10 HEALTH AND SAFETY

This element intends to identify and 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. Fire protection in urban and wildland areas is addressed in Chapter 11: Public Facilities (Section 11.4: Fire Protection).

10.1 GEOLOGY AND SEISMICITY

The Pittsburg Planning Area is part of the geologically young and seismically active San Francisco Bay Area region. The composition of geologic material, topography, and groundwater conditions affect the severity of geologic hazards. In some soils, earthquake waves may be amplified and other areas may be susceptible to liquefaction and/or landslides.

GEOLOGY

Pittsburg consists of two general topographic zones: the lowland zone and the hillside zone. The lowland zone corresponds to estuarine and flatland soils, and the hillside zone includes steep slopes and rocky soils.

- **Lowland zone:**
  - *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). Local deposits of artificial fill occur along the margins of Suisun Bay, particularly around the power plant and in filled channels. Old fill (generally placed before the 1950s) typically consisted of heterogeneous material. Engineering challenges associated with coastal areas include weak compressible soils and risk of liquefaction.
  - *Flatland areas* of Pittsburg are underlain by alluvial deposits, unconsolidated flood-plain deposits, sand, silt, gravel, and clay, irregularly interstratified.
- **Hillside zone**:
  - *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 following discussion of landslides, soil creep, debris flow, and hazards associated with historic coal mining pertains mainly to the hillside zone.

Landsliding

Sedimentary rocks in the hillside zone have variable composition. These rocks are generally weak and susceptible to erosion. Consistent weathering has further weakened the rocks in many locations. Landslide deposits often occur along deeply incised stream channels where erosion has undercut the channel banks. Fracture planes occur throughout the southern hills and cuts made in these areas are particularly susceptible to slope failure.

The strong ground motions that occur during earthquakes are capable of inducing landslides where unstable soil conditions already exist. The portions of the Planning Area having the greatest susceptibility to landsliding are hilly areas underlain by weak bedrock units on slopes greater than 15 percent. Figure 10-1 illustrates lands within the Planning Area that are unstable; significant portions of the southern hills are identified. Figure 10-1 also identifies those areas with slopes greater than 30 percent. Residential and other sensitive development located within these areas is at risk of property damage due to geologic accidents.

Soil Creep and Debris Flow

Expansive soils on moderate to steep slopes are subject to soil creep—a downslope movement that occurs gradually as the soil shrinks and swells over several years. Tilted fences observed in the southeastern Planning Area indicate that soil creep has occurred. Construction practices that steepen existing slopes, add weight to slopes by placing fill, or increase the rate of natural soil saturation through landscape irrigation, can accelerate natural soil creep or induce it in areas where it might not otherwise occur.

Slopes greater than about 20 percent are also susceptible to debris flows, sudden soil slumps that occur when the ground is fully saturated by heavy rainfall. Although debris flows can occur on any type of slope, they are more likely to occur when runoff is concentrated within swales and gullies. Unlike soil creep, debris flows can pose an immediate hazard to life and property.

