
Safety Element

8.0 PUBLIC SAFETY

8.1 Introduction

The Public Safety element is designed to establish goals, policies and implementation programs that will protect the City from risks associated with seismic, geologic, flood, fire and environmental hazards. By identifying these hazards and the appropriate policies related thereto, the Public Safety element is intended to effectively reduce the potential for life threatening, property damaging, and economically and socially detrimental events. In addition, this element is used as a guide for establishing land use patterns that minimize the exposure of City residents to excessive natural and man-made hazards. The goals of the Public Safety element overlap with goals in other elements, particularly the Open Space and Conservation element.



The Martinez Police Department coordinates emergency services in Martinez.

Topic and Policy Order

This Public Safety element is organized generally by topic.

- 8.2 Regulatory Framework** presents the applicable requirements relating to safety elements.
- 8.3 Seismic Hazards** presents information on seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence liquefaction and other seismic hazards.
- 8.4 Other Geologic Hazards and Constraints** presents information on other geologic hazards known to the legislative body.
- 8.5 Fire Hazards**, includes information regarding fire hazards, including wildland fire, fire hazard severity zones, identification of local state and federal agencies with responsibility for fire protection, and identification of goals, policies, objectives and implementation measures for the protection of the community from unreasonable risk of wildland fire and wildfire hazards
- 8.6 Flood Hazards**, includes information on flood hazards, flood hazard zones, flood insurance



rate maps, levees, historical flooding, identification of state, local and federal agencies with responsibility for flood protection, identification of goals, policies, objectives and implementation measures for the protection of the community from the unreasonable risk of flooding.

8.7 Emergency Response, includes information on the City's Emergency Response Planning, including evacuation routes.

8.8 Hazardous Materials includes information relating to risks associated with hazardous materials, transportation and storage.

8.9 Airport Safety.
The Growth Management and Public Facilities and Recreation elements of the General Plan contain capital and performance standards for fire service, and capital facilities to ensure flood control. The Land Use Element also contains policies that add critical area-specific details regarding geotechnical safety.

8.2 Regulatory Framework

California Government Code

Pursuant to California Government Code §65302g, the purpose of the Safety Element is to provide information:

“for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence liquefaction and other seismic hazards and other geologic hazards known to the legislative body; flooding; and wildland and urban fires”

There are several State and Federal programs related to public safety and provide the legal framework for the State mandated Safety Element of the General Plan. These State and Federal programs provide minimum guidelines and criteria; however local jurisdictions can and may choose more stringent policies. The list below provides some of the programs and is not intended to be

all inclusive. For more information on any of the programs refer to applicable Federal and State Codes and to the City of Martinez Municipal Code.

Seismic Hazards

- Alquist-Priolo Earthquake Fault Zoning Act (State)
- Seismic Hazards Mapping Act (State)
- Unreinforced Masonry Law (State)

Flood Hazards

- National Flood Insurance Program (Federal)

Fire Hazard

- Contra Costa County Emergency Response (local)

8.3 Seismic Hazards

The entire San Francisco Bay Area is located in a region of active seismicity. The seismicity of the region is primarily related to the San Andreas Fault Zone (SAFZ). The SAFZ is a complex of active faults forming a boundary between the North American and the Pacific lithosphere. Historically, numerous moderate to strong earthquakes have been generated in northern California by several major faults and fault zones in the SAFZ system. Active faults in the area include the Antioch, Calaveras, Concord, Franklin, Green Valley, Greenville, Hayward, Rodgers Creek, San Andreas, and Southampton. Three faults are of primary significance in the Martinez area. These include the Franklin Fault (thought to be a northern extension of the Calaveras Fault), the Concord-Green Valley Fault (which extends from south of Concord north to Lake County), and the Southampton Fault (which may also be a part of the active Calaveras Fault system in northern Contra Costa County).

The Franklin Fault forms an approximately one mile-wide zone, trending northwest through the Alhambra Valley, and referred to as the Franklin Fault Zone. The Concord-Green Valley Fault is approximately aligned with the northwest-southeast orientation of Pacheco Creek and a segment of the Union Pacific Railroad line in the eastern part of the Martinez area. The Southampton Fault runs east, parallel to a portion of the Franklin Fault in the northern portion of the Martinez area, and then turns to the south, eventually meeting the Franklin Fault.





A pervasive network of smaller, local fault traces is also present, although little is known about these traces, either individually or in relation to the Franklin, Concord-Green Valley, or Southampton faults.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act went into effect in 1973 and has been amended several times. The purpose of this Act is to prohibit the location of most structures for human occupancy across the traces of active faults and thereby to mitigate the hazard of fault rupture. Under the Act, the California Geological Survey (CGS) is required to delineate Earthquake Fault Zones (EFZ) along active faults in California. Jurisdictions containing these zones must then regulate certain types of development within them.

The presence of a fault in a given area does not imply the inevitability of an earthquake there, since many of the State's faults have not been active for thousands or even millions of years. The basis for inclusion of a fault as an EFZ is evidence that suggests either its recent or potential activity. The CGS defines potentially active faults as those considered to have been active during Quaternary time, about the last two million years. Since this category encompasses so many faults, the CGS has further refined its analysis by identifying those faults that have a relatively high potential for future activity, meriting concern because they have been well-defined surface traces.

A fault is deemed sufficiently active if there is evidence of Holocene (last 10-12,000 years) surface displacement along one or more of its segments or branches, as evident either through direct observation or inference. A well-defined fault leaves a trace that is clearly detectable by a trained geologist as a physical feature at or just below the ground surface, as identified by direct observation or by indirect methods. Within the Martinez area, the Concord-Green Valley Fault has been classified as an Alquist-Priolo Earthquake Fault Zone.

Activity Level of Other Planning Area Faults

The Franklin Fault was reportedly active during the Quaternary time (showing late Pleistocene displacement), but does not seem to have been active during the Holocene; thus, it would not be classified as

sufficiently active to be categorized as an EFZ. The Southampton Fault has not been classified as an EFZ but is inferred to be active on the basis of a tectonic model.

Hazards from Seismic Activities

Ground failure is a secondary effect of ground shaking and can include landslides, liquefaction, lurching, and differential settlement. Liquefaction occurs when saturated and poorly consolidated granular material is shaken during an earthquake and is transformed into a fluid-like state. Buildings can tilt or sink, utility lines can rise to the surface, and levees can fail. If soils are poorly consolidated, the ground can subside.

Seismic hazards within the Martinez area include the possibility of fault rupture and secondary damage from landslides, liquefaction, and ground shaking. Many of the landslides within the Martinez area are associated with the trend of the faults, especially the Franklin Fault. Faults have the potential to act as groundwater barriers, causing localized accumulation of groundwater; such zones of groundwater can cause slope stability problems. Figure 8-X displays the Liquefaction potential for the Martinez area.

The City typically requires geotechnical investigations for new development, including single-family residential development. Mitigation for new construction often includes installation of deep foundation support piers (anchored to bedrock), installation of appropriate drainage improvements around a structure, and seismic design pursuant to the Uniform Building Code.

