



February 25, 2016

To: James Starr, California Department of Fish and Wildlife
Eric Tattersall, U.S. Fish and Wildlife Service

From: Forrest Ebbs, Community Development Director, City of Antioch
Abby Fateman, Executive Director, East Contra Costa County Habitat
Conservancy

Subject: Antioch HCP/NCCP----Proposal for Granting Interim Project Take Coverage
Through Use of the East Contra Costa County Habitat Conservation
Plan/Natural Community Conservation Plan

Introduction

For the period needed to prepare a Habitat Conservation Plan / Natural Community Conservation Plan for the City of Antioch, staff from the East Contra Costa County Habitat Conservancy (ECCCHC) and the City of Antioch (City) propose extending take coverage to projects within the City under the ECCCHC's Participating Special Entity (PSE) policies and procedures. The option of obtaining take coverage through the ECCCHC would be made available to property owners/developers to use if they meet the East Contra Costa County HCP/NCCP's (ECCC HCP/NCCP or Plan) mitigation standards and requirements. We are requesting your concurrence on this approach before we seek City Council and ECCCHC Board approval to implement it.

Need

A significant portion of the undeveloped land that will be addressed by the proposed Antioch HCP/NCCP is currently being planned for urban development, or has entered the development review process of the City and may receive approvals and entitlements from the City during the next three to four year Antioch HCP/NCCP preparation process. One large project may be approved as early as the first quarter of 2016. Presuming it would take about three to four years to complete an Antioch HCP/NCCP and receive the related permits, the value of that Plan would be significantly diminished if there is not an effective way to address species permitting and mitigation for interim projects.

Development in most of Antioch's urban expansion area is expected to need state and federal permits related to federal waters and species. The concern is that developers in the City, often in anticipation of needing a Section 7 permit, will start to secure mitigation lands in the region (or possibly outside the County), that would

create stand-alone mitigation lands that may not support or be supported by the ECCC Plan's conservation strategy. This could result in:

- a) mitigation purchases that do not maximize benefits to rare, threatened or endangered species because they are located in areas that do not complement or build on the ECCC HCP/NCCP conservation strategy (pages 5-25 to 5-54 of the ECCC HCP/NCCP describe the areas in which additional conservation could best augment the ECCC HCP/NCCP Conservation Strategy);and
- b) mitigation purchases that are located adjacent to or even within the proposed ECCC HCP/NCCP Conservation Strategy but have different ownership, conservation instruments, management and monitoring, hindering implementation of the ECCC HCP/NCCP and providing inconsistent and inefficient conservation that fails to maximize benefits to species.

If there were no defined process for addressing development projects during the Antioch HCP/NCCP preparation period, additional challenges could develop including complicating the Antioch conservation strategy by reducing the amount of needed take and the resources for implementing the conservation strategy, potential delays to needed economic development within the City and inefficient use of limited wildlife agency staff time.

Proposal

We propose that via an agreement between the ECCCHC and the City, the ECCCHC would make take coverage available to developments in Antioch that wished to use the take coverage. Take authorization would be granted through the ECCCHC's Participating Special Entity (PSE) process. Consistent with the ECCC HCP/NCCP's PSE requirements, each project receiving take coverage would be approved by the CDFW and USFWS. This arrangement would extend from the initial agreement anticipated in Spring 2016 for a four-year period that could be extended if the Antioch HCP/NCCP was in process of preparation but not yet adopted. The take coverage would be assigned by the ECCCHC from the available coverage under the ECCC HCP/NCCP. The Antioch HCP/NCCP would include a requirement to implement the compensatory mitigation and conservation actions needed to address the impacts of the interim projects and, upon approval of the HCP/NCCP, the take coverage allocated by the ECCCHC would be "deducted" from the Antioch HCP/NCCP and "returned" to the ECCCHC. This memo, in final draft form, proposing using the ECCCHC's PSE process for an Antioch HCP/NCCP-related interim project approval process was provided to the ECCCHC Governing Board on February 22, 2016. At that meeting, the Conservancy Board members expressed unanimous support to have staff proceed with further exploration of the concept. Staff from the City and ECCCHC are considering recommending a ceiling of up to 750 acres of take authorization under this interim project approval process.

The ECCC Plan notes, in Section 8.4, that Participating Special Entities are "Organizations not subject to the jurisdiction of the Permittees may have projects or

ongoing activities within the inventory area that could affect covered species and that may require take authorization” (see Attachment K, Plan pages 8-16 and 8-17).

Each PSE application requires the ECCCHC to make five findings and to obtain the concurrence of the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service (ECCCHP page 8-17). The findings are:

1. The Implementing Entity signs a contract with the Participating Special Entity binding them to the relevant terms of the HCP/NCCP.
2. The Implementing Entity finds that the proposed activity complies with all terms and requirements of the Plan, the permits, and the Implementing Agreement, and CDFW and USFWS concur.
3. The impacts of the proposed activity fall within those analyzed in the HCP/NCCP and the EIR/EIS in general type, magnitude, and effects.
4. The impacts of the proposed activity do not substantially deplete the amount of take coverage available for future project applicants considered by this Plan.
5. The proposed activity does not conflict with the conservation strategy or the ability of the Implementing Entity to meet the Plan goals and objectives.

Via findings #1 and #2, each PSE would be required to follow conditions of approval consistent with the ECCC Plan. Each PSE would pay applicable fees to the ECCCHC. Each PSE would also pay a contribution to recovery charge, consistent with current practice. This contribution to recovery charge would be used to fund the non-mitigation aspects of implementing the ECCC Plan and a portion may also be used to pay for some of the costs associated with preparing the Antioch HCP/NCCP. As with any other applicant, an Antioch project could propose to provide land in lieu of fees (though a contribution to recovery would still be required).

It is proposed that the ECCCHC and City procedure to use the PSE process to grant take authorization for covered activities in Antioch be structured as a four year agreement between the ECCCHC and the City that could be extended if the Antioch HCP/NCCP is being prepared but not yet adopted. The agreement will acknowledge that allocation of take includes the risk to the ECCCHC that if the Antioch HCP/NCCP is not completed/adopted, the take authorization granted to Antioch’s PSEs will not be “returned” by an Antioch HCP/NCCP.

Justification

Given that Antioch’s land cover and species are included in the ECCC HCP/NCCP Inventory Area, conservation strategy and analysis, including the EIR/EIS analysis, finding a way to link interim project approvals to the ECCC HCP/NCCP is both desired and possible.

The analysis in the ECCC HCP/NCCP encompasses an Inventory Area that included land within the City of Antioch and its future urban growth areas (see Attachment A,

Plan Figure 1-1: Inventory Area). Antioch contains approximately 10 percent of the ECCC HCP/NCCP Inventory Area (see Attachment G, Plan page 2-7). The City decided not to participate in the ECCC HCP/NCCP, but Antioch's land remained in the Plan's Inventory Area and part of the land cover analysis (e.g., see Attachment L, Plan Table 2-3, Extent of Land Use Designation Types by Jurisdiction for the Inventory Area includes Antioch's land uses) and part of the Conservation Strategy analysis (e.g. see Attachments D and E, Plan Figure 5-2: Acquisition Priorities with Initial Urban Development, and Plan Figure 5-3: Acquisition Priorities with Maximum Urban Development Area and Attachment J, Plan pages 5-31, 5-32 and 5-33 on land acquisition requirements within Zone 2). The analysis of the Independent Science Panel for the ECCC HCP/NCCP incorporated consideration of habitat resources, impacts and conservation within Antioch. Thus the adopted ECCC Plan and the related EIR/EIS includes analysis of land cover, covered species, future growth and conservation needs within the City of Antioch.

The ECCC Plan defines a flexible permit area that may move or expand under defined conditions. The Plan identifies two urban development options: an Initial Urban Development Area (Initial UDA) and a Maximum Urban Development Area (Maximum UDA)(see Attachment H, Plan pages 2-17 and 2-18). The Plan includes a map of the Initial UDA (see Attachment B, Plan Figure 2-3: Initial Urban Development Area) but does not include a map of the Maximum UDA because there is flexibility in where the Maximum UDA may be located. Lands not in the Initial UDA may be added to the UDA if they are not in an area defined as a high or medium conservation priority and if limits on impacts to land cover types for the Maximum UDA will not be exceeded (see Attachment H, Plan page 2-18). Conservation requirements expand if impacts exceed those in the Initial UDA (see Attachments D and E, Plan Figures 5-2 and 5-3 and Attachments O, P, Q and R, Plan Tables 5-5a, 5-5b, 5-7 and 5-8 address land acquisition requirements for the Initial and Maximum Urban Development Areas, respectively).

Most of the remaining undeveloped land within Antioch is not in a high or medium priority area for conservation. Impacts covered under the ECCC Plan through the end of 2015 total approximately 450 acres of which approximately 90 acres are Annual Grasslands. The take limits for each land cover type are far from being exceeded. Likewise, the Conservancy is well ahead of the Stay Ahead requirements of the Plan. (see 2014 ECCCHA Annual Report, Attachment T, Table 14: Stay-Ahead Assessment: Land Cover and Attachment S: Figure ES-1, Stay Ahead Compliance). Therefore, developments in Antioch could be covered as PSE's consistent with the existing ECCC HCP/NCCP.

