of the planning effort. All eligible local governments, including prior and potential planning partners, within the planning area were invited to attend. The goals of the meeting were as follows:

- Provide an overview of the Disaster Mitigation Act.
- Review the 2011 Plan and Planning Partnership
- Outline the work plan for this hazard mitigation plan.



- Describe the benefits of multi-jurisdictional planning.
- Outline planning partner expectations.
- Solicit planning partners.
- Solicit volunteers/recommendations for the steering committee.

From these initial efforts, 48 interested local governments were provided with a list of planning partner expectations developed by the planning team and were informed of the obligations required for participation. Local governments wishing to join the planning effort were asked to provide the planning team with a “notice of intent to participate” that agreed to the planning partner expectations (see Appendix A) and designated a point of contact for their jurisdiction. In all, the planning team received formal commitment from 39 planning partners. Four of these commitments were from new planning partners that did not participate in the 2011 planning effort (Contra Costa Water District, Crockett Community Services District, San Ramon Valley Unified School District and San Ramon Geologic Abatement District). Of these new planning partners, only Contra Costa Water District was covered by a prior hazard mitigation plan. Contra Costa Water District was a participant in the 2011 regional planning effort sponsored by the Association of Bay Area Governments (ABAG). Maps for each participating city are provided in the individual annex for that city in this volume. Maps showing the location of participating special purpose districts by district type are provided at the end of this introduction.

## Planning Partner Expectations

The planning team developed the following list of planning partner expectations, which were confirmed at the kickoff meeting held on December 2, 2015 (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.
- Participate in the critical facility update.
- Complete the jurisdictional annex template:
  - Attend the mandatory workshop.
  - Perform a capability assessment.
  - Review the risk assessment.
  - Review county-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. Each partner was asked to participate in a technical assistance workshop during which key elements of the template were discussed and subsequently completed by a designated point of contact for each partner and a member of the planning team. The templates were set up to lead each partner through a series of steps that would generate the DMA-required elements that are specific for each partner. The templates and their instructions can be found in Appendix C to this volume.

### Workshop

Workshops were held for Planning Partners to address the following topics:

- DMA
- Local plan background
- Mitigation defined
- Local plan guiding principle, goals and objectives
- The templates and the tool kit
- Risk ranking
- Developing your action plan
- Cost/benefit review
- Prioritization protocol
- Next steps.

Four sessions were held, two each on June 7, 2017 and June 14, 2017, to ensure that representatives from all planning partners would be able to attend. The sessions provided technical assistance and an overview of the template completion process. Attendance at this workshop was mandatory under the planning partner expectations established by the Steering Committee. There was 90-percent attendance of the partnership at these sessions.

In the risk-ranking exercise, each planning partner was asked to 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 countywide 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" 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 "medium" or "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, which were used during the workshops and in follow-up work conducted by the planning partners, contained the following:

- The 2011 Contra Costa County Hazard Mitigation Plan and Association of Bay Area Governments Plan
- A catalog of mitigation best practices
- The guiding principle, 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
- Special district boundary maps showing the sphere of influence for each special purpose district partner
- The risk assessment results developed for this plan
- Information on climate change and expected impacts in the planning area
- 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
- A copy of the presentation that was given at the workshop sessions.

A large portion of the workshop focused on how the tool kit should be used to develop the mitigation action plan. Planning partners were specifically 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; also reviewed to determine how existing capabilities can be leveraged to increase or improve hazard mitigation in the jurisdiction.
- **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**—Action meets multiple objectives, has benefits that exceed cost, has funding secured or is an ongoing project, 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 initiatives are that they have funding secured and can be completed in the short term.

- **Medium Priority**—Action meets multiple objectives, has benefits that exceed costs, and does not have funding 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 that they can be completed in the short term.
  - **Low Priority**—Action mitigates the risk of a hazard, has benefits that do not exceed the costs or are difficult to quantify, does not have funding secured and is not eligible for grant funding, and has a long-term timeline for completion (1 to 10 years). Low-priority initiatives may be eligible for grant funding from programs that have not yet been identified.
- Grant pursuit priority
    - **High Priority**—Action meets grant eligibility requirements, has high benefits, and is listed as high or medium priority. Local funding options are unavailable or available local funds for the action could instead be used for projects that are not eligible for grant funding.
    - **Medium Priority**—Action meets grant eligibility requirements, has medium or low benefits, is listed as medium or low priority. Local funding options are unavailable.
    - **Low Priority**—Action does not meet grant eligibility requirements or has low benefits.

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 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 48 initially identified potential planning partners, 37 were covered by prior plans approved by FEMA, with more than 500 cumulative mitigation actions identified in their plans. Of these, seven were covered under a 2010 planning effort by ABAG, and the balance were covered under the 2011 Contra Costa County Hazard Mitigation Plan. Table 1 lists all the initial partners and the role this multi-jurisdictional plan will play in achieving compliance and the CRS status, if applicable.

## **FINAL COVERAGE UNDER THE PLAN**

Of the 39 planning partners that submitted letters of intent to participate, 35 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 following the workshops. Only the 35 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. Table 2 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.



**Table 1. Prior Plan Status**

	FEMA Approval Date	Will Be Covered by this Multi-Jurisdictional Hazard Mitigation Plan? (Yes/No)	CRS Community (Yes/No)	Multi-Jurisdictional Hazard Mitigation Plan Will Become CRS Plan of Record?(Yes/No)
Contra Costa County	6/28/2011	Yes	Yes	Yes
City of Antioch	11/27/2012	Yes	No	No
City of Brentwood	Not available	Yes	No	No
City of Concord	3/13/2012 <sup>a</sup>	Yes	Yes	Yes
Town of Danville	7/19/2011	Yes	No	No
City of El Cerrito	11/8/2011	Yes	No	No
City of Lafayette	2/27/2012 <sup>a</sup>	Yes	No	No
City of Martinez	9/21/2011	Yes	No	No
Town of Moraga	1/11/2012 <sup>a</sup>	Yes	No	No
City of Orinda	9/6/2011 <sup>a</sup>	Yes	No	No
City of Pinole	9/20/2011	No	No	No
City of Pleasant Hill	7/6/2012	Yes	Yes	Yes
City of Richmond	11/1/2011	Yes	No	No
City of San Pablo	2/6/2012 <sup>a</sup>	Yes	Yes	Yes
City of San Ramon	6/28/2011	Yes	Yes	Yes
City of Walnut Creek	9/20/2011	Yes	Yes	Yes
Antioch Unified School District	8/10/2011	Yes	N/A	N/A
Bethel Island Municipal Improvement District	7/21/2011	Yes	N/A	N/A
Brentwood Union School District	Not available	No	N/A	N/A
Canyon Elementary School District	Not available	No	N/A	N/A
Contra Costa Community College District	6/27/2012	No	N/A	N/A
Contra Costa County Fire Protection District	2/14/2012	Yes	N/A	N/A
Contra Costa Flood Control and Water Conservation District	6/28/2011	Yes	N/A	N/A
Contra Costa County Office of Education	8/17/2011	Yes	N/A	N/A
Contra Costa County Sheriff's Search and Rescue	N/A	No	N/A	N/A
Contra Costa Water District	5/18/2011 <sup>a</sup>	Yes	N/A	N/A
Central Contra Costa Sanitary District	8/4/2011	Yes	N/A	N/A
Crockett Community Services District	Not available	Yes	N/A	N/A
Delta Diablo	10/12/2011	Yes	N/A	N/A
Diablo Water District	Not available	Yes	N/A	N/A
Dublin San Ramon Services District	Not available	No	N/A	N/A
East Contra Costa Fire Protection District	10/3/2011	No	N/A	N/A
Eastern Contra Costa Transit Authority (Tri Delta Transit)	Not available	Yes	N/A	N/A
Ironhouse Sanitary District	2/7/2012	Yes	N/A	N/A
Kensington Fire Protection District	1/11/2012	Yes	N/A	N/A
Kensington Police Protection and Community Service District	7/14/2011	Yes	N/A	N/A

	FEMA Approval Date	Will Be Covered by this Multi-Jurisdictional Hazard Mitigation Plan? (Yes/No)	CRS Community (Yes/No)	Multi-Jurisdictional Hazard Mitigation Plan Will Become CRS Plan of Record?(Yes/No)
Knightsen Community Services District	5/19/2011	No	N/A	N/A
Liberty Union High School District	9/14/2011	No	N/A	N/A
Mount Diablo Unified School District	Not available	No	N/A	N/A
Pleasant Hill Recreation and Park District	7/13/2011	Yes	N/A	N/A
Reclamation District 800 (Byron Tract)	10/4/2011	No	N/A	N/A
Reclamation District 830 (Jersey Island)	1/13/2012	Yes	N/A	N/A
Rodeo-Hercules Fire Protection District	8/24/2011	No	N/A	N/A
San Ramon Geological Hazard Abatement District	Not available	Yes	N/A	N/A
San Ramon Valley Fire Protection District	3/28/2012	Yes	N/A	N/A
San Ramon Valley Unified School District	Not available	Yes	N/A	N/A
Walnut Creek School District	9/19/2011	No	N/A	N/A
West Contra Costa Unified School District	9/21/2011	Yes	N/A	N/A

- a. Jurisdiction covered under 2010 ABAG Local Hazard Mitigation Plan. Date listed indicates date of adoption; FEMA approval date is not available.



**Table 2. Planning Partner Status**












	Letter of Intent Date	Attended Workshop?	Completed Template?	Covered by This Plan?
<b>Municipalities</b>				
City of Antioch	1/21/2016	Yes	Yes	Yes
City of Brentwood	1/11/2016	Yes	Yes	Yes
City of Concord	1/14/2016	Yes	Yes	Yes
Town of Danville	12/8/2015	Yes	Yes	Yes
City of El Cerrito	11/10/2016	Yes	Yes	Yes
City of Lafayette	2/9/2017	Yes	Yes	Yes
City of Martinez	11/10/2016	Yes	Yes	Yes
Town of Moraga	1/13/2016	Yes	Yes	Yes
City of Orinda	2/8/2017	Yes	Yes	Yes
City of Pleasant Hill	1/27/16	No <sup>a</sup>	Yes	Yes
City of Richmond	2/8/2016	Yes	Yes	Yes
City of San Pablo	1/20/2016	Yes	Yes	Yes
City of San Ramon	1/29/2016	Yes	Yes	Yes
City of Walnut Creek	11/10/2016	Yes	Yes	Yes
Contra Costa County	1/25/2016	Yes	Yes	Yes
<b>Fire Districts</b>				
Contra Costa County Fire Protection District	11/10/2016	Yes	Yes	Yes
Kensington Fire Protection District	11/16/2016	Yes	Yes	Yes
Moraga-Orinda Fire Protection District	1/27/2016	No	No	No
Rodeo-Hercules Fire Protection District	11/10/2016	No	No	No
San Ramon Valley Fire Protection District	1/26/2016	Yes	Yes	Yes
<b>School Districts</b>				
Antioch Unified School District	1/14/2016	Yes	Yes	Yes
Contra Costa County Office of Education	1/29/2016	Yes	Yes	Yes
San Ramon Valley Unified School District	12/20/2016	Yes	Yes	Yes
West Contra Costa Unified School District	1/26/2016	Yes	Yes	Yes
<b>Water, Sewer and Utility Districts</b>				
Central Contra Costa County Sanitary District	1/12/2016	Yes	Yes	Yes
Contra Costa Water District	12/2/2016	Yes	Yes	Yes
Delta Diablo	1/18/2016	Yes	Yes	Yes
Diablo Water District	1/15/2016	Yes	Yes	Yes
Dublin San Ramon Services District <sup>b</sup>	2/22/2016	No	No	No
Ironhouse Sanitary District	12/16/2015	Yes	Yes	Yes
<b>Other Districts</b>				
Bethel Island Municipal Improvement District	1/27/2016	Yes	Yes	Yes
Contra Costa County Flood Control and Water Conservation District	2/11/2016	Yes	Yes	Yes
Crockett Community Services District	11/22/2016	Yes	Yes	Yes
Eastern Contra Costa County Transit Authority	12/7/2015	Yes	Yes	Yes
Kensington Police Protection and Community Services District	1/29/2016	Yes	Yes	Yes
Pleasant Hill Recreation and Park District	1/11/2016	Yes	Yes	Yes
Reclamation District 800	1/14/2016	No	No	No
Reclamation District 830	12/16/2015	Yes	Yes	Yes
San Ramon Geological Hazard Abatement District	11/10/2016	Yes	Yes	Yes