Slope Failure

The major geologic- and soils-related hazards in Martinez are hill slope failure and static settlement of soils. Potential for hill slope failure, or landslide, depends upon the geologic composition of a slope. Certain combinations of rocks and soils are more stable than others, and hill slope failure can occur without an earthquake. Landslides involve the downslope movement of soil and rock; earthquake-induced landslides will most likely occur in the same areas where landslides are caused by other conditions. Unstable slopes and soils subject to static settlement can become more acute during an earthquake. Changes made by man, such as excavating too steeply, undercutting slopes, or placing fills or structures on unstable slopes, may also induce landsliding.

A slope failure is a phenomenon that a slope collapses abruptly due to weakened self-retainability of the earth under the influence of a rainfall or an earthquake. Because of sudden collapse of slope, many people fail to escape from it if it occurs near a residential area, thus resulting in a higher rate of fatalities.

Regional landslide mapping has indicated the presence of slope stability hazards in Martinez, with the hazard typically more pronounced on steeper slopes. The hazards can include relatively large, loose debris flows.

Ground Shaking

The Association of Bay Area Governments (ABAG) regularly updates maps showing estimated maximum ground shaking intensity throughout the Bay Area based on geology and soils, and as a result of earthquakes on various faults. Although these maps are highly generalized, they are useful as a general indication of the relative ground shaking that an area may experience from an earthquake. The ground shaking intensity is measured from low to high depending on the frequency of shaking potential. See Map X for shaking potential in Martinez.

GOALS POLICIES AND IMPLEMENTATION PROGRAMS FOR SEISMIC HAZARDS

Goal

PS-G-1 Minimize the risks associated with seismic and subsidence activity.

Policy

PS-P-1.1 Assure existing and proposed structures are designed to contemporary standards for seismic safety.

PS-P-1.2 In areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions.

Goal

PS-G-2 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

Policy

PS-P-2.1 Continue to use structural design criteria, codes, and other programs and policies to protect the public from seismic effects, such as, liquefaction, seismic response of unconsolidated geologic formations, collapse-hazard buildings, and other seismic-induced failures of existing structures.

Implementation

- PS –I- 2.1.a **Enforce California Building Code**
Enforce requirements of the California Building Code, including seismic design provisions, as part of the building permit issuance and inspection process.
- PS –I- 2.1.b **Adopt Updated CBC**
Adopt updated versions of the California Building Code to address new technical and structural requirements that improve safety.
- PS-I-2.1.c Continue to utilize the latest reference material (hazard maps, data files, inventories, previous studies, etc.) to identify sites where additional study or mitigation measures are needed.
- PS-I-2.1.d Establish procedures and requirements when further studies are needed for a proposed development (geotechnical review procedures, flooding, potentially hazardous materials or soils, etc.).
- PS-I-2.1.e Incorporate recommendations and mitigation measures into site design and construction as part of project review/approval.



Carquinez Scenic Drive after a landslide in 1983, that tore open a huge gap in the road.

8.4 Other Geologic Hazards and Constraints

Geologic hazards and constraints, in addition to those posed by the Martinez area's seismicity, include steep slopes, landslides (caused by means other than seismic activity), soils of high shrink-swell potential, and other soil conditions that pose limitations to development. Steep slopes (over 30 percent) are found throughout the Martinez area, with the exception of the marshlands, urbanized flatlands, and creek and stream bottoms; the steepest slopes have been identified in the Franklin Hills area. Known landslides are particularly prevalent in the Alhambra Hills, although they are extensive in other scattered locations throughout the hilly portions of the Martinez area as well. Expansive soils or soil of high shrink-swell properties dominate the Martinez area hills and are also distributed in creek and valley bottoms, such as the Alhambra Valley, and the Grayson and Pacheco creek beds.



Landslide caused by earthquake

Steep slopes pose a constraint to development due to the potential need for costly engineering techniques to ensure site stability. In some cases, the severity of the constraint would preclude development entirely. In areas of known slope instability, the downhill movement of slope materials varies from the imperceptible motion of slope creep to the sudden and dangerous slump of a large slide. Earth movement threatens all building foundations, roads, and utilities built thereon or in the path of the slide. Development is generally prohibited in unstable areas, although some measures are available to stabilize unstable slopes.

Problem soils, such as those which shrink in dry weather and swell in the presence of increased moisture, can damage overlying foundations or structures. Practical engineering solutions are available for such problem soils, although development in these areas is correspondingly more expensive.

GOALS POLICIES AND IMPLEMENTATION PROGRAMS FOR OTHER GEOLOGIC HAZARDS AND CONSTRAINTS

Goal

PS-G-3 Reduce Risks Associated with Seismic and Subsidence Activity.

Policy

PS-P-3.1 Consider prohibiting construction of buildings, roads, and utilities in landslide-prone hillsides.

Policy

PS-P-3.2 Study on a site-specific basis, the density, suitability, and selection of appropriate construction techniques in those areas where moderate soil limitations are present.

PS-P-3.3 Discourage for reasons of public health, the use of septic tanks, tile filter fields, or sewerage ponds in areas where soil conditions constitute a severe limitation for such practices.

PS-P-3.4 Support efforts by State and regional agencies to promote public awareness of potential geologic and seismic hazards.

PS-P-3.5 New development and redevelopment projects with the potential for geological hazards, such as slope failures or soil subsidence, shall be subject to geotechnical evaluation prior to approval.

Implementation

PS –I-3.1.a **Denial Conditions**

The City may deny applications for development on excessively steep hillsides where slope stability mitigations are not deemed feasible by the City Engineer and where a significant hazard to City residents may result from construction of a proposed development.

PS –I- 3.1.b **Geotechnical Reports**

Require new development and redevelopment projects in hillside areas or areas subject to subsidence to submit a geologic investigation and a report by a qualified engineering geologist with application materials. The reports shall address potential for slope failure, soil subsidence and related geologic events, and recommend measures to minimize hazards.

PS –I- 3.1.c **Development Standards**

In areas with identified geotechnical hazards, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

PS –I-3.1d **Drought Resistant Plants**

Require the use of drought-tolerant plants in hillside areas to reduce excessive watering of hillsides.

PS –I- 3.1.f **Site and Building Design**

Include site planning and building design features that reduce potential impacts from geologic hazards in the City's Design Guidelines, including provisions to limit damage to structures caused by subsidence and accepted grading practices on hillsides.

PS –I- 3.1.g **Subdivision Design**

Condition subdivision and lot line adjustment approvals to assure that lots on hillsides are large enough to provide flexibility in finding a stable buildable site and driveway location.



Policy

PS-P-3.6 Require that soils reports concerning hillside development are subject to peer review.

PS-P-3.7 Conduct landslide repair operations in conjunction with new development.

