

# *VII. Safety and Hazardous Waste Management*

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## **A.** INTRODUCTION

Public safety is one of the primary responsibilities of government. A risk-free environment is not possible, because we cannot always predict the forces of nature or the strength of man-made structures and effectiveness of preventative measures. Determinations of reasonable levels of safety involve tradeoffs of cost, public inconvenience and limitations on the use of private property. The Safety Element sets forth the City's goals and policies which are intended to minimize risk to people and property associated with natural and man-made hazards.

## **B.** GEOLOGIC AND SEISMIC HAZARDS

### **BACKGROUND**

#### Earthquake Faults and Surface Rupture

The San Andreas Fault lies approximately two miles west of the San Mateo City boundary and the Hayward Fault lies approximately 14 miles to the East. Despite its close proximity, there is no evidence of significant ground rupturing in the City during the last one million years. There are no known active faults in San Mateo, and inactive faults which are present are older features which do not exhibit indications of recent motion. There is no reason to expect a recurrence of movement along these other fault traces.

### Ground Shaking and Seismically Induced Waves

Past earthquakes have shown that often the underlying soil conditions pose a greater hazard to structures than the proximity to a fault. Ground shaking from an earthquake is amplified and lasts longer in unconsolidated or water saturated, soils such as bay mud, than in harder bedrock (see Figure S-1). Ground shaking can cause structural failure of buildings in moderate to severe earthquakes, particularly older structures built prior to the establishment of seismic safety standards in 1933. Masonry buildings are particularly vulnerable to the lateral motion of earthquakes unless properly reinforced. In 1989, the City's Building Inspection Division identified 25 unreinforced masonry structures which maybe seismically hazardous. All but 2 of these buildings are located downtown, predominantly on East Third Avenue, Second Avenue and B Street. As of August 2008, 23 of the 25 unreinforced masonry buildings have completed seismic retrofitting to increase stability in an earthquake. The remaining 2 unreinforced masonry buildings are expected to be seismically retrofitted by the end of 2009. A list of these buildings is available in the Building Division.

Concrete tilt-up buildings constructed prior to 1973 may be vulnerable to structural damage due to ground shaking. The City has approximately 40 such buildings, a number of which have been retrofitted since the Loma Prieta earthquake in 1989. Most steel and wood frame buildings, due to their lighter materials and seismically stability, have an excellent performance record.

Beyond structural failure, building features including exterior parapets, ornamentation and large windows may be hazardous in the event of an earthquake. Other potentially dangerous effects of ground shaking may include separation of buildings from their foundations, falling furniture and suspended ceilings, and collapsed chimneys. Freeway overpasses are also critical structures which may collapse in a major earthquake.

The Loma Prieta earthquake on October 17, 1989, was measured at 7.1 on the Richter scale with the epicenter located between Santa Cruz and San Jose. San Mateo sustained substantial building damage, but no fatalities. Earthquake damage in the City was estimated at approximately \$240 million, which included \$100 million in structural damage and the remainder due to damage to building contents. One unreinforced masonry building in the downtown experienced structural failure of parapet walls causing significant but repairable damage. Several concrete tilt-up structures and other buildings also experienced structural damage, but all were repairable. Extensive interior damage was caused by falling ceiling tiles, broken glass, and toppled furnishings. Numerous steel and concrete buildings had cracking of the concrete fascia, but no major structural damage. There were approximately 200 chimneys that failed or had significant damage.

While this earthquake resulted in substantial damage, it is important to note that its magnitude was classified as a "major" earthquake. The force of a great earthquake, similar to the 1906 San Francisco earthquake which was estimated to have been 8.3 on the Richter scale, would have been at least 16 times greater than the Loma Prieta earthquake. An earthquake of this magnitude would have a tremendous and long-term impact on the operations and financial health of the City.

The ground shaking of earthquakes can also cause water related hazards known as tsunamis and seiches. Tsunamis are sea waves commonly accompanying large submarine earthquakes. Such underwater fault ruptures are generally not present along the California coast. The likelihood of a major tsunami created near Alaska causing flooding of the San Mateo bayfront is very remote since a wave 20 feet in height at the Golden Gate would be necessary to reach Coyote Point. The area of inundation from such a tsunami is shown on Figure S-4.

A seiche is an earthquake induced water wave in a confined body of water, such as swimming pools, water storage tanks, or reservoirs. Even in large bodies of water, seiches typically are less than one foot high. The potential for overtopping of Crystal Springs Reservoir is very remote and would not pose a flooding danger. There are approximately 20 water supply tanks in San Mateo, most of which are covered.

#### Ground Failure: Landslides, Mudslides and Liquefaction

Slope failure is usually associated with heavy rainfall or a major earthquake. In the Bay Area, landslides most commonly occur on slopes greater than 15%. Grading activities which increase slope or alter drainage patterns often contribute to landslides. San Mateo's western hills are generally stable. Past known slope failures, which number over 50, have primarily occurred in the Laurelwood, Highlands and Country Club Heights areas, and are indicated on Figure S-2. Although past landslides have caused property damage, no loss of life or dwellings has occurred.