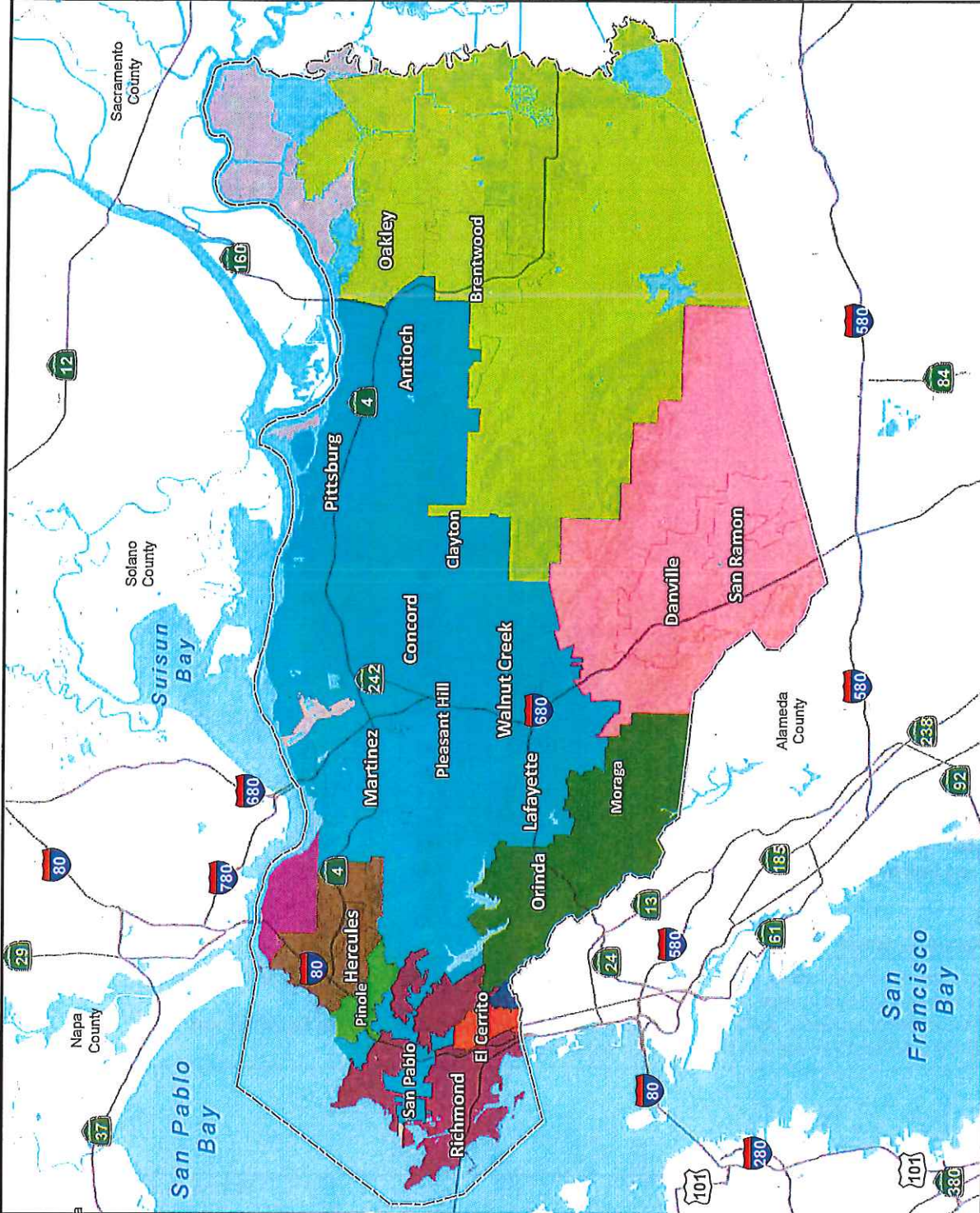
- a. Due to staffing shortages and vacation schedules, a representative from the City of Pleasant Hill was unable to attend the workshops. One-on-one assistance was provided by a member of the planning team.
- b. Dublin San Ramon Services District suspended participation in this planning effort after the Tri-Valley Planning Partnership was formed. A greater portion of the District's service area lies within the planning area for the Tri-Valley effort.






# Contra Costa County

## Fire Protection Districts

	Contra Costa Fire Protection District
	Crockett-Carquinez Fire Protection District
	East Contra Costa Fire Protection District
	City of El Cerrito Fire Department
	Kensington Fire Protection District
	Moraga-Orinda Fire Protection District
	Pinole Fire Protection District
	Richmond Fire Protection District
	Rodeo-Hercules Fire Protection District
	San Ramon Valley Fire Protection District
	No District






















Map Data Sources: Contra Costa County, Caltrans, USDA

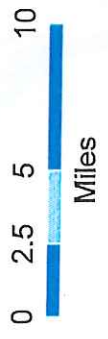
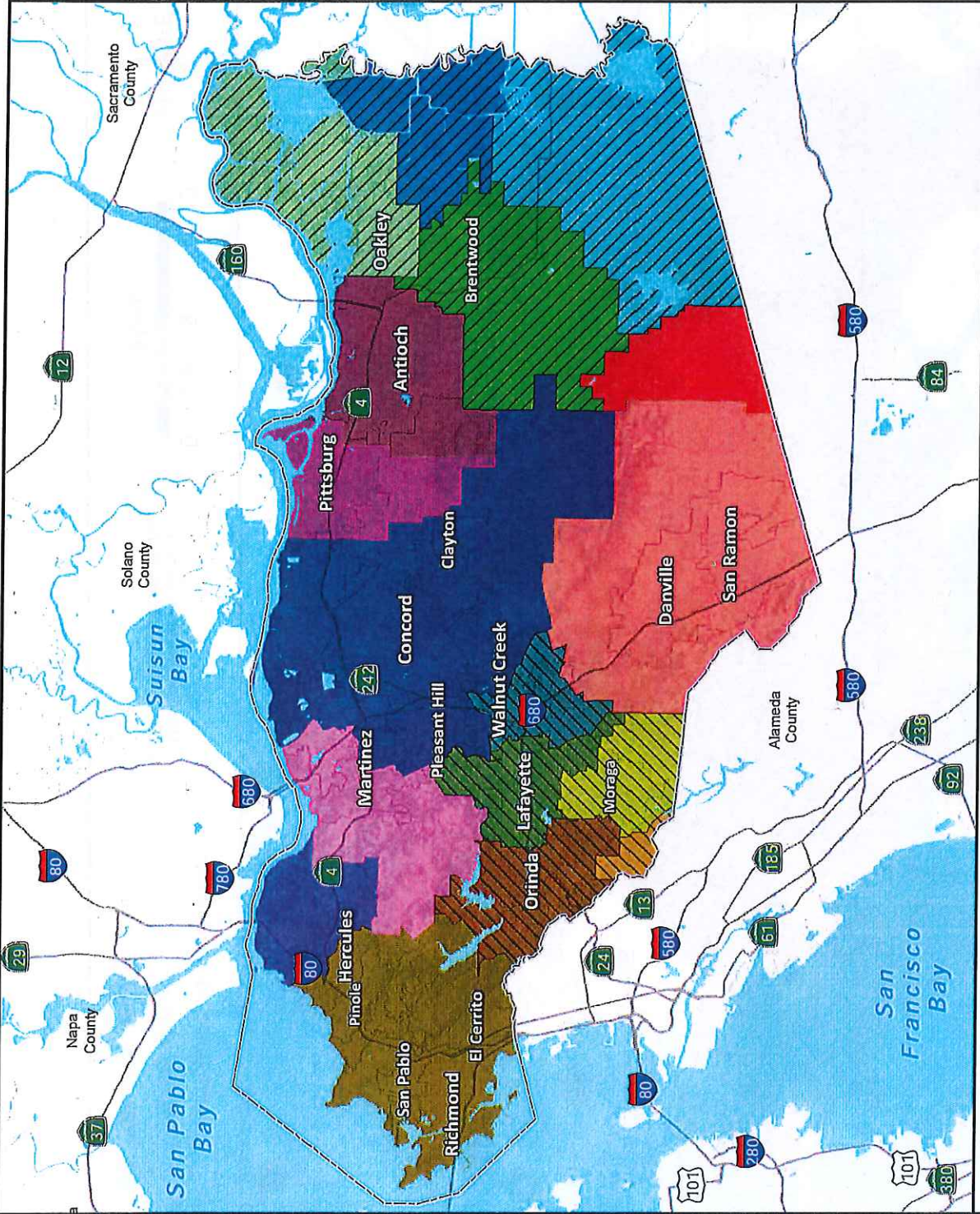
-  Contra Costa County Boundary
-  City Boundaries
-  Water Bodies & Channels



# Contra Costa County

## School Districts

-  Acalanes Union High School District
-  Liberty Union High School District
-  Antioch Unified School District
-  Brentwood Union Elementary School District
-  Byron Union Elementary School District
-  Canyon Elementary School District
-  John Swett Unified School District
-  Knightsen Elementary School District
-  Lafayette Elementary School District
-  Livermore Valley Unified School District
-  Martinez Unified School District
-  Moraga Elementary School District
-  Mt. Diablo Unified School District
-  Oakley Union Elementary School District
-  Orinda Union Elementary School District
-  Pittsburg Unified School District
-  San Ramon Valley Unified School District
-  Walnut Creek Elementary School District
-  West Contra Costa Unified School District



