

# 7 OPEN SPACE & CONSERVATION

The purpose of the Open Space and Conservation Element is to provide policy guidance to protect, preserve, and enhance the City's natural and cultural resources. Topics addressed include open space, biological resources, water resources, and cultural resources. Goals and policies in this Element also address air quality and reduction of greenhouse gases.

## **7.1 Open Space Resources**

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An open space is defined as any parcel of land or body of water that is essentially unimproved and undeveloped, including parks, ridges and slopes, creeks, unique natural areas, wildlife habitats, and areas suitable for nature study. State planning law (Government Code Section 65560) provides a structure for the preservation of open space by identifying four open space categories:

- *Open space for public health and safety*, including, but not limited to, areas that require special management or regulation due to hazardous or special conditions. This type of open space might include: earthquake fault zones, unstable soil areas, floodplains, watersheds, areas presenting high fire risks, and areas required for the protection of water quality and water reservoirs.
- *Open space for the preservation of natural resources*, including, but not limited to, areas required for the preservation of plant and animal life, such as habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, and creeks, lakeshores and banks of rivers and streams; and watershed lands.
- *Open space used for the managed production of resources*, including, but not limited to, forest lands, rangeland,

agricultural lands, and areas of economic importance for the production of food or fiber; areas required for recharge of groundwater basins; marshes, rivers, and streams that are important for the management of commercial fisheries; and areas containing major mineral deposits.

- *Open space for outdoor recreation*, including, but not limited to, areas of outstanding scenic, historic, and cultural value; areas particularly suited for park and recreation purposes, such as access to lakeshores, beaches, rivers, and streams; and areas that serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors.

Most open space areas serve more than one use. Neighborhood parks, for example, serve a recreational function and provide a habitat for birds or plants. The many functions of open space underscore the importance of careful land use planning to preserve limited open space resources for the enjoyment of current and future generations.



*Natural open spaces are important, not only as habitats for plants and animals, but also for their aesthetic value.*

## EXISTING OPEN SPACE

Although San Pablo is largely urban, the City does have open space, including neighborhood and community parks, pockets of open space near creek banks, and on hillsides along San Pablo Dam Road. Other open space areas include the 58-acre St Joseph Cemetery and a greenway buffer on both sides of I-80. Most existing open space areas were created for passive recreation or nature conservation. Others are pockets of space left over from development 20 or 30 years ago or are undeveloped because of seismic or safety considerations (such as those on steep slopes).

According to the California Environmental Protection Agency (CalEPA) large portions of San Pablo are designated as a disadvantaged community. As such, it is important that residents have access to open space in a manner that considers social, economic, and racial equity.

The following policies address preservation and enhancement of open space generally.

## GUIDING POLICIES

- OSC-G-1 *Acquire, protect, and enhance open space, including hillsides, for the benefit of future generations.*
- OSC-G-2 *Work to preserve undevelopable open space and hillside areas to meet multiple needs, including bike and pedestrian linkages, stormwater drainage, wildlife habitat, and active and passive recreation opportunities.*
- OSC-G-3 *Strive to provide access to open spaces for all residents in a manner that considers social, economic, and racial equity.*

## IMPLEMENTING POLICIES

- OSC-I-1 Work with property owners to acquire or dedicate land that could be developed as recreational open space, consistent with the General Plan Land Use Diagram.

OSC-I-2 Continue to identify, preserve, and enhance scenic vistas to and from hillside areas and other visual resources.

*New development should be designed to minimize obstructions of scenic vistas and preserve or enhance important attributes of view corridors.*

OSC-I-3 Recognize the importance of Alvarado Park as a gateway to Wildcat Canyon Regional Park and an important recreational and open space resource. Facilitate access to this open space network.

## **7.2 Biological Resources**

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Although San Pablo is one of the smallest and most urbanized cities in Contra Costa County, valuable biological resources still exist within the Planning Boundary. These are sometimes located in pockets of open space within city limits, but more commonly found along riparian corridors of vegetation such as San Pablo Creek. **Figure 7-1** illustrates identified biological resources in the area. These resources are discussed below.

### **FLORA AND FAUNA**

The City of San Pablo lies in the Bay Area-Delta bioregion. According to the California Wildlife Habitat Relationships system (an information system for California's terrestrial vertebrates and their habitat), the primary habitat types in San Pablo are urban, annual grassland, coastal oak woodland, eucalyptus, and valley foothill riparian. Of the five habitat types, the most prevalent type is urban, which covers the majority of the Planning Area and is contiguous to the north, west, and south with the neighboring cities and districts of Richmond, Rollingwood, El Sobrante, and Pinole.

Small patches of annual grassland, eucalyptus, and coastal oak woodland habitat are found on the east end of the Planning Area. These patches are found in increasing quantities towards the direction of Alvarado Park and Wildcat Canyon Regional Park. Small grassland patches are also found isolated throughout San Pablo, but are very disturbed and of low quality.

Figure 7-1:

# Vegetation and Special Status Species



### Vegetation Type

- Moderate Grasslands
- Non-Native / Ornamental Grass
- Non-Native / Ornamental Hardwood
- Coast Live Oak Forest / Woodland
- Central Coast Riparian Forests
- Blue Oak Forest / Woodland
- Eucalyptus
- Urban

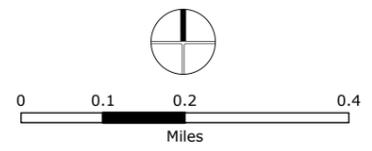
### Special Status Species (CNDDB)

- San Pablo Song Sparrow
- Western Bumble Bee
- Long-Styled Sand-Spurrey
- California Ridgway's Rail
- San Pablo Vole

### Critical Habitat (USFWS)

- Alameda Whipsnake (Striped Racer)

- City Limits
- Sphere of Influence
- Major Roads
- Minor Roads
- Railroads



SOURCE: Special Status Species, California Natural Diversity Database (CNDDB), 2025; Critical Habitat for Threatened & Endangered Species, US Fish & Wildlife Service (USFWS), 2025; City of San Pablo, 2024; Contra Costa County GIS, 2024; Dyett & Bhatia, 2024

The waterways that traverse the Planning Area – the San Pablo, Wildcat, and Rheem creeks – support the valley foothill riparian habitat. Typical species along San Pablo and Wildcat creeks include willow and coast live oak, intermixed with boxelder, elderberry, California bay, coyote brush, blackberry, watercress, and poison oak. Ivy, an invasive and non-native species, can also be found along parts of San Pablo Creek. The riparian corridors along the creeks generally do not exceed 100 feet in width, except on the west end of the city along Wildcat Creek. Here, there is a larger clearing containing a number of oak trees and a small band of grassland dominated by soft chess, ripgut grass, and foxtail.

**Table 7.2-1 Habitat Types**

<i>Name</i>	<i>Total Acres</i>
Urban	235
Coastal Oak Woodlands	18
Annual Grassland	125
Valley Foothill Riparian	79
Eucalyptus	9

*Source: Environmental Science Associates, 2009.*



San Francisco Bay is the largest estuary on the west coast of the United States. Its 1,600 square miles of wetlands and open water are home to at least 800,000 birds at any given time, including the Northern harrier shown above. (Photo: Nick Contonicolas)

Fauna found in the Planning Area are generally those species that have adapted to human habitation, such as starlings, golden crowned sparrows, and rock pigeons, or those species that use the habitat in San Pablo to forage or nest while on their migratory route, such as the San Pablo vole, salt-marsh harvest mouse, northern harrier, California clapper rail, short eared owl, white tailed kite, and salt marsh wandering shrew. Steelhead trout, Salmonid, and carp can also be found in San Pablo Creek, despite their inability to migrate up and down the creeks due to the presence of concrete box channels.<sup>11</sup> Besides fish, birds, and insects, there is little evidence of other species in the city. No large mammalian species or predators have ever been found in San Pablo due to the city's small natural habitat.



