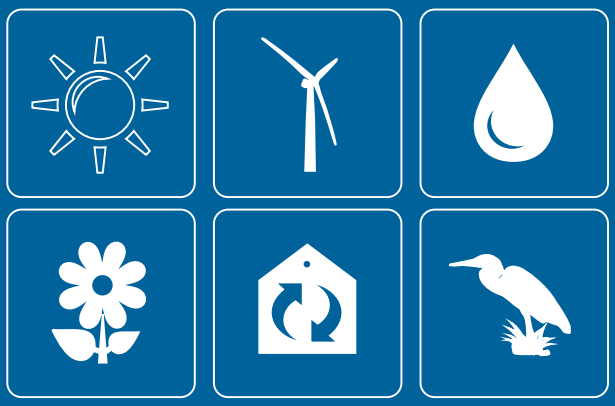

Conservation

Chapter 7

City of Fremont
General Plan

Adopted December 2011

CITY OF
Fremont

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Introduction

Natural Resource Protection is a Goal of the General Plan

The purpose of the Conservation Element is to provide a framework to help guide decision making in regards to the conservation, management and utilization of natural resources. The topics of this element overlap with other elements in the General Plan including Land Use, Public Facilities, Safety and Mobility. However, the Conservation Element distinguishes itself by being primarily oriented to the conservation of natural resources, including air and water quality protection, greenhouse gas reduction and energy conservation.

Balancing the natural environment with the built environment is a key goal of this element. Protection of natural resources is also important to the long term sustainability of the City. The Conservation Element is divided into five sections related to each of the following topical issues:

- Biological Resources
- Water Resources, Quality and Conservation
- Land Resources
- Air Quality (including Greenhouse Gas Emissions GHG)
- Energy Conservation and Renewable Energy

Legal Framework

The City has updated its Conservation Element of the General Plan in conformance with State law and the recommended guidelines published by the Governor's Office of Planning and Research. As required by Government Code Section 65302(d) every local government must maintain a comprehensive Conservation Element that addresses a variety of natural resources including water, wildlife, soils, minerals, energy, air quality and other natural resources. It must identify areas that accommodate floodwater in regards to stormwater management and groundwater recharge purposes. However, since those functions are primarily the responsibility of other public agencies, they are discussed in the Public Facilities Element.

Disclaimer

This Element provides a general overview of the City's natural resources. The identification of resources described in this document are based on background data, previously published reports and sources that were available at the time that it was prepared. Site specific analysis was not conducted for this work. This element should not be used for site-specific studies, but rather be used to identify areas in the City where detailed site-investigations should be required for new development or redevelopment.

Baylands

Biological Resources

Biological resources are the living components of the City's environment including all plants, animals and their habitats. This section of the Conservation Element focuses on Fremont's biological environment including 1) Physical Areas and Habitat Zones; 2) Habitat Restoration; and, 3) Urban Forest.

Physical Areas and Habitat Zones

The City of Fremont contains three distinct physical areas roughly corresponding to topography. These are the Baylands, Bay Plain, or flatlands, and the Hill Area. Each of these areas can be further subdivided into ecological "habitat zones" corresponding to vegetative cover and biotic features. While each habitat zone has been altered by urban development, each still includes some original habitat characteristics and supports a diversity of plant and animal species. Habitat zones as defined by their vegetative cover within the City are shown in Diagram 7-1. It is not possible to map the exact boundaries since the transitions between them are gradual and their edges have been modified by agriculture and urban development. The Baylands and Hill Area together comprise what has long been referred to as Fremont's "Open Space Frame". These sensitive areas are protected through public agencies or through voter passed initiative that will guarantee Fremont's Open Space Frame is maintained indefinitely.

Baylands

Fremont's Baylands are an internationally important natural resource due to their role in supporting birds migrating along the "Pacific Flyway," a migratory route encompassing the entire Pacific region of the Northern Hemisphere. The Baylands are also the home to several endangered species, including the California Least Tern, Salt Marsh Harvest Mouse and California Clapper Rail. The vast majority of Fremont's Baylands are either incorporated as salt concentration ponds or contained within the San Francisco Bay National Wildlife Refuge. This is the largest urban wildlife refuge in the United States and includes over 30,000 acres in the South San Francisco Bay, approximately half of which are in Fremont. The Federal government has identified another 2,300 acres of Fremont Baylands for possible incorporation into the Refuge as funding allows. The Baylands consist of six distinct habitat zones: open water, tidal wetlands, tidal mudflats, salt ponds, Coyote Hills/freshwater marsh, and lowlands.

Bay Plain (Flatlands)

The Bay Plain, or flatlands, is the area containing most of Fremont's urban development. The fertile alluvial soil of the Bay Plain and the gentle terrain made it ideal for agriculture and later for residential, commercial and industrial development. The area features natural and man-made creeks as well as lakes and riparian wetlands. There are primarily two types of habitat zones in the Bay Plain, landscaped areas and grassland areas. Landscaped areas include private gardens, landscape areas on improved property, parks, street landscaping and other public agency open spaces. Grassland areas include fallow areas, non cultivated grasslands and remnant agricultural areas.

Hill Area

Hill Area

The Hill Area on the eastern side of Fremont extends from the Bay Plain to over 2,500 feet above sea level at Mission Peak. The Hill Area is largely used for open space preservation, recreation and livestock grazing. It includes Mission Peak Regional Preserve and an area designated for the East Bay Regional Park District Vargas Plateau Regional Park. The Hill Area supports grassland, shrubland, and woodland habitat zones. The shrubland and woodland areas are generally found on northerly slopes and in canyons with grasslands located on the western slopes. Livestock grazing in the Hill Area is common.

The Hill Area is regulated by two voter passed initiatives (Measure A and Measure T) that limit the amount and type of development that can occur. The intent of these initiatives is to protect the hills from unnecessary development and to preserve its natural character. For this reason it is assumed that the Hill Area will be protected and preserved as natural habitat for plants and wildlife, and livestock grazing, over the time horizon of this General Plan.

Habitat Restoration Efforts

The City actively supports other agencies in restoration efforts of sensitive habitat and wetland areas. The Pacific Commons development project completed a large donation of land for habitat restoration and preservation. Other large parcels in the Baylands are targeted for future restoration and are sometimes considered for acquisition and/or donation. However, the largest ongoing restoration effort is the South Bay Restoration Project, an effort by the State of California and the Federal government to restore 15,100 acres of Cargill's former salt ponds in South San Francisco

Don Edwards
National Wildlife Refuge

Bay. The restoration project will provide habitat for endangered shoreline species and will also provide enhanced flood protection to Fremont and other local communities.

The Federal government is also seeking to acquire additional lands for incorporation into the Don Edwards National Wildlife Refuge as funding becomes available.

Urban Forest

Urban Forest

A healthy urban forest contributes to a sustainable city in a number of ways. Trees consume carbon dioxide (CO_2) (which is a greenhouse gas) and absorb air and water pollutants. They also provide shade (which reduces energy consumption), absorb runoff, reduce soil erosion, provide habitat for plants and animals, and make walking more pleasant. The City has approximately 46,000 trees in the right-of-way, and an additional 9,000 to 12,000 in medians, back-up lots, and parks. The responsibility of maintaining sidewalks and residential street trees falls under private property owners of adjacent lots.

Each year, the City plants and prunes trees to expand and maintain the urban forest. The City also has tree-planting requirements in parking lots to help offset air pollution from cars and reduce the heat island effect. Because of its emphasis on tree planting and maintenance, the City has been named a Tree City U.S.A. every year since 1996.

In addition, there are many thousands of trees in private yards across the City. These make an important contribution to the aesthetics of the City and the character of Fremont neighborhoods, as well as the natural environment. The City will continue to promote and emphasize a healthy urban forest.

Diagram 7-1 Vegetation Cover

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Water Resources, Quality and Conservation

Water is a necessity for human life. It is an aesthetic and recreational resource, and is essential for urban growth. Water also supports a variety of plant and animal habitats. Water is a limited resource, particularly in California, where demand may exceed supply during times of drought. Each of these characteristics of water must be considered and balanced in planning for its conservation and management. The topic of water is addressed in several of the General Plan Elements. Water supply and distribution, as well as flood management are addressed in the Public Facilities Element. Flood hazards are addressed in the Safety Element. The Conservation Element will discuss Fremont's:

- Water Resources
- Water Quality
- Water Conservation

The City coordinates regularly with the Alameda County Water District (ACWD). ACWD supplies water and provides water conservation education and services to southern Alameda County.

IN FREMONT…

- The highest recorded daily rainfall was 4.0 inches on January 10th, 1995.
- The wettest year on record was 1983, when rainfall totaled 31.5 inches.
- The driest year was 1959, when rainfall totaled 6.9 inches.

Lake Elizabeth

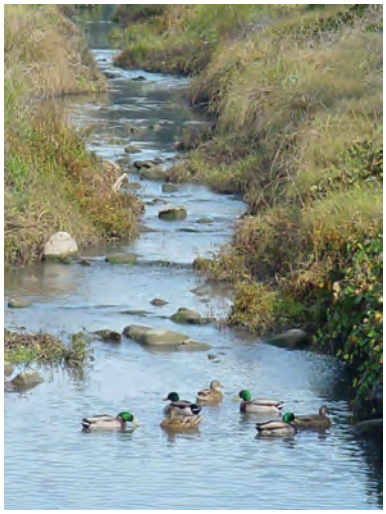
Water Resources

Watersheds

A watershed is an area of land, usually occurring between ridges or high-points that drains to a body of water such as a creek, stream, lake, or bay. Watershed also refers to the topographic divide between water basins. The watersheds of Fremont flow from east to west, from the hills to the freshwater wetlands, tidal marshes and sloughs of the Bay. Watersheds are shown in Diagram 7-2.

Surface Water

Surface water includes creeks, streams, drainage channels, ponds, lakes and other water on the surface of the land. The amount of water flowing on the surface depends on how much water soaks into the ground, which in turn is dependent on the characteristics of the soil and on the amount of land made impermeable by development (roads, roofs, parking lots, etc.). One of the most important water resources in Fremont is Alameda Creek for its biological value and role in recharging the groundwater basin. Other important surface water resources in Fremont include lakes



Surface Water

and ponds such as Lake Elizabeth and Quarry Lakes, salt ponds and San Francisco Bay.

Alameda Creek

Alameda Creek is the largest creek in Fremont and arguably the most important as it contributes to the City's domestic water supply and drains most of the southern Alameda County watershed. Fremont is located in the westernmost part of the Alameda Creek Basin which encompasses Union City and Newark as well as the Sunol Valley and the Amador-Livermore valleys of eastern Alameda County. The Alameda Creek watershed is over 630 square miles.