Table 1. ECCC HCP/NCCP Take Limits and Preservation Requirements Under Initial and Maximum Urban Development Areas

Land Cover	Initial Development Scenario take limits in acres and miles (attached Tables 4-2, 5-5a and 5-7)	Initial Development Scenario--- preservation requirement (attached Tables 5-5a and 5-7)	Maximum Development Scenario take limits in acres and miles (attached Table 4-3, 5-5b and 5-8)	Maximum Development Scenario--- preservation requirement (attached Tables 5-5b and 5-8)
Aquatic cover types				
Riparian woodland	30 acres	60 acres	35 acres	70 acres
Wetlands/Ponds	237 acres	349 acres	255 acres	400 acres
Total Aquatic acres*	266 acres	409 acres	289 acres	470 acres
Streams in miles				
Perennial	0.3 miles	0.6 miles	0.4 miles	0.8 miles
Intermittent	0.3 miles	0.3 miles	0.4 miles	0.4 miles
Ephemeral	4.0 miles	4.0 miles	5.0 miles	5.0 miles
Total stream miles	4.6 miles	5.2 miles	5.8 miles	6.2 miles
Terrestrial cover types				
Annual grassland	2,533 acres	13,000 acres	4,152 acres	16,500 acres
Alkali grassland	115 acres	900 acres	115 acres	1,250 acres
Oak savanna	42 acres	500 acres	165 acres	500 acres
Oak woodland	21 acres	400 acres	73 acres	400 acres
Chaparral/scrub	0 acres	550 acres	2 acres	550 acres
Ruderal	1,271 acres		1,311 acres	
Cropland/pasture	3,983 acres	250 acres	6,570 acres	400 acres
Nonnative woodland	26 acres		26 acres	
Total terrestrial acres*	9,255 acres	15,600 acres	12,415 acres	19,600 acres
Estimated size of Preserve System**		21,450 to 27,050 acres		26,050 to 34,350 acres

* Outside parks and open space; excludes recreation and utility impacts

** Size of Preserve System larger than minimum preservation acres because of connectivity and other requirements

In addition, the ECCC HCP/NCCP analyzed conservation needs in and around Antioch and set requirements within Antioch City Limits. Most lands within Antioch are not designated in the ECCC HCP/NCCP as a high priority for conservation, and thus would be eligible for coverage under the Plan as a Participating Special Entity. However, there are a few areas within Antioch that are designated as a high priority for conservation (within which coverage would not be possible). The ECCC HCP/NCCP Plan's acquisition priorities depicted in Attachment D and E, Plan Figures 5-2 and 5-3 and Attachment J, Plan pages 5-31, -32 and 33, show that subzones 2g and 2h, both of which are in or partially within Antioch, are a high conservation priority. No projects in these areas could be covered as PSE projects under the proposed interim project. However, the remainder of land within Antioch is either within subzone 2i, which is a low priority for acquisition and has no acquisition requirements under the Plan, or are not in any acquisition analysis subzone and thus have no acquisition requirements under the Plan. Projects in these low or no conservation priority areas could be covered as PSE projects. It should also be noted that, through the acquisition of the Roddy Ranch, a significant portion of the ECCC Plan conservation requirements within the City of Antioch have already been implemented,

While the City of Antioch is not a signatory to the ECCC HCP/NCCP and has not received permits through the ECCC Plan, future development in the City was part of Plan-related analysis, including the Plan's conservation strategy and impact analysis (as discussed above), and projects in Antioch may be covered under the authority of agencies that were issued permits under the ECCC Plan. The Plan accurately notes that development in Antioch is not eligible to be covered in the same way as development in participating cities, but projects in Antioch may be and have been covered as PSE's and numerous activities within Antioch are specifically named as eligible covered activities in the Plan. Plan pages 2-18 through 2-32 and Plan Figure 2-4 address Rural Infrastructure Projects and Rural Infrastructure Operation and Maintenance Activities (see Attachment H, Plan pages 2-18-page 2-32, and Attachment C, Figure 2-4, Location of Covered Rural Infrastructure Projects). Specific projects within Antioch (e.g., eBART, Highway 4 widening, Trembath, Oakley and Upper Sand Creek Flood Control Basins, and creek channels) are eligible covered activities and several have been covered. Covered Rural Infrastructure Operation and Maintenance Projects (i.e., Roads, Flood Protection and Utilities) are identified as those within the inventory area, including Antioch.

The Plan also notes on page 4-23 (see Attachment I, Plan page 4-23) the species impacts that would occur from development in Antioch's southern expansion area. This area is the prime focus for the requested interim project process. Preparation of an Antioch HCP and NCCP is intended to be compatible with the ECCC HCP/NCCP. Use of the ECCC HCP/NCCP to provide take authorization during preparation of the Antioch Plan is consistent with the purpose of the ECCC HCP/NCCP, which is "to protect and enhance ecological diversity and function within the rapidly urbanizing region of eastern Contra Costa County" (see Attachment F, Plan page 1-4).

The EIR/EIS prepared for the ECCC HCP/NCCP analyzed the impacts of implementing all aspects of the Plan, including impacts up to the limits defined for the Maximum UDA (see Attachments M and N, Plan Tables 4-2 and 4-3). In addition to the analysis for the Maximum UDA, a separate analysis was performed in the Cumulative Impacts section of the EIR/EIS for urban growth within the City of Antioch. Therefore, the interim process proposed herein is consistent with the existing analysis for CEQA and NEPA.

Finally, Antioch's approved Grant Application for a Section 6 Planning Grant indicates that the Antioch HCP/NCCP will build off of the ECCC Plan and include the ECCC Plan's list of species and a compatible conservation strategy.

Summary

The proposal is to allow the ECCCHC to grant take authorization for interim projects during preparation of the Antioch HCP/NCCP through the availability of the ECCCHC's Participating Special Entity process for activities in the City of Antioch. This approach is consistent with the ECCC HCP/NCCP because:

- Antioch is in the ECCC HCP/NCCP Inventory Area and Antioch's land cover, covered species and covered activities were analyzed in the ECCC Plan and EIR/EIS;
- Antioch covered project impacts will fit within the take limits of the ECCC Plan;
- The covered projects will be required to meet the conditions of approval of the ECCC Plan;
- The covered projects will not conflict with the conservation strategy of the ECCC Plan;
- The covered projects will pay the standard ECCCHC fees and a contribution to recovery required of PSE's by the Conservancy and/or provide land in lieu of fees following the process outlined in the ECCC Plan and adopted policies;
- Coverage as PSE's must be approved on a case-by-case basis by the CDFW and USFWS; and
- The ECCCHC/City agreement will be time and acreage limited.

This process will provide considerable benefits for the City, ECCCHC and state and federal Wildlife Agencies including:

- Development project approvals in Antioch will be consistent with the ECCC HCP/NCCP conservation strategy and thus consistent with approvals in adjacent jurisdictions that receive take coverage through the ECCC Plan;
- Elimination of potential conflict between the formation of the ECCC HCP/NCCP Preserve System and stand-alone mitigation lands that may not be in support of or supported by the ECCC Plan's conservation strategy;
- Benefiting state and federal wildlife agencies by reducing their use of limited staff resources versus processing project-specific Section 7 mitigation plans for sites in Antioch;
- Benefiting creation and adoption of an Antioch HCP/NCCP by providing support for Antioch's innovative interim project process;
- Benefiting creation of the Antioch HCP/NCCP by having the contribution to recovery portion of PSE fees available to augment Antioch's Section 6 Grant Local Match; and
- Reducing potential delays for needed economic development within the City.

Attachments:

ECCC HCP/NCCP

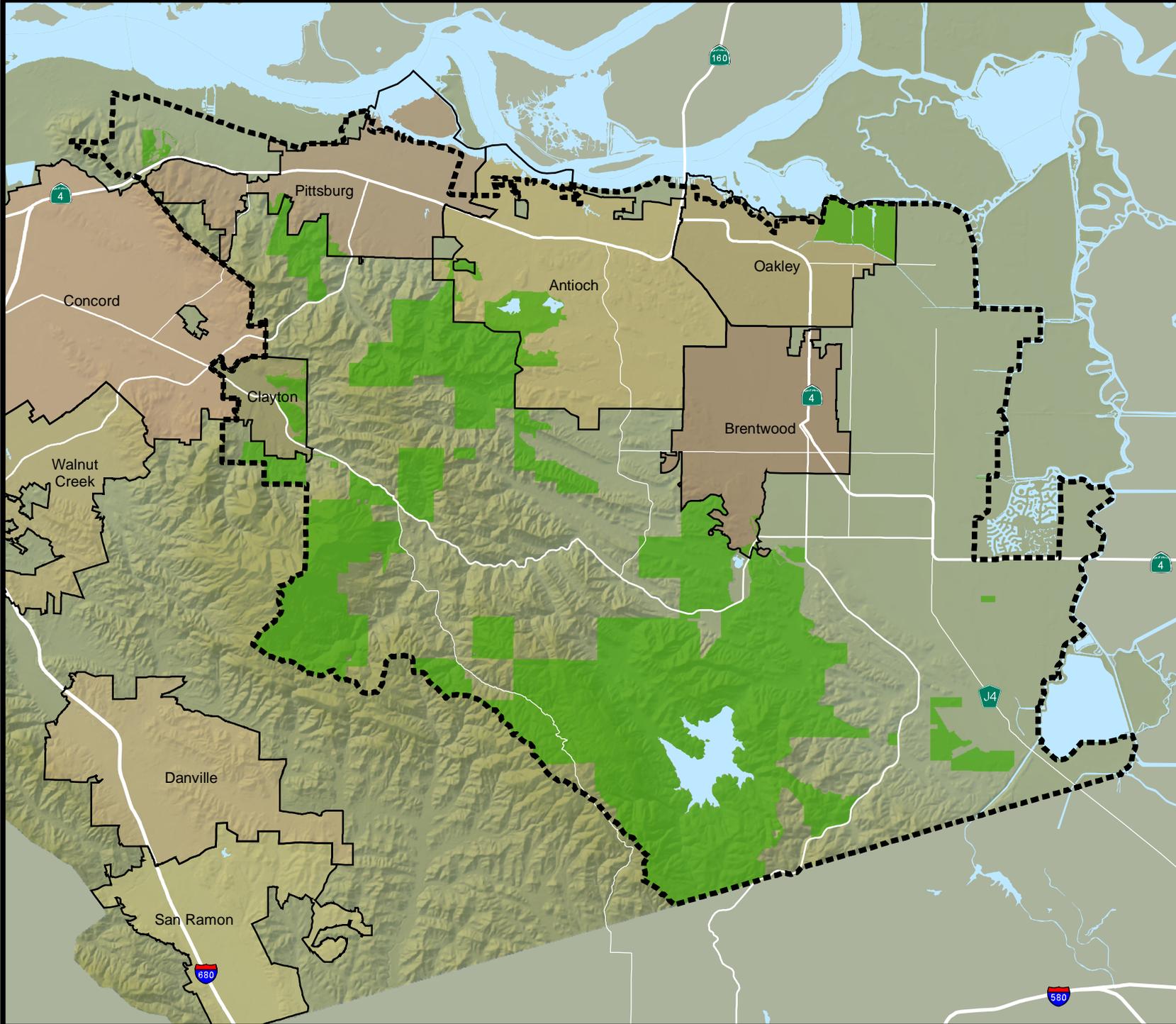
- A. Figure 1-1: Inventory Area
- B. Figure 2-3: Initial Urban Development Area
- C. Figure 2-4: Location of Covered Rural Infrastructure Projects
- D. Figure 5-2: Acquisition Priorities with Initial Urban Development Area
- E. Figure 5-3: Acquisition Priorities with Maximum Urban Development Area
- F. Page 1-4
- G. Page 2-7
- H. Pages 2-17 through 2-32
- I. Page 4-23
- J. Pages 5-31, -32 and -33
- K. Pages 8-16 and -17
- L. Table 2-3: Extent of Land Cover Designation Types by Jurisdiction for the Inventory Area (acres)
- M. Table 4-2: Direct Impacts on Land-Cover Types and Covered Natural Communities under Initial Urban Development Area Scenario (acres)
- N. Table 4-3: Direct Impacts on Land-Cover Types and Covered Natural Communities under Maximum Urban Development Area Scenario (acres)
- O. Table 5-5a: Required Preservation Ratios and Estimated Acquisition Requirements for Aquatic Land-cover Types under Initial Urban Development Area
- P. Table 5-5b: Required Preservation Ratios and Estimated Acquisition Requirements for Aquatic Land Cover Types under Maximum Urban Development Area
- Q. Table 5-7: Land Acquisition Requirements for Terrestrial Land-cover Types under the Initial Urban Development Area Scenario (acres)
- R. Table 5-8: Land Acquisition Requirements for Terrestrial Land-cover Types under the Maximum Urban Development Area Scenario (acres)