The San Pablo song sparrow is a unique subspecies of sparrows that can be found only in San Pablo. The species is currently classified as a candidate for protection due to habitat loss. (Photo: Ken Thomas)

## **REWILDING**

Rewilding is the process of restoring an area of land to its natural uncultivated state. Examples of rewilding in San Pablo could include opportunities to preserve, enhance, and expand an integrated network of open space to support beneficial uses, such as habitat, recreation, natural resources, historical and

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<sup>11</sup> Carp is a non-native species to San Pablo. Their presence in San Pablo Creek is probably the result of people releasing them into the Creek.

tribal resources, water management, and aesthetics. The recently completed Wildcat Creek Restoration and Greenway Trail is an example of a successful inner-city rewilding effort.

### SPECIAL STATUS SPECIES

Special status species are those plants and animals that, because of their acknowledged rarity or vulnerability to various causes of habitat loss or population decline, are recognized in some fashion by federal, State, or other agencies as deserving special consideration and protection. According to records maintained by the California Natural Diversity Data Base, there is only one special status species in the Planning Area, the San Pablo song sparrow (*Melospiza melodia samuelis*). Although the species is widespread and common, the San Pablo subspecies is endemic to California and confined to the tidal marshes of San Pablo Bay. The National Marine Fisheries Service has also reported that Steelhead trout (*Oncorhynchus mykiss*) occur in both San Pablo and Wildcat creeks. The Service has listed this species as a threatened species in the region. **Table 7.2-2** summarizes the type of special status species within the Planning Area and **Figure 7-1** shows their locations.

**Table 7.2-2 Special Status Species**

Scientific Name (Common Name)	Presence	Occurrence Type	Federal Listing	State Listing
<i>Melospiza melodia samuelis</i> (San Pablo song sparrow)	Presumed extant	Natural/ native occurrence	None	Special concern
<i>Oncorhynchus mykiss</i> (Steelhead)	Presumed extant	Natural/ native occurrence	Threatened	None

Source: California Natural Diversity Database, 2024; National Marine Fisheries Service, 2005

### GUIDING POLICIES

**OSC-G-4** *Protect and enhance wetlands, creek systems, and rare and endangered species and their habitats.*

## IMPLEMENTING POLICIES

OSC-I-4 Require protection of sensitive habitat areas and “special status” species through measures implemented in new development in the following order: 1) avoidance, 2) on-site mitigation, and 3) offsite mitigation, and require assessments of biological resources prior to approval for any development within a creek corridor.

*The City will coordinate with the Army Corp of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, and Regional Water Quality Control Board to ensure City staff is providing developers with the best guidance and standards for project design to avoid impacts to creeks, wetland features, woodlands, or other sensitive natural features.*

OSC-I-5 Develop a list of native plants and landscaping guidelines that residents and business owners can use for public and private landscaping plans. Make this list and guidance accessible through the Planning Department, the Public Library, and the City website.

*Urban landscaping design and planting choices should be managed to maximize ecological and health benefits for the whole community.*

OSC-I-6 Prohibit the use of invasive plant species, such as pampas grass and ivies, adjacent to wetlands, riparian areas, or other sensitive habitat.

*Invasive plants are introduced species that can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often leads to outbreak populations that overwhelm local plant species.*

OSC-I-7 Preserve and protect undeveloped hillside areas for their potential habitat value and as a visual and open space resource.

- OSC-I-8 If site work or construction (i.e., ground clearing or grading, including removal of trees or shrubs) activities are to occur during the nesting or breeding season of protected animal species, the appropriate studies should be conducted prior to construction activities. The results/impacts of such studies should be followed to ensure compliance with pertinent regulations.
- OSC-I-9 Explore opportunities for rewilding in San Pablo. This could include opportunities to preserve, enhance, and expand an integrated network of open space to support beneficial uses, such as habitat preservation, recreation, natural resources, historic and tribal resources, water management, and aesthetics.
- OSC-I-10 Consider establishing a natural communities conservation plan to provide for coordinated mitigation of the impacts of new development.
- OSC-I-11 For any development projects involving removal of mature trees and/or demolition of vacant buildings (both potential habitats for special-status bats), require a pre-construction survey by a qualified wildlife biologist to determine if bats are present using an acoustic detector. Require implementation of feasible recommendations of the biologist on removal of trees with signs of bat activity during a period least likely to adversely affect the bats, or the creation of a “no disturbance” buffer, if a viable alternative.

### **7.3 Water Resources**

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Water resources include groundwater and surface water resources. Groundwater refers to water found beneath the water table in the form of saturated soil. In some parts of northern California, groundwater may also be found in underground aquifers. Surface water refers to water collecting on the Earth’s surface such as creeks or ponds. All surface water eventually percolates into the soil, evaporates into the air, or flows into the sea.

**Aquifers** are natural underground formations that are saturated with water, and from which water can be withdrawn.

## GROUNDWATER BASIN

San Pablo is located atop the East Bay Plain Subbasin. The subbasin is a northwest trending alluvial plain bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rock, on the west by San Francisco Bay, and on the south by the Niles Cone Groundwater Basin. Several creeks, including San Pablo Creek and Wildcat Creek in the Planning Area, flow across the subbasin. Average precipitation in the subbasin ranges from about 17 inches in the southeast to greater than 25 inches along the eastern boundary, most of which occurs between the months of November and March.

According to the Department of Water Resources, the subbasin has an underground storage capacity of 2,670,000 acre-feet at a level of 350 feet above mean sea level, and extending to a depth of 1,000 feet below mean sea level. Over the years, the subbasin aquifer water levels have varied between 10 to 140 feet below mean sea level. The lowest recorded water level occurred in 1962. Water levels in the aquifers generally rise and fall in tandem with periods of abundant rainfall or drought. Since the majority of East Bay cities obtain their water from surface reservoirs or the Mokelumne River, extraction from wells only account for a fraction of the groundwater storage.<sup>13</sup>

## GROUNDWATER QUALITY

In general, groundwater throughout the subbasin is suitable for urban and agriculture use. The groundwater quality rarely exceeds the maximum contaminant levels recommended by the State Water Resources Control Board. However, 15 of 29 wells in the subbasin had Total Dissolved Solids greater than 500 milligrams per liter (the maximum) when they were tested in 2002. Similar results were found in 2022 East Bay Plan Subbasin Groundwater Sustainability Plan reported records of wells over 50 feet deep in the El Cerrito/San Pablo/Richmond area. As such, groundwater is generally not recommended for drinking.