From the Sunol Valley, Alameda Creek flows through Niles Canyon and enters the Bay Plain in the Niles District near Mission Boulevard. Once in Fremont, much of the water in Alameda Creek is diverted into the Alameda Creek Quarry Lakes where it recharges the Niles Cone Groundwater Basins. Water not diverted into the Quarry Lakes flows in a northerly and then westerly direction and enters San Francisco Bay near the Fremont and Union City boundary.

Groundwater

Groundwater is water that has seeped into the ground from rainfall and surface waters and is stored underground in large naturally occurring basins. Fremont is underlain by the Niles Cone Groundwater Basin, which is a groundwater sub-basin of the larger Santa Clara Valley groundwater basin. The Hayward Fault intersects the easterly edge of the basin and interrupts groundwater flowing westward. This separates the basin into two zones, one above the Hayward Fault (AHF) and one below the Hayward Fault (BHF). The AHF zone has significantly higher ground water levels than the BHF. Depths of ground water vary throughout Fremont depending on location. For example, a depth of about three feet is common near the Bay and depths of 70 feet exist in the flatlands west of the Hayward Fault.

Fremont Water Resources are shown in Diagram 7-3.

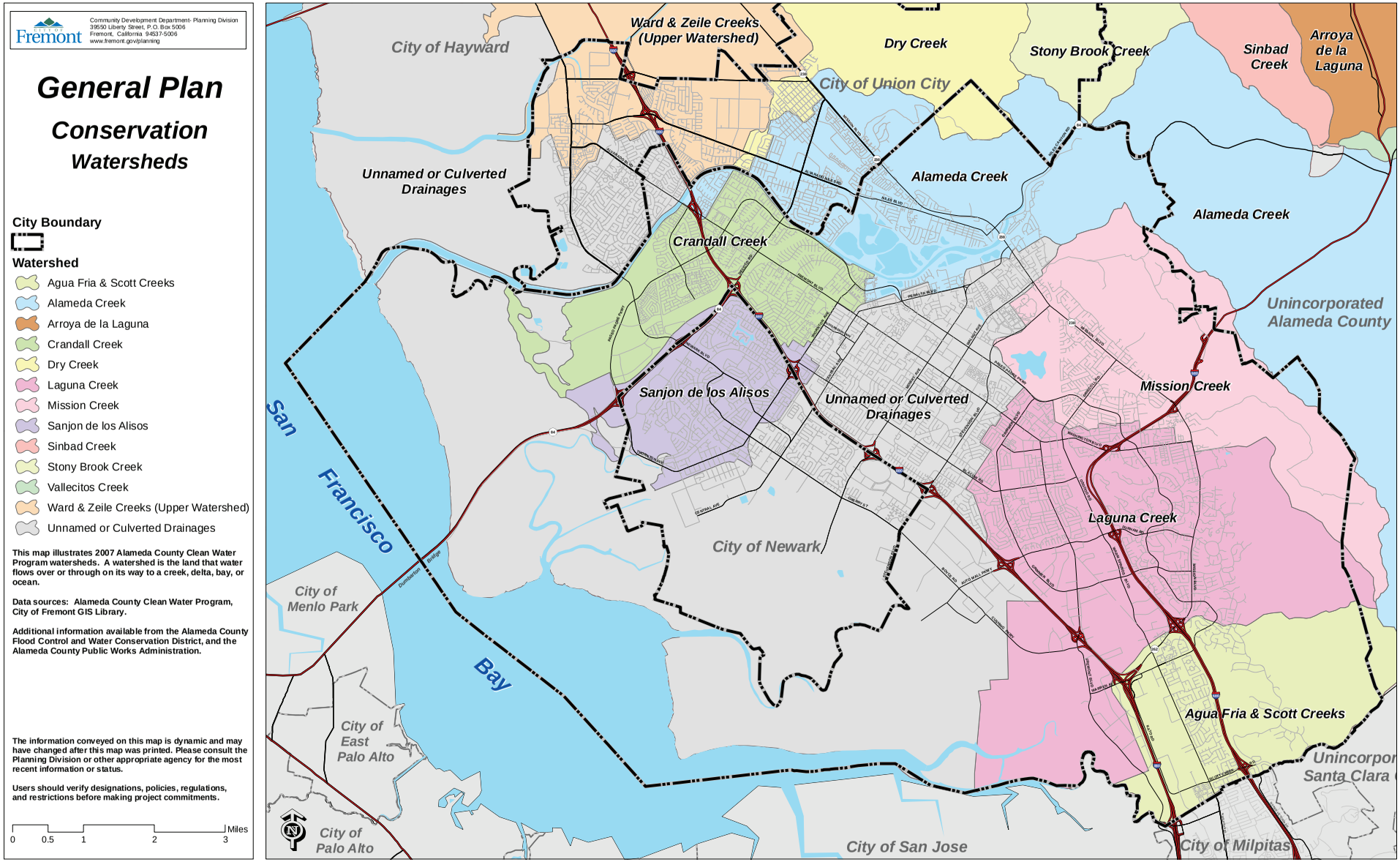


Diagram 7-2 Watersheds

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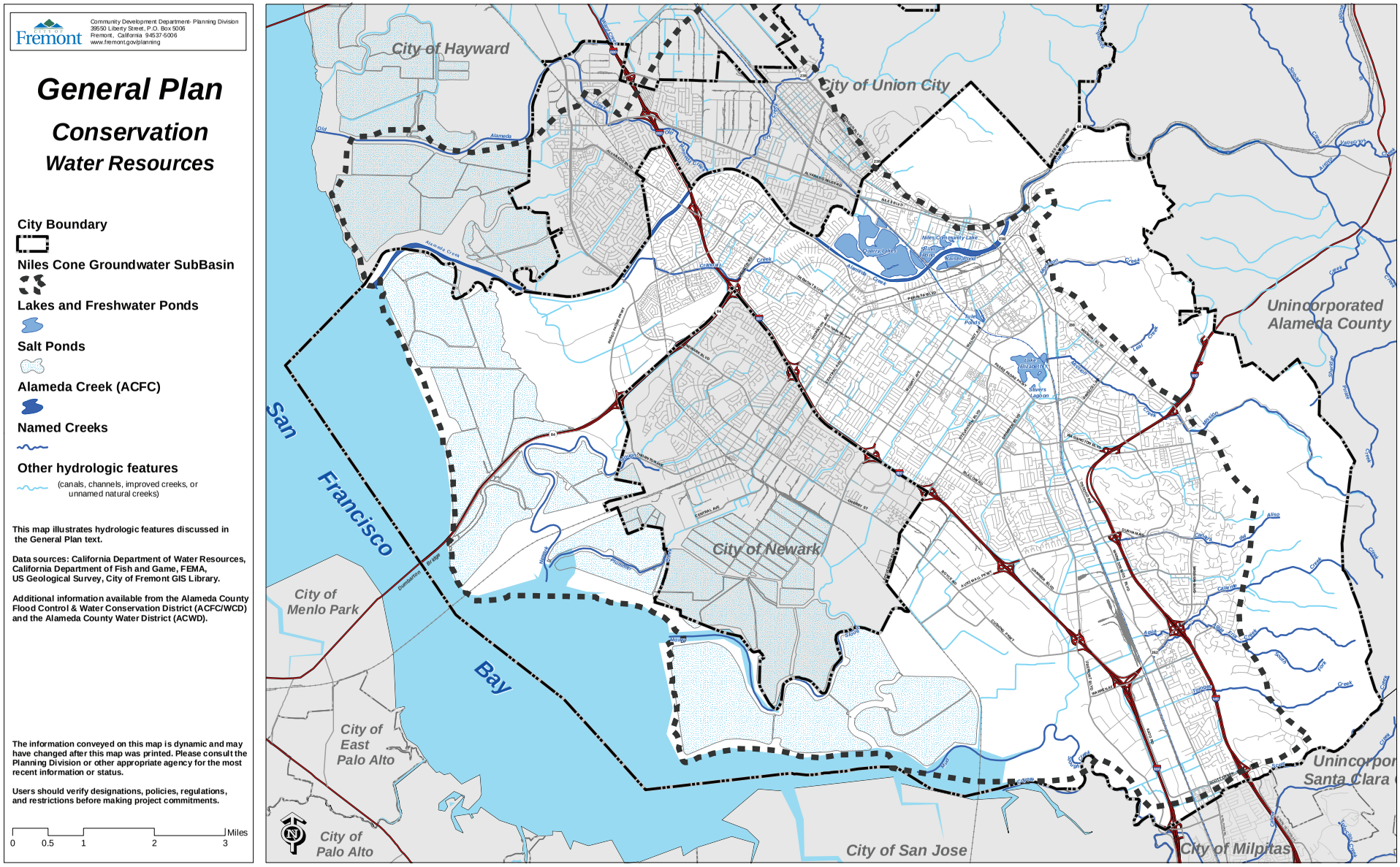

Diagram 7-3 Water Resources

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Water Quality

Water Quality Overview

Water quality can be affected by both land use and water use. Poor water quality can adversely impact natural resources, including streams, aquatic, coastal, terrestrial and marine ecosystems, and the plants and animals that depend on them. It can also affect public health.

The Federal Clean Water Act's 1987 Amendment requires that storm waste discharge from municipal storm drain systems be regulated under a nationwide surface water permit program referred to as the National Pollutant Discharge Elimination System (NPDES). Locally, the NPDES permit is regulated by the San Francisco Regional Water Quality Control Board (Water Board). Fremont is subject to this permit, which covers all 76 municipalities in Alameda, Contra Costa, San Mateo and Santa Clara Counties in addition to Vallejo and Fairfield-Suisun. The City's Environmental Service Division is responsible for managing the City's compliance with the NPDES permit. The Planning and Engineering Divisions are responsible for ensuring private development compliance with the permit.

The Environmental Services Division partners with the Alameda County-wide Clean Water Program (ACCWP) to accomplish some of the tasks mandated in the NPDES permit including ensuring private development complies with the permit. ACCWP is a collaborative association of the 17 municipalities and agencies within Alameda County formed for the purpose of NPDES permit compliance.

BAY STREET PARKING LOT

In 2007-08, the City of Fremont installed a public parking lot with a pervious parking surface that allows stormwater to soak into a storage area below the surface. This creates a sponge effect allowing the water to soak into the groundwater basin. Although maintenance for this type of parking lot differs from conventional maintenance, the benefit is reduced run-off and pollutants into the storm drain system and San Francisco Bay.

Pervious Pavement Demonstration

Irvington Creek

Fremont's Water Quality

Creeks

Water quality of Fremont's creeks is closely tied to the amount of development that occurs nearby. Any development adjacent to creeks has the potential to cause impacts resulting from contaminants in runoff and siltation, as well as impacts on the habitat areas surrounding the creek due to construction and development. Creeks in the Bay Plain are most susceptible to contamination from urban development and impacts from human activity and adjacent uses. Diligent requirements through the Alameda County Clean Water Program have improved water quality. The City continuously implements clean water programs and "creek clean-ups" to improve and sustain water quality of creeks in the Bay Plain.