Another form of ground failure is liquefaction, which occurs as a result of an earthquake when grains of soil become saturated. The soils become unstable and may behave as a liquid, causing sudden ground failure. Liquefaction can be particularly destructive to building foundations. Two common engineering practices to minimize these effects are to support buildings on piles driven through filled soils to bedrock or on "floating" foundations designed to shift with the altered soils. In San Mateo, the risk of liquefaction is highest on former baylands which were filled, which extends as far west as El Camino Real as shown on Figure S-2. Areas of particular concern include former sand beds or tidal channels indicated in Appendix H.

#### Other Geologic Problems: Ground Settlement and Erosion

Other geologic processes occur in San Mateo which may not be life-threatening, but nonetheless cause damage to property and the environment. Ground settlement results from the compaction of unconsolidated soils, causing buildings and foundations to crack, and utility lines to separate. In San Mateo, ground settlement typically occurs on filled baylands in the eastern portion of the City. Mitigating measures include proper soil compaction, construction methods such as pile driving or floating foundations, and allowance of settlement in the design of utilities.

Soil erosion and the resulting sedimentation of creeks and storm drains are natural processes which can be greatly accelerated by human activities such as grading, vegetation clearing and poorly engineered drainage systems. This problem is most critical in the western hills, and can be controlled through development restrictions and engineering techniques.

## **GOALS AND POLICIES**

**GOAL 1:** Take steps to protect the community from unreasonable risk to life and property caused by seismic and geologic hazards.

### **POLICIES:**

**S 1.1: Geologic Hazards.** Require site specific geotechnical and engineering studies, subject to the review and approval of the City Engineer and Building Official, for development proposed on sites identified in Figure S-2 as having moderate or high potential for ground failure. Permit development in areas of potential geologic hazards only where it can be demonstrated that the project will not be endangered by, nor contribute to, the hazardous condition on the site or on adjacent properties.

Figure S-2 identifies those areas of the City which may be subject to ground failure. If development is proposed, detailed geotechnical and engineering studies are necessary to determine if the development is appropriate to the particular site and to evaluate potential impacts on adjoining properties. In most cases, mitigation measures may be imposed, dictating certain engineering methods for appropriate building foundation construction and drainage control.

**S 1.2: Hillside Development Standards.** Regulate hillside development consistent with the City's Site Development Code and Open Space/Conservation Policy 3.1.

Most of San Mateo's western hills were subdivided during the 1950's and 1960's, some including slopes over 25% grade. During this subdivision process numerous lots were created which far exceeded the minimum lot size standards, and therefore could have been further subdivided. However, most of these "remainder" parcels were left unsubdivided due to their steep slopes, poor accessibility, and/or poor soil conditions. With the increasing cost of housing, subdivision and development of the "remainder" parcels in the western hills has become feasible. Development of steeply sloped property poses greater risks than relatively flat land. It typically involves substantial grading and alteration of the existing topography, which may affect the stability of adjoining property and alter local drainage patterns. If not properly engineered, a new structure may crack and separate in the event of seismic activity or landslide.

While these problems may be mitigated by proper engineering techniques, slope development has visual impacts on adjoining property owners and on more distant vistas.

Open Space/Conservation Policy 3.1 discusses development on steep slopes in relation to density, the clustering of development to preserve steep slopes for open space, the preservation of existing topography by limiting cut and fill, and the visibility of new hillside development. The Site Development Code seeks to minimize risk of harm to persons or property by requiring appropriate engineering and/or hydrologic studies and recommendations for development located on slopes 15% or greater, or within a slope setback area as defined in the Code.

**S 1.3: Erosion Control.** Require erosion control measures for all development sites where grading activities are occurring, including those having landslide deposits, past erosion problems, the potential for storm water quality impacts, or slopes of 15% or greater which are to be altered. Control measures shall retain natural topographic and physical features of the site if feasible.

The impacts of erosion and altered drainage patterns can be most critical on land which has shown a tendency towards landsliding, where existing erosion gullies are apparent or on very steep slopes that have a 15% or greater grade. On such sites, an engineering study of erosion control will be required in conjunction with new development proposals.

**S 1.4: Unreinforced Masonry Buildings.** Maintain the program which requires mandatory modifications of existing unreinforced masonry buildings identified as being potentially hazardous, and similar unsafe building conditions, to reduce the associated life safety hazards. The mandatory structural modifications should be designed to be in character with the existing architectural style.

Unreinforced masonry buildings typically suffer life-threatening damage during great earthquakes. State law requires that local governments identify unreinforced masonry buildings and adopt a program to abate such life-threatening conditions. San Mateo's 25 unreinforced masonry structures are predominantly located in the downtown, and 9 have been identified as having historic significance. As of August 2008, 23 of the 25 identified buildings have completed a seismic upgrade. The remaining 2 buildings have been issued building permits and are expected to be upgraded by the end of 2009.