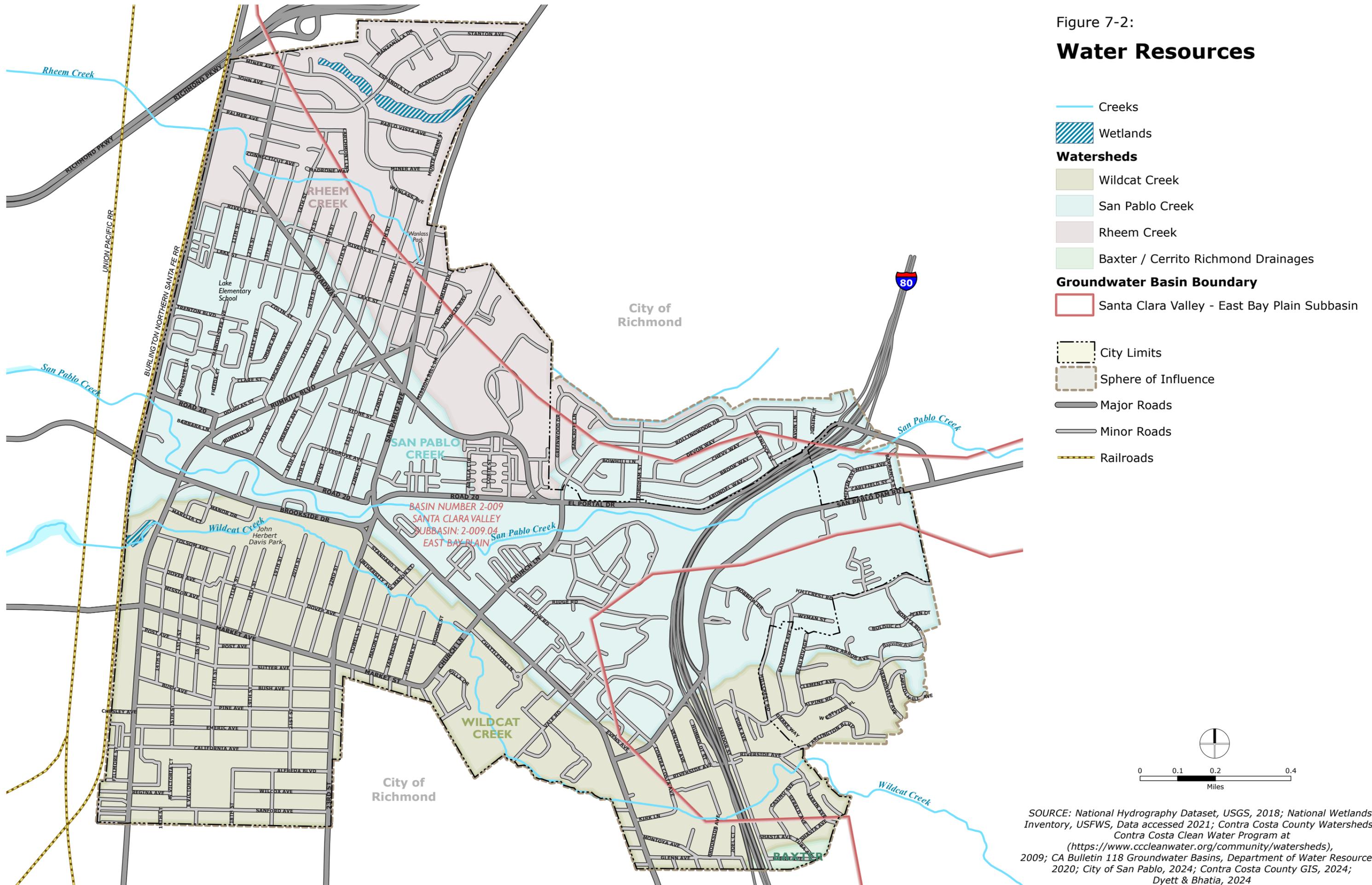
Besides contaminant levels, groundwater use is complicated by other factors including high salt levels due to the proximity to San Francisco Bay, and the risk of contamination through the

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<sup>13</sup> California Groundwater Bulletin 118, Santa Clara Groundwater Basin, 2004.

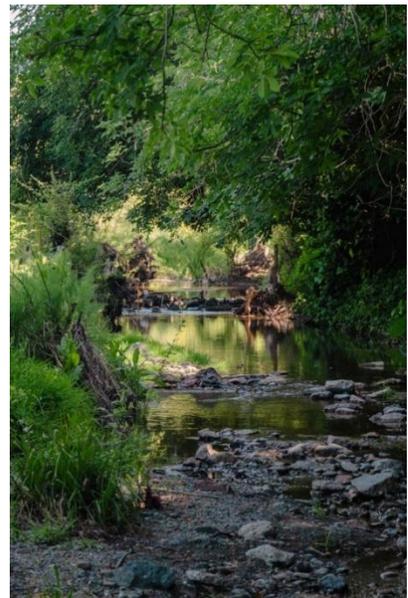
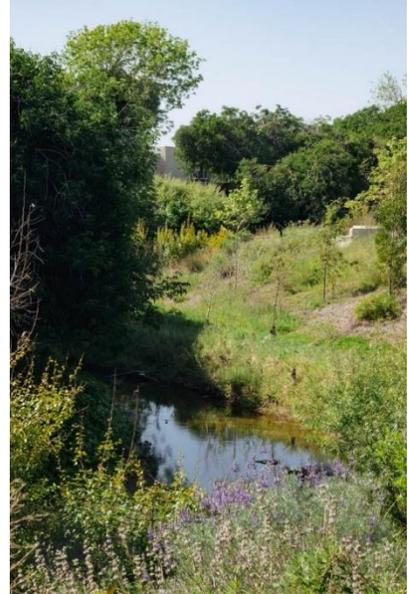
Figure 7-2:

# Water Resources



SOURCE: National Hydrography Dataset, USGS, 2018; National Wetlands Inventory, USFWS, Data accessed 2021; Contra Costa County Watersheds, Contra Costa Clean Water Program at (<https://www.cccleanwater.org/community/watersheds>), 2009; CA Bulletin 118 Groundwater Basins, Department of Water Resources, 2020; City of San Pablo, 2024; Contra Costa County GIS, 2024; Dyett & Bhatia, 2024

release of fuels and solvents from East Bay factories. In part because of these factors, no groundwater wells exist in San Pablo. The City does not need to rely on groundwater since it receives all its water from the East Bay Municipal Utility District; which derives its water from the Sierra ranges. Drinking water supply is described in more detail in Chapter 6: Parks, Schools, Community Facilities, and Utilities.



Wildcat Creek is one of the three principal creeks running through San Pablo. Creek water is not potable due to the presence of dissolved pollutants and suspended materials.

## **SURFACE WATER**

The City of San Pablo lies within the West County Major Watershed region – a geographic entity in West Contra Costa County that includes the peer cities of El Cerrito, Richmond, Pinole, and Hercules. The West County Major Watershed region is bounded by East Bay Hills to the east, the San Pablo Bay to the west, and Alameda County to the south. Watercourses in the region generally run from a south-east to north-west direction and empty into the San Francisco and San Pablo bays. Among these are Rheem Creek, San Pablo Creek, and Wildcat Creek. The watersheds for each creek are shown in **Figure 7-2**.

Rheem Creek is a small, intermittent stream with a watershed under two square miles confined to the northern portion of San Pablo. It is channelized in approximately half its length in San Pablo.

San Pablo Creek is a year-round watercourse and Wildcat Creek is an intermittent stream. Both creeks have their headwaters in the hills east of San Pablo. Of the two, San Pablo is the larger watercourse, draining an area approximately 10 square miles. It is regulated in the upper watershed by two dams: Briones Dam and Reservoir, and San Pablo Dam and Reservoir. Wildcat Creek is largely unregulated and has a drainage area of approximately 11 square miles.