The water quality of the creeks in the hills is difficult to measure. Since these creeks are intermittent and have not functioned as a domestic water source, water quality is not regularly tested. The passage of the Hill Area Initiative of 2002 severely limits the amount of development that may occur in the hills. This voter approved initiative was enacted to preserve the open, natural state of the hills and thus protects the watershed, including wildlife and creek habitat helping to preserve water quality. Pollution due to human activities is slight because there has been little urban development in the area. The main contaminants in these creeks likely results from cattle waste. Roads run along side some creeks such as Morrison Creek and Mission Creek. Runoff from these roads may contribute some pollution from heavy metals and petroleum hydrocarbons. These roads are also prone to illegal dumping. It is also possible that wastes leaching from improperly functioning septic systems may enter some streams in areas of the City where sanitary sewer service is not available.

Alameda Creek

Alameda Creek's water quality is of great importance to Fremont due to the role that it plays in the City's domestic water supply. Since 1962, imported water has been released through Alameda Creek to recharge and improve water quality in the Niles Cone Groundwater Basin.

Historically, the water quality of Alameda Creek has generally been good, although it is currently listed as an impaired water body on the 303(d) list of Impaired Water Bodies generated by the Water Board. The creek is listed as impaired due to high levels of diazinon and from trash. This indicates a flow of pollutants (such as pesticide-laden sediments) through runoff and leaking sewer lines. The effects of urban land use and grazing in the hills

has also affected Alameda Creek. For instance, grazing can lead to excessive sediment in the channel from bank and upland erosion, and it can also lead to high coliform bacteria counts from animal waste.

Water quality is also directly affected by water quantity in the Creek. Water quality varies depending on the time of year and the amount of rainwater and reservoir discharge flowing through the Creek. Water quality in the reservoirs tends to be high, so when this water is mixed with lower quality creek water, overall quality improves. The most serious concern for Fremont in regard to Alameda Creek is the potential degradation in water quality as a result of urban development in its watershed. Alameda Creek could also be polluted by a hazardous materials spill on adjacent roads, especially on bridges. This threat has been reduced on Niles Canyon Road by a State law prohibiting trucks carrying hazardous materials from using this route.

Quarry Lakes

Quarry Lakes are Operated by the East Bay Regional Parks District

Lakes and Ponds

Lake Elizabeth and its adjacent marshes and the Alameda Creek Quarry Lakes are all man-made. Man-made facilities tend to require careful management to avoid siltation, growth of invasive plants and algae, over-population by feral and non-native wildlife, and other problems. Water quality in Lake Elizabeth is generally good, but is affected by animal wastes, especially the bird population. Some runoff, carrying pollutants from the surrounding urban area, also enters Lake Elizabeth.

Ponds in Fremont include Shinn Pond, Kaiser Pond and the Tule Ponds near the Fremont BART Station. Water quality in the ponds within Fremont is generally considered good. Shinn and Kaiser ponds are located near Quarry Lakes and are used for passive recreation. Human activity is possible within close proximity of the pond which could impact water quality. The Tule Ponds near the BART Station in Central Fremont are secured and accessed only for environmental education purposes. The water quality of these ponds is good and provides a unique habitat surrounded by an urban environment.

San Francisco Bay

The Water Board has designated the lower San Francisco Bay as an impaired water body. The main source of contaminants into the Bay is non-point source pollution from urban runoff, air deposition, and point source discharges from sewage treatment plants and industrial users. There are no industries or sewage treatment plants in Fremont currently discharging directly into the Bay. Union Sanitary District in Union City services waste-

water for Fremont, Union City and Newark but discharges the wastewater into the Bay near the Oakland Airport.

Development and increased urbanization of the City contributes to poor water quality in the Bay through non-point source urban runoff. Urban runoff commonly contains toxic pollutants such as metals, pesticides, fertilizers, pet waste, trash and motor oil. Intentional or unintentional dumping of household waste into the storm drain system also contributes to pollutants in the Bay. As development continues in Fremont, it will be important to continue to address the problem of urban run-off and continually seek ways to minimize urban pollutants entering the storm drain system and ultimately the Bay.

Groundwater

The water quality in the groundwater system is characterized by fresh groundwater in the eastern portion of the Niles Cone Groundwater Basin transitioning into brackish groundwater in the western portion of the basin. The brackish groundwater is a result of historical seawater intrusion from the adjacent San Francisco Bay. Since the 1960s Alameda County Water District (ACWD) has managed the groundwater basin to prevent any additional seawater intrusion and has an on-going program to pump trapped brackish groundwater back to San Francisco Bay.

Since 2003, ACWD has been running a desalination facility to remove salts and other minerals from brackish groundwater. A series of wells has been constructed to stop the spread of saltwater, thereby reclaiming the basin for potable use. The brackish water withdrawn through the wells is treated at the desalination facility rather than returned to the Bay. The treated water is blended with the harder water pumped from other parts of the groundwater basin. Recent studies have shown that the use of the freshwater recharge ponds adjacent to Alameda Creek has been effective in reducing saltwater intrusion. The City of Fremont supports such efforts to maintain a healthy groundwater supply.

Water Conservation And Reclaimed Water

In California, fresh water is a precious commodity. Historically, ACWD has been able to secure sufficient water to meet the demands of a growing population. However, in its most recent 2010-2015 Urban Water Management Plan (UWMP), ACWD has included conservation as a significant component of its future water supply strategy, and conservation is likely to play an even larger role in the future. Not only does conservation reduce the need to secure expensive imported supplies, but it also has significant benefits from a carbon emissions standpoint, since water transport and pumping requires substantial amounts of energy.

The City has adopted a variety of water conserving measures in its own operations, including irrigation systems utilizing moisture sensors; use of drought tolerant landscaping where appropriate; and installation of artificial turf for playing fields. However, the City may be able to identify further opportunities for reductions in water usage through a closer examination of current consumption. The Conservation Element calls for the City to expand its water conservation efforts in the future.

Beyond municipal operations, the City also influences water usage in private developments through the development review process. By adopting green building measures that exceed Building Code requirements and by enforcing and periodically strengthening the City's Water Efficient Landscape Ordinance, new development will use water more efficiently than in the past. The City will continue to collaborate with ACWD to support ongoing efforts to make existing development more efficient in its use of water.

In addition to conservation, use of reclaimed water, either from treatment plants or from on-site grey water systems, can reduce the need to use fresh water for landscaping and other non-potable uses.

The City has for many years encouraged or required installation of "purple pipe" for reclaimed water as part of development projects in areas where ACWD and USD plan to deliver reclaimed water in the future. ACWD is also developing a non-potable water policy. The General Plan calls for encouraging the use of on-site grey water systems and utilizing reclaimed water for municipal uses where practicable.

THE LINK BETWEEN WATER AND GREENHOUSE GASES

Water use requires significant amounts of energy. Approximately one-fifth of the electricity and one-third of the non-power plant natural gas consumed in California are associated with water delivery, treatment and use. By reducing water consumption and by using reclaimed water that does not have to be shipped long distances, the community can reduce its greenhouse gas emissions.

SOIL TYPES

The U.S. National Resource Conservation Service (NRCS) has responsibility of mapping soil types and has identified approximately 50 different soil types in Fremont.

Land Resources

Land resources in Fremont can be classified as either Soil Resources or Mineral Resources. Soil resources are important in regards to their suitability to support urban development. Given the geologic conditions in Fremont, the evaluation of soils for this purpose is an important factor. Mineral resources have long been a part of Fremont's land resources. The City has many former quarries, salt ponds and other mineral deposits that have been mined and are considered an important resource in Fremont.

Soil Resources

Soil is the layer of weathered rock, organic matter and sediment on the surface of the land. The United States Department of Agriculture, Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) has mapped and interpreted the behavior of soils under various circumstances and examined their suitability for particular uses and activities. The interpretations most useful for planning and land use decisions are:

- Runoff potential
- Erosion hazard
- Depth to groundwater
- Shrinking and swelling behavior
- Suitability for agriculture
- Suitability for urban uses, including shallow excavations, sanitary landfills, septic tank absorption fields, roads and streets, dwellings and small commercial buildings.

Fremont Soils

Soils vary in structure, appearance, productivity, and management requirements. Environmental factors of topography, climate, plant types, and age influence soil formation. Soils in Fremont generally derive from the same parent material, the sedimentary rock that forms the East Bay Hills. The Hill Area has residual soils located atop the parent material. From the base of the hills to the Bay are alluvial soils deposited by streams and runoff descending from the hills.

Soils and Development

Soil types of all kinds are found in Fremont. The characteristics of specific soil types greatly affect their ability to support urban development. Some

soils require the implementation of special engineering techniques to avoid failure of foundations, premature cracking, splitting and settlement. Over time, soils characteristics can affect the construction of structures, the lifespan of structures, and other health and safety concerns associated with urban development. Limiting characteristics of soils on urban development can range from slight to severe. Slight limitations occur in soils that are generally favorable for development. These limitations can be easily addressed by planning and design techniques. Soils with moderate limitations are not as well suited for development but the limitations may be overcome by special planning and engineering design. The limitations of some soils are so severe that a major increase in construction cost, specialized engineering design and intensive maintenance may be required for urban development. In the most severe areas urban development may not be economically feasible. Depending on the location of proposed development, site specific analysis may be required.

Mineral Resources

Mineral resources within Fremont's city limits include construction aggregate (sand, gravel and crushed rock); salt; and other resources (clay, mineral springs, and limestone). These resources are designated by the State as regionally significant, however there are currently no active mining operations. Although there are no current extraction activities taking place in Fremont, land use decisions must balance mineral resource values with other priorities.

Construction Aggregate (Sand, Gravel, and Crushed Rock)

Production of gravel from crushed and broken stone is one of the oldest and most extensive industries in California. The primary source of construction aggregate in the Fremont region is Alameda Creek and its tributaries. Fremont has a long history of quarrying, however, these practices ceased within the City with the closure of Dumbarton Quarry in 2007. The City does not anticipate any further quarry operations. There are six mineral resource sectors in the City designated by the State Mining and Geology Board as containing regionally significant aggregate resources:

- Sectors H, I, and LL are in the Hill Area adjacent to public park lands and regional preserves.
- Sector K is west of Interstate 880 in the City's industrial area west of Pacific Commons adjacent to the San Francisco Bay National Wildlife

Salt Ponds in South San Francisco Bay

Refuge. A large portion of Sector K has been designated as seasonal wetlands and is under the jurisdiction of the Army Corps of Engineers.

- Sector L is on five parcels in northwestern Fremont over the area known as the Niles Cone Groundwater Basin that provides much of the area's water.
- Sector M is the former Dumbarton Quarry on the west side of Fremont, covering approximately 91 acres adjacent to Coyote Hills Regional Park on the north and the Dumbarton Bridge on the south.