2014 ECCCHC Annual Report

- S. Figure ES-1: Stay Ahead Compliance
- T. Table 14: Stay Ahead Assessment: Land Cover

CC:

- City of Antioch
 - Steve Duran
 - Forrest Ebbs
 - Mitch Oshinsky
 - Derek Cole
- Contra Costa County
 - John Kopchik
- Land Use Planning Services
 - Kenneth Schreiber



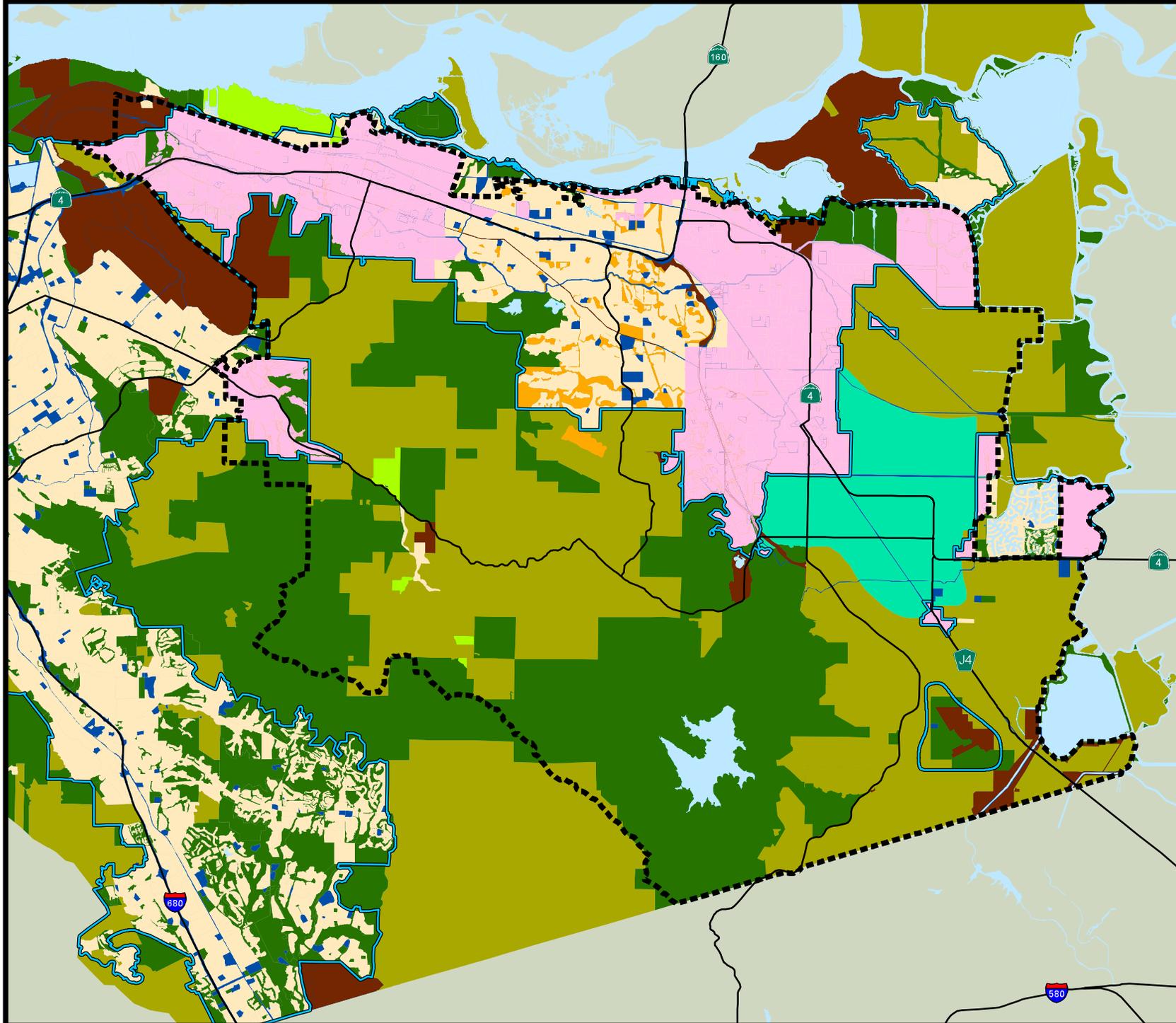
Legend

-  Inventory Area
-  Non-urban Parks, Public Watershed Lands, and Deed Restricted Open Space in the Inventory Area
-  City Limits



Miles





Legend

-  Inventory Area
-  County Urban Limit Line
-  Initial Urban Development Area

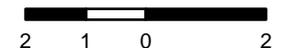
Land Use Designations *
For Areas Outside
Initial Urban Development Area

-  Agricultural Core
-  Agriculture
-  Development
-  Open Space (Designated in General Plan)
-  Parks, Public Watershed Lands, and Deed Restricted Open Space
-  Urban Parks & Open Spaces (in Inventory Area)
-  Public Facilities
-  Public Facilities with Undeveloped Land
-  Water

* Land Use Designations were derived from County and City General Plan Maps. Designations were combined to create a simpler map.

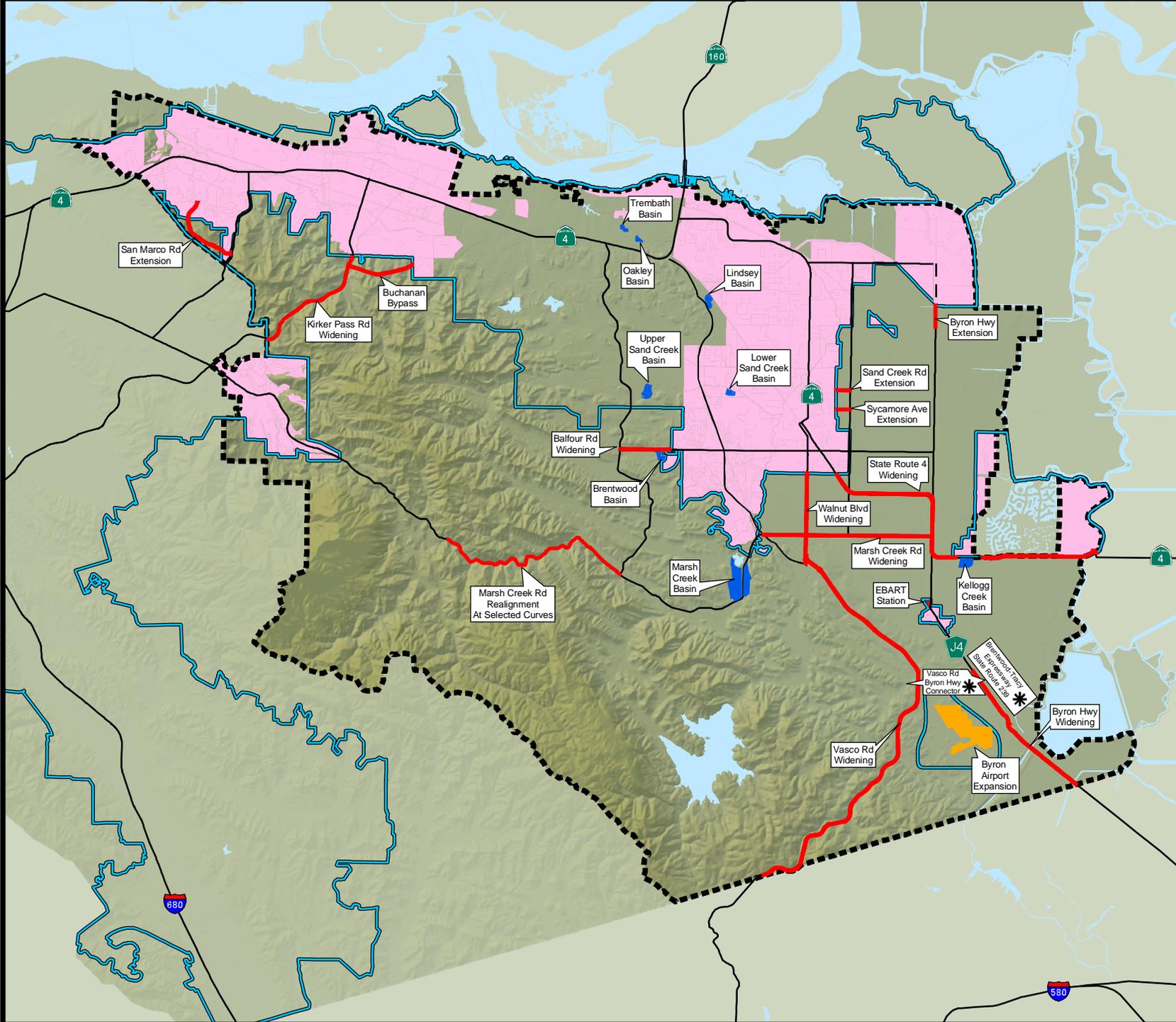


Miles



Jones & Stokes





Legend

- Inventory Area
- County Urban Limit Line

Rural Infrastructure Projects
(Please see Chapter 2 for details)