## **SURFACE WATER QUALITY**

Surface water quality is low in San Pablo's creeks owing to their location in the midst of an urban environment. The California State Water Board has listed San Pablo and Wildcat Creek on the Section 303(d) of the Federal Clean Water Act list for Diazinon, a chemical compound commonly used in insecticides. The Contra Costa Clean Water Program monitors the creeks in Contra Costa County through its annual Urban Creeks Monitoring and 5-Year Bioassessment reports as required by the National Pollutant Discharge Elimination System (NPDES) permit. The 2022 Urban Creeks Monitoring Report found a California Stream Condition Index (CSCI) Score of 'Very Likely Altered' for San Pablo and Wildcat Creek. The CSCI score indicates whether, and to what degree, the ecology of a stream is altered from a healthy state. A score of 'Very Likely Altered' indicates that the creek's chemistry and physical environment are heavily impacted, indicating low water quality.

A major culprit of low water quality is stormwater run-off from commercial and residential areas which transports pollutants—such as pet waste, fertilizers, oil and trash—into the creeks.<sup>12</sup> Although most of these pollutants are washed out into the San Pablo Bay, some materials may be trapped in the creek environment if they are caught in vegetation and debris jams. The condition of these creeks highlights the importance of controlling illegal dumping, reducing urban runoff, and promoting the use of runoff filtration systems.

### **GROUNDWATER RECHARGE AND STORMWATER MANAGEMENT**

Being small in size, located inland, and heavily urbanized, the City of San Pablo does not possess large swaths of wetlands or marshes that can act as retention areas for storm or flood waters and natural groundwater recharge or filtration.

A further challenge is that the city's creeks and associated riparian systems (especially San Pablo Creek and Wildcat Creek) may accommodate water for groundwater recharge and stormwater management to a limited degree due to their constrained and at times discontinuous nature (portions of the creeks are carried on concrete channels or are hidden underground). The areas along the creeks most able to accommodate groundwater recharge and stormwater management are the natural riparian areas next to St Joseph Cemetery and Davis Park.

The following policies are designed to protect and enhance surface and groundwater quality in San Pablo.

### **GUIDING POLICIES**

- OSC-G-5      Ensure both access and ecological functionality of the creek system in San Pablo.*
- OSC-G-6      Protect water supply and quality through conservation and good stormwater management practices.*

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<sup>12</sup>NPS San Pablo Creek and Wildcat Creek Water Quality Conditions (CCA Volume #97 and #101), State of the Critical Coastal Areas Reports, California Coastal Commission, 2006.

## IMPLEMENTING POLICIES

- OSC-I-11 Maintain, protect, and enhance San Pablo’s creeks, including Rheem, San Pablo, and Wildcat creeks, as local environmental and aesthetic resources, with approaches including, but not limited to:
- Establishing a Creek Improvement Program to widen, day-light (where possible), and improve San Pablo and Wildcat creeks for the enjoyment of residents;
  - Strengthening stormwater management requirements for properties adjacent to the creek areas by applying techniques that maintain or restore nature character;
  - Enforcing restrictions on the planting of invasive species near creek areas;
  - Identifying and working with property owners to take advantage of unique opportunities where human active use (e.g., through trail development) would enhance creek appreciation without disrupting ecological function;
  - Working with developers to “daylight” portions of creeks that have historically been channelized underground under existing paved areas (e.g. parking lots); and
  - Requiring minimum setbacks of at least 25 feet from the top of the creek bank for development proposed adjacent to creeks, in keeping with City development regulations and Best Management Practices.
- OSC-I-12 Develop a mechanism whereby property owners with properties adjacent to creeks to participate in the cost of creek improvement maintenance. Any property owner maintenance efforts should require City approval to ensure integrity of the waterway and minimize any upstream or downstream impacts.
- OSC-I-13 Continue to work with the Regional Water Quality Control Board (RWQCB) to protect and improve ground- and surface-water quality in the region.

*Additional policies to control stormwater and reduce urban runoff are in the 'Wastewater and Stormwater' section of the Parks, Schools, Community Facilities, and Utilities Element.*

## **7.4 Land Resources**

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Land resource policies relate to the conservation of soils and other resources that are in the earth, and the prevention and control of soil erosion.

### **SOILS**

Nine soil types have been mapped by the U.S. Department of Agriculture in the San Pablo Planning Area. They are summarized in **Table 7.4-1** and their characteristics are shown in **Figure 7-3**. Due to the range of soil types located in the Planning Area – with soil properties resulting in flooding, shrink- swells (expansive soils, described below), and excess wetness – various building site development restrictions exist in the Planning Area and affect land development costs. On average, Conejo clay loam has the most favorable properties for development, while cut and fill land has the least favorable properties. Conejo clay loam is naturally occurring and native to the area, while cut and fill land is the result of mechanical manipulation of upland areas for urban use.

Soils with only slight or moderate development restrictions comprise 728 acres or 30 percent of the Planning Area. These soils are concentrated in the middle portion of the Planning Area near the vicinity of Brookside Drive and Road 20. Much of the upland areas contain soils with more severe building site development restrictions.

None of the soils in the Planning Area comprise a significant direct health or safety hazard to residents.

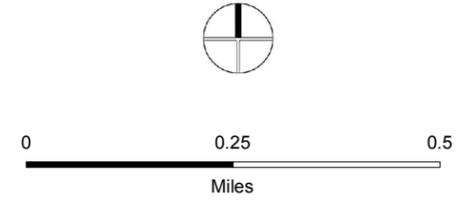
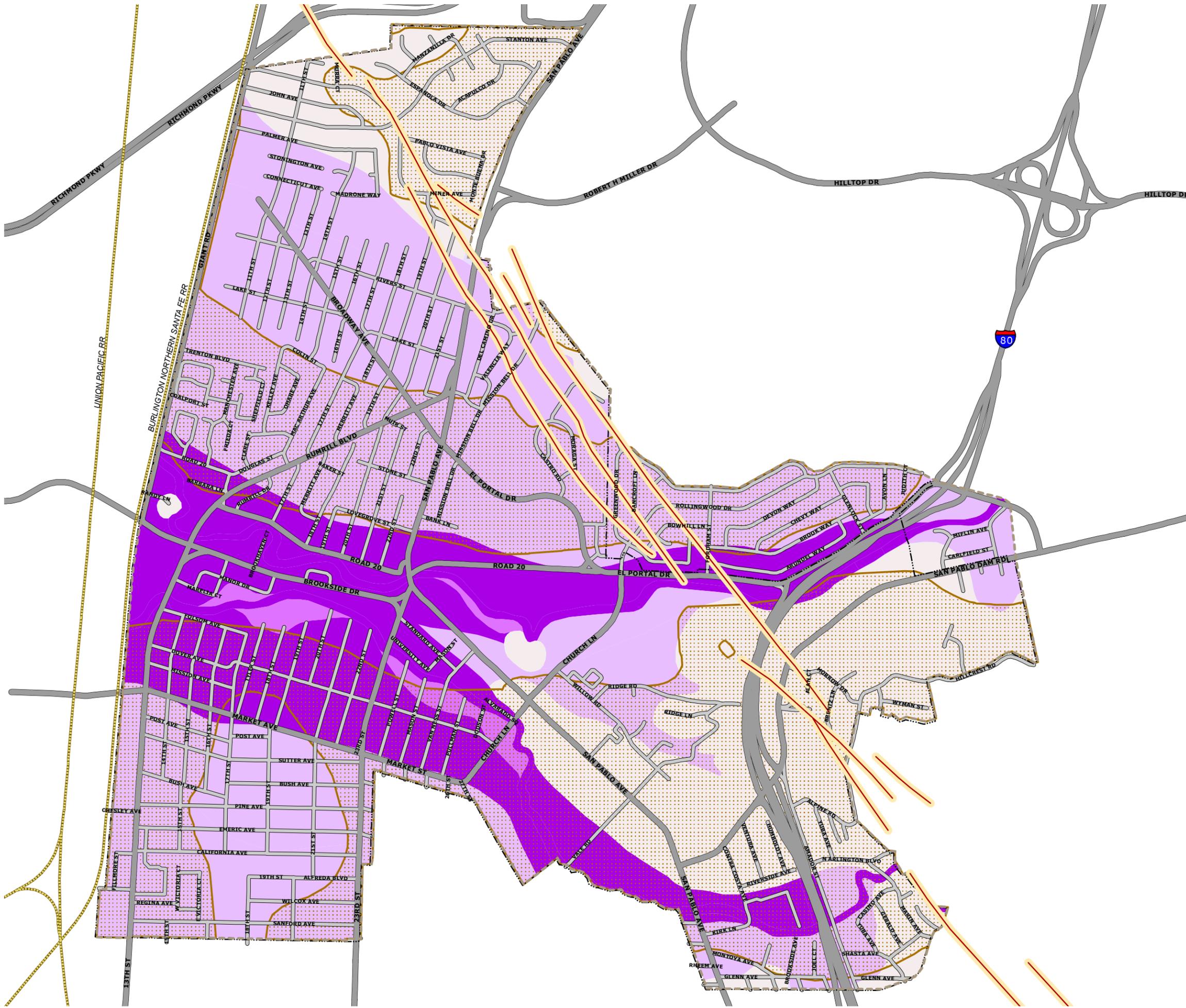
Figure 7-3  
**Liquefaction Susceptibility  
 and Shrink-Swell**

