HAZARD MITIGATION PLAN

CITY OF PITTSBURG

February 2017

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SECTION 1: INTRODUCTION

The City of Pittsburg has prepared the 2017 Hazard Mitigation Plan (HMP) in order to assess the natural, technological, and human-caused risks to Pittsburg so as to reduce the potential impact of the hazards by creating mitigation strategies. The 2017 HMP represents the City of Pittsburg's commitment to create a safer, more resilient, community by taking actions to reduce risk and by committing resources to lessen the effects of hazards on the people and property of Pittsburg.

This plan complies with the Federal Disaster Mitigation Act (2000), Federal Register 44 CFR Parts 201 and 206, which modified the Robert T. Stafford Disaster Relief and Emergency Assistance Act by adding a new section, 322 - Mitigation Planning. This law, as of November 1, 2004, requires local governments to develop and submit hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) and other mitigation project grants. The Pittsburg City Manager's Office and Police Department has coordinated preparation of the HMP in cooperation with other Pittsburg departments, community stakeholders, partner agencies, and members of the public.

This introduction to the HMP provides a brief description of hazard mitigation planning, local mitigation plan requirements, and an outline of the 2017 HMP. There is also an overview of Federal Emergency Management Agency (FEMA) programs and grants related to hazard mitigation.

1.1 Hazard Mitigation Planning

Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. In general, hazard mitigation is work done to minimize the impact of a hazard event before it occurs, with the goal of reducing losses from future disasters. 44 CFR § 201.1(b) describes the purpose of mitigation planning is for local governments to identify the hazards that impact them, to identify actions and activities to reduce losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

For the City of Pittsburg, hazard mitigation planning is a process in which the City will:

- Identify and profile hazards that affect the local area;
- Analyze the population and facilities at risk from those hazards;
- Develop a mitigation strategy and actions to lessen or reduce the impact of the profiled hazards.
- Implement the strategy and actions that may involve planning, policy changes, programs, projects, and other activities.

The City's implementation of mitigation actions, which may be short-term or long-term strategies, is the primary objective of the planning process. This type of planning will supplement the City's comprehensive emergency management program.

1.2 LOCAL MITIGATION PLANNING REQUIREMENTS

Hazard mitigation planning is governed by the Stafford Act, as amended by the Disaster Mitigation Act of 2000 (DMA 2000), and by federal regulations implementing the Stafford Act. DMA 2000 revised the Stafford Act to require state, local, and tribal governments to develop and submit to FEMA a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the jurisdiction. Plan approval by FEMA is a prerequisite to receiving federal hazard mitigation grant funds. (See 42 USC § 5165(a).)

To implement the mitigation planning requirements of the Stafford Act, FEMA promulgated 44 CFR Part 201, the federal regulations governing the planning process, plan content, and the process for obtaining approval of the plan from FEMA. The planning requirements set forth in the CFR are identified throughout this plan mirroring the order of the FEMA Regulation Checklist in the Local Mitigation Plan Review Tool.

Federal law and the State of California's requirements for hazard mitigation plans require coverage of only natural hazards; however, Pittsburg's 2014 Emergency Operations Plan included technological and human-caused hazards as well as natural hazards. The planning team decided to cover natural, technological, and human-caused hazards for the HMP, including a description and analysis of each hazard.

FEMA has produced a *Local Mitigation Plan Review Tool,* an appendix to the *Local Mitigation Planning Handbook (2013),* to demonstrate how the mitigation plan meets the regulation in 44 CFR § 201.6, and offers State and FEMA Mitigation Planners an opportunity to provide feedback to the jurisdiction. The Plan Review Tool has a regulation checklist that provides a summary of FEMA's evaluation of whether the plan has addressed all requirements. Local planners can also use the checklist prior to submitting the plan for approval to ensure they have addressed all the requirements. The Local Mitigation Plan Review Tool Regulation Checklist is provided in Appendix A of this document.

1.3 Hazard Mitigation Plan Description

The 2017 HMP consists of the sections and appendices described below:

Table 1-1: Plan Sections, Appendices, and Descriptions

Section 1: Plan Introduction	Section 1 includes an introduction to hazard mitigation planning, lists the HMP planning requirements, provides a description of the plan, and discusses grants related to hazard mitigation.
Section 2: Planning Process	Section 2 describes the planning process for the 2017 HMP, including an overview of how the HMP was prepared, identification of the HMP planning team, involvement of outside agencies and communities, the inclusion of related plans, reports and information, and stakeholder and public outreach activities.
Section 3: Hazard Identification and Risk Assessment	Section 3 provides a list of the hazards identified in the 2017 HMP, a profile of each hazard and hazard summary, and a risk assessment of the planning area.
Section 4: Capability Assessment and Mitigation Strategy	Section 4 identifies and evaluates the resources available for hazard mitigation within Pittsburg, the current, ongoing, and completed mitigation projects and programs in Pittsburg, and lists mitigation strategies for reducing potential losses.
Section 5: Plan Adoption by Local Government	Section 5 includes documentation of adoption of the HMP by the Pittsburg City Council.
Section 6: Acronyms and Abbreviations	Section 6 lists acronyms and abbreviations used in the 2017 HMP.
Section 7: References	Section 7 lists reference materials used to prepare the 2017 HMP.
Appendix A	Appendix A contains the FEMA *Local Mitigation Plan Review Tool*, which documents Pittsburg's compliance with the local hazard mitigation plan requirements of 44 CFR Part 201.
Appendix B	Appendix B contains documentation of the planning process for the planning team, including meetings, presentations, emails, etc.
Appendix C	Appendix C contains documentation of the planning process including meetings, presentations held for the stakeholders and public, and other stakeholder/public outreach efforts.
Appendix D	Appendix F contains the Pittsburg Mitigation Action Prioritization tool.
Appendix E	Appendix E contains the local hazard mitigation plan for the Pittsburg Unified School District

1.4 Assembly Bill 2140

The California Disaster Assistance Act limits the state share for any eligible project to no more than 75% of total state eligible costs, except that the state share shall be up to 100% of total state eligible costs connected with certain events. AB 2140 prohibits the state share for any eligible project from exceeding 75% of total state eligible costs unless the local agency is located within

a city, county, or city and county that has adopted a local hazard mitigation plan in accordance with the federal DMA 2000 as part of the safety element of its general plan, in which case the Legislature may provide for a state share of local costs that exceeds 75% of total state eligible costs.

The California Government Code, Sections 8685.9 and 65302.6, allow for the State Legislature to provide for a state share of local costs that exceeds 75 percent of total state eligible costs where the local agency is located within a city, county, or city and county that has adopted a local hazard mitigation plan in accordance with the federal Disaster Mitigation Act of 2000 (P.L.106-390) as part of the safety element of its general plan adopted pursuant to subdivision (g) of Section 65302.

1.5 Grant Programs With Mitigation Plan Requirements

Currently, five FEMA grant programs provide funding to local entities that have a FEMA- approved local mitigation plan meeting federal hazard mitigation plan requirements. Two of the grant programs are authorized under the Stafford Act. The remaining three programs are authorized under the National Flood Insurance Act and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act.

1.5.1 Stafford Act Grant Programs

Funding is provided to state, local, and tribal governments that have an approved Hazard Mitigation Plan through the following programs.

Hazard Mitigation Grant Program (HMGP)

The HMGP provides grants to implement long-term hazard mitigation measures after declaration of a major disaster. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters, and to enable mitigation measures to be implemented during the immediate recovery from a disaster. To qualify for HMGP funding, projects must provide a long-term solution to a problem, and the project's potential savings must exceed the cost of implementing the project.

HMGP Funds may be used to protect either public or private property, or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a particular disaster declaration is limited. Under the program, the federal government may provide a state or tribe with up to 20 percent of the total disaster grants awarded by FEMA, and may provide up to 75 percent of the cost of projects approved under the program.

The Pre-Disaster Mitigation (PDM) Program

The PDM provides funds to state, local, and tribal entities for hazard mitigation planning and mitigation projects before a disaster event. PDM grants are awarded on a nationally competitive basis. The cost benefit of a PDM project must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to repetitive damage. In April of 2014, FEMA announced $112 million in funding available through two Hazard Mitigation Assistance (HMA) grant programs: Flood Mitigation Assistance (FMA) and Pre-Disaster Mitigation (PDM). Congress originally appropriated $23 million for PDM grants, but increased the allotment to $63 million. The Federal government provides up to 75 percent of the cost of projects approved under the program.

1.5.2 National Flood Insurance Act Grant Programs

Flood Mitigation Assistance Grant Program

The goal of the Flood Mitigation Assistance (FMA) Grant Program is to reduce or eliminate flood insurance claims under the National Flood Insurance Program (NFIP). This program places emphasis on mitigating repetitive loss (RL) properties. The primary source of funding for the FMA program is the National Flood Insurance Fund. Grant funding is available for planning, project, and technical assistance. Project grants are awarded to local entities to apply mitigation measures to reduce flood losses to properties insured under the NFIP. In FY 2014, FMA funding totaled $89 million. The cost-share for this grant is 75 percent federal and 25 percent nonfederal. However, a cost- share of 90 percent federal and 10 percent nonfederal is available in certain situations to mitigate severe repetitive loss (SRL) properties.

Repetitive Flood Claims Program

The Repetitive Flood Claims (RFC) Program provides funding to reduce or eliminate the long- term risk of flood damage to residential and non-residential structures insured under the NFIP. Structures considered for mitigation must have had one or more claim payments for flood damages. All RFC grants are eligible for up to 100 percent federal assistance.

Severe Repetitive Loss Program

The Severe Repetitive Loss (SRL) Program provides funding to reduce or eliminate the long-term risk of flood damage to residential structures insured under the NFIP. Structures considered for mitigation must have had at least four NFIP claim payments over $5,000 each, with a cumulative amount of such claims payments exceeds $20,000; or for which at least two separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building, and at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart. The cost-share for this grant is 75 percent federal, 25 percent nonfederal. There is a cost-share of 90 percent federal,

10 percent nonfederal, available to mitigate SRL properties when the state or tribal plan addresses ways to mitigate SRL properties.

1.6 Planning Area Description

The following description of the planning area includes its location, geography, history, government, economy, and demographics.

The planning area for the HMP includes the City of Pittsburg, which is an industrial city in eastern Contra Costa County, California in the East Bay region of the San Francisco Bay Area. Pittsburg was incorporated on June 25, 1903 as a general law city. The City of Pittsburg encompasses approximately 19.25 square miles (United States Census Bureau) and lies at Latitude: 38.03° Nord Longitude: 121.88° West. The elevation ranges from 30 feet Mean Sea Level (MSL) in the northern portion of the City along the Sacramento River, then increases in elevation to 1,900 feet MSL at the City's southernmost ridge in the hills of the Diablo Range. The City, operating as Island Energy, owns, manages, and runs the utility on Mare Island in Vallejo but this entity shall not be covered by this HMP.

1.6.1 Location

San Francisco is approximately 40 miles west of the City, while Sacramento is approximately 44 miles northeast of Pittsburg. The surrounding jurisdictions include the unincorporated area known as Bay Point and the cities of Antioch, Oakley, Brentwood, Martinez, Pleasant Hill, Concord and Walnut Creek. Pittsburg is located at the confluence of the Sacramento and San Joaquin rivers just east of where the rivers enter Suisun Bay. The region is known as the Sacramento-San Joaquin Delta. Freshwater from the two rivers mingles with saltwater from the Pacific Ocean, creating the West Coast's largest estuary. Browns Island and Winter Island are just off the shoreline of Pittsburg, along with the New York Slough and Broad Slough.

Figure 1-1: Aerial View, City of Pittsburg

1.6.2 GEOLOGY

The Health and Safety Element of the Pittsburg General Plan describes two general topographic zones within the City: the lowland zone and the hillside zone.

Lowland Zone

The Estuarine (coastal) areas are underlain by Bay Mud, which consists of unconsolidated silt and clay with abundant organic material, local peat, sand, and gravel lenses or discontinuous beds (USGS, 1973). There is artificial fill occur along the edges of the Suisun Bay, particularly around the power plant and in filled channels. Old fill (pre-1950's) typically consists of mixed material including weak compressible soils with a risk of liquefaction. The Flatland areas of Pittsburg are

underlain by alluvial deposits, unconsolidated flood-plain deposits, sand, silt, gravel, and clay, layered irregularly.

Hillside Zone

The Hillside areas of the City consist primarily of tilted marine sedimentary and volcanic rocks that range in age from Paleocene to Pliocene. Hillside areas in the western and southern portions of the planning area contain steep slopes, weak bedrock, and local landslide deposits. The hillside zone is vulnerable to landslides, soil creep, debris flow, and other hazards due to historic coal mining.

1.6.3 CLIMATE

The climate of the larger East Contra Costa County region is characterized as Mediterranean with warm, dry summers and mild, wet winters. The region's rainy season extends from November 1st to March 31st, with relatively dry conditions for the remainder of the year. Average annual rainfall in the vicinity of the planning area is 14 inches. Temperatures are generally moderate with a comparatively small range of temperatures between the winter low and summer high. Average low temperatures in January are 38 degrees Fahrenheit with highs averaging 53 degrees. In July the average lows are 58 degrees with highs averaging 91 degrees Fahrenheit. (http://www.intellicast.com/Local/History).

1.6.4 HISTORY OF PITTSBURG

Pittsburg began along the Suisun Bay/Delta shoreline as a 10,000-acre land grant from the government of Mexico in 1839, and grew into a settlement along the banks of the Sacramento River. The land grant was awarded to Jose Antone Mesa and Miguel Jose Garcia. Shortly thereafter the little town was named New York of the Pacific, possibly because the man who laid out the town, Colonel J.D. Stevenson, was a native of New York. This area soon became known as New York Landing and thrived on fishing and canning industries. Following the discovery of coal in the hills three miles south of town, the town was renamed Black Diamond in 1868. In 1906 Columbia Geneva Steel opened for business, and by popular vote on February 11, 1911, the name was changed to Pittsburg, after the eastern birthplace of the steel industry (the "h" was removed to simplify the spelling).

In 1942 Camp Stoneman was built. This had a tremendous impact on the City and its growth. Forty-five thousand servicemen were stationed at Camp Stoneman during the Asiatic-Pacific operations in World War II. In 1954, the Camp was closed and the property was added to the City of Pittsburg for commercial and residential development.

1.6.5 GOVERNMENT

The City of Pittsburg is a general law city with a Council/Manager form of government. City government is divided into 23 functional areas and operates with 11 City Departments plus five

specialized services. City Departments include the City Manager's Office; City Clerk's Office; Human Resources Department; Finance Department; Economic Development Department; Planning Department; Public Works Department; Engineering Department; Recreation Department; Police Department; and Community Access Department. Specialized Services include the City Attorney, the Successor Agency, the Environmental Affairs Division, the Pittsburg Power Company, the City Golf Course, and the City Marina.

1.6.6 ECONOMY

Pittsburg has grown from its days as primarily an industrial center for steel and commercial fishing into a community with a blend of commercial, retail, and office businesses. There are still large industrial employers such as USS-POSCO and Dow Chemical Company, a variety of smaller commercial employers, such as Ramar Foods International and Walmart, and educational employers such as Pittsburg Unified School District and Los Medanos College to name a few.

The California Delta Highway, State Highway 4, runs primarily east-west through the City. Other major transportation corridors include the Burlington Northern, Union Pacific, Santa Fe (BNSF) railroad, and the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station is in Pittsburg. The East Contra Costa BART extension project is currently in progress and will add a station near Hillcrest Avenue in Antioch and a station at Railroad Avenue in Pittsburg. Tri-Delta Transit is a bus operator serving the communities in the eastern section of the county. East Bay Para-Transit is a bus service for persons with disabilities and others with access and functional needs throughout the county.

The following table shows the principal employers in the City of Pittsburg (source: City of Pittsburg Comprehensive Annual Financial Report, FY June 2014).

Table 1-2: 2014 Principal Employers in Pittsburg

	Employer	# of Employees
1.	Pittsburg Unified School District	1,172
2.	USS - Posco Industries	700
3.	Los Medanos Community College	472
4.	Dow Chemical Company	350
5.	Walmart	250
6.	City of Pittsburg	222
7.	Angelica Corporation (Laundry)	185
8.	Mi Pueblo Foods	137
9.	WinCo Foods	134
10.	Ramar Foods International	132

1.6.7 DEMOGRAPHICS

According to the State of California Department of Finance E-1 Population Estimates for 2014-2016, Pittsburg's estimated population in 2016 was 67,628. According to the Census Bureau, Pittsburg is the 131st most populated city in the state of California out of 482 incorporated cities.

According to the 2010 Census, 8.0 percent of Pittsburg's population was under five years of age; 25.4 percent between 6 and 19 years of age; 58.3 percent was between 20 and 64 years of age; and 8.3 percent were 65 years old or older.

The 2010 Census also indicates that Pittsburg's racial composition is as follows: 43.5 percent White, 12.6 percent Asian, 23.1 percent Hispanic or Latino, 18.9 percent Black or African American, 0.7 percent American Indian and Alaska Native, 0.9 percent Native Hawaiian and other Pacific Islander, and 1.64 other races.

In addition, the Census estimates in 2013 that 32,849 Pittsburg residents, 16 years and older, were part of the labor force. Of that number, an estimated 28,766 were employed and 4,022 were unemployed, for an approximate unemployment rate of 5.9 percent. The median household income in Pittsburg in 2013 was estimated at $58,866; the 2013 per capita income was estimated at $23,972. An estimated 78.7 percent of the residents in Pittsburg graduated with a high school diploma and 17.4 percent graduated with a bachelor's degree or higher.

The total estimated number of people living in Pittsburg with a disability in a non-institutional setting is 13.6 percent, or 8,782 people. Of those 8,782 people, 4.2 percent or 701 persons are under the age of 18; 13 percent or 5,426 persons are aged 18-64, and 45.6 percent or 2,655 are 65 years and older.

SECTION 2: PLANNING PROCESS

The requirements for documentation of the HMP planning process are described below. This section summarizes the planning area's hazard mitigation planning efforts in 2016. In addition, the section describes public and stakeholder outreach efforts as part of the HMP planning process. The section also summarizes the review and incorporation of existing plans, studies, and reports used to develop the HMP. Documentation of the 2017 HMP planning process for the Hazard Mitigation Planning Team is provided in Appendix B, and documentation of the planning process for the Public and Stakeholders is found in Appendix C. These appendices document the planning meetings and outreach and include meeting agendas, presentation, materials and other documentation to conduct the planning process.

FEMA REGULATION CHECKLIST: PLANNING PROCESS

Documentation of the Planning Process

44 CFR § 201.6(c)(1): The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Elements

A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? 44 CFR § 201.6(c)(1).

A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? 44 CFR 201.6(b)(2)

A3. Does the Plan document how the public was involved in the planning process during the drafting stage?
44 CFR 201.6(b)(1) and 201.6(c)(1)

A4. Does the Plan document the review and incorporation of existing plans, studies, reports, and technical information? 44 CFR 201.6(b)(3)

A5. Is there discussion on how the community will continue public participation in the plan maintenance process? 44 CFR 201.6(c)(4)(iii)

A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? 44 CFR 201.6(c)(4)(i)

Source: FEMA, *Local Mitigation Planning Handbook Review Tool,* March 2013.

2.1 PLANNING PROCESS

In April 2015, the planning process for the 2017 HMP began. Select staff from various City departments were invited to the hazard mitigation planning team for the purpose of developing

the 2017 HMP. Solicitation was also sent to neighboring cities and other interested agencies through an email sent by Contra Costa County to the roster of Operational Area member agencies. Members of the HMP planning team are listed in Table 2-1, below.

Table 2-1: HMP Planning Team

Department or Agency	Member Name	Key Role
City Manager's Office; Environmental Affairs	Laura Wright	*Co-chair of Planning Team, Primary Point of Contact, Provide Input and guidance from the City Manager's Office*
Police Department	Steve Albanese	*Co-Chair of Planning Team, Primary Point of Contact, Provide input for the Police Department*
Successor Agency - Redevelopment Agency	Melaine Venenciano	*Pittsburg capabilities, facilities, and mitigation strategy and projects*
Finance	Susan Winkelbauer	*Pittsburg capabilities, facilities, and mitigation strategy and projects*
City Engineer	Fritz McKinley	*Pittsburg building inventory, land use, regulate development, planning capabilities, strategy and mitigation projects, Pittsburg assets*
Engineering	Richard Abono	*Pittsburg building inventory, land use, regulate development, planning capabilities, strategy and mitigation projects, Pittsburg assets*
Building Official	Curtis Smith	*Pittsburg assets and planning projects, land use and regulate development*
Planning	Kristin Pollot	*Pittsburg building inventory, regulate development, planning capabilities and mitigation strategy and projects, Pittsburg assets*
Planning	Hector Rojas	*Pittsburg building inventory, regulate development, planning capabilities and mitigation strategy and projects, Pittsburg assets*
Public Works	Robert Joaquin	*Pittsburg capabilities, facilities, mitigation strategy and projects and regulate development*
Public Works	Hilario Mata	*ES capabilities, facilities, mitigation strategy and projects and regulate development*
Parks and Recreation	Don Buchanan	*Pittsburg capabilities, assets, facilities, and mitigation strategy*

Contra Costa County Office of Emergency Services	Marcelle Indelicato	*County Hazard Mitigation Plan, County capabilities, assets, mitigation strategy, risk assessment and hazards*
Pittsburg Unified School District	Steve Ahonen	*PUSD capabilities, facilities, assets, risks, mitigation strategy*

Four meetings were held with the planning team: May 18, 2015, August 17, 2015, February 8, and April 28, 2016. Representatives from the City Manager's Office and the Police Department shared the responsibility of chairing the planning team. The City Manager's Office also copied documents for review and sent out meeting notices. At the project kick-off meeting, held May 18, 2015, a description of the planning process was provided through a presentation. Information from other Pittsburg plans, the 2013 Emergency Operations Plan (EOP), and the Pittsburg 2020 Health and Safety Element was presented. The planning team also reviewed the local mitigation plan requirements under the Stafford Act regulations and the October 2011 Local Mitigation Plan Review Guide in an effort to assist the planning team in understanding the scope of the planning process. A presentation was developed to facilitate the meeting.

The initial planning team meeting included an overview of what is required to be in a hazard mitigation plan and what would be required of them while serving on the plan team. At this meeting the hazards that were identified in the Health and Safety Element and the 2014 Emergency Operations Plan (EOP) along with other hazards were presented for the team's consideration. The planning team provided their recommendations for the hazards that should be profiled in the HMP. The process established was for the City Manager's Office to compile the recommendations and send them back out to the planning team for a final review prior to incorporating them into the 2017 plan.

The planning team members agreed upon the compiled list of hazards and the critical facilities to be included in the plan. The planning team also reviewed and made recommendations on the public-stakeholder outreach plan and efforts.

The consultant developed portions of the plan and sent or presented draft items to the planning team for review, recommendations, and approval was established and worked very well. Once the drafts were complete and presented to the planning team, all comments and edits were incorporated into the plan.

A second planning team meeting was held on August 17, 2015. At this meeting, planning team members were given an update of the public outreach survey, an introduction of the risk assessment, a description of critical facilities, and an overview of a mitigation strategy, goals, and actions. Lists of potential critical facilities were presented and the planning team came to a consensus of what facilities should be listed in the HMP. Planning Team members also rated the

hazards according to the Calculated Priority Risk Index tool. The mitigation strategy was explained and then discussed, along with goals, objectives, and actions to be included in the plan. Example goals, objectives, and actions were provided to the planning team. Staff was also briefed on the requirement to list City assets such as personnel, fiscal resources, authorities and policies, legal and regulatory resources for the capabilities assessment.

Drafts of Sections three and four of the plan were developed according to the input given by the Planning Team and survey results. The draft plan was sent to the Chair of the Planning Team and distributed to team members for review. Again, recommendations were incorporated into the plan.

Departmental budget reports from 2009 through 2015 were reviewed to provide material for the completed mitigation actions and new actions for the mitigation strategy. Departments that had current and ongoing projects provided project information, such as a timeline, project funding, and project administration to include in the action plan.

A third meeting was held on February 8, 2016 with Laura Wright, (Environmental Affairs Manager), Steve Albanese (Pittsburg Police Department), Steve Ahonen (PUSD), Lee Rosenberg (NPA), Mike Hooper (WHS). The group discussed including the Pittsburg Unified School District in the Plan, building out the hazard profiles and risk assessments, as well as creating appendices to highlight planning team meetings and public outreach efforts.

The fourth team meeting was held on April 28, 2016. At this meeting, the entire planning team reviewed the initial draft HMP. They discussed:

- The HMP's mitigation actions.
- How the HMP hazard mitigation actions may support plans for developing funding priorities to aid implementation by departments.
- Previous public outreach efforts (survey) and future outreach effort(s). Future outreach efforts will include putting the HMP on the City of Pittsburg website, providing a copy of the HMP to the library and potentially having a public meeting.

Documentation of the planning process for the planning team is shown in Appendix C: Planning Process Documentation.

The following efforts were made to receive comments and recommendations about the final draft 2017 HMP:

- A draft version of the HMP was made available on the City website for a 15-day public comment review period on March 2, 2017. Information advertising the availability of the draft HMP for review.
- The draft HMP was distributed to members of the Red Cross and the Emergency Management Group for a 2-week review period.

On April 17, 2017, the City Manager's Office sent the public comment draft of the 2017 HMP to Cal OES and FEMA for preliminary review.

On November 6, 2017, the 2017 HMP was presented to City Council for adoption at a regularly scheduled City Council meeting. The City Council Meeting Agenda was posted at City Hall and the City Council Meeting agenda packet was posted on the City's website. The local community access cable television channels carried the City Council meeting announcement. At the council meeting, City Council voted unanimously to adopt the 2017 Hazard Mitigation Plan.

2.2 Stakeholder and Public Outreach

A requirement is that the HMP must document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process (44 CFR § 201.6(b)(2)). The plan must also document how the public was involved in the planning process during the drafting stage (44 CFR § 201.6(b)(3)).

At the May 18, 2015 kick-off meeting, the planning team provided recommendations for the public and stakeholder outreach process. The discussion included a two-pronged strategy for reaching out to the public, focused on efforts during the drafting phase and prior to plan adoption. The recommendations were to utilize existing groups in the City such as civic organizations, City commissions, the business community, school district, and social media to conduct outreach for public input.

Public Outreach Strategy

To reach out to the general public about the 2017 HMP, a survey was created which provided information on the hazards in the City, on preparedness of the public, on the value of community wide projects, actions and activities, and on issues related to hazard mitigation through policies and the effectiveness of receiving information regarding emergencies and disasters from the City. In June of 2015, a survey was placed on the City's web site located at www.ci.pittsburg.ca.us and was advertised on the City e-news to subscribers, Health Services email subscriber announcement, the Living Green Facebook page, and on the City website. To invite stakeholders from other jurisdictions, Contra Costa County Office of Emergency Services

sent out an email to the emergency management coordinators in the cities in the county inviting them to participate in the HMP development process.

During this process, the City Manager's Office received 70 public comments about the 2017 HMP. Information on how members of the public like to receive information about hazards in Pittsburg, and on how they would use that information to better prepare for disasters was also received. The favored method of receiving information from the City was via the Internet (71.64%). Some participants asked specific questions about what to do when certain issues arise, such as having no water or electricity after an earthquake. Screenshots of the survey invitation, survey, and results can be found in Appendix B of the HMP.

Prior to the approval and adoption of the 2017 HMP, a copy of the plan will be placed on the City's website. The Planning Team will review any comments and consider changes to the HMP for those suggestions that would benefit the plan. The City website page will provide an e-mail address and phone number to which people can direct further comments or concerns.

For documentation of the above HMP public outreach efforts, see Appendix B, Stakeholder and Public Outreach

2.2.1 Stakeholder Outreach

To facilitate stakeholder involvement for the development of the HMP, the City provided an overview of the HMP, gave presentations of information, provided a survey for input, and answered questions regarding the planning process. The meeting facilitation materials and attendance sheets are included in Appendix B.

The Planning Team conducted the following stakeholder outreach activities:

- A health services announcement about the hazard mitigation plan and request to complete the survey was emailed by Contra Costa County Health Services Division to 36 affiliated community organizations, public health stakeholders and their clients, and hospital districts, such as The Food Bank, Pittsburg Unified School District, and the Center for Human Development.
- Emergency management/disaster coordinators of the surrounding cities were sent the draft 2017 HMP for review to provide input.
- The Contra Costa County Office of Emergency Management was sent the draft HMP for review to provide comments and recommendations.
- The Contra Costa County Health Services Division Hazardous Materials Division was sent the draft HMP for review to provide comments and recommendations
- The American Red Cross Bay Area Chapter was sent the 2017 HMP for review and comment.

2.2.2 PUBLIC OUTREACH

The following activities were undertaken as part of outreach to members of the community regarding the 2017 HMP:

- In June of 2015, a notice was placed on the City website about the 2017 HMP requesting residents and employees of businesses in Pittsburg to complete the hazard mitigation plan development survey. The results of the survey are contained in Appendix B. They were used to provide input to the analysis of hazards and in developing the mitigation goals and activities.
- An advertisement about the hazard mitigation plan and the request to participate in the survey was placed on the Living Green Facebook page.
- An advertisement requesting community members to participate in the hazard mitigation survey was distributed to subscribers via the City's e-news blast.
- The complete draft version of the 2017 HMP was posted on the City website on and on the Living Green Facebook page from March 2, 2017 through March 17, 2017 with a request for public comments.

2.3 INCORPORATION OF EXISTING PLANS AND OTHER TECHNICAL INFORMATION

The requirements for review and incorporation of existing plans, studies, reports, and technical information (44 CFR §201.6(b)(3)), as described in the federal regulations are described below.

During the planning process, members of the planning team reviewed and incorporated information into the 2017 HMP information from several existing plans, studies, and reports. These reports are listed below:

- The 2014 Pittsburg Emergency Operations Plan. The hazard section of the EOP provided a basis for the hazards identified in the HMP.
- Pittsburg General Plan, Health and Safety Element. The hazards identified in the Health and Safety Element provided natural hazard information for the seismic hazard profile, including ground shaking and ground failure, and for flooding and fires.
- Pittsburg General Plan. The land use and development trends identified in the General Plan provided guidance for development trends identified in the HMP vulnerability analysis.
- Adopted Annual Budget, Fiscal Year 2015-16
- Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2014
- Pittsburg Sewer System Management Plan, February 2014
- Climate Central Sea Level Rise and Coastal Flood Risk: Summary for Pittsburg, CA
- Contra Costa Hazard Mitigation Plan, May 2011

- California Climate Adaptation Planning Guide (APG): The 2012 APG provides information on the effects of climate change on California, and provided adaptation planning guidance used in the development of the climate change hazard profile.
- 2013 State of California Multi-Hazard Mitigation Plan. The State HMP was reviewed to ensure the alignment of the Pittsburg HMP with the state's current hazard profiles and mitigation strategy.

Additionally, a resolution to the City Council will be forwarded upon approval of the HMP adopting the HMP as a part of the General Plan Health and Safety Element. This incorporates the mitigation actions contained in the HMP into the General Plan and provides commonality between the plans. This action meets the requirements of State Assembly Bill 2140 as stated in California Code Section 8685.9.

2.4 Continued Public Participation in Plan Maintenance

The overall success of the HMP is through implementation of the plan's hazard mitigation strategy and activities to reduce the effects of hazards, protect people and property, and improve the City's efforts to respond to and recover from disasters. Members of the public in Pittsburg and the City will ultimately benefit from the implementation of the HMP and must be given the opportunity to provide input to the continuous cycle of HMP planning.

Pittsburg will strive to keep the public aware of hazard mitigation projects that take place as a result of the HMP. Public information will be released through press releases, City website announcements, public hearings, council and commission meetings, and the City e-news blast to subscribers.

Projects that mitigate hazards are included in the City's annual budget planning process. City workshops are held and meetings are convened, and the public is made aware of the planning through council meetings, open workshop sessions, and press releases during this time. The budget planning process will serve as an annual opportunity to conduct outreach to the public on updates to the hazard mitigation planning process. A survey can be developed to gather input on how the community feels about the progress being made on HMP activities. The City will also provide press releases and information about hazard mitigation projects to the public on a regular basis, but at a minimum, the public will be engaged to learn about current HMP activities, and given the opportunity to provide comments and information on an annual basis to update and maintain the HMP. The City Manager's Office will be responsible to ensure the public is included and involved in the annual public plan update and outreach.

When the time comes to begin revising the 2017 HMP, the plan update process will be implemented, which will include continued public involvement and input through attendance at

designated public meetings, web postings, through press releases to local media, community fairs and events, and surveys. As part of this effort, a series of public meetings will be held and public comments will be solicited on the revisions to the HMP according to the five-year cycle.

2.5 Plan Maintenance Method and Schedule

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This section details the process that Pittsburg will use to monitor, update, and evaluate the plan within the five-year cycle of the plan's revision to ensure the HMP remains an active and relevant document. The format of the plan aligns with the regulation checklist and is divided into sections of information. When it is time to maintain or revise the HMP, data can be easily located and incorporated, resulting in an easy method to keep the plan current and relevant.

2.5.1 Plan Implementation

The hazard mitigation plan includes a range of action items to reduce losses from hazard events. Together, the action items provide a framework for activities that the City can choose to implement over the next five years. The effectiveness of the plan depends on the incorporation of the action items into existing City plans, policies, and programs. Although the City Manager's Office will have primary department responsibility for the HMP's continual review, coordination, and promotion, plan implementation and evaluation will be a shared responsibility among all departments and agencies that contributed to the mitigation action plan. The Pittsburg City Manager and Department Directors will be jointly responsible for the plan's implementation and maintenance through existing City programs. Division Managers will be responsible for implementing mitigation strategies and actions specific to their department operations. The Environmental Affairs Manager in the City Manager's Office will assume the lead responsibility for facilitating plan maintenance and coordinating the planning team.

2.5.2 Hazard Mitigation Planning Team

The planning team represents City staff from each department and other stakeholders that contributed to the development of the 2017 plan. The planning team oversaw the development of the plan, and made recommendations on key elements of the plan, including the maintenance strategy.

It was important to the City that each department be represented in the planning team and given the opportunity to provide input during the plan development. This philosophy will be continued for future plan revisions through evaluations, maintenance, and updates of data, processes, and programs. The planning team will convene annually to perform annual reviews of the HMP and its implementation. The planning team will include representation from residents, citizen groups, and stakeholders within the planning area.

If planning team members can no longer serve on the planning team, the Department Director will assign another staff person to be on the planning team so that every City department is represented.

2.5.3 Annual Progress Report

Each April, the planning team will begin the process of reviewing the HMP and the implementation of mitigation actions to develop an annual progress report. This process can also assist the budget review process by providing information on mitigation projects and activities that have been completed or implemented. The annual progress report process will serve to align annual reviews of the hazard mitigation plan to incorporate information. As updates to the HMP are completed, the public will be made aware of the changes to the HMP and make recommendations or comments.

The planning team will monitor the hazard mitigation strategies during the year and at a meeting held in January of each year, team members will provide information for the evaluation of the progress of the 2017 HMP. This evaluation will include:

- A summary of any hazard events that occurred during the prior year and their impact on the planning area
- A review of successful mitigation initiatives identified in the 2017 plan
- A brief discussion about the targeted strategies that were not completed
- A re-evaluation of the action plan to determine if the timeline for identified projects needs to be amended, and the reason for the amendment, e.g., funding issues
- Any recommendations for new projects
- Any changes in or potential for new funding options (grant opportunities)
- Any impacts of other planning programs or initiatives in the City that involve hazard mitigation

The planning team will write a progress report that will be provided to the City's budget planning team for review and incorporation in the budget process as mitigation projects are completed or implemented. The hazard mitigation plan progress report will also be posted on the City website on the page dedicated to the hazard mitigation plan, provided to the local media through a press release, and presented in the form of a report to the Pittsburg City Council. The planning team will strive to complete the progress report process by March of each year.

2.5.4 Future Plan Revisions

Section 201.6.d.3 of 44CFR requires that local hazard mitigation plans be reviewed, revised as appropriate, and resubmitted for approval in order to remain eligible for benefits awarded under the Disaster Mitigation Act. The City of Pittsburg intends to update its hazard mitigation plan on a 5-year cycle.

Based on needs identified by the planning team the update will, at a minimum, include the following elements:

- The hazard risk assessment will be reviewed and updated using the most recent information and technologies.
- The action plan will be reviewed and revised to account for any initiatives completed, dropped, or changed and to account for changes in the risk assessment.
- Any new City policies identified under other planning mechanisms, as appropriate.
- The draft HMP update will be sent to appropriate agencies and organizations for comment.
- The public will be given an opportunity to comment on the updated version prior to adoption.
- The Pittsburg City Council will adopt the updated plan.

At a minimum of six months prior to the expiration date of the 2017 HMP, the planning team will implement a plan revision schedule to formally update the 2017 plan. The plan will be revised using the latest FEMA hazard mitigation guidance documents, such as the Mitigation Planning Tool and Regulation Checklist to ensure compliance with current hazard mitigation planning regulations.

SECTION 3: HAZARD IDENTIFICATION AND RISK ASSESSMENT

This section of the HMP includes requirements for hazard profiles and a risk assessment, as provided in the Code of Federal Regulations.

FEMA REGULATION CHECKLIST: RISK ASSESSMENT

Hazard Identification

44 CFR § 201.6(c)(2)(i): The risk assessment shall include a description of the type of all natural hazards that can affect the jurisdiction.

Elements

B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Requirement § 201.6(c)(2)(i).