Each of the sectors in the City is constrained by one or more environmental issues, including steep slopes, constrained access, visual/aesthetic impacts, water quality impacts, park/public facility impacts, seasonal wetland impacts, groundwater impacts, and impacts on historic or cultural sites. The City has not categorically excluded mineral resource development in these sectors, but it is not expected that extraction of these resources will continue due to the many environmental constraints. Mineral Resource Sectors are shown in Diagram 7-4.

Salt

Salt concentration ponds occupy about 9,000 acres in Fremont and San Francisco Bay and produce about 600,000 tons of salt per year. The salt ponds also provide important habitat for shorebirds and other wildlife. In October 2000, Cargill Salt, owner and operator of most of the salt ponds in Southern San Francisco Bay, proposed to consolidate its operations and sell 61 percent of its South Bay landholdings for permanent preservation through the South Bay Salt Pond Restoration Project. This would allow continued salt production through a smaller complex of ponds. In March 2006, 479 acres of ponds along the southern city limits were restored to full tidal inundation, initiating the project. Salt has a relatively high transport cost. For local industry that uses salt, continued local production is a resource of considerable value.

Other Mineral Resources

Other mineral resources in Fremont include clay, mineral springs and limestone deposits. Each is briefly discussed below.

- Clay - No detailed Statewide information on clay deposits and potential resources is available, although large reserves of miscellaneous clay appear to be present. A clay pit located at the terminus of Old Canyon Road in the northeast corner of the City was in operation for about 95 years as Mission Clay Quarry but is now idle. The quarry began operation in 1907. The final reclamation and grading plans were approved in 2010.

- Mineral Springs - Fremont has two hot mineral springs which have been identified by the United States Geological Service (USGS) as having regional significance. One is in a canyon north of the Niles area near a former rock quarry, and the other is at the historic Warm Springs Hotel-Stanford Winery complex in the Warm Springs area. No mineral or energy value has been identified for these springs, but any land use modifications in their vicinity would require a full evaluation.
- Limestone - The USGS has identified large quantities of limestone located within the City limits beneath the Bay itself. Limestone is a critical component of cement production. According to USGS, the entire South Bay floor may be underlain by quaternary sea shell deposits (limestone) to a magnitude of possible importance to the entire region. These deposits have been quarried in other portions of the Bay Area but are untouched in Fremont due to the proximity of the Don Edwards San Francisco Bay National Wildlife Refuge and to water quality protection issues.

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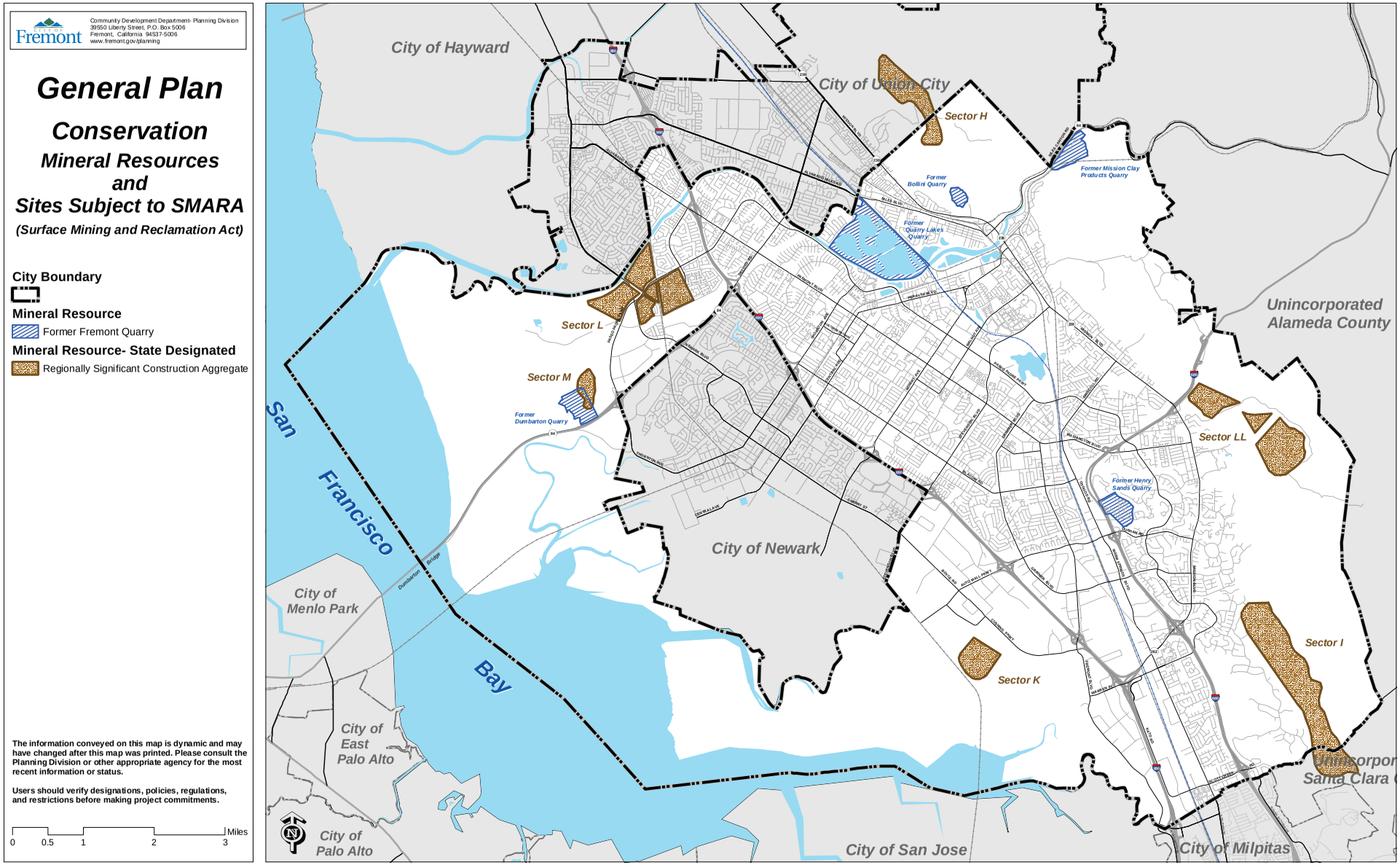

Diagram 7-4 Mineral Resources and Sites Subject to SMARA

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Air Quality

Fremont is located within the nine county San Francisco Bay Area Air Basin. The climate of Fremont is characterized by warm dry summers and cool moist winters. The proximity of the San Francisco Bay and Pacific Ocean has a moderating influence on the climate. Fremont is located in the climate sub region of the Bay Area known as Southwestern Alameda County. The Bay Area Air Quality Management District (BAAQMD) monitors air quality in the basin through a regional network of air pollution monitoring stations to determine if the national and State standards for criteria air pollutants and emission limits of toxic air contaminants are being achieved.

The Federal and California Clean Air Acts have established ambient air quality standards for different pollutants. The national ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants now include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), particulate matter with a diameter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). In 1997, EPA added fine particulate matter or $PM_{2.5}$ as a criteria pollutant. The air pollutants that standards have been established for are considered the most prevalent air pollutants that are known to be hazardous to human health.

State Regulations

The California Clean Air Act of 1988, amended in 1992, outlines a program for areas in the State to attain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The California Air Resources Board (CARB) is the state air pollution control agency and is a part of the California Environmental Protection Agency. The California Clean Air Act set more stringent air quality standards for all of the pollutants covered under national standards, and additionally regulates levels of vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. If an area does not meet CAAQS, CARB designates the area as a nonattainment area. The San Francisco Bay Area Air Basin currently does not meet the CAAQS for ozone, PM_{10} and $PM_{2.5}$. CARB requires regions that do not meet CAAQS for ozone to submit Clean Air Plans that describe measures to attain the standard or show progress toward attainment. CARB regulates the amount of air pollutants that can be emitted by new motor vehicles sold in California. Motor vehicle emissions standards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

The Bay Area Air Quality Management District (BAAQMD) is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

TOXIC AIR

Toxic Air Contaminant's are referred to as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act.

in California have always been more stringent than federal standards since they were first imposed in 1961. CARB has also developed Inspection and Maintenance (I/M) and "Smog Check" programs with the California Bureau of Automotive Repair. Inspection programs for trucks and buses have also been implemented. CARB also has authority to set standards for fuel sold in California.

Criteria Air Pollutants

Ambient air quality standards have been established by state and federal environmental agencies for specific air pollutants most pervasive in urban environments. These pollutants are referred to as criteria air pollutants because the standards established for them were developed to meet specific health and welfare criteria set forth in the enabling legislation. The criteria air pollutants emitted by development include:

- Ozone (O_3) and Ozone precursors
- Oxides of nitrogen and reactive organic gases (NOx and ROG)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Suspended particulate matter (PM_{10} and $PM_{2.5}$)

Other criteria pollutants, such as lead (Pb) and sulfur dioxide (SO_2), would not be substantially emitted by the proposed development or traffic, and air quality standards for them are being met throughout the Bay Area.

Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

TACs are a broad class of compounds known to cause morbidity or mortality (cancer risk), and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners).

Diesel exhaust is the predominant TAC in urban air, and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs. CARB reports that recent air pollution studies have shown that diesel exhaust and other cancer causing TACs emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines (diesel particulate matter [DPM]) was found to comprise much of that risk.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind, the pollution can persist for many hours, especially in sheltered valleys during winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

Asbestos has also been identified as a TAC by CARB, and all types of asbestos are hazardous, since they can cause lung disease and cancer. Although asbestos is present in some man-made products (e.g., heat-resistant insulators, cement, furnace or pipe coverings, etc.), it is also naturally-occurring in ultramafic rock (including serpentine) and near fault zones.

Sensitive Receptors

"Sensitive receptors" are defined as facilities where sensitive population groups, such as children, the elderly, the acutely ill and the chronically ill, are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals and medical clinics. Special considerations are necessary to protect these uses and groups from poor air quality.

Existing Air Quality

Air quality in the region is controlled by the rate of pollutant emissions and meteorological conditions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in

air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. BAAQMD monitors air quality conditions at about 30 locations throughout the Bay Area, including a station in Fremont. Table 7-1 summarizes state and federal standards at the Fremont monitoring site and throughout the Bay Area.