-  Hayward Fault
-  Alquist-Priolo Zone
-  Severe Shrink-Swell Potential

**Liquefaction Susceptibility**

-  Very Low
-  Low
-  Moderate
-  High
-  Very High
-  Water

-  Planning Area
-  City Limits
-  Major Roads
-  Minor Roads
-  Railroads



SOURCE: ABAG, 2009; NRCS, 2008; USGS 2005; Contra Costa County, 2010; City of San Pablo, 2010; Dyett & Bhatia, 2010.

Table 7.4-1 Soils within the Planning Area

<i>Map Symbol/ Soil Name</i>	<i>Building Site Development Restriction<sup>1</sup></i>	<i>Erosion</i>	<i>Runoff</i>	<i>Percent of Planning Area<sup>2</sup></i>
BaA/ Botella clay loam, 0 to 2 percent slopes	Moderate	None to slight	Very slow to slow	0.5%
Cc/ Clear Lake clay	Severe	None	Very slow	41.2%
CeA/ Conejo clay loam, 0 to 2 percent slopes	Moderate	None	Slow	19.0%
CkB/ Cropley clay, 2 to 5 percent slopes	Severe	Slight	Slow	2.8%
CnE/ Cut and fill land-los osos complex, 9 to 30 percent slopes	Severe	High	Rapid	9.4%
CoE/ Cut and fill land-millsholm complex, 9 to 30 percent slopes	Severe	High	Rapid	0.1%
GcF/ Gilroy clay loam, 30 to 50 percent slopes	Severe	Moderate to high	Medium to rapid	0.2%
LhF/ Los osos clay loam, 30 to 50 percent slopes	Severe	Moderate to high	Medium to rapid	5.6%
TaC/ Tierra loam, 2 to 9 percent slope	Moderate	Moderate	Medium to rapid	21.2%
W/ Water	NA			0.1%
<b>TOTAL</b>				<b>100.0%</b>

<sup>1</sup> Indicates development restrictions due to shrink-swell potential. Soils with shrink-swell rating of 0.5 are given a moderate rating while those with 1.00 are given a severe rating as it indicates the greatest negative impact on use.

<sup>2</sup> Totals may not add up due to rounding.

Source: US Department of Agriculture, Natural Resources Conservation Service, 2008.

## EROSION

Soil erosion is a process whereby soil materials are worn away and transported to another area, either by wind or water. Soil erosion is important to the community because the erosion of topsoil can cause landslides. The rate of soil erosion can vary depending on the soil material and structure, placement, and human activity. Soils containing high amounts of silt can be easily eroded, while sandy soils are less susceptible. In terms of building site restrictions, excessive soil erosion can damage building foundations and roadways. In the case of open space uses, erosion potential is reduced with vegetative coverage.

**Table 7.4-1** provides an overview of the different soil types' susceptibility to erosion in San Pablo. Generally, soils with faster infiltration rates are less likely to be carried away by rain or runoff. Soils high in clay, such as Clear Lake clay, have slow runoff rates because they are resistant to detachment. Mixed textured soils, such as the cut and fill soils, are moderately susceptible to detachment and they produce moderate runoff.

Slope gradient is another factor<sup>13</sup> Naturally, the steeper the slope of a field, the greater the amount of soil-loss from erosion by water. In this respect, the upland areas of San Pablo near San Pablo Dam Road and Stanton Avenue are more prone to erosion than those areason flat ground.

## **MINERAL RESOURCES**

The California Surface Mining and Reclamation Act of 1975 requires that all cities incorporate into their general plans mapped mineral resources designations approved by the State Mining and Geology Board. While some mineral resources can be found in Contra Costa County including aggregate and stone for commercial, industrial, and construction uses, none of these are found within the Planning Area. According to State Office of Mine Reclamation, as of April 2010, there were no regulated mine facilities and no known mineral resources in San Pablo.

*Policies that relate to the protection of land resources are in Section 9.1 Geologic and Seismic Hazards, in the Safety and Noise Element.*

## **7.5 Cultural Resources**

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In terms of long-range conservation planning, cultural resources are typically historic, archaeological, or Native American sites and structures protected under local, State, or federal law. These resources are protected because of their contribution to understanding and appreciating the past.

Historic resources are defined as structures of historic or aesthetic significance. Architectural sites dating from the Spanish Period (1529-1822) through the post-World War II period (1945- 1955) are generally considered for protection if they are determined to be historically or architecturally significant. Sites dating after the post-World War II period may also be considered for protection if they could gain significance in the future. Historic resources are often associated with archaeological deposits of the same age.

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<sup>13</sup> Soil Survey of California, Contra Costa County, 1977.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric (before the introduction of writing in a particular area) or historic (after the introduction of writing). The majority of such places in this region are associated with either Native American or Euro-American occupation of the area.

Contemporary Native American resources, also called ethnographic resources, can include archaeological burial sites, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values.



The Teixeira House (established 1890) is a building of historical significance in San Pablo.

### **HISTORICAL RESOURCES IN SAN PABLO**

According to an inventory search conducted by the Northwest Information Center at Sonoma State University, the Planning Area contains important historical resources, including 49 historic buildings and structures listed by the Office of Historic Preservation's Historic Property Directory. San Pablo's historic resources are illustrated in **Figure 7-4** and listed in more detail in **Table 7.5-1**. Review of historical literature and maps indicate the city has seen a long development history dating back through the Mexican period, and into the American period. Numerous buildings survive from these time periods and provide a visual history to the historic-era development of San Pablo.