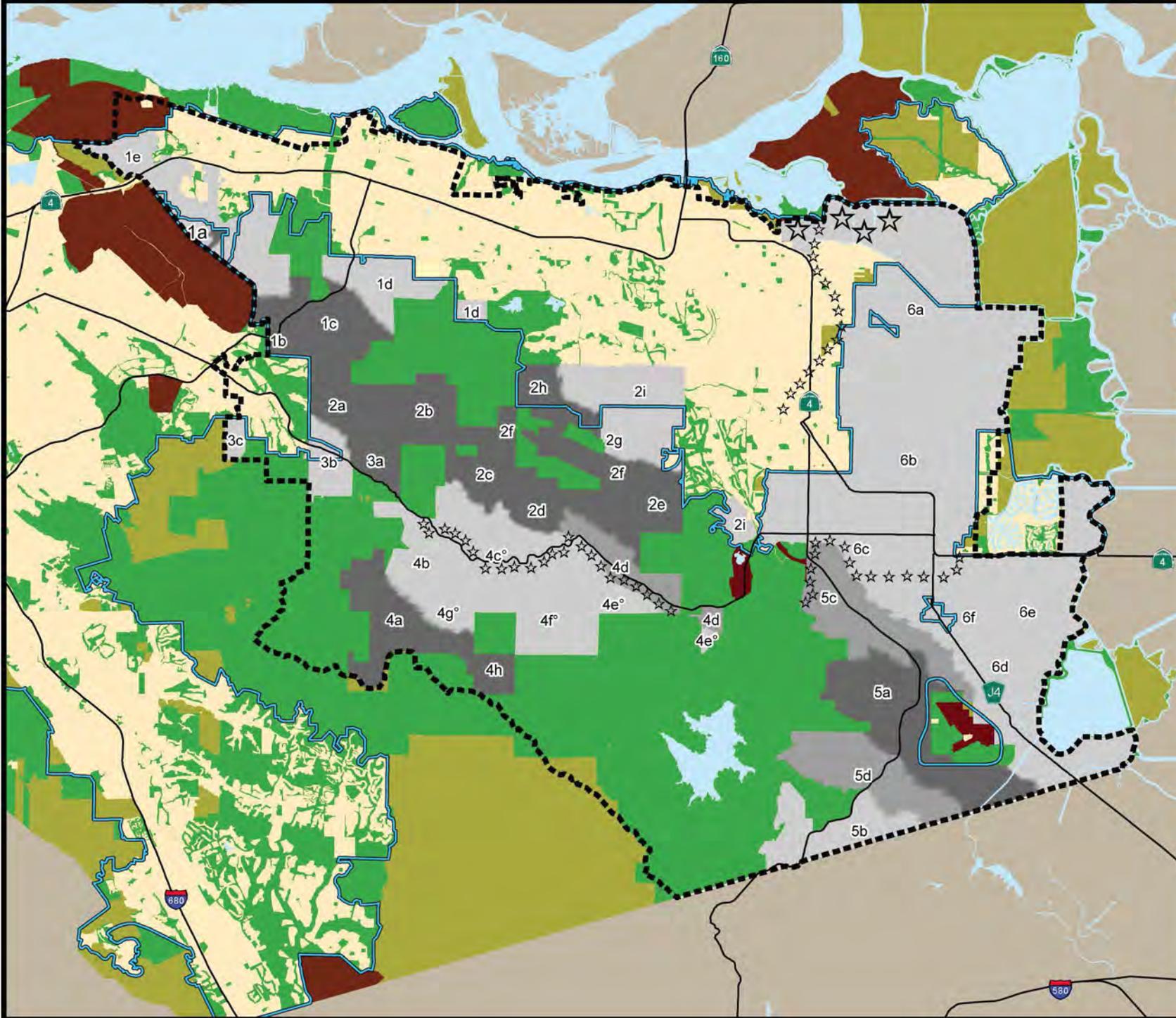
- Detention Basins
- Transportation Projects
- Byron Airport
- Initial Urban Development Area (transportation & other Infrastructure projects in this area are also covered.)

* Precise location to be determined. Please see Chapter 2 for a description of alignment limitations under HCP/NCCP permit.

N

Miles

2 1 0 2



Legend

- Inventory Area
- County Urban Limit Line

Level of Acquisition Effort

- Lower
- Medium *Sub-Zone*
- Higher

Please see Chapter 5 for additional information on the purpose of this map.

Land Use Designations Outside Acquisition Analysis Zones

- Parks, Urban Parks, Open Space, and Public Watershed
- Public Facilities with Undeveloped Land
- Agricultural Land Uses
- Development Land Uses

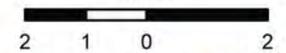
★ Additional key restoration priorities

Extensive restoration is also planned within areas also emphasized for acquisition

- Some acquisitions in subzones 4c, 4e, 4f, 4g are interchangeable

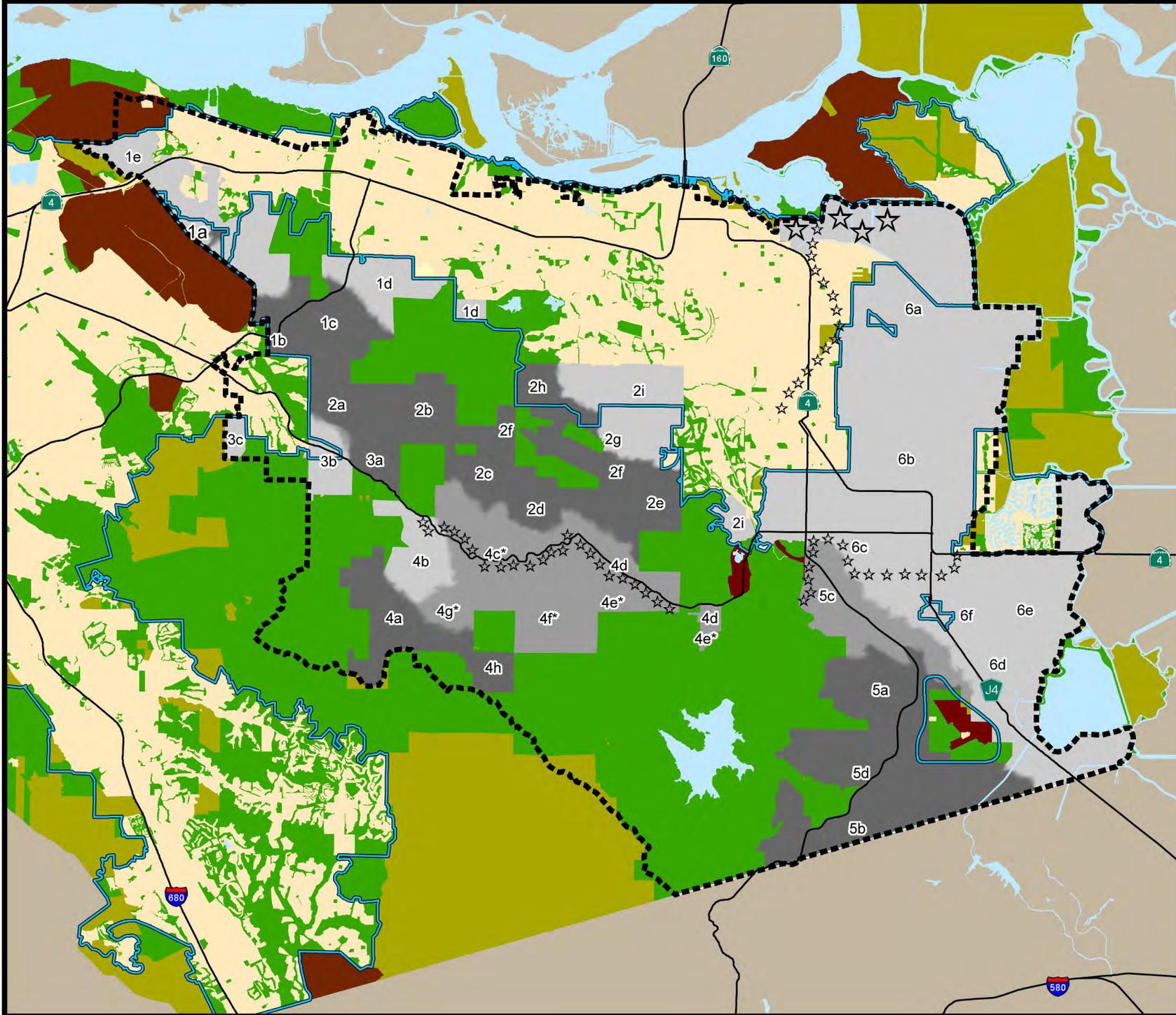


Miles



Jones & Stokes





Legend

- Inventory Area
- County Urban Limit Line

Level of Acquisition Effort

- Lower
- Medium 1a Sub-Zone
- Higher

Please see Chapter 5 for additional information on the purpose of this map.

Land Use Designations Outside Acquisition Analysis Zones

- Parks, Urban Parks, Open Space, and Public Watershed
- Public Facilities with Undeveloped Land
- Agricultural Land Uses
- Development Land Uses

★ Additional key restoration priorities

Extensive restoration is also planned within areas also emphasized for acquisition

○ Some acquisitions in subzones 4c, 4e, 4f, 4g are interchangeable

Miles

08/15/2006

conservation and contribute to recovery of endangered species within East Contra Costa County while:

- Balancing open space, habitat, agriculture, and urban development;
- Reducing the cost and increasing the clarity and consistency of federal and state permitting;
- Consolidating and streamlining these processes into one, locally controlled plan;
- Encouraging, where appropriate, the multiple use of protected areas, including recreation and agriculture;
- Sharing the costs and benefits of the habitat conservation plan as widely and equitably as possible; and
- Protecting the rights of private-property owners.