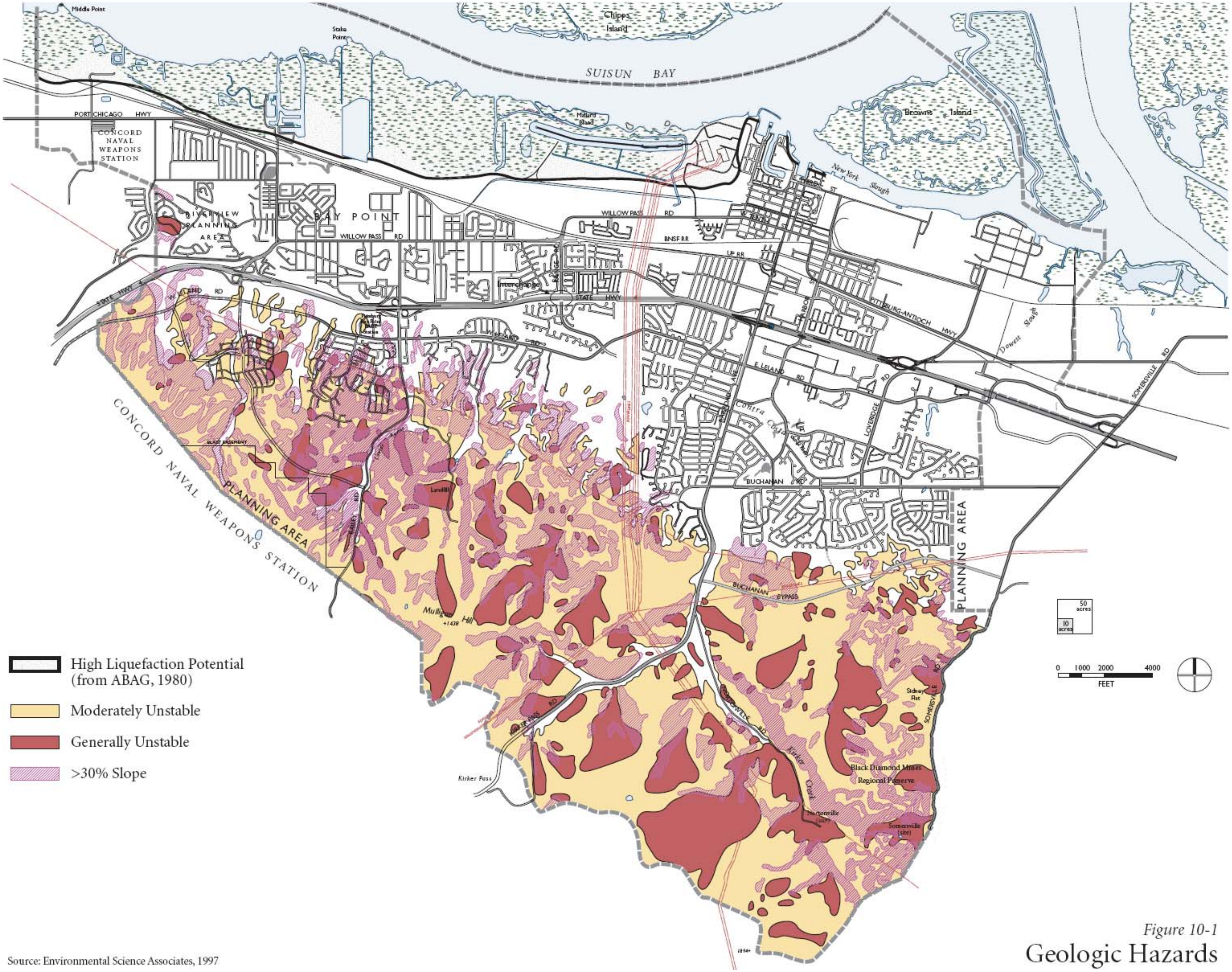


Figure 10-1

Geologic Hazards

Source: Environmental Science Associates, 1997

Historic Coal Mining

The Black Diamond area coal deposits (within the Domingene Formation) are located in the southeastern portion of the Planning Area. Past mining activities followed two principal coal seams to a depth of more than 550 feet below the ground surface.

Access tunnel and ventilation shafts constructed as part of the mining operation were generally located at the heads of ravines, where erosion had naturally worn away portions of the hillside overlying the coal. Most access tunnels were well documented, and have been relocated and sealed over the years. Ventilation shafts, however, are more numerous and their locations are poorly documented. These shafts were typically sealed through construction of timber floors placed about ten feet below the ground surface and then backfilled to grade during closure of the mine. The timber floors deteriorate over time and ventilation shafts can collapse, creating soil slumps. Remaining mine openings provide a connection to a labyrinth of subsurface tunnels which can contain cave-ins and unexpected drop-offs. Pockets of poisonous carbon monoxide or methane gas may also be present.

Seismic Hazards

Eastern Contra Costa County, like the San Francisco Bay Area as a whole, is located in one of the most seismically active regions in the United States. Major earthquakes have occurred in the vicinity of Pittsburg in the past and can be expected to occur again in the near future. Fault recurrence and slip rate data are being obtained from marsh core samples, while uplifted fault areas are being interpreted by detailed mapping of landform features and historical aerial photography.

Table 10-1 describes the fault hazards located in the region, while Figure 10-2 illustrates fault hazards within the Pittsburg Planning Area. Historically active faults (exhibiting evidence of movement in the last 200 years) in Contra Costa County include the Concord, Hayward, and Clayton-Marsh Creek-Greenville