## **C. FLOOD HAZARDS**

### **BACKGROUND**

#### Bay Water Flooding

The City of San Mateo confronts substantial flood risks from the San Francisco Bay. The potential for flooding is due to the combined effects of high tides, very heavy storm flows and sea level rise due to global warming. A series of outboard levees, located within San Mateo and Foster City, protect the City from San Francisco Bay tidal flooding. Without adequate levee protection, areas between the Railroad tracks and the Bay are directly exposed to saltwater inundation.

A Flood Insurance Study (FIS) was conducted by the Federal Emergency Management Agency in 1996 for areas north of Highway 92, in the City of San Mateo. The studies indicated that San Mateo Creek levees and the Bay levee at the north end of Coyote Point were not adequate to

comply with current FEMA requirements, and therefore are assumed to fail during a 100-year flood event. As a result, FEMA issued a Flood Insurance Rate Map (FIRM) in 2001 which included a portion of the low-lying areas north of Highway 92 in a special flood hazard area. Mandatory flood insurance is required for properties financed by lending institutions that act in accordance with Federal standards. Note that, although only these areas are included in the FIRM, as the study area of the 1996 FIS focused solely on locations north of Highway 92, the low-lying areas south of Highway 92 is subject to the same regulatory flood risks.

A Citywide hydraulic study completed in 2001 evaluated San Mateo's flood protection facilities. The hydraulic study identified information regarding the areas of the outboard levee system that do not provide protection conforming to FEMA standards:

1. Shoreline from Burlingame to Coyote Point
2. Bayfront levee near Coyote Point
3. San Mateo Creek from the Bay to Highway 101
4. Bayfront levee near Detroit Drive
5. O'Neil Slough Tide Gate levee from Foster City to Highway 101
6. High ground located at the mouth of Marina Lagoon

The San Mateo Creek levee and O'Neil Slough Tide Gate levee improvements were completed in 2003 and 2006, respectively. The City is working diligently to identify funding for the remaining improvements.

To remove the special flood area designation from the FIRM, it is necessary to address tidal flooding and residual flooding; that is, flooding caused by inadequate interior drainage facilities. The 2001 Citywide hydraulic study identified a series of improvements, including pump station upgrades, culvert improvements, and construction of flood walls along major channels.

FEMA launched a map modernization program in 2004. As part of that effort, the FIRM for San Mateo was expanded to include areas south of Highway 92 into the existing special flood hazard area. A preliminary FIRM issued by FEMA on April 18, 2008, is anticipated to become final sometime in the spring of 2010.

In regard to sea level rise due to global warming trends, the City consulted with Schaaf & Wheeler to determine the potential impacts of sea level rise on the City of San Mateo (Appendix V of the General Plan). Their study reviewed numerous reports and studies that predicted different levels of sea level increases. Currently, the City of San Mateo is prepared for some rise in sea level, however if the extreme predictions of a 4.6 foot rise in sea level by 2100 occurs, the City's current levees will not be sufficient. Considering that there is no definitive estimate and that sea level rise will occur slowly over time, the City will continue to address FEMA's current certification standards. If FEMA increases their requirements, the City will consider raising the levees to meet FEMA's certification. However, for the City of San Mateo to be fully protected the City of Burlingame and Foster City will also need to raise their levees.

### Dike Failure

San Mateo's levees are structurally stable, with the exception of approximately 1,000 feet of levee adjacent to the City of Foster City which will be reconstructed in the near future. The probability of their failure is very low. However, failure could result from a major earthquake or severe storm conditions. Should a failure occur at high tide, property could be inundated up to an elevation of 4.7 feet (San Mateo datum/7.06 ft. NGVD), or a maximum water depth of about six feet in the lowest areas of the Shoreview neighborhood. The area of potential inundation is shown in Figure S-4.

### Tsunami

Tsunamis, or seismically generated sea waves, are rare in California due to the lack of submarine earthquake faults. An Alaskan generated tsunami would have to reach a height of at least 20 feet at the Golden Gate to overtop San Mateo's levees with a minimum runup of five feet at higher high tide. The highest tsunami affecting the area during the last 120 years had a height of 7.4 feet at the Golden Gate, causing a two-foot runup along the San Mateo shoreline.

### Dam Failure

Six dams affect the City of San Mateo: Crystal Springs, San Andreas, Laurel Creek and East Laurel Creek (2), and Tobin Creek in Hillsborough.

Lower Crystal Springs Dam retains water supply for San Francisco and most cities within San Mateo County. In 1977, the seismic safety of the dam was studied, finding that the risk of structural damage to the dam with a maximum magnitude of 8.3 on the Richter scale earthquake is low, and that landslides which might be triggered by such an earthquake would not generate waves capable of overtopping the dam. Although the probability of Lower Crystal Spring Dam's failure is remote, should such an event occur, the San Mateo Area Office of Emergency Services (OES) estimates that a population of 70,000 would be affected, with inundation occurring from the downtown area north to the Burlingame Recreation Lagoon and south to the Ralston Avenue/US 101 interchange. The area of potential inundation is shown in Figure S-4.

San Andreas Dam is located on San Andreas Creek in Burlingame and is also used to impound water for San Francisco and much of San Mateo County. Seismic safety studies in 1979 and 1983 indicated that the dam would probably remain stable during strong seismic shaking.