Table 7-1
Summary of Criteria Air Pollution Monitoring Data

Pollutant	Standard	Monitoring Site	Days Standard Exceeded		
			2007	2008	2009
Ozone	State 1-Hour	Fremont	0	1	4
		SF Bay Area	4	9	11
Ozone	Federal 8-Hour	Fremont	0	1	0
		SF Bay Area	1	12	8
Ozone	State 8-Hour	Fremont	0	3	2
		SF Bay Area	9	20	13
PM_{10}	Federal 24-Hour	Fremont	0	*	*
		SF Bay Area	0	0	0
PM_{10}	State 24-Hour	Fremont	1	*	*
		SF Bay Area	4	5	1
$PM_{2.5}$	Federal 24-Hour	Fremont	2	0	1
		SF Bay Area	14	12	11
Carbon Monoxide	State/Federal 8-Hour	Fremont	0	0	0
		SF Bay Area	0	0	0
Nitrogen Dioxide	State 1-Hour	Fremont	0	0	0
		SF Bay Area	0	0	0

NOTES:
PM_{10} and $PM_{2.5}$ are measured every sixth day in Fremont and other Bay Area sites, so the number of days exceeding the standard is estimated.
* PM_{10} monitoring was discontinued at Fremont on June 30, 2008
In 2006, the $PM_{2.5}$ standard was changed from 65 µg/m3 to 35 µg/m3
Source: Bay Area Air Quality Management District Air Pollution Summaries

The monitoring data from 2007 through 2009 shows that air quality as a result of exceeding O_3 and $PM_{2.5}$ and PM_{10} standards are problematic in the San Francisco Bay Area. In recent years, the State O_3 standards have been exceeded at least somewhere in the Bay Area on 4 to 20 days per year. The O_3 standards have been exceeded on 0 to 4 days in Fremont during the last 3 years. Some other stations in the Bay Area have experienced more frequent increases, since they lie downwind of air pollution sources and have lighter winds.

PM_{10} is just as problematic in the Bay Area, where exceeding state standards are estimated at over 15 days per year. However, the federal PM_{10} standard has not been exceeded. In 2006, U.S. EPA reduced the 24-hour $PM_{2.5}$ standard to 35 micrograms per cubic meter. Statistics on the number of days exceeding this standard have only been kept since 2006. The Bay Area has exceeded this standard on 10 to 14 sampling days per year. Monitoring of $PM_{2.5}$ in Fremont shows there were 3 days in 2007 through 2009 where the concentrations were above the standards. Standards for CO and NO_2, or any other criteria air pollutant, are not exceeded anywhere in the Bay Area.

Existing TAC Exposure

According to the BAAQMD, the Bay Area as whole had a median inhalation cancer risk from ambient TAC concentrations of 500 in one million. A map of the 2005 Cancer Risk from the major TACs emitted in the Bay Area indicate cancer risk ranges from 300 to 400 excess cancer cases per million people west of I-880 to 500 to 600 excess cases per million in the industrial portions of Fremont between I-880 and I-680. While CARB conducts air monitoring of TACs, much of the risk is made up of diesel particulate matter, or DPM. Because there are no reliable methods to measure DPM, the estimates of cancer inhalation risk are based on modeling studies periodically conducted by CARB or BAAQMD. According to the findings of BAAQMD's Community Air Risk Evaluation (CARE) program in 2004, DPM accounted for over 80 percent of the inhalation cancer risk from TACs in the Bay Area.

Construction Exhaust Emissions

Construction activities would be a source of exhaust emissions from construction vehicles.

Exhaust from construction equipment and associated heavy-duty truck traffic emits diesel particulate matter, which is a known Toxic Air Contam-

inant. Diesel exhaust in the form of diesel particulate matter or DPM is a TAC. Use of heavy-duty equipment in close proximity to sensitive receptors may cause significant exposures of persons to TACs or $PM_{2.5}$. Currently, the BAAQMD recommends that exposure to TACs from construction activity should be based on cancer risks, chronic non-cancer risks and $PM_{2.5}$ exposures. Use of newer construction equipment along with mitigation measures can greatly reduce exposures to sensitive receptors near construction sites.

Railroad Emissions

Potential community risk impacts from diesel emitting railroad traffic in Fremont is also a source of TACs. The Centerville rail line is the busiest in Fremont, as it is used by trains for passenger and freight service. Along this rail line, there are up to 14 Capitol Corridor (CC) trains daily, 8 Altamont Commuter Express (ACE) trains per weekday, and about 8 daily freight trains. The volume of train activity, operating characteristics, and rail line orientation has a considerable effect on the level of community risk.

Stationary Source Emissions

The City of Fremont has numerous permitted stationary sources. These sources are located throughout the City, but mostly in industrial and commercial areas. The impact of these sources can only be addressed on a project-by-project basis, since impacts are generally localized. Examples of stationary sources include industrial facilities, gas stations, dry cleaners, and back-up generators.

Greenhouse Gas Emissions (GHG)

Unlike emissions of criteria pollutants and toxic air pollutants, which have local or regional impacts, emissions of GHGs have a broader, global impact. Global warming is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the earth's atmosphere. The principal GHGs contributing to global warming are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. These gases allow visible and ultraviolet light from the sun to pass through the atmosphere, but they prevent heat from escaping back out into space, a process known as the "greenhouse effect". Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate.

According to the Intergovernmental Panel on Climate Change (IPCC), it is extremely unlikely that global climate change of the past fifty years can be explained without the contribution from human activities. The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 parts per million (ppm) to 379 ppm in 2005. Previous scientific assessments assumed that limiting global temperature rise to 2-3°C above pre-industrial levels would require stabilizing greenhouse gas concentrations in the range of 450-550 ppm of carbon dioxide-equivalent (CO_2e). Recent scientific assessments suggest that global temperature rise should be kept below 2°C by stabilizing greenhouse gas concentrations below 350 ppm CO_2e, a significant reduction from the current level of 385 ppm CO_2e.

EXAMPLES OF GREENHOUSE GAS SOURCES

Carbon dioxide (CO_2) - Fossil fuel combustion in stationary and point sources; Emission sources includes burning of oil, coal, gas.

Methane (CH_4) - Incomplete combustion in forest fires, landfills, and leaks in natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, and certain industrial processes.

Nitrous oxide (N_2O) - Fossil fuel combustion in stationary and point sources; other emission sources include agricultural soil management, animal manure management, sewage treatment, adipic acid production, and nitric acid production.

Chlorofluorocarbon (CFC), and **Hydro-chlorofluorocarbon (HCFC)** - Agents used in production of foam insulation; other sources include air conditioners, refrigerators, and solvents in cleaners.

Sulfur hexafluoride (SF_6) - Electric insulation in high voltage equipment that transmits and distributes electricity, including circuit breakers, gas-insulated substations, and other switchgear used in the transmission system to manage the high voltages carried between generating stations and customer load centers.

Perfluorocarbons (PFC's) - Primary aluminum production and semiconductor manufacturing.

ASSEMBLY BILL 32 – THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

In 2006, the Governor of California signed into law Assembly Bill (AB) 32, the Global Warming Solutions Act. The Act requires that California cap its GHG emissions at 1990 levels by 2020. This legislation requires CARB to establish a program for statewide GHG emissions reporting, and monitoring/enforcement of that program. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. CARB has estimated the 1990 statewide emissions level to be 427 million metric tons of CO_2e. Meeting the reduction targets of AB 32 will, therefore, require a reduction of almost 30 percent of the emissions that would otherwise be anticipated in 2020.

California Emissions Inventory

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural sectors. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2002–2004, accounting for 38 percent of total GHG emissions in the state. This sector was followed by the electric power sector including both in-state and out-of-state sources (18 percent) and the industrial sector (21 percent).

California produced 474 million gross metric tons (MMT) of CO_2e averaged over the period from 2002–2004. CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 23 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. Expressing emissions in CO_2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Effects of Climate Change

Among the potential implications of global warming are rising sea levels, and adverse impacts to water supply, water quality, agriculture, forestry, and habitats. In addition, global warming may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health. Details of these changes in California include:

- Mean annual temperature increases from 2 to 6 degrees C. California's complex terrain will modulate the temperature gains locally.
- Unknown change to annual precipitation total, but an increase in extreme wet and dry conditions is expected. More precipitation will fall as rain than snow in the middle elevations of the mountains.
- Decreased seasonal snowpack accumulation, particularly in the northern Sierra (up to 90 percent by 2100) and earlier melt time.
- Less mountain block recharge from snowpack expected, with possible implications for long-term support of regional aquifers.

- Annual runoff concentrated more in winter months, with more variability and greater extremes.
- Sea level rise up to 55 inches by 2100, with the potential for higher rises if ice sheets collapse.
- Ecosystem challenges increased due to exacerbation of existing threats from above changes.

Fremont GHG Reduction Strategy

The City has established the goal to reduce greenhouse gas emissions 25% below 2005 levels by 2020. This reduction of around 417,000 metric tons of CO_2e ($MTCO_2e$), compared to the 2005 level of 1,665,289 $MTCO_2e$, would result in year 2020 emissions of around 1,249,000 $MTCO_2e$. The City will implement a variety of measures and programs to help achieve this goal with an emphasis on linking land use and transportation in more strategic fashion to reduce vehicle miles traveled (VMT), encouraging green building technologies in new development and redevelopment, instituting energy and water conservation programs, and a variety of other programs to reduce solid waste and promote a healthy urban forest. See the Sustainability Element for a more detailed description.

The City completed a baseline greenhouse gas emissions inventory in May 2008. The inventory indicated that the community emissions for 2005 (the base year that was evaluated) totaled approximately 1.7 million metric tons of CO_2e, of which 60% was generated by transportation, including vehicles traveling on Interstates 680 and 880. The commercial/industrial sectors generated 22% of emissions, while the residential sector generated 15%. The remaining 3% was generated by waste. Fremont's municipal government operations generated about 7,400 $MTCO_2e$, or less than one half of one percent of the total community emissions. Table 7-2 summarizes this information along with "business as usual" 2020 projected GHG emissions (i.e. if no reduction programs were implemented along with projected growth). About two-thirds of the transportation-related emissions were related to State highways over which the City has no regulatory authority, highlighting the importance of statewide strategies to reducing GHG emissions in Fremont.

Table 7-2
Greenhouse Gas Emissions Inventory

2005 City of Fremont Greenhouse Gas Emissions			2020 Projected "Business as Usual" Greenhouse Gas Emissions		
Source	**$MTCO_2e$**	**Overall Percentage**	**Source**	**$MTCO_2e$**	**Overall Percentage**
Residential Uses	245,353	14.7%	Residential Uses	269,421	13.6%
Commercial Uses	350,525	21.0%	Commercial Uses	377,012	19.1%
Industrial Uses	7,861	0.5%	Industrial Uses	8,458	0.4%
Transportation Uses	1,005,281	60.4%	Transportation Uses	1,258,416	63.7%
Waste	56,269	3.4%	Waste	61,789	3.1%
Total	**1,665,289**	**100%**	**Total**	**1,975,096**	**100%**

Source: 2005 ICLEI Greenhouse Gas Emissions Report and Forecasting Tool with 2009 ABAG data. Note: Figures have been modified from the 2005 report to reflect the international reporting standard of 'metric tons of carbon dioxide equivalent' ($MTCO_2e$).

City of Fremont Climate Action Plan

The City's Climate Action Plan (CAP) outlines strategies and provides tools and encouragement for residents and local businesses to reduce GHG emissions. The CAP was drafted in conjunction with the General Plan Update. The CAP includes a GHG emissions inventory from the year 2005 and sets forth an aspirational GHG reduction target of 25 percent below the 2005 baseline by the year 2020.