Implementation

PS – 3.7.a **Landslide Mitigation**
Where known landslide areas exist, require comprehensive landslide mitigation actions to improve slope stability. This can include, with affected property owner support, landslide repair extending beyond the boundaries of a proposed development project site. As part of the review and approval of development and public works projects, the planting of vegetation on unstable slopes to protect structures at lower elevations or other appropriate measures shall be incorporated into the project design. Native plants may be required for landscaping in areas with landslide potential to eliminate the need for supplemental watering and to reduce the risk of landslide.

Policy

PS – 3.8 Maintain current information on seismic hazards and landsliding.

Implementation

PS- I– 3.8.a **Seismic and Landslide Hazards**
Develop and periodically update City maps and information on seismic and landslide hazards for use in evaluating development proposals.

8.5 Fire Hazards

The Martinez area contains a wide range of land use types, from developed urban areas to expanses of unirrigated open space. Urban fires potential arises in urban centers where there is potential

for the spread of fire from one structure to the next due to the clustering of buildings. As the City grows there and development becomes denser the possibility of urban fires increases. Existing undeveloped open space or wildland within Martinez and surrounding areas creates potential for development of fires dependent upon type of vegetation, known as surface fuel as well as weather and wind. During the summer season, wildfire can spread swiftly, fed by winds from the Carquinez Strait. Wildfires occur infrequently but typically cause more damage than urban fires.

Prevention through implementation of ordinances and standards is the best way to minimize Martinez area fire hazards. Contra Costa County Fire Protection District's ordinances and standards cover topics such as location of fire hydrants, provision of sprinklers and roadway widths, and provide the basis for the rural fire prevention capital facilities standards and response time performance standards specified in the City's Public Safety Element.

In the event of a fire emergency, fire services are provided to the Martinez area by the Contra Costa County Fire Protection District, and much of the City is served by the Martinez Water Department, which takes into account fire flow needs when determining storage. Figure 8.0 (see map at end of chapter) displays the Fire Hazard for the Martinez area.

GOALS POLICIES AND IMPLEMENTATION PROGRAMS FOR FIRE HAZARDS

Goal

PS-G-4 Protect citizens of Martinez from potential fire hazards.

Policy

PS-P-4.1 Perform necessary maintenance on open space brush areas that are susceptible to burning.

PS-P-4.2 Prevent the invasion of grassland by Baccharis (a genus of perennials and shrubs are highly fire to fire) by retaining grazing on publically owned rangelands and integrating grazing practices within developed areas.

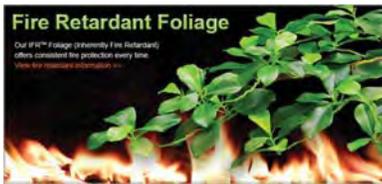
PS-P-4.3 Continue to work with Contra Costa Fire Department to make Martinez more resilient to fire hazards.

PS-P-4.4 Work with Contra Costa Fire Department to promote public awareness.

PS-P-4.5 Review, amend, and update, at regular intervals, all relevant City codes and ordinances to incorporate the most current knowledge and highest standards for safety.

PS-P-4.6 Encourage the use of fire retardant vegetation for landscaping, especially in high

fire hazard areas.



Fire-Retardant Foliage

Implementation

PS—I-4.1a Work with Contra Costa Fire Protection to support and consider providing fire safety demonstrations at public schools, civic and local organizations, businesses, industries, institutions and public gatherings.

PS-I-4.1b Review current building and planning codes to require new developments and renovations to comply with the California Building Code, Fire Code and local ordinances for construction and adequacy of water flow and pressure, ingress/egress and other measures for fire protection.

Goal

PS -G- 5 Reduce fire hazards City-wide.

Policy

PS –P- 5.1 Require fire safe construction practices, such as fire preventive site design, landscaping and building materials, and installation of sprinklers on new development and redevelopment projects.

PS –P- 5.2 Encourage landscaping maintenance programs to reduce potential fire hazards in the hills, wildland areas and urban interface.

PS -P- 5.3 Reduce fire hazard risks in existing developments by ensuring that private property is maintained to minimize vulnerability.

Implementation

PS –I- 5.3.a: **Non-Combustible Construction**
Implement requirements for non-combustible roofs, and exterior siding in high fire areas. Continue to enforce regulations related to fire resistant construction, sprinkler systems and early warning

fire detection system installation.

PS –I- 5.3b Development Review

Through the project review process, continue to ensure that landscaping, lighting, building siting and design, adequate water pressure and peak load storage capacity, and building construction materials reduce the opportunity for fire hazards.

PS –I- 5.3c Firefighting Access

Continue to require access for emergency vehicles and firefighting equipment on all new development and redevelopment projects. The City shall also identify the feasibility of constructing additional emergency access improvements, such as:

- Additional vehicle pullouts at key hillside locations.
- Limiting or restricting on-street parking at key hillside locations.
- Potential for construction of new or improved emergency access routes.

PS –I- 5.3.d Urban WildLand Interface Ordinance

Continue to implement the Urban Wildland Interface Ordinance.

PS – I-5.3e Update Fire Hazard Maps

Periodically update maps identifying fire hazard areas in Martinez.

PS-I-5.3.f Public Facility Location

Ensure the location of public facilities, such as schools and hospitals are not located in Fire Hazard and if they are in the event of a fire they can safely evacuate and or operate

PS –I- 5.3g: Vegetation Management

Continue to consider the requirement of vegetation management plans in all new development. The City shall also identify the feasibility of other vegetation management options, including:

- Increased landscaping safety through elimination of use of fire-hazardous plants.
- Use of non-prolific landscaping species.
- Requiring project proponents in hillside areas to evaluate and upgrade as necessary fire flows and water supplies to hillside areas.

PS –I- 5.3h: Construction Materials

Continue to require use of construction materials that decrease fire hazards in new developments in hillside areas, including mandatory use of spark arresters

Definitions

100-Year FEMA Floodplain.

The area that would, on the average, have a 1:100 chance of flooding in any give year is called a “100 year floodplain”. The calculation of this area is the basis for the “FEMA 100 year floodplain”, and is the basis for flood insurance requirements.

These calculations typically understate the flood risk, as they are based on historical records, and do not reflect the increased risk of flooding caused by increases of impervious surfaces in the watershed. They also do not reflect predicted storm severity or sea level rise.

CRS. The National Flood Insurance Program has developed a Community Rating System. This program has defined, an array of Best Management Practices (BPM’s), to protect communities from flood damage, and continues to update, refine and improve upon them. By implementing these BMP’s communities improve their protection from flood damage and also receive discounts (up to 45%) on flood insurance.

on chimneys. Include provisions in the Design Guidelines.

PS –I- 5.3.i: **Landscaping Requirements**

Require the use of fire-safe planting materials in landscape plans for new development, including the use of non-prolific species. Include provisions in the Design Guidelines.

PS –I- 5.3j: **Use Website for Fire Awareness**

Provide information on methods for reducing fire hazards through the City’s website and newsletter, including clearing of plant debris and using fire-safe landscaping.

8.6 Flood Hazards

Most of flooding in Martinez is caused by heavy rainfall and subsequent runoff that cannot be adequately conveyed by the existing storm drainage system combined with surface water bodies.

