Chapter 2
Land Use and Covered Activities

2.1 Introduction

This chapter examines land use designations and trends in East Contra Costa County and addresses covered projects and covered activities within these areas. The examination of land use provides the basis for the impact analysis in Chapter 4, *Impact Assessment and Levels of Take*, and provides the necessary background for the covered activities. This chapter reviews development, land use changes, and current growth patterns in East Contra Costa County; presents the criteria used to determine land use type; and describes the projects and activities within the inventory area that are proposed for coverage under the incidental take permits.

2.2 Land Use

2.2.1 Background

The County was incorporated in 1850 as an original county of the State of California. The County was predominantly rural through the early decades of the twentieth century except for a few cities, such as Pittsburg and Antioch, along its northern shoreline. Beginning in the 1940s and continuing well into the 1970s, the County experienced tremendous housing and population growth. The large population increase was not matched by a comparable expansion in job growth, however, until the 1980s, when there was an expansion of commercial development in the County's suburban areas.

Until the mid-1980s, much of the growth in the County was concentrated in the western and central communities along the shoreline and along the Interstate 680 (I-680) corridor. When those communities began to reach their boundaries, development pressure increased on the eastern portion of Contra Costa County. As a result, the East County experienced rapid residential growth during the mid-1980s, particularly in Pittsburg, Antioch, Brentwood, and Oakley along the corridor of State Route (SR) 4.

The East County continued to develop rapidly throughout the 1990s and is expected to be the fastest growing area of the county for the foreseeable future. Between 1990 and 2000, the population of the East County increased by 43% contrasted with a county-wide increase of 18% (Contra Costa County 2001). The City of Brentwood experienced the most significant increase (152%) making it, for a time, the fastest growing city in the United States. The communities of Clayton, Antioch, Pittsburg, and Oakley are also growing rapidly. As the corridor along SR 4 was built out, residential development began expanding rapidly in the southern portions of Pittsburg and Antioch, as well as in Brentwood. Much of the development in East Contra Costa County during the 1980s and 1990s involved converting crop, grazing, or irrigated pasture lands into residential and other urban uses (Contra Costa County 2005). Also during this time Contra Costa County significantly expanded the Byron Airport.

In response to the rapid growth and a growing environmental awareness in Contra Costa County, Measure C was adopted by voters in 1990. The Measure established a 65/35 Land Preservation Standard, which limited urban development to 35% of the county while preserving 65% for open space, agriculture, parks, wetlands, and other non-urban uses. Measure C also created a ULL, which prohibits the County from approving urban land uses beyond the ULL (Contra Costa County 2005). In 2000, the County Board of Supervisors amended the ULL, excluding more than 14,000 acres previously available for development; more than half of the affected lands were in the East County (and within what is now the HCP/NCCP inventory area). Several cities in the inventory area disagreed with and filed litigation against the decision of the Board of Supervisors to retract the ULL and have proposed amending the ULL again to include areas where the cities may consider growth. In November of 2004, the County Board of Supervisors amended the ULL again to exclude incorporated areas from the protected side of the line.

Significant debate continues among the cities and the County regarding the ULL and a variety of other growth-related topics. Such matters were a focus of the "Shaping Our Future" process, a cooperative planning effort involving the County and all cities in the County. Measure J, a renewal of a half-cent sales tax for transportation purposes approved by County voters in November of 2004, also contained provisions related to growth and growth boundaries. Under Measure J, cities and the County must have a voter-approved ULL in place in order to receive designated local transportation funds from the proceeds of Measure J. Measure J requires that either a 75% supermajority of cities and the County (by population) receive voter approval for a common ULL, or that each jurisdiction receive voter approval for their own, separate ULL. Voters in Antioch and Pittsburg approved ULLs for these cities in November 2005 that permitted more growth than the County ULL, while voters in Brentwood did not approve a similar measure.

General patterns of land use designations in East Contra Costa County, as described by participating cities and in County planning information, are as follows. The northern portion of the inventory area is designated as development, with the remainder designated as agricultural land, open space, and

parks. Housing is the major form of development projected to occur in the inventory area. Development trends for the inventory area include the buildout of southern Pittsburg, southern Antioch, and southern and eastern Clayton; the urbanization of Brentwood and Oakley; development of the Cypress Road Corridor east of Oakley, development of Discovery Bay West adjacent to the existing Discovery Bay; and development between the already urbanized cores of Antioch, Brentwood, and Oakley.

The majority of the inventory area consists of unincorporated lands. The unincorporated areas of East Contra Costa County are primarily rural agricultural and public lands used principally for grazing, natural parks, and watershed protection. The current size and present and projected future populations of each jurisdiction within the inventory area are listed in Table 2-1.

2.2.2 Rationale for Land Use Designations Evaluated in the HCP/NCCP

For the purposes of this analysis, future land uses were assumed to be consistent with the General Plans of Contra Costa County (2005), Antioch (1988, 2004), Brentwood (2001), Clayton (2000, 2005), Oakley (2002), and Pittsburg (2001); and with amendments and provided by County planning staff (Kopchik pers. comm.). Planning staff from the County and the participating cities provided geographic information system (GIS) data of the political boundaries, including the County boundary, city limit lines (2002); the County ULL (as amended by the County Board of Supervisors in September 2000 and November 2004); and land use designations in the inventory area.

A consolidated map of land use designations was provided by the County. This map combines the land use designations identified in the General Plans of the cities and the County into a single, simplified classification system. The map illustrates city land use designations in incorporated areas and County designations in unincorporated areas. The map also depicts all dedicated open space in the county and a current inventory of public facilities (East Bay Regional Park District data).

For the purposes of this HCP/NCCP, the 28 categories from the land use designation map were combined into nine groups: development, agriculture, agricultural core, public facilities, public facilities with undeveloped land, urban parks and open space, open space (planned), protected lands, and water (see Table 2-2 for definitions). These nine categories group land use designations that have similar effects on covered species and natural communities. These categories represent a combination of current and future land use in the inventory area[1].

[1] Current land uses cannot be separated from future land uses on the basis of existing County or city land use designation data. Current development and agriculture were mapped for this project based on air photo interpretation described in Chapter 3.

All industrial, residential, and commercial land use designations were merged into the Development land use category (Table 2-2). The County defines Agriculture as all grazing land, croplands, orchards, and vineyards. Because the County does not distinguish grazing lands from other agricultural lands (such as croplands) in its General Plan (except for the Agricultural Core designation as described below), these existing and planned land uses could not be distinguished in the land use maps created for the Plan. Agriculture also includes the Delta Recreation (DR) category, which in turn includes islands and adjacent lowlands of the San Joaquin–Sacramento Delta that are used mostly for agriculture.

The Agricultural Core designation is applied to the agricultural lands with the most fertile soils in the county, and is generally devoted to intensive row-crop cultivation. The Agricultural Core designation is more restrictive of subdivision and development activities than the Agriculture designation.

The Public Facilities category includes most lands designated as Public/Semi-Public (PS), including highways, government offices, hospitals, railroad lines, and other developed public facilities.

Public Facilities with Undeveloped Land includes PS facilities such as the Byron Airport and the County Detention Facility along Marsh Creek Road. This category also includes the Landfill (LF) designation, because the only active landfill in the inventory area, the Keller Canyon landfill south of Pittsburg, encompasses large areas of undisturbed land not currently used for landfill operations.

The Urban Parks and Open Space category includes lands designated for Parks and Recreation and for Open Space that are surrounded by urban development or are themselves developed or landscaped.

The Open Space (planned) category includes areas that are designated in city or County General Plans as Open Space but are on private land and are not further encumbered by conservation easements or dedicated development rights.

The Protected Lands category includes federal land; local, state, and regional parks; private lands with conservation easements or similar deed restrictions; and public watershed lands. Watershed (WS) indicates land owned by Contra Costa Water District (CCWD), the major water supplier in East Contra Costa County. Watershed lands are managed for water-quality protection and include passive recreational activities.

The Water category includes areas designated as Water in the General Plan. Only larger water bodies and reservoirs receive this designation. Ponds generally are not designated as water.

Below is a description of the designated land uses within the inventory area by jurisdiction. Table 2-3 provides a summary of land uses within each jurisdiction. Figure 2-1 provides a summary of the extent of the land use designation types described above.

2.2.3 Existing and Designated Land Uses

Brentwood

The City of Brentwood has historically been an agricultural community. Recently, however, Brentwood has undergone a rapid change from an agricultural to a suburban community. Between 1990 and 2000, the population of Brentwood grew by 152%. By 2020, Brentwood's population is projected to increase by another 106% (Association of Bay Area Governments 2002).

The rapid population growth across East Contra Costa County has been projected to exceed the supporting number of jobs. In an attempt to correct this imbalance, Brentwood's general plan calls for the rate of employment growth to be greater than residential development growth. To meet this goal, 87% of Brentwood is designated as development, and the city plans a major expansion of business parks and commercial areas throughout its city limits (City of Brentwood 2001). Industrial areas are limited to the northeastern corner of the City's planning area.

Areas of open space and parks are designated in the southern portion of the city and account for 10% of the total area of Brentwood. Two percent of Brentwood is dedicated to agricultural use. As is the case with Oakley, agriculture is allocated to the eastern portion of the city, where it serves as a buffer between the city and the Agricultural Core located in unincorporated portions of the county. Furthermore, Brentwood has designated several areas in the city planning area as urban reserve; these will not be developed during the life of the current general plan[2]. To attempt to conserve agricultural lands in and around Brentwood, the City launched the independent Brentwood Agricultural Land Trust (BALT). The City also imposes an agricultural impact fee to be spent by BALT on conservation of agricultural lands through acquisition of permanent conservation easements.

Clayton

The City of Clayton incorporated in 1964. Clayton has been experiencing rapid population growth, and its 1990 population grew by almost 50% to reach 10,762 residents in 2000. The city is bounded on the west and north by Concord, on the south by Mount Diablo State Park, and on the northeast by Black Diamond Regional Preserve. Accordingly, future growth of Clayton will occur to the east. Residential development is the principal land use in Clayton, dominated by single-family, low-density homes. Commercial land use is concentrated in the Town Center and the Kirker Corridor, which is intended to become a commercial center serving the regional market. The city currently contains 400 acres of open space (City of Clayton 2000, 2005).