B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for the jurisdiction? See 44 CFR § 201.6(c)(2)(i).

B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? Requirement § 201.6(c)(2)(ii).

B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? Requirement § 201.6(c)(2)(ii).

Source: FEMA, *Local Mitigation Planning Handbook Review Tool,* March 2013.

3.1 HAZARD IDENTIFICATION

The goal of mitigation is to reduce the future impacts of hazards, including loss of life, property damage, disruption to the local economy, and the expenditure of public and private funds for recovery.

Hazard Identification

A list of all hazards that had the potential to occur in Pittsburg was presented to stakeholders in a meeting and to the general public through a survey. The list of hazards was derived from the General Plan - Pittsburg 2020 A Vision for the 21st Century, the 2014 Emergency Operations Plan, the 2011 Contra Costa Multi-Hazard Mitigation Plan, and the California State Hazard Mitigation Plan. Considering the results of the public survey and recommendations from the stakeholders, the planning team decided to include technological and human-caused hazards to the Plan to thoroughly represent the total threat in Pittsburg. The following table lists the hazards described in the HMP:

Table 3-1: Hazard Identification Table

2017 HMP Hazards
1. Flooding – Localized Storms, Seiches
2. Hazardous Materials – Chemical Storage
3. Earthquake – Seismic Hazards
4. Drought
5. Transportation – Air, Rail, Highway, and Water
6. Civil Unrest
7. Public Health – Epidemic, Pandemic
8. Severe Weather – Wind, Tornados, Heat
9. Wildland and Urban Fires
10. Terrorism – Nuclear, Cybersecurity
11. Pipeline – Oil Spills
12. Climate Change – Air Pollution, Rising Tides

The 2017 HMP lists 12 hazards that affect the planning area based on historical information, the presence of the hazard, and the likelihood of future occurrences of the hazard. The hazard profiles serve as the basis of the hazard assessment.

3.1.1 Pittsburg Disaster Proclamation History

The planning team reviewed historical information and more recent past events to identify hazards where an emergency or disaster was proclaimed within the City. The following table shows the emergency or disaster proclamation history for the City of Pittsburg:

Table 3-2: Pittsburg Emergency or Disaster Proclamations

Year	Resolution Number	Emergency/Disaster Type
1998	98-8573	Local Emergency based on Winter Storm Activity commencing on February 3, 1998
1997	97-8415	Local Emergency based on Winter Storm Activity commencing on January 22, 1997

3.1.2 Disaster Proclamation Process

When there is a condition of extreme peril or potential peril to the safety of persons and property, and the condition is beyond the capability of the local jurisdiction to control effectively, the local governing body (city council, board of supervisors or a person authorized by ordinance) may proclaim that a local emergency exists. The local government may request the California Office of Emergency Services (Cal OES) Director to concur in their proclamation of a local emergency and to provide assistance under the California Disaster Assistance Act (CDAA). A copy of the resolution must be provided to Contra Costa Operational Area as soon as possible for

transmission of the resolution to Cal OES. When a county proclaims a local emergency pursuant to Section 8630 of the Government Code, based upon conditions which include both incorporated and unincorporated territory of the county, it is not necessary for the cities to also proclaim the existence of a local emergency independently. If sufficient conditions occur, the State may proclaim a state of emergency to fully commit state and mutual aid assistance and provide resources to assist local government. Following the proclamation of a state of emergency, the California OES Director may recommend that the Governor request a Presidential declaration of a major disaster under the authority of Public Law 93-288. The Governor's request to the president is submitted through the Federal Emergency Management Agency (FEMA).

The table below lists the State and Federal disaster declarations affecting Contra Costa County, which encompass the cities within the County. Disaster proclamations for hazards that are not present in Pittsburg (dam failure, landslides, fruit fly infestations, etc.) were excluded from the table:

Table 3-3: Contra Costa County Disaster Proclamation History

Year	Disaster #	Hazard	Declaration
04/28/2009		H1N1 Swine flu	State
2/27/2009		Drought	State
11/9/2007		Oil spill – Cosco Busan	State
05/10/2006	DR 1646	Winter storms	State
12/15/2005	DR1628	Winter storms/flooding	Federal/State
02/02/1998	DR 1203	Severe flooding/landslides	Federal/State
01/10/1995	DR1046	Severe winter storms	Federal/State
01/13/1995	DR1044	Severe winter storms	Federal/State
01/15/1993	DR979	Winter storms (snow, rain, high winds)	Federal/State
11/17/1989	DR845	Earthquake (Loma Prieta)	Federal/State
02/18/1986	DR758	Winter storms (rain, wind, flooding, landslides)	Federal/State
02/09/1983	DR677	Winter storms	Federal/State
01/07/1982	DR651	Winter storms	Federal/State
01/23/1980	0378-EM-CA	Delta levee break	State
1/26/1969	DR253	Winter storms	Federal/State
10/24/1962	DR138	Flood/rainstorms	Federal/State
04/04/1958	DR82	Winter storm/ flood damage	Federal/State
12/23/1955	DR47	Floods	Federal/State

This disaster history (combined federal and state) suggests that Contra Costa County, including the City of Pittsburg, could experience a major incident worthy of a disaster declaration every 3.3 years, and 13 out of the 18 disaster declarations were the result of severe weather. Similarly, most disaster-related injuries to people and damage to property resulted from severe weather.

3.2 HAZARD PROFILES

The hazards that exist in Pittsburg are profiled below. Each hazard profile includes a description of the type, location, extent, previous occurrences, and probability of future events within the description. Maps and graphs are used in this plan to display hazard identification data. Except for the future earthquake probability, which was taken from the third Uniform California Earthquake Rupture Forecast (UCERF3), the probability of future hazard events was calculated based on existing data. Probability was determined by dividing the number of events observed by the number of years on record and multiplying by 100. This gives the percent chance of an event happening in any given year (e.g., three tornados over a 30-year period equates to a 10 percent chance of a tornado in any given year). The likelihood of future occurrences is categorized into one of the following classifications:

- Highly Likely—Near 100 percent chance of occurrence in the next year, or happens every year.
- Likely—Between 10 and 100 percent chance of occurrence in the next year, or has a recurrence interval of 10 years or less.
- Occasional—Between 1 and 10 percent chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
- Unlikely—Less than 1 percent chance of occurrence in the next 100 years, or has a recurrence interval of greater than every 100 years.

3.2.1 FLOODING – LOCALIZED STORMS AND SEICHES

Type

Rain that falls in the Central Valley of California and in most of the Sierra Nevada Mountains ultimately flows to the Pacific Ocean through the San Joaquin-Sacramento River Delta along the water's edge of Pittsburg and the shoreline of Contra Costa County. The shoreline of Pittsburg is within the 100-year flood zone which may cause localized flooding in and around watershed areas. This threat has been mitigated in some degree by improvements in the water runoff infrastructure within the City. Pittsburg is not in the line of any flooding from dam or reservoir inundation.

Location

In Pittsburg, low lying areas are subject to flood conditions. Urban development in flood plain areas are often subject to seasonal inundation. The flood plain is a natural extension of any waterway, although infrequently used. Storm water runoff, when exceeding the capabilities of the physical channel characteristics of a stream, results in the natural flooding of a localized area, inundating vehicles and causing considerable damage to residential and industrial properties located near stream and drainage channels.

The Federal Emergency Management Agency (FEMA) is performing detailed coastal engineering analyses and mapping of the San Francisco Bay shoreline within the nine San Francisco Bay Area counties. The analysis and mapping will revise and update the flood and wave data for the Contra Costa County Flood Insurance Study report and Flood Insurance Rate Map panels along the San Francisco Bay shoreline.

Extent

The potential for flooding in Pittsburg is generally in response to a series of heavy winter rainstorms, typically occurring in early November through late March delta rising. If drainage basins became flooded due to several storms within a short period of time, the floodplain management and response capability could be overwhelmed and major roads could be blocked, preventing access for many residents and critical response functions.

Previous Occurrences

Flooding associated with severe storms has been among the most common disaster in the Bay Area during the period from 1950 to 2015, occurring on average 1.3 times a year over the past 60 years. Often heavy rainfall brings many areas of localized flooding, especially in low-lying areas of the region. Many other locally significant floods have occurred during this time period.

Extensive flooding occurred in 1950, 1957, 1958, 1959, 1962, 1963, 1964, 1965, 1966, 1969, 1970, 1973, 1980, 1982, 1983, 1992, 1995, 1996, 1997, 1998, 2005, 2006, and 2008, 2009, 2012 and 2014.

The City of Pittsburg has had two resolutions declaring a local disaster. On January 22, 1997, a severe winter storm front impacted the City of Pittsburg causing widespread flooding which impacted both public and private structures and facilities. During the storm, substantial localized flooding was experienced in many areas of the City.

On February 3, 1998, a winter storm impacted the City of Pittsburg and led to significant and catastrophic public and private losses due to storm-related flooding.

Although there have been several severe storms, there have been no Stafford Act declarations in Contra Costa County for flooding since 2006.

Table 3-4 Contra Costa County Flood Events

Date	Declaration #	Type of event	Estimated Damage[a]
1/1/2006	DR 1628	Flooding	22,000,000 property/8,710,359 crop
2/14/2000	N/A	Flash flood	$100,000 property
2/9/1998	DR 1203	Severe winter storms and flooding	—
1/1997	DR 1155	Severe storms/flooding	—
3/12/1995	DR 1046	Flooding	$11.2 million
1/10/1995	DR 1044	Severe winter storms, flooding, landslides, mud flows	
1/13/1993	DR 979	Flooding (flash flood)	$5.5 million property/crop
12/11/1992	N/A	Flooding/severe weather	$131,579 property
2/14/1992	N/A	Flooding- severe weather	$20,718 property
5/28/1990	N/A	Flooding (flash flood)	$500,000 property
2/17/1986	DR 758	Flooding (flash flood)	$5,000,000 property
12/9/1983	N/A	Levee failure, high winds, high tides, floods, storm, wind driven water	public-7,240,785; private- 2,669 million; agriculture 1 million
2/9/1983	DR 677	Flood- severe weather	$384,165 property
3/3/1982	N/A	Flooding	$166,667 property
1/3/1982	DR 651	Flood- severe weather	7,142,857 property
1/23/1980	N/A	Delta levee break Holland & Webb levee breaks	Public-11,158,700; private-1,479,500; agriculture-3,887,195; total-17,388,013
1/16/1973	N/A	Flood- severe storm/thunder	$86,206 property
1/18/1969	DR 253	Flood- severe storm/thunder	$862,068 property
1/1978	N/A		—
12/1955	N/A	Severe winter storms, flooding	$22 million

a. Data obtained from Spatial Hazard Events and Losses Database for the United States (SHELDUS)
N/A = Information is not available

Although no emergency declarations for flooding have been proclaimed since 2006, the event described below occurred on January 19, 2010.

Storm Event Data Base: Event Details

Event	Flood
-- Flood Cause	Heavy Rain
State	CALIFORNIA
County/Area	CONTRA COSTA
WFO	MTR
Report Source	Newspaper
NCEI Data Source	CSV
Begin Date	2010-01-19 06:00:00.0 PST-8
Begin Location	0N PITTSBURG
Begin Lat/Lon	38.0271/-121.8812
End Date	2010-01-19 08:00:00.0 PST-8
End Location	0N PITTSBURG
End Lat/Lon	38.0268/-121.8812
Deaths Direct/Indirect	0/0 (fatality details below, when available...)
Injuries Direct/Indirect	0/0
Property Damage	0.00K
Crop Damage	0.00K
Episode Narrative	The second in a series of significant storms brought strong winds and heavy rain to the San Francisco and Monterey Bay area. This storm developed over the Pacific Ocean with a strong parent low pressure based in the Gulf of Alaska. Around 137,000 customers lost power across the San Francisco Bay area. Numerous power lines and trees were knocked down when strong wind combined with saturated soil.
Event Narrative	Heavy rain led to flooding at and the closure of the Solari Street underpass of Tenth Street. Also, flooding was reported at Beacon Street between Eighth and Tenth Streets.

Source: NOAA, National Centers for Environmental Information

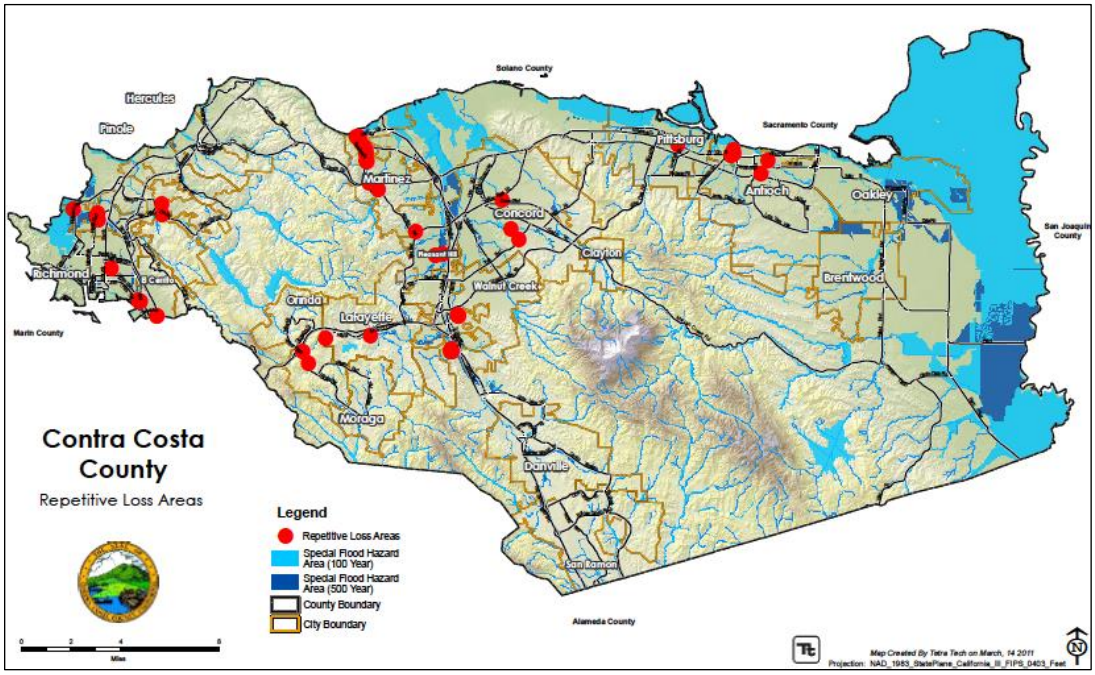
Repetitive Loss

A repetitive loss property is defined by FEMA as an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:

- Four or more paid losses in excess of $1,000
- Two paid losses in excess of $1,000 within any rolling 10-year period
- Three or more paid losses that equal or exceed the current value of the insured property.

Repetitive loss properties make up only 1 to 2 percent of flood insurance policies in force nationally, yet they account for 40 percent of the nation's flood insurance claim payments. In 1998, FEMA reported that the NFIP's 75,000 repetitive loss structures have already cost $2.8 billion in flood insurance payments and that numerous other flood-prone structures remain in the floodplain at high risk. The government has instituted programs encouraging communities to identify and mitigate the causes of repetitive losses. A recent report on repetitive losses by the National Wildlife Federation found that 20 percent of these properties are outside any mapped 100-year floodplain. The key identifiers for repetitive loss properties are the existence of flood insurance policies and claims paid by the policies. FEMA-sponsored programs, such as the Community Rating System (CRS), require participating communities to identify repetitive loss areas. A repetitive loss area is the portion of a floodplain holding structures that FEMA has identified as meeting the definition of repetitive loss. Identifying repetitive loss areas helps to identify structures that are at risk but are not on FEMA's list of repetitive loss structures because no flood insurance policy was in force at the time of loss. The following map shows the repetitive loss areas in Contra Costa County. There was one case of repetitve loss in Pittsburg. Figure 3-1 displays repetitive loss areas for Contra Costa County.

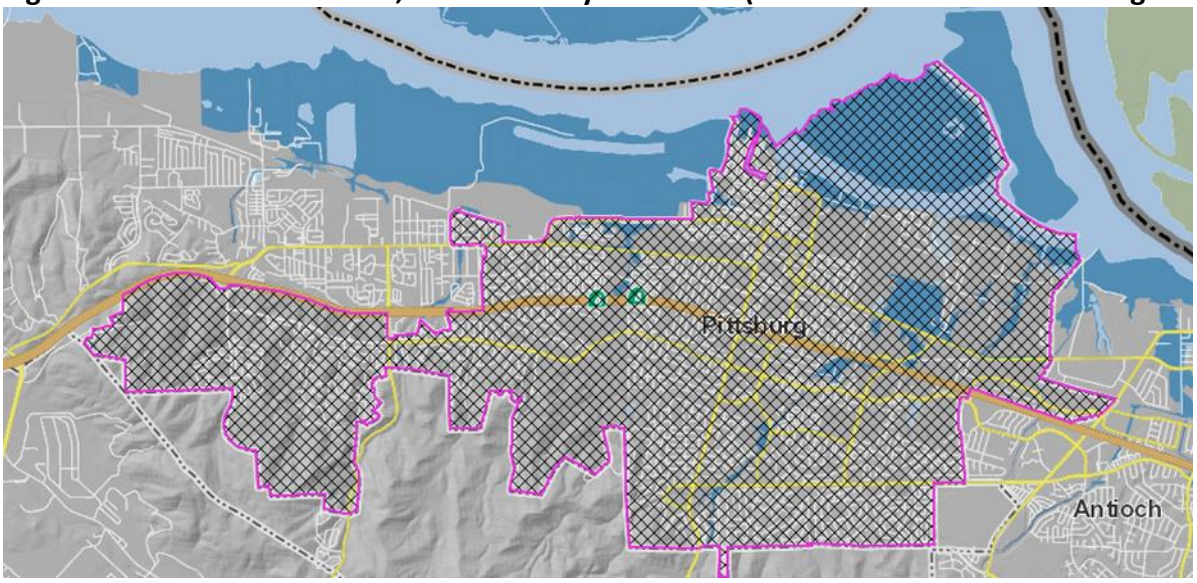
Figure 3-2: Repetitive Loss Areas in Contra Costa County



Probability of Future Events

The primary water courses in Contra Costa County have the potential to flood at irregular intervals, generally in response to a succession of intense winter rainstorms. Storm patterns of warm, moist air usually occur between early November and late March. A series of such weather events can cause severe flooding in the planning area. The worst-case scenario is a series of storms that flood numerous drainage basins in a short time. This could overwhelm the response and floodplain management capability within the planning area. Major roads could be blocked, preventing critical access for many residents and critical functions. High in-channel flows could cause water courses to scour, possibly washing out roads and creating more isolation problems. In the case of multi-basin flooding, the County would not be able to make repairs quickly enough to restore critical facilities and infrastructure. Figure 3-2 depicts the FEMA 100 and 500-year flood zones with respect to the City boundaries.

Figure 3-3: FEMA Flood Zones, 100 and 500 year floods. (Source: ABAG Resilience Program)



3.2.2 Hazardous Materials Incident – Refineries and Chemical Plants

Type

The northern section of Contra Costa County is home to a large number of industrial sites including refineries and other chemical processing plants. Major operators of the industrial sites include:

- Air Products and Chemicals, Inc.
- Chevron Refinery
- Criterion Catalyst Company L.P.
- Dow Chemical
- NRG Energy
- Pacific Gas and Electric
- Phillips 66
- Praxair, Inc.
- Shell Martinez Catalyst Plant
- Shell Oil Products, U.S.
- Tesoro Petroleum Company
- USS POSCO Industries
- Valero Refining Co

Location

Industrial facilities are located throughout northern Contra Costa County with a concentration in the cities of Richmond and Martinez. USS POSCO Industries' steel production plant is located in Pittsburg as is Dow's chemical plant. This plant is the largest integrated chemical manufacturing complex of its kind on the west coast. The plant has the capacity to produce several million pounds of the highly toxic pesticide, sulfuryl fluoride.

Extent

All the facilities have the potential to produce hazardous releases. The details of the type and extent of the potential releases are maintained by the plant operators and the State Department of Toxic Substances Control (DTSC). The facilities are required to notify the County Hazardous Materials Incident Response Team when there is an incident. The County's Board of Supervisors have approved the Hazardous Materials Incident Notification Policy (PDF) detailing when and how this should be done

Previous Occurrences

Table 3-5: Major Accidents at Chemical/Refineries in Contra Costa County

Company Date Accident Occurred	Accident Description	Offsite Impact
K2 Pure Solutions Dec 4, 2013	K2 Pure Solutions stopped production After an equipment malfunction caused two small releases of chlorine gas and a brief public health advisory from the County Officials reported the releases were contained to the plant's property and no injuries were reported.	Public health advisory.
Chevron August 6, 2012	# 4 Crude Unit Fire. An 8" line from the atmospheric distillation column with hot diesel like material leaked and caught fire.	More than 15,000 people sought medical attention.

Phillips 66 June 15, 2012	A sour water tank (T-294) was over pressured resulting in a split in the top seam of the fixed roof tank. Vapors left the tank through the opening until it could be sealed. Chemicals involved included H2S, other sulfur compounds, natural gas, light hydrocarbons	Strong sulfur odors were detected by Hazmat IR personnel on Friday in areas from I-80 and the surrounding communities. The highest readings were approximately 1 ppm (as H2S) on I-80, which is a few hundred feet from the storage tank. Readings from 5-20 pp
Tesoro Golden Eagle Refinery December 9, 2010	Partial Power outage due to damage at substation led to excess flaring and some unit shut down. CWS 2 activated at 10:31. CCHMP monitored the surrounding area and no hazardous substance was detected. Incident downgraded to CWS 0 at 13:18.	Significant flaring due to loss of power to multiple units.
Tesoro Golden Eagle Refinery November 10, 2010	Power outage from 3rd party power and steam supplier led to excess flaring and refinery-wide shutdown, very dark smoky plume. At 16:14, CWS 2 and at 16:45 upgraded to CWS 3. CCHMP monitored the surrounding area and took air samples. No hazardous substance was detected.	Visible smoke and reports of burnt grass smell in N. Concord.
Conoco Phillips October 22, 2010	Third party (Air Liquide) hydrogen plant tripped resulting in elevated pressure in the Refinery's fuel gas system, and decreases in available hydrogen and steam to the Refinery. One turbine at the Refinery power plant immediately tripped further reducing a	The BAAQMD received a number of complaints of visible smoke and odor in the area. No contaminants were found in community air samples taken by Refinery personnel. No activity was seen on the Refinery's fence line monitor.
Tesoro Golden Eagle Refinery October 10, 2010	At 12:20, fire on Tank 650 (foul water), contractor was replacing seal. Tank has a 3' diesel to layer for odor control. One Contractor treated for smoke inhalation, released same day. No odor reported. All clear at 16:10.	Visible smoke plume, but air monitoring by Tesoro industrial hygiene yielded non-detect levels.

Reactions Products May 5, 2008	A brass valve was removed from a bottom of a storage tank partially filled with toluene. The removal looked to be a theft of the valve over a weekend when no one was at the facility. Over 3,000 gallons of toluene was released. The spill went offsite into a ditch that run through the wetlands between Parchester Village and the Bay. The release was found on Monday morning and the US Coast Guard responded and requested that a shelter-in-place be called. The Parchester siren was sounded and information went out over the media to notify the residents of the shelter-in-place. When Health Services Hazardous Materials Response Team arrived onsite and took measurements of the amount of toluene in the air, the shelter-in-place was lifted. Health Hazardous Materials Programs is classifying this incident as a Community Warning System Level II and a Major Chemical Accident or Release Severity Level II, because if the toluene ignited the damage and consequences of the incident would be major.	Toluene went offsite into the wetlands. The toluene was in a ditch that runs along the border of Parchester Village. Toluene odors were noticeable in the Parchester Village. Siren was sounded and the residents of Parchester Village were requested to shelter-in-place.
Calpine Los Medanos Energy Center May 24, 2007	While overseeing the unloading of a bulk delivery of corrosion inhibitor, approximately 300 gallons of Nalco Trasar 3DT177 (phosphoric acid) was inadvertently unloaded into a storage tank containing about 378 gallons of 12.5% Sodium Hypochlorite solution. The chemical reaction of the two products resulted in a chlorine gas release in which the Field Operator and two other plant	Shelter-in-place was declared for the area north of the Los Medanos Energy Center for about an hour. No offsite complaints were received. CCHS Hazardous Materials Response Team conducted air monitoring outside of the affected building with the highest level of chlorine at 0.15 ppm. Air sampling conducted at various locations of the plant perimeter indicated non-detect.

	employees were exposed to. The three employees were transported via ambulance to the Mt. Diablo Medical Center for observation. Time of injury was reported to be 8:30 a.m.	
ConocoPhillips March 18, 2007	Sulphur plant shutdown due to electrical failure. XS sulfur to flare.	No complaints were received from the community.
Chevron Richmond Refinery January 15, 2007	"At 5:33 Chevron upgrades incident to Level 3 and sent message that there was a fire at the #4 Crude unit. Initial notification was 5:23 for a Level 2. Operators were in the process of shutting down the plant in preparation for scheduled maintenance. - Information About the Chevron January 15 Fire	Sirens were sounded and TENS Zone 3 & 4 was activated. Unknown amount of hydrocarbons was combusted, resulting in a release of sulfur dioxide. Air monitoring did not indicate adverse air quality impacts.
General Chemical - Richmond June 23, 2006	The main turbine tripped and the shutdown interlock on the combustion air blower did not work correctly, so the blower pressured up the upstream side of the system which is normally under a vacuum.	Four Chevron employees were exposed. No other public appears to be affected. Wind at the time of the release was blowing towards Chevron.

Probability of Future Events

While safety programs aim to prevent hazardous material releases, accidents occur due to equipment failures or human error. Additionally, a large earthquake could rupture piping and other containment systems and derange controls, causing releases, fires and public health incidents. There is a high probability of future hazardous releases from refineries and chemical plants that could affect Pittsburg.

3.2.3 Earthquake and Seismic Hazard Profile

Type

The City of Pittsburg is located in a high seismic risk zone. This region is one of the most seismically active in the world, marked by the number of large, damaging earthquakes that have occurred in

the past. Major earthquakes have occurred on the San Andreas and Hayward faults in 1836, 1838, 1868, and 1906 (California Geological Survey).

The following geologic hazards are associated with earthquakes and may be caused by seismic activity, increasing the resulting damage.

Ground Shaking: Ground shaking caused by a strong earthquake is probably the most important seismic hazard that can be expected anywhere in the Pittsburg and larger San Francisco Bay Area. The amount of earthquake shaking at a site is associated with the earthquake magnitude; the type of earthquake fault; the distance from the site and the earthquake source; the geology of the site; and how the earthquake waves decrease or increase as they travel from their source to the site in question. Shaking from the earthquake intensifies with a greater magnitude and closer distance to the epicenter. Softer soils and topographic ridges can also amplify seismic ground motions.

The shaking of the ground is caused by the sudden breaking and movement of tectonic plates (large sections) of the earth's rocky outermost crust. Movements within the Earth's crust cause stress to build up at points of weakness, and can cause deformation of rocks in the earth's crust. Stored energy builds up and when the stress finally exceeds the strength of the rock, the rock fractures along a fault, often at a zone of existing weakness within the rock. The stored energy is suddenly released as an earthquake. Intense vibrations, or seismic waves, radiate outward from the initial point of rupture, or focus, where the earthquake begins. These seismic waves are what makes the ground shake and can travel large distances in all directions. Near the focus, the waves can be very large, making them extremely destructive. The epicenter is the point on the Earth's surface located directly above the focus of an earthquake.

Liquefaction: Soil liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction and related phenomena have been responsible for tremendous amounts of damage in historical earthquakes around the world. Liquefaction can result in the settling and compacting of unconsolidated sediment in the event of a major earthquake. Liquefaction may increase as the ground acceleration and duration of shaking increase.

The vast majority of liquefaction hazards are associated with sandy soils and soils of low plasticity, such as silt. The composition of the soil must be saturated or nearly saturated to be susceptible to liquefaction. When an earthquake occurs, the soil particles can no longer support the water weight, and the groundwater pressure begins to rise. The soil particles become entrained in the water and begin to flow. Liquefied soil will force open ground cracks in order to escape to the surface. The ejected material often results in flooding and may leave cavities in the soil.

Liquefaction has resulted in substantial loss of life, injury, and damage to property. In addition, liquefaction increases the hazards of fires because of explosions induced when underground gas lines break, and because the breakage of water mains substantially reduces fire suppression capability. Liquefaction hazard in Pittsburg ranges from very low to high. ABAG has identified most of the lowland areas adjacent to Suisun Bay as being highly susceptible to liquefaction hazards. Alluvial fan and terrace deposits that underlie most of Pittsburg have low liquefaction potential, and upland areas that are underlain by bedrock have very low liquefaction potential

Surface Fault Rupture: Surface rupture is an offset of the ground surface when fault rupture extends to the Earth's surface. Fault rupture almost always follows preexisting faults, which are zones of weakness. Any structure built across the fault is at risk of being torn apart as the two sides of the fault slip past each other. Normal and reverse surface fault ruptures have vertical motion while strike-slip surface fault ruptures produce lateral offsets. Many earthquake surface ruptures are combinations of both. Structures that span a surface fault are likely to suffer great damage. The San Andreas, Hayward, Calaveras, and Greenville faults have all experienced surface rupture associated with large, damaging earthquakes during historical time.

Subsidence: Land subsidence is defined as the lowering of the land surface. Many different factors can cause the land surface to subside, such as a sinkhole or underground mine collapse, or during a major earthquake. Land subsidence can also occur when large amounts of groundwater have been excessively withdrawn from an aquifer. The clay layers within the aquifer compact and settle, resulting in lowering the ground surface in the area from which the groundwater is being pumped. Over time, as more water is removed from the area, the ground drops and creates a cone. Once the water has been removed from the sediment, it cannot be replaced.
Land subsidence can occur in various ways during an earthquake. Movement that occurs along faults can be horizontal or vertical or have a component of both. As a result, a large area of land can subside drastically during an earthquake. Land subsidence can also be caused during liquefaction. Liquefaction can result in the settling and compacting of unconsolidated sediment in an event of a major earthquake. This can result in the lowering of the land surface.

Expansive Soils: Expansive soils contain mixed-layer clay minerals that increase and decrease in volume upon wetting and drying, respectively. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. Most fine-grained deposits along the margins of San Francisco Bay contain clay layers and exhibit expansive or potentially expansive behavior. However, the hazard for expansive behavior is considered a low risk for coastal locations in and around the Bay Area because these areas are permanently saturated.

Landslides: Some soil materials, such as clay minerals, have the capacity to absorb water, resulting in a reduction of shear strength. The force of gravity can cause landslides when the shear strength of saturated clay is reduced below its minimum stability threshold. Earthquake induced landslides of steep slopes can occur in either bedrock or soils. Firm bedrock can usually stand in steeper, more stable slopes than soils. Rock type, grain size, degree of consolidation and angle of the beds all contribute to the strength or weakness of a bedrock hillside. Shale and deeply weathered rocks are very susceptible to slope failures. The presence of excessive amounts of water, or the lack of shear strength in the soil or at the soil-rock interface can also contribute to unstable soil conditions. Landslides can occur in the slope areas within the City. Areas at risk from landslides typically have steep slopes (15% or greater), unstable rock or soil characteristics, or other geologic evidence of instability. The mountainous areas of Pittsburg have slopes greater than 30%.

Earthquake Measurement: There are two scales that are used to measure the severity and intensity of an earthquake. The Modified Mercalli Intensity (MMI) Scale measures the ground shaking intensity in terms of acceleration, velocity, and displacement. The Moment Magnitude (Mw) Scale measures the severity of the earthquake by the amount of energy released at the source of the earthquake. The Mw scale, based on the concept of seismic moment, is uniformly applicable to all sizes of earthquakes. The extent of damage from an earthquake is determined by the magnitude of the earthquake, distance from the epicenter, and characteristics of surface geology. Table 3-5 shows an approximate correlation between the Moment Magnitude (Mw) and the Modified Mercalli Intensity (MMI) Scale and its effects.

Table 3-6: Severity (Mw) and Intensity (MMI) Comparison

Magnitude (Mw)	MMI Scale: Intensity	Abbreviated MMI Scale: Effects	
1.0-3.0	**I**	**I.** Not felt except by a very few under especially favorable conditions.	
3.0 - 3.9	**II – III**	**II.** Felt only by a few persons at rest, especially on upper floors of buildings.	**III.** Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.

Magnitude (Mw)	MMI Scale: Intensity	Abbreviated MMI Scale: Effects	
4.0 - 4.9	**IV – V**	**IV.** Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked	**V.** Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 - 5.9	**VI – VII**	**VI.** Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.	**VII**. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6.0 - 6.9	**VIII – IX**	VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.	**IX**. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0 and higher	**X - XI**	**X**. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.	**XI**. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
	XII	**XII**. Damage total. Lines of sight and level are distorted. Objects thrown into the air.	

Source: US Geological Survey (USGS): http://earthquake.usgs.gov/learn/topics/mag_vs_int.php

Location

The faults in the proximity of Pittsburg are as follows:

San Andreas Fault: West of Pittsburg, the San Andreas Fault (the largest fault in California) is the major tectonic boundary between the Pacific and North American plates. The Pacific plate is moving northwest relative to North America while the North American plate is moving southward. The San Andreas Fault has a Maximum Earthquake Potential (M_W) of 7.1.

Hayward Fault: The Hayward Fault runs along the western portion of Contra Costa County and is divided into southern and northern segments. This Hayward Fault is considered to be the most likely source of the next major earthquake in the San Francisco Bay Area. The Hayward Fault was assigned a M_W 6.9 for both the northern and southern segments.

Rodgers Creek Fault: The Rodgers Creek Fault lies in the northern central portion of Contra Costa County and is a right-lateral strike-slip fault. The Rodgers Creek Fault has a predicted earthquake recurrence interval of 230 years with a M_W 7.0.

Calaveras Fault: The Calaveras Fault represents a significant seismic source in the southern and eastern San Francisco Bay region. It runs east of San Jose, and along the Pleasanton-Dublin-San Ramon urban corridor, including Highway 680. Seismologic evidence suggests that the southern and central sections of this fault may produce earthquakes as large as M_W 6.2, while the northern section of the fault may produce earthquakes as large as M_W 7.0.

Concord-Green Valley Fault Zone: The Concord-Green Valley Fault is a right-lateral strike-slip fault zone that extends from the Walnut Creek area across Suisun Bay and continues to the north. The Concord fault extends approximately 12 miles, from the northern slopes of Mt. Diablo to Suisun Bay. North of Suisun Bay, the Green Valley fault continues to the north about 28 miles. It is estimated that the recurrence interval for these faults is approximately 180 years and a rupture of both faults would produce a maximum earthquake of about M_W 6.9.

Greenville-Marsh Creek Fault: The Greenville-Marsh Creek Fault is a strike-slip fault of the San Andreas system extending from Bear Valley to the east side of Mount Diablo. It is estimated this fault has a maximum earthquake of M_W 6.9 to the Greenville portion of the fault with a recurrence interval of about 550 years.

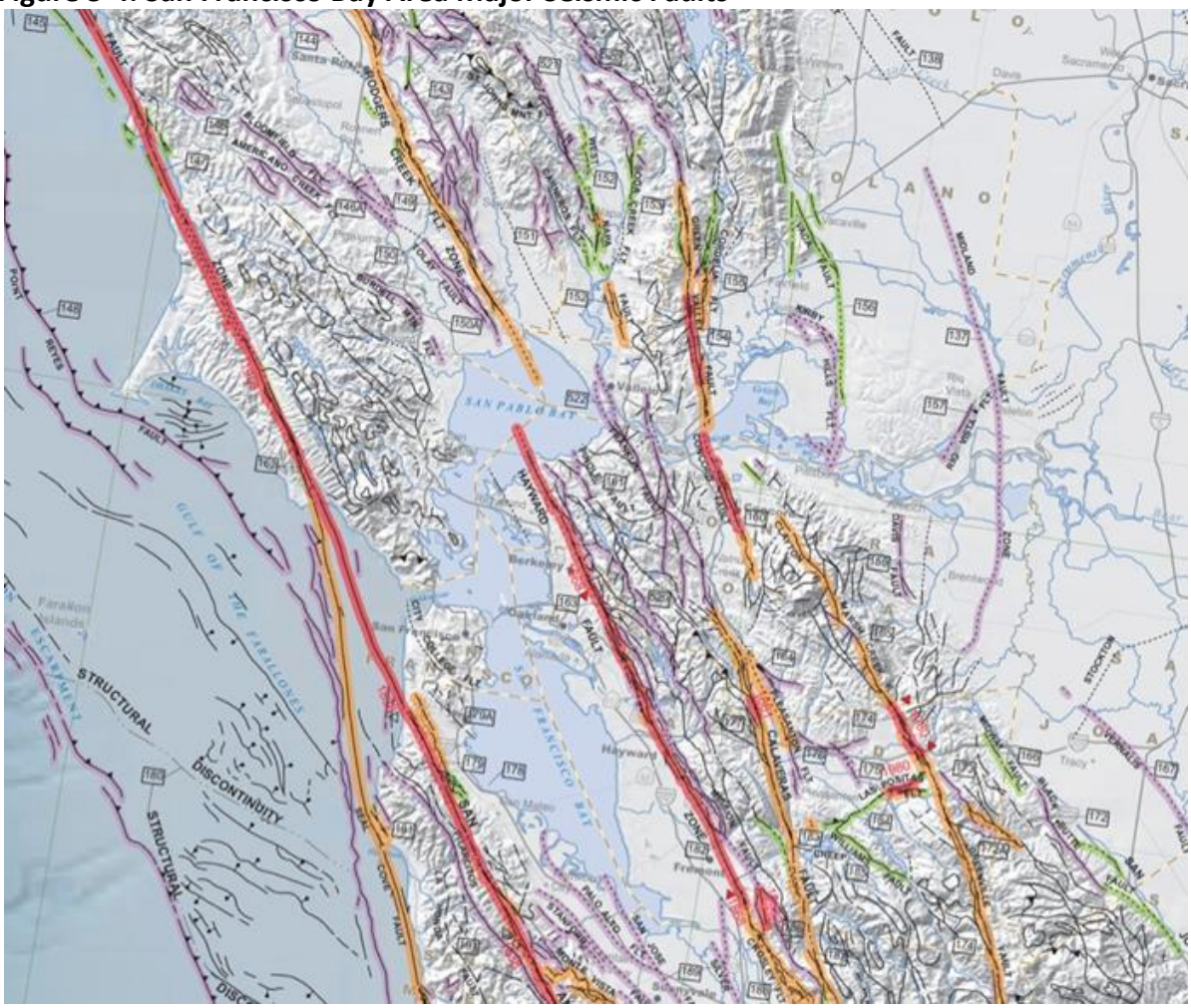
Pittsburg-Kirby Hills Fault: The Pittsburg-Kirby Hills fault extends some distance from the Kirby Hills north of the Sacramento River, to the eastern side of Mount Diablo, south of Pittsburg. The fault is believed to be a right-lateral strike-slip capable of generating a M_W 6.75. In the vicinity of Pittsburg, the fault is defined as the Pittsburg-Kirby Hills Fault Zone and is located approximately 1.1 miles to the west of the Standard Oil site. A study (Terrasearch, 2005) however, found no evidence that the fault is active.