The National Flood Insurance Act, adopted by the U.S. Congress in 1968, made federally subsidized flood insurance available to property owners if their communities participate in the National Flood Insurance Program (NFIP). A community establishes its eligibility to participate in the NFIP in two ways:

- ◆ By adopting and enforcing floodplain management measures to regulate new construction, and
- ◆ By ensuring that substantial improvements within Special Flood Hazard Areas (SFHA’s) are designed to eliminate or minimize future flood damage.

An SFHA is an area within a floodplain having a 1 percent or greater chance of flood occurrence within any given year. SFHAs are delineated on flood hazard boundary maps issued by the Federal Emergency Management Agency (FEMA) for individual communities.

The Flood Disaster Protection Act of 1973 and the National Flood

Insurance Reform Act of 1994 make flood insurance mandatory for most properties in SFHAs.

In 1995 FEMA completed a Flood Insurance Study for Martinez that delineates a SFHA covering substantial areas of the community. See Figure 8.1 (see map at end of chapter). In 2014 FEMA notified the City of proposed modifications to the Flood Insurance Rate Map and those new maps will become effective in the fall of 2015.

Municipal Code Chapter 15.30 (Floodplain Management) of the Martinez Municipal Code this chapter provides a set of development regulations for properties to avoid and reduce property damages when subjected to a significant flood event. FEMA has recently reviewed the existing Flood Insurance Rate Map (FIRM) for the City of Martinez, finding no change to the existing flood insurance information but has introduced new flood designations for areas along the coasts that are subject to inundation by 1-percent-annual-chance flood event with additional hazards associated with storm-induced waves. As a result of this change the municipal will be updated and new regulations will be in effect in the fall of 2015.

The Major Drainage Basins. There are three notable drainage basins within the Martinez area: the Grayson Creek and Vine Hill drainage basins and, of greatest flood significance, the Alhambra Creek drainage basin

Grayson Creek. Grayson Creek, a perennial stream with some intermittently flowing tributaries, drains much of the valley area of Pleasant Hill, as well as an area at the southernmost Martinez City limits. Three water impoundments in the Hidden Lake area and one pond on a branch in the Contra Costa Country Club are within the Grayson Creek drainage basin. The amount of riparian vegetation along streams in the Grayson Creek Drainage Basin varies throughout the area. The Contra Costa Canal also winds through the Grayson Basin in a north-south direction.

Vine Hill Drainage Basin. This basin drains roughly five to seven square miles of generally low rolling landscape between Martinez Ridge and Interstate 680. Neither the intermittent stream system nor its riparian vegetation is well-developed. The depth to seasonal high water is shallow through parts of the Vine Hill Drainage Basin.

Managing Smaller Watersheds and Side-Watersheds

Some flood damage risk in Martinez is along the side watersheds tributary to Alhambra Creek and in the upper sections of the other, smaller watersheds in the City. The irregular topography of Martinez creates many places where local runoff can accumulate. Paving and roofing of many of these areas has reduced the capacity of the land to absorb stormwater and has concentrated flows in some areas. These increases in “mini hydrographs” can contribute to localized elevated flood damage risk. In many cases, relatively low impact solutions can be applied to minimize these effects. Many such solutions are documented in the Community Rating System (CRS) program of the National Flood Insurance Program and in the Contra Costa Clean Water Program’s Stormwater C-3 Guidebook - Low Impact Development (LID).



Alhambra Creek entering Carquinez Strait

Mean annual rainfall in this sub-area, less than 12 inches and is the lowest in the Martinez environs.

Alhambra Creek. Alhambra Creek is the most critical hydrologic system in the Martinez area and has been the subject of considerable policy debate and study. A stream draining 15.1 square miles of generally rugged topography and eventually passing through urban Martinez, it possesses great scenic and recreation qualities as well as flood dangers.

Flooding and historical Conditions. Alhambra Creek is considered a flash drainage basin characterized by a rapid rise in flood peaks and rapid recessions. In addition, the section of the channel north of Main Street is influenced by tidal action. Alhambra Creek has received increasing amounts of surface flow runoff over the years with the rise in impervious surfaces in its urban reaches. Impervious surfaces such as concrete and asphalt prevent absorption of runoff and, in addition to swelling the flow within the creek bed itself, excessive runoff may lead to overland sheet flow within the basin. The flooding of Downtown Martinez has been frequent winter occurrence.

In dealing with the flood problem, past studies done by the U.S. Army Corps of Engineers proposed a stormwater bypass system that included culverting portions of the natural creek, channelization, and channel realignment. Other proposals have included a decentralized flood detention system of multiple small check detention basins in the first and second order sub-basins that would hold flood waters in the uplands, thus permitting their gradual release. Downstream flood peaks were projected to be reduced, stream flows made more uniform, and downstream channel and embankment improvements could be implemented where channel capacity is restricted.

Proposals on detention basins have noted the possibility of providing opportunities for public recreation and open space use and development of a water-oriented recreation system within the watershed. One of the goals of such proposals has been to design alternatives compatible with open space and conservation preservation, and some proposals have emphasized watershed conservation techniques, such as preservation of woodlands, careful attention to site grading, and provision of on-site detention

practices. The Alhambra Valley sub-basin is the most heavily wooded and receives the highest rainfall in the Martinez area and therefore is most critical for conservation proposes.

Existing Improvements

In the early 1990's, the City initiated a process designed to enhance Alhambra Creek downtown. The Alhambra Creek Enhancement Plan was completed and approved by City Council in 1998. Since approval of the Enhancement Plan, completed projects related to flood control were replacement of two railroad bridges, channel widening, re-establishment of a flood plain downstream of the railroad tracks (downtown Martinez) and installation of retaining walls.

In 2002, the Contra Costa County Flood Control and Water Conservation District, in cooperation with the City of Martinez, completed a new drainage basin in the vicinity of Pleasant Hill Road and Nancy Boyd Park. The detention basin is intended to mitigate increased hydrologic impacts associated with new development in the area.

Dam Inundation

Earthquakes centered close to a dam are typically the most likely cause of dam failure. Dam Inundation maps have been required in California since 1972, following the 1971 San Fernando Earthquake and near failure of the Lower Van Norman Dam. The Planning Area has one dam that is identified by the Division of Safety of Dams and Bureau of Reclamation; the Martinez Dam is briefly described below:

The Martinez Dam is a Central Valley Project (CVP) in Contra Costa County, which contains the Martinez Reservoir. The dam was constructed by earth fill in 1946/1947, and is owned by the U.S. Bureau of Reclamation. The dam has a drainage area of 40.0 square miles, and an elevation of 72 feet. The total storage capacity is 268 AF. The reservoir's surface area is 13 acres, and has a Spillway Capacity of 53 (cubic feet per second) CFS.