[2] For the purposes of this document, urban reserves have been considered a Development land use designation.

Oakley

The City of Oakley is a rural agricultural community incorporated in 1999 (City of Oakley 2002). Oakley is currently undergoing a transition from a rural landscape to a suburban one. More than 90% of the land within Oakley in the inventory area is designated for development, with the majority of that development being residential. Five percent (451 acres) of city land is designated for agricultural use, mainly in eastern Oakley. Of all the cities in the inventory area, Oakley has dedicated the largest number of acres to agriculture. Parks are mainly designated in residential areas. The California Coastal Conservancy, with assistance from the California Department of Water Resources, the Natural Heritage Institute, and the City of Oakley, is leading a large (1,224 acres) habitat restoration project on Dutch Slough in the northeast corner of Oakley.

As the Final HCP/NCCP went to press, the City of Oakley was in the process of finalizing the annexation to the City of lands within the 2,546-acre East Cypress Corridor Specific Plan area. Consequently, the maps and tables in the Final HCP/NCCP reflect the boundaries of the City of Oakley prior to the annexation. Development within the annexation area was anticipated in the HCP/NCCP because the area is within the County ULL, so completion of the annexation will not change the assumptions in the HCP/NCCP.

Pittsburg

Pittsburg is the second most populous city in the inventory area. The most prevalent land uses in Pittsburg are residential and industrial. Like Antioch, most of Pittsburg's industrial areas (e.g., power plants, chemical, and other heavy industry) are located in the northern section of the city along the Sacramento/San Joaquin River. Areas designated for commercial use in Pittsburg are concentrated around SR 4 and Pittsburg's downtown area in the eastern part of the city. New natural gas power plants have been constructed in the last few years in and near Pittsburg. Commercial development within already established areas is expected to increase (Association of Bay Area Governments 1999; City of Pittsburg 2001). New residential development is planned for the southern portion of Pittsburg, specifically in the Southwest Hills and Buchanan planning subareas (City of Pittsburg 2001).

Pittsburg comprises 5% of the inventory area, and 80% of the city is designated for development. Parks and open space—mainly serving residential areas in the southern portion of the city—are designated for the remaining 1,600 acres within the city.

Antioch

The City of Antioch is not a participating member of the HCPA, nor will it be a signatory to the final HCP/NCCP agreement. It is therefore excluded from the permit area. It is, however, within the larger inventory area. Land use changes and population growth within Antioch will influence the surrounding area and are therefore included in this review.

Antioch is the most populous city within the inventory area. According to the 2000 census, 91,293 people live in Antioch. The city is characterized by large amounts of vacant and open land providing a considerable area for urban expansion (City of Antioch 1988, 2004). Land uses in Antioch include industrial and commercial development, but the principal land use is residential development. The northern portion of the city contains areas of industrial and commercial use, whereas the southern portion is almost entirely residential. The southern portion of Antioch has been designated for residential development. The southeastern corner of Antioch's planning area, known as Future Urban Area 2, is designated for industrial and business park development. Future Urban Area 1, also known as the Sand Creek Specific Plan, lies along the southern border of Antioch.

Approximately 10% of the inventory area is within the Antioch city limits. Antioch's jurisdiction encompasses 17,732 acres, of which 13,684 are designated for development (City of Antioch 2004). The remaining 4,048 acres are designated as open space, watershed lands, agriculture, and parklands. The majority of this land is owned or managed by East Bay Regional Park District (EBRPD). A number of other urban parks and open space areas are located near EBRPD land or are scattered throughout the city.

Unincorporated Areas of East Contra Costa County

Three-quarters of the land in the inventory area—129,414 acres—are in unincorporated areas of Contra Costa County. Development within these unincorporated areas is concentrated in small communities such as Bay Point, Knightsen, and Byron. Bay Point is the most developed unincorporated community in the inventory area. Located immediately west of Pittsburg, the Bay Point community accounts for the bulk of the 9,331 acres of developed unincorporated land. The agricultural communities of Knightsen and Byron also include residential areas and public facilities. Knightsen is east of Oakley and Brentwood; Byron is south of Brentwood.

Although the amount of agricultural land in Contra Costa County has declined over the last 50 years, agriculture remains the primary land use on the unincorporated lands of the inventory area. Most of the County's agricultural land is located in unincorporated East Contra Costa County and, within the

inventory area, more than 80,000 acres are designated for agricultural use; 99% of this land is located in unincorporated areas of the County.

Existing agricultural land uses include croplands, vineyards, orchards, and range lands. A variety of crops are grown in the area, with nursery crops, vegetables, fruits, and nuts being the most profitable (Contra Costa County 1990). Agricultural lands east and southeast of Oakley and Brentwood consist of row crops. Immediately east of Brentwood and extending east and south of Oakley, the agricultural land is extremely productive. This area is defined as Agricultural Core by the General Plan. The designation is intended to preserve and protect the most productive farmlands in the county. Much of the Agricultural Core is under active cultivation with intensive row crops (e.g., tomatoes and berries). The southwestern portion of the inventory area is primarily rangeland, characterized by steep slopes and rugged terrain (Contra Costa County 2005). The southeastern portion of the inventory area is also primarily rangeland but on moderate to gentle slopes with numerous wind turbines.

2.2.4 Public Land and Open Space

In addition to agriculture, the inventory area contains many large parks and protected lands (Table 2-4 and Figure 2-2); a contiguous string of parks and open space lies along most of the inventory area's southern boundary. California State Parks, EBRPD, and CCWD each own large portions of this land. Mount Diablo State Park, in the southwestern section of the inventory area, is the largest park in the County, comprising 4% of the inventory area (the majority of the park is outside the inventory area). CCWD manages the largest open space property in the inventory area, the Los Vaqueros Watershed and Reservoir, comprising approximately 10% of the inventory area. EBRPD manages several parks, including Black Diamond Mines Regional Preserve, Contra Loma Regional Park, Morgan Territory Regional Preserve, Round Valley Regional Preserve, and Vasco Caves Regional Preserve (which is owned and managed jointly with CCWD). EBRPD also owns land outside the inventory area in all cardinal directions. A portion of the federal Seal Beach Naval Weapons Station (NWS), Detachment Concord, lies west of the inventory area.

General land management practices and policies for large open-space areas, parklands, and agricultural lands within the inventory area are described below. Topics include pest management, biodiversity enhancement, grazing policies, visitor impact assessment, and mitigation (in parks and open space only).

East Bay Regional Park District Lands

Five large parks within the inventory area are owned or managed by EBRPD:

- Black Diamond Mines Regional Preserve,
- Contra Loma Regional Park,

- Morgan Territory Regional Preserve,
- Round Valley Regional Preserve, and
- Vasco Caves Regional Preserve.

EBRPD classifies park units into four types: Regional Parks, Regional Recreation Areas, Regional Shorelines, and Regional Preserves. The Regional Preserve designation is the most protective of natural resources in the EBRPD system. According to EBRPD's Master Plan 1997 (East Bay Regional Park District 1996), "the primary objective of a Regional Preserve is to preserve and protect significant natural or cultural resources…" Regional Preserves are further categorized as either Wilderness Preserves or Open Space Preserves. Four of the five units in the inventory area are Regional Open Space Preserves, which "…may be used for agriculture or passive recreational activities that do not require substantial facilities or improvements."

As discussed in the HCP/NCCP conservation strategy (Chapter 5, *Conservation Strategy*), the biological integrity of these large parks is critical to the success of this Plan, particularly in maintaining regional connectivity for many HCP/NCCP covered species. The following discussion summarizes the current policies and management approaches in these park units.

EBRPD Mission and Policies

EBRPD is guided by its vision statement.

> The East Bay Regional Parks will preserve a priceless heritage of natural and cultural resources, open space, parks, and trails for the future and will set aside park areas for enjoyment and healthful recreation for generations to come. An environmental ethic guides us in all that we do.

The primary mission of EBRPD is to "acquire, preserve, protect, develop, and operate regional parklands…for public use, while conserving these lands to make the outdoor environment available for the enjoyment and education of the public" (East Bay Regional Park District 1996). Specific management policies in the Master Plan 1997 relevant to the HCP/NCCP are reproduced below.

- The District will maintain and manage vegetation to conserve, enhance, and restore natural plant communities; to preserve and protect populations of rare, threatened, endangered, and sensitive plant species and their habitats; and, where possible, to protect biodiversity and to achieve a high representation of native plants and animals.
- The District will conserve, enhance, and protect native animal species and enhance their habitats to maintain viable wildlife populations within balanced ecosystems. Non-native and feral animals will be managed to minimize conflicts with native wildlife species. The District will cooperate on a regular basis with other public and private land managers and recognized

wildlife management experts to address wildlife management issues on a regional scale.

- The District will conserve, enhance, and restore native fish and amphibian populations and their habitats; [and] will develop aquatic facilities, where appropriate, to create a wide variety of fisheries.
- The District will identify, evaluate, conserve, enhance, and restore rare, threatened, endangered, or locally important species of plants and animals and their habitats, using scientific research, field experience, and other proven methodologies. Populations of listed species will be monitored through periodic observations of their condition, size, habitat, reproduction, and distribution. *Conservation of rare, threatened, and endangered species of plants and animals and their supporting habitats will take precedence over other activities, if the District determines that the other uses and activities would have a significant adverse effect on these natural resources* [emphasis added].
- The District will manage riparian and other wetland environments and their buffer zones to preserve and enhance the natural and beneficial values of these important resources and to prevent the destruction, loss, or degradation of habitat. The District will participate in the preservation, restoration, and management of riparian and wetland areas of regional significance, and will not initiate any actions that could result in a net decrease in park wetlands.

EBRPD Management and Recreation

EBRPD has developed management strategies for grazing, vegetation, pests, wildlife, and watersheds. Each park has its own land management plan. Grazing leases exist on all five EBRPD-owned or -managed lands within the inventory area. Cattle and sheep grazing is used to improve management of grasslands and enhance habitat for species such as burrowing owl, California red-legged frog, California tiger salamander, and San Joaquin kit fox. Livestock grazing is also the primary management tool used by EBRPD to reduce fuel loads and fire danger. In addition to grazing on grasslands, a limited amount of grazing also occurs in open oak savannas and oak stands adjacent to grasslands within preserves. Under the *Wildland Management Policies and Guidelines* (East Bay Regional Park District 2001b), grazing policies have been established that address range-forage utilization and impacts on native flora and fauna. Sensitive areas, particularly riparian areas, are fenced to exclude grazing. EBRPD closely monitors impacts of livestock to ensure that grazing does not degrade other resources and recreationally important areas.