Mount Diablo Thrust Fault: The Mount Diablo thrust fault is a northeast-dipping structure located beneath the Mount Diablo anticline. This blind thrust fault is considered capable of generating a maximum earthquake of M_W 6.25.

Extent

Pittsburg has no known earthquake faults within its boundaries, but due to the close proximity of several faults, the entire City is equally subject to the earthquake hazard as shown on the Figure 3-3 San Francisco Bay Area Major Seismic Faults.

Figure 3-4: San Francisco Bay Area Major Seismic Faults



Source: CA Department of Conservation, 2010 Fault Activity Map, http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html

The City of Pittsburg could be affected in varying degrees by several earthquake faults that are close to the City. Structural damage, as well as damage to infrastructure systems such as water, power, gas, communication, and transportation, is largely dependent upon the location of the earthquake's epicenter, the time of day, and season of the year.

Previous Occurrences

Northern California is one of the most seismically active areas in the U.S. The region has experienced at least 43 earthquakes since 1836.

Table 3-7: Historical Earthquakes Recorded in the Bay Area Region

Date	Magnitude	Fault Name
6-10-1836	6.5	South San Francisco Bay Region
6-1838	6.8	San Francisco area
10-8-1865	6.5	Santa Cruz Mountains
10-21-1868	6.8	Hayward -30 Fatalities
4-19-1892	6.4	Vacaville - 1 Fatality
6-10-1897	6.3	Calaveras Fault
3-31-1898	6.3	Mare Island
4-18-1906	7.8	San Francisco - 3000 Fatalities
7-1-1911	6.5	Calaveras Fault
10-24-1955	5.4	Concord -1 Fatality
3-22-1957	5.3	Daly City -1 Fatality
10-2-1969	5.7	Santa Rosa - 1 Fatality
8-1-1975	5.8	Oroville
8-6-1979	5.7	Coyote Lake
1-24-1980	5.8	Livermore Valley
11-1-1980	7.2	Humboldt County
4-24-1984	6.2	Morgan Hill
8-8-1989	5.4	Santa Cruz County - 1 Fatality
10-18-1989	6.9	San Francisco (Loma Prieta) - 63 Fatalities
9-3-2000	5.0	Napa
6-15-2005	7.2	Off the Coast of Northern California
6-17-2005	6.6	Off the Coast of Northern California
1-10-2010	6.5	Offshore Northern California
8-27-2014	6.0	Napa

Source: United States Geological Survey; http://earthquake.usgs.gov/earthquakes/states/historical_state.php#california

Probability of Future Events

Earthquake probabilities are calculated by projecting earthquake rates based on earthquake history and fault slip rates (not simply the number of occurrences within a span of years). The result is expressed as the probability that an earthquake of a specified magnitude will occur on a fault or within an area.

There is a strong likelihood that Pittsburg will experience a significant earthquake from one of the known major faults in the next 30 years. In 2015, the Working Group on California Earthquake

Probabilities (WGCEP) issued its third Uniform California Earthquake Rupture Forecast (UCERF3) which determined the likelihood for magnitude 6.7 and larger earthquakes somewhere in the region remains near certainty (greater than 99 percent).

3.2.4 DROUGHT

Type

Drought is an extended period of years when a region is deficient in its water supply, or consistently receives below average precipitation. Drought patterns in the West are related to large-scale climate patterns in the Pacific and Atlantic oceans, such as the El Niño–Southern Oscillation in the Pacific, and the Atlantic Multidecadal Oscillation in the Atlantic. As these large-scale ocean climate patterns vary in relation to each other, drought conditions in the U.S. shift from region to region. Drought produces a variety of impacts that span many sectors of the economy such as reduced crops, rangeland, and forest productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in reduced income for farmers and agribusiness, increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration.

Drought is a lack of adequate water, whether atmospheric, surface or ground water. Drought occurs over a prolonged period of time – typically more than one year, or lasting several years. Drought impacts most the populations that rely on or are affected by a lack of water or annual rainfall. A drought negatively impacts forests and wildland fires, the economy of the agricultural industry, growth of feed and sufficient grazing for livestock, and rural residents that use wells or small water systems for their water source. The California Department of Water Resources (DWR) tracks water supply conditions across the state. Indicators include the annual snowpack, precipitation, runoff, and reservoir storage. There are ten major hydrologic regions in the state. By tracking the indicators in the hydrologic regions, the DWR can continually monitor drought conditions and forecast potential drought or dry years in the 58 counties across the state.

In Pittsburg, drought impacts are more related to social, economic, and environmental uses. The City of Pittsburg is primarily a suburban city; water usage is typically related to municipal, tourism, commerce, and recreation, all of which require a constant steady supply of water.

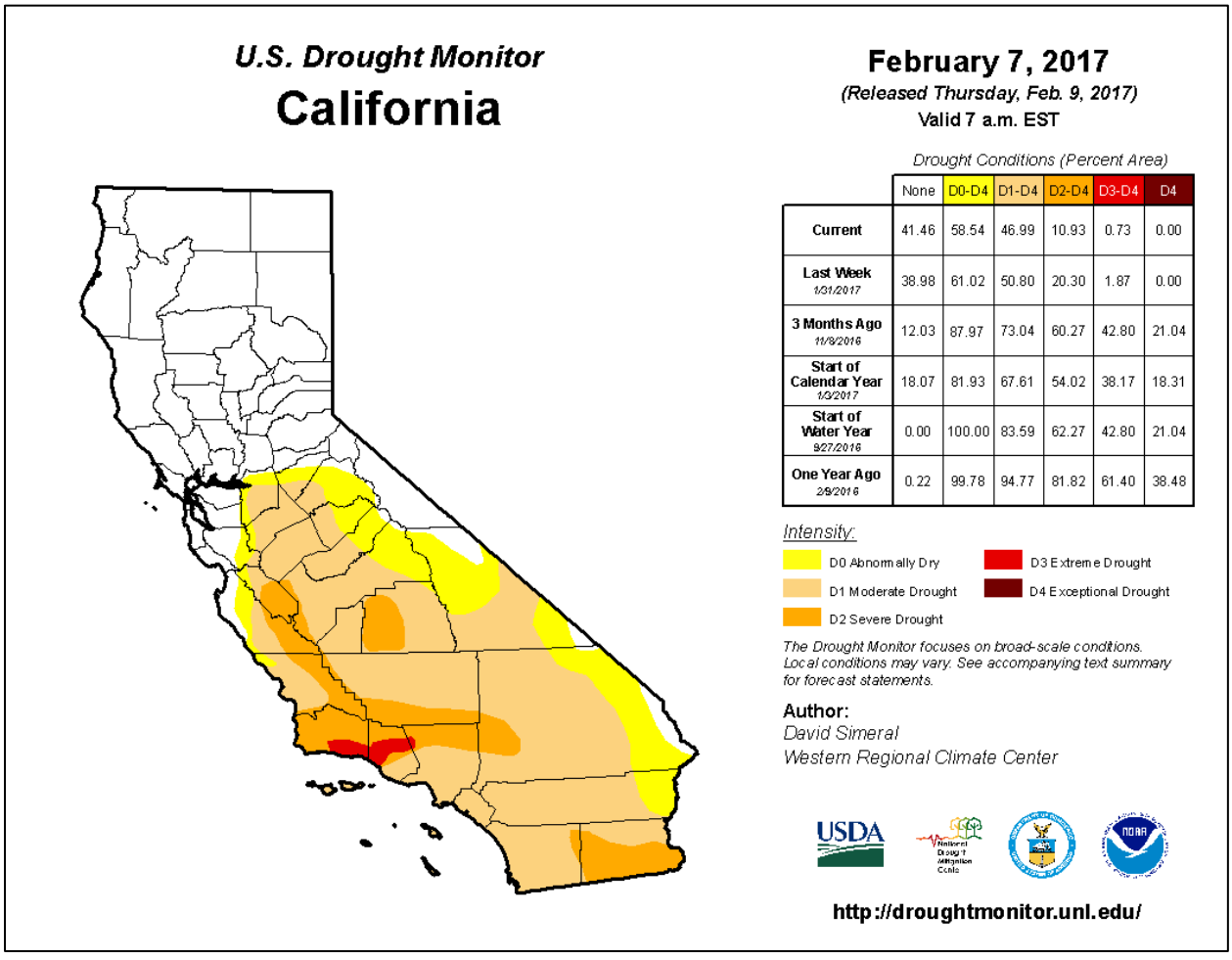
Location

When a drought is in effect, the entire City is affected by the drought.

Extent The State of California recently experienced an unprecedented drought beginning in 2012. This is the longest drought in over a century. The drought currently encompasses over 98% of the state of California. More than 44% of California is in “exceptional” drought — the worst level of

drought. On January 17, 2014 Governor Edmund G. Brown Jr. declared a drought state of emergency. Reservoirs, groundwater basins and ecosystems are at half-capacity or less, and are stressed. The wildfire risk is extremely high. 2014 is the state's third driest in 119 years of record, based on statewide precipitation. In late July 2015, the U.S. Drought Monitor classified 58 percent of California in “exceptional” drought, the most severe on the U.S. Drought Monitor’s five-point scale, and that percentage remained unchanged through September. More than 80 percent was in "extreme" drought (CA Department of Water Resources). Figure 3-4 display draught conditions as of February 2017,. On July 15, 2014, the California State Water Resources Control Board approved an emergency regulation to ensure agencies and state residents increase water conservation allowing local agencies to ask courts to fine water users up to $500 per day for failure to implement conservation requirements.

Figure 3-5: U.S. Drought Monitor California February 2017



The City has a Water Treatment Plant with staff that is responsible for the maintenance and 24-hour/day operation of the City's 32 million gallon-per-day water treatment plant, 7 pump stations and 8 drinking water storage reservoirs. The Water Treatment Plant ensures that the water distributed by the City is of the highest quality possible and meets or exceeds all State and Federal health standards. Each year a report is published on the quality of water delivered by Contra Costa Water District to the cities of Antioch, Pittsburg, Martinez and Diablo Water District in Oakley per the direction of the Department of Public Health and the U.S. Environmental Protection Agency.

The Pittsburg Water Department is responsible for the repair and maintenance of the water distribution system needed to provide reliable service to the City of Pittsburg and meet all State of California Department of Public Health's water distribution system regulations and the following tasks:

- Maintain and perform scheduled and emergency repairs to maintain system reliability. Distribution system includes 215 miles of water mains, 3,600 distribution system valves, 17,500 customer service lines and meters, and 1,300 fire hydrants to maintain system reliability.
- Manage Hydrant Flushing/Valve Exercising Program, Backflow Prevention Program (State Mandated): Provide record keeping, enforcement, repairs, testing and installations of 1,259 backflow prevention devices.
- Provide monthly water meter reading for customer billing, meter replacement and repairs, service turn-on/shut-off, and respond to customer service complaints and service emergencies.

The City of Pittsburg maintains the collection system that transports the sewage to the treatment plant at Delta Diablo Sanitation District. The monthly sewer charge for a single family is a flat fee. The non-single family fee is based on the type of facility.

Previous Occurrence

Historical drought data for the Contra Costa County region indicate there have been four significant droughts in the last 79 years. This equates to a drought every 19.8 years on average, or a 5.1 percent chance of a drought in any given year. In the past, Pittsburg has experienced a drought. The State of California declared a proclamation of emergency in February 2014 and again in April 2014 for a drought that began in 2011. An el Nino weather pattern for the winter of 2015 – 2016 partially alleviated the drought. However, the drought remains in place.

Probability

An extreme multiyear drought more intense than the 1977 drought could impact the region with little warning. Combinations of low precipitation and unusually high temperatures could occur

over several consecutive years. Intensified by such conditions, extreme wildfires could break out throughout Contra Costa County, increasing the need for water. Surrounding communities, also in drought conditions, could increase their demand for water supplies relied upon by the planning partnership, causing social and political conflicts. If such conditions persisted for several years, the economy of Contra Costa County could experience setbacks, especially in water dependent industries.

Climate change is likely to increase the number and severity of future droughts. The cumulative impact of climate change impacts will result in drier conditions, and will alter the timing and efficiency of the Bay Area water supply. An increase in temperature and a reduction in snow pack are the two most direct effects of climate change that will result in a drier state with fewer natural water resources than historically have been available.

In the Bay Area temperatures are projected to increase between 3 degrees (low emission scenario) and 6 degrees Fahrenheit (high emission scenario).[1] In the eastern regions of the state the increase is 4 to 9 degrees. The reduction in snowpack does not have direct impacts in the Bay Area as the region does not accumulate meaningful levels of snow. The Bay Area is adversely impacted by the severe reduction in snow pack in the Sierras, the source of two-thirds of the regions water. By the end of the century the spring snow pack in the Sierra could be reduced by as much as 70 to 90 percent the historic average.[2]

3.2.5 Transportation Incidents – Air, Rail, Highway, and Water

Type

The City of Pittsburg is vulnerable to transportation incidents involving airplanes, rail (freight and passenger), vehicles, or seafaring vessels on the Delta.

Location

The Burlington Northern Santa Fe Railroad runs through the City. These trains may carry both cargo and/or passengers. The most recent train derailments that occurred in Pittsburg include a train vs. truck accident on July 14, 2009, an 11-car derailment that occurred on November 10, 2009, and a locomotive derailment that occurred on January 29, 2010. Many of these trains carry hazardous materials that if spilled could cause mass evacuation of surrounding neighborhoods, or order to shelter in place, depending on the chemical involved. There are schools and homes near the train tracks that would need to be evacuated if a hazardous materials spill occurred as a result of a train derailment.

[1] Cayan, D., et al. (2009)

[2] Scripps Institute of Oceanography (2012)

The Bay Area Rapid Transit (BART) rail runs through Pittsburg. The heavy rail for current BART service runs to the Pittsburg-Bay Point station (and a bit beyond) west of Bailey Road. The eastern Contra Costa County BART extension scheduled for completion by 2017 will continue the service line through Pittsburg approximately parallel to Highway 4 to Hillcrest Avenue in Antioch. A derailment of a BART train could be devastating for passengers and shut down commuter rail traffic for considerable periods of time. Alternate transportation would have to be provided while the train was cleared and tracks repaired.

The airports closest to the City of Pittsburg are Buchanan Field Airport, Byron Airport, Oakland International Airport, Rio Vista Municipal Airport, Livermore Municipal Airport, Napa County Airport, Nut Tree Airport, and San Francisco International Airport. The county lies along the West Coast air corridor and traffic patterns for Bay Area and Sacramento airports traverse the area. Many smaller private aircraft often fly in and out of Contra Costa County. The primary risk facing the City regarding airplane accidents would be the crashing of a light aircraft or helicopter. Although the incident would be traumatic for the immediate impact area, it is not expected that this would have a long term impact on service operations within the City. The crash of a major airliner in the City would be catastrophic. A large area would be affected with plane wreckage, burning fuel, destroyed buildings, and casualties beyond the capability of local fire and emergency medical services personnel. Media attention would be overwhelming. Any air accident will involve coordination among federal, state, and local agencies to provide the necessary resources to manage such an event. Mass casualty transportation accidents typically require these agencies to establish a unified command post; disaster mortuary teams; set up medical aid stations; and develop a plan for moving patients and resources.

Highway 4, which runs through the City, is a designated route for transporting hazardous materials. A trucking incident on a main transportation artery could result in considerable loss of life and property and hamper traffic through the county. The primary highways through Contra Costa County are Interstate 680, State Route 24, and State Route 4, which runs through Pittsburg. These routes are used heavily during most hours of the day and the control of vehicular traffic in and around the affected area of a multi-casualty or hazardous materials incident will be a considerable problem.

Casualty transportation resources will be in great demand; therefore, it is vital that casualties be transported on the basis of medical triage priorities. Patient tracking will begin at the scene using a Patient Tracking Tag which will be attached to the patient during triage operations. This tag will remain with the patient until the final medical treatment facility is reached.

Trucks and buses will be used to transport the evacuated casualties. However, ambulances from unaffected areas will be primarily needed for the transport of casualties from the receiving sites in reception areas to definitive care facilities. Regional Disaster Medical Health Coordinators

(RDMHCs) have the responsibility to support the mutual aid requests of the Medical Health Operational Area Coordinator (MHOAC) for disaster response within the region and provide mutual aid support to other areas of the state in support of the state medical response system. The RDMHC also serves as an information source to the state medical and health response system.

Military aircraft also travel through the air space above the City. Although the occurrence of an aircraft accident is rare, such an incident can result in extensive casualties, both in the aircraft and on the ground.

Extent

Both air and rail hazards encompass many threats, such as hazardous materials incident, fire, explosion, severe damage to rail lines, roadways, adjacent buildings, or vehicles, roadway closures, evacuations, and loss of life if pedestrians or those in either the adjacent buildings or vehicles are affected by the incident.

Any air accident will involve coordination among federal, state and local agencies. The Contra Costa Fire Protection District will coordinate with the Federal Aviation Administration, and agencies from Contra Costa County, and State of California to provide the necessary resources to manage such an event. The nature of an air mass casualty transportation accident will require these agencies to establish a unified command post; disaster mortuary teams; set up medical aid stations; and develop a plan for moving patients and resources.

A rail accident would be less devastating and typically involve vehicles driving on the city streets at a train crossing. A railcar accident would most likely also be a hazardous materials incident. The railroad crosses major streets in the commercial zone of the City. The tankers leaving or enroute to the refinery are typically loaded with crude oil or other refined oil products. When a rail car is involved in an accident or derailment, a combination of products and materials that are extremely hazardous and/or flammable may be released and cause a rupture or burst into flames.

Previous Occurrence

A query of the National Transportation Safety Board Aviation Accident Database indicates there has been one aircraft accident in the City of Pittsburg. See Table 3-7 for the list of air accidents closest to Pittsburg:

Table 3-8: Air, Rail, Highway, and Water Incidents in or near the City of Pittsburg

Year	Event
1992	A CESSNA 150-L crashed in Pittsburg on July 15, 1992. Two passengers were uninjured but the aircraft sustained a total loss.

http://www.ntsb.gov/aviationquery/

3.2.6 PUBLIC HEALTH EMERGENCIES – EPIDEMIC AND PANDEMIC

Type

An influenza pandemic is a worldwide outbreak that occurs when a new influenza virus appears or "emerges" in the human population that may cause serious illness or death and spreads easily from person to person worldwide. Pandemics may be categorized from mild to severe depending upon the number of people who become ill or die from the disease.

Pandemics are different from seasonal outbreaks of influenza that are caused by subtypes of influenza viruses that already circulate among people. Pandemic outbreaks are caused by entirely new subtypes to which the population has no immunity because the subtype has either never circulated among people, or has not circulated for a long time. Seasonal influenza occurs routinely worldwide each year, causing an average of 36,000 deaths annually in the United States.

Location

Currently, the potential exists for an influenza pandemic to cause serious illness and death to a large number of people throughout the world, Contra Costa County and the City of Pittsburg are of no exception.

Extent

Several characteristics of an influenza pandemic differentiate it from other public health emergencies. Foremost, it has the potential to cause illness in a very large number of people, overwhelming the health care system throughout the nation. A pandemic outbreak could also jeopardize essential community services by causing high levels of absenteeism in critical positions in every workforce. Basic services, such as health care, law enforcement, fire, emergency response, communications, transportation, and utilities could be disrupted during a pandemic. Finally, a pandemic, unlike many other emergency events, will last for months rather than days or weeks, disrupting supply chains for essential items such as food, water, and other essential provisions.

Previous Occurrences

Nearly 40 years have passed since the last influenza pandemic. During the last century, there have been three influenza pandemics. The influenza pandemic of 1918 was especially severe, killing a large number of young, otherwise healthy adults. That pandemic caused more than 500,000 deaths in the United States and an estimated 40 million deaths around the world.
Subsequent pandemics in 1957-58 and 1968-69 caused far fewer fatalities in the U.S., 70,000 and 34,000 deaths respectively, but caused significant illness and death around the world.

Contra Costa County was part of a statewide Presidential Disaster Declaration on April 28, 2009 for a Swine Flu outbreak. Highlands Elementary School in the Pittsburg Unified School District reported the first large outbreak in the Nation. On April 28, 2009, a number of students from the same fourth grade classroom were sent home from school suffering from the same symptoms. A total of 13 students over a three-day period of time had been absent or sent home for flu-like illness. Highlands Elementary was closed from April 29 through May 4 at the order of Contra Costa County Public Health Department. Losses from the closure included:

- Loss of daily ADA funds (for approximately 625 students) for four days
- Overtime costs paid to employees that provided services for miscellaneous tasks related to the school closure
- Loss of about 20% of ADA for those students that did not return to school on Tuesday May 5th
- Clean-up crews that were sent in by the County Health Department

Probability of Future Events

The Centers for Disease Control and Prevention (CDC) estimates that a severe influenza pandemic could infect up to 200 million people in the U.S. and cause between 100,000 and 200,000 deaths. Scientists and health officials throughout the world predict that more influenza pandemics will occur in the 21st century.

3.2.7 Severe Weather – Tornados, Wind, and Excessive Heat

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. It includes thunderstorms, downbursts, tornadoes, waterspouts, snowstorms, ice storms, severe heat and dust storms. Severe weather can be categorized into two groups: those that form over wide geographic areas are classified as general severe weather; those with a more limited geographic area are classified as localized severe weather. Severe weather, technically, is not the same as extreme weather, which refers to unusual weather events which are at the extremes of the historical distribution for a given area.

Several types of severe weather events typically impact Contra Costa County: thunderstorms with damaging winds, tornados, severe heat and flooding. Flooding is discussed in detail in section 3.2.1. Tornados, damaging winds and severe heat occurring in Contra Costa County are described in detail in the following sections.

Tornado

Type

A tornado is a rapidly rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. They are often referred to as twisters, whirlwinds or cyclones. Tornadoes come in many shapes and sizes, and are often visible in the form of a condensation funnel originating from the base of a cumulonimbus cloud, with a cloud of rotating debris and dust beneath it. Most tornadoes have wind speeds less than 110 miles per hour are about 250 feet across, and travel a few miles before dissipating. The most extreme tornadoes can attain wind speeds of more than 300 miles per hour are more than two miles in diameter, and stay on the ground for dozens of miles.

Location

The entire City is susceptible to tornados.

Extent

The Fujita scale and the Enhanced Fujita Scale rate tornadoes by damage caused. The Enhanced Fujita (EF) Scale was an update to the older Fujita scale, by expert elicitation, using engineered wind estimates and better damage descriptions. The EF Scale was designed so that a tornado rated on the Fujita scale would receive the same numerical rating, and was implemented starting in the United States in 2007. **Table 3.9** provides a description of the Fujita scale and associated damage.

Table 3.9: Fujita Scale and Damage

Damage f scale	Little Damage	Minor Damage	Roof Gone	Walls Collapse	Blown Down	Blown Away
	f0	f1	f2	f3	f4	f5
Windspeed F scale	17 m/s – 32	32 – 50	50 – 70	70 – 92	92 – 116	116 – 142
	F0	F1	F2	F3	F4	F5
	40 mph – 73	73 – 113	113 – 158	158 – 207	207 – 261	261 – 319

To convert f scale into F scale, add the appropriate number

Weak Outbuilding	-3	f3	f4	f5	f5	f5	f5
Strong Outbuilding	-2	f2	f3	f4	f5	f5	f5
Weak Framehouse	-1	f1	f2	f3	f4	f5	f5
Strong Framehouse	0	F0	F1	F2	F3	F4	F5
Brick Structure	+1	-	f0	f1	f2	f3	f4
Concrete Building	+2	-	-	f0	f1	f2	f3

Fig. 2.4-1 The Fujita tornado scale (F scale) pegged to damage-causing windspeeds. The extent of damage expressed by the damage scale (f scale) varies with both windspeed and the strength of structures.

Previous Occurrence

There have been two recorded tornado/funnel cloud events with Contra Costa County since 1950. Both were F0-rated events that caused little damage. On January 23, 2010, an F1 tornado occurred in Brentwood. The tornado crossed power lines and destroyed a utility pole. Fifty-five customers lost power. Generally, tornados are not considered a high risk for the County.

Probability of Future Events

The likelihood of a tornado in the City is small with a less than one in fifty probability in any year.

Damaging Winds

Type

The hazard of severe wind encompasses all climatic events that produce damaging winds. For the City, severe winds usually result from either extreme pressure gradients that usually occur in the spring and early summer months, or from thunderstorms. Thunderstorms can occur year-

round and are usually associated with cold fronts in the winter and monsoon activity in the summer.
Three types of damaging wind related features typically accompany a thunderstorm; 1) downbursts, 2) straight line winds, and infrequently. Tornadoes are discussed separately.

- Downbursts are columns of air moving rapidly downward through a thunderstorm. When the air reaches the ground, it spreads out in all directions, creating horizontal wind gusts of 80 mph or higher. Downburst winds have been measured as high as 140 mph. Some of the air curls back upward with the potential to generate a new thunderstorm cell. Downbursts are called macrobursts when the diameter is greater than 2.5 miles, and microbursts when the diameter is 2.5 miles or less. They can be either dry or wet downbursts, where the wet downburst contains precipitation that continues all the way down to the ground, while the precipitation in a dry downburst evaporates on the way to the ground, decreasing the air temperature and increasing the air speed. In a microburst the wind speeds are highest near the location where the downdraft reached the surface, and are reduced as they move outward due to the friction of objects at the surface. Typical damage from downbursts includes uprooted trees, downed power lines, mobile homes knocked off their foundations, block walls and fences blown down, and porches and awnings blown off homes.

- Straight line winds are developed similar to downbursts, but are usually sustained for greater periods as thunderstorms reaches the mature stage, traveling parallel to the ground surface at speeds of 75 mph or higher. These winds are frequently responsible for generating dust storms and sand storms, reducing visibility and creating hazardous driving conditions.

Location

All of the City is vulnerable to the effects of winter storms and high winds. Vegetation, debris, and electrical infrastructure knocked down or blown by severe weather has the potential to cause damage or additional hazards.

Extent

The Beaufort scale is a scale for measuring wind speeds. It is based on observation rather than accurate measurement. It is the most widely used system to measure wind speed today. The scale was developed in 1805 by Francis Beaufort, an officer of the Royal Navy and first officially used by HMS Beagle. There are twelve levels, plus 0 for "no wind".

Table 3.10: Beaufort Scale

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects
			On Land
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Twigs breaking off trees, generally impedes progress
9	41-47	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Seldom experienced on land except during hurricane landfall, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	
12	64+	Hurricane	

Previous Occurrence

Between 2000 and 2017, high winds occurred on 12 days in the San Francisco Bay Area East Bay Interior Valleys. No damage, injuries or deaths were reported. On one occasion winds speeds reached in excess of 75 knots.[3]

Probability of Future Events

Based upon past occurrences, high and potentially damaging winds are likely to occur slightly less than one day a year.

[3] NOAA Storm Events Data Base

Excessive Heat

Type

According to the National Weather Service (NWS), extreme heat occurs when the temperature reaches high levels or when the combination of heat and humidity causes the air to become oppressive and stifling. The NWS will issue advisories or warnings when the heat index is expected to have a significant impact on public safety. The common guidelines for the issuance of excessive heat warnings are when the maximum daytime index is expected to reach 105°F and the nighttime low temperature does not fall below 75°F. [4]

Location

All of the City is susceptible to severe heat conditions.

Extent

Excessive Heat Outlook occurs when the potential exists for an excessive-heat event in the next three to seven days. The NWS will provide an indication of areas where people and animals may need to take precautions. The outlook is based on a combination of temperature and humidity, Heat Index,[5] over a certain number of days. An outlook is used to indicate that a heat event may develop. It is intended to provide information to those who need lead time to prepare for the event, such as public utilities, emergency management personnel, and public health officials. **Table 5-9** provides a description of heat- related public notifications.

[4] NWS http://www.nws.noaa.gov/om/heat/ww.shtml

[5] NWS http://www.nws.noaa.gov/om/heat/heat_index.shtml for a detailed description

Table 3.11: Heat Advisories, Warnings and Watches

Heat Advisories	The Heat Index has to remain at or above 100°F for a minimum of two hours. Heat advisories are issued by zone when any location within that zone is expected to reach criteria. For example: If you expected the heat index to reach 100°F in Visalia, a heat advisory would be issued for that county. A heat advisory means that people can be affected by heat if precautions are not taken. The issuance of a heat advisory is important to raise public awareness that these precautions need to be taken. Heat advisories are also used to trigger other actions and regulations such as no evictions, no turning off of power, changing outdoor work requirements, etc.
Excessive Heat Watches	Issued when Heat Warning criteria is possible (50-79%) 1 to 2 days in advance.
Excessive Heat Warnings	Criteria for an Excessive Heat Warning is a Heat Index of 105°F or greater that will last for two hours or more. Heat Warnings are issued by zone when any location within that zone is expected to reach criteria. For example: If you expected the Heat Index to reach 105°F in Visalia an Excessive Heat Warning would be issued for that zone. A heat warning means that some people can be seriously affected by heat if precautions are not taken. Studies in Canada, Europe, and the U.S. have indicated that mortality begins to increase exponentially as the heat increases or stays above a Heat Index of 104°F. Note: In addition to raising public awareness, the issuance of a heat warning will alert hospitals and officials to take certain actions to prepare and respond to an increase in emergency calls, and activate programs to check on elderly and the home-bound. In some cases, cooling centers can be open or designated and donation programs activated for fans and air conditioners. As in the case of an advisory, certain regulations may change such as turning off people's electricity, evictions, and outside work requirements.

Previous Occurrences

Between 2000 and 2017, excessive heat has occurred on 26 days in California resulting in 10 injuries or deaths. There was a major heat wave in California from mid- to late July 2006, with 10 days of record-breaking temperatures. Across the state, researchers estimate the heat wave resulted in 16,166 more emergency department visits than average[6].

[6] Kim Knowlton et al., "The 2006 California Heat Wave: Impacts on Hospitalizations and Emergency Department Visits," Environmental Health Perspectives 117, no. 1 (January 2009)

Probability of Future Events

Depending on low and high emission scenarios, and the location within the region, in the future the City may experience an average of anywhere from 20 to 80 extreme heat days in a year. Cal-Adapt, California's database of climate data and visualization tools provides five different ways to define the extreme heat hazard: (1) number of extreme heat days by year, (2) number of warm nights by year, (3) number of heat waves by year (heat wave is defined as 5 consecutive extreme heat days), (4) timing of extreme heat days by year (i.e. which months do extreme heat hazards occur), (5) the maximum duration of heat wave by year. These metrics are projecting both the intensity and the temporal nature of extreme heat.

Climate change is expected to generate an increase in ambient average air temperature, particularly in the summer. The outer Bay Area will likely experience greater temperature increases than coastal or bayside jurisdictions, though likely not as great as in the eastern-most inland communities. The frequency, intensity, and duration of extreme heat events and heat waves are also expected as regional climate impacts.[7]

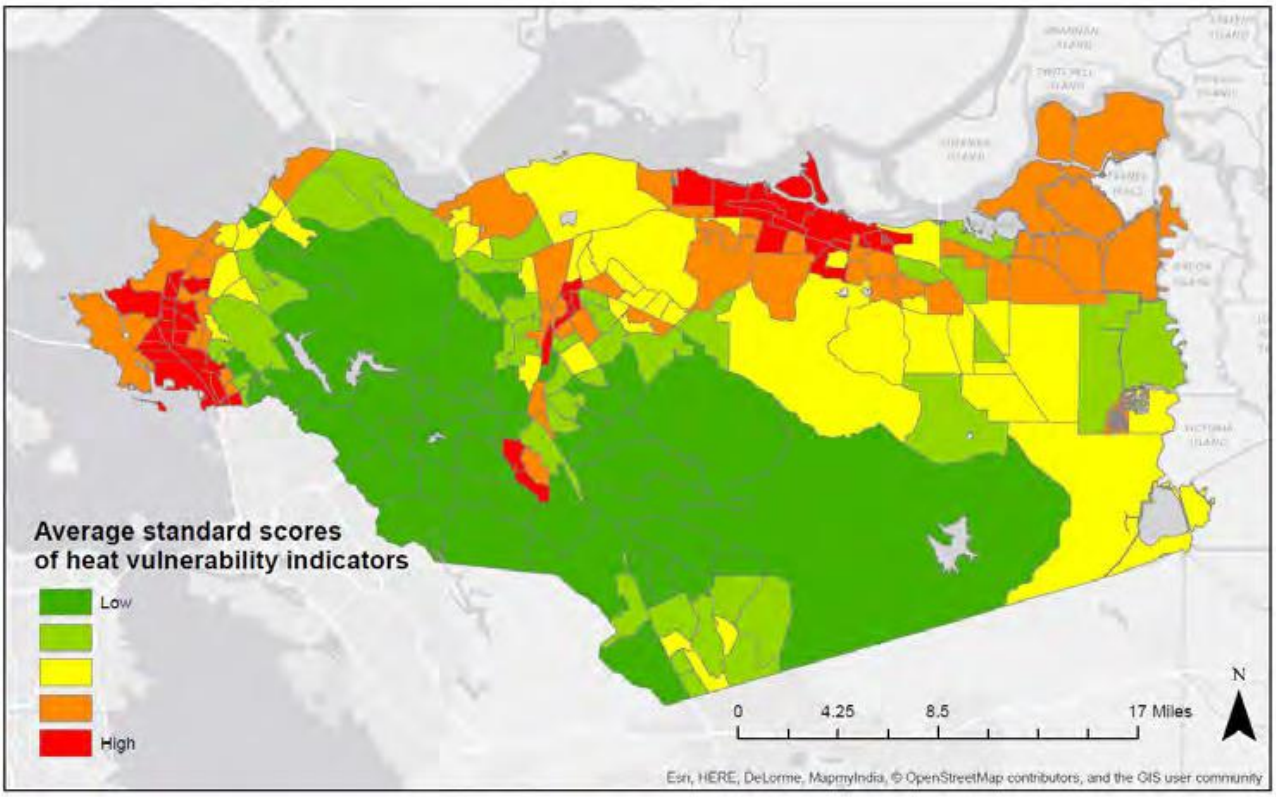
According to California Climate Change Center, by mid-century, extreme heat in urban centers could cause two to three times more heat-related deaths than occur today.[8] Statewide, temperatures could increase anywhere from 3 to 10.5° depending on CO_2 emission levels, leading to more frequent, hotter days throughout the year.

Due to climate change, an increasing the number of days of extreme heat may be expected to occur. Since Pittsburg is in a high heat vulnerability area, future heat events are likely to have a more severe impact. Figure 3.7 depicts the Heat Vulnerability Indicators for Contra Costa County based on demographic and climate conditions.

[7] Drechsler D. M., et al, (2006)

[8] California Climate Change Center (2006)

Figure 3.13: Scores on Heat Vulnerability Indicators



3.2.8 WILDLAND AND URBAN FIRES

Type

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment use, and arson. Fire hazards present a considerable risk to vegetation and wildlife habitats throughout Contra Costa County. Short-term loss caused by a wildfire can include the destruction of timber, wildlife habitat, scenic vistas, and watersheds. Long-term effects include smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural and economic resources and community infrastructure. Vulnerability to flooding increases due to the destruction of watersheds. The potential for significant damage to life and property exists in areas designated as "wildland urban interface (WUI) areas," where development is adjacent to densely vegetated areas.

While the primary fire threat in the Bay Area is from wildfire, urban conflagration, or a large disastrous fire in an urban area, as a major hazard that can occur due to many causes such as wildfires, earthquakes, gas leaks, chemical explosions, or arson. The urban fire conflagration that followed the 1906 San Francisco Earthquake did more damage than the earthquake itself. A source of danger to cities throughout human history, urban conflagration has been reduced as a general source of risk to life and property through improvements in community design, construction materials, and fire protection systems.