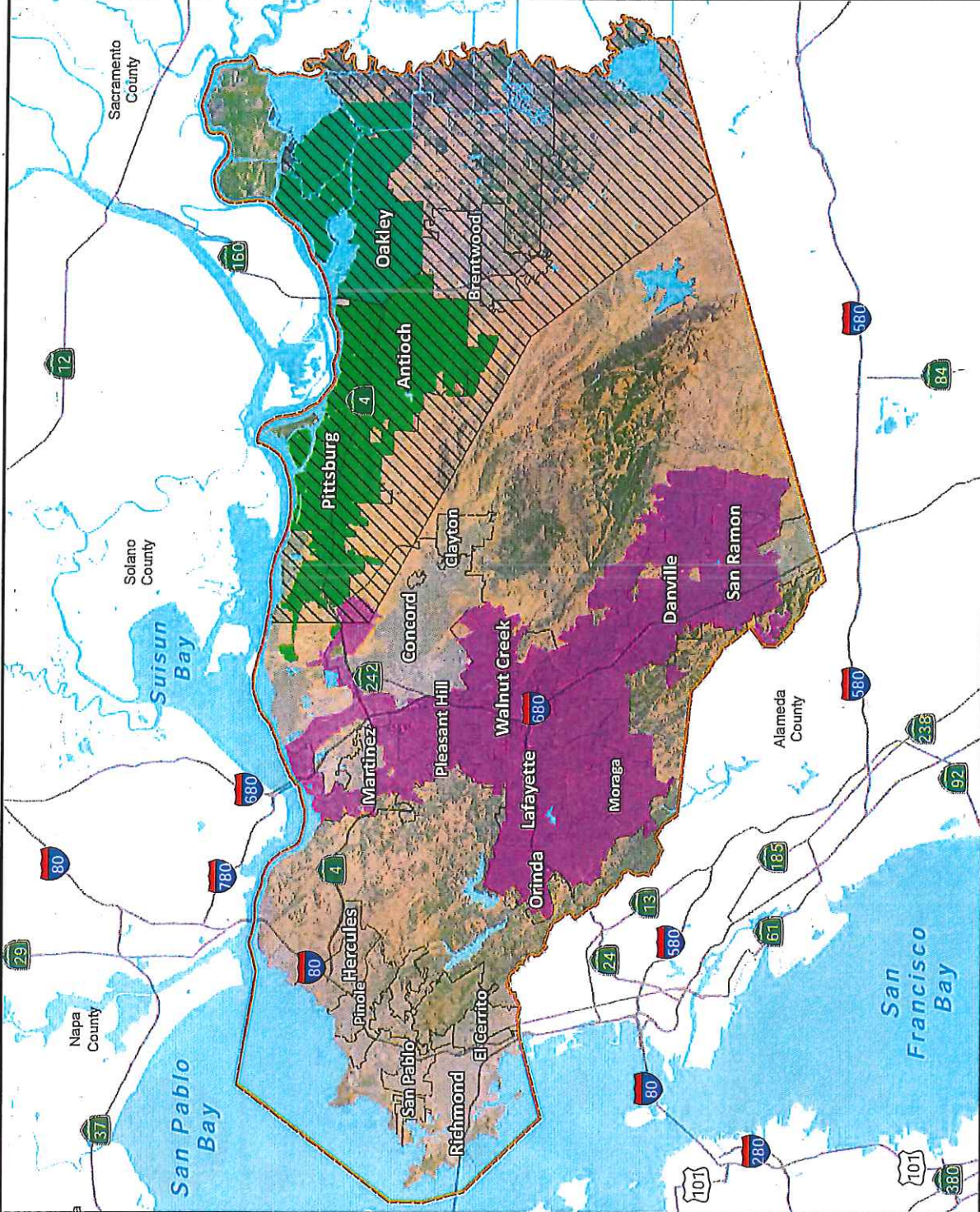
Map Data Sources: Contra Costa County, Caltrans, USDA



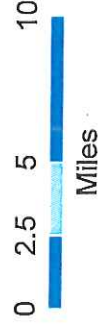


# Contra Costa County Education, Sanitation & Transit Districts

- Contra Costa County Office of Education
- TriDelta Transit Service Area
- Central Contra Costa Sanitary District
- Delta Diablo Sanitation District
- Ironhouse Sanitary District



TETRA TECH



- Contra Costa County Boundary
- City Boundaries
- Water Bodies & Channels

Map Data Sources: Contra  
Costa County, Caltrans, USDA







## 2. CITY OF ANTIOCH

### 2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

#### Primary Point of Contact

Lynne Filson  
Assistant City Engineer II  
200 H Street  
Antioch, CA 94509  
Telephone: 925-779-7025  
e-mail Address: lfilson@ci.antioch.ca.us

#### Alternate Point of Contact

Julie Haas-Wajdowicz  
Environmental Resource Coordinator  
200 H Street  
Antioch, CA 94509  
Telephone: 925-779-7097  
e-mail Address: jhaaswajdowicz@ci.antioch.ca.us

### 2.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—February 6, 1872
- **Current Population**—114,241 as of January 1, 2017 (California Department of Finance, 2017)
- **Population Growth**—Based upon U.S. Census and California Department of Finance data, City of Antioch's population growth rates have slowed significantly since the 2000 – 2010 Census. Overall population growth in that decade was 13.1 percent. From 2010 to 2017, however, growth slowed to 0.11 percent, and between January 1, 2016 and January 1, 2017 the annual increase was 0.7 percent.
- **Location and Description**—Antioch is a city in the East Bay region of the San Francisco Bay area at the confluence of the Sacramento and San Joaquin Rivers, at the gateway to the agriculturally rich San Joaquin Delta. The city is slightly more than 50 miles east of San Francisco and 55 miles southwest of Sacramento (at 38°00'N, 121°48'21"W). The City has a total area of 28.16 square miles.

Antioch is home to 31 parks covering 310 acres, with an additional 600 acres of City-owned open space. It has 11 miles of walking paths connecting communities to parks and schools. Within its boundaries, Antioch has Contra Loma Regional Park, the Antioch/Oakley Regional Shoreline and a portion of the Black Diamond Mines Regional Park, and the Mokelumne Coast to Crest Trail and Delta De Anza Regional Trail. These three parks cover 6,493 acres; approximately 38 percent of Antioch's total area. Just outside Antioch's city limit is the 2,024-acre Round Valley Regional Preserve. In addition, established in 1980, the Antioch Dunes National Wildlife Refuge was the first national wildlife refuge in the country established for the purpose of protecting endangered plants and insects. It is located on the south shore of the San Joaquin River in Antioch.

- **Brief History**—In 1849, the town was founded by brothers William and Joseph Smith, who named the town Smith's Landing. On February 5, 1850, Joseph Smith died of malaria and his brother moved to a higher ground overlooking the river. On July 4, 1851, William Smith held a picnic for the town residents on the bluff near his home. They discussed naming the community and Smith finally suggested the biblical name of Antioch, a town in Syria where the Christians were first named. Antioch was the name chosen and dedicated to the memory of Joseph. Around 1859, coal was discovered in the hills south of



Antioch, and coal mining formed the first substantial business in the area apart from farming and dairying. In 1872, Antioch incorporated as a General Law city. The town continued to prosper into the 1900s, becoming a “blue collar” factory community also supporting a fishing and commercial boating industry. In the latter part of the 1900s, as the factories began to close or move elsewhere, Antioch began to take on a new look. Today, Antioch is mainly a “bedroom” community, with most adults working in central Contra Costa County and larger cities toward Oakland and San Francisco. The City has seen an enormous amount of growth in the last 25 years as the population of the greater Bay Area grew. The City will continue to grow as real estate prices force families to move toward the suburbs.

- **Climate**—The climate is mild, with annual temperatures ranging between a high of 96°F and a low of 34°F. Humidity levels are generally low and the City’s riverfront location often provides cooling breezes. Annual rainfall is just over 15.4 inches, the majority of which falls between October and May. Average annual snowfall is essentially zero.
- **Governing Body Format**—The City of Antioch has a Council/Manager form of government. Policy making and legislative authority is vested in a five-member City Council consisting of a Mayor and four Council Members. The four Council Members are elected to four-year overlapping terms. The Mayor is directly elected to a four-year term. The City Council assumes responsibility for adoption of this plan, and the City Manager will oversee its implementation.

The City Council presides over and adopts the City’s annual budget and financial affairs; appoints commissions and committees; and hires and supervises the City Manager and City Attorney. City Council members are directly responsible for service to the citizens, businesses and policies of the City. The City Manager advises City Council; supervises personnel and all City departments; enforces ordinances and programs approved by City Council; and, oversees day-to-day city government operations.

## 2.3 DEVELOPMENT TRENDS

Over the last few years, the City of Antioch has been recovering from the crash of the housing market and the great recession. The pace of residential development in the Bay Area and the State has continued to show consistent positive growth, with generally positive results for local economies reliant on housing construction. Antioch’s economy has not seen the same level of growth from the housing market increase as some of our neighboring communities. The focus of development since 2003 has been primarily commercial development. The new office, commercial and flex-space developments have created the opportunity for well over 5,000 new jobs within the City. Over time new jobs will lead to growth in the local economy. The recent Northeast Annexation of some-750 acres has created the opportunity for waterfront development for the properties that front the San Joaquin River. The property is mixed-use commercial, industrial, retail and residential.

A rise in the housing market and a significantly better economy have contributed to economic expansion and vitality. Even with the improved economy, Antioch has suffered from a low number of sworn police officers. In November 2013, the community passed Measure C, a ½ cent sales tax increase, which the City Council dedicated 100 percent to increasing our Police Department and Code Enforcement budgets. This prioritization of public safety and health enabled the City to hire more police officers and code enforcement staff. The results have been a decrease in the crime rate; reduced response times; and, increases in code enforcement and cleanup activities. In 2014, the community passed Measure O to ensure that residential landlords paid a fair business license tax. This revenue has been used to improve City hours of operation and reduce the City’s budget deficit.

In spite of increased revenues, the City maintains a focus on continuing to find ways to improve efficiency, seek new ideas for savings and revenue generation, and continue with economic development.

Of significant community and economic value to Antioch are recent completion of the widening State Highway 4 from Loveridge Road to Hillcrest Avenue; completion of the Highway 4/Highway 160 interchange; and, the soon



to be completed Hillcrest eBART station, which will connect Antioch and East Contra Costa County with the Pittsburg/Bay Point BART Station. The recently completed Antioch Community Center at the Prewett Family Park has been a well-received amenity for the community and southeast Antioch. The City Council has other projects and plans that will enrich the City and make Antioch an even better place to live, work and play. In striving to continue positive “development trends,” the following projects will be of focus:

- Complete the Downtown Specific Plan to revitalize the Rivertown area.
- Bring a well-established restaurant to the Antioch Marina.
- Revitalize the Amtrak station and surrounding area.
- Establish a water transit system.
- Protect the City’s water rights from state proposals.
- Initiate long-term infrastructure planning.
- Seek grants as possible alternative funding for City projects.
- Remain committed to construction of a full-scale library facility at Prewett Park.

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

**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  Approximately 759 acres of mixed-use county unincorporated real property has recently been annexed to the City of Antioch. Planning is in its earliest stages for this new property. Approximately 144 parcel.																								
Is your jurisdiction expected to annex any areas during the performance period of this plan?	No																								
Are any areas targeted for development or major redevelopment in the next five years? • If yes, please briefly describe	Yes  <ul style="list-style-type: none"> <li>• Sand Creek Focus Area—2783 Acres, 4000 Residential Units</li> <li>• East Lone Tree Area—approx. 800 Acres, 241.3 Acres residential, 98.3 Employment, 113.2 Acres Retail, 11.3 Acres School, 10.7 Public Facilities, remaining acreage parks, open space, roads</li> <li>• Hillcrest Station Area—Transit Oriented Development, Mixed Use -- Max 2,500 residential units</li> </ul> Portions of these areas are in known hazard areas. Development will mitigate or avoid hazard areas.																								
How many building permits for new construction were issued in your jurisdiction since the development of the previous hazard mitigation plan?	<table border="1"> <thead> <tr> <th></th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>Single Family</td> <td>263</td> <td>240</td> <td>83</td> <td>68</td> <td>42</td> </tr> <tr> <td>Multi-Family</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1<sup>a</sup></td> </tr> <tr> <td>Other (commercial, mixed use, etc.)</td> <td>2</td> <td>2</td> <td>4</td> <td>7</td> <td>2</td> </tr> </tbody> </table>		2012	2013	2014	2015	2016	Single Family	263	240	83	68	42	Multi-Family	0	0	0	0	1 <sup>a</sup>	Other (commercial, mixed use, etc.)	2	2	4	7	2
	2012	2013	2014	2015	2016																				
Single Family	263	240	83	68	42																				
Multi-Family	0	0	0	0	1 <sup>a</sup>																				
Other (commercial, mixed use, etc.)	2	2	4	7	2																				
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	<ul style="list-style-type: none"> <li>• Special Flood Hazard Areas: 0</li> <li>• Landslide: 20 Landslide vulnerability is described as “scattered small landslides” and slide locations are mapped in locations with primarily very low development. All development required to have a soils report and mitigate hazard.</li> <li>• High Liquefaction Areas: 0</li> <li>• Dam Failure Inundation Area: 1<sup>a</sup></li> <li>• Wildfire Risk Areas: 0</li> </ul>																								

a. One permit for two buildings for a total of 85 apartments



## 2.4 CAPABILITY ASSESSMENT

The City of Antioch 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.