EBRPD has created a pest management program for all parks within its jurisdiction. Pests are closely monitored and tracked through surveys and employee observations. Treatment strategies for pests include management of human behavior, habitat modification, physical barriers, plant selection, biological control, and chemical control. EBRPD has identified three main types of pests: agricultural pests (e.g., certain exotic thistles), public health and structural hazard pests (e.g., black and Norway rats, poison-oak), and recreational

and resource management pests (e.g., algae blooms, yellowjackets, California ground squirrels on rangeland) (East Bay Regional Park District 1987). Rodenticides are generally used when there is an issue of public health, specifically related to picnic areas and buildings (i.e., areas of high human interaction; Brownfield pers. comm.). The use of chemical control is extremely limited within the parks.

Several special-status species occur on EBRPD-managed lands: California red-legged frog, California tiger salamander, San Joaquin kit fox, and several rare plant species. EBRPD is committed to identifying, enhancing, conserving, and restoring rare, threatened, and endangered species. Populations of listed species are monitored through periodic observations of size, condition, habitat, and reproductive success. Some areas are set aside specifically for species conservation. For example, Vasco Caves contains a 169-acre kit fox conservation easement in the eastern portion of the preserve (East Bay Regional Park District 2000).

Recreational activities on the preserves include hiking, bicycling, nature study, picnicking, camping, and horseback riding. Many sites also offer interpretive programs for cultural and natural resources. Black Diamond Mines and Vasco Caves provide guided tours of their historical resources (East Bay Regional Park District 1977a, 1977b, 2000). Contra Loma Regional Recreation Area provides opportunities for swimming, kayaking, wind surfing, and picnicking. Vasco Caves Regional Preserve has limited public access to protect sensitive cultural and biological resources. Plans for Vasco Caves include controlled visitation (i.e., group size restricted to 35, with one group at a time entering the Preserve) (East Bay Regional Park District 2000). In all the parks, rules prohibit visitors from leaving the trails or disturbing plants or wildlife. EBRPD employees monitor and evaluate visitor impacts. Policies and practices are adjusted on the basis of employee assessments to improve resource management.

Mount Diablo State Park and Cowell Ranch

Nearly one-third of Mount Diablo State Park is within the inventory area. This portion of the park contains the North and South Peaks of Mount Diablo and the eastern slopes of the mountain. Recreational activities within the park include camping, hiking, mountain biking, horseback riding, hang gliding, and photography. Visitor impacts are monitored and evaluated by park employees. Vegetation management policies focus on restoration of native communities by removal of nonnative species, revegetation, and the use of prescribed burning. Some common herbicides are used to control roadside vegetation and to remove nonnative species. Rodenticides are generally not used and are only considered for use in and around park residences. Exotic animal control programs include trapping and removal of feral animals in the park. Little or no grazing takes place in the park.

In late 2002, Cowell Ranch became the newest addition to the California State Park system. Plans to develop the ranch generated controversy, which was

resolved when the Trust for Public Land secured the bulk of the property for public open space and park purposes with funding from a variety of public sources. The nearly 4,000-acre ranch includes annual grasslands, oak woodlands, wetlands, and seasonal streams and provides habitat for special-status species such as red-legged frog, fairy shrimp, tiger salamander, and San Joaquin kit fox. The California Department of Parks and Recreation is developing a management plan for the park in cooperation with the City of Brentwood. Currently, the ranch is not open to the public.

Los Vaqueros Watershed and Reservoir

CCWD manages the Los Vaqueros Watershed and Reservoir for many recreational and biological resources. Biological resource management includes the following activities.

- Wetland mitigation site management.
- Valley oak, blue oak, and riparian woodland mitigation site management.
- Blue oak woodland habitat assessment.
- San Joaquin spearscale monitoring.
- Native perennial grassland enhancement.
- Noxious weed control.
- Kit fox monitoring and habitat management.
- Reptile and amphibian monitoring.
- Bald eagle monitoring.
- Ferruginous hawk habitat enhancement.
- Golden eagle nest site monitoring.
- Wild pig control.
- Fishery establishment.

CCWD manages many stock ponds and stream channels throughout the watershed for California red-legged frogs. In the northern and eastern portions of the watershed, several areas are managed for wetland mitigation. The watershed includes 4,150 acres of conservation easements that provide habitat and movement corridors for San Joaquin kit fox. Alameda whipsnake habitat occurs in the western portion of the watershed. CCWD manages this area to maintain and enhance blue oak woodlands, valley oak savanna, valley oak woodland, valley needlegrass, and grassland-bunchgrass patches. Patches of San Joaquin spearscale are managed in the northern portion of the watershed. Watershed managers use rodenticides and herbicides in localized areas when needed to ensure public health or to prevent unacceptable damage to building foundations, roadways, or other facilities.

Livestock grazing is permitted in the northern and southern portions of the watershed. Los Vaqueros supports nine grazing leases, two of which are seasonal; the remaining seven are year-round. Grazing is also used to improve grasslands and kit fox habitat. Rangeland is managed using an adaptive approach based on annual monitoring (Contra Costa Water District 1999).

Recreational activities include hiking, fishing, picnicking, boating, biking, equestrian activities, education, and interpretation. Hiking trails are located on the western portion of the Los Vaqueros watershed. The eastern shoreline and watershed are closed to the public (Contra Costa Water District 2002).

Seal Beach Naval Weapons Station, Detachment Concord

The Seal Beach NWS, Detachment Concord (formerly known as the Concord Naval Weapons Station and hereafter called Detachment Concord), comprises 12,920 acres in two units: a 7,648-acre unit north of SR 4 that encompasses significant tidal areas, and a 5,272-acre inland unit adjacent to the inventory area south of SR 4. Both units of Detachment Concord contain substantial areas of undeveloped lands (Tetra Tech 2002). The northeast corner of the tidal unit of Detachment Concord (approximately 1,500 acres) is included in the HCP/NCCP inventory area. The inland unit is immediately adjacent to the inventory area, and the protective blast zone from this unit extends into the inventory area. The Los Mendanos Hills, which are privately owned and leased to PG&E for deep-well gas injection, separate the two units.

The Navy's mission for the two units is distinct. The tidal unit remains an active military port but is now operated by the U.S. Army. In 1999, the mission of the inland unit changed to be retained as a strategic asset in the event of increased requirements in response to a major conflict or change in geopolitical support requirements in the Pacific region.

The inland unit of Detachment Concord comprises administration buildings, residential areas, military barracks, weapons storage magazines, and maintenance facilities. The Navy leases approximately 4,500 acres of the site for livestock grazing.

The tidal unit contains facilities for sorting returned ordnance, railroad and truck classification yards, and three ocean terminal piers, as well as wetlands and a wildlife preserve. Included in the tidal area acreage are six bay islands, totaling 1,571 acres in Suisun Bay directly north of the shipping channel. In 1984, the Navy signed an MOU with USFWS designating much of the tidal area, including all the islands, as a wetland preserve. Most of the upland area, including all of the tidal unit within the inventory area, is leased out for livestock grazing.

The Navy has designated zones around the facility as Explosive Safety Quantity Distance (ESQD) arcs (also known as blast zones) to safely store and handle

munitions. Currently, ordnance is not stored in the inland unit of Detachment Concord, but the Navy is required to maintain the ESQD arcs in the event that weapons storage is reactivated. Arcs are variable in radius depending on the nature of the storage facility, but they generally extend up to approximately 500 feet beyond the eastern boundary of Detachment Concord into the inventory area. No development is permitted within the ESQD arcs. The ESQD arcs protecting the tidal unit are contained within the unit's boundaries.

Integrated Natural Resources Management Plan

In 2002, the Navy approved a final Integrated Natural Resources Management Plan (INRMP) for Detachment Concord (Tetra Tech 2002). The purpose of this plan is "to guide the natural resources management program at Detachment Concord from 2002 to 2006 and to provide a solid foundation from which to build the program beyond 2006." The INRMP also ensures the sustainability of the military mission while maintaining the integrity of the ecological processes and its ecosystems. According to the Navy, the INRMP will also ensure that natural resource conservation measures and Navy and Army activities on Detachment Concord are integrated and consistent with federal stewardship requirements. The INRMP was prepared to comply with the 1997 amendments to the Sikes Act, which requires the preparation and implementation of INRMPs for all military facilities, as well as their update every 5 years.

Management of the sites will be guided by detailed management goals, objectives, and strategies outlined in the INRMP (Tetra Tech 2002). Selected management objectives relevant to the HCP/NCCP are listed below.

- Continue to conserve habitat for the federally listed threatened California red-legged frog (including maintain livestock exclusion fencing around ponds, conduct surveys for frogs prior to activities in suitable habitat).
- Continue to conserve habitat for the federally designated candidate [subsequently listed as threatened] California tiger salamander (including conducting population and habitat assessments and discouraging pesticide use for ground squirrel control in areas where salamanders may occur).
- Support biodiversity at Detachment Concord by enhancing specific wildlife habitat areas, when and where appropriate.
- Protect wildlife habitat areas from adverse grazing and human-induced impacts (including controlling nonnative plants, conducting a station-wide biodiversity survey before developing the 2007 INRMP).
- Manage grazing activities to reduce negative ecological impacts on riparian habitat and associated wildlife (including planting willow cuttings, maintain existing meandering zone of Mount Diablo/Seal Creek, identify potential oak woodland revegetation sites).

City of Concord General Plan Update

The City of Concord initiated a comprehensive General Plan update in the fall of 2002 that included planning the future land uses of Detachment Concord if the facility is closed and made available for development. According to the most recent plans (Dyett & Bhatia 2004), the City envisions Detachment Concord as a regional employment center, retail center, and residential community with a mix of land uses. The area would also support parks, trails, and natural reserves. The City has committed to preserving hillsides and sensitive habitats within Detachment Concord as a top priority.

