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2.0 LAND USE AND COVERED ACTIVITIES

2.1 OVERVIEW

This section describes the historic and existing land uses within Solano County and the six cities participating in the HCP. To assess future land use and the potential impacts of urban growth, the current general plans and other relevant documents for the participating cities of Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo were reviewed. This section also provides background on SCWA and the participating irrigation, reclamation and special districts, their existing service areas and facilities, current operation and maintenance activities and proposed annexation areas. Review of the existing and designated land uses for each Plan Participant provided the basis for delineating the Covered Activity Zones (Section 2.4) and identifying the activities proposed for coverage under the plan (Section 2.5).

2.2 BACKGROUND

Established in 1850, Solano County is bordered by Yolo County to the north, Yolo and Sacramento counties to the east, Suisun Bay and marsh to the south, and Napa County to the west (Figures 1-1 and 1-2). Like neighboring counties, Solano County has historically been and continues to be primarily agricultural due to the vast extent of flat to rolling landscapes and rich soils. More recently, however, expansion of the San Francisco and Sacramento metropolitan areas has increased development pressure on Solano County communities. Much of this growing population now resides in the cities of Solano County and commutes to work in the Bay Area and Sacramento via three major highways: Interstates 80, 680, and 780. Commercial and industrial business has also grown such that the economic importance of these businesses within the County nearly equals that of traditional agriculture. The following section provides an overview of the current status of Solano County in terms of its cities, land use, and population, as well as economic considerations.

2.2.1 Land Uses

Solano County encompasses a total area of approximately 907 square miles, making it the fifth largest county in the Northern San Francisco Bay Area. It supports diverse land uses including urban, rural land, open space, and water. Table 2-1 lists these land uses and their corresponding areas within the County (Solano County 2005a).

2.2.1.1 Cities. Seven incorporated cities house 95 percent of the population in Solano County (the City of Benicia has chosen not to participate in the HCP). The City of Vallejo covers the greatest area and supports the largest population. Despite recent population growth and the size of the cities, the vast majority of the County consists of unincorporated, rural land.

Table 2-1: Approximate Land Use Acreage in Solano County

Land Type	Square Miles	Percent of County Land
Urban	157	17%
Rural Land	672	74%
Water	78	9%
Total	907	100%

Source: Solano County Department of Resource Management (County of Solano 2006) (Numbers rounded to nearest 10,000 acres).

2.2.1.2 Agriculture. Like most of the surrounding counties, Solano County was historically based on an agricultural economy. Despite recent trends toward commercial and residential uses, agriculture remains the primary land use activity. County citizens and officials have focused considerable attention on preserving the agricultural heritage of the County. Agricultural practices vary widely from intensive irrigated farming to dryland farming and grazing, depending on soil type, topography, and water availability. In 2002, over five hundred full-time farms, averaging 384 acres, were in operation within the County (Solano County 2005a). These farms account for 365,868 acres of land, 63 percent of the total land area in the County. Table 2-2 provides a breakdown of agricultural crops by acreage (Solano County 2005a).

Table 2-2: Agricultural Acreage in Solano County by Type

Crop Type	Area (acres)	Percent of County Land
Field Crops	105,121	24%
Fruit and Nut Crops	17,652	4%
Pasture Lands	201,338	47%
Seed Crops	3,436	1%
Vegetable Crops	12,635	3%
Nursery Stock	1,292	<1%

Source: Solano County Agriculture Department, 2004 Agricultural Crop and Livestock Report

2.2.1.3 Open Space and Conservation Lands. Open space land and water comprise approximately 18 percent and 9 percent of area in the County, respectively. Open space areas that have not been converted to agricultural use are largely marsh and freshwater wetland areas. The Suisun Marsh is the largest area of contiguous open space in Solano County. These 85,000 acres of current and former brackish and salt marsh consist of State Wildlife Management Areas and private lands devoted primarily to waterfowl hunting. The State’s McAteer-Petris Act, which created the San Francisco Bay Conservation and Development Commission (BCDC), separated the Suisun Marsh into Primary and Secondary Management Units. The Primary Management Unit is designated for conservation and use is restricted to resource management. The Secondary Management Unit consists of grassland and current agricultural land designated for intensive agricultural use. The Napa Marsh, another major wetland area, encompasses 6,300 acres of marsh, former salt production ponds, and agricultural lands

bordering the Napa River and San Pablo Bay. The CDFG owns much of this land; remaining land lies within the San Pablo Bay National Wildlife Refuge. Approximately 16,545 acres of the Napa Marsh lie within the County of Solano.