1.1.3 Purpose

The purpose of this Plan is to protect and enhance ecological diversity and function within the rapidly urbanizing region of eastern Contra Costa County. To that end, the Plan describes how to avoid, minimize, and mitigate, to the maximum extent practicable, impacts on covered species and their habitats and wetlands while allowing for the growth of selected regions of the County and the cities of Pittsburg, Clayton, Oakley, and Brentwood. The Plan also addresses the need for expansion of urban infrastructure in the eastern portion of the county. The Plan therefore encompasses many of the on-going operations and maintenance activities of the County Flood Control District, as well as a variety of road construction and maintenance activities. The Plan also describes the responsibilities associated with operating and maintaining the new preserves that will be created to mitigate for the anticipated impacts. As an NCCP, this Plan will contribute to the recovery of listed species and help preclude the need to list additional covered species in the future.

The Permittees are asking USFWS to issue permits that authorize incidental take on listed species. The Permittees are also asking CDFG to issue permits that authorize take of all covered species. The Plan includes a conservation strategy to compensate for impacts to covered species. The conservation strategy provides for the conservation and management of covered species and their habitats. It is anticipated that USFWS and CDFG will issue take permits to the local jurisdictions under the federal Endangered Species Act (ESA) and the Natural Community Conservation Planning Act (NCCPA). The local jurisdictions will then be able to use those permits to authorize development and other activities within areas designated in the Plan. USFWS and CDFG will also provide assurances to local jurisdictions and Plan participants that no further commitments of funds, land, or water will be required to address impacts on covered species beyond that described in the Plan (see Chapter 9, *Funding*).

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

- 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 largest⁴. 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 Scenario⁵ (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 Airport⁶ (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; 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 Byron 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 Byron 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 Transit 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 miles⁷, 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 Antioch⁸. 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 UDA 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, carpports, 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.

development (see Chapter 2). Some activities and projects that are outside the scope of this HCP/NCCP may nonetheless contribute to cumulative impacts on covered species. Specific projects and activities not covered by this Plan that may, in conjunction with this Plan, have an impact on covered species are described below. Additional potential cumulative impacts can be found in the EIR/EIS for this Plan.

4.6.1 Urban Development in Antioch

Under its current General Plan, the City of Antioch would expand urban development through a combination of infill and building up to its southern city limit. Table 4-8 summarizes the impacts of this development on land cover types in the inventory area. While infill development primarily affects ruderal land cover, build-out to the southern city limit would remove up to 2,544 acres of annual grassland.

The potential expansion of urban development in Antioch would affect several species covered by this Plan. The southward expansion of Antioch would affect core habitat for San Joaquin kit fox and degrade or potentially eliminate the widest and most suitable potential movement route for the species (see Chapter 5 for a more detailed evaluation of these movement routes). All four covered bird species would be affected by Antioch's expansion. Suitable California red-legged frog and California tiger salamander habitat is present within the proposed expansion area; urban development would remove or isolate ponds and degrade streams. A small amount of core habitat as well as movement habitat for Alameda whipsnake is located within Antioch. Primary and secondary habitat for both big tarplant and Brewer's dwarf flax are found in the proposed expansion area.

4.6.2 Los Vaqueros Reservoir Expansion

The Los Vaqueros Reservoir was initiated in 1988 when voters approved bonds for the development of a new reservoir to improve water quality and provide emergency storage. The Los Vaqueros facility, owned by CCWD, captures and stores Delta water for the residents of Contra Costa County. Planning for expansion of the existing reservoir is currently underway. The planned expansion has the potential to affect several covered plant and animal species as well as covered vegetation communities. The cumulative effects of the project will be considered before mitigation is developed.

The expansion project anticipates potential disturbance of up to 2,254 acres of all land cover types⁴. The largest anticipated impacts would be on annual grasslands

⁴ All impact estimates of the Los Vaqueros Reservoir expansion project are from the CALFED Los Vaqueros Reservoir Expansion Study Final Planning Report, April 9, 2004, available at the project web site: www.lvstudies.com.

Acquisition Requirements for Zone 1

The Implementing Entity will acquire at least 1,450 acres of annual grassland in Subzones 1b and 1c to create an important connection from Black Diamond Mines Regional Preserve to Detachment Concord. An important goal of conservation in this area will be to provide a large block of contiguous annual grassland or oak savanna to support western pond turtle, California tiger salamander, California red-legged frog, and other covered species. This preserve will also enhance movement between the existing protected areas. Detachment Concord supports western burrowing owl, western pond turtle, California tiger salamander, and California red-legged frog, (Tetra Tech 2002). Two ponds in the upper ridge of the inland unit of Detachment Concord are known to support California tiger salamander (Tetra Tech 2002) and may link salamanders traveling over the ridge from within the inventory area (Orloff pers. comm.).

The Implementing Entity will acquire approximately 85 acres of annual grassland in Subzone 1a consistent with the MOU between Discovery Builders (Seeno Homes) and the HCPA regarding this site (see Section 9.7 of the Implementing Agreement for more details). This site will provide an important linkage for California tiger salamander between Detachment Concord and permanently protected open space in Pittsburg. A substantial population of California tiger salamander occurs in this area whose source is likely ponds in Detachment Concord (Gan pers. comm.). Wetland enhancement and restoration on permanently protected open space in Pittsburg will likely enhance the population of California tiger salamander in this area. Land in Subzone 1a will also provide foraging habitat for golden eagle and a buffer zone between development and known golden eagle nests on the west side of the ridge line in Detachment Concord (Hale pers. comm.).

The Implementing Entity will acquire at least 25% of Subzone 1d. Acquisition in this Subzone will be focused in the southern half of the Subzone in order to secure annual grasslands that will provide better linkage between Black Diamond Mines Regional Preserve and Detachment Concord. Lands acquired in this Subzone will provide habitat for grassland-dependent covered species such as western burrowing owl.

There is no land acquisition requirement for Subzone 1e because of the expected development and the existing public land within it (see Figure 2-3). However, if land is acquired in this Subzone to meet other requirements (e.g., overall annual grassland requirement), it must be contiguous with lands acquired in Subzones 1a, 1b, or 1c, or with Detachment Concord.

Acquisition Requirements for Zone 2

The Implementing Entity will acquire at least 60% of Subzone 2a. Acquisitions in Subzone 2a will focus on the northwestern and southeastern corners of this Subzone to increase the size of habitat connections between Black Diamond Mines Regional Preserve, Detachment Concord, and Clayton Ranch (EBRPD). Acquisition of land in the northwestern and southeastern corners of Subzone 2a will protect the headwaters of two tributaries of Mount Diablo Creek. The Implementing Entity will also acquire land in Subzone 2b or 2c or both to

connect Black Diamond Mines Regional Preserve and Clayton Ranch. The connection must be at least 0.5 mile wide to provide an adequate movement route that minimizes edge for Alameda whipsnake, California tiger salamander, California red-legged frog, and other covered species⁸. The additional requirements below apply to Zone 2.

- The Implementing Entity will acquire at least seven of the 13 ponds in Subzone 2c to provide breeding habitat for tricolored blackbird, California tiger salamander, western pond turtle, or California red-legged frog. This Subzone is the only one with a specific requirement to protected ponds because it has an unusually high density of unprotected ponds compared with the rest of the inventory area. Protection of most of these ponds will protect an important core population of California red-legged frog, California tiger salamander, and western pond turtle in the center of the Preserve System. For example, research on the movement patterns of California tiger salamanders shows that there is a clear relationship between the linear distance between breeding sites and the amount of genetic exchange between those sites (Trenham et al. 2001; Shaffer and Trenham in press). The Science Advisors Report prepared for the Merced County HCP/NCCP recommends a rule of thumb to retain sets of at least 4–6 breeding sites within about 1 km of each other to maintain maximum connectivity for this species. Preservation of at least seven ponds in Subzone 2c will exceed this recommended density of breeding sites for tiger salamander.
- The Implementing Entity will acquire 90% of the remaining chaparral in Subzones 2a, 2b, and 2c (i.e., 90% of 135 acres) to protect patches of chaparral that serve as modeled core habitat for Alameda whipsnake and provide important assumed linkages for whipsnake populations between Mount Diablo State Park and Black Diamond Mines Regional Preserve. Preservation of these patches will also protect suitable habitat for Mount Diablo manzanita. USFWS has identified the area between Mount Diablo State Park and Black Diamond Mines Regional Preserve as critical for Alameda whipsnake recovery because it will provide connectivity between these core areas of whipsnake habitat (U.S. Fish and Wildlife Service 2002b).
- The Implementing Entity will acquire land in Subzone 2a to protect the known population of Mount Diablo manzanita.
- Land acquired in Subzone 2f for the San Joaquin kit fox movement route must also include the two known occurrences of big tarplant and the known occurrence of round-leaved filaree in Deer Valley. Where possible, land acquired to meet kit fox and big tarplant requirements should also include sites known to support alkali soils in Deer Valley (Olson pers. comm.).
- Land acquired in Subzones 2h must include the two known occurrences of big tarplant.

⁸ There is no accepted width of habitat for these species to provide adequate movement; viable movement routes vary according to landscape conditions (e.g., topography, vegetation) and length of the route. One-half mile was chosen for this area as an achievable minimum goal (given parcel sizes and configurations) to provide suitable breeding habitat for the target species within the habitat linkage.

- Land acquired in Subzone 2h must include the known occurrences of Mount Diablo manzanita and Brewer's dwarf flax (Mundie & Associates and City of Antioch 2002).
- Land acquired in Subzone 2d must include the known occurrence of round-leaved filaree.
- If preacquisition field surveys show modeled suitable habitat for silvery legless lizard in Subzone 2h to be suitable for this species, the Implementing Entity will give these sites a high acquisition priority.
- The Implementing Entity will acquire land that supports suitable habitat for vernal pool invertebrates wherever possible.

Additional land acquisition in Zone 2 is required to protect San Joaquin kit fox movement routes. See discussion of these requirements in *Land Acquisition Requirements in Zones 2 and 4 to Protect Kit Fox Movement Routes* below.

Acquisition Requirements for Zone 3

The Implementing Entity will acquire at least 90% of the modeled suitable core habitat for Alameda whipsnake in Subzone 3a (i.e., 90% of 177 acres) to protect the largest block of chaparral/scrub in the inventory area outside existing public lands. The requirement to protect 90% was the maximum feasible target for this Subzone based on parcel size and configuration to help meet the biological goal to contribute substantially to the recovery of Alameda whipsnake in the inventory area. The Implementing Entity will also acquire land in Subzone 3a to increase the width of the linkage between the large chaparral patch in the Subzone and other chaparral patches in Mount Diablo State Park. All land acquired in this Subzone must contribute to this linkage and must be connected to Clayton Ranch through existing protected lands or HCP/NCCP preserves. Protection of 90% of core habitat and the protection of perimeter and movement habitat around it will provide a key linkage between existing protected Alameda whipsnake habitat in Mount Diablo State Park and Black Diamond Mines Regional Preserve and will contribute to the recovery of Alameda whipsnake. Acquisition of land within Subzone 3a will also protect headwater tributaries of Irish Canyon Creek.