Table 7.5-1 Buildings of Historic Significance

No.	Address	Year Built	Historical Name
1	3200 11th Street	1949	-
2	3409 11th Street	1954	-
3	1816 14th Street	1924	-
4	1614 15th Street	1935	-
5	1875 15th Street	1952	-
6	2759 15th Street	1951	-
7	1740 16th Street	1934	-
8	1881 16th Street	1953	-
9	1958 16th Street	1946	-
10	2721 18th Street	unknown	-
11	2972 19th Street	1953	-
12	2024 20th Street	1948	-
13	2996 20th Street	1954	-
14	2331 22nd Street	1929	-
15	Alvarado Square	1905	Blume House
16	Alvarado Square	1890	Teixeira Home
17	2900 Arundel Way	1943	-
18	2445 Bancroft Lane	1943	-
19	1300 Brookside Avenue	1949	-
20	1811 Bush Avenue	1940	-
21	1825 Church Lane	1863	St Paul's Catholic Church & Graveyard
22	1901 Church Lane	1875	Old Rectory
23	1501 Colin Street	unknown	-
24	930 CR 20	1884	Rumrill Helms House
25	2009 CR 20	1951	-
26	2022 CR 20	unknown	Stanley Alter Home
27	1401 Dover Avenue	1948	-
28	2418 Dover Avenue	1943	-
29	1514 Emeric Avenue	1941	-
30	1807 Emeric Avenue	1935	-
31	2201 Emeric Avenue	1930	-
32	1108 John Avenue	1942	-
33	1601 Manor Drive	1943	-
34	2650 Market Avenue	1906	1906 Earthquake Camp Site
35	1830 Mason Street	1951	-
36	5739 McBryde Avenue	1911	-
37	2634 O'Hare Avenue	1943	-
38	1919 Pine Avenue	1951	-
39	1841 Pullman Street	1875	Pullman Street Rectory
40	918 Randy Lane	1900	Andrade House
41	2009 Road 20	1950	-

Table 7.5-1 Buildings of Historic Significance

No.	Address	Year Built	Historical Name
42	2778 Rollingwood Drive	1943	-
43	2797 Rollingwood Drive	1943	-
44	2807 Rollingwood Drive	1943	-
45	13831 San Pablo Avenue	1978	Alvarado Adobe Replica of 1826 house
46	14006 San Pablo Avenue	1875	Mello Residence
47	1230 Sanford Avenue	1950	-
48	1914 Sanford Avenue	1940	-
49	1748 Sutter Avenue	1944	-

Source: Office of Historic Preservation, Northwest Information Center, Sonoma State University, 2008.

## ARCHAEOLOGICAL RESOURCES IN SAN PABLO

San Pablo is located within the historic territory of the Huchiun, speakers of the Costanoan/Ohlone language. The Huchiun (the word Huchiun simply means 'people') lived high in the western hills of West Contra Costa County. Native American cultural resources in this part of the region have been found near sources of water including perennial and intermittent streams and springs, on mid-slope terraces, and elevated knolls above the flood plain, and near ecotones and other productive environments. In fact, the Planning Area contains at least seven recorded Native American cultural resources. All of these resources represent habitation sites, three of the seven have recorded burials, and one site is a contributor to a district determined eligible for the National Register by consensus. The environmental features, coupled with the number of record habitation sites, suggest it is likely that unrecorded Native American cultural sites exist in the Planning Area.

Unlike historic sites, the location of archaeological sites is restricted by the federal Archaeological Resources Protection Act (ARPA) in order to prevent looting, vandalism, and destruction of archaeological resources. As a result, they are not indicated on **Figure 7-4**.

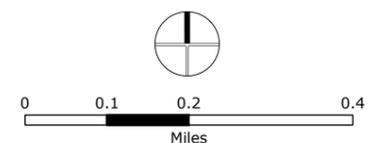
The following policies are designed to appreciate, protect, and preserve known and unknown cultural resources in San Pablo.

Figure 7-4:

# Historical and Cultural Resources



- California Historical Landmark
- Buildings of Historic Significance
- City Limits
- Sphere of Influence
- Major Roads
- Minor Roads
- Railroads



SOURCE: California Historic Landmarks, Office of Historic Preservation, California State Parks, 2024; City of San Pablo, 2024; Contra Costa County GIS, 2024; Dyett & Bhatia, 2024

## GUIDING POLICIES

OSC-G-7 *Identify and preserve the cultural resources that are found within the City of San Pablo.*

## IMPLEMENTING POLICIES

OSC-I-14 Establish and maintain a register of historic and potentially historic resources in San Pablo.

*A historic preservation register is the primary planning tool used to identify, record, and evaluate historic properties within a community, neighborhood, project area, or region. The City may use the list of historical buildings in the General Plan as a starting point to create a register of sites/buildings San Pablo may wish to designate as landmarks and/or important historical resources. The register can form an important component of the local preservation program, and can ultimately contribute to community knowledge of local history.*

OSC-I-15 Preserve and build upon the historic and multicultural identity of the Alvarado District as a defining element of the city.

OSC-I-16 Help to ensure that new development analyzes and avoids potential impacts to historic, archaeological, and paleontological resources by:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historic or archaeological sensitivity;
- Implementing appropriate measures as a condition of project approval – measures such as avoidance, preservation in place, excavation, documentation, and/or data recovery – in order to avoid any identified cultural resource impacts.

*In the event that historical, archaeological, or paleontological resources are discovered during construction, grading activity in the immediate area*

*shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that may be used as guidelines.*

- OSC-I-17 Work with local Native American Tribes to protect recorded and unrecorded cultural and sacred sites, and to educate developers and the community-at-large about the connections between Native American history and the environmental features that characterize the local landscape.

Native American resources in the Planning Area have been found near sources of water including perennial and intermittent streams and springs, on mid-slope terraces and elevated knolls above the floodplain, and near ecotones and other productive environments. There is a high likelihood that additional unrecorded Native American cultural sites also exist in the Planning Area.

## **7.6 Air Quality and Climate Change**

The City of San Pablo cares about protecting and improving air quality for two major reasons: 1) certain kinds of air pollutants are directly harmful to human health and the health of the natural environment (water quality, plant and animal life), and 2) other kinds of air pollutants are believed to contribute to broad and long-term environmental changes that may pose health and safety risks to humans and ecosystems in the future.

This section provides a brief description of Bay Area air pollutants and their health effects, air quality in San Pablo and sources of air pollution, San Pablo's contributions to greenhouse gases (GHGs), and the potential effects of global climate change on the local community and wider region. Policies in this section aim to reduce air pollution, reduce exposure to air pollutants, reduce greenhouse gas emissions, and increase communitywide resilience to the anticipated long-term effects of climate change on San Pablo and the Bay Area.

Policies in other parts of the General Plan, including the Land Use and Physical Design Element, Circulation Element, Parks, Schools, Community Facilities, and Utilities Element, and Community Health & Environmental Justice Element, also contain policies designed to reduce air pollution, emissions of greenhouse gases, and community vulnerability to climate change impacts.

## **AIR POLLUTANTS AND HEALTH EFFECTS**

When it comes to direct human health effects, there are two main categories of air pollutants regulated in California: criteria pollutants and toxic air contaminants.

### **Criteria Pollutants**

Criteria air pollutants are pervasive in the urban environment and the U.S. Environmental Protection Agency (EPA) has regulated them by developing specific public health- and welfare- based criteria as the basis for setting permissible levels. The six criteria pollutants are ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM), and lead (Pb). Regulation of criteria pollutants is achieved through both national and State ambient air quality standards and emissions limits for individual sources of air pollutants. The EPA has established National Ambient Air Quality Standards (national standards), and California has adopted more stringent standards for most of the criteria air pollutants (State standards).