Alternative land use scenarios for Detachment Concord entail a new population ranging from 29,900 to 46,900 residents and from 11,600 to 18,000 housing units (Dyett & Bhatia 2004). Open space excluding parks would comprise between 32% and 40% of the land area within Detachment Concord under the different development scenarios. No footprints of development have been proposed for Detachment Concord at this time. However, in order to meet the policy objectives for open space preservation on the site, the hillsides immediately adjacent to the HCP/NCCP inventory area would likely be preserved, along with the high-quality riparian corridor along Mount Diablo Creek.

Closure of Inland Portion of Detachment Concord

In September 2005, the U.S. Department of Defense recommended Detachment Concord as a facility to be closed as part of the 2005 Base Realignment and Closure (BRAC) process. According to this plan, the inland unit would be closed except for facilities needed to support port operations at the north unit. The north unit (also known as the tidal unit) will continue to operate but will be transferred to the Department of the Army (U.S. Department of Defense 2005). The President forwarded the BRAC final report to Congress in September 2005, and Congress passed legislation to enact it on November 9, 2005.

2.3 Covered Activities and Projects

This section describes the activities and projects within the inventory area for which the HCP/NCCP will provide compensation, avoidance, and minimization of impacts for covered species. These are the *covered activities* for which incidental take authorization will be obtained.

Activities are actions that occur repeatedly in one area or over a wide area. *Projects* are well-defined actions that occur once in a discrete location. Covered activities in this HCP/NCCP fall into three distinct categories.

- All activities and projects associated with urban growth within the urban development area (defined in Section 2.3.1 below).

- Activities and projects that occur inside the HCP/NCCP preserves.
- Specific projects and activities outside the UDA.

All activities or projects seeking coverage under the HCP/NCCP are subject to approval by the local jurisdiction (city or County; see Chapter 8, *Plan Implementation*, for a description of the approval process). Activities or projects that do not fall clearly within the descriptions provided below will be evaluated on a case-by-case basis. An activity or project will be covered under the HCP/NCCP if it:

- does not preclude achieving the biological goals and objectives of the HCP/NCCP,
- is a type of impact evaluated in Chapter 4 of the HCP/NCCP, and
- is consistent with the amount of take coverage[3] assumed for the project or activity and sufficient take coverage under the permits remains available.

2.3.1 Activities within the Urban Development Area

This category includes all ground- or habitat-disturbing projects and activities that may occur within the *urban development area* (UDA; see Figure 2-3 for the location of the initial urban development area). This category is intended to be as inclusive as possible to accommodate urban growth; it includes the construction and maintenance of typical urban facilities, public and private, consistent with local general plans and local, state, and federal laws. This category includes, but is not limited to, the construction, maintenance, and use of the following facilities.

- Residential, commercial, and industrial facilities (e.g., homes, retail centers, office buildings, factories, warehouses).
- Public service facilities such as police stations, fire stations, hospitals, churches, public health centers, schools, administration centers, private airports, and community centers. Funeral and internment services such as mortuaries, crematoriums, mausoleums, and cemeteries are also included in this category.
- Recreational facilities such as neighborhood parks, golf courses, indoor and outdoor sports centers, racetracks, campgrounds, and trails.
- Transportation facilities including sidewalks, bikepaths, paved and unpaved roads, culverts, fords, bridges, and highways.
- Public and private utilities including transmission lines, telecommunications lines, and gas lines.

[3] Take coverage is defined in this HCP/NCCP in terms of land-cover types lost as a result of covered activities. See Chapter 3 for the definition of land-cover types; see Chapter 4 for an estimate of loss of these land-cover types.

- Water supply and delivery facilities including water treatment plants, water supply pipelines, and canals.
- Flood control and other stream-related facilities including dams, armored creeks, detention ponds, streams, and urban stream restoration projects.
- Waste management facilities including sewage treatment plants, recycling centers, and transfer stations.

Changes in the Urban Development Area

As described in Chapter 1, the HCP/NCCP permit area that covers urban development would expand or contract as a result of local land use decisions made independently of the HCP/NCCP. The permit area for urban development (i.e., urban development area) will correspond to the County ULL or the city limits of participating cities, whichever is largest[4]. If a participating city expands or shrinks its city limit or if the County ULL shrinks or expands, the permit area for the HCP/NCCP would automatically expand or shrink to reflect the land use policy change, as long as the conditions below apply.

- The revised urban development area, together with projected impacts from covered activities outside the urban development area, does not exceed the maximum land cover or total impact projections (i.e., take limits) in Chapter 4.
- The revised urban development area excludes areas designated as high priorities for acquisition under the HCP/NCCP conservation strategy, as designated in Figure 5-3, Acquisition Priorities Under the Maximum Urban Development Area Scenario[5] (see Chapter 5).
- The revised urban development area is consistent with successful implementation of the HCP/NCCP conservation strategy (see Chapter 5 and Figures 5-2 and 5-3).

Two urban development areas are defined for the purposes of the analysis: the *initial urban development area* and the *maximum urban development area*. The initial urban development area (Figure 2-3) is an area within the current County ULL, excluding some areas within the ULL surrounding the Byron Airport[6] (approximately 1,800 acres). These areas have been excluded because full development of those locations may not occur during the permit term of the HCP/NCCP. The excluded areas may be added to the urban development area at

[4] However, the applicable land use planning agency may exclude defined areas within its ULL or jurisdictional boundaries from the urban development area.
[5] To more precisely define the boundaries of the areas into which the UDA may not extend, a Permittee may provide detailed site-specific information on topography and natural resources and must seek approval from CDFG and USFWS to define this boundary.
[6] Note that planned expansion of the Byron Airport (up to approximately 300 acres) is covered by the HCP/NCCP; see discussion below.

such time as urban land use designations are approved in these areas, subject to the conditions described above for expanding the permit area.

The maximum urban development area is the largest area to which urban development could expand under the terms of this HCP/NCCP. The size and impacts of the maximum urban development area were established by

- analyzing areas outside the initial urban development area that are proposed for future development in the general plans of Brentwood, Clayton, Pittsburg, and the County (City of Brentwood 1993; City of Clayton 2000, 2005; City of Pittsburg 2001; Contra Costa County 2005), and
- ensuring consistency with the biological goals and objectives of this Plan and with the conservation strategy (see Chapter 5), including the conditions described above for changes to the urban development area.

The urban development area covered under the HCP/NCCP at the end of the permit term could fall anywhere in the range defined by the initial urban development area and the maximum urban development area, depending on local land use decisions that occur during the permit term.

2.3.2 Rural Infrastructure Projects

Specific projects taking place outside the ULL are also included as covered activities in this Plan. These *rural infrastructure projects* provide infrastructure that supports urban development within the urban development area (Figure 2-4). Only projects that were reasonably well defined at the time of HCP/NCCP approval are included in the Plan. The Plan would allow activities encompassing up to 933 acres for the rural infrastructure projects and activities listed below.

Projects are divided into three categories: transportation projects, flood protection projects, and utility projects. Most rural road projects covered by the Plan will be led by Contra Costa County. All flood protection projects covered by the Plan will be led by the County Flood Control District. Utility projects will likely be led by the private companies that own the utility lines.

Some of these projects could be led by state or local agencies that are not expected to be Permittees or signatories of the HCP/NCCP Implementation Agreement. Because these agencies are not subject to the jurisdiction of the Permittees (e.g., Contra Costa County), they will have to take additional administrative steps in order to receive coverage under the Plan. See Chapter 8 for details on the process by which other agencies can be included in the permit coverage offered by the Plan during implementation as Participating Special Entities.

Projects described below are capital projects. The operation and maintenance (O&M) of these projects, as well as O&M activities for existing facilities, are described in Section 2.3.3, *Specific Rural Infrastructure Activities*. All dates for

construction projects are approximate; projects built at other times during the permit term will still be covered by the Plan.

Transportation Projects

The following specific transportation-related projects are covered by this Plan. Their locations are shown in Figure 2-4.

Buchanan Bypass

The City of Pittsburg is leading planning for the Buchanan Road Bypass to implement its General Plan (City of Pittsburg 2001). Plans for the Buchanan Bypass call for a four-lane major arterial that connects Kirker Pass Road with Somersville Road and Donlon Boulevard. A preliminary route alignment with approximate limits of grading is presented in the Buchanan Road Bypass Programmatic EIR (Duncan & Jones 2003). The extension of Donlon Boulevard to connect to the Bypass is an associated project, the precise alignment and environmental impacts of which will be addressed in a project-specific EIR.

Kirker Pass Road Widening

Contra Costa County is considering adding an approximately 9,600-foot truck-climbing lane on Kirker Pass Road between Clearbrook Drive in Concord and the Pittsburg city limit. The northbound lane is from Clearbrook to the northern Hess Road intersection. The southbound lane is from the Pittsburg city limit to the southern Hess Road intersection.

Marsh Creek Road Realignment at Selected Curves

The County plans to realign selected curves of Marsh Creek Road and widen shoulders between Aspara Drive (Aspara Drive is located just east of Morgan Territory Road) and Deer Valley Road. The County intends to commence initial engineering work in 2007–2008. Construction is expected to continue beyond 2010.

Byron Airport Expansion

The Byron Airport is owned and operated by Contra Costa County. The Byron Airport Master Plan (Contra Costa County Airports 2005) describes proposed land uses at the site, including plans for additional aviation and commercial development. Future development plans include providing additional commercial services at the Byron Airport along the area bordered by Holey Road, Byron Hot Springs Road, and the existing NW–SE runway of the airport. Additional land is

reserved for aviation use along the W–E runway. The existing NW-SE and W-E runways are proposed to be extended to the southeast and east by 1,500 feet and 900 feet, respectively. A maximum of approximately 360 additional acres could be developed or otherwise impacted by the airport if the Master Plan is fully implemented. However, approximately 68 of these acres are in areas where development is restricted by Federal Aviation Administration regulations so future impacts are very unlikely there.