Laurel Creek Dam is located at the end of Laurelwood Drive and reduces the peak storm water runoff of 600 cfs in half. The most recent reports by the California Division of Safety of Dams (DSOD) indicate that the dam is structurally safe and will perform without failure during a major seismic event.

East Laurel Creek Dam is located at the end of East Laurel Creek Drive, and is also used to control peak storm runoff. The dam is too small to be regulated by DSOD and its seismic

stability is unknown. Two other small dams are located in Belmont (East Laurel Creek) and in Hillsborough (Tobin Creek).

### Stormwater Drainage

Storm water drains through San Mateo to the Bay via three distinct drainage basins -- the San Mateo Creek complex, North San Mateo complex, and the Marina Lagoon Complex, each composed of numerous stream channels, culverts, and storm drainage piping systems.

The San Mateo Creek drainage basin is 35 square miles in size, only 4 square miles of which are in San Mateo. Approximately 30% of the City drains into San Mateo Creek. Storm flows are regulated in the upper reaches of the creek by Lower Crystal Springs Dam and the two reservoirs. The San Francisco Water Department controls winter and springtime releases from the dam to approximately 1,000 cubic feet per second (cfs), which is the capacity of the creek channel at Polhemus Bridge. Uncontrolled releases may occur should reservoir levels exceed the storage capacity during a major storm, and can increase to approximately 1,340 cfs.

There are six bridges between El Camino Real (SR 82) and the Bay along San Mateo Creek. The first constriction is the Mills Culvert beneath El Camino Real (SR 82) and extending to San Mateo Drive, which can accommodate 1,400 cfs. With normal winter operation at Crystal Spring Reservoir, no or minimal spill is anticipated at El Camino Real. Figure S-4 shows that this area will have a spill less than one foot during a 100-year storm which is not classified as special flood hazard area by FEMA.

The San Mateo Creek watershed located within City limits is fully urbanized and little additional runoff is anticipated from new development. The majorities of the remaining watersheds are conservation lands meant to protect the water quality of Crystal Springs Reservoirs and will remain undeveloped.

The northern portion of the City drains to the bay via major piping systems under Poplar and Peninsula Avenues. The southern two-thirds of San Mateo are composed of a 10-square-mile watershed which originates in the western hills of San Mateo and Belmont, and drains into Marina Lagoon. Peak storm flows from the western hills are controlled by four dams, three on Laurel Creek and one in the Town of Hillsborough above Borel Creek. The watershed is almost entirely urbanized with the exception of Sugarloaf Mountain, and little increase in runoff due to future development is anticipated. Control of erosion and impervious surfaces on Sugarloaf is important to reduce runoff into Laurel Creek.

In the past, flooding has occurred at several locations within the Marina Lagoon drainage complex due to inadequate channel and storage capacities or blockages during storms. In the 1970's, Laurel Creek Dam was overtopped, flooding a substantial portion of the San Mateo Village neighborhood. In the 1980's, East Laurel Creek Dam was overtopped, damaging homes immediately downstream. San Mateo Village was also flooded in 1955, 1966 and 1982.



Marina Lagoon was created from Seal Slough for flood control in the 1950's and deepened in 1965. Although heavy storm runoff never overtopped the Marina Lagoon levees, the water elevation rose to dangerous heights in 1974 and 1982. In 1984 the pump capacity at the Lagoon's entry into the Bay was increased to a maximum discharge capacity of 750,000 cfs, adequate to contain the 100-year storm and flooding in the Marina Lagoon drainage area.

A Storm Drain Master Plan was completed in 2002 to the local stormwater collection system. Improvements were identified to upgrade these facilities to provide adequate flood protection.

## GOALS AND POLICIES

**GOAL 2:** Protect the community from unreasonable risk to life and property caused by flood hazards.

### POLICIES:

**S 2.1: Creek Alteration.** Prohibit any reduction of creek channel capacity, impoundment or diversion of creek channel flows which would adversely affect adjacent properties or the degree of flooding. Prevent erosion of creek banks.

Most of San Mateo's creeks are under private ownership, with adjacent properties extending to the centerline of the creeks. Development of these parcels should not result in alteration of the creeks in a way that could alter the creek capacity or water flow characteristics. Such activities have the potential for causing downstream flooding or may increase bank erosion.

**S 2.2: Development Adjacent to Creeks.** Protect new development adjacent to creeks by requiring adequate building setbacks from creek banks and provision of access easements for creek maintenance purposes.

A creek setback for new structures is necessary for adequate maintenance access, to permit creek improvements and to protect buildings from creek bank erosion. The Downtown Plan specifically requires a setback along San Mateo Creek for flood protection and maintenance purposes. As hydrologic studies are completed for other creeks and drainage channels, setback and maintenance access requirements will be developed as appropriate.

**S 2.3: Development within Flood Plains.** Protect new development within a flood plain by locating new habitable floor areas to be above the 100-year flood-water level or by incorporating other flood-proofing measures consistent with Federal Emergency Management Agency (FEMA) regulations and the City of San Mateo's Flood Plain Management regulations.