**Table 2-2. Legal and Regulatory Capability**

	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
<b>Codes, Ordinances, &amp; Requirements</b>				
<b>Building Code</b>	Yes	No	Yes	Yes
<i>Comment: 2016 California Building Code and Local Amendments Am. Ord, 2122 C-S and 2123 C-s, passed 1-10-17</i>				
<b>Zoning Code</b>	Yes	No	Yes	Yes
<i>Comment: Ord. 897-C-S, passed 10-25-94; latest Am Ord.2121 C-S, passes 1-10-17</i>				
<b>Subdivisions</b>	Yes	No	Yes	Yes
<i>Comment: Ord. 275-C-S, passed 3-11-75</i>				
<b>Stormwater Management</b>	Yes	No	Yes	Yes
<i>Comment: Ord. 1035-C-S, passed 9-12-04</i>				
<b>Post-Disaster Recovery</b>	Yes	No	No	Yes
<i>Comment: ('66 Code, § 4-2.08) (Ord. 222-C-S, passed 7-26-73; Am. Ord. 911-C-S, passed 9-12-95)</i>				
<b>Real Estate Disclosure</b>	No	Yes	Yes	Yes
<i>Comment: Ca. State Civil Code 1102 requires full disclosure on natural hazard exposure of the sale/re-sale of any and all real property</i>				
<b>Growth Management</b>	Yes	No	Yes	Yes
<i>Comment: Transportation Systems Management Measure C Growth Management Program Ord. 932-C-S, passed 12-9-97; Cal. Gov. Code §65300 et seq.</i>				
<b>Site Plan Review</b>	Yes	No	No	Yes
<i>Comment: Adopted with Zoning Ordinance Ord. 897-C-S, passed 10-25-94; Am. Ord. 2023-C-S, passed 4-14-09</i>				
<b>Environmental Protection</b>	Yes	Yes	Yes	Yes
<i>Comment: California Environmental Quality Act</i>				
<b>Flood Damage Prevention</b>	Yes	No	Yes	Yes
<i>Comment: Floodplain Management Ord. 708-C-S, passed 5-12-88. Am. Ord. 2025-C-S, passed 5-12-09</i>				
<b>Emergency Management</b>	Yes	Yes	Yes	Yes
<i>Comment: Ord. 222-C-S, passed 7-26-73; Disaster Council</i>				
<b>Climate Change</b>	Yes	Yes	Yes	Yes
<i>Comment: SB-379; Land Use: General Plan: Safety Element, no Antioch specific climate change related codes</i>				
<b>Other:</b>	N/A	N/A	N/A	N/A
<i>Comment: None identified</i>				



	Local Authority	Other Jurisdiction Authority	State Mandated	Integration Opportunity?
<b>Planning Documents</b>				
<b>General Plan</b>	Yes	No	Yes	Yes
<i>Is the plan compliant with Assembly Bill 2140? No</i>				
<i>Comment: Adopted November 24, 2003</i>				
<b>Capital Improvement Plan</b>	Yes	No	Yes	Yes
<i>How often is the plan updated? CIP is a 5-year program updated annually with a 2-year budget</i>				
<i>Comment: Antioch Capital Improvement Plan</i>				
<b>Floodplain or Watershed Plan</b>	Yes	Yes	No	Yes
<i>Comment: Contra Costa County Flood Control and Water Conservation District</i>				
<b>Stormwater Plan</b>	No	No	No	No
<i>Comment: None identified</i>				
<b>Urban Water Management Plan</b>	Yes	No	Yes	Yes
<i>Comment: UWMP 2015</i>				
<b>Habitat Conservation Plan</b>	No	No	No	Yes
<i>Comment: Currently being developed by the City of Antioch Community Development Department</i>				
<b>Economic Development Plan</b>	No	No	No	No
<i>Comment: The City does not have and Economic Development Plan</i>				
<b>Shoreline Management Plan</b>	Yes	No	No	Yes
<i>Comment: Adopted with the General Plan November 24, 2003</i>				
<b>Community Wildfire Protection Plan</b>	No	No	No	No
<i>Comment: None identified</i>				
<b>Forest Management Plan</b>	No	No	No	No
<i>Comment: None identified</i>				
<b>Climate Action Plan</b>	Yes	No	No	Yes
<i>Comment: CAPs adopted by Resolution 2001/39</i>				
<b>Comprehensive Emergency Management Plan</b>	Yes	Yes	Yes	Yes
<i>Comment: The Emergency Management Plan is currently being updated by the City Manager (appointed in April 2017) who is, by Code, the Director of Emergency Services</i>				
<b>Threat &amp; Hazard Identification &amp; Risk Assessment (THIRA)</b>	No	No	No	No
<i>Comment: None identified</i>				
<b>Post-Disaster Recovery Plan</b>	Yes	No	No	Yes
<i>Comment: The Emergency Management Plan is currently being updated by the City Manager (appointed in April 2017) who is, by Code, the Director of Emergency Services</i>				
<b>Continuity of Operations Plan</b>	No	No	No	Yes
<i>Comment: None identified</i>				
<b>Public Health Plan</b>	No	Yes	No	No
<i>Comment: Public Health provided by Contra Costa County.</i>				
<b>Other:</b>	N/A	N/A	N/A	N/A
<i>Comment: None identified</i>				



**Table 2-3. Development and Permitting Capability**

Criterion	Response
Does your jurisdiction issue development permits? • If no, who does? If yes, which department?	Yes Community Development/Building
Does your jurisdiction have the ability to track permits by hazard area?	No, permits by hazard areas were determined by comparing hazard areas with locations of new development
Does your jurisdiction have a buildable lands inventory? • If yes, please briefly describe.  • If no, please quantitatively describe the level of buildout in the jurisdiction.	Yes The majority of the buildable land can be found in Southeast Antioch and is referred to as the Sand Creek Focus Area. There are additional buildable lands in the East Lone Tree Specific Plan Area and those lands involve infill and some parcels in the Northeast. N/A

**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, for Water and Sewer
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
Other	Yes

**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	Community Development & Public Works Departments/staff
Engineers or professionals trained in building or infrastructure construction practices	Yes	Community Development & Public Works Departments/staff
Planners or engineers with an understanding of natural hazards	Yes	Community Development & Public Works Departments/staff
Staff with training in benefit/cost analysis	No	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Community Development & Public Works Departments/staff
Scientist familiar with natural hazards in local area	No	
Emergency Manager	Yes	City Manager and Police Lieutenant/Office of Emergency Services (OES) Coordinator
Grant writers	No	City Manager, Community Development & Public Works Departments/staff
Other	No	

Table 2-6. Education and Outreach Capability

Criterion	Response
Do you have a Public Information Officer or Communications Office?	No
Do you have personnel skilled or trained in website development?	No
Do you have hazard mitigation information available on your website? • If yes, please briefly describe.	Yes A Citizen Guide to Disaster Preparedness includes creating a disaster plan, planning how a family will stay in contact if separated by a disaster, references to other websites, emergency planning for children, emergency planning for people with special needs, creating a medical emergency information list, how to turn off utilities, what should be in a disaster supply kit, emergency preparedness checklist, and disaster preparedness for pets.
Do you utilize social media for hazard mitigation education and outreach? • If yes, please briefly describe.	No Departments have very recently created individual Facebook accounts. Police and Public Works can provide disaster related safety items
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • If yes, please briefly describe.	Yes The Planning Commission acts on land use issues which regulate development in hazard prone areas.
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.	Yes The Emergency Internet Notification System (EINS) is a system for informing Antioch residents of significant emergency events impacting the entire City. If an event such as a large earthquake occurs, causing considerable damage to buildings and highways, the intent would be to send an email to all persons who have subscribed to EINS. The email would tell residents what has occurred and if there are actions residents should take.



**Table 2-7. National Flood Insurance Program Compliance**

Criterion	Response
What local department is responsible for floodplain management?	Public Works
Who is your floodplain administrator? (department/position)	Assistant City Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No
What is the date that your flood damage prevention ordinance was last amended? Am. Ord 2025-C-S	May 12, 2009
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets N/A
When was the most recent Community Assistance Visit or Community Assistance Contact?	Unknown
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, although may request update 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?	Yes Due to recent retirements, need basic training on all aspects 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?	No N/A Possibly
How many Flood Insurance policies are in force in your jurisdiction? <sup>a</sup> • What is the insurance in force? • What is the premium in force?	127 \$ 38,300,800 \$ 133,360
How many total loss claims have been filed in your jurisdiction? <sup>a</sup> • How many claims were closed without payment/are still open? • What were the total payments for losses?	59 13/0 \$ 1,400,712

a. According to FEMA statistics as of December 31, 2016

**Table 2-8. Community Classifications**

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



**Table 2-9. Adaptive Capacity for Climate Change**

Criterion	Jurisdiction Rating <sup>a</sup>
<b>Technical Capacity</b>	
Jurisdiction-level understanding of potential climate change impacts <i>Comments/Additional Information: Sea level rise study is needed for Antioch Shoreline</i>	Low
Jurisdiction-level monitoring of climate change impacts <i>Comments/Additional Information: Currently not occurring, studies and projections are needed for this region</i>	Low
Technical resources to assess proposed strategies for feasibility and externalities <i>Comments/Additional Information: Some tools available through ICLEI membership</i>	Low
Jurisdiction-level capacity for development of greenhouse gas emissions inventory <i>Comments/Additional Information: GHG inventories every 5 years</i>	Medium
Capital planning and land use decisions informed by potential climate impacts <i>Comments/Additional Information: None provided</i>	Low
Participation in regional groups addressing climate risks <i>Comments/Additional Information: Contra Costa Climate Leaders, County Sustainability Exchange</i>	Medium
<b>Implementation Capacity</b>	
Clear authority/mandate to consider climate change impacts during public decision-making processes <i>Comments/Additional Information: None provided</i>	Low
Identified strategies for greenhouse gas mitigation efforts <i>Comments/Additional Information: See Climate Actions Plans</i>	Medium
Identified strategies for adaptation to impacts <i>Comments/Additional Information: Study needed</i>	Low
Champions for climate action in local government departments <i>Comments/Additional Information: Environmental Resource Coordinator</i>	Low
Political support for implementing climate change adaptation strategies <i>Comments/Additional Information: None provided</i>	Low
Financial resources devoted to climate change adaptation <i>Comments/Additional Information: None provided</i>	Low
Local authority over sectors likely to be negative impacted <i>Comments/Additional Information: None provided</i>	Low
<b>Public Capacity</b>	
Local residents knowledge of and understanding of climate risk <i>Comments/Additional Information: None provided</i>	Low
Local residents support of adaptation efforts <i>Comments/Additional Information: None provided</i>	Low
Local residents' capacity to adapt to climate impacts <i>Comments/Additional Information: Unknown, survey is needed.</i>	Low
Local economy current capacity to adapt to climate impacts <i>Comments/Additional Information: Unknown, survey is needed</i>	Low
Local ecosystems capacity to adapt to climate impacts <i>Comments/Additional Information: Unknown, study is needed.</i>	Low

- 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.  
 Note: As noted in the Final Synthesis Report of the City of Antioch's March 2017 Resilience Dialogues, facilitated by GlobalChange.gov, (U.S. Global Change Research Program), "Antioch is interested in building civic engagement by linking climate resilience to community values and integrating sea-level rise and flooding projects into hazard mitigation planning."