In 1992, USFWS issued a biological opinion and incidental take statement pursuant to Section 7 of the ESA to USACE allowing take of San Joaquin kit fox resulting from construction of the Bryon Airport in accordance with the previous Master Plan (Contra Costa County Airports 1986). In 1993, CDFG issued a take permit under Section 2081 of the California Fish and Game Code allowing take of kit fox. The USFWS take statement and CDFG take permit still apply to the remaining construction planned at the airport under the current Master Plan. (The mitigation for these permits has been implemented and is summarized in Chapter 5). These permits did not cover any incidental take of species that have been listed by the federal or state governments since 1993 (e.g., California red-legged frog, California tiger salamander, vernal pool invertebrates), nor did they cover non-listed species that may become listed in the future.

The 1992 and 1993 permits from USFWS and CDFG covered approximately 200 acres of impacts to natural land cover types. At present, the developed footprint of the airport (including the grassy medians between the runways and taxiways) is approximately 112 acres. Approximately 88 acres of take coverage remains for the airport under the earlier permits.

Because this project may be funded, in part, by the Federal Aviation Administration, ESA compliance may be needed through Section 7 rather than Section 10. If this is the case, the Section 7 consultation will follow the guidelines for all Section 7 consultations in the inventory area described in Chapter 10.

Byron Highway Northern Extension

Contra Costa County, in cooperation with other agencies, is planning a variety of improvements to the Byron Highway, also known as J4. As specified in its general plan, the County plans to extend the Byron Highway north from Delta Road to East Cypress Road (Contra Costa County 2005). Preliminary engineering and environmental work on the extension is scheduled for 2006 and 2007.

Byron Highway Widening

Shoulder-widening projects to improve the safety of the Byron Highway are planned to occur in phases at Camino Diablo and from Hot Springs Road to the county line. Construction is planned for completion in 2007. The County also plans to widen the Byron Highway along the frontage of the school district office

and Byron Elementary School to provide a dual left turn lane. Preliminary engineering work is scheduled for 2005; construction is planned for completion in 2007.

Intersection improvements are also planned at the intersection of the Byron Highway and SR 4. These improvements include widening the existing pavement to provide two lanes in each direction at the intersection. Construction on the intersection improvements is not planned for completion until 2008. Funding for this project will come from Measure C, which passed in November 2004.

Vasco Road to Byron Highway Connector

The County is considering extending an existing road or building a new road to provide a connection between Vasco Road (SR 84) and the planned SR 239 (now the Byron Highway). An amendment to the County's general plan is necessary before work can begin on this project. Initial fundraising has started for studies that will support a project EIR/EIS. Because the location of this connector road is not yet determined, the HCP/NCCP will cover the footprint of this road within a study area bounded by Vasco Road, Byron Highway, Armstrong Road to the south, and Camino Diablo to the north. An extension and widening of Armstrong Road is one possible scenario that has been proposed. Connections in the southern end of the study area (i.e., at or closer to Armstrong Road) are expected to have greater impacts on natural communities and covered species than connections closer to Camino Diablo.

Brentwood-Tracy Expressway/State Route 239

A variety of organizations have raised a conceptual proposal to make the Byron Highway into a state highway (SR 239) to increase road capacity between Contra Costa and San Joaquin Counties. New planning studies to be initiated in 2005 will examine the feasibility of using the Byron Highway for an alignment of SR 239 that would extend from the Vasco Road–Byron Highway Connector described above to the County line. This project would convert the Byron Highway to an expressway or multi-lane freeway depending on the outcome of planning studies. The road will connect Brentwood with I-205 or I-580 in San Joaquin County. SR 239 may replace the Byron Highway widening project described above.

To address this future need, an alignment for SR 239 is covered within a study corridor 1,500 feet wide in Contra Costa County (the portion of the road in Alameda County is not covered by this Plan) that extends from Byron to the Alameda County line. The location of the study corridor has not been determined but may be centered on the current Bryon Highway. The study corridor may also extend west of the Highway to the railroad tracks or to the east (where less-sensitive cultivated land cover types predominate) closer to the community of Discovery Bay (e.g., along Marsh Creek Road). The final chosen study area must include room for road alignments that will be consistent with the

conservation strategy in Chapter 5 (e.g., avoid large patches of alkali grassland and alkali wetland targeted for preservation east of the Bryon Highway).

Although the HCP/NCCP covers only the portion of this project in Contra Costa County, project impacts will need to be considered as a whole (in both counties) for the anticipated Section 7 consultation with USFWS. Mitigation measures in the HCP/NCCP will guide the Section 7 consultation for the portion of the project in Contra Costa County.

eBART

The Contra Costa Transportation Authority (CCTA) and the San Francisco Bay Area Rapid Transit District (BART) have completed the SR 4 East Corridor Transit Study, which recommends short-term and long-term public transit improvements, along with the planned highway and roadway improvements, from SR 242 in the west to the County Line in the east. One such recommendation is eBART. This rail service extension would run in the median of SR 4 from Bay Point to Loveridge Road and then in AN existing railroad right-of-way through Brentwood and on to Byron. New station locations proposed include Brentwood, Antioch, Oakley, Pittsburg and Byron, as well as modifications to the existing Pittsburg/Bay Point BART Station to allow cross-platform transfers between the eBART trains and BART trains. Specific locations are still being studied and may be modified as part of the environmental review process. In November 2002, a preferred conceptual alternative was selected. EIR/EIS studies were initiated in 2005 and a Draft EIR/EIS is expected in 2007.

This covered project includes right-of-way acquisition and any road or railroad infrastructure needed specifically to support eBART, including railroad crossing signals, traffic signalization, parking lots, and additional lanes on existing roads. The project will include construction of four station lots and park & ride lots along the route. Two of these stations, in Brentwood and Oakley, will be within the UDA and are therefore already covered by this Plan. One will be in Antioch and the other will be near Byron. The Byron station will probably be inside the UDA, but could move outside the UDA during the environmental review process. The Antioch and Byron stations are also covered by the Plan.

BART will be the lead agency in the CEQA process. The Federal Transmit Administration will be lead agency under NEPA. The eBART project team is a partnership among BART, the Contra Costa Transportation Authority (CCTA) and the communities in East Contra Costa County and receives policy direction from a Policy Advisory Committee made of elected officials from BART, cities in eastern Contra Costa County, and the County. CCTA will be the lead agency for purchase of right-of-way. BART will be the lead agency on the design and construction of these stations. To receive take coverage under the Plan, CCTA or BART would have to apply to the HCP/NCCP Implementing Entity as a Participating Special Entity (see description of this process in Chapter 8). If a

federal agency is involved in funding the project, ESA compliance will need to be obtained through the Section 7 process.

Vasco Road Widening/State Route 84

Vasco Road will be widened and portions realigned as a safety and capacity enhancement from the SR 4 Bypass to I-580 in Alameda County. The initial improvements will address safety issues. Later phases will provide a four-lane divided expressway to standards suitable for route adoption by Caltrans as SR 84.

Various Road Widening or Extension Projects

- **Bethel Island Road Widening.** Bethel Island Road, a north-south road east of Oakley, will be widened from a two-lane road to a four-lane arterial from East Cypress to Gateway Road on Bethel Island. A new bridge will be constructed over Dutch Slough. Only the portion of the road-widening project within the inventory area is covered by the HCP/NCCP.
- **Cypress Road Widening.** In the same vicinity as Bethel Island Road, Cypress Road, an east-west road, will be widened to a four-lane arterial from SR4 to Bethel Island Road. The new road will have a grade separation at the Burlington Northern railroad crossing and a new signal at SR4. Most if not all of this road-widening project would be within the UDA in Oakley.
- **Sand Creek Road Extension.** An east-west road in the Brentwood area, Sand Creek Road would be extended eastward approximately one-third of a mile from the Brentwood City Limits to connect to Sellers Avenue. The extended road would be a four-lane arterial.
- **Sycamore Avenue Extension.** An east-west road in the Brentwood area just south of Sand Creek Road, Sycamore Avenue would be extended approximately one-third of a mile eastward from the Brentwood City Limits to connect to Sellers Avenue. The extended road would be a two-lane roadway.
- **Walnut Boulevard Widening.** An north-south road in the Brentwood area, Walnut Boulevard would be widened from two to four lanes over an approximately 2.2 mile segment from the Brentwood City Limit south to the State Route 4 Bypass and Vasco Road.
- **Marsh Creek Road Widening.** An east-west road south of Brentwood, Marsh Creek Road will be widened from two to four lanes over an approximately 4 mile segment from the State route 4 Bypass east to the existing State Route 4 near Discovery Bay.
- **Balfour Road Widening.** An east-west road in the Brentwood area, Walnut Boulevard would be widened from two to four lanes over an approximately 1.3 mile segment from the Brentwood City Limit west to Deer Valley Road.

- **San Marco Road Extension.** The City of Pittsburg proposes in its General Plan to extend San Marco Road from the current San Marco subdivision south and east to connect to Bailey Road at or near the Bailey Estates Subdivision. The roadway would be two to four lanes. A precise alignment has not been determined. The portion of this road extension outside the initial UDA is covered by the HCP/NCCP. The portion inside the initial UDA will be covered inside the Urban Development Area. The portion of the proposed road extension outside the initial UDA is approximately one mile long. The UDA may change in this area as a result of the new Pittsburg ULL. If this change occurs, the portion of the San Marco Road Extension that crosses open space is still subject to the road design requirements in Table 6-6.
- **State Route 4 Widening to Discovery Bay.** SR 4 is a mix of two and four lanes. Oakley and the County are proposing to expand the portions of SR 4 that are currently two lanes to four lanes to improve traffic flow and safety. These two-lane portions occur between Oakley and Discovery Bay and cross the County's agricultural core. This project is covered by the HCP/NCCP.

Bridge Replacement, Repair, or Retrofit

Contra Costa County maintains more than 50 bridges in the inventory area on public roads; most of these bridges are outside the ULL. During the permit term, these bridges may need repair, seismic or other safety retrofit, or complete replacement. The replacement, repair, or retrofit of all County-maintained bridges within the inventory area constitute a covered activity. Increasing the number of lanes on a bridge is not a covered activity unless it is associated with a road construction project specifically covered by this Plan.

Road Safety Improvements

Contra Costa County must upgrade the safety of existing rural roads as conditions change and traffic on these roads increases. Road safety improvements will be covered by the Plan. The following types of road safety projects covered by this Plan include the activities listed below.