Although the frequency of urban conflagration fires has been reduced, they remain a risk to human safety. One reason is the current trend toward increased urban density and infill in areas adjacent to the wildland-urban interface. In an effort to keep housing close to urban jobs, areas previously left as open space due to steep slopes and high wildland fire risk may be potentially considered as infill areas for high-density housing.

The Contra Costa County Fire Protection District (CCCFPD) provides fire prevention, suppression, and emergency medical response for advanced and basic life support to nine cities and much of the unincorporated territory in the central and western portions of Contra Costa County, including the City of Pittsburg and the project site. The CCCFPD operates 23 stations throughout its jurisdictional area and has a staff of 262 uniformed personnel (Leach 2013b). Within the Pittsburg Planning Area, there are four CCCFPD fire stations.

Location

In Contra Costa County, 118,509 acres are located in WUI areas and approximately 37,721 acres are in a high, very high or extreme Fire Hazard Severity Zone (FHSZ). The geography, weather patterns and vegetation in the East Bay area provide ideal conditions for recurring wildfires. Especially vulnerable are the East Bay Hills in Lamorinda (which includes Lafayette, Moraga, and Orinda). Parts of Walnut Creek, including the area surrounding Rossmoor, are vulnerable to WUI

fires, as are Clayton, the Danville/San Ramon area, and the San Pablo - El Cerrito, El Sobrante area. Pittsburg is not mentioned in the Contra Costa Hazard Mitigation Plan.

Figure 3.9 Historic Wildfire Perimeter (1950-2014) (Source: ABAG Resilience Program)

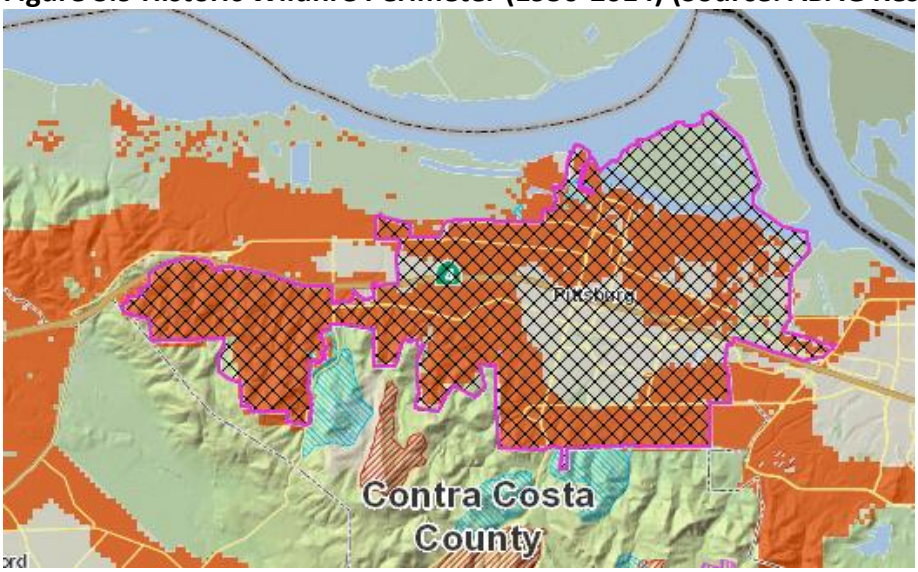


Figure 3.10 Contra Costa County Wildfire History

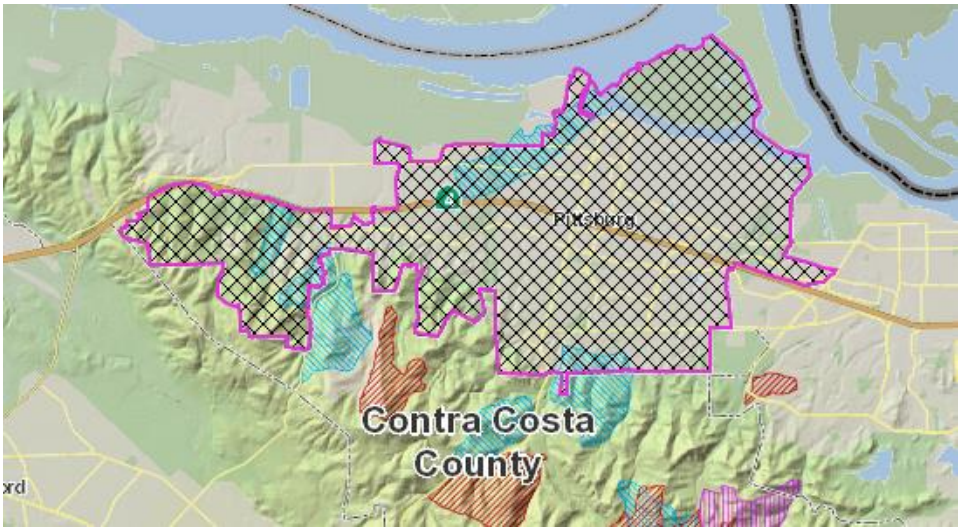


Figure 3.11 Contra Costa County Wildfire Hazard Boundaries

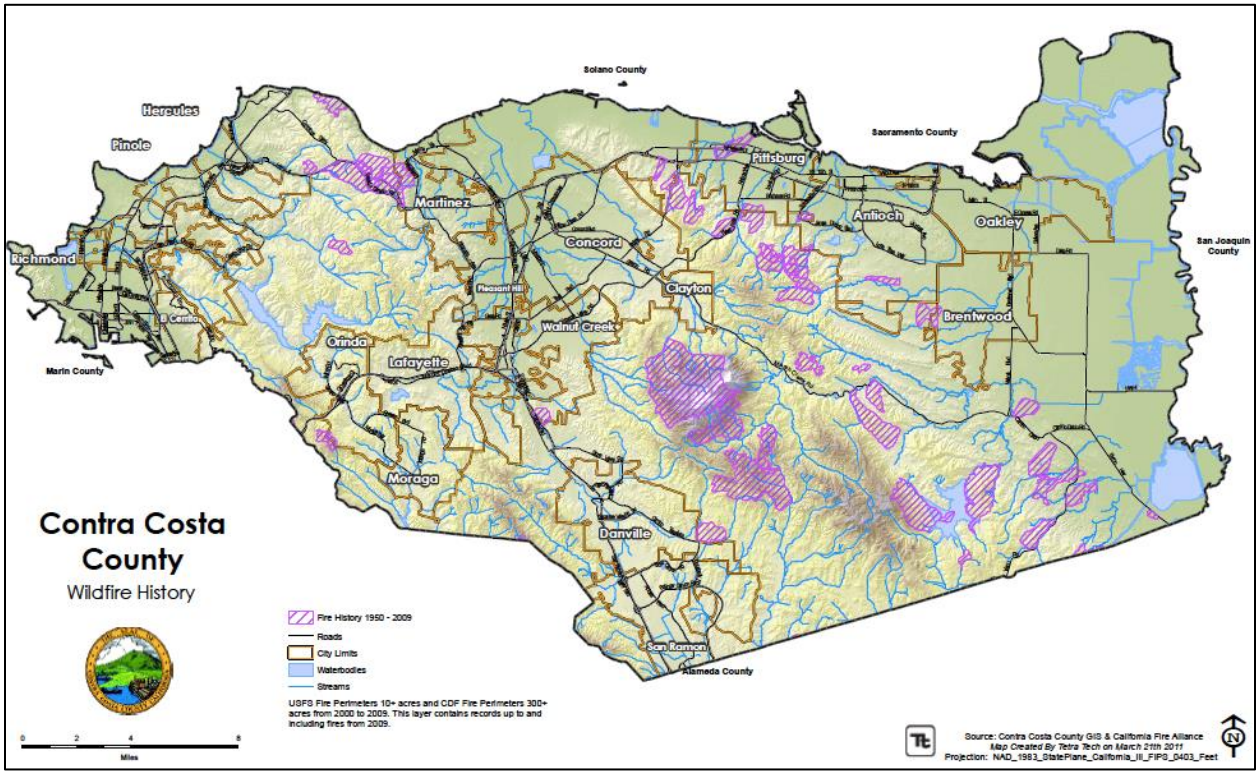
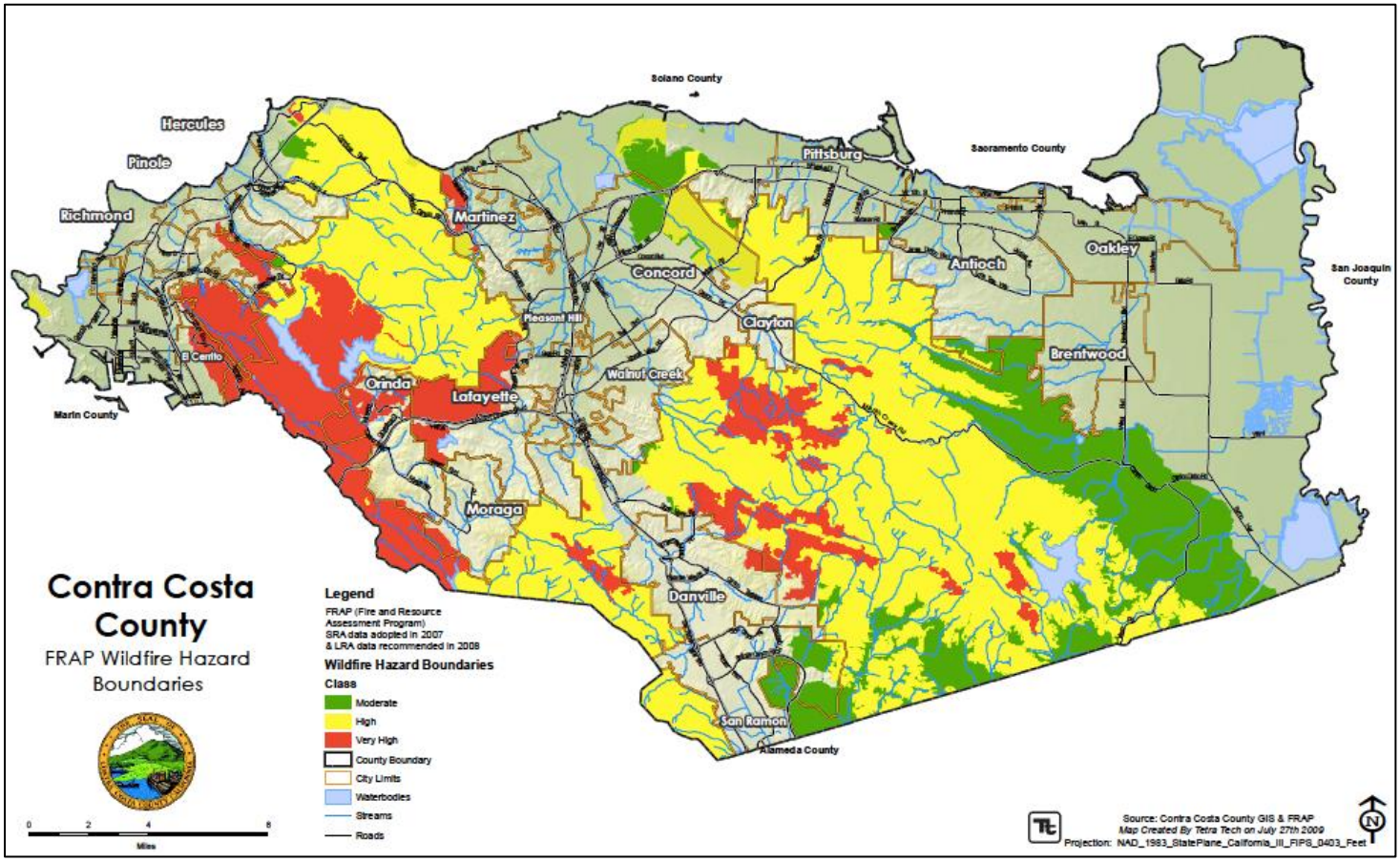


Figure 3.12: FRAP Wildfire Hazard Boundaries



Extent

The impacts of a fire are felt long after the fire is extinguished. In addition to the loss of property in fires, the loss in vegetation and changes in surface soils alters the environment. When all supporting vegetation is burned away, hillsides become destabilized and prone to erosion. The burnt surface soils are harder and absorb less water. When winter rains come, this leads to increased runoff, erosion, and landslides in hilly areas.

Previous Occurrences

Contra Costa County has received no state or federal disaster declarations related to fire between 1950 and 2017. There are no reported wildfire associated injuries or deaths, or property damage during the same period.[9]

[9] NOAA National Center for Environmental Information

Probability of Future Fire – Climate Change

Wildfire risk increases due to climate change because of higher temperatures and longer dry periods over a longer fire seasons. Additionally, wildfire risk will also be influenced by potential changes in vegetation.[10]

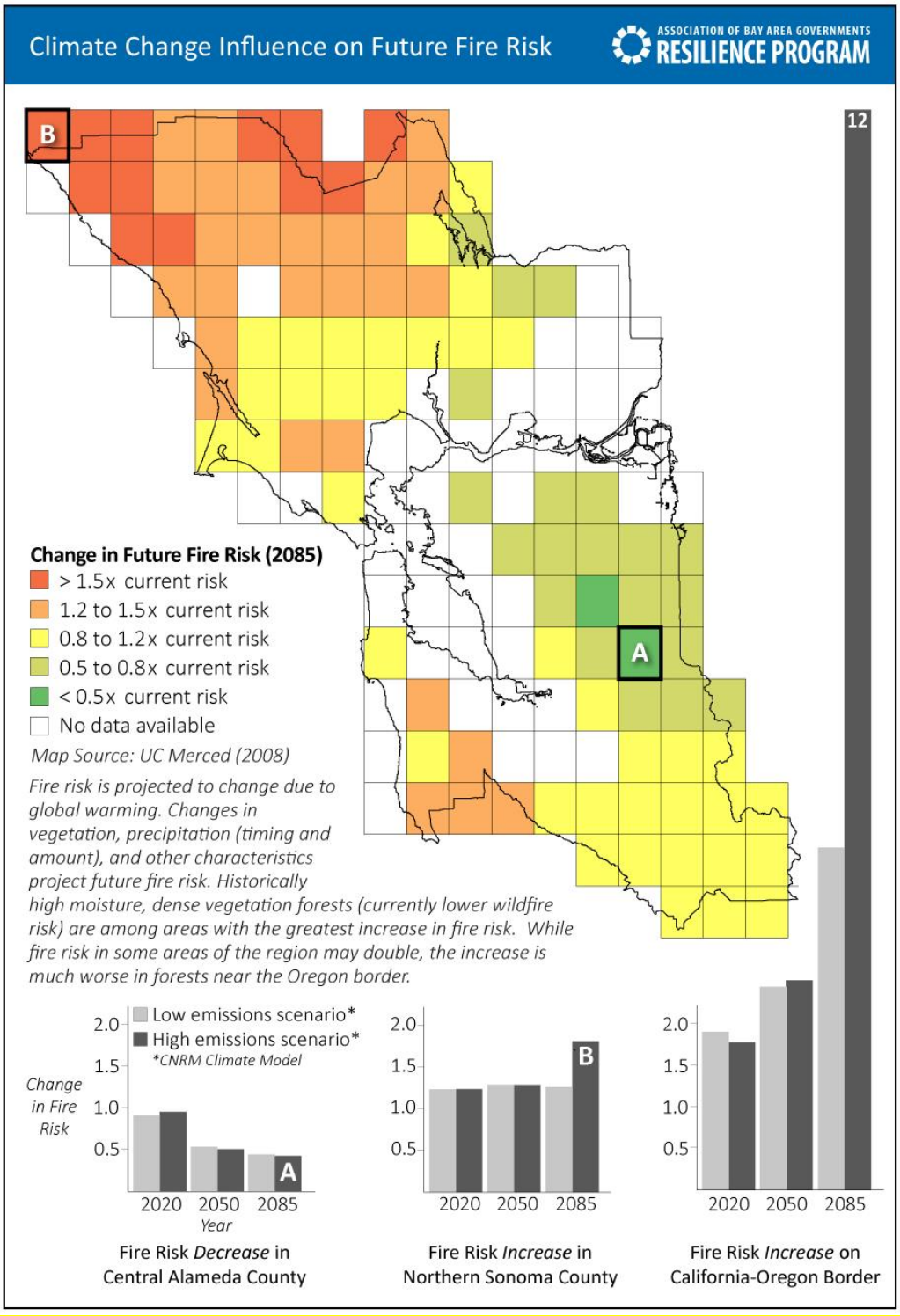
Research produced by UC Merced has projected the future fire risk, impacted by climate change, compared to existing fire risk. In the Bay Area the results are mixed. The research projects some locations in the East Bay and South Bay to exhibit decreased fire risk, while areas on the Peninsula and North Bay exhibit a 150 percent increase in fire risk by 2085. Generally, across the Bay Area there is fairly limited change in fire risk in the year 2050, with the greatest change in occurring between 2050 and 2085, especially in the high emission scenario. The Cal Adapt data suggests that some jurisdictions might have to adapt more aggressively compared to others Figure 1 shows the projected fire risk increase for the Bay Area with the greatest increase and decrease areas highlighted.

The future fire risk model analyzes two primary variables: fuel availability and flammability of fuel. In California, the change in fire risk is a result of either a densely forested ecosystem becoming drier, or a dry climate experiencing large vegetation growth after a year of above average precipitation. In the first scenario the suite of climate impacts (higher temperatures, less snowpack, earlier springs) result in previously wet dense fuel ecosystems becoming dry – increasing the fire risk. In the second ecosystem, dominated by grass and low density shrubs, the risk is often unchanged or decreased because the availability of fuel is the governing variable for fire risk, which remains unchanged or decreases as a result of projected precipitation.[11] These modeling characteristics are reflected in the Bay Area's future fire risk map.

The Bay Area, compared with other portions of California, especially those near the Oregon border, have a much lower projected increase in fire risk due to climate change. Near the Oregon border, many areas are expecting a 500 percent increase in fire risk by 2085, with some areas projected to see their fire risk increase more than 10 times.

[10] California Climate Change Center, (2012)
[11] Westerling, A.L., Bryant, B.P. (2008)

Figure 3.13 Climate Change Influence on Fire Risk



3.2.9 CIVIL UNREST

Type

Civil unrest is defined as civil disorder, a broad term that is typically used by law enforcement to describe disruption of typical social order; it may involve a strike or protest, and it can be peaceful or involve violence. Both riots and rebellions are forms of civil unrest. Incidents of civil unrest often occur after national or local events incite anger in the populace and may be triggered by various causes such as political protests, racial strife or sporting events. Civil disorders and disturbances are human-caused events with potential for endangering life and damaging property.

The Bay Area experienced past episodes of civil unrest. Civil disturbances may be mitigated through planning, Mitigation activities for civil disturbance are not solely a police function but are s a shared responsibility of elected officials, community leaders, business leaders, service organizations and community residents.

While basic constitutional rights guarantee free assembly, civil unrest associated with such events has the potential to result in injuries, loss of life, and destruction of property. Heightened vigilance and strategic organization, and training on the part of law enforcement can mitigate damage and casualties from civil disturbances.

Location

The entire San Francisco Bay Area region is vulnerable to civil unrest. While there are no specific hazard zones that can be identified or predicted for civil unrest, dense population centers located in highly urban areas such as Oakland and San Francisco are more likely to experience this hazard.

Extent

Civil unrest may result from a wide variety of causes, ranging from local to international. All regional assets are susceptible to being at risk from civil disturbances. Local government facilities including San Francisco and Oakland City Halls as well as the San Francisco-Oakland Bay Bridge are considered most at risk since several demonstrations or rallies have originated in these locations in the past. Other police and fire facilities have also been targeted during past events. Previous experience indicates that Critical Response (police stations, fire stations) also are at risk during periods of civil unrest. In addition, Critical Operating Facilities, such as regional ports and ferry landings, etc. are at risk of damage or destruction and may be rendered temporarily inoperative for some period of time. Depending upon the nature of the event, however, any assets owned by local government organizations/agencies may be considered vulnerable to damage or destruction as a result of civil unrest.

Frequency/Probability of Future Occurrences

Previous Occurrences

City police departments in the San Francisco Bay Area region have dealt with civil unrest on many occasions. Recent examples include the October 2014 Major League Baseball San Francisco Giants World Series victory riots, November 2014 unrest in Oakland following the Ferguson verdict, and Black Lives Matter protestors blocking traffic on the San Francisco-Oakland Bay Bridge on Martin Luther King Jr. Day 2016. Today the combination of professional protestors, anarchists, demonstrations, and counter demonstrations at many public gatherings has created the potential for civil unrest. Often events deemed to be celebrations can cause civil disturbances and create loss. When dealing with events that have the potential to become incidents of civil unrest, the police departments' most important goal is safeguarding citizens and property.

Major League Baseball San Francisco Giants World Series Victory Riots 2014: A celebration in San Francisco's streets as a result of the Giants' World Series victory on October 29, 2014 turned violent in some areas with people injured by gunfire, officers hurt by bottles thrown by revelers, and police making arrests. Violence left three people injured, two by gunshots and one in a stabbing.

Ferguson Verdict Civil Unrest 2014: Hundreds of people marched through downtown Oakland, blocked traffic on Interstate-580, broke windows, and set small fires during a night of protests on November 24, 2014 over a grand jury's decision not to indict Ferguson, Missouri police Officer Darren Wilson in the fatal shooting of Michael Brown. More than 40 people were arrested.

Black Lives Matter Protestors Block Bay Bridge 2016: Protesters linked with the Black Lives Matter movement chained themselves together on the busy San Francisco-Oakland Bay Bridge on Monday, January 18th, 2016, blocking rush-hour traffic traveling toward San Francisco. Bridge traffic was stopped for more than 30 minutes before California Highway Patrol officers partially reopened the five westbound lanes later on in afternoon.

Probability of Future Events

While it is not possible to make long term predictions of civil unrest events, it is highly probable that such events will occur in Bay Area jurisdictions from time to time. Because of the extreme unpredictability of civil unrest events, no specific estimates can be made concerning potential losses.

3.2.10 Terrorism and Nuclear Incidents

Type

Pittsburg is home to businesses and government agencies, transportation infrastructure, tourist attractions, historic sites, and cultural facilities that are vulnerable to terrorist attack. Terrorism

is a continuing threat throughout the world and within the United States. A variety of political, social, religious, cultural, and economic factors underlie terrorist activities. Terrorists typically target civilians with a goal of instilling fear to advance their agenda. The media interest generated by terrorist attacks makes this a high visibility threat. Although the City of Pittsburg is not likely to be the target of extreme terrorism, the threat of such an attack will continue to be evaluated by the Pittsburg Police Department in collaboration with state and federal agencies to mitigate this threat to the extent possible.

Incidents generating significant mass casualties make preparedness and the mechanisms for effective response essential. Terrorists typically use one or more of the following types of weapons: chemical biological, incendiary, radiological, or explosive. In addition to large-scale attacks, a full range of assault styles must be considered, including simple bombings, assassinations with small arms, major bombings, and others. Use of explosive devices remains the weapon of choice for terrorist activity. Related activities include bomb threats which disrupt the normal operations of transit systems, government or corporate facilities. Primary locations likely to be targets include airports, mass transit targets, government facilities, and high population density locations, although so-called "soft targets" such as schools, local entertainment facilities, etc. are at risk. The potential for nuclear, biological or chemical terrorism is also a concern. These types of emergencies would necessitate detailed contingency planning and preparation of emergency responders to protect their communities.

The City of Pittsburg Police Department has anti-terrorism programs in place, which include continually gathering intelligence; monitoring events to assess credible threat potential; and issuing warnings to the participating agencies and to the citizenry. The Federal Bureau of Investigation is the lead federal agency for all terrorist activities within the United States, and coordinates this activity with local law enforcement through the Joint Regional Intelligence Center.

Type

The definition of terrorism by the Federal Bureau of Investigation is "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives."

The formal definition of Weapons of Mass Destruction (Title 18 USC section 2332a) is: (1) Any weapon or device that is intended, or has the capability, to cause death or serious bodily injury to a significant number of people through the release, dissemination, or impact of toxic or poisonous chemicals or their precursors; a disease organism; or radiation or radioactivity; (2)(a) any explosive, incendiary, or poison gas, bomb, grenade, or rocket having a propellant charge of more than four ounces, or a missile having an explosive or incendiary charge of more than one quarter ounce, or mine or device similar to the above; (b) poison gas; (c) any weapon involving a

disease organism; or (d) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

Weapons of mass destruction (WMD) typically used by terrorists are categorized by an acronym that lists the types of materials/weapons: CBRNE stands for chemical, biological, radiological, nuclear, and explosives – BNICE stands for biological, nuclear, incendiary, chemical, and explosives. The nature of each category of weapon is described briefly below:

Chemical: chemical weapons include blood and choking agents, nerve agents, blister agents, and toxic industrial chemicals. The advantages of using chemical weapons for a terrorist include they are easy to make, readily available, inexpensive, have an immediate effect, and are easily spread. The disadvantages are they require significant quantities for a mass effect, and the production and deployment are potentially hazardous to the terrorist. Some chemical agents are odorless and tasteless and are difficult to detect, while others have distinct odors. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). Routes of exposure for chemical weapons are inhalation, ingestion, absorption, and injection. Unlike many of the biological weapons, first responders can take self-protective measures by wearing personal protective equipment, first aid measures and effective medical interventions are available, and chemical agent exposures can be decontaminated and agents neutralized.

Biological: biological weapons are defined as bacteria, viruses, or toxins used to produce illness or death in people, animals, or plants. The advantages of biological weapons are that they are easy to make, readily available, and relatively inexpensive. The disadvantages include delayed effects and potential deployment hazards to the terrorist. Routes of exposure for biological weapons are inhalation, ingestion, absorption, and injection. Biological agents can be dispersed as airborne particles or aerosols on food items or in water, or through an injection. Terrorists may use biological weapons because the agents odorless, tasteless, and extremely difficult to detect.

Radiological / Nuclear: radioactive or nuclear weapons are typically in the form of a traditional fission device such as an atom bomb, a radiological dispersal device, often called a dirty bomb, or a conventional explosion at a nuclear facility. The advantages of radiological or nuclear weapons are that the materials are available, cause devastating effects and a great psychological impact on the population. The disadvantages include delayed effects, deployment is hazardous to the terrorists, and they are extremely expensive – in the millions of dollars for a nuclear weapon. Radiation cannot be detected by human senses. Consequences may include death, severe health risks to the public, damage to the environment, and extraordinary loss of, or damage to, property. The health effects of radiological or nuclear materials include radiation

burns, fragmentation wounds, acute radiological poisoning, and long term effects, such as cancers and birth defects.

Explosives: explosive weapons are most terrorist's weapon of choice. 86% of domestic terrorist incidents involve the use of explosives. Explosives are readily available and have dramatic results, are low risk, require few skills to build and use, are easy to execute, allow for remote attacks, and don't require many people to execute. There are low explosives and high explosives. The effects include blast pressure, both positive and negative, fragmentation, and thermal. There are pipe bombs or bombs that can be easily concealed into a backpack, box, vehicles, or virtually any type of container, with numerous trigger mechanisms to set off the bomb. Bombings account for up to 50% of worldwide terrorist attack patterns.

Cyber-terrorism: according to the U.S. Federal Bureau of Investigation, cyber terrorism is any "premeditated, politically motivated attack against information, computer systems, computer programs, and data which results in violence against non-combatant targets by sub-national groups or clandestine agents." As nations and critical infrastructure became more dependent on computer networks for their operations, new vulnerabilities are created. A cyber terrorist attack is designed to cause physical violence or extreme financial harm. Possible cyber terrorist targets include the banking industry, military installations, power plants, air traffic control centers, and water systems, but could be against any facility that relies on computers, computer systems and programs for their operations.

Active Shooter: The United States Department of Homeland Security[12] defines the active shooter as "an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearms and there is no pattern or method to their selection of victims." Active shooters may also use explosive devices during assaults to increase the likelihood of casualties or to commit suicide. Most incidents occur at locations in which the killers find little impediment in pressing their attack. Locations are generally described as soft targets that have limited security measures to protect members of the public. In most instances, shooters commit suicide, are shot by police, or surrender when confrontation with responding law enforcement becomes unavoidable.

Location

There is a wide range of motivations for terrorist attacks. They can be for or against almost any issue, religious belief, political position, or group of people of one national origin or another. Because of the tremendous variety of causes supported by terrorists and the wide variety of potential targets, there is no place that is truly safe from terrorism. Primary locations likely to be targets include airports, mass transit targets, government facilities, and high population density

[12] DHS Active Shooter Threat Handbook

locations, although so-called “soft targets” such as schools, local entertainments facilities, etc. are also at risk. The potential for nuclear, biological or chemical terrorism is also a concern. The entire Bay Area is considered at risk for a nuclear event. These types of emergencies could be devastating to any community and would necessitate detailed contingency planning and preparation of emergency responders prior to such an attack.

Pittsburg is home to power plants, water utilities, refineries, rail stations, colleges, and chemical manufacturers, all of which could be a target for terrorism.

The City of Pittsburg is not within a planned range of a Nuclear Generating Station. There are no known businesses or educational facilities that have a nuclear reactor on their premises within the City.

Extent

As outlined in the 2010 National Security Strategy, there is no greater danger to the Nation than a terrorist attack with a weapon of mass destruction. Terrorist acts may cause casualties, extensive property damage, fires, flooding, and other subsequent hazards. Incidents generating significant mass casualties make preparedness and the mechanisms for effective response essential. In addition to large-scale attacks, a full range of terrorism tactics must be considered, including simple bombings, chemical or biological incidents, explosions and cyber-attacks, bomb threats, and the use of radiological and nuclear materials. Use of explosive devices remains the weapon of choice for terrorist activity. The possibility exists that a terrorist organization might acquire the capability of creating a small nuclear detonation. A single nuclear detonation in the United States would likely produce fallout affecting an area many times greater than that of the blast itself, certainly the entire Bay Area region.

The damage caused by a terror attack is dependent on the method of attack. Large bomb attacks could destroy major infrastructure, kill many people and disrupt regional functioning for a significant time. Cyber-terrorism would cause very different types of damage, possibly severely hampering local government operations and local business with no direct injuries or loss of life. In addition to direct physical damage, terrorist attacks breed fear. Even an unsuccessful attempt to attack the region would seriously impact the comfort level of residents and could affect local business.

Terrorism cannot be forecast with any accuracy. There is, therefore, some potential for most, if not all, types of terrorist acts to occur anywhere and at any time. Terrorism can strike not just large cities, but in any community of any size. While no amount of planning and mitigation can remove 100 - percent of the risk from terrorism, hazard mitigation and preparedness can help reduce the risk. Given the lack of information on observed historical damages, frequency of

occurrence, intensity and damage parameters, no estimate is available for the probability of a future occurrence of a terrorist event.

It is not possible to estimate the probability of a terrorist attack. The approach experts use to prioritize mitigation and preparedness efforts is to identify critical sites and assess the vulnerability of these sites to terrorist attack. Vulnerability of these sites is determined subjectively by considering factors such as visibility (e.g., does the public know this facility exists in this location?), accessibility (e.g., is it easy for the public to access this site?) and occupancy (e.g., is there a potential for mass casualties at this site?).

Buildings and other structures constructed to resist earthquakes and fires usually have qualities that also limit damage from blasts and resist fire spread and spread of noxious fumes. Efforts to retrofit buildings to resist earthquakes often provide cost-effective opportunities to incorporate measures to mitigate against attacks using bombs, chemical and biological agents.

Previous Occurrence

Although the City of Pittsburg has not had a terrorist attack, there have been many incidents within Contra Costa County. The following table shows the terrorism related incidents that have occurred in Contra Costa County:

Table 3-11: Terrorists Incidents within Contra Costa County and Bay Area

Date	Type	Affiliation
April 2013	An unknown person with technical knowledge of utility systems entered an underground utility vault in San Jose and cut fiber optic cables to knock out 911 and cell phone service. Within half an hour, sniper/s opened fire on a nearby electrical substation. Within 20 minutes, 17 large transformers that funnel power to Silicon Valley were destroyed from bullet damage to their cooling units. A minute before a police car arrived, the shooters disappeared into the night. To avoid a blackout, electric-grid officials rerouted power around the site. It took utility workers 27 days to make repairs and restore the substation. No one has been arrested in connection with the attack.	Domestic terrorism

November 1978	Shortly before he was to hold a news conference, Mayor George Moscone was shot to death in his office; moments later, Supervisor Harvey Milk, a leader of San Francisco's homosexual community, was shot and killed down the hall. A former member of the Board of Supervisors, Dan White, surrendered to police and was charged with murder.	Domestic terrorism

Information derived from: Local news sources.

Probability

While terrorism is a serious concern, there is a low probability of a terrorist event in the City of Pittsburg due to its low population density and distance from the larger cities of San Francisco and Oakland.

3.2.11 Pipeline Emergencies

Although pipelines are the safest and most reliable way to transport natural gas, crude oil, liquid petroleum products, and chemical products, there is still an inherent risk due to the nature of the hazardous materials. Crude oil is a complex mixture of thousands of different hydrocarbons and varying amounts of other compounds containing sulfur, nitrogen, and oxygen as well as salts, trace metals, and water. Crude oils can vary from a clear liquid, similar to gasoline, to a thick tar-like material needing to be heated to flow through a pipeline. A petroleum refinery's main job is to split crude oil into its many parts (or fractions) which are then reprocessed into useful products. The type, number, and size of process units required at a particular refinery depends on a variety of factors including the type of crude oil and the products required. The interconnected units making up a refinery are tanks, furnaces, distillation towers (fractionating columns), reactors, heat exchangers, pumps, pipes, fittings, and valves. Products of crude oil refineries include:

- Fuels such as gasoline, diesel fuel, heating oil, kerosene, jet fuel, bunker fuel oil, and liquefied petroleum gas
- Petroleum solvents including benzene, toluene, xylene, hexane, and heptane, which are used in paint thinners, dry-cleaning solvents, degreasers, and pesticide solvents
- Lubricating oils produced for a variety of purposes, and insulating, hydraulic, and medicinal oils
- Petroleum wax
- Greases, which are primarily a mixture of various fillers
- Asphalt

These products can be hazardous not only in their final state but as they are being processed and refined. The principal hazards at refineries are fire and explosion. Refineries process a multitude of products with low flash points. Although systems and operating practices are designed to prevent such catastrophes, they can occur. In a refinery, hazardous chemicals can come from many sources and in many forms. In crude oil, there are not only the components sought for processing, but impurities such as sulfur, vanadium, and arsenic compounds. The oil is split into many component streams that are further altered and refined to produce the final product range. Most, if not all, of these component stream chemicals are inherently hazardous to humans, as are the other chemicals added during processing. Hazards include fire, explosion, toxicity, corrosiveness, and asphyxiation.

Location

Pipelines owned and operated by Shell Oil, Chevron, Kinder Morgan, and PG&E companies run beneath the City's streets. Pipelines are primarily underground, which keeps them away from public contact and accidental damage. Despite safety and efficiency statistics, increases in energy consumption and population growth near pipelines present the potential for a pipeline emergency incident.

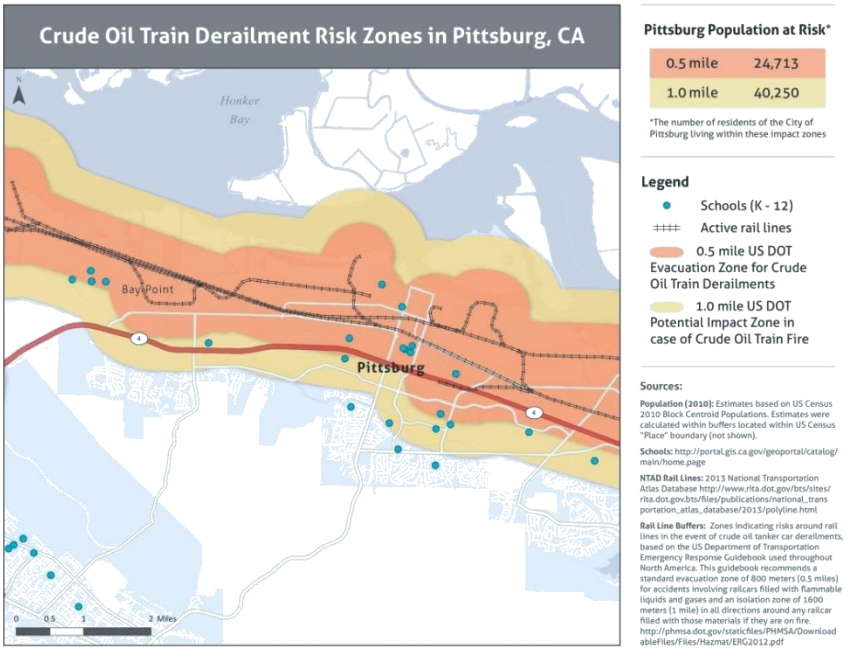
While pipelines are generally the safest method of transporting hazardous chemicals, they are not failsafe. Pipeline product releases, whether in the form of a slow leak or violent rupture, are a risk in any community.

Extent

Most fires, explosions, or pipeline spill incidents occurring at a refinery are isolated on the site. Pipelines running through the City are unlikely to burst or combust; jet fuel pipelines are filled with oxygen-free liquid, and without oxygen, combustion cannot occur. Pipelines are regulated by the Office of the State Fire Marshall Pipeline Safety Division. Pipelines are also monitored by a complex data web called System Control and Data Acquisition (SCADA) measuring the flow rate, temperature and pressure. The network transfers real-time data via satellite from the pipelines to a control center where the valves, pumps and motors are remotely operated. If any tampering with the pipeline occurs, an alarm sounds. The ensuing valve reaction is instantaneous, with the alarm system isolating any rupture and setting off a chain reaction that shuts down pipeline pumps and alerts pipeline operators within seconds.