FEMA has designated certain portions of the City as flood plains. Properties located within the 100-year flood plain are required to locate habitable floorspace above the projected flood elevation to minimize possible property damage consistent with FEMA regulations. Development consisting of new construction or substantial improvement, defined by the City's

Flood Plain Management regulations, shall comply with local ordinances. As technology changes, other means of flood-proofing structures should be explored by the City.

**S 2.4: Crystal Springs Reservoir.** Encourage the City of San Francisco to develop an operations model or capital improvement projects for the entire San Francisco Water Supply System and Lower Crystal Springs Reservoir. These projects would facilitate acceptance of heavy and prolonged stormwater runoff without the necessity of releasing hazardous volumes of stormwater into San Mateo Creek.

The San Francisco Water Department controls the release of water from Lower Crystal Springs Reservoir to maintain flood storage capacity in the event of a major storm. The City has worked with the San Francisco Water Department to develop an Operation Plan to document its operation practices for Lower Crystal Springs Reservoir during winter months. The plan, approved by FEMA, indicates that the Water Department routinely maintains adequate freeboard during storm events and will not release hazardous volumes of stormwater into San Mateo Creek.

The San Francisco Water Department is currently working on a dam spillway enlargement project for the ability to retain a higher water level in the event of a major storm and defer discharge to non-storm periods. The City will continue to support this effort.

**S 2.5: Stormwater Drainage System.** Implement the improvements identified in the City of San Mateo's seven watershed areas to improve and maintain drainage capacity adequate to convey water during a typical storm event. Include consideration of creek maintenance and an education and/or enforcement program to minimize illegal dumping of debris and chemicals.

The City has completed a citywide hydrologic analysis to identify flooding potential and needed improvement. The study evaluated the City's major flood control facilities, including levees, dams, pump stations, major channels and Marina Lagoon. A separate study was also completed to evaluate the adequacy of the City's local stormwater collection system and to identify necessary improvements. The two studies indicate that the City has significant capital improvement needs to warrant an upgrade of flood control and drainage facilities to meet current standards. The ability to complete these improvements is impacted by the current lack of adequate funding. A continuous effort is needed to identify sources of funding to complete these improvements.

**S 2.6: Lowlands Protection.** Protect lowlands from the potential rise in the sea level, high tides and tsunamis. Raise levees to meet FEMA current standards and continue to monitor sea level rise estimates. Protect new habitable buildings in areas subject to flooding in the event of levee failure.

The City's levee system is not certified by FEMA at this time. The City has obtained FEMA approval on the design of the required levee improvements and is working toward completing the upgrades within the available fiscal structure. A continuous effort is needed to identify sources

of funding to upgrade all the levees to comply with current FEMA standards. In addition to receiving FEMA levee certification, protection of new construction should be considered by elevating habitable floor levels above potential flood heights.

Monitoring the various predictions in sea level rise is required to determine if the levee system is adequate. As new studies emerge, FEMA may modify their certification requirements. If FEMA modifies their requirements, the City of San Mateo will need to address the levee system at that time. All efforts should be made to address climate change and the continuous rise in sea level.

## **D. WILD FIRE HAZARDS**

### **BACKGROUND**

There are no Wildland fire hazards in City of San Mateo; however to the west of the City within the City's Sphere of Influence there are undeveloped portions of the western hills that are considered wildland fire hazards... These areas are subject to wildland type fires due to existing vegetation, particularly chaparral, the steep slopes and the temperate climate with dry summer months. During the past 27 years only one significant fire has occurred. It burned 20 acres in the Laurel Creek Canyon watershed and caused limited residential damage. Although recent fires have not occurred, these areas pose substantial risks to nearby residences and to the natural environment.

Urban fire hazards and water supply requirements are discussed in the Land Use Element.

### **GOALS AND POLICIES**

**GOAL 3:** Maintain adequate fire and life safety protection from wildland fires.

#### **POLICY:**

**S 3.1: Wildland Fire Protection.** Require all development adjacent to wildlands to provide fire retardant roofing materials, adequate site access, and fire breaks of at least 100 feet.

Fire retardant roofing materials reduce the spread of fire by wind-borne embers, and "greenbelt" landscaping using irrigated, non-combustible plant species, at a minimum radius of 100 feet surrounding the structures, acts as a fire break. Adequate site access for fire suppression vehicles, particularly to steeply sloped areas, is also very important. Current standards require a minimum 26-foot roadway, exclusive of parking. Generally two access routes are required

unless other mitigations are incorporated into developments. Access ways exceeding 300 feet in length must have turnarounds with radii adequate for fire vehicles.

## **E. EMERGENCY OPERATIONS**

### **BACKGROUND**

The City prepared a Multi-Hazard Functional Plan (MHFP) in 1995 as required by the California Emergency Services Act. Additionally, as required by FEMA, the City adopted a Local Hazard Mitigation Plan (LHMP) in 2002. Both of these plans define the City's planned response to emergency situations such as fire, earthquake, flood, hazardous materials spill, civil disturbance or war.