## 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 through 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, the City of Antioch 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:

- **Climate Action Plans, 2010**—Highlights potential programs that could be implemented to reduce greenhouse gas emissions and discusses possible impacts of climate change.
- **Capital Improvement Plan**—The Capital Improvement Plan includes projects that 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.

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, the City of Antioch 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:

- **General Plan**—The Environmental Hazards Element contains an evaluation of natural and manmade conditions which may pose certain health and safety hazards to life and property in Antioch, along with a comprehensive program to mitigate those hazards. Inherent in this Element is a determination of “acceptable risk.” This determination is based on defining how safe is safe enough, balancing the severity of the hazard, costs and feasibility of hazard mitigation, and expected benefits. In most cases, the level of acceptable risk is widely shared throughout the State and nation. For example, the standard for protection from flooding is a national standard. Standards for protection of structures from earthquake damage are based on the provisions of the Uniform Building Code. The Environmental Hazards Element addresses constraints to development from geologic and seismic conditions, noise, wildland fire, flooding and hazardous materials. Portions of the LHMP with the associated mapping will be considered for inclusion into the General Plan as an Appendix and referenced in this Element. Also, update will include assuring compliance with AB 2140 and SB 379.



- **Urban Water Master Plan**—Chapter 8 of the 2015 UWMP describes the City’s water shortage contingency plan (WSCP) for emergency preparedness and plans for a catastrophic event. Portions of the LHMP with the associated mapping will be considered for inclusion into the next UWMP.
- **Zoning Code**—Mitigation can be integrated into future zoning code updates to inform appropriate use of property within the City. Portions of the LHMP with the associated mapping will be considered for inclusion into the next Zoning Code update.
- **Subdivision Ordinance**—The Subdivision Ordinance restricts development in hazard areas. Portions of the LHMP with the associated mapping will be considered for inclusion into the next Subdivision Ordinance update.
- **The Sanitary Sewer Management Plan**—The City of Antioch conveys waste water, but treatment is provided by a special district, Delta Diablo. The 2015 Sanitary Sewer Management Plan provides an inventory of the City’s Sewer infrastructure and response procedures for first responders, recovery and cleanup in the case of overflow or backups. Portions of the LHMP with the associated mapping will be considered for inclusion into the next Sanitary Sewer Management Plan update.
- **Emergency Management**—The Emergency Management Plan and Post-Disaster Recovery Plan are currently being updated by the City Manager (appointed in April 2017) who is, by Code, the Director of Emergency Services. Portions of the LHMP with the associated mapping will be considered for inclusion into the next updates of the various plans.
- **Habitat Conservation Plan**—The City is currently preparing a Habitat Conservation Plan . The opportunity to incorporate additional mitigation and abatement measures will be contemplated for inclusion in the plan.
- **Capital Improvement Plan**—Portions of the LHMP with the associated mapping will be considered for inclusion into future Capital Improvement Plans. Capital improvement project proposals may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- **Northeast Annexation Infrastructure Plan**—The City is in the process of identifying and prioritizing the infrastructure improvements needed in the NE Annexation. Portions of the area have a high chance of flooding. The residential area is generally on well water and septic tanks with soft soils. In the far northern portion of the area the liquefaction susceptibility is very high. In addition to the needs of the property owners, the opportunity to prioritize construction and provide condition specific design for the infrastructure due to potential hazards exists. The City will consider hazards in the 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 Antioch. Other hazard events that broadly affected the entire planning area, including the City of Antioch, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

## 2.7 JURISDICTION-SPECIFIC VULNERABILITIES

Volume 1 of this 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: 11
- Number of FEMA-identified Severe-Repetitive-Loss Properties: 3
- Number of Repetitive-Loss Properties or Severe-Repetitive-Loss Properties that have been mitigated: Unknown

In addition, the NE Annexation area has vulnerabilities that are not new, but result from a change in jurisdiction only. Portions of the area have a high chance of flooding. The residential area is generally on well water and septic tanks with soft soils. In the far northern portion of the area the liquefaction susceptibility is very high.



**Table 2-10. Past Natural Hazard Events**

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Assessment
Flooding	FEMA-4308-DR	February 1-23, 2017	No estimates available. Flooding resulted in road closures, downed trees and flooding to some residences. This is a problem that has occurred multiple times and usually occurs in the O Street corridor.
Flooding	N/A	10/13/2009	No estimates available. Flooding resulted in road closures and flooding to some residences. This is a problem that has occurred multiple times and usually occurs in the O Street corridor.
Flooding	FEMA 1628 CDA-2006-01 Winter Storm 2006"	December 17, 2005 – January 3, 2006	\$ 66,912 Total Maximum 75% reimbursement for a net of \$50,184. Citywide clean-up in four (4) locations – road, debris and mud removal. Citywide; James Donlon Blvd. and Tabora Drive – road, mud repairs; Empire Mine Rd. & Lone Tree Way road clean-up;
Flooding	CA Office of Emergency Services (OES) PA (No. 013-02252)(PW 523-15) "El Nino 98"	February 1998	\$189,475 Citywide clean-up in seven (7) locations Villa Medanos Apts. \$55k) – creek washout; Fairgrounds – sewer blowout \$35k; Antioch marina north breakwater riprap \$25k; Fulton Shipyard Road flow gate blowout \$18k; James Donlon – east of Tabora Dr. – uphill mud slide \$10k; Rodeo Court #511 mud on right-of-way \$10k; Flood emergency response - \$36,475.)
Severe Weather <sup>a</sup>	N/A	Unknown	No estimates available
Earthquake <sup>a</sup>	N/A	Unknown	No estimates available
Wildfire <sup>a</sup>	N/A	Unknown	No estimates available
Landslide <sup>a</sup>	N/A	Unknown	No estimates available
Drought <sup>a</sup>	N/A	Unknown	No estimates available

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

## 2.8 HAZARD RISK RANKING

Table 2-11 presents a local ranking for the City of Antioch 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 <sup>b</sup>	48	High
2	Severe weather	30	Medium
3	Landslide <sup>e</sup>	27	Medium
4	Flood <sup>c</sup>	18	Medium
5	Drought	9	Low
6	Dam and levee failure <sup>a</sup>	6	Low
6	Wildfire <sup>f</sup>	6	Low
7	Sea level rise <sup>d</sup>	6	Low
7	Tsunami	0	None

- a. Based on the level of detail conducted in the risk assessment, the risk ranking for this hazard is focused solely on dam failure impacts. See Chapter 6.4 of Volume 1 for combined dam inundation list on which this assessment is based.
- b. Haywired M7.05 event was used to assign probability and impacts
- c. 1-percent annual chance event was used to assign probability and impacts
- d. The sea level rise data used for this analysis did not indicate any risk to the City of Antioch; however, Adapting to Rising Tides Initiative will update Sea Level Rise risks. (See Action 20)
- e. Very High and High severity zones were used to assign probability and impacts
- f. There is no mapped risk within the jurisdiction; however, a score was given due to potential impacts to people and the economy from smoke

## 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	Enter Action #
A-1—Construct West Antioch Creek channel improvements, 4- new box culverts, to eliminate property and environmental damage caused by flooding. <i>Comment: This is now phase 1 of a multiphase project. See Action A-14. Design complete. Right of way being secured. Utilities being relocated. Construction anticipated to begin in spring of 2018.</i>			√	A-1
A-2—Finish construction of the Oakley/Trembath Detention Basin <i>Comment:</i>			√	A-2
A-3—Construct Wilbur Avenue Culvert Crossing <i>Comment: No Funding Source Currently Identified.</i>			√	A-3
A-4—Complete construction of the Municipal Corporation Yard improvements <i>Comment: Project no longer being considered and is no longer considered feasible.</i>		√		
A-5—Seismic retrofit the City owned Historical Hard House building <i>Comment: No Funding Source Currently Identified</i>			√	A-4
A-6—Construct Water Reservoir Maintenance Improvement projects <i>Comment: Some Reservoirs have had improvements completed. Others still needed. Additional seismic retrofits analyzed in Seismic Study 2014. Ongoing.</i>			√	A-5
A-7—Construct Water and Sewer pipeline projects to strengthen system and to ensure safe and reliable provisions of public water and sewer services <i>Comment: Some projects completed. Ongoing</i>			√	A-6
A-8—Update Emergency Operations Plan <i>Comment: Plan Update anticipated in 2017-2018 Fiscal Year</i>			√	A-7
A-9—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1. <i>Comment: Ongoing</i>			√	A-8
A-10—Continue to maintain compliance and good standing under the National Flood Insurance Program (NFIP) <ul style="list-style-type: none"> <li>• Enforce the flood damage prevention ordinance</li> <li>• Participate in floodplain identification and mapping updates</li> <li>• Provide public assistance/information on floodplain requirements and impacts</li> </ul> <i>Comment: Ongoing</i>			√	A-9
A-11—Consider participation in the Community Rating System (CRS). <i>Comment: New staff to initiate participation in the CRS.</i>			√	A-10
A-12—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan <i>Comment: Full update of the General Plan anticipated in the next several years.</i>			√	A-11
A-13—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. <i>Comment: No funding source has been identified.</i>			√	A-12



## 2.10 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

Table 2-13 lists the actions that make up the City of Antioch 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	Responsible Agency <sup>a</sup>	Estimated Cost	Sources of Funding	Timeline
<b>A-1—Construct West Antioch Creek channel improvements, 4- new box culverts, to eliminate property and environmental damage caused by flooding</b>						
Existing	Flood	1, 2, 3, 9, 10, 13, 17	City of Antioch Public Works Dept.	High	HMGP, PDM, FMA	Short-term
<b>A-2—Finish construction of the Oakley/Trimbath Detention Basin</b>						
New and Existing	Flood	3, 5, 6, 9, 10, 15	City of Antioch Public Works Dept./CCC Flood Control District*	Medium	Development Fees and HMGP, PDM, FMA	Short-term
<b>A-3—Construct Wilbur Avenue Culvert Crossing</b>						
Existing	Flood	3, 6, 9, 10, 15	City of Antioch Public Works Dept./CCC Flood Control District*	High	HMGP, PDM, FMA	Short-term
<b>A-4—Seismic retrofit the City owned Historical Hard House building.</b>						
Existing	Earthquake	3, 15	City of Antioch Community Development Dept.	High	HMGP, PDM, FMA	Long-term
<b>A-5—Construct Water Reservoir Maintenance Improvement projects</b>						
Existing	All Hazards	1, 2, 3, 13	City of Antioch Public Works Dept.	Medium	Water fund and HMGP, PDM, FMA	Ongoing
<b>A-6—Construct Water and Sewer pipeline projects to strengthen systems and to ensure safe and reliable provisions of public water and sewer services</b>						
Existing	All Hazards	1, 2, 3, 13	City of Antioch Public Works Dept.	Low	Water and Sewer funds and HMGP, PDM, FMA	Ongoing
<b>A-7—Update Emergency Operations Plan</b>						
Existing	All Hazards	2, 3, 16	City of Antioch Office of Emergency Services (City Manager)	Medium	General Fund and HMGP	Ongoing
<b>A-8—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Volume 1</b>						
Existing and New	All Hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	City of Antioch Office of Emergency Services (City Manager)	Low	General Funds, Staff Time HMGP, PDM (for update)	Ongoing
<b>A-9—Continue to maintain compliance and good standing under the National Flood Insurance Program (NFIP)</b>						
<ul style="list-style-type: none"> <li>Enforce the flood damage prevention ordinance</li> <li>Participate in floodplain identification and mapping updates</li> <li>Provide public assistance/information on floodplain requirements and impacts</li> </ul>						
Existing and New	Flood	3, 5, 6, 9, 10, 11, 15	City of Antioch Public Works Dept.	Low	General Fund	Ongoing