Rather, the CAP is a menu of strategies that the City will implement over time: some in the near term (1-3 years), some in the medium term (3-5 years), and some in the long term (beyond 5 years). The CAP is intended to be updated and refined every five years as best practices evolve and quantitative approaches to GHG inventorying and modeling become more sophisticated.

City of Fremont Green Building Requirements

"Green building" is the practice of decreasing a building's demand for energy, water, and other materials and reducing a building's negative impacts on human health and on the local environment. According to the U.S. Green Building Council (USGBC), buildings annually consume more than 30 percent of the total energy and 60 percent of the electricity used in the United States.

In 2006, the City adopted a Sustainability Policy that called for all new City buildings over 10,000 square feet in size to be designed and built to qualify for LEED Silver certification. In October 2010, in connection with the adoption of the California Green Building Code, the City chose to also adopt the optional Tier 1 standards for residential construction. As a substantially equivalent alternative, home builders can opt to certify (through an independent third party) that their projects achieve 50 points on the Green-Point Rated system developed by Build-It-Green.

City of Fremont Solid Waste Diversion Goal

In 1999, the City of Fremont City Council adopted a goal to divert 75 percent of solid waste generated in Fremont from the landfill, far exceeding the statewide requirement of 50 percent. Since adopting the more aggressive goal, the City has made steady progress; in 2009, the City diverted 71 percent of the community's solid waste from the landfill.

BTU's

A common measure of energy is the British thermal unit or BTU. One BTU is the amount of energy required to raise the temperature of one pound of water one degree Fahrenheit.

Energy Conservation & Renewable Energy

Greenhouse gases are released during energy production and consumption, such as electricity used to power homes and businesses, and fuel used to power cars and trucks. Reducing the carbon content of the fuel source (e.g. solar or wind power versus fossil fuels) or reducing energy consumption (e.g. using energy efficient appliances or designing buildings for solar access) may limit negative impacts resulting from global climate change.

Executive Order S-14-08 signed by the Governor in 2009 increased California's Renewable Portfolio Standard (RPS). Prior to the Executive Order, the RPS mandated that 20% of the power provided by California utilities in 2020 would come from renewable sources. The Executive Order increased this requirement to 33% by the year 2020. In 2007, PG&E generated approximately 12% of its energy from qualified renewables.

Solar Energy Panels

This was the highest percentage for any utility in the United States, and the increase to 33% will significantly reduce greenhouse gas emissions associated with consumption of electricity in Fremont and the rest of California.

The City's efforts to make its own buildings more energy efficient are described in the Public Facilities Element. The City also influences energy efficiency by maintaining and applying standards in building construction and by encouraging energy efficient site design and landscaping. The State of California Building Code requires energy efficiency design through its Title 24 regulations; however, a city can augment these regulations with local standards that further increase energy efficiency.

In addition to efficiency, the City can also reduce greenhouse gas emissions by promoting use of renewable energy sources, such as solar and wind power, by homeowners and businesses. The City has previously taken actions such as reducing permit fees for installation of solar and establishing a financing district that allows property owners to finance installation of solar (or possibly energy conservation measures) to be repaid through an annual assessment on their property. Additional actions that could promote use of renewables include allowing solar shade structures in parking lots to substitute for tree planting requirements; providing clear guidelines regarding installation of small-scale wind turbines in residential and commercial construction; and promoting or requiring use of solar energy to heat swimming pools.

Energy use is also directly correlated to land use and transportation choices. Goals and policies in the Land Use, Mobility, Economic Development, Parks and Recreation, and Public Facilities Elements encourage a local balance of jobs and housing, promote the proximity of shopping, recreational, childcare and other uses to residential areas in order to minimize the number and distance of vehicle trips, encourage higher intensity uses near transit to reduce dependence on the automobile, and encourage the use of alternative transportation modes such as transit, walking and bicycling.

Goals, Policies and Implementing Actions

Goal 7-1: Biological Resources

A thriving natural environment with protected habitat that enhances the biological value of the City and preserves the open space frame.

• Policy 7-1.1: Preservation of Natural Habitat

Preserve and protect fish, wildlife, and plant species and their habitats including wetlands, creeks, lakes, ponds, saltwater bodies and other riparian areas. Maintain these areas for their critical biological values and to help improve water quality.

> Implementation 7-1.1.A: Protect Riparian and Wetland Areas

Preserve and minimize impacts to natural and semi-natural wetland areas, including riparian corridors, vernal pools and their wildlife habitat through the development and environmental review process. Riparian areas and wetlands should be protected and/or restored as project amenities. Require mitigation for potential significant environmental impacts on riparian areas from development.

> Implementation 7-1.1.B: Evaluate Development near Bodies of Water

Evaluate development within 100 feet of the top of bank of riparian areas and water bodies, including creeks, lakes, ponds, marshes, and vernal pools. This distance shall be increased to 200 feet in areas above the toe of the hill (TOH). Carefully assess the extent and characteristics of riparian corridors and creeks to a minimum distance of 100 feet from the top of bank below the toe of the hill and 200 feet from the top of bank above the toe of the hill. Consider the full spectrum of habitat needs for vegetation and wildlife in environmental assessments of these areas.

> Implementation 7-1.1.C: Control Measures to Limit Soil Erosion

Implement control measures in riparian areas to prevent soil erosion and minimize runoff of excess nutrients, sediments and pesticides. Provide for maximum retention of natural vegetation and topographic features adjacent to the buffer described in Implementation 7-1.1.B.

> Implementation 7-1.1.D: Conservation of Habitat and Natural Areas

Require conservation, protection and/or revegetation of habitat and natural areas for nesting, foraging and retreat for projects that impact such areas.

• Policy 7-1.2: Protection of Species

Preserve and protect rare, threatened, endangered and candidate species and their habitats consistent with State and Federal law.

> Implementation 7-1.2.A: Creation of Habitat Protection Areas

Work with public and private entities to establish habitat protection areas to provide habitat for rare, threatened, endangered or candidate species. Designate these areas as open space and regulate development within these areas

> Implementation 7-1.2.B: Weed Abatement

Develop regulations that address the habitat impacts from weed abatement and the draining and disking of fields, grasslands, wetlands and other potential wildlife habitat areas.

> Implementation 7-1.2.C: Limit Development in Habitat Protection Areas

Evaluate and limit development near designated habitat protection areas unless sufficient mitigation can be provided to reduce impacts to insignificant levels.

> Implementation 7-1.2.D: Mitigation of Special Status Species

When off-site mitigation is required for special status species, require that mitigation be provided within the City of Fremont to the maximum extent practical. If not practical in the City of Fremont require mitigation in Alameda County, followed by the nine-county Bay Area.

• Policy 7-1.3: Preservation of Hill Areas

Preserve and protect the Hill Area woodlands and vegetative areas, especially along the ridgeline, in canyons and on vegetated north facing slopes.

> Implementation 7-1.3.A: Hillside Initiatives

Continue to implement the Hillside Initiative (Measure A-1981) and the Hill Area Initiative (Measure T–2002) and enforce regulations related to Hill Area development.

See also the Community Plan Element for specific goals and policies for the Hill Area.

• Policy 7-1.4: Open Space Frame

Maintain and expand the Open Space Frame.

> Implementation 7-1.4.A: Limit Development of Open Space

In lands outside of the urban growth boundary regulate the type and amount of development to preserve open space characteristics and values while considering the needs of private property owners and public or quasi-public agencies.

See the Land Use Element for additional goals and policies related to Open Space.

• Policy 7-1.5: Promotion of Interagency Coordination

Promote interagency coordination for the protection and preservation of biological resources.

> Implementation 7-1.5.A: Maximizing Use of Public Lands

Maximize the biological values of publicly owned lands, consistent with other public purposes (recreation, flood control, groundwater recharge, etc.) when opportunities for preservation occur.

> Implementation 7-1.5.B: Preparation of Habitat Conservation Plans

Coordinate with other public agencies such as the Alameda County Flood Control and Water Conservation District, the Alameda County Water District, East Bay Regional Park District and Don Edwards National Wildlife Refuge to prepare habitat conservation plans (HCP) for publicly owned unique natural areas.

> Implementation 7-1.5.C: Preservation of Wetlands in Creek and Flood Areas

Encourage the Alameda County Flood Control and Water Conservation District and the Alameda County Water District to preserve, enhance, and restore wetlands that are under their jurisdiction.

• Policy 7-1.6: Educate Residents about Local Natural Resources

Promote public education, environmental programs and stewardship of natural resources within the City.

> Implementation 7-1.6.A: Education Programs

Continue to lead education programs in biology and natural resources to aid in the understanding of the natural environment.

> Implementation 7-1.6.B: Natural Interpretative Centers

Maintain and increase natural interpretative centers in City and Regional Parks, where appropriate and when funding is available.

> Implementation 7-1.6.C: Education Programs with Other Agencies

Work closely with other agencies such as the East Bay Regional Park District, the US Fish and Wildlife Service, the California Department of Fish and Game, and the Fremont Unified School District in developing mutually beneficial public education programs.

> Implementation 7-1.6.D: Sharing of Lands for Education

Whenever feasible, establish agreements with other agencies for the use of lands owned by other public agencies for natural education purposes.

> Implementation 7-1.6.E: Media Outreach

Promote environmental programs and educational opportunities through mass media efforts such as films, video and television, internet publications and newsletters.

• Policy 7-1.7: Mitigate Development Impacts

Mitigate the impacts of development on the natural environment to the extent possible through sound planning, design, and management of development projects.

> Implementation 7-1.7.A: Evaluate Projects with CEQA

Evaluate development projects for impacts to the natural environment per the California Environmental Quality Act (CEQA) and require measures to mitigate potential impacts to less than significant levels.

• Policy 7-1.8: Urban Forest

Promote and protect the City's urban forest and maintain healthy tree resources within the City.

> Implementation 7-1.8.A: Tree Master Plan

Prepare a Tree Master Plan to promote healthy tree resources in the City and to identify tree species along various corridors in the City.

> Implementation 7-1.8.B: Monitor Tree Resources

Actively monitor the City's tree resources for disease and impaired growth and replace as required.

> Implementation 7-1.8.C: Residential Tree Planting Program

Encourage property owners to preserve and care for trees on their property and to plant additional trees in appropriate locations.

> Implementation 7-1.8.D: Tree Preservation Ordinance

Enforce the City's Tree Preservation ordinance and continue to make information regarding the ordinance easily available to the public and development community.

> Implementation 7-1.8.E: Tree Removal Requests

Continue to carefully review tree removal permit requests for conformance with City removal criteria (i.e. fire or safety risk, state of disease).

> Implementation 7-1.8.F: Encourage Planting of Native Trees

Encourage planting of native tree species in new development and redevelopment projects and the replacement of native trees when trees are proposed for removal. In particular, encourage tree planting near structures to shade buildings and reduce energy requirements.