The EPA classifies air basins or portions thereof, as either “attainment” or “nonattainment” for each criteria air pollutant based on whether or not the national standards have been achieved. Air basins also receive designation as “attainment” or “nonattainment” for State standards. Thus, California has two sets of attainment/nonattainment designations: one with respect to national standards and one with respect to State standards. The following **Table 7.6-1** summarizes the Bay Area attainment status.

**Table 7.6-1 State and National Criteria Air Pollutant Standards, Bay Area Attainment Status, Sources, and Effects**

Pollutant	Averaging Time	California Standard	Bay Area Attainment Status	National Standard	Bay Area Attainment Status	Major Pollutant Sources	Pollutant Health and Atmospheric Effects
Ozone	1 hour	0.09 ppm	N	---		On-road motor vehicles, other mobile sources, solvent extraction, combustion, industrial and commercial processes.	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.
	8 hour	0.07 ppm	N	0.07 ppm	N		
Carbon Monoxide	1 hour	20 ppm	A	35 ppm	A	Internal combustion engines, primarily gasoline-powered motor vehicles.	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.
	8 hour	9.0 ppm	A	9.0 ppm	A		
Nitrogen Dioxide	1 hour	0.18 ppm	A	---	U	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.	Irritating to eyes and respiratory tract. Colors atmosphere reddish brown.
	Annual Average	0.03 ppm		0.053 ppm	A		
Sulfur Dioxide	1 hour	0.25 ppm	A	0.075	U	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.	Irritates upper respiratory tract, injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron and steel. Limits visibility and reduces sunlight.
	24 hour	0.04 ppm	A	0.14 ppm			
	Annual Average	---		0.03 ppm			
Particulate Matter (PM-10)	24 hour	50 mg/m <sup>3</sup>	N	150 mg/m <sup>3</sup>	U	Dust- and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).	May irritate eyes and respiratory tract, decreases lung capacity and increases risk of cancer and mortality. Produces haze and limits visibility.
	Annual Average	20 mg/m <sup>3</sup>	N	---			
Particulate Matter (PM-2.5)	24 hour	---		35 mg/m <sup>3</sup>	N	Fuel combustion in motor vehicles, equipment and industrial sources; residential and agricultural burning. Also formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	Increases respiratory disease, lung damage, cancer and premature death. Reduces visibility and results in surface soiling.
	Annual Average	12 mg/m <sup>3</sup>	N	12 mg/m <sup>3</sup>	U/A		
Lead	Monthly Average	1.5 mg/m <sup>3</sup>	A	---		Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.
	Calendar Quarter	---		1.5 mg/m <sup>3</sup>	A		

Notes: A=Attainment; N=Nonattainment; U=Unclassified; ppm=parts per million; and mg/m<sup>3</sup>=micrograms per cubic meter

Source : [http://hank.baaqmd.gov/pln/air\\_quality/ambient\\_air\\_quality.htm](http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm). Accessed May 21, 2010, updated 2017 and accessed in 2025.

## Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a present or potential hazard to human health, but for which no ambient air quality standards have been established. TACs are less pervasive in the urban atmosphere than criteria air pollutants, but are linked to short-term (acute) or long-term (chronic and/or carcinogenic) adverse human health effects. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. The current list of TACs includes approximately 200 compounds. Regulation of TACs is achieved through federal or State control over individual sources. Two particular TACs of importance to San Pablo's planning include:

- **Diesel particulate matter (DPM).** Diesel PM has been identified by the California Air Resources Board (CARB) as a TAC and represents about 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravated heart and lung disease.
- **Asbestos.** In 1986, CARB identified asbestos as a TAC based on its classification as a known cancer-causing pollutant. In that process, CARB found that no threshold exposure level could be identified below which adverse health effects would not be expected. Asbestos occurs naturally in certain kinds of rock (not known to occur in San Pablo), and may also be found in older structures as a building material.

## AIR QUALITY IN SAN PABLO

The Bay Area Air Quality Management District (BAAQMD) regulates emissions in the Bay Area and monitors air quality conditions throughout the region. San Pablo has one monitoring station (located at 1865 Rumrill Boulevard) that measures criteria pollutants, including ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide.

According to the latest available annual air pollution summary at the San Pablo station (2019), there was one instance exceeding the one-hour Ozone standard, two instances of exceeding the 8-hour National and State standard for Ozone, and one instance of exceeding the 24-hour PM<sub>2.5</sub> standard in

that year.

The maximum 8-hour Ozone level was 79 parts per billion (ppb), one of the highest of the Bay Area stations. The highest daily 8-hour carbon monoxide one-hour maximum measured at the Rumrill Boulevard station in 2019 was 1.8 parts per million (ppm). The highest one-hour level of Sulfur dioxide was 17.6 ppb. The maximum 24-hour PM10 was 16.5 ug/m<sup>3</sup> and the maximum 24-hour PM 2.5 was 35.9 ug/m<sup>3</sup>, the latter measurement being the highest of all the Bay Area stations for 2019.

San Pablo is among those communities “of high concern” identified by the BAAQMD’s Community Air Risk Evaluation (CARE) program, in particular, because of community exposure to high diesel PM emissions, a significant TAC in the Bay Area.

## **AIR POLLUTION SOURCES**

In San Pablo, as in many urban areas, motor vehicles—including automobiles, trucks, buses, trains, and others—are major contributors to air pollution.

Most mobile source air pollution within San Pablo comes from the I-80 corridor and the railroad. Smaller sources within San Pablo include facilities such as auto body shops, dry cleaners, and light industrial uses. Industrial sources of air pollution include a petroleum refinery, a chemical plant, a coal and petroleum, coke terminal, organic liquid storage and distribution facilities, wastewater treatment plants, a landfill, organic waste metal facilities, and industrial and manufacturing plants of various sizes. Contra Costa County is home to other refineries operated by Shell, Tesoro, ConocoPhillips, and Valero. These refineries, as well as the Pittsburg Power Plant—the fourth largest power plant in California—are located downwind of San Pablo, but they have an impact on regional air quality as a whole. Likewise, air pollution from the I-580 corridor and Oakland-San Francisco metropolitan area to the south also contributes to regional air quality problems.

### **Path to Clean Air: Community Emissions Reduction Plan**

In response to AB 617 (C. Garcia, Chapter 136, Statutes of 2017), the California Air Resources Board (CARB) established the Community Air Protection Program (CAPP or Program). The Program’s focus is to reduce exposure in communities most impacted by air pollution. As a result, communities around the State are working together to develop and implement new strategies to measure air pollution and reduce health impacts.

San Pablo is part of the “Richmond - North Richmond - San Pablo” Community Emissions Reduction Plan (CERP) area, which covers over 160,000 people in Richmond, North Richmond, and San Pablo. A Community Steering Committee, which includes San Pablo staff and resident representation, has been working with the Bay Area Air Quality Management District (BAAQMD) and the California Air Resources Board (CARB) since 2021 to develop strategy recommendations for reducing emissions and improving health with the release of the Path to Clean Air: Community Emissions Reduction Plan.

The San Pablo community suffers negative health impacts from a combination of high industrial, rail, marine, and truck pollution, and 75% of the City’s census tracts are considered to be in the top 10% for asthma statewide. The Richmond - North Richmond - San Pablo CERP includes strategies that can help reduce the highest impact, focusing particularly on the emissions that are strongly linked to chronic health problems. The CERP provides an opportunity to reduce pollution significantly and to improve regulation and drive continuous reductions.