The Martinez Reservoir is impounded in a small, north facing valley at the eastern edge of the City of Martinez. The site is situated on the northeast margin of the East Bay hills which are, in the immediate reservoir vicinity, rounded low hills rising to elevations of 200 feet or less. To the west and south, the topographic relief increases to 600 feet or more along prominent ridges and hills



Alhambra Creek after silt removal.

underlain by folded Tertiary and Cretaceous strata which strike generally NW-SE. Approximately two miles north of the reservoir, the Sacramento River flows westward from Suisun Bay through the Carquinez Strait. At the reservoir site, the hills are underlain by moderately hard Tertiary sandstone and minor shale, commonly mantled by thin alluvial cover. The bedrock strata dips moderately to the southwest of the reservoir. Minor, discontinuous faults locally cut the bedrock, but do not significantly disrupt the overall northwest trending synclinal structure. Throughout the site vicinity, alluvium, stream channel deposits, and artificial fill apron the hills and underlie the lower ground.

.The Martinez Dam does not have a history of dam failure; however, it is identified as having the potential to inundate habitable portions of the Planning Area in the unlikely event of dam failure.

Programs

The Disaster Mitigation Act of 2000 (DMA) requires local governments to develop and submit mitigation plans by November 1, 2004 as a condition of receiving Hazard Mitigation Grant Program and other related funds. FEMA will continue to make funds available for hazard mitigation planning. Also, FEMA distributes monies for Flood Mitigation Assistance to States that, in turn, provide funds to communities. The emphasis for allocating these funds is on repetitive loss properties.

GOALS, POLICIES, AND IMPLEMENTATION PROGRAMS FOR FLOOD HAZARDS

Goal

PS-G-6 Minimize feasible risks to life and property resulting from flooding and flood induced hazards.

Policy

PS-P-6.1 Prohibit new buildings in the 100 year flood zone as determined by the Federal Emergency Management Agency (FEMA) and as shown on the FEMA Flood Insurance Rate Maps (FIRM) unless sufficient mitigation can be provided of the area is removed from the flood zone

Implementation

PS—I-6.1a Enforce the City’s existing flood control ordinance and regulations, amending them as necessary to conform to the National Flood Insurance Program criteria and any proposed and appropriate ordinance.

PS-I-6.1b The City will evaluate potential impacts to the flood control system during the environmental review process for new development. Hydrologic studies may be

required to help determine potential impacts.

- PS-I-6.1c Facilitate creek restoration throughout the City to help mitigate the effects of flooding.
- PS-I-6.1d Limit the amount of impervious coverage by new development or existing developments during improvements to reduce potential hazards of excessive runoff. Strongly encourage pervious pavement for driveways and other hardscape.
- PS-I-6.1e Continue to coordinate with FEMA and other agencies in the evaluation and mitigation of future flooding hazards that may occur as a result of sea level rise.
- PS -I-6.1f Require individual development projects located in areas subject to flooding to reduce or alleviate flood hazard conditions through preparation of hydrological studies and incorporation of mitigation measures. Individual development project mitigation shall demonstrate, through qualified engineering analyses, that no adverse flooding impacts are created by development on upstream and downstream properties in the project vicinity. Compliance requirements shall be consistent with those prescribed in the Municipal Code.

Policy

- PS-P-6.2 Design new developments to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding.

Implementation

- PS-I-6.2a Require new development to demonstrate existing and proposed drainage facilities both on and off site are sized to accommodate project storm runoff and to prevent off-site increase in peak runoff rates and flood elevations.
- PS-I-6.2b When feasible, promote the use of permeable paving or similar improvements in constructing patios, walkways, paths, driveways, and parking areas as a means of increasing natural percolation while reducing impacts to the City's storm drainage system.
- PS-I-6.2c Require new development to construct and dedicate to the City as appropriate necessary infrastructure improvements to support proposed projects.
- PS-I-6.2d Require new development to maintain drainage infrastructure improvements serving such development.

Policy

S-P - 6.3 Continue to budget Capital Improvement Funds for flood control improvements as appropriate.

Implementation

PS- 6.3 a. Prepare annual budget requests to implement priorities and projects relating to flood protection as appropriate.

Policy

PS-P-6.4 Work with FEMA to periodically update the City's FEMA flood maps.

Implementation

PS –I- 6.4 a. Utilize FEMA's Cooperating Technical Partners Program to update the City's Flood Insurance Rate Maps.

Policy

PS-P-6.5 Use local plans and groups to help identify flooding hazards and mitigation options.

Implementation

PS –I- 6.5a. Consider completion and implementation of a Local Hazard Mitigation Plan, consistent with the requirements of FEMA.

Policy

PS-P–6.6 Require construction of storm drainage facilities and Low Impact Development (LID) techniques for new development.

Implementation

PS–I-6.6 a. As a condition of approval for new development and redevelopment of existing sites, require storm water detention or retention facilities (on- or off-site), if necessary, to prevent flooding due to run-off or where existing storm drainage facilities are unable to accommodate increased storm water drainage.

PS –I- 6.6 b. Consider requiring the use of native or compatible nonnative plant species indigenous to the site vicinity as part of the discretionary review of proposed developments.

PS –I- 6.6 c. Require the use of innovative storm drainage facilities such as bioretention, rain gardens, and pervious pavement where appropriate and feasible.

Policy

PS-P–6.7 Continue to implement flood hazard mitigation measures for areas subject to flooding.

Implementation

PS –I- 6.7 a. Employ drainage infrastructure improvements as appropriate and subject to funding constraints and continue maintenance activities as a collective program solution to flooding problems in areas subject to flooding.

Policy

PS-P–6.8 Allow the use of flood control and prevention measures for individual development applications where determined to be feasible and supported by qualified engineering documentation.

Implementation

PS –I- 6.8a Review development applications for appropriate engineering measures to mitigate flood hazards.

Policy

PS-P–6.9 Utilize Best Management Practices (BMPs) to prevent storm water pollution from construction-related actions.

Implementation

PS- I-6.9a Continue to coordinate with Contra Costa County National Pollutant Discharge Elimination System (NPDES) planning efforts. Continue implementation of the Regional Water Quality Board requirements for the San Francisco region for the Municipal Regional Stormwater NPDES permit most importantly Section C.3 new development and redevelopment section.

Goal

PS-G–7 Increase community awareness of flooding hazards.



Policy

PS-P-7.1 Implement a public outreach program to increase public awareness of storm water management issues and techniques for residents to mitigate storm water issues on their property.

PS-P-7.2 Work closely with Contra Costa County in implementation of all applicable National Pollutant Discharge Elimination System (NPDES) requirements relative to storm drainage and storm water run-off.

Implementation

PS-I-7.1a Using the City's website and newsletter, inform the public of areas subject to flooding, steps they can take to reduce potential property damage, and evacuation procedures to be followed in the event of a flooding emergency.

PS-I-7.1b Promote LID and other storm water management design techniques through public education and outreach. Provide information and tools for residents to implement these design techniques on their property.

Goal

PS-G-8 Acquisition of funds for construction of flood control measures.

Policy

PS-P-8.1 Aggressively pursue sources of State and Federal funding.