Most jet fuel pipelines run underground, and in populated areas, must be over three feet below the asphalt. The pipes are at least one-inch-thick steel. If the pipe did rupture, valves would cut off and operators would receive an automatic alarm.

Oil spills are considered to be a significant impact along the railways for BSNF and Union Pacific. Small spills can be mitigated and are classified as less than significant. Large oil spills (greater than 50 barrels) may not be completely contained and, therefore, would be considered significant impacts. Significant adverse impacts on biological resources would occur from a major oil spill.



Previous Occurrence

Although there have been no pipeline failure incidents that have affect communities in Pittsburg, several incidents have occurred in the region. Some of the more significant events include:

- Moraga, California – March 3, 2016, heavy rains resulted in runoff that created a sinkhole at the corner of Rheem Boulevard and Center Street near Moraga Road. The pavement collapsed swallowing a signal light and pavement which punctured a four-inch natural gas pipeline. Rapid reaction by Pacific Gas and Electric Company (PG&E) to shut down the line prevented ignition. Over 2000 Moraga residents were without gas for 24-36 hours.
- San Bruno, California – September 9, 2010, a 30-inch-diameter segment of an intrastate natural gas transmission pipeline known as Line 132, owned and operated by PG&E ruptured in a residential area in San Bruno, California. The rupture occurred at the intersection of Earl Avenue and Glenview Drive. The rupture produced a crater about 72 feet long by 26 feet wide. PG&E estimated that 47.6 million standard cubic feet of natural gas was released. The released natural gas ignited, resulting in a fire that destroyed 38 homes and damaged 70. Eight people were killed, many were injured, and many more were evacuated from the area.
- Walnut Creek, California – November 9, 2004, 9 November 2004, excavation equipment operated by Mountain Cascade, Inc., struck Kinder Morgan's LS-16 pipeline, a 51.4-mile-long intrastate products pipeline that travels from Concord to San Jose. The excavator was working on a large-diameter water supply expansion project in Walnut Creek, CA for the East Bay Municipal Utility District (EBMUD). Several seconds after the line was hit, the gasoline streaming out of the line was ignited by welders employed by Matamoros Pipelines, Inc. who were also working on the new water supply pipeline. The ensuing explosion and fire resulted in the deaths of five workers and significant injury to four others. One nearby two-story structure was burned and other property was damaged.

Probability

While there are numerous flammable fluid pipelines that run underneath the City of Pittsburg, incidents are rare based upon past occurrence. There is a low probability of a severe pipeline emergency.

3.2.12 Climate Change – Air Pollution, Drought, and Rising Tides

Type

The U.S. Environmental Protection Agency (EPA) describes climate change as "any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer." Many people confuse climate change with global warming, the recent and ongoing rise in global average temperatures near Earth's surface, however, global warming represents only one aspect of climate change. The Earth's average temperature has risen by 1.4°F over the past century, and is projected to rise another 2 to 11.5°F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. The planet's oceans and glaciers have also experienced changes - oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising.

Location

Climate change is occurring around the entire world, but the effects of climate change are enhanced in cities along the coast or a waterfront, like Pittsburg. As greenhouse gases trap more energy from the sun, the oceans are absorbing more heat, resulting in an increase in sea surface temperatures and rising sea level. Changes in ocean temperatures and currents brought about by climate change will lead to alterations in climate patterns around the world. For example, warmer waters may promote the development of stronger storms in the tropics, which can cause property damage and loss of life. The impacts associated with sea level rise and stronger storms are especially relevant to coastal and waterfront communities. Climate change will affect the City equally by geography, aside from the aspect of sea level rise, which will affect the businesses directly on the coast. Sea level rise can cause inundation or long-term waterline change, extreme high tides, coastal erosion, and salt water intrusion.

Extent

The EPA works with other organizations to observe, collect and communicate data about climate change. The indicators that are tracked correlate to long-term trends related to the causes and effects of climate change, although some indicators show trends that can be more directly linked to human-induced climate change than others.

Table 3-10: Climate Change Indicators

Climate Change Indicators					
Greenhouse Gases	**Weather and Climate**	**Oceans**	**Snow and Ice**	**Health and Society**	**Ecosystems**
U.S. Greenhouse Gas Emissions	U.S. and Global Temperature	Ocean Heat	Arctic Sea Ice	Heating and Cooling Degree Days	Wildfires
Global Greenhouse Gas Emissions	High and Low Temperatures	Sea Surface Temperature	Glaciers	Heat-Related Deaths	Streamflow
Atmospheric Concentrations of Greenhouse Gases	U.S. and Global Precipitation	Sea Level	Lake Ice	Lyme Disease	Great Lakes Water Levels and Temperatures
Climate Forcing	Heavy Precipitation	Ocean Acidity	Snowfall	Length of Growing Season	Bird Wintering Ranges
	Drought	Ocean Heat	Snow Cover	Ragweed Pollen Season	Leaf and Bloom Dates
	Tropical Cyclone Activity		Snowpack		

The effects of these indicators include:

- **Greenhouse Gases:** human activities have increased the emissions of greenhouse gases. As a result of the increase in emissions, average concentrations of heat-trapping gases in the atmosphere are also increasing.
- **Weather and Climate:** average U.S. and global temperatures are increasing, while attributes of weather and climate, such as precipitation, drought, and tropical cyclone activity, are changing.
- **Oceans:** the oceans are getting warmer, causing thermal expansion. Sea levels are rising around the world, and the oceans are becoming more acidic.
- **Snow and Ice:** glaciers in the United States and around the world are generally shrinking, while snowfall and snow cover in the United States have decreased overall. The extent of Arctic sea ice is declining.
- **Health and Society:** warmer temperatures and later fall frosts allow ragweed plants to produce pollen later into the year, potentially prolonging allergy season. The length of Ragweed pollen season has increased at 10 out of 11 locations studied in the central United States and Canada since 1995. The change becomes more pronounced from south to north.

- **Ecosystems:** many areas are experiencing earlier spring events, such as peak stream runoff and flower blooms. Bird migration patterns are changing, and wildfire size has increased.

The California Adaptation Planning Guide (APG): Planning for Adaptive Communities identifies climate change impacts statewide as:

- Increases in the frequency, intensity, and duration of extreme heat events and heat waves in California, which are likely to increase heat –related illness and the risk of mortality and morbidity for the elderly, individuals with chronic conditions such as heart and lung disease, diabetes, and mental illnesses, infants, the socially or economically disadvantaged, and those who work outdoors.
- A decrease in water supplies to California users due to higher temperatures melting the Sierra snowpack earlier and driving the snowline higher, resulting in less snowpack.
- Intense rainfall events, periodically ones with larger than historical runoff, with more frequent and extensive flooding.
- More frequent and persistent droughts in the 21st century.
- Increased snowmelt producing higher winter runoff from the landward side.

The APG: Understanding Regional Characteristics identifies regional impacts for the North Coast Region to include sea level rise, reduced water supply, and public health issues – both heat and air pollution. Cal-Adapt (www.Cal-Adapt.org) projects the following climate projections for the North Coast Region, which includes Pittsburg:

Effect	Ranges
Temperature 1990 to 2100:	Winter temperature increase: 1°F to 2.5°F by 2050 and 5°F to 6°F Summer temperature increase: 3°F to 4°F by 2050 and 5°F to 10°F
Precipitation:	Low-lying coastal areas will lose up to 2 inches by 2050 and 3 to 5 inches by 2090
Sea Level Rise:	By 2100, sea levels may rise 55 inches resulting in 45 percent more land in Contra Costa County to be more vulnerable to 100-year floods.
Heat Wave:	Along the coast, a heat wave is five days over temperature in the 80s. All areas can expect 3 to 5 more heat waves by 2050 and 12 to 14 by 2100.

According to *Climate Change Vulnerability in Contra Costa County: A Focus on Heat*, changes to the climate also present significant health risks, including heat-related illness and death, respiratory disease, poorer water quality, and vector-borne disease.

- Contra Costa County suffers from some of the worst air pollution in the country, which is worsened by climate change. Hotter temperatures speed up the chemical reactions that

create ground-level ozone, the main component of smog. Ground-level ozone is linked to asthma, bronchitis, heart attack, and premature death.

- Increasing temperatures also lead to heat-related illnesses and death. The human body operates best within a narrow range of core body temperature, around 98.6°F. As core body temperature rises, the body cools itself by sweating and increasing blood circulation close to the skin's surface. When this cooling system is unable to keep up with a prolonged heat wave or a drastic change in temperature, the individual is at greater risk of heat-related illness.
- Water quality is affected by heat-caused evaporation of bodies of water and reduced snowfall, which may lead to more demand for water. When water resources dwindle, the county is affected not only by the lack of water, but also by the quality of water. Pollutants already existing in the water supply become more concentrated in smaller bodies of water, increasing the risk of water-borne illnesses like diarrheal diseases.
- Hotter temperatures can cause vector-borne diseases. Vectors are living things, such as insects or rodents that transmit disease to humans. Vectors like mosquitoes are an increasing concern in the Bay Area region. Mosquitos can carry diseases like Dengue fever and West Nile virus (WNV). In 2013, mosquitoes that carried WNV contributed to 9 deaths and 165 infections in the County.

Previous Occurrence

Climate change was first observed and documented in the late 1800s. It has been an increasingly constant hazard since that time, with more significant effects during the past three decades than any other time in recorded history.

Probability

Since climate change has been constantly occurring since the late 19th century, the probability of occurrence cannot be calculated using the described standard as with the previous hazards. Climate change will continue to occur and gradually increase in severity through the year 2100 and into the next century.

3.3 Risk Assessment

A risk assessment involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard. The intention of a risk assessment is to help the community understand the greatest risks facing the City. The risk assessment defines and quantifies vulnerable populations, buildings, critical facilities, and other assets at risk from hazards, and is based on the best available data and the significance of the hazard. The risk assessment further examines the impact of the identified hazards on the City, determines which areas of the City are most vulnerable to each hazard, and estimates potential losses to City facilities for each hazard.

3.3.1 Hazard Risk Rating

For the 2017 HMP the risk for each hazard was rated using the Calculated Priority Risk Index (CPRI). The CPRI examines four criteria for each hazard (probability, magnitude/severity, warning time, and duration (Table 3-13). For each hazard, an index value is assigned for each CPRI category from 0 to 4 with "0" being the least hazardous and "4" being the most hazardous situation. This value is then assigned a weighting factor and the result is a hazard ranking score (Table 3-14). Table 3-15 is an overall summary of the hazard evaluations for the City.

Table 3-12: Calculated Priority Risk Index

CPRI Category	Degree of Risk Chart			Assigned Weight
	Level ID	Description	Index Value	
Probability	Unlikely	Extremely rare with no documented history of occurrences or events. Annual probability of less than 0.001.	**1**	**45%**
	Possible	Rare occurrences with at least one documented or anecdotal historic event. Annual probability of between 0.01 and 0.001.	**2**	
	Likely	Occasional occurrence with at least two or more documented historic events. Annual probability of between 0.1 and 0.01.	**3**	
	Highly Likely	Frequent events with a well-documented history of occurrence. Annual probability of greater than 0.1.	**4**	
Magnitude-Severity	Negligible	Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). Injuries or illnesses are treatable with first aid and there are no deaths.	**1**	**30%**

		Negligible quality of life lost. Shut down of critical facilities for less than 24 hours.		
	Limited	Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). Injuries and illnesses do not result in permanent disability and there are no deaths. Moderate quality of life lost. Shut down of critical facilities for more than 1 day and less than 1 week.	**2**	
	Critical	Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures). Injuries or illnesses result in permanent disability and at least one death. Shut down of critical facilities for more than 1 week and less than 1 month.	**3**	
	Catastrophic	Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). Injuries or illnesses result in permanent disability and multiple deaths. Shut down of critical facilities for more than 1 month.	**4**	
Warning Time	< than 6 hours	Population receives less than 6 hours of warning.	**4**	**15%**
	6 to 12 hours	Population receives between 6-12 hours of warning.	**3**	
	12 to 24 hours	Population receives between 12-24 hours of warning.	**2**	
	> than 24 hours	Population receives greater than 24 hours of warning.	**1**	
Duration	< than 6 hours	Disaster event will last less than 6 hours.	**1**	**10%**
	6 to24 hours	Disaster event will last between 6-24 hours.	**2**	
	24 hrs. to 1 week	Disaster event will last between 24 hours and 1 week.	**3**	

	> than 1 week	Disaster event will last more than 1 week.	**4**	

Table 3-13: Calculated Priority Risk Index Summary

Hazard	Probability	Weighted 45%	Magnitude Severity	Weighted 30%	Warning Time	Weighted 15%	Duration	Weighted 10%	CPRI Ranking
Flooding – Localized Storms, Seiches	4	1.80	3	0.90	2	0.30	3	0.30	**3.30**
Hazardous Materials – Chemical Storage	4	1.80	1	0.30	4	0.60	3	0.30	**3.00**
Earthquake – Seismic Hazards	3	1.35	2	0.60	4	0.60	4	0.40	**2.95**
Drought	4	1.80	2	0.60	1	0.15	4	0.40	**2.95**
Transportation Incidents – Air, Rail, Highway, and Water	4	1.80	1	0.30	4	0.60	2	0.20	**2.90**
Public Health – Epidemic, Pandemic	3	1.35	1	0.30	1	0.15	4	0.40	**2.20**
Severe Weather – Wind, Tornados, Heat	3	1.35	1	0.30	2	0.30	2	0.20	**2.15**
Wildland and Urban Fires	2	0.90	1	0.30	4	0.60	2	0.20	**2.00**
Civil Unrest	2	0.90	1	0.30	4	0.60	2	0.20	**2.00**
Terrorism – Nuclear, Cybersecurity	1	0.45	1	0.30	4	0.60	4	0.40	**1.75**
Pipeline – Oil Spills	1	0.45	1	0.30	4	0.60	2	0.20	**1.55**
Climate Change – Air Pollution, Rising Tides	1	0.45	1	0.30	1	0.15	4	0.40	**1.30**

CPRI Hazard Risk Scoring

Risk Level	Severe	High	Moderate	Low
Rank Score	4	3 – 3.9	2 – 2.9	1 – 1.9

Table 3-14: Overall Summary of Hazard Evaluations

Hazard	Probability	Magnitude -Severity	Warning Time	Duration	CPRI Ranking
Flooding – Storms, Seiches	Highly Likely	Critical	12-24 hrs.	24 hrs. – 1 week	**3.30**
Hazardous Materials	Highly Likely	Negligible	< 6 hours	24 hrs. – 1 week	**3.00**
Earthquake	Likely	Limited	< 6 hours	> 1 week	**2.95**
Drought	Highly Likely	Limited	> 24 hrs.	> 1 week	**2.95**
Transportation Incidents	Highly Likely	Negligible	< 6 hours	6-24 hrs.	**2.90**
Public Health	Likely	Negligible	> 24 hrs.	> 1 week	**2.20**
Severe Weather	Likely	Negligible	12-24 hrs.	6-24 hrs.	**2.15**
Wildland, Urban Fires	Possible	Negligible	< 6 hours	6-24 hrs.	**2.00**
Civil Unrest	Possible	Negligible	< 6 hours	6-24 hrs.	**2.00**
Terrorism – Nuclear, Cyber	Unlikely	Negligible	< 6 hours	> 1 week	**1.75**
Pipeline – Oil Spills	Unlikely	Negligible	< 6 hours	6-24 hrs.	**1.55**
Climate Change	Unlikely	Negligible	> 24 hrs.	> 1 week	**1.30**

3.3.2 Populations and Businesses at Risk

Residential population data for Pittsburg was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State — January 1, 2014/2015. The population is estimated to be 67,628. The 2010 Census Data lists the building inventory in Pittsburg to have 21,126 residential buildings and 3,386 commercial-industrial buildings. The zoning district map below shows the distribution of residential and business districts throughout the city.

3.3.3 Identification of Critical Facilities and Assets

The location and operations of high-risk facilities such as critical infrastructures and key assets in or near the City of Pittsburg are a significant concern with respect to a disaster. The planning team used FEMA's "Public Assistance Guide" (FEMA 322) that defines critical facilities as shelters, hospitals EOCs, data centers, utility plants or high hazardous materials facilities, as well as the

FEMA Hazard Mitigation Handbook that described three categories of facilities for analysis to revise the list: critical facilities such as City operations and public safety; high potential loss facilities such as businesses, churches, schools, and facilities with hazardous materials; and critical infrastructure such as streets and bridges, airports, and oil refineries. Table 3-16 lists the critical facilities for the 2017 HMP.

Table 3-15: Pittsburg Critical Facilities

Facility Name	Category	Site Purpose
Pittsburg Public Library	Critical Infrastructure	Shelter Location
Pittsburg City Hall	Critical Facility	Public Safety/Continuity of Operations
Pittsburg Corporation Yard	Critical Facility	Public Safety
Pittsburg Power Company	Critical Facility	Public Safety
Pittsburg Marina Waterfront	Critical Facility	Public Safety
Pittsburg Senior Community Center	Critical Facility	Shelter Location
City Park Facility	Critical Facility	Evacuation Site
Buchanan Community Center	Critical Facility	Evacuation Site
Buchanan Swim Center	Critical Facility	Evacuation Site
Delta View Golf Course Facilities	Critical Facility	Evacuation/Shelter Site
Pittsburg Water Treatment Plant	Critical Infrastructure	Water Services
Reservoir 1	Critical Infrastructure	Water Services
Reservoir 2	Critical Infrastructure	Water Services
Reservoir 3	Critical Infrastructure	Water Services
Reservoir 4	Critical Infrastructure	Water Services
Reservoir 5	Critical Infrastructure	Water Services
Reservoir 6	Critical Infrastructure	Water Services
Reservoir 7	Critical Infrastructure	Water Services
Pump Station 1	Critical Infrastructure	Water Services
Wastewater Collection System	Critical Infrastructure	Sanitation Services
Non-City Owned Critical Infrastructure and High Potential Loss Facilities		
Contra Costa Fire Protection District: - Station 84 - 1903 Railroad Ave. - Station 85 - 2331 Loveridge Rd. - Station 87 - 800 W Leland Rd.	Critical Infrastructure	Public Safety
Contra Costa County Superior Court	Critical Infrastructure	Continuity of Operations
Los Medanos College	Critical Facility	High Population / Target Site

Contra Costa Community College District	Critical Facility	High Population / Target Site
Pittsburg Unified School District	Critical Facility	Shelter/Evacuation Center
Chamber of Commerce	Critical Facility	Business Coordination
Dow Chemical Corporation	High Potential Loss Facility	High Hazard Site
USS-POSCO Industries	High Potential Loss Facility	High Hazard Site
Pittsburg Power Plant - Marant	High Potential Loss Facility	Power Plant
Delta Diablo Sanitation District	High Potential Loss Facility	Sanitation Utility
Contra Costa Water	High Potential Loss Facility	Water Resource Utility
Kinder Morgan, Concord	High Potential Loss Facility	High Hazard Site
Shell Oil, Martinez	High Potential Loss Facility	High Hazard Site
Chevron, Richmond	High Potential Loss Facility	High Hazard Site
Bay Area Rapid Transit	High Potential Loss Facility	Mass Transportation
Railway – BSNF / Union Pacific	High Potential Loss Facility	High Hazard Site

3.3.4 Existing Land Use

The City of Pittsburg has an ambitious goal to redefine the City's land use approach, with a goal of 52% Parks and Open Spaces by the year 2020. The General Plan Land Use Element describes land use classification system, projects build-out of various land uses through 2020, and provides both City-wide and sub-area specific policies to guide land use decisions.

Table 3-16: Land Use

City of Pittsburg and Southern Hills		
Land Use Category	**Acreage**	**Percent of Total**
Residential	4,257	24%
Mixed-Use	186	1%
Commercial	772	4%
Industrial	1,589	9%
Parks	2,773	13%
Open Space	7,367	39%
Public / Institutional	419	5%
Utility ROW	865	5%
Total Planning Area	**26,960**	**100%**

There is limited availability of vacant land within the City limits. Single-family homes, multi-family units, and mobile homes are the range of housing types.

The average residential density in Pittsburg, in 2000, was 7.2 housing units per net acre or 17,770 housing units on 2,450 net acres. Low density residential housing occupies 2,080 acres, which is approximately 85 percent of the land area devoted to residential uses in the City. Higher density residential sites are scattered throughout the City.

There are only 64 acres in the City currently devoted to business and office uses. The City currently does not have any large-scale office developments.

Industrial uses continue to dominate the waterfront. Large manufacturing operations such as USS-Posco and the Dow Chemical plant are located along the eastern waterfront, while the Mirant (formerly PG&E) power plant, lies on the western waterfront. There are issues related to physical and visual buffering between industrial facilities and residential neighborhoods.
Pittsburg area comprises a total of 26,960 gross acres (42 square miles). Approximately 20,028 acres (33 square miles) of this will be located within the City or southern hills. More than half of this will remain in Open Space and Parks.

3.3.5 Cultural and Natural Resources Inventory

Development and human intervention have altered the landscape in Pittsburg, restricting natural vegetation primarily to undeveloped hillside areas. The southern third of the Planning Area is largely undeveloped open space with large expanses of rolling grassy hills, while the northern edge consists of salt and brackish marshlands at New York Slough.

Several threatened and endangered plant and animal species may find these natural areas suitable for their living, such as the Western pond turtle, California red-legged frog, San Joaquin kit fox, Berkeley kangaroo rat, Tricolored blackbird, White-tailed kite, Mt Diablo manzanita, Alkali milk-vetch, Diamond-petaled poppy, and Mason's lilaeopsis.

Areas of particular biological concern within Pittsburg include Browns Island Regional Shoreline and Black Diamond Mines Regional Preserve and environs. An extensive list (Table 9-1) of Special Status Species Known to Occur or Potentially Occurring within Pittsburg Planning Area is located in Element 9, Resource Conservation, of the Pittsburg General Plan.

3.3.6 Risk Assessment and Potential Loss

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure of people, buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that have the ability to cause damage to buildings and infrastructures, therefore, hazardous materials, drought, public health and climate change are not included in the assessment. More detailed assessments of risk

that would include deaths and injuries, and economic losses, are beyond the scope of this plan. Table 3-16 provides an analysis of Pittsburg's critical infrastructure.

Table 3-17: Impacting Hazards and Total Exposure

Critical Facilities	Impacting Hazards								Facility	Contents	Total Value
	Flooding	Earthquake	Transportation	Severe Weather	Wild-Urban Fires	Civil Unrest	Terrorism	Pipeline-Oil Spills			
Pittsburg City Hall		X		X		X	X		$25,544,919	$1,666,673	$27,211,592
Pittsburg Corporation Yard		X		X			X		$1,916,892	$ 1,518,280	$3,435,172
Pittsburg Power Company		X		X			X	X	$ 7,913,781	$ 71,729	$7,985,510
Pittsburg Marina Waterfront	X	X	X	X			X	X	$50,430,484	$14,661	$50,445,145
Pittsburg Parks & Recreation Department		X		X	X				$3,203,866	$1,243,769	$4,447,635
Pittsburg Community Center (Senior Center)		X		X					$3,998,091	$319,255	$4,206,346
City Park Facility		X		X					$520,167	$290,846	$811,013
Buchanan Community Center & Swimming Pool		X		X					$1,589,883	$81,021	$1,670,904
Delta View Golf Course Facilities		X		X					$2,733,271	$677,405	$3,410,676
Pittsburg Water Treatment Plant		X		X			X		$43,250,814	$5,375,174	$48,625,988
Reservoirs		X			X		X		$13,702,867	$148,955	$13,851,822
Wells		X							$142,835	$41,856	$184,691
Pump Stations	X	X							$2,556,441	$1,871,010	$4,327,451
Wastewater Collection System		X							$164,701	0	$164,701
California Theater		X		X		X	X		$2,777,088	$10,000	$2,787,088
Vincent A. Davi Library		X		X		X	X		$2,054,354	$844,661	$2,899,015
Marina Community Center – Law Enforcement Training Facility		X		X					$2,883,900	$258,629	$3,142,529
Totals:											**$179,453,272**

3.3.7 Analysis of Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in Table 3-17 used the best data currently available to produce the estimations of loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

In addition, this assessment does not include analysis of non-City owned facilities, even though they are deemed critical. The City does not have replacement or content values or insured values for critical infrastructure, private businesses, schools and churches. A mitigation action was developed to acquire that information so a complete analysis of critical facilities could be completed to show total potential loss in the City.

A quantitative assessment has been prepared for the critical facilities affected by each hazard assessed, and multiplied by a value of percent damage. The percent damage was determined by the geographic area at stake, previous history of damage from the type of hazard, and potential for severity from the hazard profiles.

Table 3-18: Summary of Potential Loss

Hazard Type	# of Critical facilities	Percent Damage	Replacement Value	Content Value	Estimated Replacement Loss	Estimated Content Loss	Total Estimated Loss
Flooding	2	20	$25,544,919	$1,826,673	$5,108,883	$965,335	$6,074218
Earthquake	17	100	$165,384,354	$14,433,924	$165,384,354	$14,433,924	$179,818,278
Transportation	1	100	$50,430,484	$14,661	$50,430,484	$14,661	$50,445,145
Weather	13	50	$148,817,510	$12,372,103	$74,408,755	$6,186,052	$80,594,807
Fires	2	10	$16,906,733	$1,392,724	$1,690,573	$139,172	$1,829,945
Civil Unrest	3	10	$30,376,361	$2,521,334	$3,037,636	$252,133	$3,289,769
Terrorism	8	10	$133,888,332	$13,388,833	$9,650,133	$965,013	$14,353,846
Pipeline-Oil	2	10	$58,344,265	$5,834,427	$86,390	$8,639	$5,843,066

SECTION 4: CAPABILITY ASSESSMENT AND MITIGATION STRATEGY

The federal regulations require local mitigation plans to identify goals for reducing long-term vulnerabilities to the identified hazards in the planning area (Section 201.6(c)(3)(i)).

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3).

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii).

C3. Does the Plan include goals to reduce or avoid long-term vulnerabilities to identified hazards? 44 CFR § 201.6(c)(3)(i).

C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for the jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? See 44 CFR § 201.6(c)(3)(ii).

C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost-benefit review), implemented, and administered by the jurisdiction? 44 CFR § 201.6(c)(3)(iii).

C6. Does the plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate?

Source: FEMA, *Local Mitigation Planning Handbook Review Tool,* March 2013.

A hazard mitigation plan's primary focus is the mitigation strategy. It represents the efforts selected by the City to reduce or prevent losses resulting from the hazards identified in the risk assessment. The strategy includes mitigation actions and projects to address the risk and vulnerabilities discovered in the risk assessment. The mitigation strategy consists of the following steps:

- Identify and profile hazards and risk within the City of Pittsburg.

- Identify projects and activities that can prevent or mitigate damage and injury to the population and buildings.
- Develop a mitigation strategy to implement the mitigation actions.
- Develop an action plan to prioritize, implement, and administer the mitigation actions.
- Implement the HMP mitigation action plan.

A capability assessment was conducted of City's authorities, policies, programs, and resources. From the assessment, goals and mitigation actions were developed. The planning team also developed a plan to prioritize, implement, and administer the mitigation actions to reduce risk to existing buildings and new development. This section also includes information regarding Pittsburg's implementation of and continued participation in the National Flood Insurance Program (NFIP).

4.1 Existing Authorities, Policies, Programs, and Resources

An assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources, e.g., technical personnel such as planners/engineers with knowledge of land development and land management practices, engineers trained in construction practices related to building and infrastructure, planners and engineers with an understanding of natural or human-caused hazards, floodplain managers, surveyors, personnel with GIS skills, and staff with expertise of the hazards in the City. The planning team also considered ways to expand on and improve these existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. Tables 4-1, 4-2, and 4-3 summarize the existing authorities, policies, programs, and resources to implement mitigation actions and projects.

Table 4-1: Local Legal and Regulatory Capabilities

Regulatory Tools (ordinances, plans, codes)	Lead City Department	Description
Pittsburg General Plan Element 10: Health and Safety	City Manager's Office, Police Department, Community Development/Planning, Contra Costa County Fire Protection District	Identifies and addresses mitigate risks posed by geologic and seismic conditions, prevent man-made risks stemming from use and transport of hazardous materials, and ensure that local emergency response agencies are prepared for potential disaster relief.
Pittsburg General Plan Element 9:	Community Development /Engineering	Addresses the problems and outlines policies relating to biological resources and habitat, drainage and erosion,

Regulatory Tools (ordinances, plans, codes)	Lead City Department	Description
Resource Conservation		water quality, air quality, and historical resources conservation. Regulations enacted by ordinance will establish specific regulations to protect natural features and ensure compatible project design.
Pittsburg General Plan Element 11: Public Facilities	Public Works, Water Utilities, Delta Diablo Sanitation District	Addresses the provision of public services and facilities, including water supply and distribution, wastewater collection and treatment, solid waste collection and disposal, fire protection, and public utility corridors, and major public facilities within the City.
Uniform Codes	Community Development Planning and Building Division	Adoption of the Uniform Codes (to include the Administrative Codes, Building Codes, Electrical Codes, Energy Codes, Fire Codes, Mechanical Codes, and Plumbing Codes) and incorporated into the Pittsburg Municipal Code as the means of operations for the City, and to provide sufficient and effective protection of life, health, and property.
Building Code	Community Development Planning and Building Division	Per Health and Safety Code 17958.7, adoption of the CA Building Code to regulate the general design requirements applicable to construction of all structures and portion regulated by the code for seismic strengthening and structural integrity.
Fire Code	Contra Costa County Fire Protection District, Community Development	Provides the means to ensure fire protection systems are installed and maintained; fire protection and life safety equipment is installed in new mid-rise buildings/structures; prohibits the use of fireworks; and reduces the available fire flow reduction to 50% to increase site available fire flow.
Pittsburg Water Master Plan	Water Utilities	Establishes water conservation measures to encourage efficient water use and discourage waste to avoid a water emergency related to contamination, drought, or damage to the City's potable water infrastructure.
Pittsburg Stormwater Management Plan	Community Development	Addresses the floodplain management within the City, and the City actions taken to maintain eligibility with the FEMA National Flood Insurance Program.
Pittsburg Sewer System	Water Utilities, Delta Diablo	A plan to meet the requirements established in the State Water Resources Control Board's Order

Regulatory Tools (ordinances, plans, codes)	Lead City Department	Description
Management Plan	Sanitation District	No. 2006-0003-DWQ to prevent sanitary sewer overflows (SSOs) by establishing a statewide monitoring and reporting program.
Pittsburg Collection System Master Plan	Water Utilities, Delta Diablo Sanitation District	A report that provides an assessment of the wastewater system and provides recommendations for upgrades to meet future capacities.
Pittsburg Emergency Operations Plan	City Manager's Office, Police Department,	Explains how the City will respond to a major emergency or disaster and coordinate between the Emergency Operations Center (EOC) and field level Incident Commanders; includes the hazards with a description of each; the concept of operations during a major emergency or disaster; the role of the EOC, and the coordination that occurs between the EOC and City's departments and other local, state, and federal governments in times of disaster.
Contra Costa Hazardous Materials Plan / Hazardous Material Business Plan	Contra County HazMat as the administering agency, Contra Costa County Fire Protection District	Addresses the storage, use and emergency planning for hazardous materials and extremely hazardous substances in the community and at businesses.

Table 4-2: Administrative and Technical Capabilities

Personnel Resources	Department	Relation to Hazard Mitigation
Planners/Engineers/ Building Official	Community Development Building Division	Issue building permits, review plans for new construction and improvements; conduct plan checks; work with architects, engineers, designers and building owners during pre-construction; inspect all phases of residential and commercial/industrial construction for compliance; enforce municipal code violations.
Planners/Engineers/ Analysts/General Staff	Community Development Planning Division	Plan future City land use; develop and implement the General Plan, land use regulations through zoning and subdivision codes, and environmental review of development; administer the Community Development Block Grant Program (CDBG), conduct Code Compliance program with the Building Division;

Personnel Resources	Department	Relation to Hazard Mitigation
		conduct conditional use permits, variances, land subdivision, CEQA review, public hearings, noise permits, and zoning information.
Planners/Engineers/ Analysts/General Staff	Water Utilities	Supply water to the City's customers and perform the operation, maintenance and repair of the City's water distribution system.
Planners/Engineers/ Analysts/General Staff	Community Development Engineering Division	Oversee public and private improvements in the public right-of-way; develop and implement the Capital Improvement Program by providing staff support to the Capital Improvement Program Advisory Committee (CIPAC) relative to City streets, sanitary sewer, storm drains, water system facilities, traffic signals, park and recreational facilities; maintain and upgrade public infrastructure; provide services related to traffic issues; monitors the street lighting system maintained by PG&E; keeps and maintains record drawings of City-owned infrastructure; conducts traffic committee meetings with the Police Department; and provides engineering support to other City Departments and other Divisions within the Public Works Department.
Director of Emergency Services, Administrative Officer, Police Lieutenant	City Manager's Office, Police Department	Provide for the coordinated response and recovery from major emergencies and disasters; develop, administer and coordinate the emergency planning preparedness program in conformity with local, State and Federal requirements; develop emergency management and hazard mitigation plans; provide training to City staff in emergency planning and preparedness; develop, maintain, and coordinate the City Emergency Operations Center; provide businesses and residents with emergency planning and preparedness material to help reduce the loss of life and property resulting from a disaster; coordinate with County, State, and Federal counterparts; prepare emergency management grants; coordinate the efforts of volunteer organizations.
Public Preparedness Education	City Manager's Office, Police Department	Provide free disaster preparedness and Community Emergency Response Team training to residents and businesses in Pittsburg; provide an organizing framework and support to neighborhood Community Emergency Response Team (CERT) teams, which may volunteer in the event of a serious earthquake or other

Personnel Resources	Department	Relation to Hazard Mitigation
		major disaster. General Education for people and businesses.
Code Enforcement Officer	Police Department	Investigates citizen complaints regarding the enforcement of municipal code violations, conducts inspections, notification, communication and the issuance of citations as a means of establishing a proactive response to citizens' concerns.
Fire Marshall	Contra Costa County Fire Protection District	Perform fire inspections for construction, commercial, multi-family occupancies, and high rise buildings; conduct fire prevention, emergency evacuation, and extinguisher training to businesses and the public; conduct enforcement and identify and issue notices for fire code violations; update Fire Prevention Regulations to conform with currently adopted Coeds, Regulations, and Standards; coordinate with industries for fire prevention.
Floodplain Manager	Director of Community Development	As a member of the National Flood Insurance Program (NFIP) the Floodplain Manager is responsible for working with stakeholders to ensure the Floodplain Management Ordinance is followed within the City of Pittsburg.
Public Information Officer	City Manager's Office, Police Department	Provide public and media information regarding Pittsburg's disaster response, mitigation, and recovery efforts. +
Information technology and Geographic Information System	Community Development	Provide the technical resources and support necessary to operate all of the Application Systems relating to the City's information resources; respond to the service needs to all departments based on citywide priorities as established by the City Manager; responsible for the training and effective use of all City technology computer hardware, software, and peripherals; provide internal coordination of technology efforts Citywide including substantial interface with all technology vendors to assure cost-effective, secure and reliable technologies compatible with the long-range needs of the City; provide high-quality spatial data to Pittsburg departments.
Risk Management	Human Resources Department	Provide services to assist City departments in managing their risk of injury to employees, City property, and the public at large; purchase insurance for City

Personnel Resources	Department	Relation to Hazard Mitigation
		departments and act in an advisory capacity with respect to workers' compensation, public liability, City property, and City contracts.

Table 4-3: Financial Resources

Financial Resource	Administrator	Purpose
General Fund	Department Specific	Program operations and specific projects.
Internal Services Funds	Department Specific	Funds that were created to account for the cost and revenues of services provided to other City departments for which those departments are charged.
Special Revenue Funds	Office of City Manager	Special Revenue Funds are used to account for the proceeds of specific revenue sources that are legally restricted to expenditures for specific purposes.
Capital Outlay Funds	Department Specific	Monies are transferred from various funds to this fund for City capital improvement projects and equipment approved by the City Council.
Building Maintenance Fund	Public Works	The Building Maintenance Division of the Department of Public Works (DPW) maintains and/or oversees maintenance and service contracts for all City owned buildings. User charges to respective City departments based on square footage provide the revenues to support the building maintenance function.
Sewer Operating Fund	Water Utilities	The City maintains the collection system that transports the sewage to the treatment plant at Delta Diablo Sanitation District. The City charges water customers who use the City's sewer system sewer fees to cover the cost to operate and maintain the system. The non-single family and non-residential fees are based on a flat fee multiplied by their water consumption. The annual operation of the Sewer Fund generates approximately $4.7 million in gross revenue and $2 million in operating expenses.
Water Operating Fund	Water Utilities	The City operates and maintains its own water treatment plant. The City charges water customers fees for water usage to cover the cost to procure water as well as operate and maintain the City's water system. Currently the City provides water service to approximately 18,099 customers of which 94 percent are for residential locations. The annual operation of the

Financial Resource	Administrator	Purpose
		Water Fund generates approximately $19 million in gross revenue and $12.8 million in operating expenses.
Water and Sewer Facility Reserve Charge Funds	Public Utilities	A Facility Reserve Charge (FRC) or development impact mitigation fee is a charge to pay for public facilities in existence at the time the charge is imposed and serve new development, or to pay for new facilities that will be of benefit to the person or property being charged. The City has separate FRC's for both the water and sewer utilities.
Kirker Creek Drainage Fund	Community Development	The City collects fees from developers of properties that are within the Kirker Creek Watershed Drainage Area. These fees are deposited into a separate special revenue fund to be expended solely for land acquisition, construction, engineering, administration, repair maintenance and operating of planned drainage facilities within the drainage area, or to reduce the principal or interest of any bonded indebtedness of the drainage area.
National Pollutant Discharge Elimination System (NPDES)	Community Development	NPDES is a joint effort of the Planning, Engineering and Public Works departments through the Contra Costa County Clean Water Program. Since 1993, the City has worked with Contra Costa County, Contra Costa County Flood Control and Water Conservation District and 15 other cities in the county to meet federal mandates for minimizing pollutants in storm water runoff. This revenue is used to fund its pro-rata share of the Clean Water Program's staffing and overhead costs as well as local level activities necessary to comply with provisions of the joint Municipal Regional Permit (MRP).
Solid Waste Fund	Environmental Affairs	Solid Waste Management creates and implements programs and services for schools, City offices, businesses and the community by promoting waste prevention, reuse and recycling to meet the state-mandated, AB 939 (50 percent waste diversion requirements leading to the eventual 'zero-waste' formula).
Fleet Maintenance Fund	Public Works	The Fleet Maintenance Division provides maintenance of the City's 250 vehicle fleet. User charges to respective City departments based on the number of vehicles provide the revenues to support this function.