There are no acquisition requirements in Subzones 3b and 3c, but land acquired within these Subzones can count towards land cover acquisition requirements.

Acquisition Requirements for Zone 4

As described above in *Land Acquisition under Different Urban Development Areas*, land acquisition requirements in Zones 4, 5, and 6 differ according to the amount of urban development that is covered under the HCP/NCCP. Minimum land acquisition requirements under the initial urban development area were designed to meet all biological goals and objectives and regulatory requirements in the event that build-out in the inventory area does not exceed the initial UDA.

Acquisition under Initial Urban Development Area. Land acquisition in Zone 4 will be focused in two primary areas: along Marsh Creek in the Briones Valley (Subzone 4d) and upstream (Subzone 4c), and the Upper Marsh Creek Subbasin (Subzones 4a, 4c, 4e, 4f, 4g, and 4h). Acquisition in Subzone 4d will also meet

8.3.9 Consultants and Contractors

Consultants will be retained to meet any technical or scientific needs that cannot be effectively or efficiently addressed through in-house staff due to insufficient expertise or availability. It is expected that consultants will be utilized more heavily during the early stages of Plan implementation, becoming less necessary as the Implementing Entity develops and becomes more familiar with the Preserve System. Contractors will be needed for construction tasks requiring specialized skills or the use of heavy equipment, such as road grading, restoration grading, plant propagation, restoration planting, and water-well construction and maintenance.

8.4 Participating Special Entities

Organizations not subject to the jurisdiction of the Permittees may have projects or ongoing activities within the inventory area that could affect covered species and that may require take authorization. Such organizations may include school districts, water districts, irrigation districts, transportation agencies, local park districts, geologic hazard abatement districts, or other utilities or special districts that own land or provide public services. These agencies, known as Participating Special Entities, can request coverage under the HCP/NCCP during Plan implementation; such coverage would provide take authorization for their projects. In addition, there may be cases where an organization that is subject to the land use jurisdiction of the Permittees seeks take authorization for activities that do not require land use permits (pipeline maintenance projects, for example). Such cases may also be addressed through the provisions described below for providing take coverage to Participating Special Entities.

The Participating Special Entity will submit a complete application for the proposed activity directly to the Implementing Entity with copies to the local jurisdiction in which the project occurs, CDFG, and USWFS. This application will contain the following components.

- A detailed description of the activity proposed for coverage under the HCP/NCCP.
- A map of the proposed activity area.
- An analysis of the potential impacts of the proposed activity on covered species and their habitats.
- The results of required planning surveys (described in Chapter 6, *Conditions on Covered Activities*).

In order to grant take authorization to these local agencies, the Implementing Entity will need a legally enforceable contractual relationship with the Participating Special Entity. The Implementing Entity will issue a Certificate of Inclusion to the Participating Special Entity that will allow the proposed activity

to be covered under the HCP/NCCP if the conditions listed below are met. A template of the Certificate of Inclusion is found as an exhibit to the Implementing Agreement (Appendix B).

- The Implementing Entity signs a contract with the Participating Special Entity binding them to the relevant terms of the HCP/NCCP.
- The Implementing Entity finds that the proposed activity complies with all terms and requirements of the Plan, the permits, and the Implementing Agreement, and CDFG and USFWS concur.
- The impacts of the proposed activity fall within those analyzed in the HCP/NCCP and the EIR/EIS in general type, magnitude, and effects.
- The impacts of the proposed activity do not substantially deplete the amount of take coverage available for future project applicants considered by this Plan.
- The proposed activity does not conflict with the conservation strategy or the ability of the Implementing Entity to meet the Plan goals and objectives.

The Certificate of Inclusion will be issued to the Participating Special Entity upon payment of the fee specified in the contract and completion of any and all other steps required by contract to occur prior to issuance of the Certificate of Inclusion. The Implementing Entity may require Participating Special Entities to pay fees over and above those specified in Chapter 9 to cover indirect costs of extending permit coverage under the HCP/NCCP, including the costs of Implementing Entity staff time to assist with permit coverage, a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery. The Certificate of Inclusion will include an attached map depicting the parcel number, acreage, and owner of lands to which the take authorization(s) would apply. Also see the Implementing Agreement for additional details and procedures that apply to Participating Special Entities.

8.5 Local Implementing Ordinances

To implement the HCP/NCCP on the local level, each participating jurisdiction must adopt an implementing ordinance that will reference the HCP/NCCP and the jurisdiction's obligations under the Plan. Most importantly, the ordinance will establish the fees on local applicants seeking coverage under the Plan, as described in Chapter 9. Ordinances will be finalized and adopted by each jurisdiction not later than 90 days after Permit issuance by CDFG and USFWS. A draft template of the HCP/NCCP implementing ordinance is found in Appendix F.

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 4-2. Direct Impacts on Land-Cover Types and Covered Natural Communities under Initial Urban Development Area Scenario (acres)

Land-Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact		Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Initial UDA	Rural Infrastructure		
Terrestrial Land-Cover Types²						
Annual grassland	58,840	34,853 (59)	2,016	517	2,533 (7)	32,320
Alkali grassland	1,997	1,618 (81)	0	115	115 (7)	1,503
Rock outcrop ³	119	5 (4)	0	0	0 (0)	5
Ruderal	6,188	5,786 (93)	1,200	71	1,271 (22)	4,514
Subtotal Grassland Vegetation Community ⁴	67,144	42,261 (63)	3,216	704	3,920 (9)	38,341
Oak savanna	5,894	3,204 (54)	40	2	42 (1)	3,163
Oak woodland	24,198	11,914 (49)	21	0	21 (<1)	11,892
Subtotal Oak Woodland Vegetation Community ⁴	30,092	15,118 (50)	61	2	63 (<1)	15,055
Chaparral/scrub	3,016	791 (26)	0	0	0 (0)	791
Riparian woodland/scrub	448	366 (82)	20	10	30 (8)	336
Wetlands, Ponds, and Streams						
Wetland (undetermined)	483	392 (81)	84	15	99 (25)	294

Table 4-2. Continued

Land-Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact			Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Initial UDA	Rural Infrastructure			
Alkali wetland complex	380	200 (52)	10	19	28 (14)	171	
Seasonal wetland complex	121	107(89)	18	0	18 (17)	89	
Aquatic	1,823	206 (11)	12	0	12 (6)	193	
Pond	165	116 (70)	6	1	7 (6)	109	
Slough/channel	213	109 (51)	72	0	72 (66)	37	
Subtotal	3,186	1,130 (35)	203	34	237 (21)	893	
Perennial and intermittent streams (miles) ⁵	408.9	257.6 (63)	0.4	0.2	0.6 (0)	257.0	
Ephemeral creeks (miles) ⁵	n/a	n/a	3.0	1.0	4.0 (n/a)	n/a	
Subtotal All Natural Land-Cover Types	103,886	59,666(57)	3,500	750	4,250 (7)	55,416	
Cultivated Land-Cover Types							
Cropland	20,516	20,258 (99)	2,934	39	2,973 (15)	17,286	
Pasture	4,491	3,600 (80)	1,057	20	1,077 (30)	2,522	
Orchard	3995	3,994 (100)	516	21	537 (13)	3,457	
Vineyard	2,031	1,792 (88)	638	19	657 (37)	1,134	
Subtotal	31,034	29,643 (96)	5,145	99	5,244 (18)	24,399	

Table 4-2. Continued

Land-Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact		Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Initial UDA	Rural Infrastructure		
Other Land Cover Types						
Nonnative woodland	51	44 (87)	24	2	26 (60)	18
TOTAL	134,970	89,353 (66)	8,670	851	9,521 (11)	79,833
Recreation and Utility Impacts ⁶				275	275	
GRAND TOTAL				1,126	9,796 (11)	79,558

¹ Parks and Open Space are defined in Table 2-2; they represent lands that are permanently protected for conservation purposes

² Number may not add exactly due to rounding

³ Some rock outcrops occur within oak savannah or oak woodland but all are assigned to the grassland community for the purposes of this analysis

⁴ Excludes wetland land cover types

⁵ Stream data not included in impact totals because it is an overlay data set (i.e., it overlaps with the land cover type data and is measured in linear miles in this table rather than acres).

⁶ Impacts of new recreational facilities (e.g., new trails, staging areas, remote camp sites) within HCP/NCCP preserves were assumed to be 50 acres and impacts of new utilities were assumed to be 225 acres. These impacts were not separated by land cover type because of the uncertain location of these facilities. Impacts from these activities are expected to occur in proportion to the extent of all land cover types.