Implementation

PS-I-8.1a City staff will regularly pursue funding for flood control and storm drainage improvement and maintenance activities.

PS-I-8.1b Coordinate flood hazard mitigation efforts with Contra Costa County to seek compliance with the Disaster Management Act 2000 to ensure eligibility for funding through FEMA grant programs.

PS-I-8.1c Pursue funding for adequate protection from sea level rise and continued subsidence and construction in areas threatened by sea level rise and/or settlement.

8.7 Community Emergency Preparedness

Cities must be prepared for all emergencies. The responsibility for immediate response to emergencies such as fires and earthquakes rests with the local agency and in some instances with private industries that provide support services. Many support services are provided by other jurisdictions such as in the case of Martinez Contra Costa Fire District will be the responsible outside agency managing fires.

The City of Martinez has adopted an Emergency Response Plan which addresses hazard specific situations related to major earthquakes, hazardous materials incidents, flooding and the location of critical facilities. The City also has established prearranged emergency response procedures, identified evacuation routes, and executed mutual aid agreements for emergency assistance within the Martinez City Limits. Mutual aid assistance from the military is also available through the California Emergency Management Agency upon exhaustion of law enforcement resources when it is needed to supplement, but not substitute for local civil operations.

In the event of a large scale disaster the City's Emergency Operations Center (EOC) would be activated. The EOC is located in City Hall. If necessary additional locations can be set up to assist as necessary. The EOC will remain the main operations center while other public facilities may be used. In addition, the American Red Cross has a national charter to establish post-disaster emergency shelters, and would coordinate with the City to use public facilities as emergency shelter is necessary.

Emergency preparedness planning recognizes that in the first 72 hours after a major disaster residents must be self-sufficient. Disaster preparedness involves planning efforts by local government, private organizations, and local groups to identify resources, provide public awareness, and formulate plans about what to do in an emergency situation.

City Staff members receive training in SEMS/NIMS. In addition, the city has established a Community Emergency Response Teams (CERT) to help residents prepare. The goals of the CERT program are to enable neighborhood or workplace teams to prepare for and respond effectively to an event until professional responders arrive, to provide a link between neighborhood or workplace teams and professional responders, and to integrate CERT Zones into the community. CERT members are then integrated into the emergency response capability for their area.

Emergency Evacuation Routes

City of Martinez emergency preparedness manual provides policies and procedures for the evacuation, dispersal, or relocation of people from hazardous areas during natural disasters to less threatened areas. The need for evacuation routes and the appropriate routes for each type of disaster.

Goal

PS-G-9 Be Prepared to Act in Emergency Situations.

Policy

PS-P-9.1 Use the City's Emergency Response Plan as the guide for emergency management in Martinez.

Implementation

PS-I-9.1a Continually evaluate response time and make improvements to equipment and personnel when necessary to ensure goals.

PS-I-9.1b Periodically review the adequacy of training exercises and facilities to evaluate the need for improvements.

PS-I-9.1c Evaluate the City's Emergency Operations center on an annual basis to verify that it is adequately equipped.

PS-I-9.1d Maintain and update the City's Emergency Response Plan on a regular basis, designating emergency shelters and evacuation routes.

Policy

PS-P-9.2 Encourage critical public facilities to remain operative during emergencies.

PS-P-9.3 Promote greater community awareness and preparedness by working with business associations, homeowners' associations, community groups, and utility providers.

PS-P-9.4 Encourage coordination of emergency drills with the Contra Costa County Fire Protection District, County Sheriff, and the City Police Department, so that the Plan's implementation during an emergency will happen smoothly.

Implementation

PS-9.1a Provide relevant community groups, and businesses, with an overview of the City's Emergency Response Plan, and periodically inform them of updates to the Plan when necessary.

Goal

PS-G-10 Provide effective, efficient, and immediately available Community Preparedness programs response in the event of a natural or man-made disaster.

Policy

PS-P-10.1 Maintain efficient and effective City government operation in case of any catastrophic emergency or disaster.

PS-P-10.2 Maintain a current disaster management operations plan and adequately train personnel. This includes annual training of City employees.

Implementation

PS--10.1a Provide annual training for city employees and update the emergency preparedness

PS-10.1b Conduct seminars and make public presentation on personal, family and neighborhood emergency preparedness when possible.

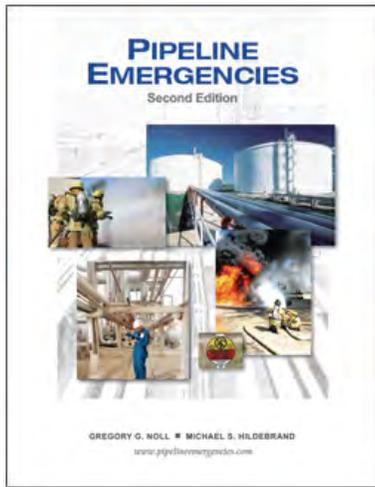
PS-10.1c Encourage public participation in the Community Emergency Response Team (CERT) program.

8.8 Hazardous Materials

Martinez area has a high risk of future hazardous materials incidents. Surrounded by a heavy concentration of petroleum and chemical processing plants (some of which are located within or adjacent to the Concord-Green Valley Fault), the Martinez area may be subject to the occurrence of accidental releases of dangerous



Shell Oil Port



substances from a variety of sources. Further, hazardous chemicals are transported into and out of the area on a daily basis utilizing various transportation routes and systems. These transportation routes and systems include Interstate 680, Highway 4, some City and Contra Costa County streets; the Union Pacific and BNSF Railroads; access through San Pablo Bay, Carquinez Straits, and Suisun Bay; Buchanan Field; and petroleum and natural gas pipelines and pump stations. In the event of a hazardous materials emergency, the City's *Emergency Response Plan* specifies the primary responsibilities of responding agencies, based on the Contra Costa County management system for response to hazardous materials spills.

Beginning in the 1970's, government at the federal State and local level became increasingly concerned about the effects of hazardous materials on human health and the environment. Numerous laws, agencies and regulations were developed to investigate and mitigate these effects, resulting in the storage, use, transport and disposal of hazardous materials and waste is highly regulated.

In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted the California Environmental Protection agency (Cal EPA) enforcement authority for management of hazardous materials. Locally the Hazardous Materials Program of Contra Costa Health Services (CCHS) has been granted responsibility for implementation and enforcement of many hazardous materials in Contra Costa under the Certified Unified Program Agency (CUPA).

Certified Unified Program Agencies (CUPAs) and Program Agencies (PAs) throughout the state created a partnership and formed the California CUPA Forum. Together, members of the California CUPA Forum and representatives of local, state and federal agencies established the Unified Program Administration and Advisory Group (UPAAG) to effectively address policy decisions, education and problem-solving.