The City's Emergency Operations Center (EOC) is located at the Police Department at 200 Franklin Parkway. The center contains emergency supplies and equipment and would serve as a communications and administrative headquarters. Since the EOC is located in the flood plain, an alternate EOC is located at Fire Station 7, 1801 De Anza Boulevard. The MHFP identifies fourteen possible shelter locations at school sites, including the College of San Mateo.

### **GOALS AND POLICIES**

**GOAL 4:** Minimize potential damage to life, environment and property through timely, well-prepared and well-coordinated emergency preparedness, response plans and programs.

#### **POLICIES:**

**S 4.1: Emergency Readiness.** Maintain the City's emergency readiness and response capabilities, especially regarding hazardous materials spills, natural gas pipeline ruptures, earthquakes, and flooding due to dam failure, tsunamis, peak storms and dike failure. Increase public awareness of potential hazards and the City's emergency readiness and response program.

Emergency readiness depends upon maintenance of an updated and useable Multi-Hazard Functional Plan, trained personnel through frequent emergency drills, and functional emergency equipment, particularly emergency communications, power supplies and vehicles. The public should be made aware of potential dangers, particularly those living or working in areas subject to inundation, and of contingency plans or information sources. Education and training programs, such as the San Mateo Community Emergency Response Team (CERT) and the biyearly City staff emergency drills, helps to increase the public's awareness and increase the emergency readiness of the City.

**S 4.2: Evacuation Routes.** Maintain adequate evacuation routes as identified by arterial streets shown in the Circulation Element, Figure C-1.

In the event of an emergency, the major arterial streets identified in the Circulation Element would serve as principal evacuation routes. Routes which parallel US 101 and SR 92 are particularly important since they would provide a backup to the freeway in the event overpasses collapse or are blocked.

## **F. HAZARDOUS MATERIALS**

### **BACKGROUND**

Much of the economic success of the Bay Area is based on research and manufacturing, the byproducts of which include substances which may be harmful to people and to the surrounding environment. Hazardous waste ranges from familiar substances such as waste oil and cleaning solvents, to highly toxic industrial compounds, and include toxic metals, gases, flammable and explosive liquids and solids, corrosive materials, radioactive materials and infectious biological waste.

Up until 1990, the management of hazardous waste relied heavily upon land disposal of untreated materials. With the elimination of this option, reduction of waste volumes or recycling waste compounds for reuse has become the preferred strategies.

In 1989, a majority of cities in San Mateo County approved the San Mateo County Hazardous Waste Management Plan (HWMP). The HWMP emphasizes waste reduction and recycling, extensive educational processes, coordinated identification, permitting and inspection of waste generators, and creation of a permanent facility for deposit of household hazardous waste. A major feature of the plan is the identification of sites suitable for various types of hazardous waste management facilities.

This portion of the General Plan constitutes the City of San Mateo Hazardous Waste Management Plan as provided for in Section 25135 of the California Health and Safety Code. The County HWMP is incorporated into the General Plan by this reference, and major provisions of that plan are summarized below.

### Existing Waste Generation

Most of the waste generators in San Mateo are small quantity generators -- small businesses and households which generate less than 12 tons per year. Numerous industrial and commercial operations, both past and present have manufactured, handled, stored and disposed of hazardous materials in San Mateo

Hazardous material sites include manufacturing operations, facilities with leaking underground storage tanks (UST's), and generators of hazardous waste.

### Storage and Disposal

Throughout San Mateo County, Hazardous Materials Business Plans (HMBP) must be prepared for the County by businesses that use or store hazardous materials. The County provides copies of Business Plans to the local fire departments.

The San Mateo County Environmental Health Department (EHD) issues permits for installations and removals of UST's. Before a tank may be removed, the applicant must prepare a closure plan and submit it to the County HSD. Upon approval of the plan, the County of EHD issues a permit for the tank removal. While UST's are primarily associated with service stations, they may also be found in connection with hospitals, companies with backup power supply, and older industries.

### Siting Waste Management Facilities

The HWMP provided criteria for the siting of new hazardous waste management facilities, and indicates the areas which appear initially suitable for locating new facilities. In general, the siting criteria direct new facility development away from areas having significant natural hazard potential (landslides, potable water supplies, aquifers, high soil permeability); environmental resources (wetlands, riparian corridors, wildlife reserves and prime agricultural land); and population concentrations (residential zones). New facilities would be allowed in industrial areas near transportation corridors and hazardous waste generators to minimize transport through a community.

In the City of San Mateo, the HWMP has designated 15 areas which are zoned for either commercial or industrial uses as suitable for waste treatment, recycling, storage and transfer facilities (see Figure S- 5). Incinerators and residual repositories would not be permitted in San Mateo. The sites designated for treatment, recycling, storage and transfer facilities are located in manufacturing districts adjacent to the Southern Pacific rail corridor. Sites designated for storage and transfer facilities are in service commercial and transit oriented development zoning districts adjacent to the rail corridor, west of US 101 on Amphlett, and in Coyote Point Park.