- Installing traffic signals, signs, flashing beacons, or other safety warnings.
- Painting new lane striping.
- Installing "rumble" strips or other safety markers.
- Increasing road lane widths or adding turn lanes (but not increasing the number of lanes).
- Minor curve realignment for safety purposes (less than 250 feet long and less than 0.25 acre of new ground disturbance).

- Installing retaining walls, metal beam guard rails, or other safety barriers. Median barriers that could inhibit wildlife movement will require approval by USFWS and CDFG.
- Constructing, resurfacing, or regrading road shoulders.
- Other road safety improvements that do not result in a significant change in road width or alignment or that are approved for coverage by USFWS and CDFG.

An example of an upcoming project that falls into this category is the Balfour Road Shoulder-Widening Project. The County plans to widen the pavement of Balfour Road from 20 feet to 32 feet on Balfour Road between Deer Valley Road and the Brentwood City Limit to provide safety shoulders. This project is scheduled for initiation in 2006 and for completion in 2007–2008.

Expanding the number of lanes on existing roads could be considered road safety improvements, but such activities are not covered by this Plan unless associated with a specific road project cited in this chapter.

New Bicycle Trails

The first countywide bicycle and pedestrian plan for Contra Costa County was prepared in 2003 (Contra Costa Transportation Authority 2003). This plan outlines policies for the maintenance and expansion of the existing network of more than 350 miles of bikeways and trails to more than 600 miles. The majority of these existing and new projects are within the UDA and would therefore be covered by this Plan automatically. Many of the proposed bike trail projects occur on existing or proposed roads (on-street trails); consequently, they would have minimal or no additional impacts on natural communities beyond the road projects listed above. Proposed off-street trails occur along railroad rights-of-way or along creeks.

County bike trail projects outside the UDA that are covered by this Plan include (Contra Costa Transportation Authority 2003) the following.

- Kirker Pass Road trail (5.2 miles[7], on-street).
- Evora Road trail (2.3 miles, on-street).
- Marsh Creek–Camino Diablo bikeway (12.5 miles, on-street).
- Vasco Road trail (8.6 miles, on-street).
- Deer Valley Road trail (6.5 miles, on-street).
- Balfour Road trail (2.4 miles, on-street).
- East County SR 4 trail (7.3 miles, on-street).

[7] Approximate mileage presented for total unbuilt trail segment; length within inventory area and outside the initial UDA may be less than this amount.

- Bryon–Bethel Island bikeway (10.2 miles, on-street and off-street).
- Union Pacific Rail trail (19.5 miles, off-street).
- De Anza National Trail–Rock Slough–Bethany Reservoir bikeway (8.5 miles, off-street in eastern edge of inventory area).
- Mokelumne Crest to Coast trail (11.1 miles, off-street, from Brentwood east to Sierras).
- Cypress Road trail (on and off-street).
- Marsh Creek regional trail (4.5 miles, off-street along Marsh Creek above and below Marsh Creek Reservoir).
- Big Break regional trail (2.5 miles, off-street; some outside the inventory area).
- SR 4 Bypass trails (off-street).
- Other trail projects approved for coverage by USFWS and CDFG.

Flood Protection Projects

The County Flood Control District is responsible for providing flood protection within formally designated drainage areas (formed drainages) within Contra Costa County. Construction and maintenance of flood protection facilities, including detention basins, reservoirs, creeks, and canals, are funded by development fees and assessments in each formed drainage. Drainages of the County Flood Control District span city and county boundaries, so the District has jurisdiction both in unincorporated portions of the County and within cities, including the city of Antioch[8]. Specific projects and activities of the County Flood Control District are proposed in the District's 5-year Capital Improvement Program. The following projects outside the initial UDA or within the city of Antioch are proposed for coverage in the HCP/NCCP.

Construction and Expansion of Detention Basins

The County Flood Control District maintains and operates several detention basins in the inventory area for flood and sedimentation control. Two existing facilities need to be expanded to meet the growing population of the inventory area (Table 2-5). Two of these basins, Lower Sand Creek and Deer Creek, are within the Brentwood city limits and are therefore automatically covered by the Plan as urban development. Three other basins, Lindsey, Trembath, and Oakley, are within Antioch. Although urban development in Antioch is not covered by the Plan, these projects are covered because they are projects of the County Flood Control District.

[8] The East Antioch Creek watershed (Drainage Area 56) and West Antioch Creek watershed (Drainage Area 55) lie primarily within Antioch.

All the proposed and expanded basins are off-stream. The total footprint of the new and expanded basins is approximately 400 acres. One of the sites, Marsh Creek, functions as detention basins but is classified by the Flood Control District as a reservoir; it is discussed below.

Expansion of County Flood Control Reservoirs

The County Flood Control District also maintains and operates small flood control detention basins (they are often called reservoirs although they have no water supply function) inside and outside the initial UDA that support urban development The County Flood Control District proposes to expand the Marsh Creek Reservoir substantially (Table 2-5).

Marsh Creek Reservoir Expansion

The original design capacity of the Marsh Creek Reservoir was to hold runoff from 50-year storm events. Over time, the storage capacity of the detention basin has diminished substantially due to silting and vegetation growth. Dredging and vegetation removal are no longer viable options to restore this capacity because of the reservoir's high habitat value and the need to minimize disturbing sediment contaminated with mercury. Mercury mines active in upper Marsh Creek from the 1860s to the 1950s have greatly increased the deposition of mercury into Marsh Creek (Slotten et al. 1996, 1997, 1998). Much of this mercury-laden sediment has been accumulating in the Marsh Creek reservoir behind the dam.

The County Flood Control District wishes to restore and expand the reservoir's flood storage capacity to accommodate 100-year flood events to provide additional protection to the expanded development downstream in Brentwood. To accomplish this, the County Flood Control District in 2002 acquired 211 acres immediately south of the reservoir on both sides of Marsh Creek Road (152 acres on the west side of the road and 59 acres on the east side). All or a portion of this land would be used to detain additional water during high flow events only. The land elevation to the south of the reservoir would be lowered by up to 5–10 feet, and small channels would be installed to connect this new basin with either Marsh Creek, the south side of the reservoir, or both (Detjens pers. comm.). The new basin would be designed to flood once every 5–10 years and drain within 72 hours. The elevation of the new basin would be higher than that of the wet pool of the reservoir; accordingly, the wet pool would not be expanded. In addition, mercury-laden sediment in the reservoir would not be disturbed. The project is currently scheduled in the County's Capital Improvement Program for 2009.

The land is currently grazed by cattle and would continue to be grazed even during use as a dry detention basin; consequently, most of the time this area would function as a grassland or pasture. It is expected that portions of the new basin would need to be dredged periodically to remove accumulated sediment, possibly every 10–15 years.

Riparian habitat along Marsh Creek on land owned by the County Flood Control District is of high quality but discontinuous and presents some of the best riparian restoration opportunities in the inventory area. (The Marsh Creek Reservoir Expansion project would have little or no impact on riparian vegetation.) In addition, the grassland adjacent to the creek could be restored to a more native grassland, valley oak savanna (similar to the valley oak savanna on the Los Vaqueros property nearby), expanded cottonwood-willow forest, or a combination of these land cover types. Habitat on this site could also be improved for San Joaquin kit fox. All these restoration options may be compatible with the site's use as a high-flow detention basin. The County Flood Control District is interested in exploring restoration opportunities on this site and partnering with the HCP/NCCP Implementing Entity to accomplish them. Because of the uncertainty in the project design, these restoration elements would be developed with the Implementing Entity, CDFG, and USFWS when project funding becomes available.

This project is a covered activity as long as restoration opportunities described above are considered in project design and there is no change in the potential exposure of covered species to biologically available mercury as a result of the project.

Channel Improvement and Widening

The County Flood Control District maintains extensive networks of creek channels in the inventory area, mostly through urban areas within the initial UDA. Many of these channels require improvement or widening to increase flood capacity and provide greater opportunity for habitat restoration that is compatible with flood protection. All such projects inside the UDA within participating cities are covered projects under the Plan (as urban development). The County Flood Control District plans several channel improvement/widening projects within developed areas outside the initial UDA or in Antioch, all of which are covered by this Plan within the inventory area. Planned projects include, but are not limited to:

- Install storm drain line and improve unnamed creek near Port Chicago Highway and Skipper Road in Bay Point (Project DA 48B) (only that portion of the project inside the inventory area is covered by the Plan).
- Improve West Antioch Creek near 10th Street in Antioch (Project DA 55).

Utility Construction

Public and private utility infrastructure such as electric transmission lines, gas pipelines, petroleum pipelines, telecommunications lines, or cellular telephone stations may be covered activities outside the UDA and outside the HCP/NCCP preserves (see discussion in Section 2.3.4 for coverage of utility construction and maintenance within preserves). Because of the uncertainty in their location and

project footprint, coverage for these projects will be decided on a case-by-case basis by the Implementing Entity, USFWS, and CDFG. This will allow alternative siting or redesign, if possible, to avoid or minimize impacts on covered species and natural communities. See Section 2.3.3 below for a discussion of utility operation and maintenance outside the UDA.

Park and Recreation Facilities

Park and recreation facilities may be covered activities outside the UDA and outside the HCP/NCCP preserves. Because of the uncertainty in their location and project footprint, coverage for these projects will be decided on a case-by-case basis by the Implementing Entity, USFWS, and CDFG. This will allow alternative siting or redesign, if possible, to avoid or minimize impacts on covered species and natural communities.

2.3.3 Rural Infrastructure Operation and Maintenance Activities

Road Operation and Maintenance

All routine road O&M activities that occur within the UDA are covered by this Plan. The Contra Costa County Department of Public Works also maintains and operates roads within the inventory area outside the initial UDA. The routine O&M of these County-maintained roads outside the ULL a is also a covered activity under this Plan, including the following routine or emergency activities.

- Signage maintenance or replacement.
- Traffic control device maintenance or replacement.
- Guardrail, fence, or crash cushion inspection, maintenance, or replacement (median or shoulder barriers should be replaced with structures that are both safe for vehicles and compatible with wildlife movement whenever possible; replacement should at least not make wildlife movement more difficult).
- Pavement maintenance or resurfacing.
- Replacing pavement striping or markers.
- Tree trimming or removal for safety.
- Debris collection and removal on roads, trash racks, and shoulders.
- Natural disaster damage repair.
- Storm damage repair.
- Vehicle accident repair and cleanup.