Table 10-1

Faults In The Vicinity Of Pittsburg

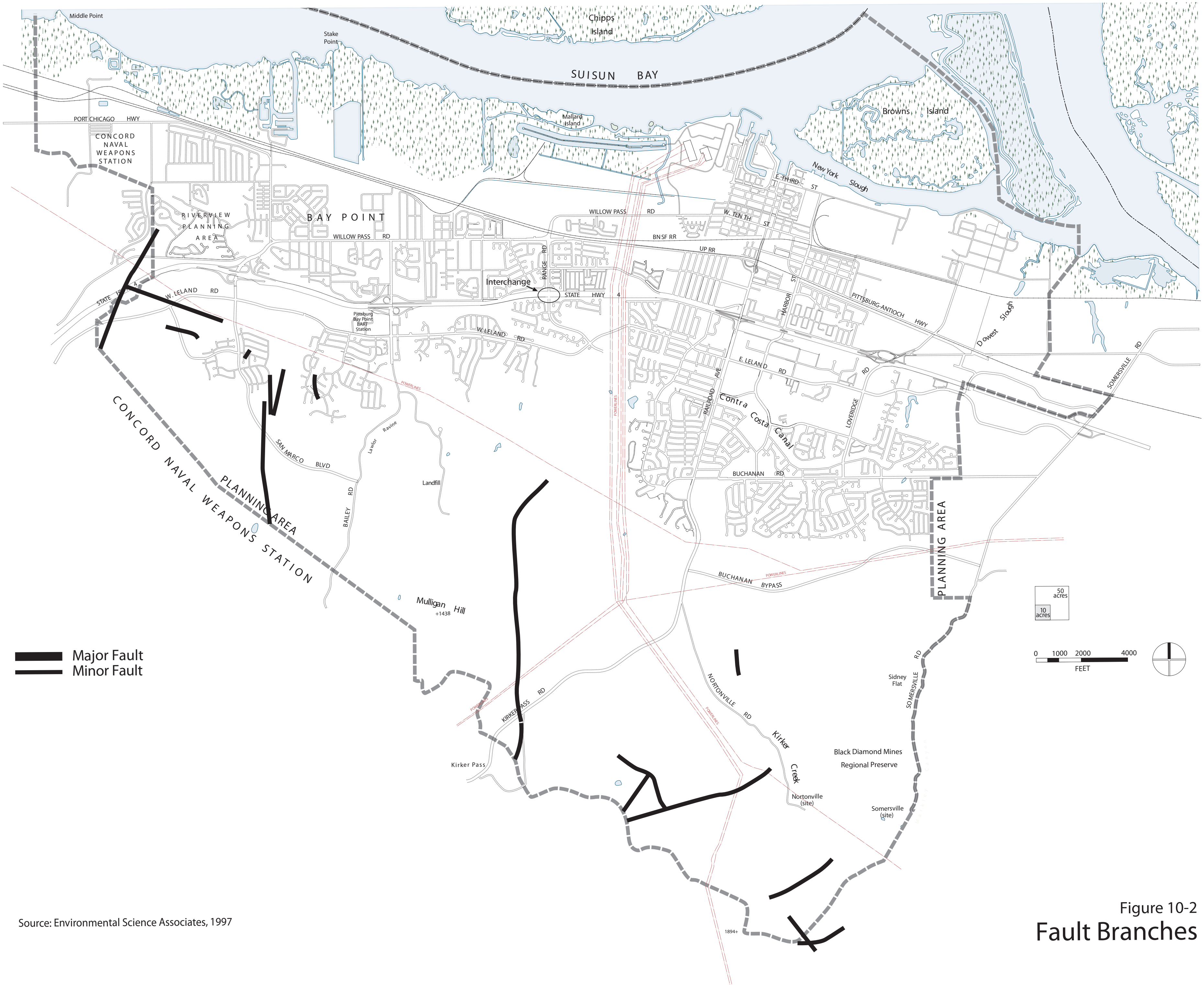
Fault	*Location and Direction from Planning Area*	*Recency of Movement*	*Fault Classification*[1]	*Historical Seismicity*[2]	*Maximum Credible Earthquake*[2,3]
San Andreas	40 miles west	Historic (1906; 1989 ruptures)	Active	7.1, 1989. 8.25, 1906 7.0, 1838. Many <6	8.0
Hayward	20 miles west	Pre-Historic (1868 rupture) Holocene	Active	6.8, 1868 Many <4.5	7.5
Calaveras (Northern)	15 miles south	Historic (1861 rupture) Holocene	Active	5.6-6.4, 1861 4-4.5 swarms 1970, 1990	7.5
Concord-Green Valley	6 miles west	Historic (1955 rupture) Holocene	Active	Historic active creep	6.5
Clayton-Greenville	3 miles south	Holocene	Active	None known	6.3
Marsh Creek-Greenville	10 miles south east	Historic (1980 rupture) Holocene	Active	5.6 1980	6.9
Franklin Fault	10 miles west	Late Pleistocene	Potentially active	None documented	6.8
Black Diamond Area	Southeastern portion of Planning Area	Pre-Quaternary	Inactive	Scattered seismicity	N/A
Antioch	4 miles east	Quaternary	Potentially active	Reported creep	6.5

[1] An "Active Fault" is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years).

[2] As defined by the Modified Mercalli Scale, described in the text above.

[3] The Maximum Credible Earthquake (MCE) is the strongest earthquake that is likely to be generated along a fault zone, based on the geologic character of the fault and earthquake history.

Sources: Jennings, 1994; Mualchin and Jones, 1992.



Source: Environmental Science Associates, 1997

Figure 10-2
Fault Branches

faults. Two potentially active faults (showing evidence of movement within the last two million years) in the Planning Area include Franklin and Antioch faults. The largest active fault in the region, the San Andreas Fault, is located about 40 miles west of Pittsburg.