Financial Resource	Administrator	Purpose
Information and Communication Fund	City Manager's Office (IT within)	Centrally budgeted for the operation, maintenance and replacement of the Citywide network infrastructure, telephone, computer equipment and other hardware and software needs. User charges to other departments provide the revenues to support this function.
Marina Fund	Pittsburg Marina	Pittsburg's Marina with a total of 649 berths is self-sufficient generating all of its revenues through the use of its berthing facilities and the sale of gasoline. The annual operation of the Marina Fund generates approximately $2 million in gross revenue and $2 million in operating expenses.
Pittsburg Power and Island Energy Fund	Pittsburg Power Company	The Pittsburg Power Company (PPC) is a municipal utility formed under the California Constitution. The PPC does business in the City of Pittsburg and as Island Energy on Mare Island located in Vallejo, California as an Enterprise Fund, which distributes natural gas and electricity to the industries, schools, businesses and residents on Mare Island. Island Energy's focus is to build capital asset value and income for the City of Pittsburg as Mare Island is redeveloped over time.
Community Development Block Grants (CDBG)	City Manager's Office, Economic Development	The CDBG program provides funding for eligible senior activities such as in-home care, art classes, counseling and home delivered meals. HUD also provides Disaster Recovery Assistance in the form of flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.
Hazard Mitigation Grant Program (HMPG)	FEMA	Provides support for post-disaster mitigation plans and projects.
Pre-Disaster Mitigation grant program (PDM)	FEMA	Provides support for pre-disaster mitigation plans and projects.
Flood Mitigation Assistance grant program (FMA)	FEMA	Mitigates structures and infrastructure that have been repetitively flooded.

4.2 National Flood Insurance Program Participation and Compliance

The City of Pittsburg adopted the Model Floodplain Management Ordinance within the City in order to maintain eligibility within the National Flood Insurance Program.

Since 1968 the National Flood Insurance Program (NFIP) has provided federally funded flood insurance to homeowners, renters, and businesses in communities that adopt and enforce floodplain management ordinances to reduce future flood damage. The adoption of Ordinance 15.AO, passed in 1999, allows residents of the City to remain eligible to purchase flood insurance through the National Flood Insurance Program. The Ordinance meets the minimum standards set forth in Title 44, Section 60.3 of the Code of Federal Regulations. The City of Pittsburg participates in the Community Rating System.

The Floodplain Management Ordinance's effect is limited to requiring that any new construction or substantial improvement to existing structures will have to comply with the standards of construction identified in the Ordinance. The City's continued involvement in NFIP supports this plan. Currently, the City of Pittsburg implements a floodplain management program designed to protect the people and property of the City and implements activities such as public information and outreach activities, mapping and regulatory activities, and flood damage reduction activities as outlined in the Storm Water Management Plan.

There are only two businesses located in the Special Flood Hazard Area (SFHA), Chevron and NRG, Inc. There are also restrooms and a lifeguard tower on the beach. It is unknown if Chevron and/or NRG, Inc. have purchased a NFIP policy, or if they are self-insured for damage to the facilities.

4.3 2017 Hazard Mitigation Plan Goals

Mitigation goals are guidelines that represent what the community wants to accomplish through the mitigation plan. Goals are broad statements that represent a long-term, community-wide vision. The planning team reviewed example goals and objectives and determined which goals best met the City's objectives for mitigation. The goals also align with the hazards in the 2017 plan and input provided by stakeholders and the public. Table 4-5 lists the goals for the 2017 HMP.

Table 4-4 Hazard Mitigation Goals

2017 Goals
Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.
Goal 2: Improve public understanding, support and need for hazard mitigation measures.
Goal 3: Promote disaster resistance for Pittsburg's natural, existing, and future built environment.
Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities.
Goal 5: Enhance the City's ability to effectively and immediately respond to disasters.

4.4 MITIGATION ACTIONS

Mitigation actions are specific activities or projects that serve to meet the goals that the community has identified. Mitigation actions and projects are more specific than goals or objectives, and often include a mechanism, such as an assigned time period, to measure the success and ensure the actions are accomplished. The planning team conducted a review of the mitigation actions and strategies from the 2009 HMP. With information from the risk assessment, capability assessment, and status of the actions implemented since the 2009 HMP, the planning team developed 31 new mitigation actions and projects to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure.

Table 4-5 lists the potential mitigation actions developed by the planning team. For each mitigation action, the following information is listed: type of mitigation project; hazard(s) addressed; type of development affected by action; and the source of the mitigation project idea.

Table 4-5 2017 Mitigation Action Items and Projects

Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Department
Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.	1.1	Develop a program to assess the City for soft story buildings requiring seismic retrofitting. Consider implementing a Soft Story Seismic Retrofit Ordinance.	Prevention	Seismic	Community Development
	1.2	Encourage seismic strength evaluations of critical facilities in the City to identify building integrity.	Prevention	Seismic	Public Works
	1.3	Evaluate City and non-City facilities identified as potential shelter sites for structural integrity.	Prevention	All Hazards	Public Works
	1.4	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Emergency Services	All Hazards	Public Works
	1.5	There has been damage to roadway embankment due to flooding at Buchanan Rd & Kirker Creek. Provide engineering and technical services to investigate the underlying cause of the damage and provide a recommendation to repair and prevent future damage/damage.	Property Protection	Flood	City Engineer/ Public Works
	1.6	Flood damage to the Sugartree and Birchwood drainage system resulted from previous flooding which affected nearby housing and roadways. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Property Protection	Flood	City Engineer/ Public Works
	1.7	Recent storms resulted in flooding along Parkside Dr. and caused damage to roadway. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Property Protection	Flood	City Engineer/ Public Works

Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Department
	1.8	Recent storms resulted in flooding in Buchanan Park damaging and undermining walkways. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Property Protection	Flood	City Engineer/ Public Works
	1.9	Recent winter storms resulted in damage and erosion to Riverview Breakwater due to wind and rain. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Property Protection	Flood	City Engineer/ Public Works
Goal 2: Improve public understanding, support and need for hazard mitigation measures.	2.1	Develop a public outreach and awareness program about the hazards in Pittsburg and mitigation actions community members can do in their homes.	Public Education	All Hazards	City Manager's Office, Police Department
	2.2	Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach.	Public Education	All Hazards	City Manager's Office, Police Department
	2.3	Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.	Emergency Services	All Hazards	Community Development, City Manager's Office
	2.4	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Prevention	All Hazards	Community Development
	2.5	Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant	Property Protection	All Hazards	Community Development

Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Department
		to losses from natural, man-made, and technological hazards.			
	2.6	Place more stress on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various City departments.	Public Education	All Hazards	All Departments
Goal 3: Promote disaster resistance for Pittsburg's natural, existing, and future built environment.	3.1	Improve hazard assessment information to make recommendations for avoiding new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural, man-made, and technological hazards.	Property Protection	All Hazards	Community Development
	3.2	Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	Regulatory	All Hazards	Community Development
	3.3	Inventory and develop replacement values for all City-owned assets and non-city assets to help the City better understand the values of assets at risk.	Emergency Services	All Hazards	City Manager's Office
	3.4	Integrate appropriate items from the Hazard Mitigation Plan (HMP) into the Health and Safety Element of the General Plan and other regulatory documents as appropriate.	Regulatory	All Hazards	City Manager's Office, Community Development
	3.5	Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.	Prevention	All Hazards	All Departments
	3.6	Inspect and repair the City reservoirs.	Structural Project	All Hazards	Water Utilities, Community Development
	4.1	Strengthen communication and coordination with public agencies, residents, non-profit organizations,	Emergency Services	All Hazards	All Departments

Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Department
Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities.		business and industry to create interest in the implementation of mitigation measures.			
	4.2	Increase effectiveness of City emergency services by implementing mitigation programs and projects that aid emergency responders and public safety departments during emergencies.	Prevention	All Hazards	City Manager's Office, Police Department
	4.3	Encourage leadership within the City and businesses to prioritize and implement local and regional hazard mitigation activities.	Emergency Services	All Hazards	City Manager's Office, Police Department
	4.4	Continue developing and strengthening inter-jurisdictional coordination and cooperation in the area of emergency services.	Emergency Services	All Hazards	Police Department
	4.5	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	Regulatory	All Hazards	Police Department
Goal 5: Enhance the City's ability to effectively and immediately respond to disasters.	5.1	Create a redundant data center and complete fiber to that location.	Technology	All Hazards	City Manager's Office
	5.2	Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.	Prevention	All Hazards	Community Development, City Manager's Office, Police Department
	5.3	Build a cadre of committed, trained, volunteers to augment disaster response and recovery efforts in compliance with the California Disaster Service Worker program guidance, e.g., shelter workers, animal rescue and care, Community Emergency	Emergency Services	All Hazards	City Manager's Office, Police Department

Goal	Action Item #	Action Description	Mitigation Type	Related Hazards	Implementing Department
		Response Team, communications staff, medical and health, and human services, during and after a disaster.			
	5.4	Decentralize key components of the City's core network to allow the network to survive the failure of any one site from a disaster.	Technology	All Hazards	City Manager's Office
	5.5	Coordinate with Contra Costa County in hazard mitigation efforts for Pittsburg to protect two-way radio equipment from hazards by bracing antennas, securing repeaters, etc., from hazards.	Technology	Seismic	Police Department

4.5 Mitigation Action Plan

The mitigation action plan developed by the planning team includes the action items that Pittsburg intends to implement during the next five years, assuming funding availability. The action plan, shown in Table 4-6, includes the implementing department, an estimate of the timeline for implementation, and potential funding sources.

The new mitigation actions include a broad range of approaches to hazard mitigation such as retrofitting, code enforcement, development of new regulations, public education, development of redundant facilities, and others. Measures are included to mitigate risks to existing buildings and infrastructure, as well as new buildings and infrastructure. The mitigation action plan assigns primary responsibility for each of the action items to an implementing department. The implementing department is the controlling department that will assign funding and oversee activity implementation, monitoring, and evaluation.

The planning team does not presume the expertise to prescribe which projects will be implemented. The prioritization of projects in the HMP is a means to provide a basis for implementing the mitigation strategies, but all new mitigation actions and projects will be formally prioritized and selected by the implementing department. This will accommodate the project funding, schedule of the department, staff requirements, and ability to integrate the new project into existing and ongoing projects. Departments will take into account the funding source, the cost effectiveness of the project, alternative projects, the compatibility of the new project with ongoing projects, the extent to which the project addresses the risks assessed in Section 3, and the potential of economic and social damage.

Prioritization

To assist with implementing the mitigation action plan, the planning team used the following ranking process to provide a method to prioritize the projects for the Action Plan. Designations of High, Medium, and Low priorities have been assigned to each action item using the following criteria.

Does the action:	Solve the problem?
	Address vulnerability assessment?
	Reduce the exposure or vulnerability to the highest priority hazard?
	Address multiple hazards?
	Offer benefits that equal or exceed costs?
	Implement a goal, policy, or project identified in the General Plan or Capital Improvement Plan?
Can the action:	Be implemented with existing funds?
	Be implemented by existing state or federal grant programs?

	Be completed within the five-year life cycle of the LHMP?
Will the action:	Be implemented with currently available technologies?
	Be accepted by the community?
	Be supported by community leaders?
	Adversely affect segments of the population or neighborhoods?
	Require a change in local ordinances or zoning laws?
	Result in positive or neutral impact on the environment?
	Comply with all local, state, and federal environmental laws and regulations?
Is there:	Sufficient staffing to undertake the project?
	Existing authority to undertake the project?

Each positive response is equal to one point. Answers to the criteria above determined the priority according to the following scale:

1–6 = Low priority 7–12 = Medium priority 13–18 = High priority

Using the criteria above, the planning team employed the STAPLEE method to rank actions in the mitigation action plan. The results are contained in Appendix E.

Benefit-Cost Analysis

Conducting benefit/cost analysis for a mitigation activity can assist the City in determining whether a project is worth undertaking now, in order to avoid disaster related damages later. Cost-effectiveness analysis evaluates how to best spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating hazards can provide decision makers with an understanding of the potential benefits and costs of an activity, as well as a basis for comparing alternative projects.

Funding

The funds required to implement the mitigation action plan will come from a variety of sources including: Federal Hazard Mitigation Grants, City budget, bonds, fees and assessments, and others. Some projects are (or will be) included in capital improvement budgets, while some, especially ongoing projects, are included in department operating budgets.

Prior to beginning a project or when federal funding is involved, the implementing department will use a FEMA approved benefit/cost analysis approach to identify the actual costs and benefits of implementing these mitigation actions. For non-structural projects, implementing departments will use other appropriate methods to weigh the costs and benefits of each action item, and then develop a prioritized list.

Implementation

Mitigation projects were assigned one of three categories as a tentative schedule for implementation; short-range, mid-range, and long-range. Projects that are currently being

implemented by various departments are assigned to the ongoing category. Implementation of short-range projects will typically begin within the next three years. Mid-range projects will require some planning and likely require funding beyond what is currently allocated to the various departments in the City's general fund. Projects in the mid-range category will generally begin implementation in the next three to five years. Long range projects will require great planning and funding and will generally begin implementation within five years and beyond.

Table 4-6 Mitigation Action Plan

Action Item #	Priority	Action Description	Timeline	Funding Source	Implementing Department
1.1	High	Develop a program to assess the City for soft story buildings requiring seismic retrofitting. Consider implementing a Soft Story Seismic Retrofit Ordinance.	Long-range	General Fund or Other	Community Development
1.2	High	Encourage seismic strength evaluations of critical facilities in the City to identify building integrity.	Mid-range	General Fund	Community Development
1.3	High	Evaluate City and non-City facilities identified as potential shelter sites for structural integrity.	Long-range	General Fund	Community Development
1.4	High	Identify and pursue funding opportunities to develop and implement local mitigation activities.	Short-range	Operating Budget	City Manager's Office, Police Department, Community Development
1.5	High	There has been damage to roadway embankment due to flooding at Buchanan Rd & Kirker Creek. Provide engineering and technical services to investigate the underlying cause of the damage and provide a recommendation to repair and prevent future damage/damage.	Short-range	Grant Funding	Engineering, Public Works
1.6	High	Flood damage to the Sugartree and Birchwood drainage system resulted from previous flooding which affected nearby housing and roadways. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Short-range	Grant Funding	Engineering, Public Works
1.7	High	Recent storms resulted in flooding along Parkside Dr. and caused damage to roadway. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Short-range	Grant Funding	Engineering, Public Works
1.8	High	Recent storms resulted in flooding in Buchanan Park damaging and undermining walkways. Provide engineering and technical services to investigate the underlying cause of the flooding and	Short-range	Grant Funding	Engineering, Public Works

Action Item #	Priority	Action Description	Timeline	Funding Source	Implementing Department
		provide a recommendation to repair and prevent future damage/damage.			
1.9	High	Recent winter storms resulted in damage and erosion to Riverview Breakwater due to wind and rain. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	Short-range	Grant Funding	Engineering, Public Works
2.1	High	Develop a public outreach and awareness program about the hazards in Pittsburg and mitigation actions community members can do in their homes.	Short-range	Operating Budget	City Manager's Office, Police Department
2.2	High	Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach.	Short-range	Operating Budget	City Manager's Office, Police Department
2.3	High	Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.	Mid-range	Operating Budget	All Departments
2.4	High	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Mid-range	General Fund	Community Development
2.5	High	Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural, man-made, and technological hazards.	Long-range	Operating Budget	Community Development
2.6	High	Place more stress on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various City departments.	Short-range	Operating Budget	All Departments
3.1	High	Improve hazard assessment information to make recommendations for avoiding new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural, man-made, and technological hazards.	Mid-range	General Fund	Community Development

Action Item #	Priority	Action Description	Timeline	Funding Source	Implementing Department
3.2	High	Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	Mid-range	Operating Budget	Community Development
3.3	High	Inventory and develop replacement values for all City-owned assets and non-City assets to help the City better understand the values of assets at risk.	Mid-range	General Fund	City Manager's Office
3.4	High	Integrate appropriate items from the Hazard Mitigation Plan (HMP) into the Health and Safety Element of the General Plan and other regulatory documents as appropriate.	Short-range	Operating Budget	City Manager's Office, Community Development
3.5	High	Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.	Mid-range	Operating Budget	All Departments
3.6	High	Inspect and repair the City reservoirs.	Ongoing	Water Utility	Water Utilities
4.1	High	Strengthen communication and coordination with public agencies, residents, non-profit organizations, business and industry to create interest in the implementation of mitigation measures.	Short-range	Operating Budget	All Departments
4.2	High	Increase effectiveness of City emergency services by implementing mitigation programs and projects that aid emergency responders and public safety departments during emergencies.	Mid-range	General Fund	Police Department
4.3	High	Encourage leadership within the City and businesses to prioritize and implement local and regional hazard mitigation activities.	Short-range	Operating Budget	City Manager's Office, Police Department
4.4	High	Continue developing and strengthening inter-jurisdictional coordination and cooperation in the area of emergency services.	Mid-range	Operating Budget	Police Department
4.5	High	Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	Short-range	Operating Budget	Police Department
5.1	High	Create a redundant data center and complete fiber to that location.	Short-range	General Fund	City Manager's Office
5.2	High	Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing	Short-range	Operating Budget	Community Development,

Action Item #	Priority	Action Description	Timeline	Funding Source	Implementing Department
		supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.			City Manager's Office
5.3	High	Build a cadre of committed, trained, volunteers to augment disaster response and recovery efforts in compliance with the California Disaster Service Worker program guidance, e.g., shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services, during and after a disaster.	Short-range	Operating Budget	City Manager's Office, Police Department
5.4	High	Decentralize key components of the City's core network to allow the network to survive the failure of any one site from a disaster.	Mid-range	General Fund	City Manager's Office
5.5	High	Coordinate with Contra Costa County in hazard mitigation efforts for Pittsburg to protect two-way radio equipment from hazards such as bracing antennas, securing repeaters, etc., from hazards.	Short-range	Unknown	Police Department

4.6 Incorporation of HMP into other Planning Mechanisms

The HMP planning process provided the City with an opportunity to review and expand on policies contained in the general plan. The City views the general plan and the hazard mitigation plan as complementary documents that work together to reduce risk exposure to the residents of Pittsburg. Many of the ongoing recommendations identified in the HMP are programs recommended in the City General Plan Health and Safety Element.

Per California Assembly Bill 2140, the City intends on adopting the hazard mitigation plan in accordance with the federal Disaster Mitigation Act of 2000 as part of the safety element of the general plan, adopted pursuant to Section 65302 (g) of the California Government Code. Additional planning mechanisms and processes that the City will incorporate hazard mitigation hazards and risks, plan recommendations, and mitigation actions into include the following documents:

- City Emergency Operations Plans and Procedures
- Capital Improvement Planning and Programs
- Pittsburg Municipal Code
- Community Design Guidelines
- Drought and Water-efficiency Guidelines
- Stormwater Management Program
- Environmental Work Plan
- General Plan Conservation and Health and Safety Elements

Incorporation of action items and processes from the 2017 HMP into various planning documents will be completed as other plans are updated, and when new plans are developed. These efforts may coincide with the Plan Maintenance Method and Schedule activities. Additional action items may be implemented through the creation of new public educational programs, continued interagency coordination, and public input and participation.

SECTION 5: PLAN ADOPTION

FEMA REGULATION CHECKLIST: PLAN ADOPTION

Adoption by the Local Governing Body

44 CFR § 201.6(c)(5): The local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan. 44 CFR §201.6(c)(5)

Element

E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval?

Source: FEMA, *Local Mitigation Planning Handbook Review Tool,* March 2013.

Per 44 CFR 201.6(d)(1), the Pittsburg hazard mitigation plan must be submitted to the State Hazard Mitigation Officer (SHMO) for review. The State will then send the plan to the appropriate FEMA Regional Office for formal review and approval. The State will coordinate with Pittsburg and between Pittsburg and FEMA, once the plan is sent to FEMA for the final review and approval. FEMA has the authority to conduct the final review and approve the HMP.

The 2017 Pittsburg Hazard Mitigation Plan meets all requirements on the regulation checklist and was adopted by City Council of the City of Pittsburg on [date added]. A scanned copy of the resolution is included on the following page. Accordingly, the City of Pittsburg meets the requirements of the Stafford Act, as amended, and 44 CFR § 201.6(c)(5).

5.1 LOCAL PLAN ADOPTION RESOLUTION

SECTION 6: ACRONYMS AND ABBREVIATIONS

2017 HMP	2017 City of Pittsburg Hazard Mitigation Plan
Cal OES	California Governor's Office of Emergency Services
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosive
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CRS	Community Rating System
DMA 2000	Disaster Mitigation Act of 2000
DPH	Department of Public Health
DPW	Department of Public Works
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FMA	Flood Mitigation Assistance (grant program)
FY	Fiscal Year
GIS	Geographic Information System
GP	General Plan
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
M	Magnitude
Mw	Moment Magnitude
MMI Scale	Modified Mercalli Intensity scale
NFIP	National Flood Insurance Program
PG&E	Pacific Gas and Electric
PDM	Pre-Disaster Mitigation
RFC	Repetitive flood claims
RL	Repetitive Loss
SFHA	Special Flood Hazard Area
SRL	Severe Repetitive Loss
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
UCERF	Uniform California Earthquake Rupture Forecast
USC	United States Code

USGS	United States Geological Survey
WMD	Weapon of Mass Destruction
WGCEP	Working Group on California Earthquake Probabilities

SECTION 7: REFERENCES

This section lists reference materials used to prepare the 2017 City of Pittsburg LHMP:

1. City of Pittsburg General Plan 2020 http://www.ci.pittsburg.ca.us/index.aspx?page=228
2. ABAG. (2013). ABAG Interactive Liquefaction Susceptibility Map. Retrieved from http://gis.abag.ca.gov/website/Hazards/?hlyr=liqSusceptibility
3. ABAG, (2010). Taming Natural Disasters: Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area, http://resilience.abag.ca.gov/2011mitigation/
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5. Brocher, T.M., et al, (2015) The M6.0 24 August 2014 South Napa Earthquake. https://profile.usgs.gov/myscience/upload_folder/ci2015Jan2212351337182SRL%20Paper%20Brocher%20et%20al.pdf
6. California Adaptation Planning Guide, (2012). Planning for Adaptive Communities http://resources.ca.gov/docs/climate/01APG_Planning_for_Adaptive_Communities.pdf
7. California Climate Change Center (2006). Our Changing Climate: Assessing the Risks to California. A Summary Report from the California Climate Change Center http://meteora.ucsd.edu/cap/pdffiles/CA_climate_Scenarios.pdf
8. California Climate Change Center, (2012). Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. A Summary Report on the Third Assessment from the California Climate Change Center, http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf
9. California Department of Conservation, (2010) Fault Activity Map, http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html
10. California Governor's Office of Emergency Services. (2013). State Hazard Mitigation Plan. Retrieved from http://www.caloes.ca.gov/HazardMitigationSite/Documents/006-SHMP%202013%20Chapter%205.pdf
11. California Department of Forestry, Cal Fire (2016) http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps
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13. City of Pittsburg Emergency Operations Plan, (2014)

14. Committee on Sea Level Rise in California, Oregon, and Washington, and Board on Earth Sciences and Resources and Ocean Studies Board, Division on Earth and Life Studies, (2012). Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future, The National Academies Press, http://ssi.ucsd.edu/scc/images/NRC%20SL%20rise%20W%20coast%20USA%2012.pdf
15. County of Solano. (2012). Hazard Mitigation Plan. Solano County: Office of Emergency Services and Resource Management Office
16. Plan Bay Area. (2013, March). Draft Plan Bay Area. Retrieved from http://planbayarea.org/pdf/Draft_Plan_Bay_Area/00-Overview.pdf
17. United States Geological Survey. (2016, April). Earthquake hazard. Retrieved from USGS: http://earthquake.usgs.gov/learn/glossary/?term=earthquake%20hazard
18. United States Geological Survey. (2016, April). Liquefaction Hazards Map. Retrieved from USGS: http://earthquake.usgs.gov/regional/nca/qmap/
19. United States Geological Survey. (2016, June). Earthquake Hazards Program. Retrieved from http://earthquake.usgs.gov/regional/nca/wg02/results.php
20. United States Geological Survey. (2016) http://earthquake.usgs.gov/learn/topics/mag_vs_int.php

APPENDIX A: LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community. This section was completed by the City of Pittsburg to ensure the HMP met the requirements of 44 CFR §201.6.

Jurisdiction: City of Pittsburg, California	**Title of Plan:** City of Pittsburg Hazard Mitigation Plan	**Date of Plan:** April, 2017
Local Point of Contact: Laura Wright	**Address:** 65 Civic Avenue Pittsburg, CA 94565	
Title: Environmental Affairs Manager		
Agency: City Manager		
Phone Number: 925-252-4114	**E-Mail:** lwright@ci.pittsburg.ca.us	

State Reviewer:	**Title:**	**Date:**
Date Received at State Agency		
Plan Not Approved		
Plan Approved/Sent to FEMA		

FEMA Reviewer	**Title:**	**Date:**
Date Received in FEMA Region IX		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section 2.1, Appendix C	X	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section 2.1.1 and Table 2-1, Appendix C	X	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section 2.2 and Appendices B and C	X	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section 2.3	X	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section 2.4	X	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 2.5	X	
ELEMENT A: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Sections 3.1, 3.2, 3.3	X	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))		X	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))		X	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 4.2 touches on facilities with the NFIP insurance, but it does not fully meet this requirement.	X	
ELEMENT B: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 4.1, Tables 4-1, 4-2, 4-3	X	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 4.2	X	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Sections 4.3 and 4.4	X	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Sections 4.4 and 4.5	X	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Sections 4.4 and 4.5	X	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Sections 4.5 and 4.6	X	
ELEMENT C: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	N/A		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	N/A		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	N/A		
ELEMENT D: REQUIRED REVISIONS This section shall be filled out following subsequent revisions to the Plan.			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Section 5, (placeholder pending adoption approval/resolution.)		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))			
ELEMENT E: REQUIRED REVISIONS Will be adopted when 'Approvable Pending Adoption' by FEMA			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (optional for State reviewers only; not to be completed by FEMA)			
F1. Plan must discuss climate change and its potential effect on the jurisdictions' hazards and the potential to create new hazards for the area.	Section 3.2.12		
ELEMENT F: REQUIRED REVISION			

APPENDIX B: STAKEHOLDER & PUBLIC OUTREACH DOCUMENTATION

Appendix B contains documentation of the planning process including meetings, presentations held for the stakeholders and public, and other stakeholder/public outreach efforts.

Meeting Date	Meeting Audience/ Activity	Documentation
5/18/2015 Kickoff Meeting Team Meeting #1	HMP Planning Team/Stakeholders	- Email to stakeholders - Kickoff meeting read-ahead - What is Hazard Mitigation Planning? - HMP content outline - Kickoff meeting slideshow - Meeting notes
June 2015	Social Media Campaign	- Posting on City Website - Posting on Pittsburg LivingGreen Facebook Page
June 2015	Survey on City Website	- Survey and results
8/17/2015 Team Meeting #2	HMP Planning/Stakeholders	- Email to stakeholders - Planning meeting slideshow - Meeting notes
4/28/2016 Team Meeting #3	HMP Planning/Stakeholders	- Email to stakeholders - Planning meeting slideshow - Meeting notes
3/2/2017 - 3/17/2017	HMP posted on City website and sent to the following jurisdictions for review and comment.	- Notification on City Twitter and Facebook accounts - Posting on City Website - Posting on Pittsburg LivingGreen Facebook Page - Email to neighboring jurisdictions and Operational Area - 2 Comments received that did not result in changes to the draft HMP

Sample 1: Screenshot of City of Pittsburg Website Soliciting Public Feedback on HMP – June 2015

Sample 2: Public Notice on the Pittsburg LivingGreen Facebook Page – June 2015

Sample 3: Screenshots of Survey on SurveyMonkey.com – June 2015

City of Pittsburg Hazard Mitigation Plan Survey

1. Residents and businesses in Pittsburg face a number of hazards that potentially could occur. How concerned are you about the following hazards in Pittsburg? (Check one response for each hazard)

	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned
Earthquake - Seismic Hazards	○	○	○	○	○
Hazardous Materials	○	○	○	○	○
Terrorism	○	○	○	○	○
Transportation Incidents - Air, Rail, Water	○	○	○	○	○
Pipeline - Oil Spills	○	○	○	○	○
National Security - Nuclear	○	○	○	○	○
Flooding - Localized Storms	○	○	○	○	○
Drought	○	○	○	○	○
Urban and Wildland Fires	○	○	○	○	○

Severe Weather - Wind, Tornados, Heat	○	○	○	○	○
Public Health - Epidemic, Pandemic	○	○	○	○	○
Climate Change - Air Pollution	○	○	○	○	○
Civil Unrest	○	○	○	○	○

Other (please specify)

2. How prepared is your household to cope with a hazard event?

	Not at all Prepared	Somewhat Prepared	Adequately Prepared	Well Prepared	Very Well Prepared	Not Sure
Check one:	○	○	○	○	○	○

3. Which of the following activities have been taken to prepare your household for a hazard event? (Check all that apply)

- ☐ Prepared a disaster kit
- ☐ Stored water (one gallon per person per day)
- ☐ Stored non-perishable food
- ☐ Received First Aid / CPR training
- ☐ Taken a Community Emergency Response Team (CERT) course
- ☐ Stored medical supplies (first aid kit, prescription medicines, over-the-counter- medications)
- ☐ Created a home evacuation plan

- [ ] Designated a family meeting place
- [ ] Identified utility shut-offs / have shut-off tools available
- [ ] Stored a battery-powered radio, flashlights, and extra batteries
- [ ] Installed smoke detectors on each level of the house
- [ ] Installed carbon monoxide detectors on each level of the house
- [ ] Have fire extinguishers in appropriate areas of the house
- [ ] Purchased flood insurance
- [ ] Purchased earthquake insurance
- [ ] None

Other (please specify)

4. Which of the following sources of information have helped you to prepare for a hazard event? (Check all that apply)

- [ ] Emergency preparedness information from a government source (federal, state, or local)
- [ ] Attended meetings that have provided disaster preparedness information
- [ ] Community Emergency Response Team (CERT) training
- [ ] Disaster exhibit at a local fair or community event
- [ ] Church disaster preparedness
- [ ] Civic organization disaster preparedness (American Red Cross, etc.)
- [ ] Personal experience with previous hazard or disaster

- [ ] School or other academic institution distribution of materials
- [ ] Locally provided news or regional media source
- [ ] Phone book or marketing distribution of materials

Other (please specify)

5. Which of the following sources or methods of receiving hazard and disaster preparedness information do you think are most effective? (Check all that apply)

- [ ] Newspaper Articles
- [ ] Telephone Book
- [ ] Information Brochures
- [ ] Radio Advertisement
- [ ] Internet
- [ ] Schools and Academic Institutions
- [ ] City Newsletters
- [ ] Workshops
- [ ] Chamber of Commerce
- [ ] Social Media (Facebook, LinkedIn, Twitter)
- [ ] Fire Department
- [ ] City Website
- [ ] Law Enforcement
- [ ] Public Library

- [ ] American Red Cross
- [ ] Community Safety Events
- [ ] Public Meetings
- [ ] Public Awareness Campaigns
- [ ] Word of Mouth
- [ ] Reverse 9-1-1 Notifications (TENS, Nixle)

Other (please specify)

6. What types of projects do you believe the City should be doing in order to reduce damage and disruption from hazard events within Pittsburg? Please rank each option as low, medium, or high priority.

	Low Priority	Medium Priority	High Priority
Retrofit and strengthen essential facilities such as police, fire, schools, and medical buildings.	○	○	○
Retrofit infrastructure such as roads, bridges, drainage facilities, water supply, wastewater, and power supply facilities.	○	○	○
Strengthen codes and regulations to include higher regulatory standards in hazard areas.	○	○	○
Acquire vulnerable properties and maintain as open space.	○	○	○

Provide better public information about risk and the exposure to hazards within the city.	○	○	○
Implement projects that restore the capacity of the natural environment to absorb the impacts from hazards.	○	○	○
Implement projects that mitigate the potential impacts from climate change.	○	○	○
Educate vulnerable property owners about securing funding for mitigation.	○	○	○

Other (please specify)

7. How important do you find the following community-wide actions or activities that may reduce the risk of hazards in Pittsburg?

	Not Important	Somewhat Important	Very Important	Extremely Important
Prevention activities such as administrative or regulatory actions that influence the way land is developed and buildings are built, such as planning, zoning, and building codes.	○	○	○	○

Property protection actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area, such as acquisition, relocation, elevation, and structural retrofits.	○	○	○	○
Structural projects intended to lessen the impact of a hazard by modifying the natural progression of the hazard, such as detention/retention basins, retaining walls, and storm sewers.	○	○	○	○
Emergency services actions that protect people and property during and immediately after a hazard event, such as warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.	○	○	○	○

Public education and awareness activities to inform community members about hazards and the techniques they can use to protect themselves and their property, such as outreach projects, CERT, school programs, library materials, and safety fair events.	○	○	○	○	

Other (please specify)

8. Please indicate how you feel about the following statement: It is the responsibility of government (local, state and federal) to provide education and programs that promote citizen actions that will reduce exposure to the risks associated with hazards.

	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
Choose One:	○	○	○	○	○

9. Please indicate how you feel about the following statement: It is my personal responsibility to be educated and take actions that will reduce my exposure to the risks associated with hazards.

	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
Choose One:	○	○	○	○	○

10. Do you or anyone in your household have disabilities and / or access and functional needs that would require early warning notifications or specialized response to evacuate during disasters?

- ◯ Yes
- ◯ No

Other (please specify)

11. If you answered yes to Question #9: do you have a service dog that would need to be evacuated with you or a household member to a shelter during a disaster?

- ◯ Yes
- ◯ No

Other (please specify)

12. If you answered yes to Question #9: would you participate in a Disaster Assistance Registry for people with disabilities and / or access and functional needs?