Applies to new or existing assets	Hazards Mitigated	Objectives Met	Responsible Agency <sup>a</sup>	Estimated Cost	Sources of Funding	Timeline
<b>A-10—Consider participation in the Community Rating System; (CRS)</b>						
Existing and New	All Hazards	9	City of Antioch Community Development Dept.	Low	General Fund	Ongoing
<b>A-11—Integrate Local Hazard Mitigation Plan into the Safety Element of the General Plan</b>						
Existing and New	All Hazards	1, 4, 5, 7, 11, 12, 14, 17	City of Antioch Community Development Dept.	Low	Developer Fees	Short-term
<b>A-12—Where appropriate, support retrofitting, purchase, or relocation of structures in hazard-prone areas to protect structures from future damage, with repetitive loss and sever repetitive loss properties as priority</b>						
Existing	All Hazards	1, 4, 7, 9, 12, 14, 15, 17	City of Antioch Community Development Dept.	High	HMGP, PDM, FMA	Long-term
<b>A-13—West Antioch Flood Creek Mitigation and Restoration</b>						
Existing and New	Flood	1, 2, 3, 9, 10, 13, 17	City of Antioch Public Works Dept.*/CCC Flood Control District	High	HMGP, PDM, FMA	Long-term
<b>A-14—Update Inundation Analysis</b>						
Existing and New	Dam and Levee Failure	3, 5, 6	City of Antioch Public Works Dept.*/CC Water District	Medium	Water Fund and HMGP	Short-term
<b>A-15—NE Annexation Infrastructure Improvements</b>						
Existing and New	All Hazards	1, 2, 3, 6, 9, 10, 16, 17	City of Antioch Public Works Dept.*/CCC	High	City/County agreement and HMGP, PDM, FMA	Ongoing
<b>A-16—Request FEMA to Update flood Maps</b>						
Existing and New	Flood	3, 4, 5, 6, 7, 10, 12, 14	FEMA/City of Antioch*	Medium	General Funds	Short-term
<b>A-17—NE Annexation Infrastructure Improvements</b>						
Existing and New	All Hazards	1, 2, 3, 6, 9, 10, 16, 17	City of Antioch Public Works Dept.	High	HMGP, PDM, FMA	Ongoing
<b>A-18—Study, Design and Implement project for settlement of the Marina and the L Street approach (north of 2<sup>nd</sup> Street)</b>						
Existing	All Hazards	1, 2, 3, 9, 10, 13, 17	City of Antioch Public Works Dept.	High	HMGP, PDM, FMA	Long-term
<b>A-19—Participation in the Adapting to Rising Tides Initiative</b>						
Existing and New	Flood	3, 5, 6, 10, 11, 12, 16, 18	Antioch Community Development Dept.	Low	City General Fund, HMGP	Ongoing
<b>A-20—Implement program to track dates, number of occurrences, monetary damage assessments of disasters</b>						
Existing and New	All Hazards	3, 6, 12, 13, 14	City of Antioch Office of Emergency Services (City Manager)	Medium	HMGP	Long-term
<b>A-21—Update/Create various Plans such as Emergency Management, Post-Disaster Recovery, and/or Continuity of Operation</b>						
Existing and New	All Hazards	3, 5, 6, 10, 11, 12, 16, 18	Antioch Office of Emergency Services (City Manager)	Medium	City General Fund, HMGP	Ongoing

a. Where multiple responsible agencies are listed, an asterisk (\*) identifies the lead agency.



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 <sup>a</sup>	Grant Pursuit Priority <sup>a</sup>
A-1	7	High	High	Yes	Yes	No	Medium	High
A-2	6	Medium	Medium	Yes	Yes	No	Medium	Low
A-3	5	Medium	High	No	Yes	No	Low	Low
A-4	2	Medium	High	No	Yes	No	Low	Low
A-5	4	High	Medium	Yes	Yes	No	Medium	High
A-6	4	Low	Low	Yes	Yes	Yes	High	High
A-7	3	Low	Low	Yes	Yes	No	Medium	High
A-8	18	Low	Low	Yes	No	Yes	High	Low
A-9	7	Medium	Low	Yes	No	Yes	High	Low
A-10	1	Low	Low	Yes	No	Yes	Medium	Low
A-11	8	Medium	Low	Yes	No	Yes	High	Low
A-12	8	High	High	Yes	Yes	No	Low	High
A-13	7	High	High	Yes	Yes	No	Medium	High
A-14	3	Low	Medium	No	Yes	No	Medium	High
A-15	8	Medium	High	No	Yes	No	Medium	High
A-16	8	Medium	Medium	Yes	No	Yes	High	Low
A-17	8	High	High	Yes	Yes	No	Medium	High
A-18	7	Medium	High	No	Yes	No	Low	Medium
A-19	8	Medium	Low	Yes	Yes	Yes	High	Medium
A-20	5	Low	Medium	No	Yes	No	Low	Low
A-21	8	Medium	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 <sup>a</sup>							
	Prevention	Property Protection	Public Education and Awareness	Natural Resource Protection	Emergency Services	Structural Projects	Climate Resilient	Community Capacity Building
All hazards	A-8, A-12, A-14, A-17, A-18	A-8, A-11, A-14, A-17, A-18, A-20	A-8, A-20	A-8	A-7, A-8, A-20	A-8	A-8	A-8
Dam and Levee failure		A-14			A-14			
Drought								
Earthquake	A-15	A-5, A-6, A-15			A-5, A-6	A-4, A-5, A-15		
Flood	A-1, A-2, A-3, A-13	A-1, A-2, A-3, A-9, A-10, A-13	A-16	A-1, A-13	A-1, A-13		A-19	
Landslide								
Severe weather								
Tsunami								
Wildfire								

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

## 2.11 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

In 2012-2013 FEMA conducted a Risk Mapping, Assessment and Planning (Risk MAP) Program nationwide. The purpose of this Risk MAP program was to improve flood hazard information for the National Flood Insurance Program (NFIP); promote increased national awareness and understanding of flood risk; and, support Federal, State, and local mitigation actions to further reduce risk.

FEMA’s Final Discovery Report was published in 2013, and covered all of Contra Costa County, to include the Suisun Bay, San Pablo Bay, San Joaquin Delta, and San Francisco Bay watersheds and coastlines.

In March of 2017, the City of Antioch hosted Resilience Dialogues, facilitated by GlobalChange.gov, (U.S. Global Change Research Program), to explore Antioch’s risk from climate variability and change. Quoting the Resilience Dialogues Final Synthesis Report, “Antioch is interested in building civic engagement by linking climate resilience to community values and integrating sea-level rise and flooding projects into hazard mitigation planning.”

The City also annexed 759 acres of mixed use (commercial, industrial and residential) land with frontage on the water.

These research documents, taken together with the need to plan on behalf of annexed land, and ongoing need to update research and data for the Local Hazard Mitigation suggests an excellent opportunity to integrate these assets and build on local understanding of risks and vulnerabilities.

## 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.

- **City of Antioch Municipal Code**—The municipal code was reviewed for the full capability assessment and for identifying opportunities for action plan integration.
- **City of Antioch Flood Damage Prevention Ordinance**—The flood damage prevention ordinance was reviewed for compliance with the National Flood Insurance Program.
- **Community and Municipal Climate Action Plans**—Plans were reviewed to verify that climate related hazards were discussed
- **Urban Water Management Plan, 2015**—Plan was reviewed for discussion of drought forecasting and planning. Also used to review the City’s water shortage contingency plan (WSCP) for emergency preparedness and plans for a catastrophic event.
- **City of Antioch General Plan**—Plan was reviewed to see where improvements could be made relative to Hazard Mitigation.
- **Resilience Dialogues and Final Report** –March 2017—Online conference/dialogue intended to better understand risks in communities and plan for long-term resilience. Dialogue included participants representing: Community leaders & citizens; specialist in climate change and environmental policy; community network leaders; public sector staff and elected officials. Facilitated by U.S. Global Change Research Program. Assisted in determining potential action items related to Climate Change.
- **California Department of Finance website**—Used to provide information on City population (<http://www.dof.ca.gov>)
- **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.
  - **News archives, Internet search, documentable oral and written local histories**—Archived newspaper articles; media coverage in general; public sector staff and citizens; historical society accounts; photo collections; etc. are utilized for past hazard events when reliable.
  - **Neighboring County and Local Hazard Mitigation Plans (LHMP)**—Proximity to ‘neighbor’ hazards; differences in points of view and analysis; mutual aid issues in disaster; etc.



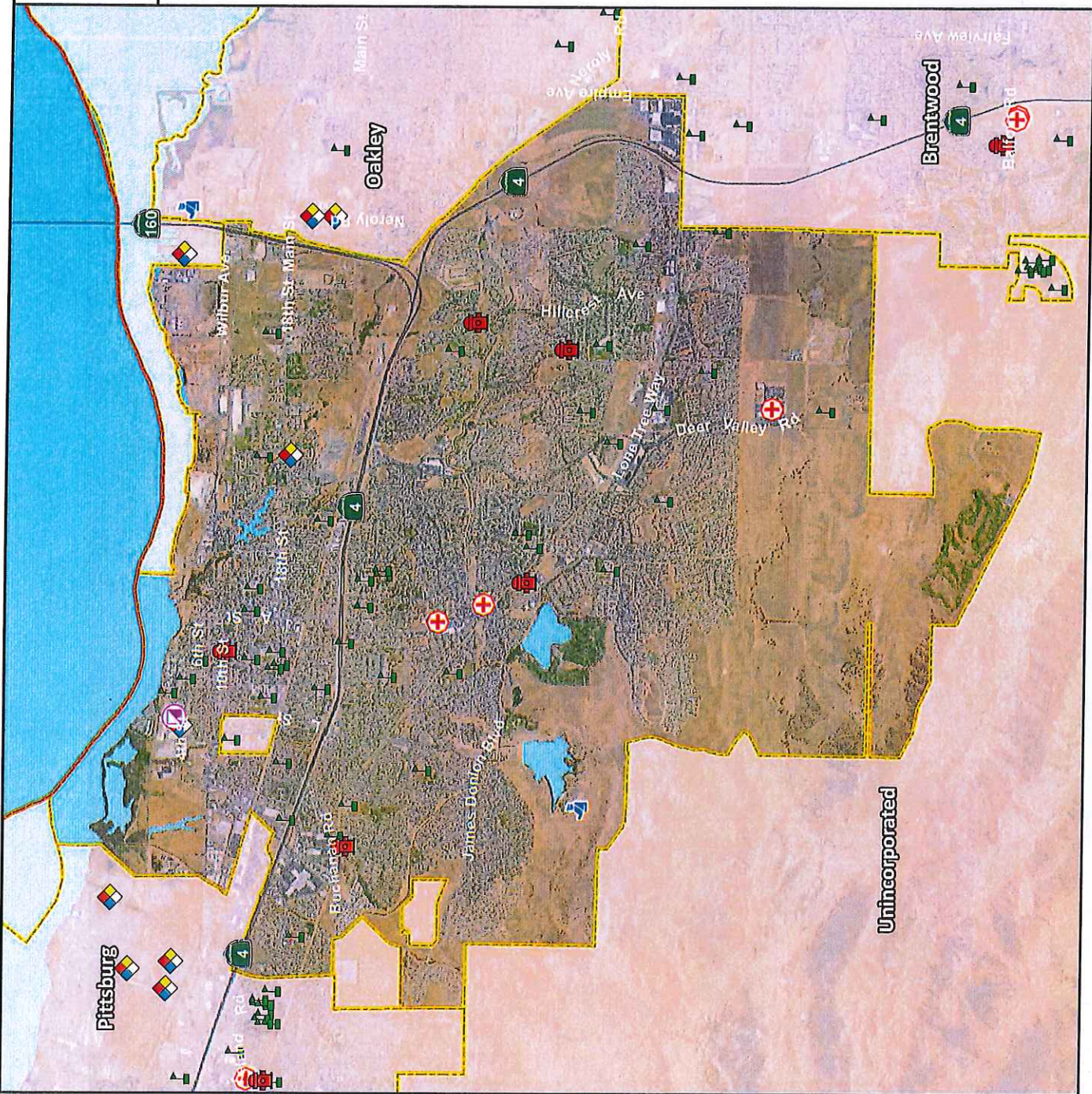
# The City of Antioch

## Critical Facilities

-  Emergency Operations Centers (Government)
-  Fire Stations (Protective Functions)
-  Hazardous Materials
-  Medical Facilities
-  Police Stations (Protective Functions)
-  Schools & Educational Facilities
-  Contra Costa County Boundary
-  City Boundaries