Due to the highly developed nature of San Mateo and the lack of large waste generating firms, it is unlikely that a large treatment or recycling facility will attempt to locate in the City. However,

should an application be filed to locate a hazardous waste facility in San Mateo, a detailed process would be initiated including preparation of a site specific risk assessment analyzing short- and long-term risks associated with the proposed facility. If the risk assessment reveals that potential risks cannot be adequately mitigated, a proposal may be disapproved even if it is located within a general area which has been designated in the HWMP as a potentially suitable site for a hazardous waste facility.

#### Contaminated Sites

The presence of hazardous materials or hazardous waste in soil or groundwater could constrain development of certain areas due to the actual or perceived threat to human health and the cost associated with site cleanup. The actual health threat at a given site depends upon a number of factors such as the quantity and toxicity of contaminants, exposure and the available pathways for contaminants to affect human health. Cleanup of hazardous waste sites is mandated by law and enforced by the appropriate regulatory agencies in order to protect human health, resources, and the environment. Cleanup is usually expensive and can be a significant factor in viability of land development.

#### Transportation Routes

Hazardous waste primarily is transported within San Mateo via trucks. Since the County is both an importer and exporter of wastes, there is a significant potential for accidental release of wastes in transit. Local government is pre-empted from regulating the transport of hazardous wastes on State highways, which include US 101, SR 92 and I-280. Jurisdiction is under the California Department of Transportation (Caltrans) with enforcement by the California Highway Patrol. Local agencies have the authority to restrict the use of local roads for waste transport, as well as the time of transit, if not unduly restrictive to commerce.

Generally, selection of transportation routes should minimize the time and distance that hazardous waste is in transit, avoid residential neighborhoods and environmentally sensitive areas, avoid periods and areas of traffic congestion, minimize use of local roads and provide for adequate emergency response services.

#### Emergency Response

The high volumes of hazardous materials handled and transported in San Mateo County pose a significant risk of accidental release or spill.

The San Mateo County Area Emergency Services Council has principal responsibility for emergency response coordination. The Council was established by a joint powers agreement of the County and all cities within the county, and has adopted a Hazardous Materials Area Plan which establishes responsibilities and actions for responding to a wide range of hazardous material incidents. If an incident were to occur in the City of San Mateo, the San Mateo Police Department and the San Mateo Fire Department would act jointly as incident command, unless it occurred on a State highway under the authority of the California Highway Patrol. The local agency would be assisted by the Belmont – San Carlos Fire Department, which maintains a fully equipped hazardous materials response vehicle to identify the hazardous material and provide

initial containment. Technical assistance would also be provided by the County Environmental Health Section.

## **GOALS AND POLICIES**

**GOAL 5:** Protect the community's health, safety and welfare relating to the use, storage, transport, and disposal of hazardous materials.

### **POLICIES:**

**S 5.1: County Cooperation.** Cooperate with the County of San Mateo in the regulation of hazardous materials and transportation of such material in San Mateo.

State legislation has designated counties as the level of government to assume the lead role in subregional planning for hazardous waste management. The San Mateo County Departments of Health, Environmental Management, Public Works and District Attorneys Office have direct responsibilities for planning and implementing the County Hazardous Waste Management Plan on behalf of all cities in the County.

**S 5.2: County Hazardous Waste Management Plan.** Adopt by reference all goals, policies, implementation measures, and supporting data contained in the San Mateo County Hazardous Waste Management Plan.

The County Hazardous Waste Management Plan (HWMP) establishes a comprehensive approach to management of hazardous wastes in San Mateo County, including siting criteria for new waste management facilities, educational and enforcement efforts to minimize and control the waste stream, and maintenance of a unified data base on waste generators. Other policies adopted by the City of San Mateo will elaborate and further define aspects of the County HWMP which reflect local conditions and objectives, but which are consistent with the overall direction of the County HWMP.

**S 5.3: On-site Waste Treatment.** Promote on-site treatment of hazardous wastes by waste generators to minimize the use of hazardous materials and the transfer of waste for off site treatment.

The optimal methods of hazardous waste management are either source reduction, such as substituting alternative raw materials or altering production processes to reduce the amount of wastes generated, or on-site recycling, which reuses the generated waste in the production process or as a marketable byproduct. The City of San Mateo promotes the HWMP through educational efforts including preparation of informational pamphlets, the sponsoring of seminars on alternative technologies, and directly assisting firms in assessing their reduction potential, and by requiring large waste generators to submit waste reduction plans.



**S 5.4: Transportation Routes.** Restrict the transportation of hazardous materials and waste to truck routes designated in Circulation Policy C-1.3, and limit such transportation to non-commute hours.

Risks associated with hazardous waste spills are exacerbated during transportation since such spills would be uncontained and could affect a substantial population of motorists, pedestrians and occupants of nearby residences and businesses. Transportation during peak commute hours increases risks due to the increased surrounding population, increased accident potential during such hours, and the difficulty in obtaining emergency response through traffic congestion. Transportation through local, residential streets is unacceptable due to the risks posed to residents.

**S 5.5: Regulating Hazardous Waste Management Facilities.** Regulate the location and operation of hazardous waste management facilities through the issuance of a special use permit.