> Implementation 7-1.8.G: Landmark Tree Program

Maintain and expand the Landmark Tree Program to protect locally significant tree resources and include other trees if they meet eligibility requirements.

Goal 7-2: Water Resources

A protected water resource system that offers natural habitat and enhances the biological value of the City

• Policy 7-2.1: Preservation of Water Resources

Water resources such as the Niles Cone Groundwater Basin, wetlands, flood plains, recharge zones, riparian areas, open space and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat, and overall long term water resource sustainability.

> Implementation 7-2.1.A: Development Near Riparian Areas

Require proposed projects near riparian areas to protect the aesthetic, recreational and biological benefits consistent with flood control and recharge objectives.

> Implementation 7-2.1.B: Creek Master Plans

Where funding is available, develop master plans for creek watersheds. Where such plans already exist, such as for Laguna Creek, continue to implement the plan.

• Policy 7-2.2: Low-Impact Hill Area Development

Minimize the impact of Hill Area development on creeks and riparian areas.

> Implementation 7-2.2.A: Enforce the Hill Area Initiative of 2002 (Measure T)

Enforce the Measure T and the California Environmental Quality Act to ensure that Hill Area development is planned to limit negative impacts to creeks and adjacent riparian areas.

See Appendix A for the full text of Measure T.

• Policy 7-2.3: Niles Cone Groundwater Basin Maintenance

Maintain the Niles Cone Groundwater Basin as a reliable water source.

> Implementation 7-2.3.A: Protect Ground Water Resources

Work with ACWD to develop, implement and/or maintain policies to protect ground water sources.

Goal 7-3: Water Quality

High quality water protected from pollutants and managed to improve the quality of the San Francisco Bay and groundwater resources

• Policy 7-3.1: Protect and Improve Water Quality

Protect and improve water quality in all Fremont's creeks, streams, water courses and water bodies.

> Implementation 7-3.1.A: Limit Projects that Decrease Water Quality

Review projects in watershed areas that would negatively impact water quality and require appropriate mitigation.

> Implementation 7-3.1.B: Protection of Niles Canyon

Continue to support regulations barring the transportation of hazardous materials through Niles Canyon.

> Implementation 7-3.1.C: Maximize Use of Quarry Lakes

Support ACWD and EBRPD to maximize the recreational and habitat values of the Alameda Creek quarries, consistent with recharge needs.

• Policy 7-3.2: Groundwater Resources

Protect groundwater from contamination, specifically, the Niles Cone Groundwater Basin.

> Implementation 7-3.2.A: Prevent Spills and Leakages

Manage the storage of hazardous materials, especially underground tanks to ensure leakage and spills are prevented or minimized.

> Implementation 7-3.2.B: Establish Buffers

Consider the establishment of buffers between development and surface water recharge areas to prevent contamination of the groundwater supply from urban pollutants.

> Implementation 7-3.2.C: Review Water Quality Annual Reports

Review annual reports from ACWD regarding of water quality in the Niles Cone Groundwater Basin.

> Implementation 7-3.2.D: ACWD Coordination

Continue to notify ACWD of any pending development proposals which could have a negative impact on groundwater.

• Policy 7-3.3: Enforce Water Quality Requirements

Enforce Federal, State and locally issued mandates regarding water quality such as the National Pollutant Discharge Elimination System (NPDES) permit requirements.

> Implementation 7-3.3.A: Alameda Countywide Clean Water Program

Support the Alameda Countywide Clean Water Program and continue to implement a municipal stormwater clean water program to reduce stormwater pollutants according to NPDES permit mandates.

> Implementation 7-3.3.B: Stormwater Control in New Developments

Require development projects to incorporate appropriate stormwater treatment measures, site design techniques and source controls to address stormwater runoff pollutant discharges and to prevent increases in runoff rates and durations in development projects consistent with NPDES.

> Implementation 7-3.3.C: Reduce Impervious Surface Areas

Minimize stormwater flow and volume impacts on local waterways by reducing impervious surface areas associated with new and redevelopment projects and encouraging the use of permeable surfaces.

> Implementation 7-3.3.D: Water Quality Treatment Measures

Encourage the preferred order of measures early on in the site plan review process for compliance with the Municipal Regional Permit: 1) Rainwater Capture and Reuse; 2) Evapotranspiration; 3) Infiltration; and, 4) Landscape-Based Treatment, to the extent practicable for all new and redevelopment projects.

> Implementation 7-3.3.E: Preserve Areas with Water Quality Benefits

Preserve and where possible create or restore areas that provide important water quality benefits and areas that may be adversely impacted by increased development, such as the Niles Cone Groundwater Basin, creeks, riparian corridors, wetlands, and buffer zones.

> Implementation 7-3.3.F: Protect Areas Susceptible to Erosion

Enforce development guidelines as needed to protect areas that are particularly susceptible to erosion or other factors that would pose significant impacts to local waterways.

> Implementation 7-3.3.G: Landscape Design

Encourage the use of pest-resistant and drought-tolerant landscape and design features, and the incorporation of stormwater detention and retention techniques in development projects.

> Implementation 7-3.3.H: Green Roofs

Support the use of green roofs to reduce runoff flow rates and volume, absorb and filter pollutants, supply green habitat and nesting areas, and help lower the urban heat island effect.

> Implementation 7-3.3.I: Low Impact Development

Encourage development projects to employ low impact development principles to create functional and appealing site drainage that mimics the natural hydrology and treats stormwater as a resource rather than as a waste product.

> Implementation 7-3.3.J: Trash Reduction

Reduce trash in City waterways by identification and regular clean-up of trash hot spots and installation of trash capture devices as specified in the NPDES permit.

Goal 7-4: Water Conservation

A water conservation program with measurable results consistent with Alameda County Water District's Urban Water Management Plan and with the City's greenhouse gas reduction goals

• Policy 7-4.1: Water Conservation

Maximize community water conservation.

> Implementation 7-4.1.A: Water Efficient Landscape Ordinance

Continue to enforce and to strengthen as necessary the City's Water Efficient Landscape Ordinance for water efficiency. Monitor and update the Ordinance as appropriate.

> Implementation 7-4.1.B: Bay Friendly Landscape Guidelines

Utilize the Bay Friendly Landscaping Guidelines in order to reduce water use for landscaping in new development and redevelopment projects.

> Implementation 7-4.1.C: Water Retention on Site

Encourage new development and redevelopment to utilize water conservation techniques that encourage the on-site retention and use of stormwater run-off consistent with ACWD policies and requirements.

> Implementation 7-4.1.D: Green Building Code

Adopt updates to local ordinances from the California Green Building Standards Code that relate to water efficiency and conservation.

• Policy 7-4.2: Reclaimed Water

Encourage the use of reclaimed water for irrigation, industrial purposes and in City operations.

> Implementation 7-4.2.A: Reclaimed Water Program

Support the efforts of Alameda County Water District and Union Sanitary District to implement a reclaimed water program.

> Implementation 7-4.2.B: "Purple-Pipes" in Development Projects

Encourage development projects with roadway improvements to install "purple-pipe" for reclaimed water in areas where reclaimed water is expected to be provided based upon the plans of ACWD and USD for a water reclamation system.

> Implementation 7-4.2.C: Tertiary Treatment at Pump Stations

Encourage Union Sanitary District to develop tertiary treatment capacity at pump stations and to utilize reclaimed water to the extent possible for landscaping and other appropriate uses, consistent with all environmental, health and safety regulations, and USD policies and requirements.

> Implementation 7-4.2.D: Reclaimed Water Systems

Encourage use of on-site reclaimed water systems (grey water) consistent with all environmental, health and safety regulations, and ACWD policies and requirements.

> Implementation 7-4.2.E: Municipal Uses for Recycled Water

Investigate opportunities for municipal use of recycled water.

• Policy 7-4.3: Water Conservation in City Operations

Maximize water conservation in City operations.

> Implementation 7-4.3.A: Conservation in City Operations

Conduct regular reviews of water usage in City operations and implement measures to reduce usage. Possible measures might include: replacing turf grass and other hydrophilic plants with drought tolerant alternatives; use of artificial turf for playing fields, where appropriate; and installation of waterless or ultra-low-flow fixtures in current and future City buildings.

> Implementation 7-4.3.B: Collaboration with ACWD

Work with ACWD to identify opportunities for joint action with the City on water conservation and greenhouse gas reduction.

> Implementation 7-4.3.C: Bay Friendly Landscape Maintenance

All landscaped areas maintained by the City shall be maintained using Bay Friendly practices to the greatest extent practicable.

Goal 7-5: Mineral Resources

State designated and regionally significant mineral resources identified and protected where feasible

• Policy 7-5.1: Protect Mineral Resources

Protect identified state designated mineral resources from incompatible development whenever feasible consistent with the City's long range development plans.

> Implementation 7-5.1.A: Consider Future Mineral Resource Values

Consider mineral resource values prior to approval of land uses that could affect the future availability of the resource.

> Implementation 7-5.1.B: Evaluate Impact of Development Near Mineral Resources

Evaluate impacts of any development project proposed within approximately 100 feet of an identified mineral resource during the development and environmental review process.

> Implementation 7-5.1.C: Open Space Land Use Designations

Retain existing and designate new open space land use designations when appropriate on land containing identified significant mineral resources.

> Implementation 7-5.1.D: Evaluate Proposed Land use Changes

Evaluate and consider the impacts of any proposed change in land use designation for a parcel of land containing regionally significant mineral resources.

See also Land Use Policy 2-6.7.

• Policy 7-5.2: Minimize Impacts of Mineral Resource Extraction on City

Ensure mineral resource extraction activities do not create a significant impact to the character and long term health of the City.

> Implementation 7-5.2.A: Mineral Extraction Consistent with Other City Policies

Permit mineral resource extraction only when it can be shown to be consistent with existing hillside and water quality protection policies of the City.

> Implementation 7-5.2.B: Measure Future Impact of Quarry Proposals

Conduct a full environmental impact assessment on all quarry proposals.

> Implementation 7-5.2.C: Regional Importance of Mineral Resources

Evaluate proposals for quarrying in the context of the importance of the designated mineral resources to the market region as a whole and not solely on their importance to the City.

• Policy 7-5.3: Mineral Resource Extraction Areas

Enforce requirements for reclamation of mineral resource extraction areas, including salt ponds and quarries.

> Implementation 7-5.3.A: Compliance with SMARA

Review and enforce reclamation plans in compliance with Surface Mining and Reclamation Act (SMARA).

> Implementation 7-5.3.B: Salt Ponds

Consider reclamation plans for salt ponds when salt production ceases.

• Policy 7-5.4: Preservation of Former Extraction Areas

Encourage preservation of former extraction areas (mineral and clay quarries and salt ponds) for open space, wildlife and recreation purposes when appropriate.