Map Data Sources: Contra Costa County, CalTrans, Hazus 3.2, EPA, USDA

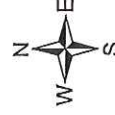
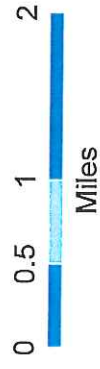




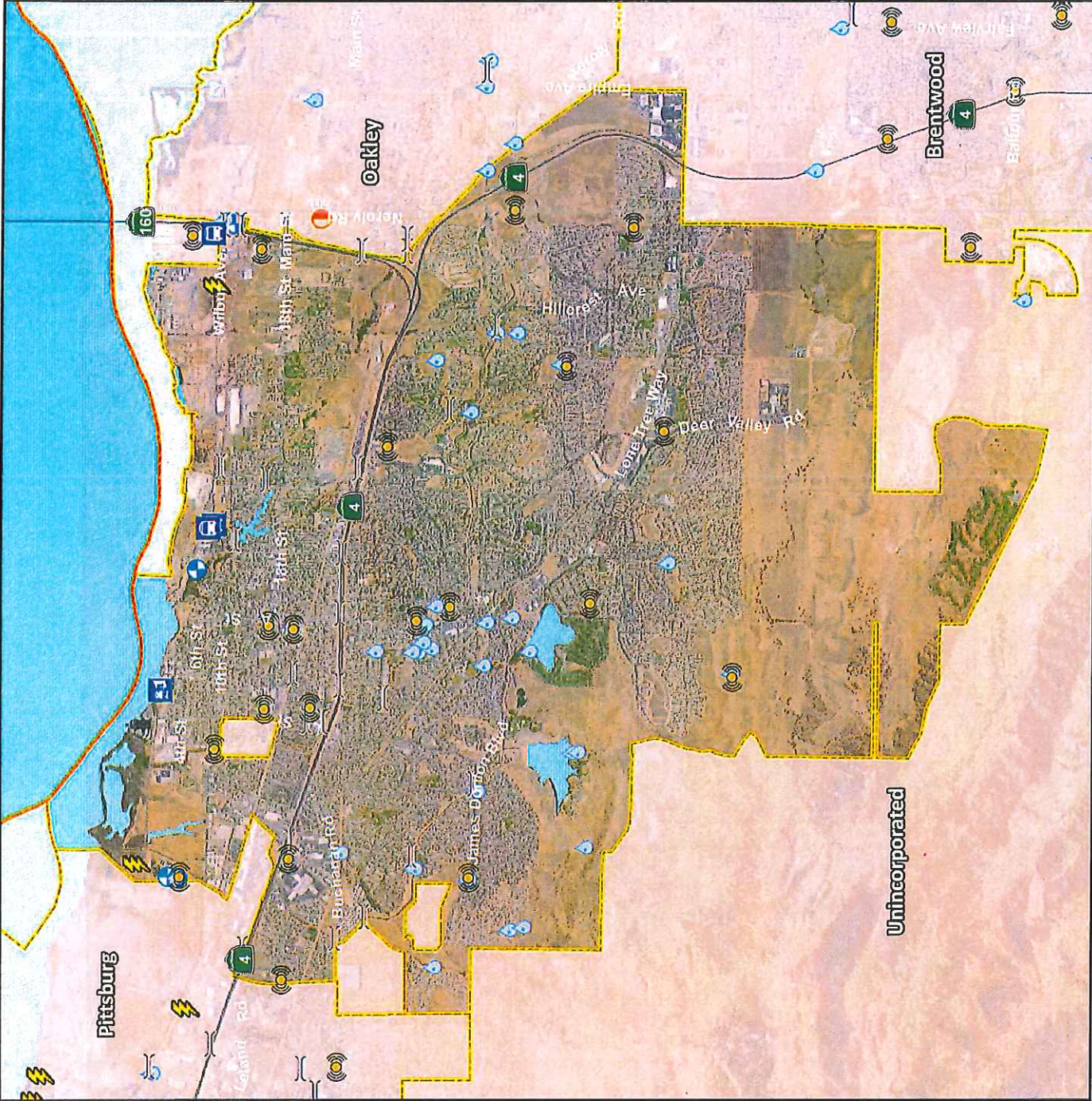
# The City of Antioch

## Critical Infrastructure

-  Airports (Other Critical Functions)
-  Bus Facilities (Other Infrastructure)
-  Communication Facilities
-  Electric Power Facilities
-  Highway Bridges
-  Highway Tunnels (Other Infrastructure)
-  Light Rail (Other Infrastructure)
-  Natural Gas (Other Infrastructure)
-  Port Facilities (Other Critical Functions)
-  Water Supply Facilities
-  Rail Facilities (Other Infrastructure)
-  Wastewater Facilities
-  Contra Costa County Boundary
-  City Boundaries












Map Data Sources: Contra Costa County, CalTrans, Hazus 3.2, EPA, USDA





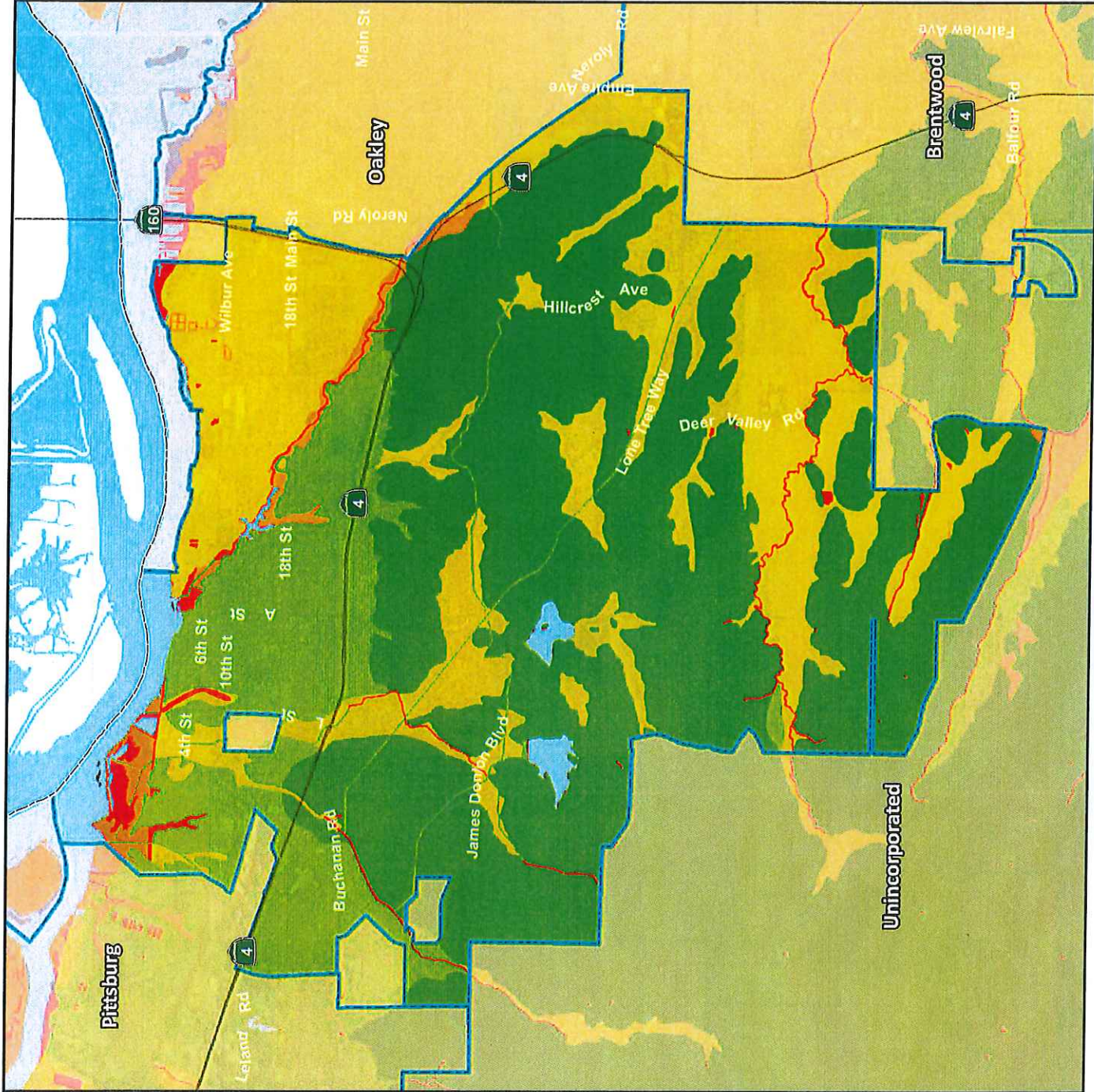
# The City of Antioch

## Liquefaction Susceptibility

-  Contra Costa County Boundary
  -  City Boundaries
  -  Water Bodies
- Susceptibility to Liquefaction**
-  Very Low
  -  Low
  -  Medium
  -  High
  -  Very High
  -  No Liquefaction Data Available






Map Data Sources: Contra Costa County, Caltrans, California Geological Survey, USDA, USGS





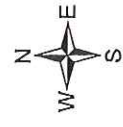
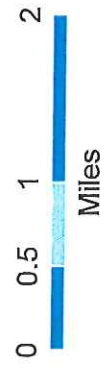