- Weed control (the use of herbicides is not covered by the federal permit and therefore its use cannot result in take of federally listed species).
- Mowing of medians and shoulders for fire hazard reduction.
- Grading shoulders (up to 12 feet from the edge of paved or unpaved roadways).
- Grading existing dirt roadways.
- Repair or replacement of retaining walls.
- Culvert or drop structure maintenance, repair, retrofit, or replacement.
- Curb, gutter, and sidewalk maintenance, repair, retrofit, or replacement.
- Bridge repair and maintenance.
- Ditch, catch basin, or hydraugers clearing.
- Landscaping maintenance.
- Other routine road O & M activities approved for coverage by USFWS and CDFG.

All activities will follow the best management practices (BMPs) and avoidance/minimization measures described in Chapter 6.

Flood Protection Facility Operation and Maintenance

All facilities operated by the County Flood Control District require both routine scheduled and periodic unscheduled maintenance that is driven by immediate needs. In addition, emergency repairs are occasionally needed following major storm events or other natural disasters. Many of the District's facilities were built by them or other federal agencies and are required by these federal agencies to be maintained to certain design standards.

Maintenance of existing flood protection facilities within the inventory area that are subject to existing Memorandums of Understanding (MOUs) or Streambed/Lakebed Alteration Agreements with CDFG are covered subject to the requirements of those existing MOUs or Agreements. The following routine, periodic, and emergency operation and maintenance activities outside the initial UDA (most are within the city of Antioch) are covered by this Plan (these activities are automatically covered inside the UDA under the urban development category).

- Cleaning concrete channels.
- Dam maintenance.
- Ditch cleaning.
- Flapgate servicing.

- Grading access roads as needed to maintain access and safety.
- Maintaining and cleaning hydraugers.
- Mowing, herbicide use, or tree trimming for vegetation control as needed to maintain design flood capacity, fire hazard reduction, or safety of :
  - channels and reservoirs,
  - uplands in reservoir basins
  - access roads,
  - levees, or
  - within rights-of-way
  - Note: the use of herbicides is not covered by the federal permit and therefore its use cannot result in take of federally listed species.
- Maintaining landscaping along flood control channels and other facilities.
- Removing debris or log jams from channels, reservoirs, or trash racks.
- Rodent control on levees, dams, and other structures to ensure structural integrity including rock placement and limited pesticide use (the use of pesticides is not covered by the federal permit and therefore its use cannot result in take of federally listed species).
- Repair or replacement of drainage structures, fences, or retaining walls.
- Repair of channel banks damaged by erosion or slope failure.
- Silt removal within non-tidal areas of natural channels or reservoirs to maintain design flood capacity; activity may include temporary dewatering to allow silt removal (silt removal in Marsh Creek Reservoir is not a covered activity because of the potential to mobilize high concentrations of mercury in the sediment).
- Sub drain servicing.
- Emergency cleanup of material spills into channels, creeks, or reservoirs.

Some of these activities occur in tidally influenced creeks that may affect or may take listed species not covered by the Plan (e.g., salt marsh harvest mouse, California clapper rail, black rail). These activities are covered by the Plan only for impacts on covered species. Additional compliance may be needed to allow the activity to proceed.

All covered activities will follow the best management practices (BMPs) and avoidance/minimization measures described in Chapter 6.

Utility Line or Facility Operation and Maintenance

There are many pipelines and cables in the inventory area outside the initial UDA that are maintained by private companies such as Pacific Gas & Electric

Company (PG&E), other natural gas companies, petroleum companies, or telecommunications companies. These companies also operate and maintain electric substations, gas valve stations, radio broadcasting towers, and cellular telephone towers, among other facilities. The routine O&M of existing facilities on disturbed ground (e.g., concrete pads, gravel) is not expected to result in take of covered species. However, the routine maintenance of linear facilities such as gas pipelines, electric transmission and distribution lines, and telecommunication lines may result in take of covered species.

Maintenance or repair of linear facilities may involve vegetation clearing (e.g., mowing, disking, herbicide spraying, tree trimming) or excavation of underground utility lines for inspection, maintenance, or replacement. Many utility lines are expected to cross the HCP/NCCP Preserve System. The routine and emergency O&M of utility lines in the inventory area outside the UDA is a covered activity under this Plan, except for the use of pesticides, which is not covered by the federal permit. Any utility not subject to the jurisdiction of one of the Permittees can request coverage under the HCP/NCCP as a Participating Special Entity as described in Chapter 8. Some energy or water utilities may already have their own endangered species permits for their activities (e.g., PG&E is developing its own HCP for operations and maintenance activities) and will therefore not require coverage under this Plan.

2.3.4 Activities within the HCP/NCCP Preserves

Some activities expected to occur within the HCP/NCCP Preserve System may adversely affect some covered species (see Chapter 4 for more details). These effects are expected to be of limited severity and generally temporary. Because they may result in take, these activities require coverage under this Plan. All activities within HCP/NCCP preserves will be designed to avoid or minimize take of covered species. The ESA and NCCP permits will cover the activities of HCP/NCCP Implementing Entity personnel, their contractors, and lessees consistent with this Plan.

Management and Recreational Facilities

This category includes the construction and maintenance of recreational facilities such as trails, parking lots, restrooms, wildlife observation platforms, and educational kiosks that are built and/or used in accordance with the guidelines in this Plan (see Chapter 5, *Conservation Strategy*, for more details). This category also includes construction, maintenance, and use of facilities needed to manage the preserves, including but not limited to preserve field offices, maintenance sheds, carports, roads, bridges, fences, gates, wells, stock tanks, and stock ponds. All preserve management structures will be constructed to minimize impacts on covered species and vegetation communities. Facilities existing at the time of land acquisition will be used whenever possible.

Management Activities

This category includes all management actions required by the HCP/NCCP or other actions that might be necessary to achieve HCP/NCCP biological goals and objectives. Management actions that will be used within the Preserve System are described in detail in Chapter 5, *Conservation Strategy*. These actions may include but are not limited to the activities listed below. It should be noted that many of these activities overlap.

- Vegetation management using livestock grazing, manual labor, and/or prescribed burning. Pesticide use is permitted under the HCP/NCCP only to achieve biological goals and objectives (e.g., exotic plant control), in accordance with label instructions, and in compliance with state and local laws. Pesticide use is proposed for coverage only under the NCCP Act, not the ESA.
- Fire management including prescribed burning, mowing, and fuel-break establishment.
- Travel through the preserve on foot, mountain bicycle, all-terrain vehicle (ATV), truck, or other off-road vehicle to inspect or maintain facilities, move or manage livestock, and patrol trails.
- Relocation of covered species from impact sites within preserves where impacts are unavoidable and relocation has a high likelihood of success (e.g., removal of red-legged frog larvae). This is expected to occur in very limited circumstances. See Chapter 5 for details.
- Demolition or removal of structures or roads to increase public safety or to restore habitat.
- Control of introduced predators (e.g., feral cats and dogs, pigs, red fox, nonnative fish, bullfrogs).

Recreation

Low intensity recreational use of HCP/NCCP preserves is permitted under the guidelines of this Plan (see Chapter 5 for details). Any incidental take of covered species resulting from public use of trails and parking lots will be covered under the ESA and NCCPA permits, provided that usage is consistent with the guidelines in this Plan. Off-trail recreational activities and any type of activity prohibited by this Plan are not covered by the permits.

Habitat Enhancement, Restoration, and Creation

The HCP/NCCP conservation strategy (see Chapter 5) sets forth requirements for habitat enhancement, restoration, and creation. Enhancement activities generally fall under the preserve management category. Habitat restoration and creation

will generally be disruptive only in the short term because these activities may involve soil disturbance, removal of undesirable plants, and limited grading. All habitat restoration and creation is expected to result in a net long-term benefit for covered species and vegetation communities. However, these activities may have temporary or short-term adverse effects and may result in limited take of covered species (see Chapter 4, *Effects on Ecosystems, Communities, and Species*). All habitat enhancement, restoration, and creation activities conducted within HCP/NCCP preserves that are consistent with the requirements of this Plan will be covered by the ESA and NCCPA permits. Habitat restoration activities may be conducted outside HCP/NCCP preserves (see Chapter 5, *Conservation Strategy*). If such activities occur and are consistent with this Plan, they are covered by the permits.

Species Surveys, Monitoring, and Research

Implementing Entity personnel or their contractors will conduct surveys for covered species, vegetation communities, and other resources within the preserves on a regular basis for monitoring, research, and adaptive management purposes. These surveys may require physical capture and inspection of specimens to determine identity, mark individuals, or measure physical features, all of which are considered take under ESA and CESA. Surveys for covered species will also be conducted on private land being considered for inclusion in the HCP/NCCP Preserve System. Although these surveys are not expected to require as much handling of individuals, take may still occur. Surveys for all covered species will be conducted by qualified biologists. All such survey activity consistent with this Plan is covered by the ESA and NCCP Permits.

Research conducted by Implementing Entity personnel or their contractors on HCP/NCCP preserves will be covered by the ESA and NCCPA permits as long as the research projects have negligible effects on populations of covered species. Research conducted by other individuals (e.g., academic scientists) will not be covered by the permits because the nature and impacts of these future research projects cannot be predicted at this time and these researchers are not bound by the terms of the permit.

Emergency Activities

Emergency activities within the HCP/NCCP preserve that have negligible impacts on populations of covered species are covered under this Plan. Foreseeable emergency activities include but are not limited to the following.

- Firefighting.
- Evacuation of injured persons or livestock.
- Hazardous materials remediation (including preacquisition remediation and cleanup of spills or illegal dumping).

- Repair of existing facilities damaged by floods or fire.

Emergency activities that have substantial effects on covered species (e.g., firefighting for a large wildfire, repair after a major flood) are considered changed circumstances and are described in Chapter 10, *Assurances*.