- ◯ Yes
- ◯ No

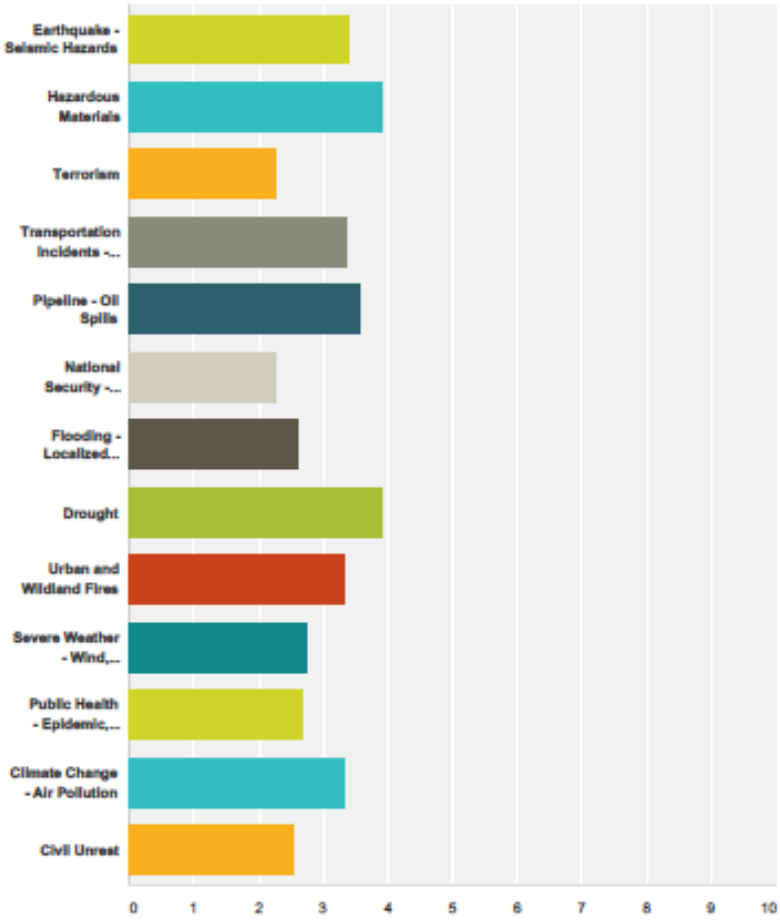
Other (please specify)

Done

Sample 3: Survey Monkey Results (As of April 2016)

Q1 Residents and businesses in Pittsburg face a number of hazards that potentially could occur. How concerned are you about the following hazards in Pittsburg? (Check one response for each hazard)

Answered: 70 Skipped: 0

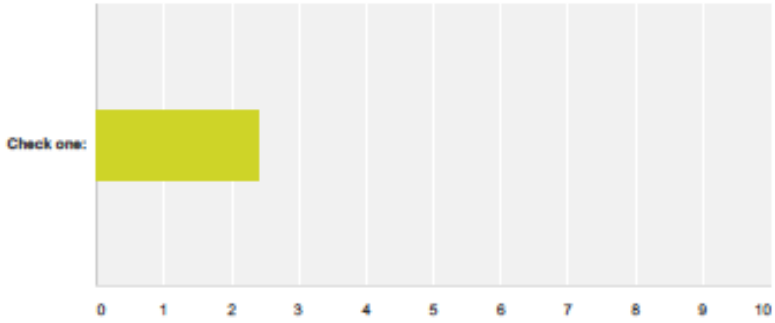


	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned	Total	Weighted Average
Earthquake - Seismic Hazards	10.00% 7	20.00% 14	14.29% 10	31.43% 22	24.29% 17	70	3.40
Hazardous Materials	4.29% 3	5.71% 4	25.71% 18	24.29% 17	40.00% 28	70	3.90

Terrorism	**35.71%** 25	**32.86%** 23	**12.86%** 9	**5.71%** 4	**12.86%** 9	70	2.27
Transportation Incidents - Air, Rail, Water	**11.59%** 8	**20.29%** 14	**21.74%** 15	**13.04%** 9	**33.33%** 23	69	3.36
Pipeline - Oil Spills	**11.43%** 8	**12.86%** 9	**21.43%** 15	**15.71%** 11	**38.57%** 27	70	3.57
National Security - Nuclear	**42.03%** 29	**21.74%** 15	**18.84%** 13	**2.90%** 2	**14.49%** 10	69	2.26
Flooding - Localized Storms	**24.64%** 17	**28.99%** 20	**17.39%** 12	**18.84%** 13	**10.14%** 7	69	2.61
Drought	**5.71%** 4	**8.57%** 6	**18.57%** 13	**24.29%** 17	**42.86%** 30	70	3.90
Urban and Wildland Fires	**11.43%** 8	**20.00%** 14	**20.00%** 14	**21.43%** 15	**27.14%** 19	70	3.33
Severe Weather - Wind, Tornados, Heat	**25.37%** 17	**19.40%** 13	**28.36%** 19	**10.45%** 7	**16.42%** 11	67	2.73
Public Health - Epidemic, Pandemic	**23.53%** 16	**25.00%** 17	**25.00%** 17	**11.76%** 8	**14.71%** 10	68	2.69
Climate Change - Air Pollution	**14.29%** 10	**21.43%** 15	**11.43%** 8	**21.43%** 15	**31.43%** 22	70	3.34
Civil Unrest	**29.41%** 20	**30.88%** 21	**13.24%** 9	**8.82%** 6	**17.65%** 12	68	2.54

Q2 How prepared is your household to cope with a hazard event?

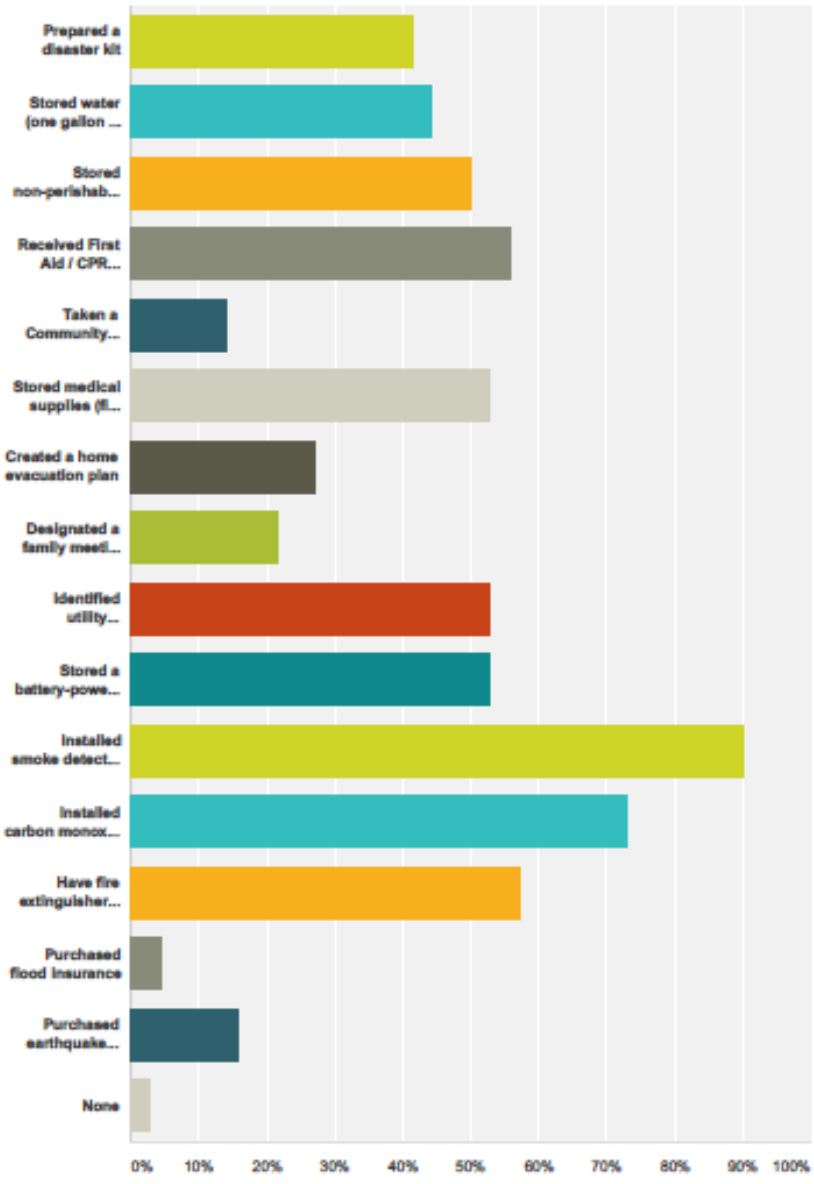
Answered: 69 Skipped: 1



	Not at all Prepared	Somewhat Prepared	Adequately Prepared	Well Prepared	Very Well Prepared	Not Sure	Total	Weighted Average
Check one:	18.84% 13	46.38% 32	20.29% 14	8.70% 6	1.45% 1	4.35% 3	69	2.41

Q3 Which of the following activities have been taken to prepare your household for a hazard event? (Check all that apply)

Answered: 70 Skipped: 0

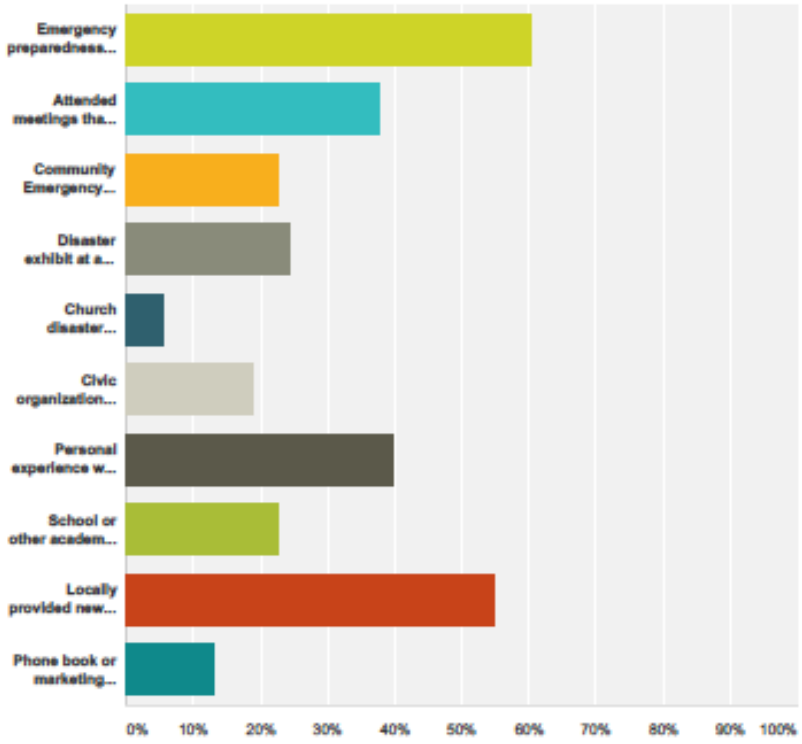


Answer Choices	Responses

Prepared a disaster kit	41.43%	29
Stored water (one gallon per person per day)	44.29%	31
Stored non-perishable food	50.00%	35
Received First Aid / CPR training	55.71%	39
Taken a Community Emergency Response Team (CERT) course	14.29%	10
Stored medical supplies (first aid kit, prescription medicines, over-the-counter- medications)	52.86%	37
Created a home evacuation plan	27.14%	19
Designated a family meeting place	21.43%	15
Identified utility shut-offs / have shut-off tools available	52.86%	37
Stored a battery-powered radio, flashlights, and extra batteries	52.86%	37
Installed smoke detectors on each level of the house	90.00%	63
Installed carbon monoxide detectors on each level of the house	72.86%	51
Have fire extinguishers in appropriate areas of the house	57.14%	40
Purchased flood insurance	4.29%	3
Purchased earthquake insurance	15.71%	11
None	2.86%	2
Total Respondents: 70		

Q4 Which of the following sources of information have helped you to prepare for a hazard event? (Check all that apply)

Answered: 53 Skipped: 17

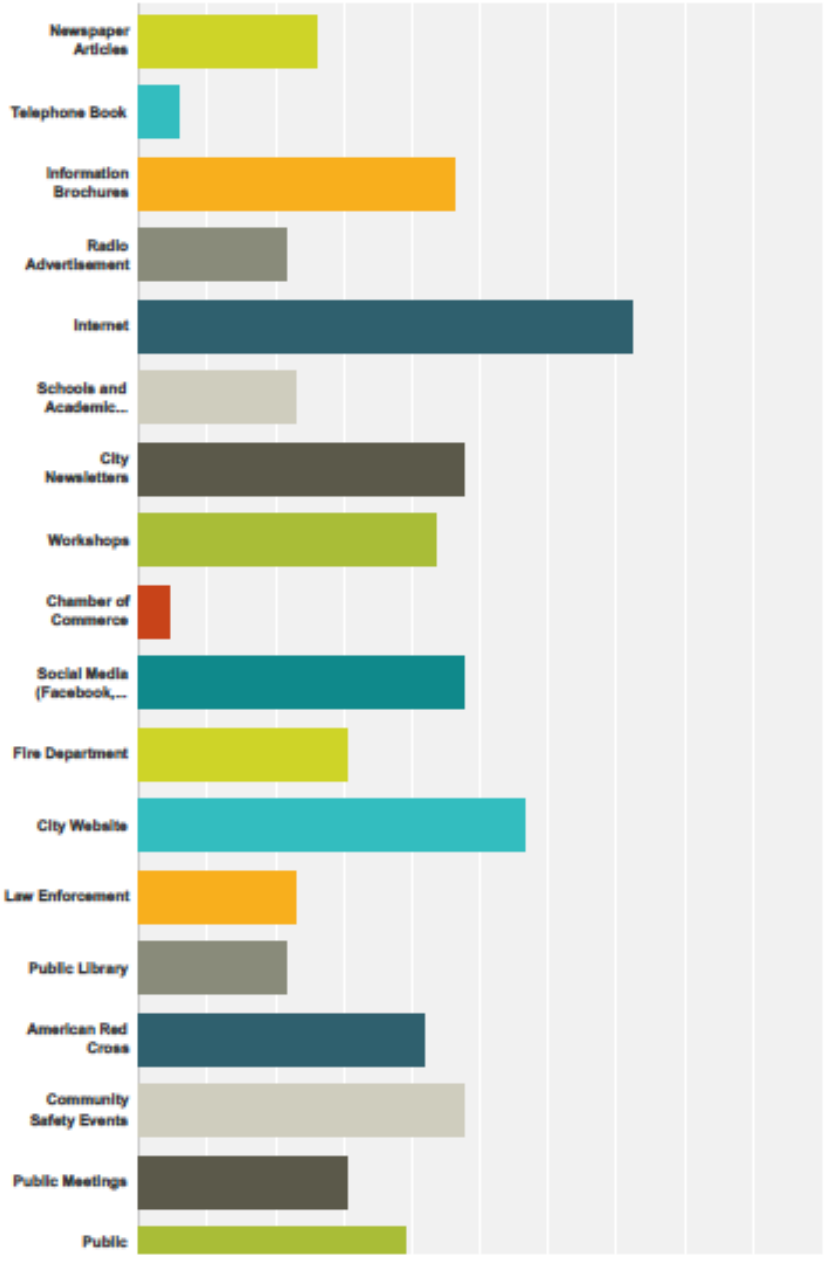


Answer Choices	Responses	
Emergency preparedness information from a government source (federal, state, or local)	60.38%	32
Attended meetings that have provided disaster preparedness information	37.74%	20
Community Emergency Response Team (CERT) training	22.64%	12
Disaster exhibit at a local fair or community event	24.53%	13
Church disaster preparedness	5.66%	3
Civic organization disaster preparedness (American Red Cross, etc.)	18.87%	10
Personal experience with previous hazard or disaster	39.62%	21
School or other academic institution distribution of materials	22.64%	12
Locally provided news or regional media source	54.72%	29
Phone book or marketing distribution of materials	13.21%	7

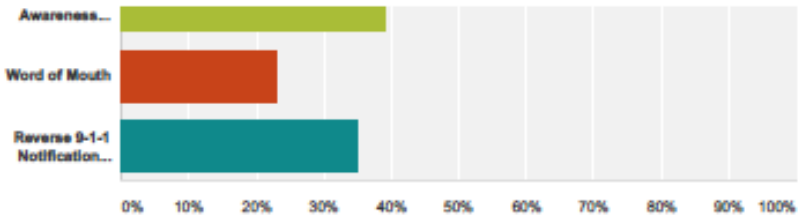
Total Respondents: 53	

Q5 Which of the following sources or methods of receiving hazard and disaster preparedness information do you think are most effective? (Check all that apply)

Answered: 69 Skipped: 1



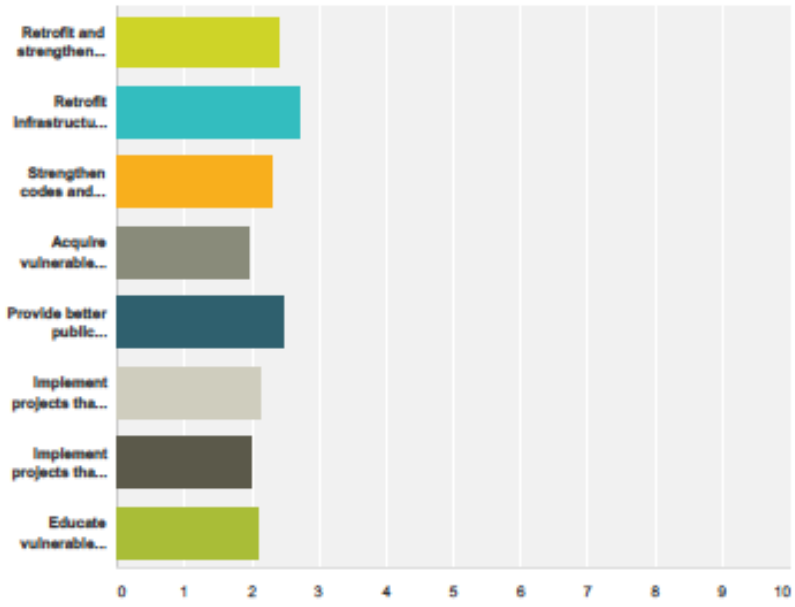
8 / 16



Answer Choices	Responses	
Newspaper Articles	26.09%	18
Telephone Book	5.80%	4
Information Brochures	46.38%	32
Radio Advertisement	21.74%	15
Internet	72.46%	50
Schools and Academic Institutions	23.19%	16
City Newsletters	47.83%	33
Workshops	43.48%	30
Chamber of Commerce	4.35%	3
Social Media (Facebook, LinkedIn, Twitter)	47.83%	33
Fire Department	30.43%	21
City Website	56.52%	39
Law Enforcement	23.19%	16
Public Library	21.74%	15
American Red Cross	42.03%	29
Community Safety Events	47.83%	33
Public Meetings	30.43%	21
Public Awareness Campaigns	39.13%	27
Word of Mouth	23.19%	16
Reverse 9-1-1 Notifications (TENS, Nixle)	34.78%	24
Total Respondents: 69		

Q6 What types of projects do you believe the City should be doing in order to reduce damage and disruption from hazard events within Pittsburg? Please rank each option as low, medium, or high priority.

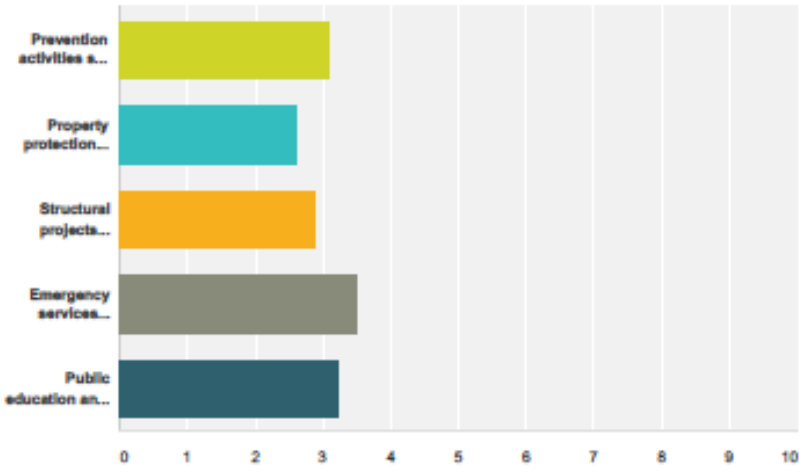
Answered: 69 Skipped: 1



	Low Priority	Medium Priority	High Priority	Total	Weighted Average
Retrofit and strengthen essential facilities such as police, fire, schools, and medical buildings.	13.24% 9	32.35% 22	54.41% 37	68	2.41
Retrofit infrastructure such as roads, bridges, drainage facilities, water supply, wastewater, and power supply facilities.	1.47% 1	25.00% 17	73.53% 50	68	2.72
Strengthen codes and regulations to include higher regulatory standards in hazard areas.	15.94% 11	36.23% 25	47.83% 33	69	2.32
Acquire vulnerable properties and maintain as open space.	37.68% 26	30.43% 21	31.88% 22	69	1.94
Provide better public information about risk and the exposure to hazards within the city.	11.76% 8	29.41% 20	58.82% 40	68	2.47
Implement projects that restore the capacity of the natural environment to absorb the impacts from hazards.	24.64% 17	37.68% 26	37.68% 26	69	2.13
Implement projects that mitigate the potential impacts from climate change.	37.68% 26	26.09% 18	36.23% 25	69	1.99
Educate vulnerable property owners about securing funding for mitigation.	26.09% 18	37.68% 26	36.23% 25	69	2.10

Q7 How important do you find the following community-wide actions or activities that may reduce the risk of hazards in Pittsburg?

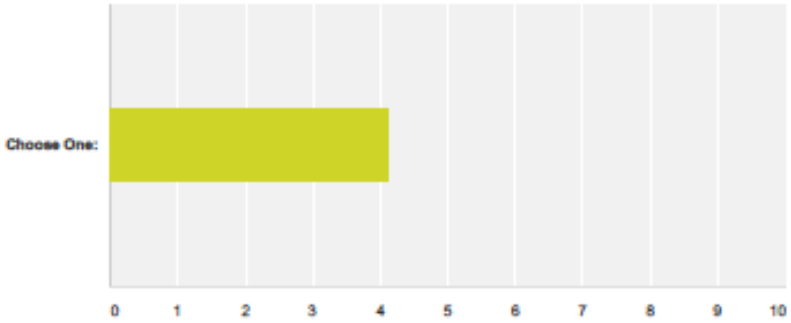
Answered: 69 Skipped: 1



	Not Important	Somewhat Important	Very Important	Extremely Important	Total	Weighted Average
Prevention activities such as administrative or regulatory actions that influence the way land is developed and buildings are built, such as planning, zoning, and building codes.	2.90% 2	28.99% 20	23.19% 16	44.93% 31	69	3.10
Property protection actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area, such as acquisition, relocation, elevation, and structural retrofits.	7.35% 5	38.24% 26	41.18% 28	13.24% 9	68	2.60
Structural projects intended to lessen the impact of a hazard by modifying the natural progression of the hazard, such as detention/retention basins, retaining walls, and storm sewers.	7.25% 5	24.64% 17	40.58% 28	27.54% 19	69	2.88
Emergency services actions that protect people and property during and immediately after a hazard event, such as warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.	2.94% 2	8.82% 6	23.53% 16	64.71% 44	68	3.50
Public education and awareness activities to inform community members about hazards and the techniques they can use to protect themselves and their property, such as outreach projects, CERT, school programs, library materials, and safety fair events.	4.35% 3	14.49% 10	34.78% 24	46.38% 32	69	3.23

Q8 Please indicate how you feel about the following statement: It is the responsibility of government (local, state and federal) to provide education and programs that promote citizen actions that will reduce exposure to the risks associated with hazards.

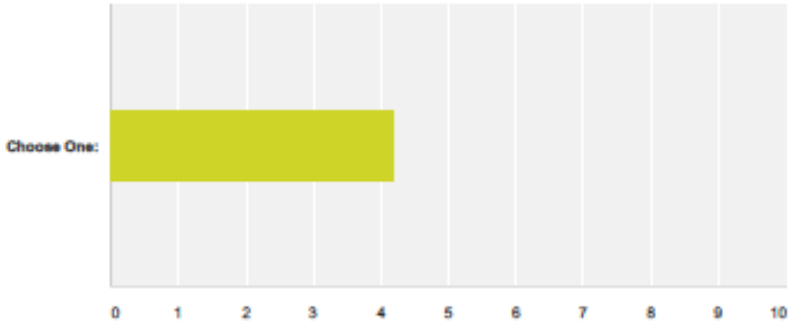
Answered: 69 Skipped: 1



	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree	Total	Weighted Average
Choose One:	2.90% 2	7.25% 5	5.80% 4	43.48% 30	40.58% 28	69	4.12

Q9 Please indicate how you feel about the following statement: It is my personal responsibility to be educated and take actions that will reduce my exposure to the risks associated with hazards.

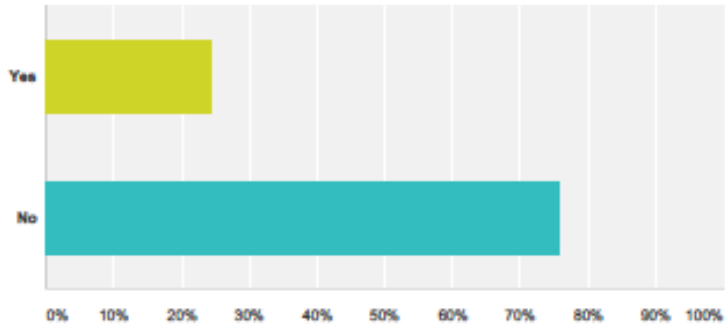
Answered: 70 Skipped: 0



	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree	Total	Weighted Average
Choose One:	7.14% 5	5.71% 4	4.29% 3	27.14% 19	55.71% 39	70	4.19

Q10 Do you or anyone in your household have disabilities and / or access and functional needs that would require early warning notifications or specialized response to evacuate during disasters?

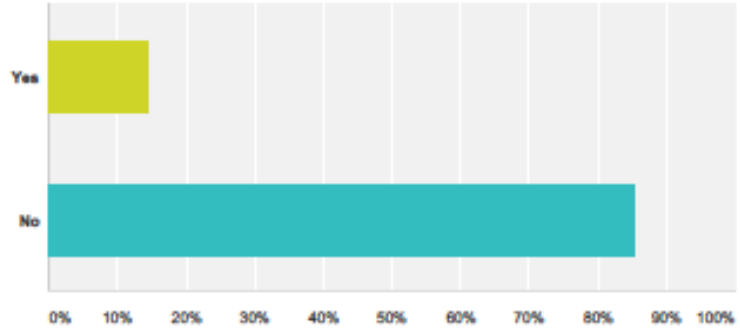
Answered: 70 Skipped: 0



Answer Choices	Responses	
Yes	24.29%	17
No	75.71%	53
Total		70

Q11 If you answered yes to Question #9: do you have a service dog that would need to be evacuated with you or a household member to a shelter during a disaster?

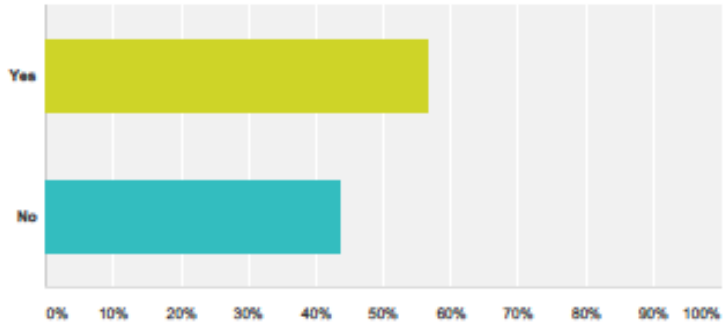
Answered: 34 Skipped: 36



Answer Choices	Responses	
Yes	14.71%	5
No	85.29%	29
Total		34

Q12 If you answered yes to Question #9: would you participate in a Disaster Assistance Registry for people with disabilities and / or access and functional needs?

Answered: 30 Skipped: 40



Answer Choices	Responses	
Yes	56.67%	17
No	43.33%	13
Total		30

Sample 4: Draft HMP Review Public Outreach Emails and Social Media Outreach March 2017

From: Laura Wright
To: lee.rosenberg@navigatingpreparedness.com
Cc: Steve Albanese
Subject: Pittsburg Haz Mit Plan Update
Date: Friday, March 17, 2017 2:23:26 PM

Hi Lee-

Here is what I have…. Below we have on 3 Facebook sites; e-News Blast (sent to you) and on City page. I received one verbal concerned about the NRG (old PG&E plant) and the future releases of asbestos, etc form a blast they had over 20 years ago. I told her that the plant is officially closed as of 12-31-16 so there should be no more blast or running of the plant. It is retired.

And I also received the following from Monkey Survey… Please add, potential disasters that may surface from the rain. Older homes located by St. Peters Catholic school have very old trees and some of the sidewalks concrete are realigned and are dangerous to pedestrians. These City trees should be inspected ASAP to ensure they will not fall on property or people. Some areas received replacement of smaller trees. This is an emergency and an avoidable potential disaster if taken care of as a priority. This should be added to the Hazard Mitigation Plan.

I will push one last time in Facebook for over the weekend…

Thanks!!

Laura Wright
City of Pittsburg

City of Pittsburg
CALIFORNIA

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- Public Reviews
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City of Pittsburg's Draft Hazard Mitigation Plan - Comments

Posted Date: 3/1/2017

City of Pittsburg's Draft Hazard Mitigation Plan - Comments

The City of Pittsburg has a DRAFT Hazard Mitigation Plan available for public review. Hazard mitigation is described as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." The purpose of mitigation planning is for local governments to identify the hazards that may impact them, identify a plan of actions and activities to reduce losses from those hazards, and establish a coordinated process to implement the plan through the use of the City's resources.

Having a Hazard Mitigation Plan for the City is a requirement of federal law for the City to be eligible for funding for local mitigation projects through the Hazard Mitigation Assistance grant program.

Pittsburg faces a number of potential hazards such as earthquakes, severe weather, hazardous materials incidents, health epidemics, flooding, and others. The City has identified the hazards facing the City, analyzed the risks from these hazards, developed mitigation strategies and an implementation strategy. A copy of the draft plan is available now for review and comment. Please go to the City's website and look under Emergency Services under the City Services tab to review the Plan and to provide comment. We would like to have comments back by March 17, 2017.

http://www.ci.pittsburg.ca.us/index.aspx?page=827

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From: City of Pittsburg [mailto:webmaster@ci.pittsburg.ca.us]
Sent: Wednesday, March 1, 2017 9:03 AM
To: CityStaffEnewsList
Subject: City of Pittsburg: City of Pittsburg's Draft Hazard Mitigation Plan - Comments

City of Pittsburg's Draft Hazard Mitigation Plan - Comments

Posted Date: 3/1/2017

City of Pittsburg's Draft Hazard Mitigation Plan - Comments
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http://www.ci.pittsburg.ca.us/index.aspx?page=827

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Please add, potential disasters that may surface from the rain. Older homes located by St. Peters Catholic school have very old trees and some of the sidewalks concrete are realigned and are dangerous to pedestrians. These City trees should be inspected ASAP to ensure they will not fall on property or people. Some areas received replacement of smaller trees. This is an emergency and an avoidable potential disaster if taken care of as a priority. This should be added to the Hazard Mitigation Plan.

I will push one last time in Facebook for over the weekend...

Thanks!!

Oh and I have included your proposal in next year's budget. We shall see!

Laura Wright
City of Pittsburg

APPENDIX C: PLANNING PROCESS DOCUMENTATION

Appendix C contains documentation of the planning process for the HMP planning team, including meetings, presentations, emails, etc. [Insert meeting agenda, sign-in sheets, handouts, etc.]

Meeting Date	Meeting Title	Meeting Handouts, Presentation Included in HMP
5/18/2015	HMP Planning Team Kickoff Meeting Team Meeting #1	- Email to stakeholders - Kickoff meeting read-ahead - What is Hazard Mitigation Planning? - HMP content outline - Kickoff meeting slideshow
8/17/2015	HMP Planning Team Meeting #2	- Email to stakeholders - Planning meeting slideshow
2/8/2016	Meeting with Laura Wright, (Administrative Officer), LT Steve Albanese (PD), Steve Ahonen (PUSD), Lee Rosenberg (NPA), Mike Hooper (WHS)	- Meeting agenda - Meeting Notes
4/28/2016	HMP Planning Team Meeting #3	- Email to stakeholders - Planning meeting slideshow

CITY OF PITTSBURG
2015 HAZARD MITIGATION PLAN
PROJECT KICK OFF MEETING

MEETING PURPOSE

In preparation for the Pittsburg Hazard Mitigation Plan Project kick-off meeting, we would like to provide some read ahead material to better prepare you for what we will discuss at the meeting. This will be an informal meeting to meet and brief all of the City planning team on the process, approach, roles and responsibilities of personnel participating in the Pittsburg Hazard Mitigation Plan Project.

During this kick-off meeting, we will accomplish the following objectives:

1. Ensure the planning team members understand the project and agree with the project approach and timeline.
2. Convey to the planning team members the purpose and necessity of having a Hazard Mitigation Plan; what is included in the project scope of work; and the importance of their input for the successful completion of the project.
3. Provide the planning team members with a description of what their roles and responsibilities will be during the planning process.
4. Establish points of contact designated for each department to be included as members of the planning team.
5. Determine a schedule for the planning project and determine the best means of communicating between the project managers and the planning team.
6. Confirm and identify hazards for the Pittsburg Hazard Mitigation Plan.

WHAT IS HAZARD MITIGATION?

Hazard mitigation is "***any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.***"[1] Although the requirement set by 44 Code of Federal Regulations (CFR), Subpart M Section 206.401 requires a planning area to describe only natural hazards that may affect the jurisdiction, most planning areas include technological and human-caused hazards in the hazard mitigation plan to represent the total risk from hazards to the planning area.

Hazards can result in death and destruction of property and infrastructure. The work done to minimize the impact of hazard events to life and property is called hazard mitigation. Often, these damaging events occur in the same locations over time (i.e. earthquakes along fault lines), and cause repeated damage. Because of this, hazard mitigation is often focused on reducing repetitive loss, thereby breaking the disaster cycle. The essential steps of hazard mitigation are:

- Identify and profile hazards that affect the local area;
- Analyze the people and facilities at risk from those hazards;
- Develop mitigation actions to lessen or reduce the impact of the profiled hazards.

Some of the tasks that will take place during the planning process include:

1. Hazard identification
2. Vulnerability analysis

3. Defining a hazard mitigation strategy through actions and projects
4. Implementing the hazard mitigation actions and projects

WHY THE NEED FOR A HAZARD MITIGATION PLAN?

The Federal Disaster Mitigation Act (2000), Federal Register 44 CFR Parts 201 and 206, as of November 1, 2004, requires local governments to develop and submit hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) and other Mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding.

WHAT ARE THE REQUIREMENTS FOR A HAZARD MITIGATION PLAN?

The requirements for a hazard mitigation plan are described in 44 CFR Parts 201 and 206. FEMA has produced a *Local Mitigation Plan Review Tool* to demonstrate how the mitigation plan meets the regulation in 44 CFR § 201.6. The Plan Review Tool has a regulation checklist that provides a summary of FEMA's evaluation of whether the plan has addressed all requirements. Local planners can also use the checklist prior to submitting the plan for approval to ensure they have addressed all the requirements.

CONSULTANT FACILITATED PROJECT

Willdan Homeland Solutions (WHS) was selected as the consultant firm to facilitate the development of the Pittsburg Hazard Mitigation Plan. WHS has successfully conducted similar projects, and understands the importance of developing a hazard mitigation plan. The responsibilities of the Willdan project manager include the following:

A) Remain as the consultant point of contact through the project.
B) Facilitate meetings with the planning team, stakeholders and the public.
C) Develop the plan with project related material, information and associated data received within the project schedule.
D) Provide project deliverables within the developed schedule.
E) Timely response to e-mails and phone calls (typically within a 24 hour period).
F) Inform the City's project manager of any anticipated delays.

PITTSBURG HAZARD MITGATION PLAN PROJECT MANAGER ROLES AND RESPONSIBILITIES:

The Pittsburg project manager will liaison with the Willdan project manager throughout the project. The responsibilities of the Pittsburg project manager include the following:

A) Remain as the point of contact through the project.
B) Coordinate and host meetings with the planning team, stakeholders and the public.
C) Provide project related material, information and associated data within the project schedule.
D) Provide timely review of project deliverables (typically 5 working days).
E) Timely response to e-mails and phone calls (typically within a 24 hour period).
F) Inform Willdan's project manager of any anticipated delays.

CITY OF PITTSBURG
2015 HAZARD MITIGATION PLAN
PROJECT KICK OFF MEETING

MEETING PURPOSE

In preparation for the Pittsburg Hazard Mitigation Plan Project kick-off meeting, we would like to provide some read ahead material to better prepare you for what we will discuss at the meeting. This will be an informal meeting to meet and brief all of the City planning team on the process, approach, roles and responsibilities of personnel participating in the Pittsburg Hazard Mitigation Plan Project.

During this kick-off meeting, we will accomplish the following objectives:

1. Ensure the planning team members understand the project and agree with the project approach and timeline.
2. Convey to the planning team members the purpose and necessity of having a Hazard Mitigation Plan; what is included in the project scope of work; and the importance of their input for the successful completion of the project.
3. Provide the planning team members with a description of what their roles and responsibilities will be during the planning process.
4. Establish points of contact designated for each department to be included as members of the planning team.
5. Determine a schedule for the planning project and determine the best means of communicating between the project managers and the planning team.
6. Confirm and identify hazards for the Pittsburg Hazard Mitigation Plan.

WHAT IS HAZARD MITIGATION?

Hazard mitigation is "***any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.***"[1] Although the requirement set by 44 Code of Federal Regulations (CFR), Subpart M Section 206.401 requires a planning area to describe only natural hazards that may affect the jurisdiction, most planning areas include technological and human-caused hazards in the hazard mitigation plan to represent the total risk from hazards to the planning area.

Hazards can result in death and destruction of property and infrastructure. The work done to minimize the impact of hazard events to life and property is called hazard mitigation. Often, these damaging events occur in the same locations over time (i.e. earthquakes along fault lines), and cause repeated damage. Because of this, hazard mitigation is often focused on reducing repetitive loss, thereby breaking the disaster cycle. The essential steps of hazard mitigation are:

- Identify and profile hazards that affect the local area;
- Analyze the people and facilities at risk from those hazards;
- Develop mitigation actions to lessen or reduce the impact of the profiled hazards.

Some of the tasks that will take place during the planning process include:

1. Hazard identification
2. Vulnerability analysis

What is Hazard Mitigation?

Hazard mitigation is "***any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards***"[1.] Most local government in California include the risks from natural, technological, and human-caused hazards in their plans. In general, hazard mitigation is work done to minimize the impact of a hazard event before it occurs. The goal of such mitigation efforts is to reduce losses from future disasters. The purpose of mitigation planning is for local governments to identify the hazards that may impact them, identify a plan of actions and activities to reduce losses from those hazards, and to establish a coordinated process to implement the plan, through the use of the City's resources (44 CFR § 201.1(b)). The City's implementation of mitigation actions, which include long-term strategies that may involve planning, policy changes, programs, projects, and other activities, is the primary objective of the planning process. This type of planning will supplement the City's comprehensive emergency management program.