The development of hazardous waste management facilities which accept waste from off-site generators should require the issuance of a discretionary special use permit to allow for individual consideration of applications for new waste management facilities and their impacts on nearby land uses, transportation routes and the environment.

**S 5.6: Siting of Hazardous Waste Management Facilities.** Restrict the possible location of new hazardous waste management facilities to those areas designated on Figure S-5. Prohibit the location of residual repository and incineration facilities in the City of San Mateo due to proximity to residential uses. Consider allowing waste treatment, transfer and storage facilities in manufacturing districts only, and allowing waste transfer and storage facilities in service commercial districts. The location of waste management facilities in the City should be based on the ratings of area suitability contained in Appendix I.

The County HWMP has indicated fifteen areas within the City of San Mateo which are suitable for the location of new off-site hazardous waste management facilities based on siting criteria contained in the Plan. These areas are shown on Figure S-5, and are limited to manufacturing, service commercial and transit oriented development (formally service commercial) land use designations which would typically allow the types of businesses which use hazardous materials. In addition, the City has established a matrix of various constraints affecting these areas, and has rated the relative suitability of the areas as a guide to future applicants and decision-makers. This matrix is included as Appendix I.

**S 5.7: Design of Hazardous Waste Management Facilities.** Require the following features and mitigation measures in the design of proposed hazardous waste management facilities to minimize potential health, safety and aesthetic impacts on surrounding properties and occupants:

- a. For sites located in areas subject to flooding or inundation as shown on Figures S-3 & 4, require facilities to have a surface elevation at least 1.5 feet above the maximum flood water level for areas containing hazardous substances or to be flood-proofed in some other manner suitable to the City.
- b. Require facilities to provide for full on-site containment of maximum permitted quantities of hazardous substances, including protection of storm drain or sanitary sewer inlets from accidental entry of hazardous materials.
- c. Require facilities to provide separate storage and/or treatment of potentially reactive substances, including separate spill containment vessels. Require that storage of hazardous gasses provides for adequate filtration and neutralization devices to prohibit accidental release of toxic substances.
- d. Require that all storage and treatment occur within an enclosed structure.

The design of hazardous waste management facilities should mitigate many potential impacts of such facilities, including the possibilities of off-site chemical spills or gas releases, dangerous reactions of chemicals when accidentally mixed, or the entry of hazardous substances into the storm or sanitary sewer systems. To offer further protection from accidental release and as an aesthetic consideration, storage of hazardous materials should not be permitted outside a building.

**S 5.8: Risk Assessment.** Require the preparation of a risk assessment to determine site suitability for applications for hazardous waste management facilities, establishing the distance requirements from public assembly, residential or immobile population and recreational areas or structures; impacts from seismic, geologic and flood hazards; impacts on wetlands, endangered species, air quality and emergency response capabilities; and proximity to major transport routes.

The process for review of applications for hazardous waste management facilities requires the preparation of a risk assessment for consideration by the decision-making bodies to determine the suitability of the site for the proposed facility and necessary mitigation measures if the installation is permitted. The HWMP does not contain distance requirements for waste management facilities from sensitive land uses, such as residences or areas of assembly, due to differing characteristics of each waste management facility. Distance requirements for a facility which stores waste oil would be very different from a facility storing toxic gases. These distance requirements will have to be determined by the risk assessment, evaluating the specific facility proposed and the characteristics of the surrounding environment.

**S 5.9: Shared Data.** Maintain the sharing of County data on businesses which store hazardous substances with local emergency service providers, such as the Police and

Fire departments, as well as the Public Works Department for the wastewater source control program.

The first emergency units which would respond to a local emergency would be the San Mateo Police and Fire departments. These units should have adequate information sources to determine the location and types of hazardous substances which are likely to be encountered at commercial and institutional locations throughout the City. The Public Works Department would need to respond to hazardous substances that may impact the City's Wastewater Treatment Plant or stormwater drainage system.

**S 5.10: Contaminated Sites.** Require the clean-up of contaminated sites indicated on the Hazardous Waste and Substances Sites List published by the Department of Toxic Substance Control and/or the Health Department in conjunction with substantial site development or redevelopment, where feasible.

Sites within San Mateo which are contaminated with hazardous substances are threats to the quality of ground water aquifers and should be cleaned through decontamination of soils and filtration of ground water. Clean-up should be required in conjunction with redevelopment of the property or major expansions of existing uses.

**S 5.11: Cost Recovery.** Require San Mateo County businesses which generate hazardous waste or applicants for hazardous waste management facilities to pay necessary costs for implementation of the HWMP programs and for application costs, and to pay for costs associated with emergency response services in the event of a hazardous material release, to the extent permitted by law.

Provisions of State law allow for cost recovery for permitting and enforcement actions for hazardous waste generators and for costs associated with applications for new hazardous waste management facilities. Application costs for hazardous waste management facilities would include regulatory fees, license fees, fees relating to the environmental review process, costs of required public notice, costs of the citizens local advisory committee, and continuing monitoring fees. In addition, the costs associated with emergency response services, which might include spill containment, traffic control and area evacuation should be passed on to the business operator having responsibility for the hazardous material released.