5 ENVIRONMENTAL PROTECTION AND HAZARD MITIGATION

The Hillcrest Station Area Specific Plan is subject to and must comply with the provisions of the Antioch General Plan, Municipal Code, and various federal, state, and regional environmental regulations. Health, safety, and other environmental issues stem from the Planning Area's location near freeways, a railroad, East Antioch Creek and associated wetlands; previous heavy industrial land uses; seismic, geologic, and flooding hazards; and the presence of protected animal and plant species. Proactively reducing or avoiding risks associated with these conditions and providing appropriate protection for the existing assets will create a safer, more livable environment. This chapter provides background information and policies to reduce the potential impacts to human health and safety, and the environment. In addition, this chapter addresses climate change issues by incorporating policies pertaining to energy efficient site planning and structures.

Environmental Protection and Hazard Mitigation Principles

- Preserve biological resources associated with East Antioch Creek and other biological resource areas, including wetlands, wildlife habitat, and all plant and animal species that are threatened or endangered.
- Preserve natural environmental processes that protect health and safety, such as water filtration through soil that protects water quality, and riparian vegetation that minimizes erosion and flooding.
- Minimize the use of energy resources so as to ensure a sustainable long-term supply.
- Minimize air pollution.
- Remediate soil and groundwater contamination.
- Minimize the potential for loss of life, injury, property damage, and economic and social disruption resulting from natural and man-made hazards, including earthquakes, floods, landslides, and liquefaction.

5.1 AIR QUALITY

The air quality in the Bay Area does not meet state and federal standards for the following criteria air pollutants: ozone and particulate matter. Ozone levels have been trending down in the Bay Area in general, and specifically in Contra Costa County, since 1988. Based on implementation of state and district programs and controls, this trend is expected to continue, though at a slower rate. In the Bay Area, on-road motor vehicles are the major sources of ozone precursors. The Plan Framework, Chapter 3, contains many policies that are intended to reduce vehicle trips and improve traffic flow in and around the Station Area.

In 2007, the Pittsburg Air Monitoring Station at 10th Street registered four days where the respirable particulate matter (PM-10) exceeded the state standard. The main sources of particulate matter (PM) are combustion of fossil fuels, wood burning, airborne dust entrained by motor vehicles and construction, and cooking. The City has regulations in place to reduce PM generation, including compliance with the Bay Area Air Quality Management District's construction dust control measures, and requiring that all new wood burning stoves and fireplaces comply with EPA and BAAQMD approved standards.

Toxic air contaminants (TACs) are another category of air pollutants that may cause or contribute to adverse human health effects. There are many different types of TACs, but diesel particulate matter is of particular concern in the Station Area since the area is located near heavily traveled highways, the proposed eBART project, and freight railroad tracks. Implementation of the following policies will help to minimize the health risk to future residents and other sensitive receptors.

Air Quality Policies

EH-1 Require air quality analysis based on project-specific development when permit applications are submitted for sensitive receptor uses (such as hospitals, schools, residential uses, and nursing homes) within 300 feet of SR 4, SR 160, the Union Pacific Railroad tracks, or stationary toxic air contaminant sources. If the results show that the carcinogenic human health risk exceeds the BAAQMD standards for toxic air contaminants, the City shall require upgraded ventilation systems with high efficiency filters or equivalent mechanisms to minimize health risks for future residents.

EH-2 Require project sponsors to inform future and/or existing sensitive receptors of any potential health impacts resulting from nearby sources of dust, odors, or toxic air contaminants, and where mitigation cannot reduce these impacts.

5.2 BIOLOGICAL RESOURCES AND HABITAT PROTECTION

The grasslands and wetlands within the Hillcrest Station Area currently provide habitat for a variety of protected and common plant and animal species. Along East Antioch Creek, more than 16 acres of wetlands have been delineated by the Army Corps of Engineers, which serve as common plant and animal habitat and are critical to the natural hydrologic systems. Grassland, ruderal, and disked habitats comprise the primary types of habitat in the Station Area. These habitat types provide foraging habitat for a variety of threatened and common animal, bird, reptile, and bat species. Stands of trees, generally along the creek, and abandoned buildings provide potential nesting and roosting sites for birds and bats, while elderberry shrubs may support the federally-protected Valley Elderberry Longhorn Beetle. Figure 5-1 presents a map of Vegetation and Habitat Types.

Various surveys have been completed to observe whether endangered or threatened species occur in the Station Area. Burrowing owls, Swainson's hawks, and white-tailed kites have been observed foraging and nesting in and near the Station Area. Burrowing owls are protected by California law as a Species of Special Concern. A breeding pair was observed north of East Antioch Creek in 2008. The Swainson's hawk is a California threatened species. A pair of Swainson's hawks was observed flying over the Station Area and a nest was seen in a Peruvian Pepper Tree near the creek in 2008. A white-tailed kite was also seen flying over the area. This species is a California Species of Special Concern. Figure 5-2 shows the types and location of Special Status Species.

A tree survey was completed for most of the Station Area. The survey inventoried and rated the condition of 112 trees that are 10 or more inches in diameter at breast height or above. More than half of the trees are in good or fair condition. Of these, one black locust tree is considered mature and two Peruvian pepper trees are considered landmark trees. Dense stands of the non-native Tree of Heaven occur near the middle of the Station Area. This species is extremely invasive and should be controlled. Approval must be obtained to remove any established trees subject to the City's Tree Ordinance.

Development in the Station Area will result in the removal of or disturbance to habitat, so the following policies are intended to provide protection and mitigation for the affected species and habitats.