The Unified Program consolidates the administration, permit, inspection, and enforcement activities of the following environmental and emergency management programs: Aboveground Petroleum Storage Act (APSA) Program Area Plans for Hazardous Materials Emergencies California Accidental Release Prevention (CalARP) Program Hazardous Materials Release Response Plans and Inventories (Business Plans) Hazardous Material Management

Plan (HMMP) and Hazardous Material Inventory Statements (HMIS) (California Fire Code) Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs Underground Storage Tank Program State agency partners involved in the implementation of the Unified Program are responsible for setting program element standards, working with CalEPA to ensure program consistency and provide technical assistance to CUPAs and PAs.

The following state agencies are involved with the Unified Program:

- California Environmental Protection Agency (CalEPA) The Secretary of the California Environmental Protection Agency is directly responsible for coordinating the administration of the Unified Program and certifying Unified Program Agencies. To date, the Secretary has certified 83 CUPAs, whom are accountable for carrying out responsibilities previously handled by approximately 1,300 different state and local agencies.
- Department of Toxic Substances Control (DTSC) The Department of Toxic Substances Control provides technical assistance and evaluation for the hazardous waste generator program including on-site treatment (tiered permitting).
- Governor's Office of Emergency Services (Cal OES) The Governor's Office of Emergency Services is responsible for providing technical assistance and evaluation of the Hazardous Material Release Response Plan (Business Plan) and the Area Plan Programs.
- CAL FIRE- Office of the State Fire Marshal (CAL FIRE-OSFM) The Office of the State Fire Marshal is responsible for ensuring the implementation of the Hazardous Material Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) and the Aboveground Petroleum Storage Act (APSA) Programs. The HMMP and HMIS Program is closely tied to the Business Plan Program.
- State Water Resources Control Board (SWRCB) The State Water Resources Control Board provides technical assistance and evaluation for the underground storage tank program in





Buchanan Air Field

addition to handling the oversight and enforcement for the aboveground storage tank program.

Goal

- PS-G-11 Minimize feasible risks to life, property and the environment resulting from the use, storage, transportation and disposal of hazardous materials.

Policy

- PS-P-11.1 Encourage adequate separation between areas that contain hazardous materials and sensitive receptors.

Implementation

- PS—I-11.1a Through land use policy and text amendments, establish an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible.

Policy

- PS-P-11.2 Recommend that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts.
- PS-P-11.3 Coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal.
- PS-P-11.4 Require that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards.
- PS-P-11.5 Comply with State Law requiring adoption of a Hazardous Waste Management Plan.

Implementation

PS-I-11.5a Maintain the Contra Costa Health Service Hazardous Waste Management Plan as the City's Plan.

Policy

PS-P-11.6 Actively coordinate with other cities and the county to keep informed and mitigate and or reduce hazards.

Implementation

PS-I-11.6a Maintain information regarding train and transport through Martinez by working with the railroad and industrial users to manage transport of hazardous materials within the City boundaries.

8.9 Airport Safety

Typical resident concerns include those related to aircraft crash hazard, jet exhaust odors and other types of air and water pollution. In addition to these safety issues addressed below, noise is of concern to residents. For a discussion of airport noise, see the Noise Element.

Buchanan Field Airport, located on a 495-acre site in an unincorporated area of north central Contra Costa County, is owned and operated by the County and administered by the County Public Works Department. The Airport borders the cities of Concord and Pleasant Hill and the unincorporated community of Pacheco. The Martinez area lies to the northwest. Formal policy-making authority over operation of the airport is the responsibility of the Contra Costa County Board of Supervisors. The Board has established an Aviation Advisory Committee to make recommendations on aviation policy within the County. The committee membership includes representatives of the five Supervisors, the County Airport Land Use Commission (ALUC), the cities of Concord and Pleasant Hill, Diablo Valley College, Fixed Base Operators Association, and local residents.

Buchanan Field is a general aviation airport without scheduled commercial air service. Although scheduled air carrier service by Pacific Southwest Airlines (PSA – later USAir) was introduced in 1986, it was discontinued in 1992. As of 2013, there are no plans to re-introduce scheduled commercial air service.

Flight Paths. Martinez area residents are subject to small aircraft overflights from operations at Buchanan Field Airport. Traffic patterns vary at Buchanan Field, depending on whether aircraft are moving under Visual Flight Rules (VFR) conditions or during Instrument Flight Rules (IFR) weather. During VFR conditions, the pattern altitude above mean sea level is determined for light aircraft

and for heavy aircraft. During IFR weather, flight altitude may have a lower ceiling. Approaches also differ depending on whether the aircraft are general aviation and commuter flights versus air carrier and business jets.

Height Limits. The maximum allowable structural height limits are defined in the ALUC Plan in accord with Part 77 of the Federal Aviation Regulations. These limits have been designed to ensure safety where buildings or other structures (such as chimneys, landscaping and antennae) would intrude into needed airspace. Approximately the eastern third of the Martinez area is affected by height limits of some sort. Height limits especially apply along the higher elevations (above 173 feet) east of Morello Avenue. The City's height restrictions are consistent with these limitations.

Crash Zones. Safety (crash hazard) zones are designated by the ALUC. Only a relatively small portion of the Martinez area is within these designated safety zones, specifically within the Martinez Sphere of Influence at the northern end of the Buchanan Field runways along Highway 4.

Goal

S-G-12 Reduce the Risk of Hazards Associated with the operation of Buchanan Field Airport