Geologic records indicate that there has been extensive differential movement along a series of northwest-trending splays of the Clayton and Black Diamond Area faults. These splays are centered within the Mount Diablo foothills, but extend into the southern portion of the Planning Area. These isolated faults are currently considered to be inactive. For planning purposes, however, these fault branches should be considered possible earthquake sources. Seismic activity on these relatively minor faults would not be expected to generate earthquakes of large magnitude and would probably not cause surface faulting.

Groundshaking

The intensity of groundshaking that would occur in Pittsburg as a result of an earthquake in the Bay Area would depend on the magnitude of the earthquake, the distance from the City, and the response of the geologic materials at the site.

Ground shaking intensity is described using the Modified Mercalli Scale, which ranges from I (not felt) to XII (wide-spread devastation). When various earthquake scenarios are considered, groundshaking intensities will reflect both the effects of strong ground accelerations and the consequences of ground failure.

According to the distribution of groundshaking intensity mapped by the Association of Bay Area Governments (ABAG), a large earthquake on the Concord-Green Valley fault would produce the maximum ground shaking intensities in the City with Modified Mercalli intensity IX in Bay Mud deposits along Suisun Bay, north of State Route 4. Modified Mercalli intensity IX would cause damage to buried pipelines and partial collapse of poorly built structures. Strong ground shaking of Mercalli intensity VIII would occur locally along creek beds in inland portions of the City. However, most of Pittsburg is projected to experience ground shaking of intensity VII on the Modified Mercalli scale, which is associated with non-structural damage.

Landsliding is also likely to result from strong groundshaking, primarily where unstable soil conditions already exist. Steep slopes underlain by weak bedrock, particularly on northerly facing hillsides, are most susceptible to earthquake-induced landsliding (please see discussion of landsliding in above Geology section).

Liquefaction

Liquefaction is the rapid transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake groundshaking. 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 (see Figure 10-1). 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.

Inundation from Seiche and Tsunami

Earthquakes can cause tsunami (“tidal waves”) and seiches (oscillating waves in enclosed water bodies) in the Bay. Portions of the City located adjacent to Suisun Bay are susceptible to potential tsunami or seiche inundation. However, projected wave height and tsunami run-up is expected to be small in the interior portions of the San Francisco Bay. Some coastal inundation and damage could occur if a tsunami or seiche coincided with very high tides or an extreme storm.

GOALS: GEOLOGY AND SEISMICITY

10-G-1 Minimize risk to life and property from geologic and seismic hazards.

10-G-2 Establish procedures and standards for geotechnical review of projects located in areas of steep slopes, unstable soils, or other geologic or seismic risks.

10-G-3 Minimize the potential for soil erosion by wind and stormwater runoff.

10-G-4 Mitigate potential seismic hazards, including landsliding and liquefaction, during the design and construction of new development.

10-G-5 Limit urban development in high-risk areas (such as landslide areas, flood zones, and areas subject to liquefaction) to low-occupancy or open forms of land use.

10-G-6 Limit development on slopes greater than 30 percent (as delineated on Figure 10-1) to lower elevations, foothills, and knolls.

POLICIES: GEOLOGY AND SEISMICITY

Slopes and Erosion

10-P-1 Ensure preparation of a soils report by a City-approved engineer or geologist in areas identified as having geological hazards in Figure 10-1, as part of development review.

10-P-2 Restrict future development from occurring on slopes greater than 30 percent (as designated in Figure 10-1) over the 900 foot elevation contour, and on major and minor ridgelines (as delineated in Figure 4-2).

10-P-3 Regulate the grading and development of hillside areas for new urban land uses. Ensure that such new uses are constructed to reduce erosion and landsliding hazards:

- *Limit cut slopes to 3:1, except where an engineering geologist can establish that a steeper slope would perform satisfactorily over the long term.*
- *Encourage use of retaining walls or rock-filled crib walls as an alternative to high cut slopes.*
- *Ensure revegetation of cut-and-fill slopes to control erosion.*
- *Ensure blending of cut-and-fill slopes within existing contours, and provision of horizontal variation, in order to mitigate the artificial appearance of engineered slopes.*

10-P-4 Limit future extension of development into the southeast hills, where there are high levels of risk due to previous coal mining. Ensure proper geotechnical analysis and mitigation for proposed development on slopes less than 30% south of Buchanan Bypass.

10-P-5 Ensure that Bay Area Air Quality Management District requirements are implemented around construction sites to reduce wind velocity and soil transport at the sites.

10-P-6 Encourage the use of water-sprinkling trucks at large construction sites to keep the exposed soil moist during construction.

10-P-7 As part of the development approval process, restrict grading to only those areas going into immediate construction as opposed to grading the entire site, unless necessary for slope repair or creek bed restoration. On large tracts of land, avoid having large areas bare and unprotected; units of workable size shall be graded one at a time.