Figure 5-1: Vegetation and Habitat Types

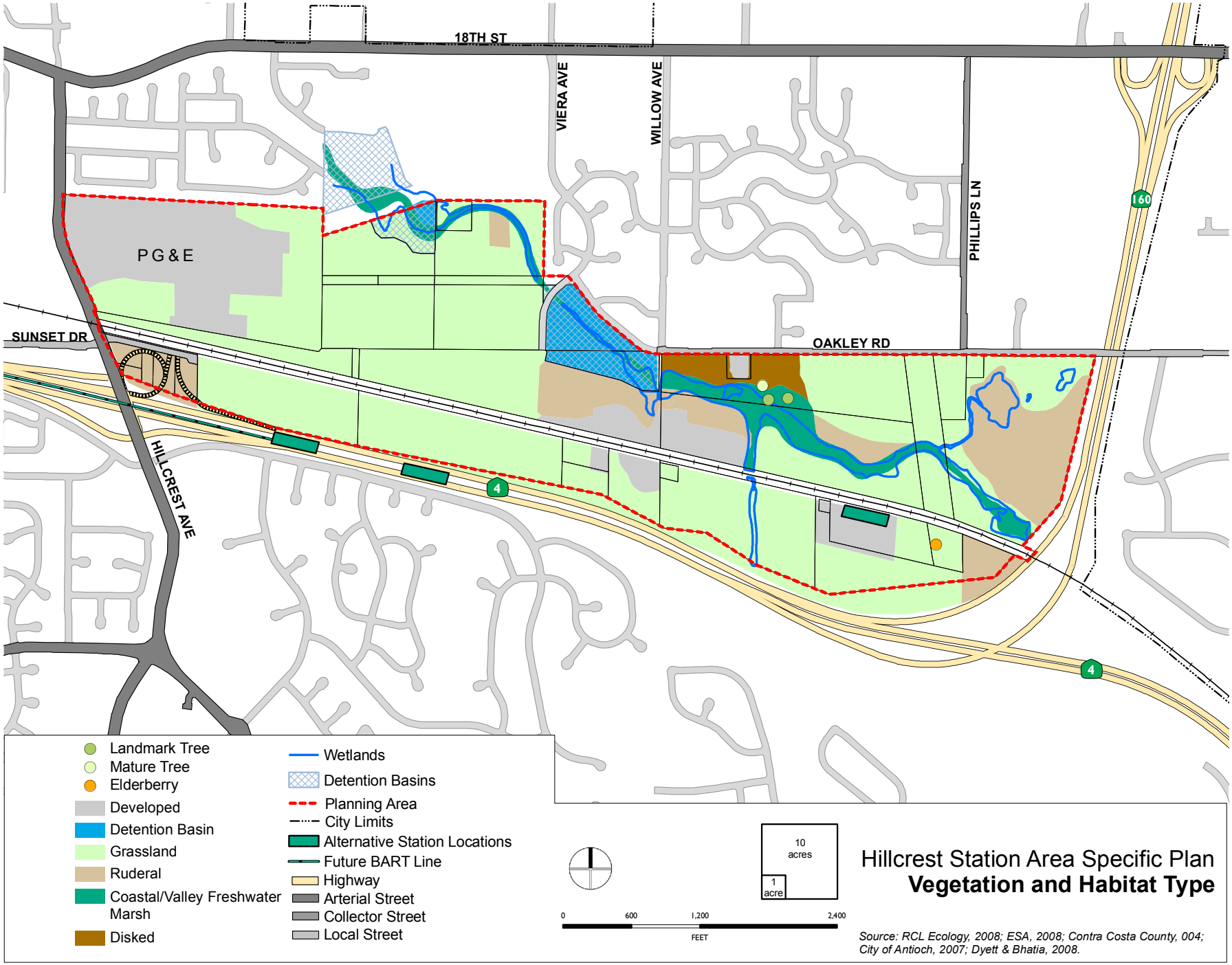
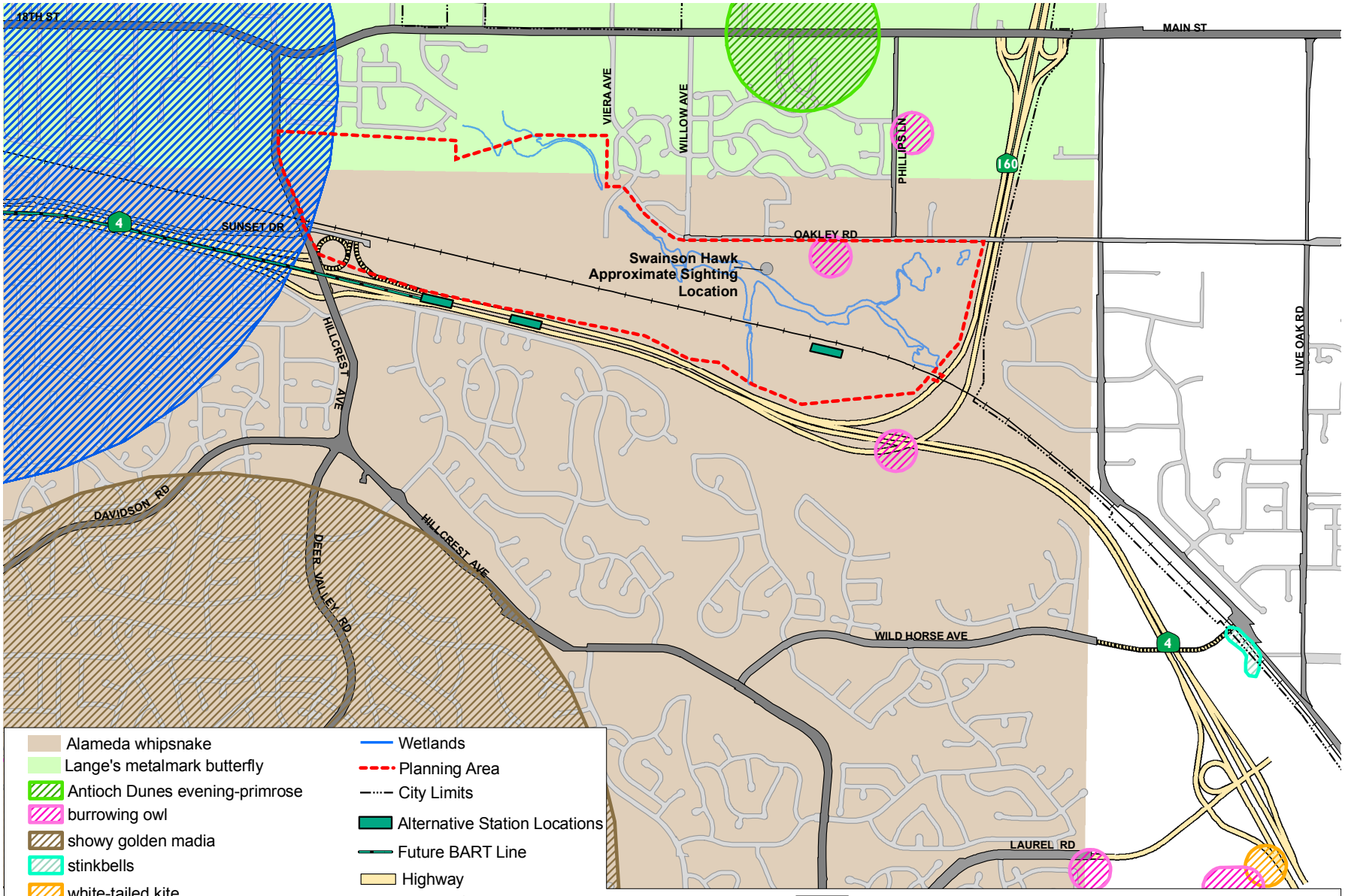


Figure 5-2: Special Status Species



Hillcrest Station Area Specific Plan
Special Status Species

Source: California Natural Diversity Database, 2008; Contra Costa County, 2004; City of Antioch, 2007; Dyett & Bhatia, 2008.

BIOLOGICAL RESOURCES & HABITAT PROTECTION POLICIES

Nesting Birds

EH-3 Prior to approval of any subdivisions or development projects, project sponsors shall comply with mitigation measures to avoid impacts to nesting bird species protected under the federal Migratory Bird Treaty Act, as follows:

- Project sponsors will avoid disturbing nesting raptors and other special-status birds by performing construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) outside of the breeding season (February 1 through August 31), to the extent possible.
- If construction activities are scheduled to occur during the breeding season (February 1 through August 31), the project sponsor will implement the following measures to avoid potential adverse effects on nesting raptors and other special-status birds:
  - The project sponsor will retain a qualified wildlife biologist to conduct preconstruction surveys of all potential nesting habitat within 500 feet of construction activities, where access is available. Surveys shall be conducted no more than 14 days prior to the first day of construction activities.
  - If active nests are found during preconstruction surveys, the project sponsor will create a no-disturbance buffer (size to be determined in consultation with CDFG) around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. The size of these buffer zones and types of construction activities restricted in these areas will be based in part on existing noise and human disturbance levels in the project site. Nests initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the "take" (harm) of any individuals will be prohibited.
  - If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs within the construction footprint that are determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests, may be removed.

Swainson's Hawk

EH-4 Surveys for nesting Swainson's hawks shall be conducted semi-annually by a qualified biologist during the nesting season (March 1-September 15), beginning in the spring of 2009 and continuing until Planning Area development begins.

- Surveys shall be conducted at the beginning of the breeding season (March/April) and towards the end of the season (August/September) to determine the extent of nesting activity.
- Surveys shall be conducted within the Planning Area and extending out 0.25 miles from the Planning Area where possible.
- If potentially occupied nests are within 0.25 miles of the Planning Area and public access is not possible, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the Planning Area.
- Documentation of Swainson's hawk presence shall be submitted to the CDFG California Natural Diversity Database, and annual reports summarizing the results of the surveys shall be submitted to the City.
- Project sponsor(s) shall provide funding to the City of Antioch to contract for the biologist's services.

EH-5 Prior to the approval of a development permit in the Planning Area, the City shall determine whether Swainson's hawks are present in or within 0.25 miles of the Planning Area. Using the semi-annual survey results required in Policy EH-4 and the most recent CEQA environmental review documents for the Planning Area, it will be determined:

- Whether nesting sites are active or have been vacant for the five consecutive years (and therefore "inactive") preceding the application date; and
- If active, the total acreage of Swainson's hawk habitat, both nesting and foraging, that may be disturbed.

EH-6 If active Swainson's hawk nests are identified, a permanent 100-foot buffer shall be created around the dripline of the nest trees.

- No development shall occur within this buffer.
- The buffer shall be fenced to prevent the nests from being disturbed.

EH-7 If it is determined through Policy EH-5 that the Swainson's Hawk nest is "active", then the project sponsor shall mitigate for lost Swainson's hawk nesting and foraging habitat using mitigation ratios prepared in consultation with CDFG, through mitigation credits or conservation easements.