Utility Construction and Maintenance

Public and private utility infrastructure such as electric transmission lines, gas pipelines, petroleum pipelines, telecommunications lines, or cellular telephone stations may cross or need to cross HCP/NCCP preserves. Construction of new utilities in preserves is a covered activity only when there is no other practicable alternative to siting the utility within the preserve. Coverage for new utilities in preserves will be decided on a case-by-case basis bythe Implementing Entity, USFWS, and CDFG. This will allow alternative siting or redesign, if possible, to avoid or minimize impacts on covered species and natural communities. Routine and emergency maintenance and repair of existing utilities within HCP/NCCP preserves is also covered by the Plan, as described above.

Neighboring Landowner Activities

The implementation of conservation measures described in Chapter 5, *Conservation Strategy*, may increase populations of covered species within the HCP/NCCP Preserve System. As a result, some individuals may disperse to neighboring private lands where the presence of listed species could interfere with routine agricultural activities. Protections for neighboring landowners are described in Chapter 10, *Assurances*; the methods for establishing and estimating take are described in Chapter 4, *Effects on Ecosystems, Communities, and Species*. With certain provisions and restrictions, agricultural lands within 1.0 mile of the preserve boundary are eligible for take coverage during the course of routine agricultural activities, during the permit term, and for take beyond the baseline condition that existed prior to the establishment of the neighboring HCP/NCCP preserve. For definitions and details of this program, see Chapter 10.

2.4 Projects and Activities Not Covered by this HCP/NCCP

As described above, all ground-disturbing activities within the UDA are intended to be covered by this Plan. Outside the UDA, covered activities are limited to activities within HCP/NCCP preserves and at specific project sites identified above. During development of the Plan, several projects and activities were considered but rejected for coverage. Take coverage for these activities would require direct consultation with CDFG and USFWS.

- **The Los Vaqueros Reservoir Expansion.** This proposed project is led by the U.S. Bureau of Reclamation, California Department of Water Resources, and CCWD. The project is not covered by the HCP/NCCP because it will undergo a separate permit process under Section 7 of ESA and Section 2081 of the California Fish and Game Code. Because of the project's significance, it is described in more detail and evaluated as a cumulative impact in the inventory area in Chapter 4.
- **Routine and Ongoing Agricultural Activities.** Routine and ongoing agricultural activities on existing irrigated agricultural and rangeland are not covered by this HCP/NCCP because the agricultural community did not wish to include them in this Plan. Routine and ongoing agricultural activities on lands neighboring HCP/NCCP preserves are covered by this HCP/NCCP under the terms described in Chapter 10, *Assurances*.
- **New Irrigated Agriculture.** In recent years, Contra Costa County has experienced a significant decline in irrigated agricultural lands due to their conversion to urban uses. Poor soil, steep topography, and access to water limit opportunities for conversion of rangeland to irrigated agriculture. As a result, little conversion of rangeland or natural communities to irrigated agriculture is occurring or is expected to occur in the inventory area. Accordingly, new irrigated agricultural operations are not covered by this Plan.
- **Wind Turbine Expansion or Operation.** Wind turbine expansion and operation is not covered by this HCP/NCCP because this activity has unique and substantial impacts on raptor species both covered and not covered by this Plan. Golden eagles are fully protected under the California Fish and Game Code and cannot be taken by covered activities.
- **Activities within Seal Beach NWS, Detachment Concord.** Although a portion of Detachment Concord is within the inventory area, no activities of this federal facility are covered by this HCP/NCCP. However, future mitigation needs of the facility (addressed under Section 7 of ESA) could build on the conservation strategy in the HCP/NCCP.
- **Construction of Rural Infrastructure Projects not Listed in this Chapter.** Major road or flood control projects outside the UDA and not listed in this Plan are not covered by the Plan.
- **Rural Residential Development and Urban Development Outside the UDA.** Rural residential development and urban development outside the UDA are not covered by the Plan because impacts are uncertain and difficult to address in a programmatic manner.
- **New Rural Landfills.** New landfills in the inventory area outside the UDA will not be covered by this Plan.
- **Mining.** There are three mining operations within the inventory area: two in Clayton (Clayton Quarry [Hanson Aggregates], and Mitchell Canyon Quarry [RMC Pacific Materials]) and one near Byron (Unamin Quarry [Unamin Corporation]). Future plans for these operations are unknown; accordingly, mining is not a covered activity under the HCP/NCCP.

Chapter 2
Tables

Table 2-1. Size and Populations of Jurisdictions within the Inventory Area

Jurisdiction	Total Size within Inventory Area (acres)	Proportion of each Jurisdiction in Inventory Area (%)	Sphere of Influence within Inventory Area (acres)	Population in 2000*	Projected Population in 2020*	Expected Change in Population (%)
Brentwood	9492	100	12,478	24,385	50,200	106
Clayton	2,451	100	3,673	10,863	13,200	22
Oakley	7,613	94	10,247	25,845	39,000	51
Pittsburg	8,631	81	11,314	77,479	114,000	47
Antioch	16,774	95	20,146	91,293	115,600	27
Unincorporated County	128908	40		18,200	34,000	87
Total	174018			240,200	591,500	146

*Based on Association of Bay Area Governments projections 2002, which include spheres of influence

Table 2-2. Grouping of Land Use Designations

Land Use Designation Type	County Abbreviation	General Plan Land Use Designation
Development	SV	Very Low-Density Single-Family Residential
	SL	Low-Density Single-Family Residential
	SM	Medium-Density Single-Family Residential
	SH	High-Density Single-Family Residential
	ML	Low-Density Multiple-Family Residential
	MM	Medium-Density Multiple-Family Residential
	MH	High-Density Multiple-Family Residential
	MV	Very High-Density Multiple-Family Residential
	MS	Very High-Density Multiple-Family Residential (Special)
	CC	Congregate Care-Senior Housing
	MO	Mobile Home
	CO	Commercial[1]
	ACC	Airport Commercial
	OF	Office
	BP	Business Park
	LI	Light Industry
	HI	Heavy Industry
	CR	Commercial Recreation
	MU	Mixed Use[2]
	PR	Parks and Recreation (in part)[3]
Agriculture	AL	Agricultural Land
	DR	Delta Recreation
Agricultural Core	AC	Agricultural Core
Public Facilities	PS	Public/Semi-Public
	LF	Landfill
Public Facilities with Undeveloped Land	PS	Public/Semi-Public
	LF	Landfill
Water	WA	Water
Urban Parks and Open Space	PR	Parks and Recreation (in part)[3]
	OS	Open Space (in part)[3]
Open Space (Planned)[4]	OS	Open Space (in part)[3]
Parks and Open Space[5]	PR	Parks and Recreation (in part)[3]
	OS	Open Space (in part)[3]
	WS	Watershed

Notes

[1] Includes Commercial (CO), Regional Commercial (RC), Local Commercial (LC), and Marina Commercial (MC)

[2] Includes all other mixed-use designations (e.g., M1, M3, M5, M10)

[3] Small, isolated parks and open space in urban areas (within city limits) are categorized as "Urban Parks"; Parks and open spaces adjacent to or within rural areas (outside city limits) are categorized as "Parks and Open Space".

[4] Open space areas that are designated in city or County General Plans as open space but are on private land and are not further encumbered by conservation easements or dedicated development rights are categorized as "Open Space (planned)"

[5] Regional and other non-urban parks, public watershed lands, and private open space lands with deed restrictions

Source: Contra Costa County Consolidated Land Use Designations

Table 2-3. Extent of Land Use Designation Types by Jurisdiction for the Inventory Area (acres)

	Agricultural Core	Agriculture	Development	Open Space* (planned)	Protected Lands**	Public Facilities	Public Facilities with Undeveloped Land	Urban Parks and Open Space	Water	Total
Brentwood		96	7,000		86	829	298	1,182		9,492
Clayton		5	1,413		518	28	2	485		2,451
Oakley		0	5,497		1,164	529	399	132	42	7,763
Pittsburg		90	6,198	376	151	897	65	848	7	8,631
Antioch		240	12,415		1,238	1,296	246	1,196	144	16,774
Unincorporated County	11,081	64,409	3,886	709	41,393	1,270	4,089	532	1,539	128,908
Total	11,081	64,839	36,409	1,085	44,550	4,848	5,100	4,374	1,731	174,018

* Open space areas that are designated in city or County general Plans but are in private ownership and are not further constrained by conservation easements or dedicated development rights

** Regional and other non-urban parks, public watershed lands, and private open space lands with deed restrictions

Table 2-4. Large Parks and Open Space Areas in the Inventory Area

Park/Open Space Area	Size (acres)	Ownership
Los Vaqueros Watershed and Reservoir[1]	17,225	Contra Costa Water District
Mount Diablo State Park[1]	6,308	State of California
Black Diamond Mines Regional Preserve	4,726	East Bay Regional Park District
Morgan Territory Regional Preserve[1]	3,068	East Bay Regional Park District
Cowell Ranch State Park	3,654	State of California
Round Valley Regional Preserve	2,053	East Bay Regional Park District
Roddy Ranch Conservation Easements	899	Contra Costa County
Byron Airport Conservation Easements	816	California Department of Fish and Game[2]
Contra Loma Regional Park[3]	589	U.S. Bureau of Reclamation[4]
Vasco Caves Regional Preserve	763	Contra Costa Water District[4]
Clayton Ranch Property	1,035	East Bay Regional Park District[4]

[1] Includes only that portion within the inventory area.

[2] The Byron Airport Habitat Management Lands are managed by Contra Costa County Airports

[3] Area of Contra Loma Reservoir not included.

[4] Contra Loma Regional Park and Vasco Caves Regional Preserve are managed by East Bay Regional Park District.

Table 2-5. Detention Basin Construction and Expansion by Contra Costa County Flood Control and Water Conservation District

Detention Basin	New Basin	Expand Existing Basin	Approx. New Footprint (acres)	Location
Discovery Bay		X	46	South of Discovery Bay
Upper Sand Creek	X		36	Sand Creek (outside ULL)
Deer Creek	X		28	Next to new High School (Brentwood)
Lower Sand Creek		X	17	Sand Creek (Brentwood)
Lindsey		X	33	East Antioch Creek (Antioch)
Trembath	X		19	East Antioch Creek (Antioch)
Oakley	X		13	East Antioch Creek (Antioch)
Marsh Creek Reservoir		X	211*	Marsh Creek (outside ULL)
		Total	403	

*Maximum expansion; could be substantially less.