> Implementation 7-5.4.A: Habitat Conversion as Part of Rehabilitation Plans

Consider wildlife and habitat conversion as part of rehabilitation plans for all quarries and salt production areas.

> Implementation 7-5.4.B: Donation of Former Mineral Resource Extraction Areas

Encourage land owners of areas formerly used for mineral resource extraction to donate or lease land no longer needed for mineral extraction to an appropriate public agency for open space, wildlife management and or public recreation.

Goal 7-6: Soil Resources

Urban development consistent with soil conditions to minimize erosion and protect health and property.

• Policy 7-6.1: Awareness of Soil Conditions

Ensure development projects take soil conditions into account.

> Implementation 7-6.1.A: Analysis of Soil Prior to Construction

Require sufficient analysis of soils by a qualified engineer or geologist prior to building construction to determine soil class and characteristics and to ensure appropriate foundation and building design.

See also Land Use Policy 2-6.7.

• Policy 7-6.2: Minimize Soil Erosion

Eliminate soil erosion from development to the maximum extent possible.

> Implementation 7-6.2.A: Blend-in Engineered Slopes

Require that all engineered slopes, other than those constructed in rock, be planted or otherwise protected from the effects of storm runoff erosion and be of a character so as to cause the slope to blend with the surrounding terrain and development.

> Implementation 7-6.2.B: Limit Erosion with BMPs

Require appropriate control measures and best management practices (BMP's) to limit erosion prior to, during and subsequent to new construction.

> Implementation 7-6.2.C: Enforce Control Measures

Continue to enforce erosion and sediment control measures and update measures when appropriate.

> Implementation 7-6.2.D: Consistency with City Ordinances and Acts

Ensure development projects are consistent with the City's Stormwater Ordinance and the Clean Water Act.

Goal 7-7: Air Quality

Air quality improved over current conditions that meets or exceeds State and Regional standards.

• Policy 7-7.1: Cooperation to Improve Regional Air Quality

Support and coordinate air quality planning efforts with other local, regional and State agencies to improve regional air quality.

> Implementation 7-7.1.A: Monitor and Control Air Pollutants

Support Bay Area Air Quality Management District (BAAQMD) efforts to monitor and control air pollutants from stationary and non-stationary sources.

> Implementation 7-7.1.B: Permits for Projects that may Impact Air Quality

Require new stationary sources with potential air quality impacts to obtain necessary permits from the BAAQMD.

> Implementation 7-7.1.C: Annual Review of Air Quality Data

Monitor available air quality data for the City of Fremont relative to State standards on an annual basis.

> Implementation 7-7.1.D: Include Air Quality in Environmental Impact Process

Review proposed projects for their potential to affect air quality conditions during the environmental impact process.

> Implementation 7-7.1.E Clean Air Plan

Review and comment on the Clean Air Plan and other documents prepared by BAAQMD.

> Implementation 7-7.1.F: Impacts from Projects in Neighboring Communities

Review environmental impact reports of large projects in neighboring communities with the potential to affect Fremont's air quality and request appropriate mitigations.

> Implementation 7-7.1.G: Air Emission Standards

Promote enforcement of air emission standards by BAAQMD.

> Implementation 7-7.1.H: Better Transportation, Lower Emissions

Support efforts by MTC and ABAG to help reduce traffic congestion and provide greater efficiency in the regional transportation system.

• Policy 7-7.2: Reduce Air Pollution Levels

Reduce City of Fremont air contaminant levels and particulate emissions below BAAQMD attainment levels, in particular, ozone and particulate matter levels.

> Implementation 7-7.2.A: Construction Practices

Require construction practices that reduce dust and other particulate emissions and require watering of exposed areas at construction sites.

> Implementation 7-7.2.B: Reducing Fireplace Emissions

Ensure new development complies with the City's Wood Burning Fireplace Ordinance to assist in reducing fireplace particulate emissions.

See the Mobility Element for additional policies related to reducing emissions from transportation through enhanced public transit, enhanced pedestrian and bicycling amenities, and transportation demand programs. See the Public Facilities Element for policies related to greening the City's vehicle fleet and coordinating with the School District to reduce vehicle trips related to school transportation. See the Land

Use, Mobility and Housing Elements for policies related to Transit Oriented Development aimed at reducing vehicle trips.

• Policy 7-7.3: Land Use Planning to Minimize Health Impacts from Toxic Air Contaminants

Coordinate land use planning with air quality data and local transportation planning to reduce the potential for long-term exposure to toxic air contaminants (TAC) from permanent sources that affect the community.

> Implementation 7-7.3.A: Limit New TAC Sources

Evaluate new sources of TAC emissions pursuant to BAAQMD guidelines and thresholds for an increased health risk of no more than 10 additional incidents of cancer per million exposures or contribute to a cumulative risk in excess of 100 additional incidents of cancer per million exposures.

> Implementation 7-7.3.B: Limit New Residential Development in High Risk Areas

For infill development sites within existing neighborhoods, apply thresholds for review when new sensitive receptors are within areas exposed to health risk levels in excess of 100 additional incidents of cancer per million exposures. Infill development also includes conditional development of a mixed use and urban residential development nature within residential and commercial areas of Centers and Urban Corridors.

When considering land use changes that add sensitive receptor uses outside of existing neighborhoods, apply thresholds for review when new sensitive receptors are within areas exposed to health risk levels in excess of 10 additional incidents of cancer per million exposures.

> Implementation 7-7.3.C: Incorporate TAC Controls with New Development

New development projects with sensitive receptors within 1000 feet of a freeway or major TAC source shall assess the TAC health risk for the site and incorporate, to the maximum extent feasible, risk reduction measures to reduce exposure to TAC. Risk reduction measures may include, but not limited to, project phasing, site orientation, distance separations, landscape buffering, building air filtration systems, modified building design or building type, or off site improvements at a TAC source.

• Policy 7-7.4: Air Quality Impact of Industry

Reduce the air quality impacts created by truck traffic, hazardous materials and industry.

> Implementation 7-7.4.A: Alternative-Fuel Vehicles

Encourage other agencies and private industry to use alternative-fuel vehicles.

> Implementation 7-7.4.B: Enforcement of Air Quality Regulations

Encourage stationary air pollutant sources to reduce emissions, and encourage enforcement by the relevant regulatory agencies when attainment levels are not met.

> Implementation 7-7.4.C: Review and Update Hazardous Materials Policy

Enforce City policies and regularly review and update policies on the use, transport and storage of hazardous materials with potential for impacts on air quality and health.

> Implementation 7-7.4.D: Review Truck and Train Routes

Review truck and train routes for the potential to affect sensitive receptors in the event of an accident involving hazardous materials.

Goal 7-8: Greenhouse Gas Emissions

Greenhouse gas emissions reduced by 25% from 2005 levels by 2020. This goal is aspirational and not meant to supersede Assembly Bill 32 (AB 32)targets as a standard for project review.

• Policy 7-8.1: Climate Action Plan

Maintain a Climate Action Plan (CAP) that outlines the specific strategies the City will implement to achieve its 2020 reduction goals.

> Implementation 7-8.1.A: CAP Implementation

Implement strategies in the CAP to achieve the City's greenhouse gas reduction target.

> Implementation 7-8.1.B: CAP Updates

Update the CAP every five years to reflect updated GHG emissions data; review the appropriateness and adequacy of the City's GHG reduction target, and determine whether revisions to the goals and strategies in the CAP are necessary.

> Implementation 7-8.1.C: Consistency with CAP

Review and adjust City policies and programs to be consistent with the Climate Action Plan.

> Implementation 7-8.1.D: Take Leadership Role on Climate Action

Take a leadership role in working with other local agencies including Fremont Unified School District, Alameda County Water District, Union Sanitary District, and Washington Hospital to maximize GHG emission reductions.

• Policy 7-8.2: Development Trends

Review development trends for consistency with targets of AB 32: Global Warming Solutions Act of 2006.

> Implementation 7-8.2.A: Report to City Council

Provide a development trend report to the City Council in 2015 to determine consistency with greenhouse gas reduction strategy analysis of the Draft EIR and target reductions of AB 32.

> Implementation 7-8.2.B: Monitoring

Monitor actions of the State Scoping Plan and Regional Climate Climate Change planning activities, including SB 375, related to reduction targets for the year 2035 and 2050.

Goal 7-9: Energy Conservation

Highly efficient building and site design standards that provide cost-effective methods to conserve energy, reduce the City's carbon footprint, and promote the use of renewable energy sources

• Policy 7-9.1: Implement Green Building Standards

Continue to implement and strengthen green building standards.

> Implementation 7-9.1.A: Mandatory Green Building Standard

Adopt a mandatory residential green building standard as part of the 2011 Building Code update.

> Implementation 7-9.1.B: Non-Residential Buildings

Continue to evaluate establishment of a mandatory green building requirement for non-residential development.

• Policy 7-9.2: Energy Efficiency in Building/Site Design

Encourage/require maximum feasible energy efficiency in site design, building orientation, landscaping, and utilities/infrastructure for all development and redevelopment projects.

> Implementation 7-9.2.A: Title 24

Continue to enforce the Title 24 regulations of the California Building Code to promote energy efficient design and development. Consider local amendment to the California Code to further goals. Support efforts to strengthen Title 24 to achieve greater energy conservation.

> Implementation 7-9.2.B: Public Information

Continue to provide public information on programs for energy conservation and increasing energy efficiency.

> Implementation 7-9.2.C: Existing Efficiency Programs

Continue to work with PG&E to support widespread utilization of existing energy efficiency programs.

> Implementation 7-9.2.D: Regional Cooperation

Continue to work with regional agencies such as ABAG and StopWaste.org on energy efficiency programs.

> Implementation 7-9.2.E: Retrofits

Support regional efforts to facilitate building retrofits that reduce energy consumption. Support innovative financing mechanisms for energy efficiency retrofits that complement existing options including the California FIRST voluntary assessment program.

• Policy 7-9.3: Renewable Energy Sources

Encourage renewable energy sources for new and existing buildings and infrastructure.

> Implementation 7-9.3.A: Solar Energy

Promote the integration of solar energy sources into all types of development.

> Implementation 7-9.3.B: Onsite Wind Turbines

Develop regulations encouraging rooftop or onsite wind turbines that encourage their use while minimizing noise and aesthetic impacts.

> Implementation 7-9.3.C: Solar Heating

Encourage solar heating of swimming pools.

> Implementation 7-9.3.D: Solar Shade Structures

Consider standards for allowing solar shade structures to supplement tree planting requirements in parking lots.

> Implementation 7-9.3.E: Pre-Wiring for Future Solar Energy

Consider requirements to provide pre-wiring for future solar photovoltaics in new home construction in order to reduce the cost and inconvenience to those homeowners wanting to install solar in the future.

> Implementation 7-9.3.F: Solar Financing Mechanisms

Support financing mechanisms that complement the existing California FIRST voluntary assessment program.

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