- As of 2008 the CDFG recommended the following mitigation ratios, which are subject to change:
  - 1:1 for foraging habitat within one mile of an active nest;
  - 0.75:1 for foraging habitat within one to five miles of an active nest; and
  - 0.5:1 for foraging habitat within five to ten miles of an active nest.
- Mitigated land should be as close as possible to the Planning Area.

EH-8 During the nesting season (March 1–September 15), a qualified biologist shall conduct a preconstruction survey no more than 14 days prior to ground disturbance, to establish whether Swainson's hawk nests within 0.25 mile of the project site are occupied (unless this was already accomplished through Policy EH-4).

- If potentially occupied nests exist within 0.25 mile of the Planning Area, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the Planning Area.
- If active Swainson's hawk nests are identified during these preconstruction surveys, no construction activities shall occur during the nesting season within 0.25 mile of occupied nests or nests under construction, unless CDFG/USFWS agrees to a smaller buffer based on environmental conditions such as steep topography or dense vegetation. If young fledge prior to September 15, construction activities can proceed normally.

Burrowing Owl

EH-9 No more than 14 days before construction, a survey for burrowing owls and their burrows shall be conducted by a qualified biologist within 500 feet of the project (access permitting). The survey will conform to the protocol described by the California Burrowing Owl Consortium (1995), which includes up to four surveys on different dates if there are suitable burrows present.

EH-10 If occupied owl burrows are found within the survey area, a determination will be made by a qualified biologist, in consultation with the CDFG, as to whether or not work will affect the occupied burrows or disrupt reproductive behavior.

- If it is determined that construction will not affect occupied burrows or disrupt breeding behavior, construction will proceed without any restriction or mitigation measures.
- If it is determined that construction will affect occupied burrows during the non-breeding season (August through February), the subject owls shall be passively relocated from the occupied burrow(s) according to a plan approved by the CDFG. The plan will include installation of one-way doors in occupied burrows at least 48 hours before the burrows are excavated, and will provide for the owl's relocation to nearby lands that possess available nesting habitat.
- If it is determined that construction will physically affect occupied burrows or disrupt reproductive behavior during the nesting season (March through July), then avoidance is the only mitigation available. Construction will be delayed within 300 feet of occupied burrows until it is determined that the subject owls are not nesting or until a qualified biologist determines that juvenile owls are self-sufficient or are no longer using the natal burrow as their primary source of shelter.

EH-11 If the project requires the mitigation of Swainson's hawk foraging habitat, lost burrowing owl nesting and foraging habitat will be considered effectively mitigated with the acquisition of habitat or habitat credits, which replaces Swainson's hawk foraging habitat (see Plan Policy EH-7).

EH-12 If the project does not require the mitigation of Swainson's hawk foraging habitat, lost burrowing owl habitat shall be compensated by the acquisition or conservation of 6.5 acres per breeding pair using the site, at the time of disturbance.

Bats

EH-13 The project sponsor will avoid disturbance of hibernating or maternity bat roosts, by performing preconstruction surveys and creating no-disturbance buffers.

EH-14 Prior to construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) within 200 feet of trees and buildings that potentially support special-status bats, the project proponent will retain a qualified bat biologist to survey for special-status bats. If no evidence of bats (i.e., direct observation, guano, staining, strong odors) is present, no further mitigation is required.

EH-15 If evidence of bats is observed, the project sponsor will carry out the following measures to avoid potential adverse effects to bats:

- A no-disturbance buffer (acceptable in size to the CDFG) will be created around active roosts during the breeding season (April 15 through August 15). Bat roosts initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the take of individuals will be prohibited.
- Removal of trees/buildings showing evidence of bat activity will occur during the period least likely to affect bats, as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula, and between August 15 and April 15 for maternity roosts). If exclusion is necessary to prevent indirect impacts to bats due to construction noise and human activity adjacent to trees showing evidence of bat activity, these activities will also be conducted during these periods.

Valley Elderberry Longhorn Beetle

EH-16 The project sponsor shall avoid Valley Elderberry Longhorn Beetle (VELB) habitat or prepare a VELB Mitigation Plan:

- Regardless of whether or not VELB exit holes are present, all elderberry shrubs with stems at least one inch in diameter shall be avoided, and a 100-foot buffer shall be established around the dripline of the shrubs. The 100-foot buffer may be adjusted in consultation with the USFWS. If avoidance is achieved, a letter report confirming avoidance shall be sent to the USFWS and no further mitigation would be required.
- If disturbance within 100 feet of the dripline of the elderberry shrubs with stems greater than or equal to one inch in diameter is unavoidable, then the project sponsor will: (1) conduct surveys for the VELB in accordance with the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS, 1999); and (2) mitigate for impacts in accordance with these guidelines (USFWS, 1999).

Wetlands and Riparian Habitat

EH-17 The project sponsor will avoid or minimize effects on streams, ponds, wetlands, and riparian habitat when possible. If underground utility crossings are required underneath East Antioch Creek, contractors shall employ jack-and-bore construction techniques for these crossings.

EH-18 For impacted wetlands, the project sponsor shall restore/create wetlands on or off site at a 2:1 ratio. A wetland mitigation and monitoring plan (referred to in General Plan Policies 10.3.2(e) and 10.4.2(d) as a Resource Management Plan) shall be developed and submitted to the Corps and any other applicable agencies, that includes the following:

- description of wetland types;
- performance standards and monitoring protocol to ensure the success of the mitigation wetlands over a period of five to ten years;
- engineering plans showing the location, size, and configuration of wetlands to be created or restored, as applicable;
- an implementation schedule showing when construction of mitigation areas shall occur, as applicable; and
- a description of legal protection measures for preserved wetlands, as applicable (i.e., dedication of fee title, conservation easement, and/or an endowment held by an approved conservation organization, government agency, or mitigation bank).

EH-19 As part of the development review process for projects adjacent to or including East Antioch Creek, the project sponsor shall create a Resource Management Plan for the creek corridor, as required by the General Plan Policy 10.4.2(d), in order to retain native vegetation in and along East Antioch Creek and prevent its degradation. Components of this Plan shall include but are not limited to: a vegetation palette consisting of native species for any landscaping that the project sponsor would like to do within the corridor, and methods for plant installation; vegetation monitoring; herbivore and weed control; irrigation; and site protection.

EH-20 The project sponsor shall establish a minimum 50-foot buffer from the delineated edge of the wetlands and the freshwater marsh vegetation. No development shall occur within this buffer.

- In an effort to avoid impacts to wildlife, including nesting birds and sensitive habitats, a fence shall be erected between the outer edge of the buffer area and the development, to keep pets out. The fence shall be at least four feet in height.
- A 25-foot additional buffer containing a recreation trail composed of permeable or semi-permeable surface may be located outside of the 50-foot buffer.

EH-21 Pedestrian and vehicle bridges proposed to cross over East Antioch Creek shall be designed to span the bed and bank of streams and avoid or minimize bridge piers or footings within the stream, within bridge safety limits.

- If possible, the span of bridges that cross streams should also include some upland habitat beneath their spans to provide dry areas for wildlife species that do not use creeks or for use during storms.
- Native plantings, natural debris, or rocks should be installed under bridges to provide wildlife cover and encourage the use of crossings.

Wildlife Corridors

EH-22 Provisions shall be made for wildlife under-crossings for new roads near East Antioch Creek. Tunnels or culverts must be the minimum length, height, and width necessary to provide safe passage under the road. Culvert designs will be based on the best available data at the time of the development application.

Trees

EH-23 All "established" trees that will be retained shall be adequately protected during grading and construction.

- Trees to be preserved immediately adjacent to the construction area should be protected with a minimum four-foot construction fence placed at least three feet outside the tree's dripline.
- Care should be taken not to change the grade of the protected trees either by fill or grading. Any proposed grading within the dripline of protected trees will require further site investigation and recommendations by a certified arborist.

EH-24 Trees to be retained at the edge of the construction area should be pruned prior to the start of construction to remove dead wood that might present a safety hazard. Trees to be retained in landscape buffers and open space areas should be pruned of dead wood to minimize human hazards.