# The City of Antioch National Earthquake Hazard Reduction Program (NEHRP) Soil Class

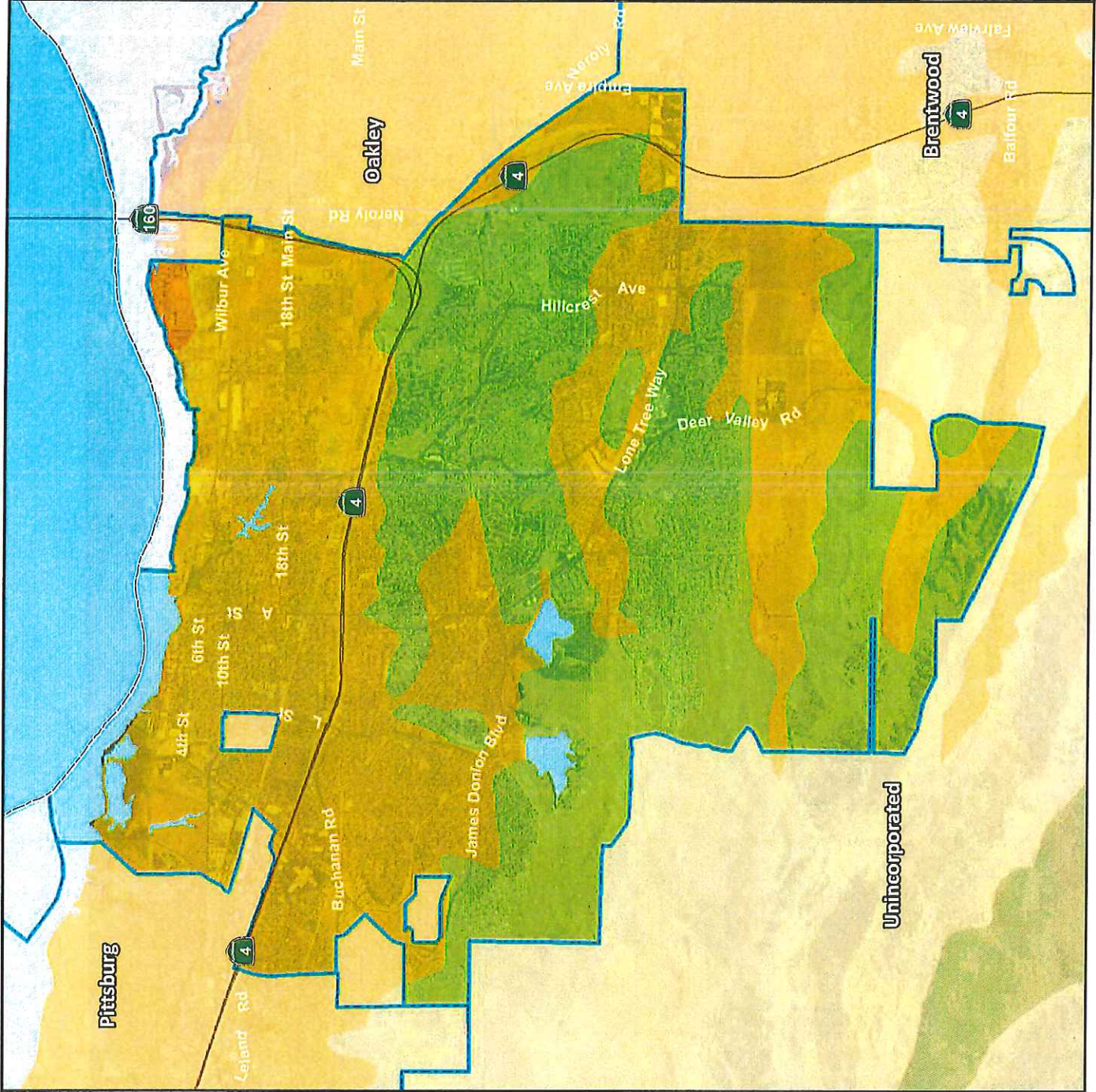
-  Contra Costa County Boundary
-  City Boundaries
-  Water Bodies

## NEHRP Site Class / Soil Profile

-  B / Rock
-  C / Very Dense Soil - Soft Rock
-  D / Stiff Soil
-  E / Soft Soil
-  No Soil Data Available








Map Data Sources: Contra Costa County,  
Caltrans, California Department of  
Conservation, USDA





# The City of Antioch

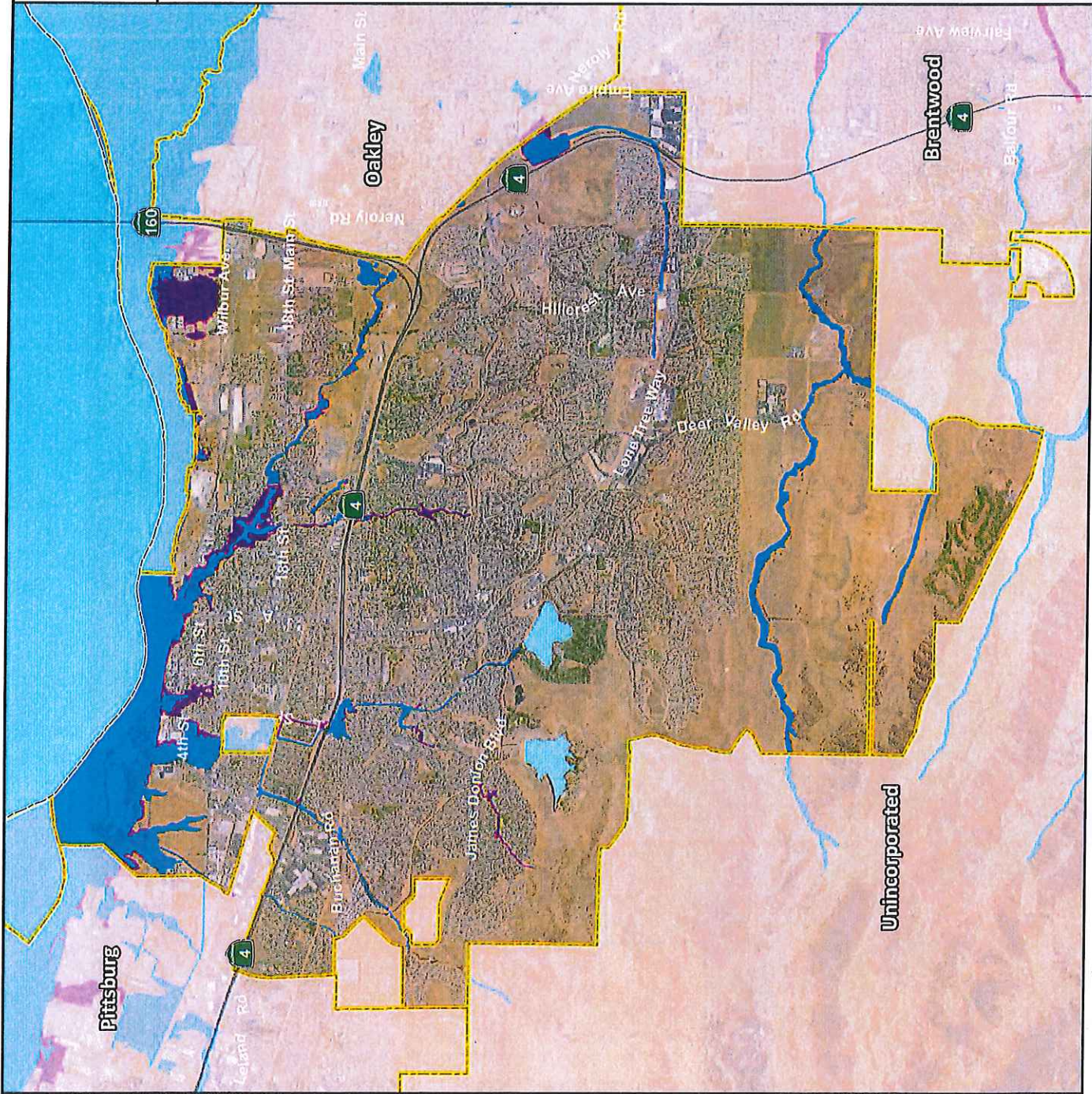
## FEMA DFIRM Flood Hazard Areas

-  1% Annual Chance (100-Year) Flood Zone
-  0.2% Annual Chance (500-Year) Flood Zone
-  Contra Costa County Boundary
-  City Boundaries
-  Water Bodies

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











Map Data Sources: Contra Costa County, CalTrans, FEMA, USDA



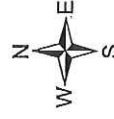
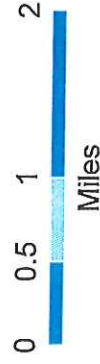


# The City of Antioch

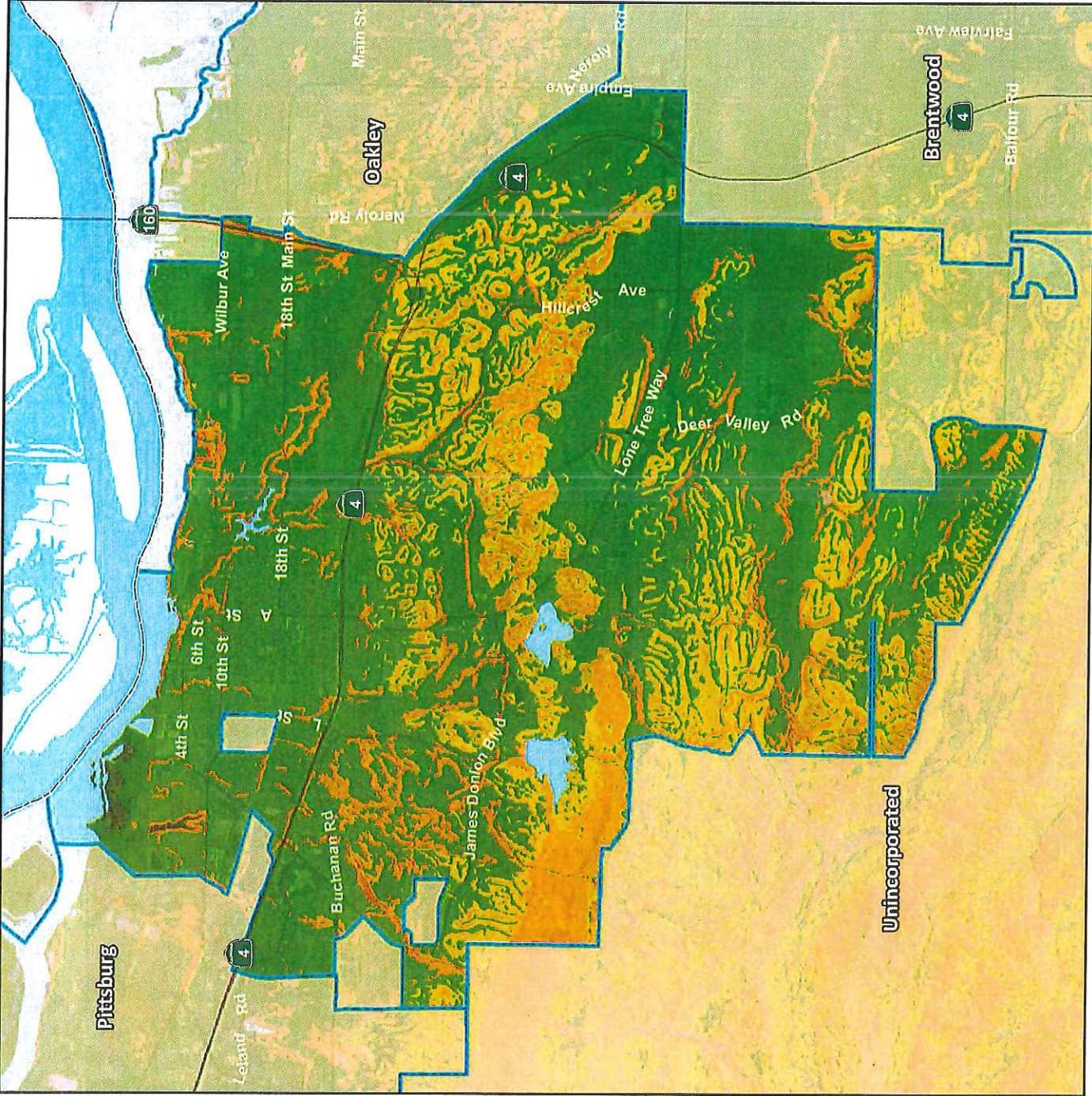
## Landslide Susceptibility Zones

-  Contra Costa County Boundary
  -  City Boundaries
  -  Water Bodies
- Type**
-  Low
  -  Moderate
  -  High
  -  Very High / Existing
  -  Data Not Available

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



Map Data Sources: Contra Costa County, Caltrans, California Geological Survey, USDA, USGS





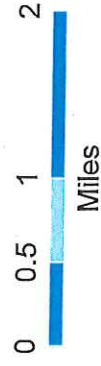
# The City of Antioch

## Wildfire Severity Zones

- Contra Costa County Boundary
- City Boundaries
- Water Bodies

## Wildfire Severity Zone

- Moderate
- High
- Very High



Map Data Sources: Contra Costa County, Caltrans, CALFIRE, USDA