Table 4-3. Direct Impacts on Land-Cover Types and Covered Natural Communities under Maximum Urban Development Area Scenario (acres)

Land Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact		Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Maximum UDA	Rural Infrastructure		
Terrestrial Land Cover Types²						
Annual grassland	58,840	34,853 (59)	3,634	517	4,152 (12)	30,701
Alkali grassland	1,997	1,618 (81)	0	115	115 (7)	1,503
Rock outcrop ³	119	5 (4)	0	0	0 (0)	5
Ruderal	6,188	5,786 (93)	1,240	71	1,311 (23)	4,474
Subtotal Grassland Vegetation Community ⁴	67,144	42,261 (63)	4,875	704	5,578 (13)	36,683
Oak savanna	5,894	3,204 (54)	163	2	165 (5)	3,040
Oak woodland	24,198	11914 (49)	73	0	73 (1)	11,841
Subtotal Oak Woodland Vegetation Community ⁴	30,092	15,118 (50)	236	2	238 (2)	14,880
Chaparral/scrub	3,016	791 (26)	2	0	2 (<1)	789
Riparian woodland/scrub	448	366 (82)	25	10	35 (10)	331
Wetlands, Ponds, and Streams						
Wetland (undetermined)	483	392 (81)	86	15	100 (26)	292

Table 4-3. Continued

Land Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact		Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Maximum UDA	Rural Infrastructure		
Alkali wetland complex	380	200 (52)	12	19	31 (16)	168
Seasonal wetland complex	121	107 (89)	31	0	31 (29)	76
Aquatic	1,823	206 (11)	12	0	12 (6)	193
Pond	165	116 (70)	7	1	8 (7)	108
Slough/channel	213	109 (51)	72	0	72 (66)	37
Subtotal	3,186	1,130 (35)	221	34	255 (23)	875
Perennial and intermittent streams (miles) ⁵	408.9	257.6 (63)	0.5	0.3	0.8 (0)	256.8
Ephemeral creeks (miles) ⁵	n/a	n/a	4.0	1.0	5.0 (n/a)	n/a
Subtotal All Natural Land Cover Types	103,886	59,666 (57)	5,358	750	6,108 (10)	53,558
Cultivated Land Cover Types						
Cropland	20,516	20,258 (99)	3,506	39	3,545 (17)	16,714
Pasture	4,491	3,600 (80)	1,446	20	1,466 (41)	2,134
Orchard	3,995	3,994 (100)	626	21	647 (16)	3,347
Vineyard	2,031	1,792 (88)	893	19	912 (51)	879
Subtotal	31,034	29,643 (96)	6,470	99	6,570 (22)	23,074

Table 4-3. Continued

Land Cover Type	Total in Inventory Area	Outside Parks, Open Space ¹ (% of total)	Estimated Direct Impact		Total Impact (% outside Parks, Open Space)	Remain Outside Parks and Open Space
			Urban Development in Maximum UDA	Rural Infrastructure		
Other Land Cover Types						
Nonnative woodland	51	44 (87)	24	2	26 (60)	18
TOTAL	134,970	89,353 (66)	11,853	851	12,704 (14)	76,650
Recreation and Utility Impacts ⁶				275	275	
GRAND TOTAL				1,126	13,029 (15)	76,375

¹ Parks and Open Space are defined in Table 2-2; they represent lands that are permanently protected for conservation purposes

² Number may not add exactly due to rounding

³ Some rock outcrops occur within oak savannah or oak woodland but all are assigned to the grassland community for the purposes of this analysis

⁴ Excludes wetland land cover types

⁵ Stream data not included in impact totals because it is an overlay data set (i.e., it overlaps with the land cover type data and is measured in linear miles in this table rather than acres).

⁶ Impacts of new recreational facilities (e.g., new trails, staging areas, remote camp sites) within HCP/NCCP preserves were assumed to be 50 acres and impacts of new utilities were assumed to be 225 acres. These impacts were not separated by land cover type because of the uncertain location of these facilities. Impacts from these activities are expected to occur in proportion to the extent of all land cover types.

Table 5-5a. Required Preservation Ratios and Estimated Acquisition Requirements for Aquatic Land-Cover Types under Initial Urban Development Area

Aquatic Land Cover Type	Estimated Impact ¹ (acres)	Required Preservation Ratio	Estimated Preservation Requirement ¹ (acres)	Minimum Available in Acquisition Analysis Zones ² (acres)
Riparian woodland/scrub	30	2:1	60	205
Wetlands and Ponds				
Perennial wetlands ³	74	1:1	74	231
Seasonal wetlands ^{3,4}	43	3:1	129	172 ⁵
Alkali wetland ⁴	28	3:1	84	168
Ponds	7	2:1	14	80
Slough/channel	72	0.5:1	36	137
Aquatic (open water)	12	1:1	12	123
Total Aquatic Land Cover Types (acres)	266		409	1,117
Perennial streams (miles) ⁶	0.3	2:1	0.6	18 ⁷
Intermittent streams (miles) ⁶	0.3	1:1	0.3	184 ⁷
Ephemeral streams (miles)	4	1:1	4	184 ⁷

Notes:

- ¹ Impact estimates are based on the initial urban development area (Table 4-2). Actual acquisition requirements will be based on field-delineated resources at impact sites and application of the required preservation ratios in this table. Restoration, creation, and enhancement of aquatic land cover is required in addition to preservation of aquatic land cover as compensation for impacts. See Conservation Measures 2.1.1 and 2.2.2 for these requirements.
 - ² Many land cover types were underestimated in the mapping conducted for this HCP/NCCP, so these figures represent minimum acreages of what is available for preservation. See Chapter 3 for a discussion of the mapping limitations.
 - ³ Undetermined wetlands could be seasonal wetlands or perennial wetlands (e.g., freshwater marsh). Seasonal wetlands will be mitigated at a preservation ratio of 3:1; perennial wetlands will be mitigated at a preservation ratio of 1:1. This table assumes 75% of undetermined wetlands are perennial wetlands and 25% are seasonal wetlands.
 - ⁴ Seasonal and alkali wetland acreage was quantified as the minimum polygon encompassing clusters of seasonal pools or drainages (i.e., wetland complexes). Impacts and land acquisition requirements will be tracked by jurisdictional wetland boundary, so estimates in this table overstate the expected impacts to and preservation of these land cover types. Impact restrictions and preservation ratios apply only to wetted acres.
 - ⁵ The actual amount of seasonal wetlands available for preservation in the inventory area is unknown because of a lack of field surveys. The allowable impact to seasonal wetlands by covered activities will be capped at the amount required to preserve seasonal wetlands at the required 3:1 ratio. For example, if only 30 acres are preserved, allowable impacts will be capped at 10 acres.
 - ⁶ Maximum allowable impacts for perennial and intermittent streams could not be separately estimated. Cumulative impacts for these two categories were estimated at 0.6 miles. For the purposes of this table, it is assumed that the impacts are evenly split between the two categories.
 - ⁷ The approximate length of all streams of all types in the Acquisition Analysis Zone is 184 miles.
-

Table 5-5b. Required Preservation Ratios and Estimated Acquisition Requirements for Aquatic Land-Cover Types under Maximum Urban Development Area

Aquatic Land Cover Type	Estimated Impact ¹ (acres)	Required Preservation Ratio	Estimated Preservation Requirement ¹ (acres)	Minimum Available in Acquisition Analysis Zones ² (acres)
Riparian woodland/scrub	35	2:1	70	205
Wetlands and Ponds				
Perennial wetlands ³	75	1:1	75	232
Seasonal wetlands ^{3,4}	56	3:1	168	172 ⁵
Alkali wetland ⁴	31	3:1	93	168
Ponds	8	2:1	16	80
Slough/channel	72	0.5:1	36	137
Aquatic (open water)	12	1:1	12	123
Total Aquatic Land Cover Types (acres)	289		470	1,117
Perennial streams (miles) ⁶	0.4	2:1	0.8	184 ⁷
Intermittent streams (miles) ⁶	0.4	1:1	0.4	184 ⁷
Ephemeral streams (miles)	5	1:1	5	184 ⁷

Notes:

- ¹ Impact estimates are based on the initial urban development area (Table 4-2). Actual acquisition requirements will be based on field-delineated resources at impact sites and application of the required preservation ratios in this table. Restoration, creation, and enhancement of aquatic land cover is required in addition to preservation of aquatic land cover as compensation for impacts. See Conservation Measures 2.1.1 and 2.2.2 for these requirements.
 - ² Many land cover types were underestimated in the mapping conducted for this HCP/NCCP, so these figures represent minimum acreages of what is available for preservation. See Chapter 3 for a discussion of the mapping limitations.
 - ³ Undetermined wetlands could be seasonal wetlands or perennial wetlands (e.g., freshwater marsh). Seasonal wetlands will be mitigated at a preservation ratio of 3:1; perennial wetlands will be mitigated at a preservation ratio of 1:1. This table assumes 75% of undetermined wetlands are perennial wetlands and 25% are seasonal wetlands.
 - ⁴ Seasonal and alkali wetland acreage was quantified as the minimum polygon encompassing clusters of seasonal pools or drainages (i.e., wetland complexes). Impacts and land acquisition requirements will be tracked by jurisdictional wetland boundary, so estimates in this table overstate the expected impacts to and preservation of these land cover types. Impact restrictions and preservation ratios apply only to wetted acres.
 - ⁵ The actual amount of seasonal wetlands available for preservation in the inventory area is unknown because of a lack of field surveys. The allowable impact to seasonal wetlands by covered activities will be capped at the amount required to preserve seasonal wetlands at the required 3:1 ratio. For example, if only 30 acres are preserved, allowable impacts will be capped at 10 acres.
 - ⁶ Maximum allowable impacts for perennial and intermittent streams could not be separately estimated. Cumulative impacts for these two categories were estimated at 0.8 miles. For the purposes of this table, it is assumed that the impacts are evenly split between the two categories.
 - ⁷ The approximate length of all streams of all types in the Acquisition Analysis Zone is 184 miles.
-

Table 5-7. Land Acquisition Requirements for Terrestrial Land-cover Types under the Initial Urban Development Area Scenario (acres)

	Total in Inventory Area	Inside Parks and Open Space ¹ (%)	Outside Parks and Open Space	Estimated and Allowable Impact ² (%outside parks and open space)	Remain Outside Parks and Open Space	HCP/NCCP Preservation Requirement for Compensation and Recovery ³ (% Remaining Outside Parks & Open Space)	Minimum Preserved ⁴ (% of Total after Impacts)
Annual grassland	58,840	23,987 (41%)	34,853	2,533 (7%)	32,320	13,000 (40%)	36,987(66%)
Alkali grassland	1,997	379 (19%)	1,618	115 (7%)	1,503	900 (60%)	1,279 (68%)
Oak savanna	5,894	2,690 (46%)	3,204	42 (1%)	3,163	500 (16%)	3,190 (55%)
Oak woodland	24,198	12,284 (51%)	11,914	21 (<0%)	11,892	400 (3%)	12,684 (52%)
Chaparral/scrub	3,016	2,225 (74%)	791	0 (0%)	791	550 (70%)	2,775 (92%)
Cropland and pasture	25,007	1,149 (5%)	23,858	4,050 (17%)	19,808	250 (1%)	1,399 (7%)
Total	118,953	42,715 (36%)	76,238	6,762 (9%)	69,476	15,600 (22%)	58,315 (52%)

¹ Refers to permanently protected parks and open space. See text and Table 2-2 for more information.

² Assumes the initial urban development area. The percentage is the proportion of the land cover type outside public lands and open space.