EH-25 The project sponsor will guarantee the health of all trees to be preserved within and adjacent to the proposed project site for three years. The project sponsor will replace any tree that is to be retained but that dies as a result of project construction activities during the guarantee period, with two 24-inch box, native trees, and the City of Antioch may require the posting of a bond pursuant to the Municipal Code.

EH-26 A plan for control of the Tree of Heaven species should be prepared and implemented in order to prevent root and sprout damage to concrete and asphalt pavement and building foundations.

5.3 CULTURAL RESOURCES

Cultural resources include archaeological resources, historic resources, contemporary Native American resources, and paleontological resources. Federal, state, and local regulations establish requirements for the study and protection of cultural resources. There are no recorded prehistoric archaeological sites within the Planning Area. In addition, no archaeological resources were observed during a walking survey conducted in July 2007 or during mechanical subsurface presence/absence testing conducted in October 2008. However, there is a low to moderate possibility that construction related activities will affect buried prehistoric archeological resources. Paleontological resources, including fossil remains, have been found in other areas of Antioch, so it is plausible that fossils may be found during excavation and grading activities. There are no identified contemporary Native American resources in the Station Area. The Antioch General Plan contains detailed policies about the protection of cultural resources, which apply to all projects in the Hillcrest Station Area.

Historic Resources

There are no federal-, state-, or county-listed historic sites within the Station Area. However, a background report prepared by Holman & Associates identified four sites that may contain potentially significant historic resources and require additional research to establish whether they are eligible for listing. These sites include:

1. The "Foundry," a complex of three modern (post 1960s) buildings located in the southeast corner of the Station Area;
2. A small homestead located at 2500 Willow Lane;
3. Two large debris piles located south of Oakley Road and east of Willow Road, which may be associated with structures from 1916 and 1953; and,
4. An abandoned segment of Southern Pacific's San Pedro and Tulare Railroad (1878-1925) alignment (formerly the Central Pacific Railroad) located at the eastern edge of the Station Area.

The policies listed below establish the procedures and requirements for the protection of specific cultural resources in the Hillcrest Station Area.

Cultural Resources Policies

EH-27 Require the project sponsor to complete the California Department of Parks and Recreation site forms for submittal to the California Archaeological Inventory located at Sonoma State University for each of the sites listed below. As part of the effort, require the project sponsor to complete focused historical archival research for the project area to chronicle historic development since the late 19th Century. This will help inform the determination of whether the sites are eligible to be designated as historic resources.

- The "Foundry" (APN: 052-052-002)
- 2500 Willow Lane
- Two debris piles south of Oakley Road and east of Willow Road
- Abandoned railroad spur

EH-28 If any resource is found to be eligible for inclusion on the California Register of Historic Resources, the project sponsor shall consult with the State Historic Preservation Officer (SHPO) to document the existing condition, in order to establish for posterity a record of the historic property prior to its alteration, relocation, or demolition, and to identify any further requirements for environmental review and/or mitigation.

5.4 GEOLOGICAL AND SEISMIC HAZARD MITIGATION

The City of Antioch, as well as the San Francisco Bay Area as a whole, is located in one of the most seismically active regions in the United States. Several active faults are located seven to 40 miles away from the Station Area, as shown in Figure 5-3, Faults. The inactive Antioch fault has been mapped less than one mile northeast of the Station Area and is not zoned under the Alquist-Priolo Earthquake Fault Zoning Act. Observation of calichefied soils in the Station Area indicate that the Antioch Fault may pass through the area and additional investigation may be necessary. The risk of surface rupture due to earthquakes is low. However, the risk of ground-shaking, which varies depending on the size and location of the earthquake, could be severe.

Seismic events may also cause liquefaction or settlement in areas with sandy soils, or slope instability in the hills in the southeastern quadrant of the Station Area. Figure 5-4 shows the topography of the Hillcrest Station Area.

Mandatory compliance with the building codes and construction standards established in the California Building Code, the requirements of the City of Antioch Municipal Code, and policies contained in the City of Antioch General Plan will ensure the safety of people and structures within the Station Area. Mandatory compliance with the City of Antioch Municipal Code and NPDES General Construction Permit requirements will reduce erosion and related hazards. In addition, the following policies address the potential site-specific seismic and geologic hazards.

Geologic & Seismic Hazard Mitigation Policies

EH-29 Evaluate areas of calichefied soils for evidence of the Antioch fault within the Hillcrest Station Area to ensure that buildings are designed to mitigate potential seismic risks.

EH-30 A slope stability analysis of the hillsides along the southernmost portion of the Planning Area shall be conducted prior to the issuance of any grading permits in this area.

- If slope stability and/or landslides are expected to be an issue, the slope stability analysis shall recommend measures to ensure that future development projects in this area be designed and constructed to avoid seismically-induced landslides or other slope failures. Recommendations can include:
  - Requiring that the slope is cut at a flatter angle, such as 2.5:1 or 3:1 for slopes greater than 30 feet high; or,
  - Requiring that the slope is excavated and re-built as engineered fill buttress slopes inclined at 2:1 for slopes up to 30 feet high and inclined at 2.5:1 for slopes greater than 30 feet high.
- Detailed grading plans and construction drawings incorporating the recommended measures shall be submitted to the City of Antioch Building Department for approval prior to the issuance of building permits.