The CERP addresses key issues of community concern, including setting goals for reducing fine particulate matter (PM 2.5), nitrogen oxides, nickel, manganese, benzene, sulfuric acid, diesel particulate matter (DPM), formaldehyde, acrolein, arsenic, hydrogen cyanide, and hydrochloric acid emissions, as these appear to be the greatest contributors to chronic health problems in the community. Another important goal is to improve public education and community understanding of pollution-related health problems, local emission sources, and emission reduction goals and achievements. The CERP will also implement pollution reduction strategies and more comprehensive health and social services to help decrease pre-existing vulnerabilities and lower the community's burden of adverse health risks.

## **SENSITIVE RECEPTORS**

Some people are more sensitive to air pollution than others. Heightened sensitivity may be caused by pre-existing health problems, proximity to the emissions source, and duration of exposure to pollutants. Occupants and visitors to land uses such as schools, children's day care centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress and other air quality-related health problems. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Efforts to

improve air quality and reduce community exposure to air pollutants should give priority to regulations and land use design decisions that protect sensitive receptors.



Some people, such as children with asthma, are more sensitive to the effects of air pollutants than others.

## **CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS**

Global Climate Change is a change in the average air temperature as measured by wind patterns, storms, precipitation, and temperature. In the past 10,000 years the Earth has experienced incremental warming as glaciers retreated across the globe. However, scientists believe we have observed an unprecedented increase in the rate of warming over the past 150 years, roughly coinciding with the global industrial revolution. Evidence suggests this enhanced global warming is caused by humans, through emissions of greenhouse gases as a result of activities such as electricity generation, vehicle fuel consumption, and even farming and forestry practices. Scientists expect that the resulting increase in global mean temperature from 1990-2100 could range from 2.0 to 11.5 degrees Fahrenheit, with the most likely scenario between 3.2 and 7.1 degrees.

### **Climate Change Impacts**

Accelerating global climate change has the potential to cause a number of adverse impacts in California, such as: a shrinking Sierra snowpack that could threaten the state's water supply; public health risks caused by higher temperatures and more



Exhaust fumes from automobiles and trucks emit carbon monoxide, carbon dioxide, nitrogen oxide, and hydrocarbons.

smog; damage to agriculture and forests due to reduced water storage capacity, higher temperatures, increased salt water intrusion, flooding, and pest infestations; critical habitat modification and destruction; eroded coastlines; increased wildfire risk; and increased electricity demand.<sup>14</sup>

While all of these impacts may be felt to some extent in the Bay Area, of particular concern to San Pablo are water quality and water supply issues; increased temperature and extreme heat events; fire threat at the urban-wildland interface; an imbalance between electricity supply and demand; and indirectly, sea-level rise and increased storm surge with potential for intermittent flooding and gradual inundation of facilities nearby San Pablo. Climate resilience can be seen as a co-benefit of open spaces, and the City should explore ways to take advantage of climate resiliency through the use of open space.

### **Greenhouse Gas Emissions**

San Pablo can combat climate change by reducing the community's contribution to Greenhouse Gases (GHGs) in the atmosphere. The six primary GHGs known to accelerate GCC are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Though there are other gases that can contribute to global warming, these six are identified explicitly in California legislation. The City completed a Greenhouse Gas Inventory in 2011.

### **Climate Action Plan**

In 2012, the City adopted a Climate Action Plan, which provides a policy framework to reduce the City's greenhouse gas emissions, while also promoting city improvements to increase livability, health and safety of the community. The City has begun implementation of a number of Climate Action Plan measures and will be tracking and reporting on their effectiveness on a continual basis. The Climate Action Plan is a living document that will be updated as new science and information becomes available.

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<sup>14</sup> Office of the Attorney General, Global Warming Impacts in California.

## GUIDING POLICIES

OSC-G-8 *Protect and improve the air quality in San Pablo.*

OSC-G-9 *Reduce emissions of greenhouse gases that contribute to global climate change.*

## IMPLEMENTING POLICIES

OSC-I-18 Complete an update to the City's Climate Action Plan (2012) and continue implementation in the meantime.

OSC-I-19 Continue to work with the Bay Area Air Quality Management District on the implementation of the Community Emissions Reduction Plan prepared for the San Pablo-Richmond area in 2024 to address the exposure of sensitive populations to toxic air contaminant emissions in San Pablo.

*The Bay Area Air Quality Management District's Community Air Risk Evaluation (CARE) Program identified the Richmond/San Pablo area west of I-80 (which encompasses most of San Pablo) as one of six "communities of high concern" in the Bay Area due to high levels of diesel particulate matter emissions which contribute to higher than average cancer risk levels. The Richmond-San Pablo CERP is an outgrowth of this effort.*

*Action steps in the CERP include the following:*

- Explore the ways that open space can further climate resilience*
- Support State reparations efforts as they relate to Black residents in the Community Emissions Reduction Plan (CERP) Area and in Contra Costa County*
- In collaboration with community groups, like Urban Tilth, hire and train community members for jobs in the green workforce, around tree planting and trail building. This would also include community education to better understand the importance of increasing neighborhood green infrastructure*

- *Incentivize plantings around commercial, affordable, mixed-use, multi-family development, light and heavy industry, logistics enter and other land uses likely to cause air pollution*
- *Provide enforcement to maintain landscaping of new development*
- *Implement heavy-duty truck management strategies (such as designating truck routes and installing design deterrents to prevent trucks from using residential streets*
- *Require more stringent review of industrial businesses proposed to be located near residential uses*
- *Update regulations to buffer residents from sources of pollution such as freeways and industrial uses (by requiring developers to install air filtration systems and locate windows, balconies, and plazas away from pollution sources)*
- *Plant trees in priority neighborhoods (near freeways and within the “fenceline” of industrial facilities)*

OSC-I-20

Maintain a 500-foot Air Quality Health Risk Overlay Zone on either side of Interstate 80 within the Planning Area to protect sensitive receptors from toxic air emissions. Within this overlay, avoid approval of new sensitive land uses, and for those projects permitted, require site-specific project design improvements (such as higher- performance windows and HVAC systems) in order to reduce public health risks associated with poor air quality in these locations.

*Sensitive receptors refers to those segments of the population most susceptible to poor air quality, such as children, the elderly, and those with pre-existing serious health problems affected by air quality. Land uses where sensitive receptors are most likely to spend time include, but are not limited to, hospitals and other medical facilities, schools and school yards, senior centers, child care centers, parks and playgrounds, and higher-*

*density residential communities. In traffic-related studies, additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70 percent drop-off in particulate pollution levels at 500 feet.<sup>15</sup>*

- OSC-I-21      Require developers to use best management practices (BMPs) to reduce particulate emissions and dust associated with construction activities as a condition for approval of subdivision maps, site plans, and grading permits. These BMPs include, but are not limited to, regular materials and vehicle tire watering, covering, and dust prevention measures during clearing, grading, earth-moving, or excavation operations.
  
- OSC-I-22      Continue to support the Bay Area Air Quality Management District's efforts to monitor and control air pollutants from stationary sources.
  
- OSC-I-23      Continue to work with surrounding jurisdictions and agencies to establish parallel air quality programs and implementation measures, as necessary, to improve air quality standards.
  
- OSC-I-24      Support non-polluting transportation modes and opportunities (i.e., pedestrian, bike, carpooling opportunities and public transit improvements) as specified in the Circulation Element.
  
- OSC-I-25      Promote energy efficiency in architectural design for new construction including building orientation to take advantage of wind and sun, and site design features (such as clustering of uses), pre-wiring for optional photovoltaic or solar heating systems, etc.

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<sup>15</sup> California Environmental Protection Agency, California Air Resources Board, "Air Quality and Land Use Handbook: A Community Health Perspective", April 2005.