10-P-8 During development review, ensure that new development on unstable slopes (as designated in Figure 10-1) is designed to avoid potential soil *creep and debris flow hazards. Avoid concentrating runoff within swales and gullies, particularly where cut-and-fill has occurred.*

Geologic Hazards

10-P-9 Ensure geotechnical studies prior to development approval in geologic hazard areas, as shown in Figure 10-1. Contract comprehensive geologic and engineering studies of critical structures regardless of location.

10-P-10 As part of development approval, ensure that a registered engineering geologist be available at the discretion of the City Engineer to review reports submitted by applicants in the geologic hazard areas identified in Figure 10-1. Project proponents shall pay all costs associated with engineering studies related to geologic hazards.

10-P-11 Form geological hazard abatement districts (GHADs) prior to development approval in unstable hillside areas (as designated in Figure 10-1) to ensure that geotechnical mitigation measures are maintained over the long-term, and that financial risks are equitably shared among owners and not borne by the City.

10-P-12 Evaluate the feasibility of implementing a hazard reduction program for existing residential development in unstable hillside areas (as designated in Figure 10-1). This would include inspection of structures for conformance with the Building Code.

10-P-13 During rehabilitation and redevelopment of industrial properties along the Suisun Bay waterfront, ensure that geotechnical mitigation measures are used to prevent collapse of structures in the event that liquefaction occurs.

10-P-14 Review and amend City ordinances, including the Building Code, that regulate development in potentially hazardous locations to ensure adequate protection from geologic hazards.

Seismic Hazards

10-P-15 Develop standards for adequate setbacks from potentially active fault traces (as designated in Figure 10-2) for structures intended for human occupancy. Allow roads to be built over potentially active faults only where alternatives are impractical.

10-P-16 Ensure compliance with the current Uniform Building Code during development review. Explore programs that would build incentives to retrofit unreinforced masonry buildings.

Unreinforced masonry buildings are particularly vulnerable to earthquakes. Possible programs to encourage retrofit could include transfer taxes on property sales, which can be used by the owner to pay for seismic retrofit work; reduced permit fees; and grants or low-interest loans to offset retrofit costs. However, special consideration should be given to masonry buildings that are in the City's historic core. The City's Building Division should work with building owners to maintain and reserve such structures.

10-P-17 Ensure detailed analysis and mitigation of seismic hazard risk for new development in unstable slope or potential liquefaction areas (as designated in Figure 10-1). Limit the location of critical facilities, such as hospitals, schools, and police stations, in such areas.

10.2 FLOOD CONTROL

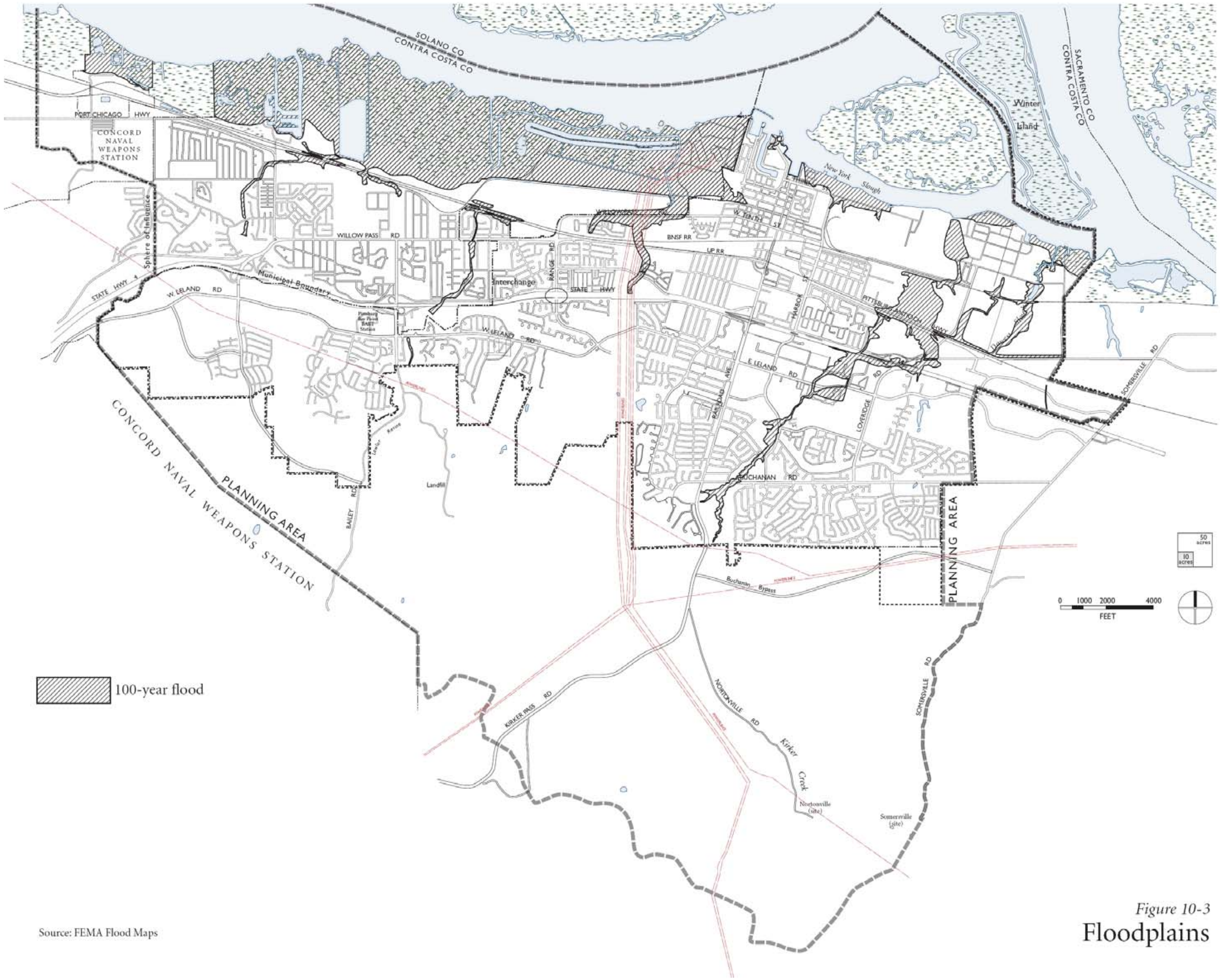
The developed portions of the Pittsburg Planning Area are within two major watersheds: Kirker and Lawlor creeks. The western portion of the Planning Area is within the Lawlor Creek watershed, which drains into Suisun Bay. Kirker Creek encompasses the central and eastern portions and drains into New York Slough. There are six minor watersheds in addition to Kirker and Lawlor creeks. Figure 10-3 shows the major and minor watersheds in the Planning Area.