Figure 5-3: Faults

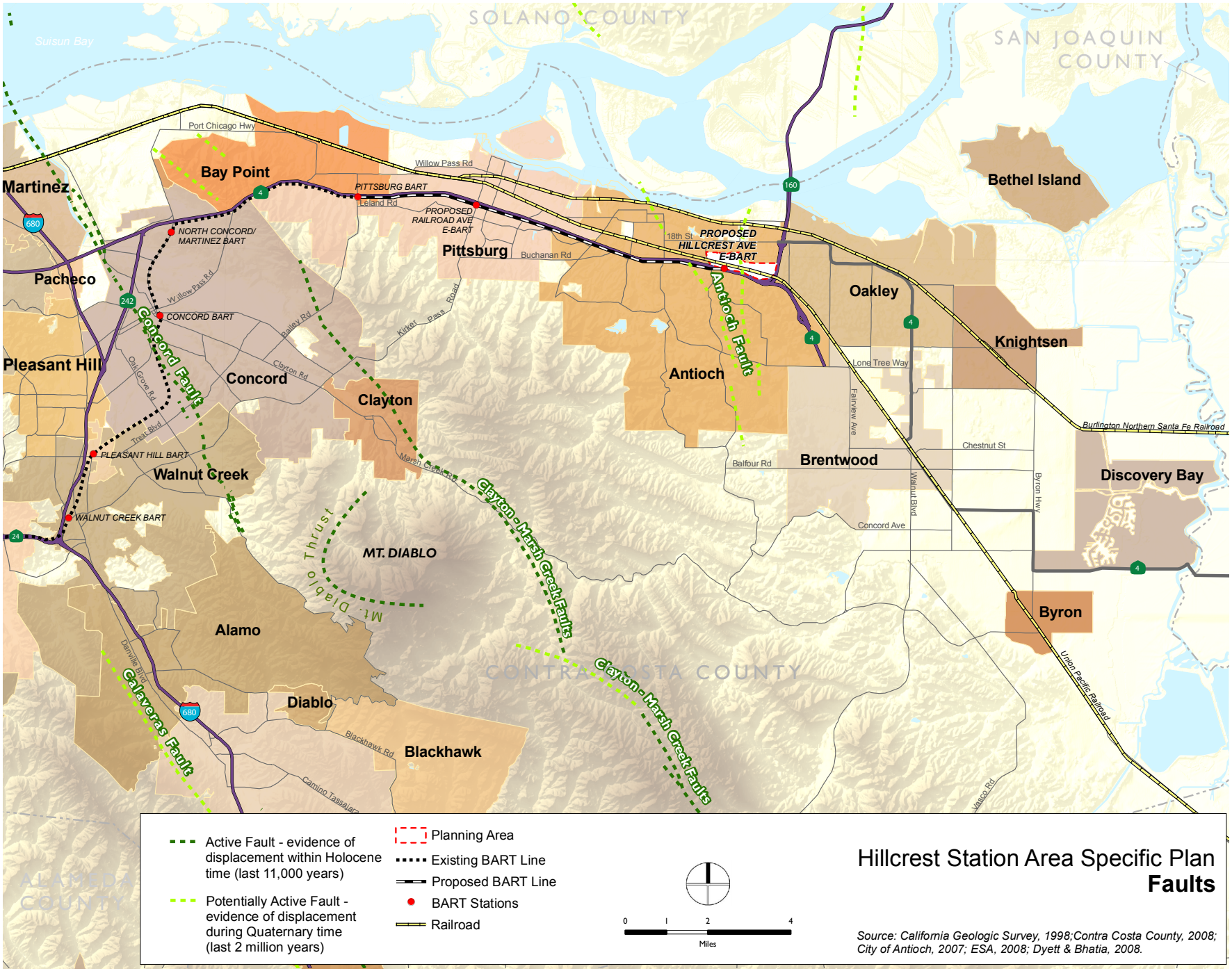
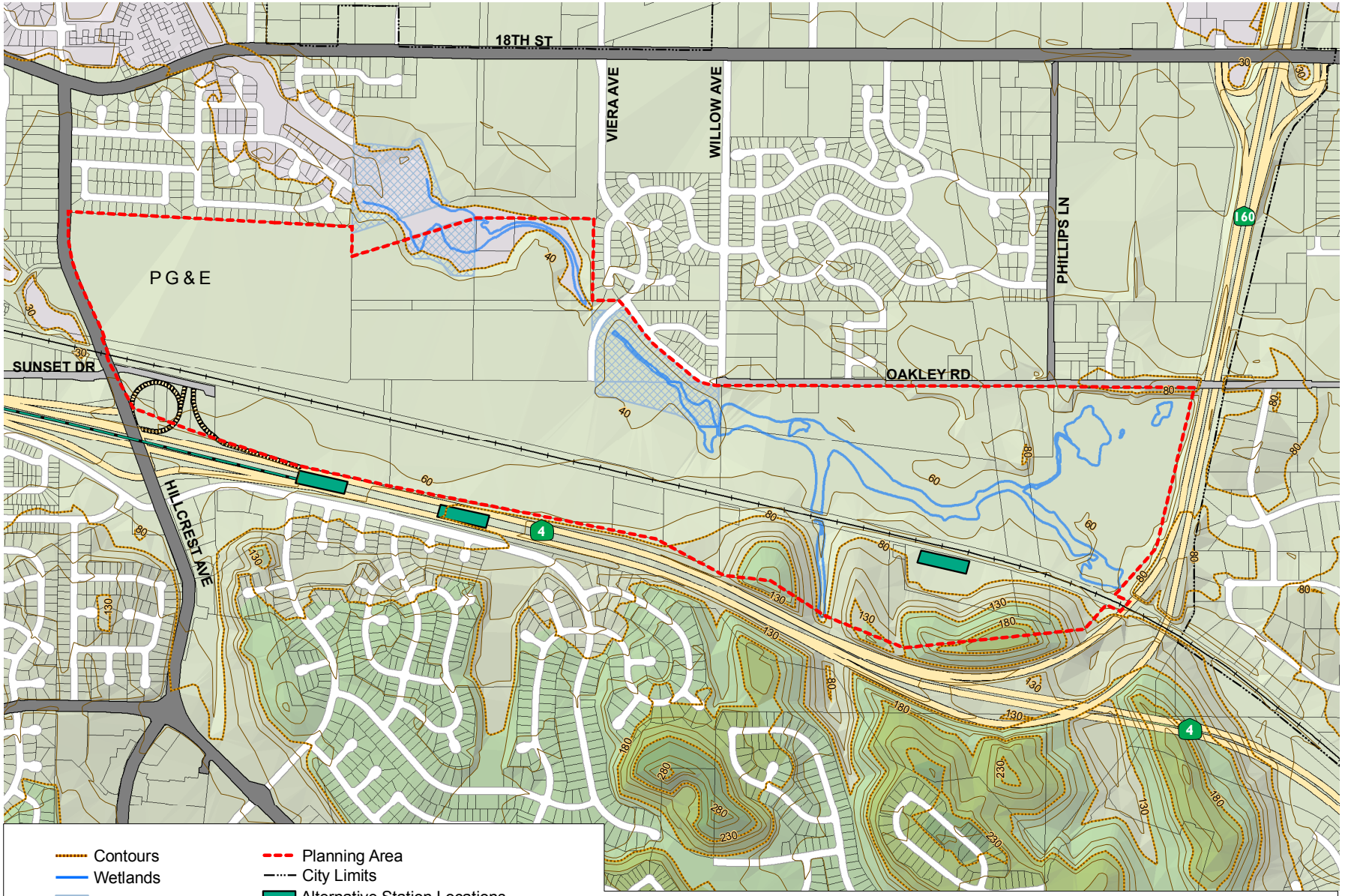


Figure 5-4: Topography



5.5 GREENHOUSE GAS EMISSIONS AND RESOURCE EFFICIENCY

According to the California Climate Action Team, accelerating global climate change has the potential to cause a number of adverse impacts in California, including but not limited to: a shrinking Sierra snow pack that would threaten the state's water supply; public health threats caused by higher temperatures and more smog; damage to agriculture and forests due to reduced water storage capacity, rising temperatures, increasing salt water intrusion, flooding, and pest infestations; critical habitat modification and destruction; eroding coastlines; increased wildfire risk; and increased electricity demand. Many scientists believe that greenhouse gas (GHG) emissions contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, energy generation, utility, residential and commercial building, and agricultural sectors.

The State of California and communities in the San Francisco Bay Area have been taking active roles in regulating the major pollutants that contribute to greenhouse gas emissions. The Global Warming Solutions Act of 2006 (AB 32) requires the State of California to limit the total statewide greenhouse gas emissions in 2020 to the level of emissions in 1990. In 2007, Contra Costa County adopted the long-term reduction target set by the U.S. Cool Counties Climate Stabilization Declaration. This declaration calls for the County to work closely with local, state, and federal governments and other leaders to develop a regional plan to reduce county geographical GHG emissions to 80 percent below current levels by 2050.

In addition to working cooperatively with state and local governments to reduce greenhouse gas emissions from transportation, utilities, and agriculture, the City of Antioch can take an active role in reducing GHGs from commercial and residential buildings and support efficient use of natural resources. The following policies establish resource efficiency standards for the new development projects within the Hillcrest Station Area.

Greenhouse Gas Emissions and Resource Efficiency Policies

EH-31 The City shall continue to work with the county, and other local, state, and federal governments, to develop a regional plan to reduce county geographical GHG emissions to 80 percent below current levels by 2050.

EH-32 Projects that receive financial assistance from the City or the Redevelopment Agency, including but not limited to assistance with public infrastructure, shall demonstrate the incorporation of energy efficiency measures beyond the minimum standards of Title 24 and the use of alternative energy sources such as solar power.

EH-33 All electrical appliances installed in development projects in the Hillcrest Station Area shall be Energy Star rated.

EH-34 All projects shall demonstrate that recycled materials have been incorporated into new construction.

EH-35 Non-residential projects shall meet whichever standard is lower:

- The current energy efficiency standard at the time that the development application is submitted, or
- A 20 percent reduction in energy from the 2003 Title 24 Standards, consistent with Executive Order S-20-2004 issued by Governor Schwarzenegger.

EH-36 Locate, orient, and shade the building, where feasible, as follows:

- Provide exterior shade for south-facing windows during the peak cooling season.
- Provide vertical shading against direct solar gain and glare due to low altitude sun angles for east- and west-facing windows.
- When site and location permit, orient the building with the long sides facing north and south.
- Protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials such as dust, sand, and leaves with building orientation and landscape features.
- Wherever possible, use vegetation to shade buildings to limit direct solar gain and glare.

5.6 HAZARDOUS MATERIALS REMEDIATION

Exposure to hazardous materials can cause harm over time and must be mitigated to ensure public health and safety. Past and present land uses in the Station Area include industrial, utility, residential, and agricultural uses. The Contra Costa County Health Services Department and the California Regional Water Quality Control Board (RWQCB) are monitoring the remediation of four areas of soil and groundwater contamination in the Station Area. Other areas have not been fully evaluated for potential soil and groundwater contamination. Figure 5-5 shows open remediation case sites and potential contamination sites.