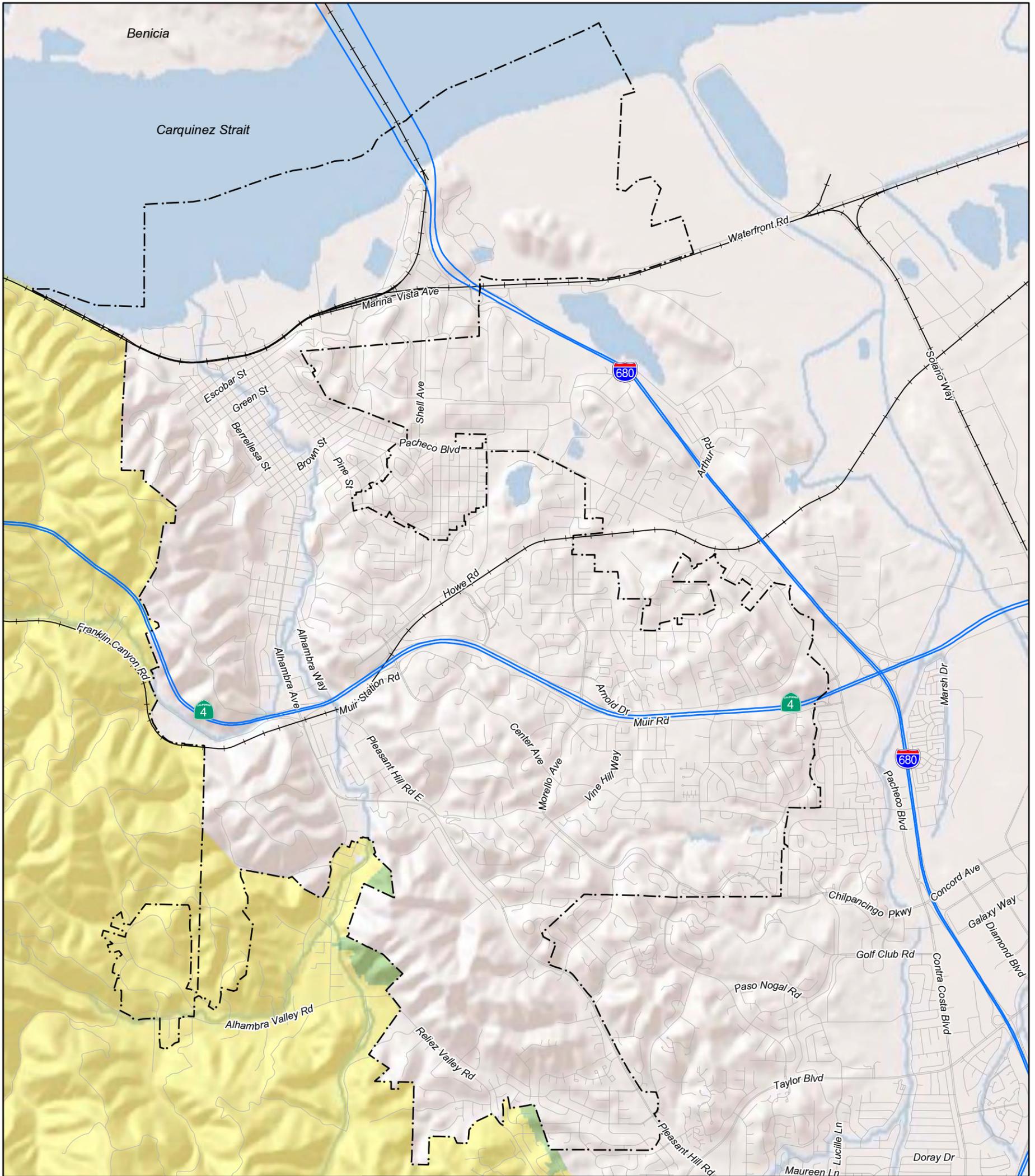
Policy

S-P-12.1 Continue to work with the County Public Works Department, Aviation Advisory Committee, Airport Land Use Commission (ALUC), the Metropolitan Transportation Commission (MTC), Federal Aviation Administration (FAA), and other relevant agencies to protect minimize the risk to lives and property due to hazards associated with the operation of Buchanan Field Airport.

Implementation

PS-I-12.1a Through land use policy insure that development takes into account the flight paths and reduces height limits and location of structures.

Fire Hazard Severity Zones - Figure 8.0



Martinez California Planning Department

Fire Hazard Severity Zones 2013



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Date: 04-04-13
 Martinez General Plan
 Creator: AAE
 Map Produced by PSOMAS
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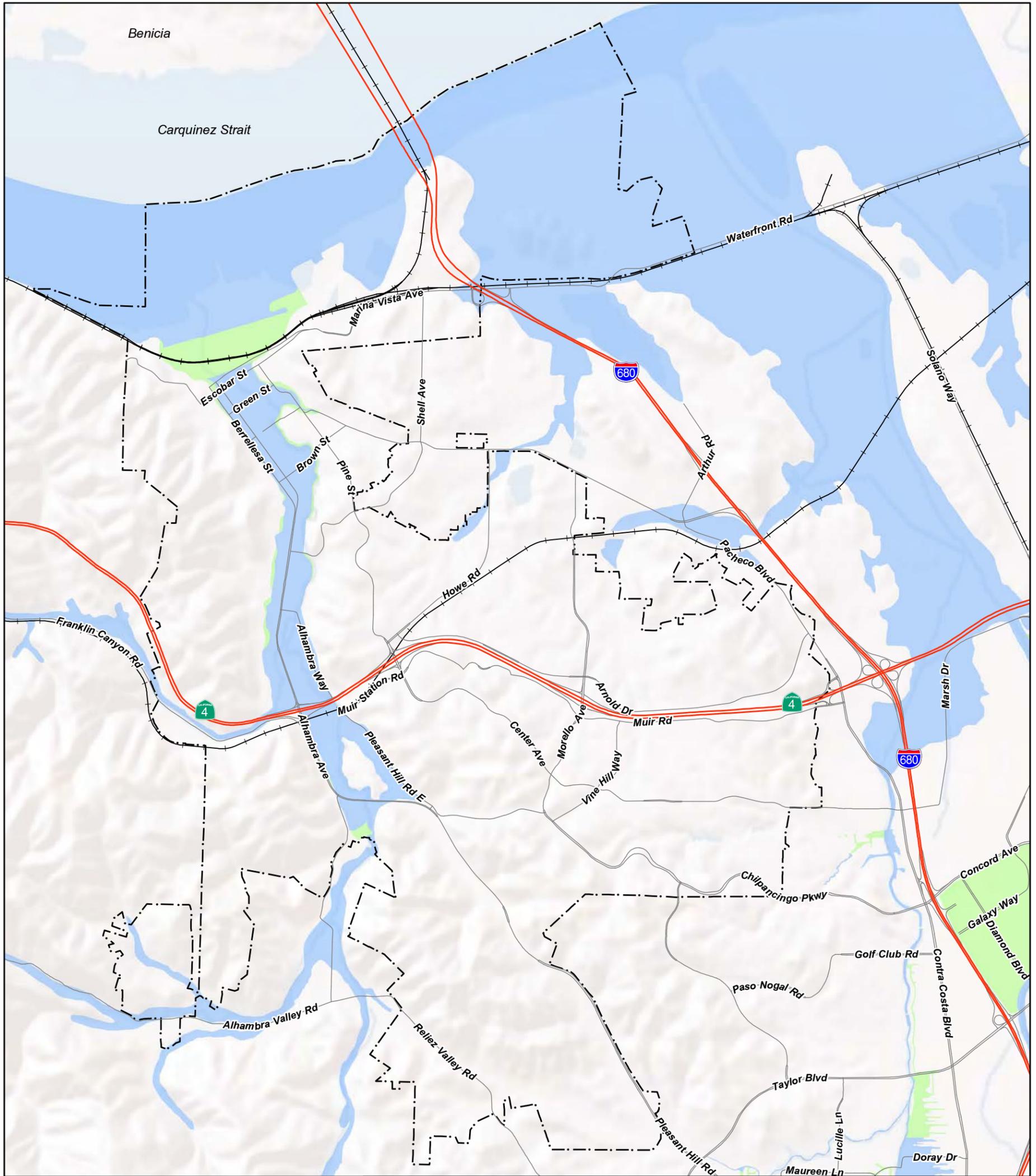


Fire Hazard Severity Zones

- Moderate
- High
- City Limits
- Rail Lines



FEMA Flood Map - Figure 8.1



Martinez California Planning Department

FEMA Flood Map 2013



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 Martinez General Plan
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 Map Produced by PSOMAS
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- FEMA Q3 100 Year Flood Zone
- FEMA Q3 500 Year Flood Zone
- City Limits
- Rail Lines