The Kirker Creek watershed has an overall area of 8,539 acres and is the most significant watershed in the Planning Area. Approximately seven miles in length, the creek originates in the southern hills and flows north along Nortonville Road through the City. In the southern hills, the creek and its tributary channels have sufficient capacity to carry peak stormwater flows. Further downstream, however, natural flow capacity declines as the creek channel flattens. Urbanization north of Buchanan Road further decreases capacity as the channel becomes restricted and enclosed by storm drain culverts. Reduction in permeable soils caused by development also increases the total volume and rate of runoff.

Most of the Lawlor Creek watershed south of Bay Point is undeveloped, though some residential development exists south of State Route 4. Most runoff is conveyed by natural channels except for storm drains located in developed areas and culverts under State Route 4. Minor watersheds are located west of Lawlor Creek, between Lawlor and Kirker Creeks, and adjacent to the northeastern boundary of the Kirker Creek watershed north of State Route 4. Local minor watersheds are drained by small natural channels with no official names.

100-YEAR FLOOD PLAIN

According to the Federal Emergency Management Agency (FEMA), a majority of Contra Costa County's creeks and shoreline lie within the 100-year flood plain. Areas with high flood hazards are the islands and adjacent mainland in the San Joaquin-Sacramento River Delta in East Contra Costa County. Certain portions within the Pittsburg Planning Area, located along Suisun Bay, are particularly susceptible to floods. However, most flood-prone areas in Pittsburg are marshland,



Source: FEMA Flood Maps

Figure 10-3

Floodplains

and are not potential development sites under the General Plan. Areas within the 100-year flood plains, as shown in Figure 10-3, include:

- Browns Island;
- Shoreline and adjacent uninhabited marshland north of the BNSF Railroad tracks in Bay Point;
- Portions of the industrial area in northeast Pittsburg beginning at the shoreline, including Kirker Creek, then following the creek upstream to its terminus in the hills south of the City; and
- Along Lawlor Creek in the northwestern portion of the City.

Additionally, many of the culverts between State Route 4 and the Contra Costa Canal are undersized, which cause floodwaters to pond and overflow the banks of Kirker Creek. Local areas potentially affected by the flooding of Kirker Creek include residential neighborhoods, two parks (Buchanan and Small World) and two schools (Highlands Elementary and Hillview Junior High). Further upstream, inadequate channel capacity causes localized flooding at the USS-Posco and Dow Chemical plants.

FLOOD CONTROL MANAGEMENT

The City is responsible for maintaining the flood control system within the incorporated area, including Kirker Creek. In the unincorporated parts of the Planning Area, the County Flood Control District (FCD) maintains major channels and creeks over which they hold land rights. The County Department of Public Works maintains road drainage systems and several detention basins. However, most of the Planning Area, particularly the Kirker Creek Watershed, is not managed by FCD. The City's Stormwater Management Plan identifies deficiencies and improvements to the storm drain system, while the Storm Drain Maintenance Plan addresses maintenance requirements for Lawlor and Kirker Creek watersheds.