TABLE 6-1 CONTAMINATED SITES

OPEN REMEDIATION CASE SITES	POTENTIAL CONTAMINATION SITES
1 – Former Hickson-Kerley (FKP) Property	A – PDQ Products
2 – Chevron Old Valley Pipeline	B – Former Orchards
3 – TAOC New Love Pump Station Site	C – PG&E Substation
4 – PG&E Oakley Metering Station	D – Railroad Right-of-Way
	E – Petroleum Pipeline Alignments

Source: Engeo Inc., 2008

Compliance with federal, state, and local hazardous materials and waste regulations is required for all development projects in the Station Area. Implementing established protocols and the following policies can reduce public health risks to negligible levels.

HAZARDOUS MATERIALS REMEDIATION POLICIES

All Parcels

EH-37 Prior to approval of any discretionary permits for subdivisions or new construction, property owners shall work with the Contra Costa County Fire Protection District (CCCFPD), the Contra Costa County Health Services Department (CCCHSD), the California Department of Toxic Substances Control (DTSC), and/or the California Regional Water Quality Control Board (RWQCB), whichever has jurisdiction, to resolve issues related to contamination that could potentially impact future land uses in the project area.

Parcels with Known Contamination

EH-38 For parcels with known contamination, the lateral and vertical extent of contamination shall be determined; cleanup activities shall be undertaken per state and federal regulations; and appropriate land use restrictions implemented, as necessary, prior to the issuance of development permits on parcels with known contamination.

EH-39 As part of the project entitlement process, appropriate studies shall be conducted for each site with an open remediation case based on proposed land uses by a qualified environmental professional. The studies shall compare maximum soil, soil gas, and groundwater concentrations to relevant environmental screening levels (ESLs) and evaluate all potential exposure pathways from contaminated groundwater and soil. As required by the appropriate responsible agency, studies shall be prepared for the:

- Former Hickson-Kerley (FKP) Property (APN: 052-051-034);
- Chevron Old Valley Pipeline;
- TAOC New Love Pump Station Site (APN: 052-051-034); and,
- PG&E Oakley Metering Station (APN: 052-051-035)

EH-40 At sites with known contamination issues, a Construction Risk Management Plan (RMP) shall be prepared and approved prior to commencement of construction, to protect the health and safety of construction workers and site users adjacent to construction activities.

Parcels with Potential Contamination

EH-41 Soil and water contamination assessments are required to ensure public health for projects on the following properties:

- PDQ parcel (APN: 052-052-002);
- Former orchards;
- Parcels adjacent to the PG&E Substation property;
- Parcels adjacent to the railroad right-of-way;
- Parcels adjacent to active and inactive petroleum pipelines;
- Park-n-ride lot (APNs: 052-011-009, 052-011-010, 052-011-011, 052-011-015, 052-011-016); and,
- Detention basins (APN: 051-170-004, 051-170-053, 051-333-001, 052-030-022).

EH-42 If soil or groundwater contamination is identified on any parcel in the Hillcrest Station Area, the lateral and vertical extent of contamination shall be determined; cleanup activities shall be undertaken per state and federal regulations; and appropriate land use restrictions implemented, as necessary, prior to issuance of development permits.

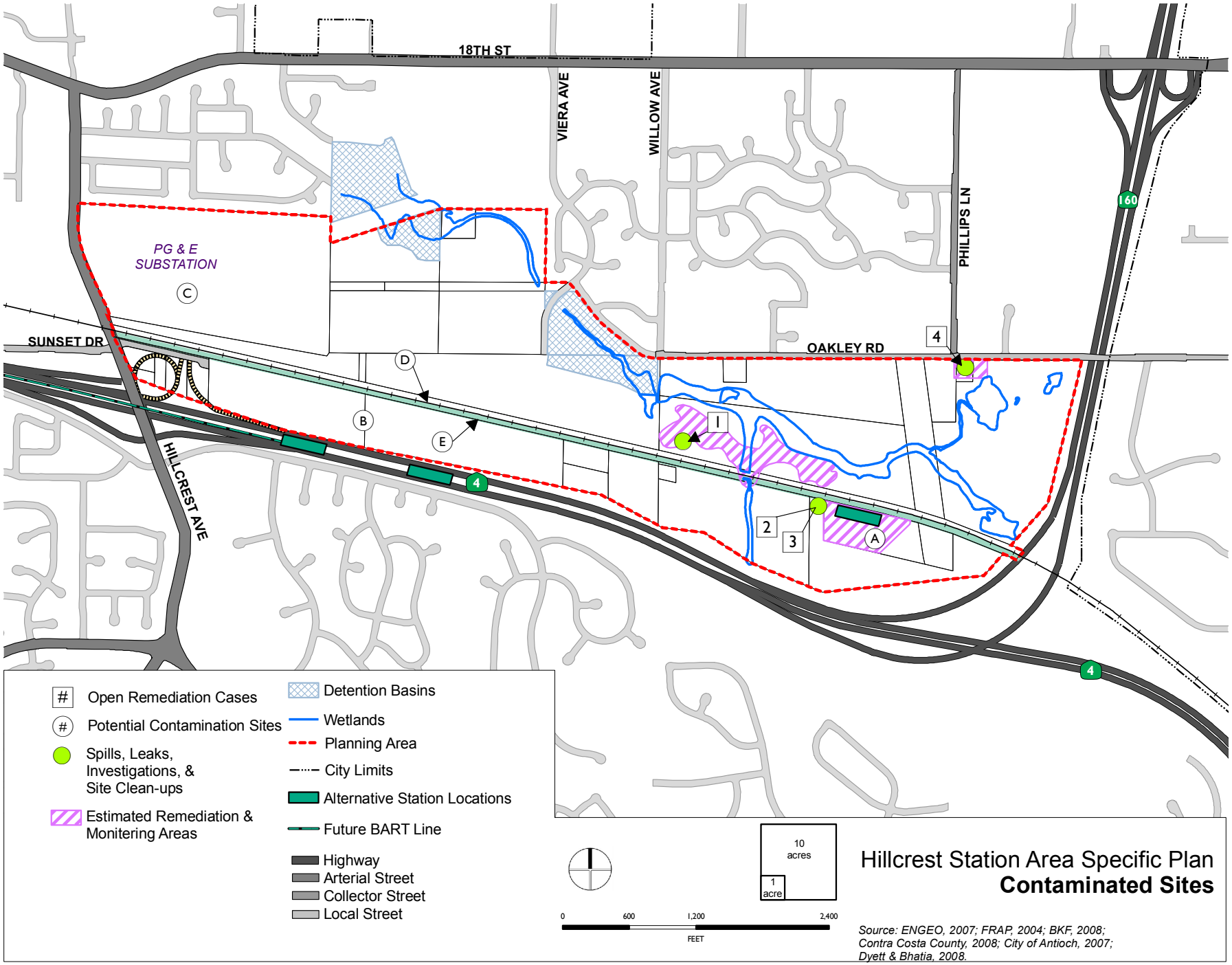
EH-43 The City of Antioch and property owners shall contact and work with Union Pacific to ensure that planned railway improvements that disturb potentially contaminated soils do not impact nearby properties or development, or cause a public health hazard.

Hazardous Building Materials

EH-44 On parcels with existing structures, project sponsors shall submit to the City a project Demolition Plan that addresses onsite and offsite chemical and physical hazards. The Demolition Plan shall contain:

- Information for any existing structures or buildings, regarding the presence of hazardous building materials such as asbestos-containing building materials, PCBs, and lead-based paint in existing buildings proposed for demolition, additions, or alterations;
- Protocols for ensuring the safety of workers and the public during demolition or construction activities, as approved by the City. These protocols will include, but are not limited to:
  - Prior to demolition, hazardous building materials shall be removed and appropriately disposed of in accordance with all applicable guidelines, laws, and ordinances.
  - The demolition of buildings containing asbestos requires that licensed asbestos abatement contractors are retained and the Bay Area Air Quality Management District (BAAQMD) is notified ten days prior to initiating construction and demolition activities.
  - The Cal-OSHA-specified method of compliance for demolition activities involving lead-based paint including required respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training shall be required.
  - Any electrical transformers and fluorescent light ballasts that do not have labels stating that they do not contain PCBs, shall be treated as hazardous waste and are subject to all hazardous waste regulations.