³ These acreage requirements represent the minimum required under the HCP/NCCP to compensate for impacts of covered activities and contribute to the recovery of covered species. Actual acquisition of these land cover types may be greater than the minimum requirements because the Plan also includes connectivity and other requirements that will result in additional acquisitions and because parcels purchased to meet a specific requirement will contain additional acres of non-target land cover types.

⁴ Min. preserved = HCP/NCCP requirement + existing parks and open space. More of each land cover type is expected to be preserved due to need to acquire parcels rather than specific areas of each land cover type. The percentage is the proportion of the land cover type preserved in existing public lands and HCP/NCCP Preserves after full HCP/NCCP implementation (i.e., after impacts have occurred).

Table 5-8. Land Acquisition Requirements for Terrestrial Land-cover Types under the Maximum Urban Development Area Scenario (acres)

	Total in Inventory Area	Inside Parks and Open Space ¹ (%)	Outside Parks and Open Space	Estimated and Allowable Impact ² (% outside parks and open space)	Remain Outside Parks and Open Space ²	HCP/NCCP Preservation Requirement for Compensation and Recovery ³ (% Remaining Outside Parks & Open Space)	Minimum Preserved ⁴ (% of Total after Impacts)
Annual grassland	58,840	23,987 (41%)	34,853	4,152 (12%)	30,701	16,500 (54%)	40,487 (74%)
Alkali grassland	1,997	379 (19%)	1,618	115 (7%)	1,503	1,250 (83%)	1,629 (87%)
Oak savanna	5,894	2,690(46%)	3,204	165 (5%)	3,040	500 (16%)	3,190 (56%)
Oak woodland	24,198	12,284 (51%)	11,914	73 (1%)	11,841	400 (3%)	12,684 (53%)
Chaparral/scrub	3,016	2,225 (74%)	791	2 (<1%)	789	550 (70%)	2,775 (92%)
Cropland and pasture	25,007	1,149 (5%)	23,858	5,011 (21%)	18,847	400 (2%)	1,549 (8%)
Total	118,953	42,715 (36%)	76,238	9,518 (12%)	66,720	19,600 (29%)	62,315 (57%)

¹ Refers to permanently protected parks and open space. See text and Table 2-2 for more information.

² Assumes the maximum urban development area. The percentage is the proportion of the land cover type outside public lands and open space.

³ These acreage requirements represent the minimum required under the HCP/NCCP to compensate for impacts of covered activities and contribute to the recovery of covered species. Actual acquisition of these land cover types may be greater than the minimum requirements because the Plan also includes connectivity and other requirements that will result in additional acquisitions and because parcels purchased to meet a specific requirement will contain additional acres of non-target land cover types.

⁴ Min. preserved = HCP/NCCP requirement + existing parks and open space. More of each land cover type is expected to be preserved due to need to acquire parcels rather than specific areas of each land cover type. The percentage is the proportion of the land cover type preserved in existing public lands and HCP/NCCP Preserves after full HCP/NCCP implementation (i.e., after impacts have occurred).

Figure ES-1. Stay Ahead Compliance

This is a graphical representation of data in Table 14.

The chart compares conservation achieved to impacts incurred according to the specific guidelines set forth in the Stay Ahead Provision.

The green bars display the percent of the land cover acquired as a percent of the conservation required.

The red bars display the percent of land cover impact incurred as a percent of the impact limits.

To comply with the Stay Ahead Provision, for terrestrial land covers the green bars need to be not more that 5% below the red bars.

With the extensive conservation effort to date, progress toward conservation goals have met, exceeded or vastly exceeded Stay Ahead Provision requirements.

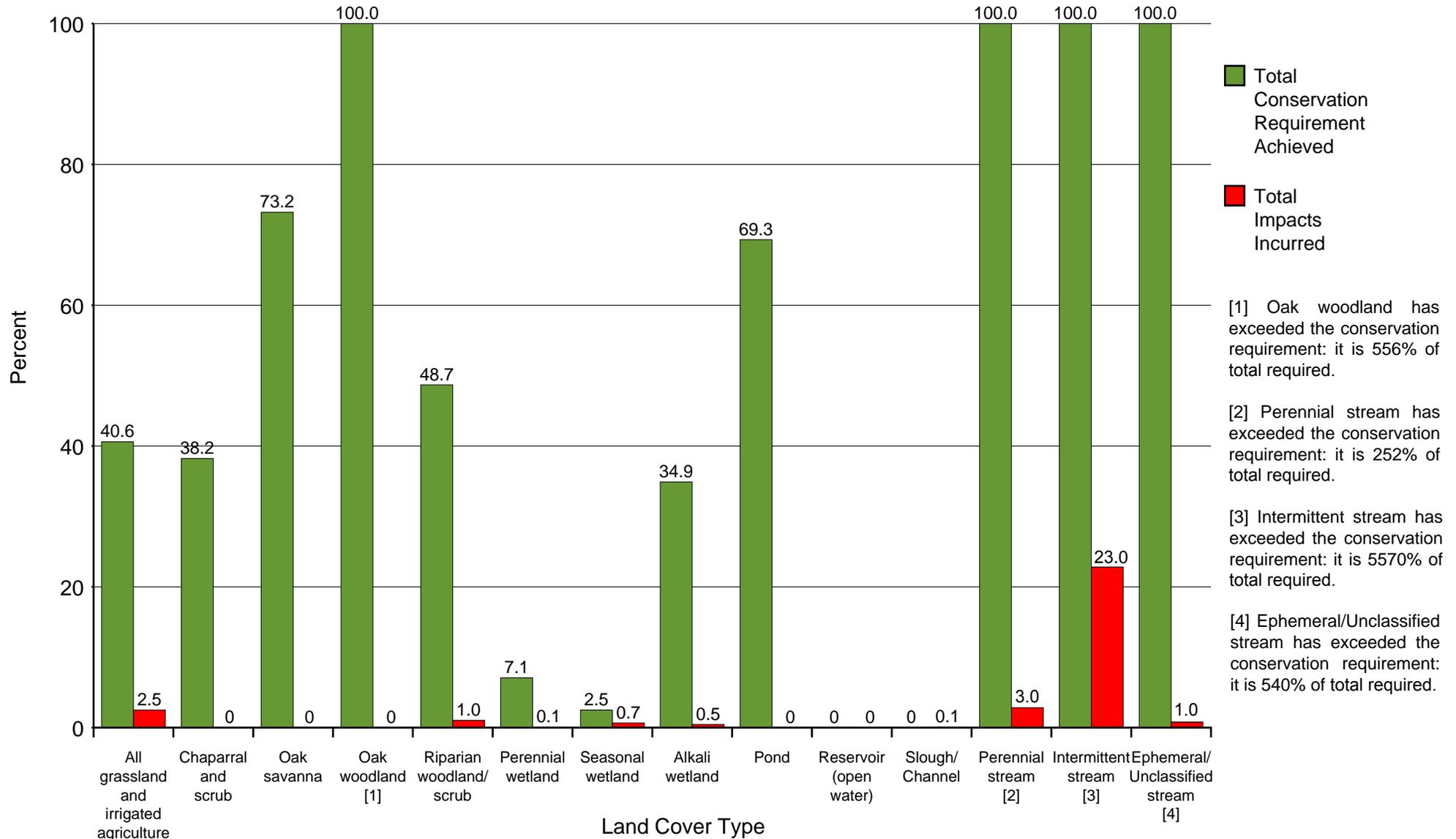


Table 14. Stay-Ahead Assessment: Land Cover

Land Cover Type	Conservation			Impacts			Stay-Ahead		
	Protection Required (acres)	Protection, Creation, Restoration to date (acres)	% of Required	Estimated Impacts (acres)	Impacts to date (acres)	% of Impacts	Acres Required to be Ahead	Acres Ahead	% Ahead ³ (Conservation % to Impacts %)
Terrestrial									
All grassland & irrigated agriculture	18,150	7,368	40.6%	12,148	349	2.5%	454	7,065	38%
Chaparral and scrub	550	210	38.2%	2	0	0.0%	0	210	38%
Oak savanna	500	366	73.2%	165	0	0.0%	0	366	73%
Oak woodland	400	2,224	555.9%	73	0	0.0%	0	2,224	556%
<i>Subtotal terrestrial</i>	<i>19,600</i>	<i>10,168</i>	<i>52%</i>	<i>12,388</i>	<i>349</i>	<i>3%</i>	<i>553</i>	<i>9,615</i>	<i>49%</i>
Aquatic									
Riparian woodland/scrub	70	34	49%	35	1	1%	1	34	48%
Perennial wetland ¹	75	5	7%	75	0	0%	0	5	7%
Seasonal wetland	168	19	2%	56	0	1%	5	19	2%
Alkali wetland	93	32	35%	31	0	0%	0	32	34%
Pond	16	11	69%	8	0	0%	0	11	69%
Reservoir (open water) ²	12	0	0%	12	0	0%	0	0	0%
Slough/Channel	36	0	0%	72	0	0%	0	0	0%
<i>Subtotal aquatic</i>	<i>470</i>	<i>102</i>	<i>22%</i>	<i>289</i>	<i>1</i>	<i>0%</i>	<i>2</i>	<i>100</i>	<i>21%</i>
Stream (length in linear feet)									
Perennial stream	4,224	10,646	252%	2,112	56	3%	113	10,589	249%
Intermittent stream	2,112	120,630	5570%	2,112	479	23%	360	117,287	5553%
Ephemeral stream ⁴	26,400	142,530	540%	26,400	253	1%	106	142,425	539%
<i>Subtotal stream length</i>	<i>32,736</i>	<i>273,805</i>	<i>836%</i>	<i>30,624</i>	<i>788</i>	<i>3%</i>	<i>843</i>	<i>270,301</i>	<i>834%</i>
Totals									
Acres	38,820	10,270	26%	24,825	351	1%	460	9,966	25%
Linear feet	32,736	270,822	827%	30,624	788	3%	578	270,301	825%

¹Perennial wetlands are equivalent permanent wetlands.

² Reservoir (open water) is equivalent to aquatic.

³ The Plan allows a 5% deviation from Stay Ahead requirements. For terrestrial land cover, the Plan provides that Stay Ahead be measured against the following categories: chaparral, oak savanna, oak woodland and the sum of all grassland and irrigated agricultural land cover types

⁴Many of the streams identified as "classification pending" will ultimately be classified as ephemeral. As such, they are tracked as ephemeral streams for the purposes of the Stay-Ahead provision.