GOALS: FLOOD CONTROL

10-G-7 Locate development outside of flood-prone areas unless mitigation of flood risk is assured.

10-G-8 Ensure that new development mitigates impacts to the City's storm drainage capacity from storm water runoff in excess of runoff occurring from the property in its undeveloped state.

POLICIES: FLOOD CONTROL

10-P-18 Evaluate storm drainage needs for each development project in the context of demand and capacity when the drainage area is fully developed. Ensure drainage improvements or other mitigation of the project's impacts on the storm drainage system appropriate to the project's share of the cumulative effect.

10-P-19 Assure through the Master Drainage Plan and development ordinances that proposed new development adequately provides for on-site and downstream mitigation of potential flood hazards.

10-P-20 Develop and implement a Storm Flooding Mitigation Fee Program to fund required drainage improvements during construction of new development.

Cooperate with the County Flood Control District in developing a Storm Flooding Mitigation Fee Program for incorporated and unincorporated lands within the City's watersheds.

10-P-21 Encourage the formation of flood control assessment districts for those areas within the 100- and 500-year flood plains (as designated in Figure 10-3). Encourage new hillside developments to form flood control assessment districts to accommodate runoff and minimize downstream flooding, if determined to be necessary.

10-P-22 *Ensure that pad elevations on newly constructed habitable buildings are one foot above the 100-year floodplain, as determined by FEMA.*

10-P-23 *Ensure that all new development (residential, commercial, or industrial) contributes to the construction of drainage improvements in the Kirker Creek and other watersheds in the Planning Area, as required by the City's adopted ordinances.*

10-P-24 *Allow the construction of detention basins as mitigation in new developments. Ensure that detention basins located in residential neighborhoods, schools, or child-care facilities are surrounded by a gated enclosure, or protected by other safety measures.*

The enclosure of detention basins, particularly in areas where small children are present, is necessary to ensure the safety of local residents when recessed areas are saturated with floodwaters.

10-P-25 *Ensure adequate minimum setbacks to reduce potential for property damage from storm flooding.*

10-P-26 *Reduce the risk of localized and downstream flooding and runoff through the use of high infiltration measures, including the maximization of permeable landscape.*

10-P-27 *Adopt practices for development and construction on sites where the erosion potential is moderate to severe.*

10-P-28 *Bench terraces should be used where areas of long slopes may create a stormwater gradient flow. Berms should be constructed between any riparian corridor and the construction site to preclude sediment-laden stormwaters from entering riparian zones.*

10-P-29 *During the review of development plans, require all commercial projects to construct on-site retention facilities. Such facilities could be in the form of landscape features or underground swells.*

Ensure that all development projects build on-site retention basins during initial site preparation to store run-off water generated by construction activities.

10-P-30 Encourage residential development that includes post-construction Best Management Practices to minimize runoff from the site to the stormdrain system (for example, using permeable surfaces for parking lots, sidewalks, and bike paths, or using roof runoff as irrigation).

10.3 HAZARDOUS MATERIALS

Contra Costa County is one of the largest generators of hazardous waste in the state. The majority of this waste comes from industries located along waterfronts. Approximately two-thirds of hazardous waste generated in the County is treated on-site, while one-third is transported to hazardous waste management facilities.

HAZARDOUS WASTE MANAGEMENT IN PITTSBURG

Many industrial operations in Pittsburg involve the use or production of hazardous materials. Most significant are the petroleum and chemical processing plants in the northeastern portion of the City. According to the City's Hazardous Waste Management Plan (HWMP), 11 large-quantity generators produced approximately 79,500 tons of hazardous waste in 1989. Of this, about 45 percent was treated on-site and 55 percent was shipped off-site for treatment or recycling. Potential hazards include the toxicity, flammability, and explosivity of petroleum and chemical materials.

The HWMP estimates that about 2,300 metric tons of hazardous waste is produced by small-quantity generators per year (projected in 1990). The majority is in the form of waste oil from vehicle maintenance shops. Hazardous waste reduction efforts by large generators are estimated to have decreased the amount of waste produced by more than 80 percent since 1990. This primarily resulted from improved production processes at industrial facilities, such as USS-Posco.

HAZARDOUS WASTE STORAGE AND LEAKAGE SITES

The California Regional Water Quality Control Board annually reports sites in the Bay Area with leaking underground storage tanks and sites with environmental problems due to leaks and spills. There are approximately 54 sites in Pittsburg included in the Leaking Underground Storage Tank list, which are identified as having soil and/or groundwater contamination resulting from leaks or other discharges from tanks and/or associated piping. There are also 12 Spills, Leaks, Investigations, and Clean-up (SLIC) sites within the City, which are large sites with environmental problems due to accidental releases of toxic substances such as metals, volatile organic compounds, and petroleum hydrocarbons.