Figure 5-5: Contaminated Sites



5.7 WATER QUALITY

East Antioch Creek and surrounding wetlands functions as the primary hydrologic feature in the Hillcrest Station Area. The creek's watershed drains approximately 11 square miles through the Station Area to Alhambra Lake, and eventually to the Sacramento-San Joaquin River Delta, as shown in Figure 5-6, Watershed. The creek is critical to the natural and man-made stormwater management systems, as it has been improved with detention basins. Maintaining and improving stormwater and urban runoff quality before it enters surface waters or groundwater is essential to protecting public health, wildlife, and the overall environment. Water pollution can be reduced through effective stormwater management, construction practices, and appropriately designed development.

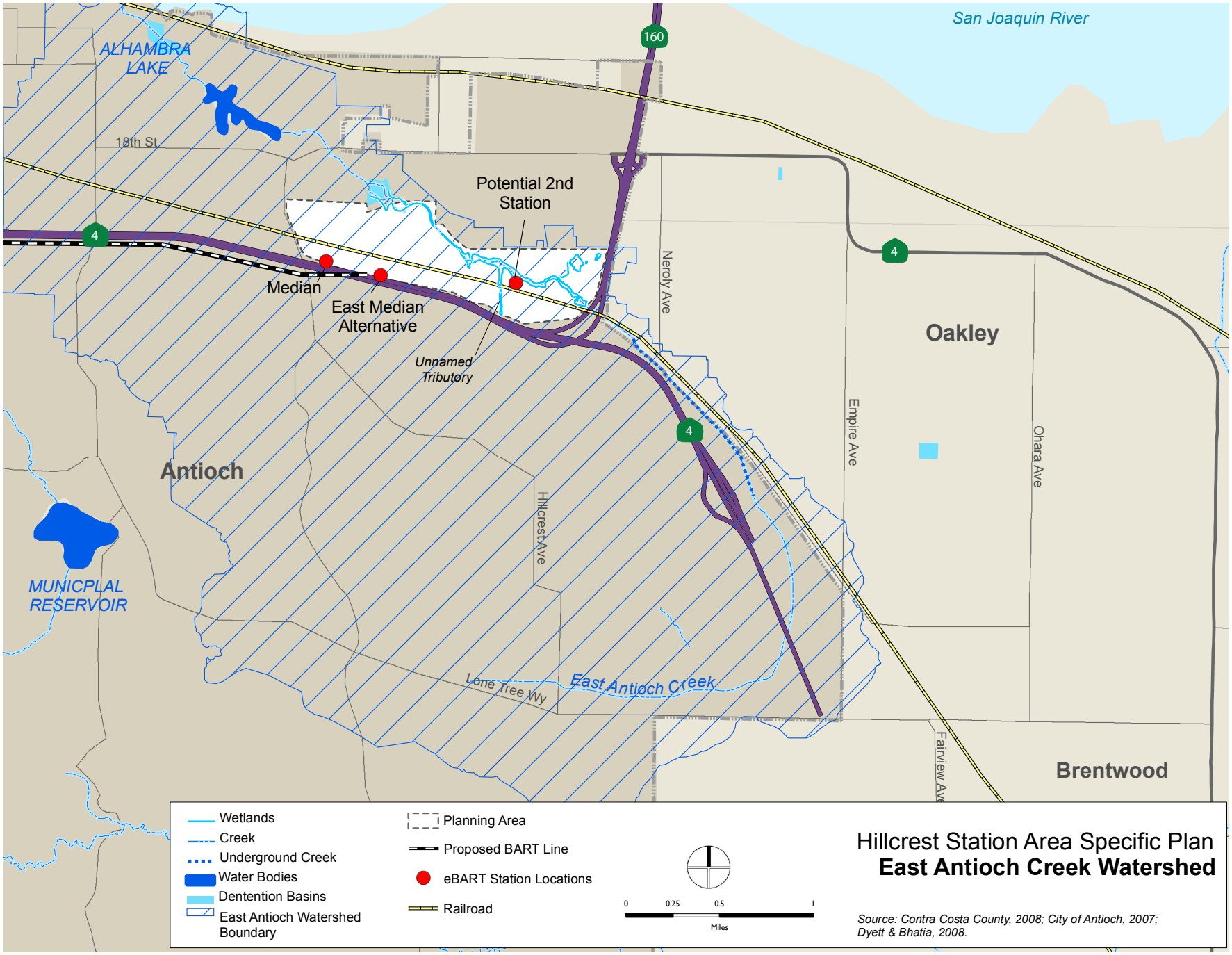
All project construction activities are required to comply with the City of Antioch's standard conditions of approval regarding grading, drainage, erosion and sedimentation control, and NPDES General Construction Permit requirements, in order to limit the amount of new pollution added to the river and groundwater. In addition, projects in the Station Area must comply with C.3 of the NPDES Municipal Stormwater Permit, which reduces the pollutant load in storm water discharges and manages runoff flows. Policies related to flood hazard mitigation and improving the stormwater management system in the Station Area are contained in Chapter 6, Utilities and Public Services. The following policies will ensure that stormwater runoff will not severely impact surface water or groundwater quality.

Water Quality Policies

EH-45 Development projects in the Station Area shall comply with the requirements of Provision C.3 of the NPDES Municipal Stormwater Permit issued to the Contra Costa County Clean Water Program. As required by the C.3 Provisions, building permit applications must be accompanied by a Stormwater Control Plan, for review and approval by the City Engineer, which specifies the treatment measures and appropriate source control and site design features that will be incorporated into project design and construction to reduce the pollutant load in storm water discharges and manage runoff flows.

EH-46 Design storm drainage and flood control structures to minimize erosion and creek sedimentation, and to preserve and enhance the wildlife habitat and vegetation of East Antioch Creek.

Figure 5-6: Watershed



5.8 NOISE AND VIBRATIONS

As in most urban areas, vehicular traffic along highways, particularly SR 4 and SR 160, is the principal noise source in the Hillcrest Station Area. Vehicular traffic along Hillcrest Avenue and Oakley Road contribute to the noise environment to a lesser degree. The Union Pacific Mococo Railroad right-of-way traverses the Planning Area on an east-west axis. While very few trains currently use this right-of-way, Union Pacific has stated their intent to increase usage to as many as forty trains per day.

As the Station Area is developed, new uses will be built in this noisy environment. Some of the uses, such as residential units, will be sensitive to increases in the noise environment. Other uses, such as mixed-use areas with restaurants and retail requiring delivery trucks, will contribute to the noise environment. Traffic volumes will continue to increase, the eBART project will be built, and Union Pacific has indicated that freight trains will begin regular service. The area will become significantly noisier and the trains will add a source of intermittent vibrations that may need to be mitigated. Figure 5-7 presents a map of the projected noise contours.

Mitigating disruptive and harmful noise levels is necessary to create a livable environment. The City has established exterior and interior noise standards; and there are federal standards related to vibration. Compliance with the noise standards involves avoiding the development of noise sensitive uses in proximity to the sources, and integrating noise attenuation components in building design to reduce interior noise levels. The intermittent noise from the train rumblings and crossing-horns may be very loud and disruptive. The City of Antioch will be working with Union Pacific to reduce the potential impacts, with the intent of providing a grade separation at Hillcrest Avenue, thereby removing a crossing-horn location. Residential uses are limited within 300 feet of the highways and the railroad in order to limit noise and air quality impacts, as established in the Plan Framework, Chapter 3. The following policies will further help to limit noise and vibration impacts in the Station Area.

NOISE AND VIBRATIONS POLICIES

Noise

EH-47 Require developers to comply with relevant noise insulation standards contained in Title 24 of the California Code of Regulations (Part 2, Appendix Chapter 12A).

EH-48 Require acoustical analysis performed by a licensed acoustical engineer to determine appropriate noise mitigations in order to meet the City's standards for projects as described below. Building permit applications shall demonstrate that noise mitigations are included in construction documents.