Hazard events will continue to occur, and at their worst can result in death and destruction of property and infrastructure. The work done to minimize the impact of hazard events to life and property is called hazard mitigation. Often, these damaging events occur in the same locations over time (i.e. flooding along rivers), and cause repeated damage. Because of this, hazard mitigation is often focused on reducing repetitive loss, thereby breaking the disaster cycle.
The essential steps of hazard mitigation are:

1. Hazard identification
2. Vulnerability analysis
3. Define hazard mitigation goals, objectives and strategies
4. Implement hazard mitigation projects and activities

1. Hazard Identification

In developing a hazard mitigation plan, first the City must discover the location, potential extent, and expected severity of hazards. Hazard information is often presented in the form of a map or as digital data that can be used for further analysis. It is important to remember that many hazards are not easily identified, for example, many earthquake faults lie hidden below the earth's surface. A hazard mitigation plan identifies and profiles each potential hazard within the City. The plan provides a description of the type, location and extent of all hazards that can affect the jurisdiction. The plan also includes information on previous occurrences of hazard events and on the probability of future hazard events.

2. Vulnerability Analysis

Once hazards have been identified, the next step is to determine who and what would be at risk if the hazard event occurs. Natural events such as earthquakes, floods, and fires are only called disasters when there is loss of life or destruction of property. Hazard mitigation planning focuses on the potential for losses, and the methods of preventing or lessening the potential damage and loss. For example, the magnitude 2002 Denali, AK 7.9 magnitude earthquake did far less damage than the 1994 Northridge, CA 6.7 magnitude earthquake because there were fewer people and buildings in the areas shaken by the Alaskan quake. The hazard mitigation plan will include the results of a thorough risk assessment for the City.

3. Defining a Hazard Mitigation Strategy

Once the hazards have been identified, and the populations at risk, infrastructure and buildings that could be affected by a disaster, the City will strategize about what to do to prevent a disaster from occurring or to minimize the effects of the disaster if it does occur. This includes developing goals, objectives, and actions to implement within the City. The end result will be a hazard mitigation plan that identifies long-term strategies that may include planning, policy changes, programs, projects and other activities, as well as an action plan to describe how to implement the strategies. Hazard mitigation plans should be prepared at every level of a community including individuals, businesses, state, local, and federal governments.

4. Hazard Mitigation Activities and Projects

Once the hazard mitigation strategies are developed, they must be followed for any change in the disaster cycle to occur. Hazard mitigation activities are meant to be permanent or long-term fixes and include a number of options, for example:

- Land-use planning and regulation of development in hazard zones such as floodplains and wildland-urban interface areas.
- Development and enforcement of building codes - The Seismic Safety Commission has identified stringent building codes and standards as the primary reason why California has suffered relatively low damages during hazard events.
- Retrofitting structures – this can include activities such as seismic retrofits to reduce damage from earthquakes, elevating buildings in flood-prone areas, and reroofing with fire-resistant shingles.
- Removing structures from hazardous areas.

There are many other types of mitigation activities that can be done by individuals, businesses, and government. The City will engage City staff to be part of the solution to break the disaster

cycle by being aware of the hazards that may affect the community and to be active in the community's hazard mitigation planning process.

City of Pittsburg Hazard Mitigation Plan Content

Section 1: Introduction	✓ Planning Area Description – area, square miles, elevation, assets outside city limits ✓ Location and Topography – surrounding area, geologic formation, climate ✓ History of Pittsburg – description of how city was founded, etc. ✓ Government – foundation of city, departments, ✓ Economy – businesses, notable commercial base, principal employers ✓ Demographics – census statistics
Section 2: Planning Process	✓ Planning Team ✓ Meeting Schedule and Topics ✓ Outreach Strategy ✓ Public Outreach ✓ Stakeholder Outreach ✓ Incorporation of Existing Plans and Other Technical Information ✓ Continued Public Participation in Plan Maintenance ✓ Plan Maintenance Method and Schedule ✓ Plan Implementation ✓ Annual Progress Report ✓ Plan Update
Section 3:	✓ Hazard Identification and Risk Assessment ✓ Hazard Identification – identified in recent EOP ✓ Pittsburg Disaster Proclamation History ✓ Disaster Proclamation Process ✓ Hazard Profiles: ✓ Earthquake and Seismic Hazard Profile ✓ Hazardous Materials Incident ✓ Fires; Wildland and Urban ✓ Transportation Incident – Air, Rail, Mass Transportation, Highways ✓ Severe Weather – Wind, Heat and Drought ✓ Flooding – Localized Storms ✓ Public Health Emergencies – Epidemic and Pandemic ✓ Terrorism ✓ Climate Change – Air Pollution
Section 3.3 Risk Assessment	✓ Hazard Risk Rating ✓ Identification of Critical Facilities and Assets ✓ Populations at Risk ✓ Buildings at Risk ✓ Existing Land Use ✓ Cultural and Natural Resources Inventory ✓ Risk Assessment and Potential Loss

City of Pittsburg

Hazard Mitigation Plan

Planning Team Presentation May 18, 2015

Agenda

- Welcome and Introductions
- Overview of Hazard Mitigation Planning
- Hazard Mitigation Plan (HMP) Requirements
- Planning Team and Planning Process
- Hazards Review
- Responsibilities and Planning Schedule
- Questions
- Next Steps

Overview: What is Hazard Mitigation?

- "any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards"

  44 Code of Federal Regulations (CFR) § 201.2

Examples:

- Retrofitting a public building to protect it from earthquake damage.
- Elevating a structure to reduce the likelihood of flood damage.
- Providing emergency preparedness materials to the community.

Federal Grants Tied to HMP's:

- **Pre-Disaster Mitigation Grant Program:** funding for hazard mitigation planning and implementing mitigation projects prior to a disaster.
- **Hazard Mitigation Grant Program:** funding to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration.
- **Flood Mitigation Assistance Program:** funding for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP).
- **Severe Repetitive Loss Program:** funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss structures insured under the National Flood Insurance Program.

Overview: Requirement for a Hazard Mitigation Plan

- The Code of Federal Regulations requires local governments to prepare and adopt local hazard mitigation plans (LHMPs) in order to receive federal mitigation grant funding.

44 CFR § 201.3(d)(1)

AB 2140

- AB 2140 prohibits the state share for any eligible project from exceeding 75% of total state eligible costs unless the local agency is located within a city, county, or city and county that *has adopted a local hazard mitigation plan* in accordance with the federal Disaster Mitigation Act of 2000 *as part of the safety element of its general plan*, in which case the Legislature may provide for a state share of local costs that exceeds 75% of total state eligible costs.

Objective of Hazard Mitigation Planning

- Local governments have a responsibility to protect the health, safety, and welfare of their people.
- Proactive mitigation efforts help reduce risk and create safer, more disaster-resilient communities.
- Mitigation is an investment in Pittsburg's future safety and sustainability.
- Compliance with the Code of Federal Regulations plan requirements for future hazard mitigation grant funding.
- Incorporate the hazard section of the HMP into the General Plan Safety Element.

Local Mitigation Plan Review Tool

- The Plan Review Tool was updated in October 2011.
- The FEMA Local Mitigation Planning Handbook was revised in March 2013.


Appendix B

SECTION 5:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, A2, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this Plan Review Guide in Section 4, Regulation Checklist.

5. REGULATION CHECKLIST	Location in Plan (section number, page number)	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)			
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))			
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement §201.6(c)(4)(i))			
ELEMENT A. REQUIRED REVISIONS			

The Planning Team

- You have been selected to be on the Planning Team to help revise the plan because of your knowledge and expertise.
- You have the knowledge and/or authority to implement the mitigation strategies developed in the planning process.

Planning Team Role:

- Work together to develop, review and revise drafts of the 2015 HMP.
- Assist with the risk assessments and vulnerability analysis.
- Review and determine mitigation strategies.
- Assist with opportunities in outreach for stakeholder agencies and the public.
- Review plan prior to submitting for state and FEMA approval and local adoption.
- Implement the plan, monitor its impact, and prepare for future revisions of the HMP.

Planning Process:

- Document how the plan was prepared, and who was involved in the process.
- Provide opportunities for neighboring communities, local and regional agencies involved in hazard mitigation, agencies authorized to regulate development, and other to be involved in the planning process.
- Include how the public was involved during the drafting stage, and will continue to be involved in plan maintenance (whole community concept).
- Incorporate existing plans, studies, reports, and technical information.
- Develop a method and schedule for keeping the plan current.

Hazard Identification and Risk Assessment:

- Describe the type, location, and extent of all natural hazards that can affect Pittsburg.
- Include information on previous hazard events and the probability of future hazard events.
- Describe the potential impact of each hazard identified, and an overall summary of Pittsburg's vulnerability.
- Address NFIP-insured structures repetitively damaged by floods.

Hazard Identification:

Hazard Profiles:

- Earthquake and Seismic Hazard Profile
- Hazardous Materials Incident
- Fires; Wildland and Urban
- Transportation Incident – Air, Rail, Mass Transportation, Highways
- Severe Weather – Wind, Heat and Tornados
- Flooding – Localized Storms
- Public Health Emergencies – Epidemic and Pandemic
- Terrorism
- Climate Change – Drought, Air Pollution

Vulnerability Analysis:

Table 6-1: Calculated Priority Risk Index
(Source: Federal Emergency Management Agency)

CPRI Category	Degree of Risk Chart			Assigned Weight Factor
	Level ID	Description	Index Value	
Probability	Unlikely	• Extremely rare with no documented history of occurrences or events. • Annual probability of less than 0.001.	1	45%
	Possible	• Extremely rare with no documented history of occurrences or events. • Annual probability of between 0.01 and 0.001.	2	
	Likely	• Occasional occurrence with at least two or more documented historic events. • Annual probability of between 0.1 and 0.01.	3	
	Highly Likely	• Frequent events with a well-documented history of occurrence. • Annual probability of greater than 0.1.	4	
Magnitude / Severity	Negligible	• Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). • Injuries or illnesses are treatable with first aid and there are not deaths. • Negligible quality of life lost. • Shut down of critical facilities for less than 24 hours.	1	30%
	Limited	• Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructures). • Injuries and illnesses do not result in permanent disability and there are no deaths. • Moderate quality of life lost. • Shut down of critical facilities for more than 1 day and less than 1 week.	2	
	Critical	• Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructures). • Injuries or illnesses result in permanent disability and at least one death. • Shut down of critical facilities for more than 1 week and less than 1 month.	3	

Vulnerability Assessment:

Table 6-1: Calculated Priority Risk Index
(Source: Federal Emergency Management Agency)

CPRI Category	Degree of Risk Chart			Assigned Weight Factor
	Level ID	Description	Index Value	
	Catastrophic	• Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). • Injuries or illnesses result in permanent disability and multiple deaths. • Shut down of critical facilities for more than 1 month.	4	
Warning Time	Less than 6 hours	• Population will receive less than 6 hours of warning.	4	15%
	6 to 12 hours	• Population will receive between 6-12 hours of warning.	3	
	12 to 24 hours	• Population will receive between 12-24 hours of warning.	2	
	More than 24 hours	• Population will receive greater than 24 hours of warning.	1	
Duration	Less than 6 hours	• Disaster event will last less than 6 hours.	1	10%
	Less than 24 hours	• Disaster event will last between 6-24 hours.	2	
	Less than one week	• Disaster event will last between 24 hours and 1 week.	3	
	More than one week	• Disaster event will last more than 1 week.	4	

CPRI Rating:

Table 6-2: Calculated Priority Risk Index Ranking

Hazard	Probability	Weighted 45%	Magnitude Severity	Weighted 30%	Warning Time	Weighted 15%	Duration	Weighted 10%	CPRI Ranking
Wildland Fire	4	1.8	3	0.9	4	0.6	4	0.4	3.7
Earthquake- *Newport-Inglewood Fault*	3	1.35	4	1.2	4	0.6	4	0.4	3.55
Earthquake- *Palos Verdes Fault*	3	1.35	4	1.2	4	0.6	4	0.4	3.55
Terrorism	2	0.9	4	1.2	4	0.6	4	0.4	3.1
Windstorm	4	1.8	2	0.6	2	0.3	3	0.3	3
Urban Fire	4	1.8	1	0.3	4	0.6	2	0.2	2.9
Landslides	3	1.35	2	0.6	3	0.45	4	0.4	2.8
Drought	4	1.8	1	0.3	1	0.15	4	0.4	2.65
Flood / Storm	3	1.35	2	0.6	2	0.3	3	0.3	2.55
Public Health Emergencies	3	1.35	2	0.6	1	0.15	4	0.4	2.5
Major Industrial Accident (e.g. major hazardous materials incident)	3	1.35	1	0.3	4	0.6	2	0.2	2.45
Vector Issues - West Nile & Fire Ants	3	1.35	1	0.3	1	0.15	4	0.4	2.2

CPRI Ranking:

Determine Critical Facilities:

- Include City facilities for continuity of operations
- Include key infrastructure
- Include potential shelter or evacuee locations
- Include vital communications facilities
- Include information on high population business and industry
- Include schools and churches and other high occupancy facilities
- Include high hazard facilities

Asset Loss Estimates

- Calculate potential losses for critical facilities by conducting an inventory of facilities in specific geographic locations and their estimated replacement value.
- Using GIS analysis, identify those facilities falling into hazard areas. Obtain total potential losses from asset owners or County roll for those facilities located within the hazard areas.

Develop a Mitigation Strategy:

The mitigation strategy is composed of three components: mitigation goals, mitigation actions, and an action plan for implementation.

- List existing authorities, policies, programs, and resources and the ability to expand and improve these existing policies and programs.
- List participation in and continued compliance with NFIP requirements.
- List goals to reduce and avoid long-term vulnerabilities to the identified hazards.

Develop a Mitigation Strategy:

Mitigation strategy, continued:

- Add comprehensive, specific mitigation actions to reduce the effect of hazards, emphasizing buildings and infrastructure.
- Include an action plan describing how actions identified will be prioritized, implemented, and administered.
- Describe a process for integrating the mitigation plan into other planning mechanisms as appropriate.

Develop a Mitigation Strategy:

Mitigation strategy, continued:

- Add comprehensive, specific mitigation actions to reduce the effect of hazards, emphasizing buildings and infrastructure.
- Include an action plan describing how actions identified will be prioritized, implemented, and administered.
- Describe a process for integrating the mitigation plan into other planning mechanisms as appropriate.

Develop Mitigation Actions:

Examples:

- Land-use planning and regulation of development in hazard zones such as floodplains and wildland-urban interface areas.
- Development and enforcement of building codes - the Seismic Safety Commission has identified stringent building codes and standards as the primary reason why California has suffered relatively low damages during hazard events.
- Retrofitting structures – this can include activities such as seismic retrofits to reduce damage from earthquakes, elevating buildings in flood-prone areas, and reroofing with fire-resistant shingles.
- Removing structures from hazardous areas.

Plan Adoption:

- Document how the plan reflects changes in development, progress in local mitigation efforts, and changes in priorities.
- Document that the plan was formally adopted by the governing body.

Expectations for Planning Team Members:

- Additional 2-3 meetings to be held.
- Provide necessary documentation required for the HMP:
  - Existing authorities, policies, programs and resources to mitigate hazards.
  - Specific actions and projects considered to reduce the effects of hazards, emphasizing new and existing buildings and infrastructure.
  - Integration of strategies into other planning mechanisms, i.e., comprehensive or capital improvement plans.
  - Data for maps, assessments and other vulnerability products.

Example Data Needed:

- Previous damage from hazards
- Soil liquefaction hazard
- Landslide, ground failure hazard
- Storm water hazard
- Urban conflagration hazard
- Heat vulnerability
- Climate change
- Ongoing or completed hazard mitigation projects
- Location maps
- Land use
- Population density
- Building stock
- Areas for future development
- Estimated dollar losses to vulnerable structures
- Exposure analysis
- Financial resources
- Legal and regulatory resources

Planning Process:

- Request specific information from Planning Team throughout the planning process.
- Request individuals to retrieve information or data for the plan.
- Send requested information or review documents to Team members prior to meetings.
- What other methods would be effective to fast track the planning process while alleviating disruption of your schedules?
- Meeting and plan writing schedule - TBD

Questions?

Thank you for attending!

City of Pittsburgh
Local Hazard Mitigation Plan Review
Meeting Notes: February 8, 2016

February 10, 2016

To: **Laura Wright**
From: **Lee Rosenberg**

The City of Pittsburgh hosted a meeting with Navigating Preparedness Associates (NPA) and Wildan Homeland Solutions (WHS) on February 8, 2016 to review the draft Local Hazard Mitigation Plan (LHMP) and discuss steps needed to complete it.

Attendees

Attendee	Organization/Division
Laura Wright	City of Pittsburgh, Administrative Officer
LT Steve Albonese	City of Pittsburgh Police Department
Steve Ahonen	Pittsburgh Unified School District
Lee Rosenberg	NPA
Mike Hooper	WHS

Summary of Discussion

1. The group discussed including the Pittsburgh Unified School District in the Plan. As a Special District, the School District should be included as a small section of the LHMP. The Plan shall separately list District critical infrastructure, specific hazards, and proposed mitigation measures.
2. Plan status: NPA reviewed gaps in the draft plan and additional requirements needed to complete it. They include:
   - The hazard profiles are not complete and will need to be addressed. Some hazards identified are not profiled and other hazards that are profiled are not completely profiled. To be completely profiled, a hazard must address the location, history, extent, and probability of the hazard within the jurisdiction.
   - The LHMP risk assessment needs additional analysis. The Plan needs to address the risks for each critical facility. NPA recommends revising the current table to delete infrastructure the values (not required) and more thoroughly identify the hazards at risk to each facility. The Plan should include simple GIS analysis of the critical facilities location in relation to 100-year FIRM, ShakeMap, and Cal FIRE LRA map to identify

critical facilities at risk. The City could also easily identify % or acres of land use at risk and population % and land use at risk as well.

- Additional information such as the number of flood insurance policies, NFIP information (when the City joined), etc. is required

3. The Plan needs completed appendices mentioned in its body that are not currently included:
   - Documentation of Planning Team Meetings
   - Documentation of Public Outreach Efforts
   - Pertinent Regulations
4. Finally, the Plan needs to go through the Cal OES/FEMA review process and be adopted by the City Council. Once the Plan has the City's approval, then FEMA accepts it.
5. Laura raised the issue of using the LHMP to support the State requirement to address climate change in planning programs. More discussion is required to understand the scope of this effort. NPA will work with the City to include climate change where applicable in the LHMP.
6. The group agreed to complete a final draft of the LHMP by the end of February and provide the draft to the Planning Team for review. The next steps are to post the LHMP on the City website and conduct a public outreach meeting followed by courtesy review by Cal OES and FEMA Region IX. Finally, the LHMP must be presented to the City Council for adaptation and forwarded to FEMA.

Action Items

Action Item	Responsible Party	Due Date	Status
Final draft LHMP	NPA	February 29, 2016	In progress
Post LHMP online	City of Pittsburgh	TBD	
Conduct public outreach	City of Pittsburgh	TBD	
Share with Cal OES / FEMA Region IX for review	City of Pittsburgh	TBD	
Present LHMP to City Council for adaptation	City of Pittsburgh	TBD	
Forward LHMP to FEMA	City of Pittsburgh	TBD	

Points of Contact

For concerns or questions regarding these notes, please contact:
Lee Rosenberg, (925) 381-0583 or lee.rosenberg@navigatingpreparedness.com

Agenda:
Hazard Mitigation Plan
Planning Team Meeting #3
April 28, 2016

- Welcome and Introductions
- Plan Update
- Mitigation Strategy, Goals, and Actions
- Stakeholder Update
- Work Left to Do
- Questions
- Next Steps

May 4, 2016

To: Laura Wright
From: Lee Rosenberg

Navigating Preparedness Associates (NPA) supported the City of Pittsburg (COP) in conducting a hazard mitigation planning meeting on April 28, 2016. This meeting was held at 65 Civic Avenue from 10:00-11:00AM.

1. Attendees

Attendee	Organization/Division
Dick Abono	COP-Engineering
Diane Agar	COP-Finance
Steve Ahonen	Pittsburg Unified School District (PUSD)
Lt. Steve Albanese	COP Police Department
Don Buchanan	COP Parks and Recreation
Lt. Ryan Huddleston	Los Medanos College District Police Department
Marcelle Indelicato	Contra Costa County-OES
Bobby Joaquin	COP Public Works
Fritz McKinley	COP Engineering Department
Kristin Pollot	COP Planning Division
Hilario Mata	COP Public Works
Heidi Nelkie	Navigating Preparedness Assoc.
Lee Rosenberg	Navigating Preparedness Assoc.
Laura Wright	COP Project Manager

2. Summary of Discussion

The Task Force members discussed the following topics:

1. Review of the draft City of Pittsburg Hazard Mitigation Plan (HMP) – Primary review of the goals, tasks and hazards of concern.
2. Review the HMP's mitigations actions.

3. Used the HMP hazard mitigation actions to discuss action plans including funding and implementing department.

4. Discussion of the previous public outreach effort (survey) and future potential outreach effort(s). Future outreach efforts will include putting the HMP on the City of Pittsburg website, providing a copy of the HMP to the library and potentially having a public meeting.

3. Action Items:

Action Item	Responsible Party	Status
Identify future meetings/outreach events	COP/NPA	Ongoing
Provide past, current, and future seismic upgrade projects and costs.	Public Works and Engineering	Ongoing
Identify hazards, losses and projects including costs for Los Medanos College.	Los Medanos College	
Identify hazards, losses and projects including costs for Pittsburg Unified School District.	PUSD	Ongoing
Provide a project template for Los Medanos and Pittsburg Unified School District	NPA	Complete
Identify costs and potential projects associated with train derailments and airplane crashes.	COP	Ongoing
Identify costs and potential projects associated with a pandemic incident including the swine flu outbreak.	COP, Contra Costa County, and Pittsburg Unified School District	Ongoing
Identify costs and potential projects associated with fires including the two last years.	COP	Ongoing
Identify costs and potential projects associated with hazardous materials including the hydrocarbon plume and EBMUD water lines.	Engineering, Public Works and Pittsburg Unified School District	Ongoing
Contact person handling insurance to identify replacement and content values of critical facilities.	COP	Ongoing
Identify any structures in the flood plain.	COP	Ongoing
Identify replacement and content values for facilities	PUSD/Los Medanos College	Ongoing

4 Points of Contact

For concerns or questions regarding these notes, please contact:

Laura Wright, (925) 252-4850 lwright@ci.pittsburg.ca.us
Lee Rosenberg, (925) 381-0583 lee.rosenberg@navigatingpreparedness.com

APPENDIX D: MITIGATION ACTION PRIORITIZATION (STAPLEE)

The following worksheets were developed to support the planning team evaluate hazard mitigation options using the STAPLEE method. These worksheets follow the FEMA State and Local Mitigation Planning How-To Guide: Developing the Mitigation Plan – Identifying Mitigation Actions and Implementation Strategies published by FEMA in 2003.

STAPLEE Prioritization Tool
(Scoring: "+" = 1 point, "-" = -1 point, "n/a" = 0 point, "n/k" = not known)

	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
1.1 Develop a program to assess the City for soft story buildings requiring seismic retrofitting. Consider implementing a Soft Story Seismic Retrofit Ordinance.	+	+	+	+	n/k	+	0	0	+	+	+	+	+	0	+	-	+	-	0	0	+	+	+	**13**

1.2 Encourage seismic strength evaluations of critical facilities in the City to identify building integrity.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**
1.3 Evaluate City and non-City facilities identified as potential shelter sites for structural integrity.	+	+	+	+	+	+	0	0	+	+	+	+	+	-	+	-	+	0	0	0	+	+	+	**14**
1.4 Identify and pursue funding opportunities to develop and implement local mitigation activities.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	-	0	0	+	+	+	**15**
1.5 There has been damage to roadway embankment due to flooding at Buchanan Rd & Kirker Creek. Provide engineering and technical services to investigate the underlying cause of the damage and provide a recommendation to repair and prevent future damage/damage.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**

1.6 Flood damage to the Sugartree and Birchwood drainage system resulted from previous flooding which affected nearby housing and roadways. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**
1.7 Recent storms resulted in flooding along Parkside Dr. and caused damage to roadway. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**

1.8 Recent storms resulted in flooding in Buchanan Park damaging and undermining walkways. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**
1.9 Recent winter storms resulted in damage and erosion to Riverview Breakwater due to wind and rain. Provide engineering and technical services to investigate the underlying cause of the flooding and provide a recommendation to repair and prevent future damage/damage.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	-	+	0	0	0	+	+	+	**15**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
2.1 Develop a public outreach and awareness program about the hazards in Pittsburg and mitigation actions community members can do in their homes.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	-	+	0	+	+	+	**16**
2.2 Increase public awareness of the natural, human-caused, and technological hazards to businesses as a means to reduce the potential damage from each hazard through educational and outreach.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	-	+	0	+	+	+	**16**
2.3 Provide information on tools; partnership opportunities, and funding resources to assist in implementing mitigation activities.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	-	+	0	+	+	+	**16**

2.4 Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	-	+	0	+	+	+	**16**
2.5 Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural, man-made, and technological hazards.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	-	+	-	+	0	+	+	+	**16**
2.6 Place more stress on the risks associated with natural and manmade hazards at public awareness campaigns conducted by various City departments.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	0	0	0	0	+	+	+	**15**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
3.1 Improve hazard assessment information to make recommendations for avoiding new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural, man-made, and technological hazards.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	0	+	+	+	+	+	**18**
3.2 Seek to implement codes, standards, and policies that will protect life and property from the impacts of hazards.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	0	+	0	+	+	+	**17**
3.3 Inventory and develop replacement values for all City-owned assets and non-city assets to help the City better understand the values of assets at risk.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	0	0	0	0	+	+	**15**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
3.4 Integrate appropriate items from the Hazard Mitigation Plan (HMP) into the Health and Safety Element of the General Plan and other regulatory documents as appropriate.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	0	0	0	0	+	+	+	**15**
3.5 Establish policy to ensure mitigation projects for critical facilities, services, and infrastructure.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	0	0	0	+	+	+	**16**
3.6 Inspect and repair the City reservoirs.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	-	+	0	+	0	0	+	+	**16**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
4.1 Strengthen communication and coordination with public agencies, residents, non-profit organizations, business and industry to create interest in the implementation of mitigation measures.	+	+	+	+	+	+	0	0	+	+	+	+	+	0	+	0	+	0	0	0	0	+	+	**16**
4.2 Increase effectiveness of City emergency services by implementing mitigation programs and projects that aid emergency responders and public safety departments during emergencies.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	-	+	0	0	0	0	+	+	**15**
4.3 Encourage leadership within the City and businesses to prioritize and implement local and regional hazard mitigation activities.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	0	0	0	0	+	+	**16**
4.4 Continue developing and strengthening inter-jurisdictional coordination and cooperation in the area of emergency services.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	0	0	0	0	+	+	**16**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
4.5 Continue to develop mutual aid agreements and memorandum of understanding with agencies to serve emergency and disaster purposes.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	0	0	0	+	+	+	**17**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
5.1 Create a redundant data center and complete fiber to that location.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	-	+	0	0	0	0	+	+	**15**
5.2 Coordinate with the utility companies and vendors to strengthen, safeguard, or take other appropriate measures such as providing supplemental services, to protect and secure high-voltage lines, water, sewer, natural gas and petroleum pipelines, and trunk electrical and telephone conduits from hazards.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	-	0	0	+	+	+	**16**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Comm. Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total (net)**
5.3 Build a cadre of committed, trained, volunteers to augment disaster response and recovery efforts in compliance with the California Disaster Service Worker program guidance, e.g., shelter workers, animal rescue and care, Community Emergency Response Team, communications staff, medical and health, and human services, during and after a disaster.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	-	0	0	+	+	+	**16**
5.4 Decentralize key components of the City's core network to allow the network to survive the failure of any one site from a disaster.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	0	0	0	0	+	+	**16**
5.5 Coordinate with Contra Costa County in hazard mitigation efforts for Pittsburg to protect two-way radio equipment from hazards such as bracing antennas, securing repeaters, etc., from hazards.	+	+	+	+	+	+	0	+	+	+	+	+	+	0	+	0	+	-	0	0	0	+	+	**15**

APPENDIX E: PITTSBURG UNIFIED SCHOOL DISTRICT

District Overview

The Pittsburg Unified School District (PUSD) serves over 10,500 students in kindergarten through twelfth grade. The District is comprised of:

- 8 Elementary Schools
- 3 Junior High Schools
- 1 Comprehensive High School
- 1 Alternative Education High School
- Adult Education
- Independent study
- Alternative learning experiences
- Early Childhood Education Services

School District Facilities:

Elementary Schools

School	Address
Foothill	1200 Jensen Drive
Heights	40 Seeno Street
Highlands	4141 Harbor Street
Los Medanos	610 Crowley Avenue
Marina Vista	50 East 8th Street
Parkside	985 W. 17th Street
Stoneman	2929 Loveridge Road
Willow Cove	1880 Hanlon Way

Junior High Schools

School	Address
Hillview	333 Yosemite Drive
Martin Luther King Jr.	2012 Carion Court
Rancho Medanos	2301 Range Road

Senior High Schools

School	Address
Black Diamond	1131 Stoneman Avenue
Pittsburg	1750 Harbor Street

Other Facilities

Facility	Address
Adult Education	1151 Stoneman Avenue
PAEC (Old B & G Club)	1001 Stoneman Avenue
North Campus	351 School Street
District Office	2000 Railroad Avenue
Maintenance, Operations & Transportation	3200 Loveridge Road
Riverside (no longer used)	1025 Black Diamond Street

Values of PUSD facilities

The value of the PUSD facilities is contained in Table D-2 below. Figure D-1 provides the location of each facility.

Table D-2: Value of the PUSD facilities

Critical Facility	Land Cost	Structure Cost	Content Cost	Total Structure and Content
Black Diamond High School	$ 45,858	$ 9,936,162	$ 1,438,532	$ 11,374,694
Boys & Girls Club	$ 33,376	$ 7,850,943	$ 634,544	$ 8,485,487
Central Junior High School	$ 89,131		$ 310,974	$ 310,974
District Office	$ 19,705	$ 4,072,183	$ 640,066	$ 4,712,249
Foothill Elementary School	$ 85,109	$16,296,990	$ 3,229,398	$ 19,526,388
Heights Elementary School	$ 70,997	$17,634,142	$ 1,503,181	$ 19,137,323
Highlands Elementary School	$ 96,073	$24,088,760	$ 3,464,653	$ 27,553,413
Hillview Junior High School	$ 139,763	$32,851,310	$ 4,909,033	$ 37,760,343
Los Medanos Elementary School	$ 69,971	$18,341,849	$ 2,291,326	$ 20,633,175
Maintenance/Transportation	$ 24,470	$ 6,406,879	$ 1,046,556	$ 7,453,435
Marina Vista School	$ 107,938	$32,431,410	$ 2,470,537	$ 34,901,947
Martin Luther King Jr. High School	$ 83,968	$22,241,640	$ 2,575,301	$ 24,816,941
Parkside Elementary School	$ 88,841	$20,153,857	$ 2,535,604	$ 22,689,461
Pittsburg Adult Education Center	$ 44,200	$ 4,578,789	$ 1,231,696	$ 5,810,485
Pittsburg Senior High School / East Campus	$ 474,862	$130,419,422	$ 12,027,095	$142,446,517
Rancho Medanos Middle School	$ 103,483	$22,072,494	$ 2,832,198	$ 24,904,692
Riverside High School	$ 31,458	$ 8,137,926	$ 766,139	$ 8,904,065
Stoneman Elementary	$ 65,005	$12,951,359	$ 1,226,529	$ 14,177,888
Willow Cove Elementary School	$ 56,563	$11,231,864	$ 1,642,522	$ 12,874,386
Totals	$ 1,730,771	$401,697,979	$46,775,884	$ 448,473,863

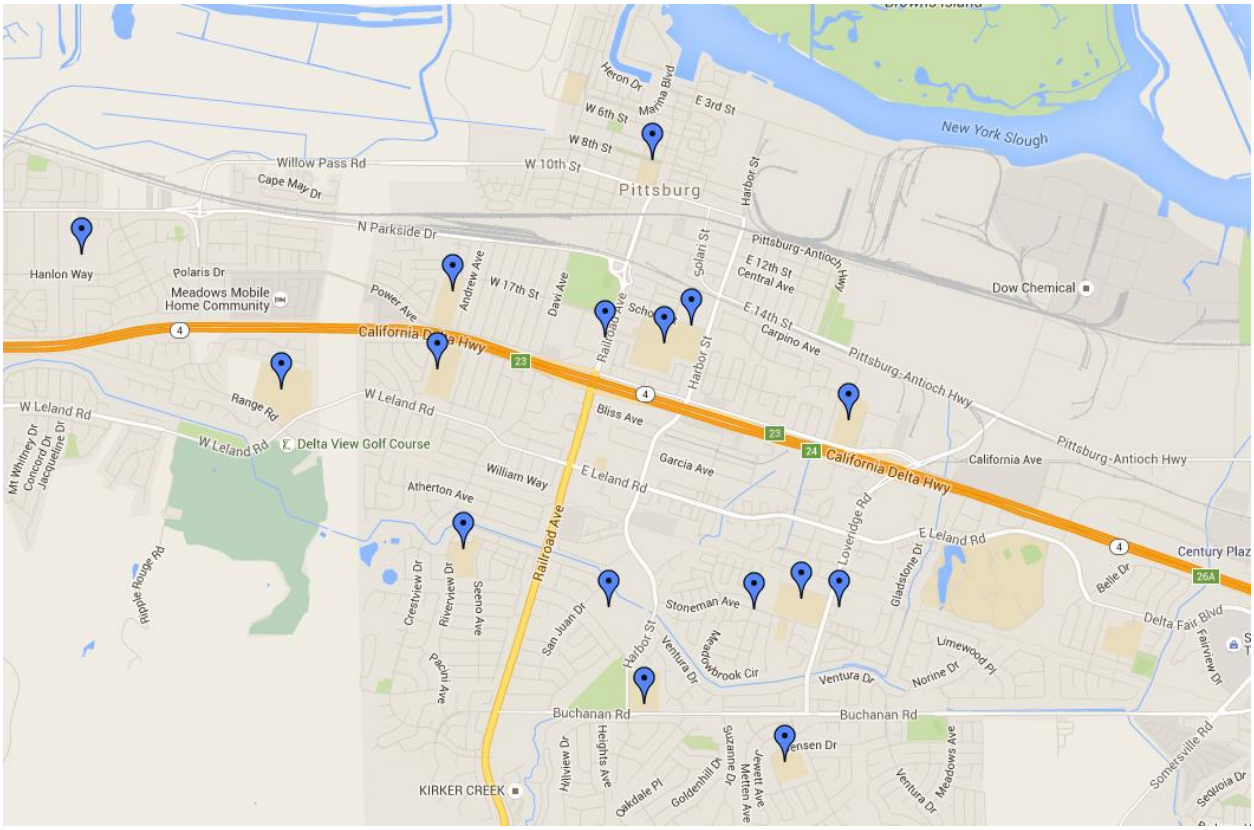

Figure D-1: Pittsburg Unified School District Map

Planning Process and Public Participation

Representatives from the PUSD were involved in the planning and implementation of the 2017 Pittsburg Hazard Mitigation Plan. Evidence of such may be found in Section 2 and Appendix B of this Plan.

The District provided the opportunity for the Public to provide feedback on the Pittsburg Hazard Mitigation Plan by soliciting feedback from District Administration Staff.

PUSD Hazard Identification and Risk Assessment

Hazards profiled in Section 3 of this Pittsburg Hazard Mitigation Plan are representative of the hazards facing the PUSD faculty, staff, students, and facilities.

Capability Assessment and Mitigation Strategy

The PUSD Hazard Mitigation Goals are the same as the Pittsburg Hazard Mitigation Plan goals as found in Section 4 of this Plan. Specific PUSD mitigation activities are:

No.	Agency or Department	Action	Description	Facilities to Be Mitigated	Estimated Cost	Timeframe for Implementation
1	PUSD	Fire and Evacuation Drills	All district school sites and occupied facilities will conduct regular fire and evacuation drills in accordance with state and federal requirements.	All district school sites, MOT, district office	$ 2,000	Monthly- All elementary school sites Quarterly- All secondary school sites, MOT, district office
2	PUSD, Pittsburg PD	Active Shooter Training	All district teachers, District Office staff and MOT employees will participate in an active shooter workshop facilitated by the Pittsburg Police Dept.	All district school sites, MOT, district office	$ 20,000	Every 2 years
3	PUSD CCC Health Services	Pandemic Flu/Illness Awareness	All school site staff will receive information and training in regards to the identification of potential pandemic flu or other illnesses. School site staff will receive information about best practices when responding to actual pandemic events.	All district school sites	$ 1,400	Yearly
4	PUSD- MOT City of Pittsburg	Flood Zone Control	PUSD Maintenance and Operations Department will work in conjunction with the City of Pittsburg to clear debris that may lead to flooding in designated Flood Zones and block flood storage basins.	MLK Jr. JHS, Willow Cove Elementary	$ 500	Yearly

5	PUSD- Building & New Const. Dept.	Seismic Retrofitting and Earthquake Damage Inspection	PUSD building inspectors will conduct regular checks of all district schools and facilities to be sure that they meet or exceed current code requirements.	All district schools and facilities	$ 2,500	Yearly, On-Going as necessary

Plan Acceptance

The PUSD Appendix to the Pittsburg Hazard Mitigation Plan will be presented to the District's Cabinet Team which is comprised of the Superintendent, Deputy Superintendents, and Directors. Once reviewed, the Plan will be presented to the PUSD School Board as an Informational Item for review and discussion.