The State requires the upgrade or replacement of tanks and piping installed before 1984, when California's Underground Storage Tank (UST) program and more stringent tank requirements came into effect. This requirement was established by the U.S. Environmental Protection Agency ten years ago to ensure that facility owners, especially those depending on petroleum for providing critical services (e.g., hospitals, police and fire departments), have their USTs upgraded.

TRANSPORT OF HAZARDOUS MATERIALS

The California Highway Patrol and California Department of Transportation have primary responsibility in regulating the transportation of hazardous waste and materials. Recently, the City designated roadways within Pittsburg that are acceptable for transport of hazardous materials. These roadways are all located within the industrial areas north of State Route 4, including:

- Loveridge Road
- Pittsburg-Antioch Highway
- Tenth Street/Willow Pass
- North Parkside Drive

For many years, explosive materials were regularly shipped to Concord Naval

Weapons Station by highway and rail, including the BNSF and Southern Pacific railroads. Pipelines traversing the Planning Area carry natural gas, crude oil, and refined petroleum products. These pipelines, found throughout Contra Costa County, cross fault lines, unstable slopes, and areas underlain by soft mud and peat. While the County Office of Emergency Services has prepared emergency and disaster plans, the proximity of hazardous materials to populated areas nonetheless represents a potential safety threat.

GOALS: HAZARDOUS MATERIALS

10-G-9 *Minimize the risk to life and property from the generation, storage, and transportation of hazardous materials and waste by complying with all applicable State regulations.*

10-G-10 *Encourage redevelopment of areas with potential hazardous materials issues. Pursue a leadership role in the remediation of brownfield sites throughout Pittsburg.*

POLICIES: HAZARDOUS MATERIALS

10-P-31 *Cooperate with other public agencies in the formation of a hazardous-materials team, consisting of specially-trained personnel from all East County public safety agencies, to address the reduction, safe transport, and clean-up of hazardous materials.*

Contra Costa Water District is supportive of the formation of a hazardous materials team, particularly as it relates to the Contra Costa Canal system and Suisun Bay/Sacramento River Delta water quality.

10-P-32 *Designate and map brownfield sites to educate future landowners about contamination from previous uses. Work directly with landowners in the clean-up of brownfield sites, particularly in areas with redevelopment potential.*

10-P-33 Prevent the spread of hazardous leaks and spills from industrial facilities to residential neighborhoods and community focal points, such as Downtown.

10-P-34 Identify appropriate regional and local routes for transport of hazardous materials and wastes. Ensure that fire, police, and other emergency personnel are easily accessible for response to spill incidences on such routes.

10-P-35 Require historical assessments and/or sampling as part of the environmental review process for redevelopment projects in the Loveridge and Northeast River subareas. Ensure that contamination from industrial waste is mitigated before redevelopment occurs.

10.4 EMERGENCY MANAGEMENT

In 1999, Pittsburg approved an update to the 1996 Emergency Response Plan that addresses potential impacts from a major earthquake, hazardous materials incident, flood, national security emergency, wildfire, landslide, or dam failure. The objectives of the plan are to reduce injury, loss of life, and destruction of property through effective management of emergency forces.

The Emergency Plan indicates that a major earthquake in the San Francisco Bay Region would result in widespread damage, large numbers of casualties, and disruption of infrastructure such as transportation, utility service, emergency services, and medical response. It is likely that Pittsburg would experience non-structural property damage and utility service interruptions following strong seismic activity on the Concord-Green Valley Fault. However, the potentially catastrophic effects of an earthquake on the Hayward Fault would more than likely exceed the response capabilities of both the City and the County.

A particular concern for the City is the possibility of an earthquake triggering an industrial disaster. The density of petroleum and chemical industries and the trans-shipping of military explosives result in large quantities of potentially explosive, flammable and poisonous materials being stored, processed and transported through Pittsburg and throughout the County. The City works together with industry to encourage modernization and seismic retrofit of industrial facilities.

GOALS: EMERGENCY MANAGEMENT

10-G-11 Ensure emergency response equipment and personnel training are adequate to follow the procedures contained within the Emergency Response Plan for a major earthquake, wildland fire, or hazardous substance event.

POLICIES: EMERGENCY MANAGEMENT

10-P-36 Maintain, modernize, and designate new sites for emergency response facilities, including fire and police stations, as needed to accommodate population growth.

10-P-37 Prepare and disseminate information to local residents, businesses, and schools about emergency preparedness and evacuation routes, including hazardous materials spills.

10-P-38 Ensure that critical facilities, including medical centers, police and fire stations, school facilities, and other structures that are important to protecting health and safety in the community, remain operative during emergencies.

10-P-39 Strive to maintain a ratio of 1.8 sworn police officers per 1,000 residents.

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