- Residential projects within:
  - 730 feet of the SR 4 centerline;
  - 310 feet of the SR 160 centerline;
  - 170 feet from the centerline of the Union Pacific Mococo Rail Line right-of-way; and,
  - 850 feet from the intersection of Hillcrest Avenue and the Union Pacific Mococo Rail Line (or the location(s) where freight trains sound horn).
- Institutional and Office projects within:
  - 340 feet of the SR 4 centerline;
  - 150 feet of the SR 160 centerline;
  - 80 feet from the centerline of the Union Pacific Mococo Rail Line right-of-way;
  - 400 feet from the intersection of Hillcrest Avenue and the Union Pacific Mococo Rail Line (or the location(s) where freight trains sound horn);
  - 30 feet of the eBART track centerline; and
  - 60 feet from the eBART at track crossovers ("frogs").

EH-49 Where projects in the Hillcrest Station Area incorporate noise mitigations and still cannot achieve City standards for exterior noise levels, as determined by acoustical analysis by a licensed acoustical engineer, project sponsors may apply for an exception to City exterior noise standards.

- Such exception requests will be considered through a discretionary development entitlement process.
- Projects requesting exceptions to exterior noise standards should demonstrate that:
  - (1) all feasible noise mitigations have been incorporated to lower exterior noise levels as close as possible to City standards; and
  - (2) noise mitigations that lower interior noise levels below the City and state standard of 45 dB have been incorporated, to compensate for the high exterior noise levels which make outdoor activities uncomfortable.

EH-50 In new residential projects, provide noise buffers other than sound walls, such as vegetation, storage areas, or parking, and site planning and locating bedrooms away from noise sources.

EH-51 Work with Union Pacific to minimize noise issues related to freight rail by implementing a grade separation at Hillcrest Avenue, and establishing a quiet zone through the Station Area.

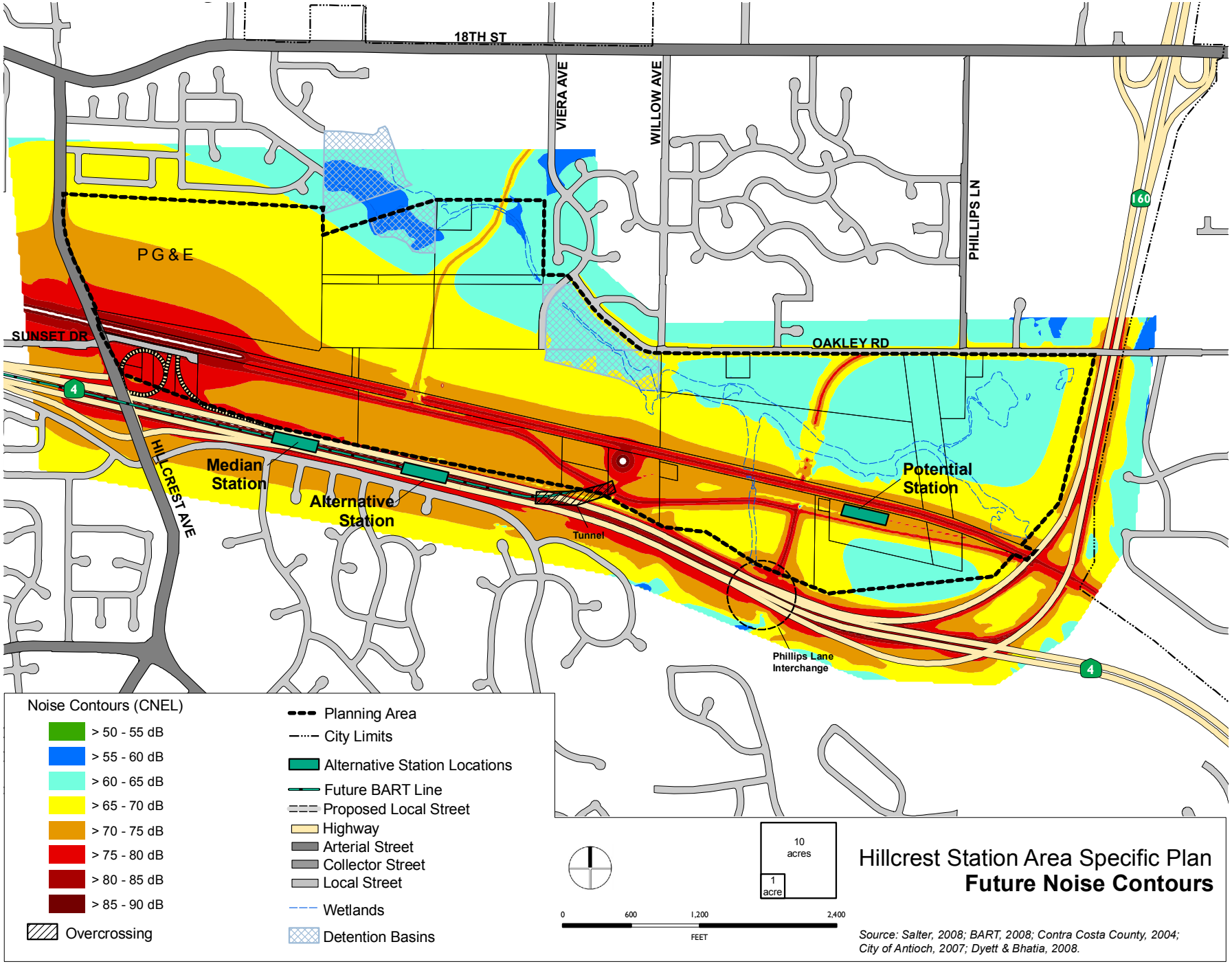
EH-52 Require developers to mitigate noise exposure to sensitive receptors from construction activities. Mitigation may include a combination of techniques that reduce noise generated at the source, increase the noise insulation at the receptor, or increase the noise attenuation as noise travels from the source to the receptor (e.g., through the incorporation of barriers).

Vibrations

EH-53 Require vibration velocity analysis to determine appropriate mitigations for proposed:

- Residential projects within 200 feet from the centerline of the Union Pacific Mococo Rail Line right-of-way;
- Institutional and Office projects within 120 feet from the centerline of the Union Pacific Mococo Rail Line right-of-way; and,
- High-sensitivity use projects (e.g. hospitals and medical labs) within 600 feet from the centerline of the Union Pacific Mococo Rail Line right-of-way.

Figure 5-7: Future Noise Contours



5.9 PIPELINES

Existing pipelines are shown in Figure 5-8. In the early 1900s, Chevron's predecessors built the Tidewater Associated (TAOC) and Old Valley (OVP) pipelines to transport heavy crude oil and Bunker C fuel oils from the oilfields in Kern County to its Richmond refinery located in Richmond, California. The pipelines were operated until the early 1970s when they were emptied, cleaned, and decommissioned. The pipelines are no longer active and the bulk of the pipe has already been removed. The OVP and TAOC pipelines were generally parallel to the southern edge of the railroad right-of-way.

Chevron operates one active pipeline parallel with the southern edge of the Union Pacific railroad right-of-way. This 8-inch steel high pressure pipeline transports refined petroleum products. In addition, Chevron operates a scraper trap/block valve site on parcel APN: 052-052-008.

While there is a general recognition that high-pressure petroleum pipelines pose a hazard to people, property, and the environment, the extent of the danger is not well understood. Risk can be reduced and managed, but it cannot be eliminated. According to federal and state law, pipeline operators are required to comprehensively assess, identify, and address the safety of pipeline segments that are located in areas where the consequences of a pipeline failure could be significant. However, these requirements may be insufficient to protect life, property, and the environment from the effects of a pipeline incident. The following policies are intended to help delineate and reduce the potential hazards of building near an existing pipeline.

Pipelines Policies

EH-54 Prior to the approval of development permits, require a disposition plan for all petroleum pipelines so that required mitigations (relocation, abandonment or protection) can be determined.

EH-55 The City of Antioch and property owners shall work with Chevron to evaluate the risk factors related to the active high-pressure petroleum product pipelines, including product transported, operating pressure, age of pipeline, and depth of cover, and to provide adequate access to the oil pipelines in the Hillcrest Station Area. If it is determined that there is a significant risk to adjacent residential development, prepare a Risk Management Plan or comparable risk reduction action plan.

Figure 5-8: Existing Pipelines