A number of other significant wetland and riparian areas exist along Putah Creek, Ulatis Creek, Miner Slough, Calhoun Cut, Prospect Slough, Lindsey-Haas-Baker Slough, and in the French Island Area along the western edge of the Sacramento River and Delta.

Remnants of native prairie and vernal pool habitats survive in the central portion of the County. Much of this land is privately owned and not currently protected. However, approximately 3,000 acres in the Greater Jepson Prairie Ecosystem are currently protected under conservation easement or held in fee title by a conservation organization. USFWS has designated the Greater Jepson Prairie Ecosystem as a high priority conservation region (USFWS 2004a).

A number of other open space areas are currently owned and managed by city, county, state, or federal agencies for recreation and conservation purposes. Section 3.5 provides additional information on the characteristics and conservation values of these public lands.

2.2.1.4 Travis Air Force Base. Travis Air Force Base (Travis AFB) encompasses approximately 5,100 acres. A large portion of this land has been developed for base housing, airfields, and aircraft storage/maintenance facilities; surrounding undeveloped open space lands lie within the Greater Jepson Prairie Ecosystem and are considered a high priority for conservation. Travis AFB is of particular importance due to the extent of its land holding in central Solano County and its impact on the County's economy (Table 2-3).

Table 2-3: Economic impact of Travis Air Force Base (in dollars contributed to the local economy)

Economic Contribution	Dollar Amount
Total Gross Payroll	\$451,299,238
Total Annual Expenditures	\$454,327,090
Estimated Annual Dollar Value of Indirect Jobs Created (5,489 jobs x 32,130 avg. salary)	\$176,361,570
Total	\$1,081,988,704

2.2.2 Population

Over the past fifty years, the population of the State of California has increased dramatically, from 10 million people in 1950 to approximately 33 million people in the year 2000 according to the Association of Bay Area Governments (ABAG 2002). The California Department of Finance predicts continued growth over the next 25 years with the population expected to reach 48,626,000 by the year 2025, a 52 percent increase from 2000. While the rate of growth will likely decline over the next twenty-five years, California's growth rate will still exceed growth rates throughout the country and absolute growth in California will remain high.

The San Francisco Bay Area’s (Bay Area) nine counties (Sonoma, Napa, Solano, Marin, San Francisco, San Mateo, Contra Costa, Alameda and Santa Clara) have absorbed much of this population growth, accounting for 20 percent of the state’s total population. Over the next twenty-five years, the population in the Bay Area is expected to rise from 6,783,760 to 8,223,700 people, resulting in an 18 percent population increase.

The 2000 Census figures for Solano County reflect the rapid growth experienced throughout the San Francisco Bay Area. Between 1940 and 2000, the population of Solano County grew from 50,000 people to 394,542 people. The estimated population for 2005 increased to 421,657 people (Solano County 2005a), with 95 percent of the population living within the limits of the seven incorporated cities. According to census records, the population in Solano County has increased 16 percent to 45 percent per decade since 1960.

Affordability and availability of land have contributed to the growth of Solano County between 1990 and 2000 (ABAG 2002). ABAG anticipates continued growth in Solano County and expects the County to lead the Bay Area in percentage growth of both population and jobs through 2020. The California Department of Finance projects that Solano County’s population will increase to 564,900 by 2020, with most growth occurring within the County’s three largest cities, Vallejo, Fairfield, and Vacaville.

2.2.3 Economy

The economy of Solano County has traditionally been based on agriculture. Although fluctuations in agricultural prices and increasing commercial and industrial development have reduced its relative importance within the County and have caused shifts in the types of agriculture practiced, agriculture still remains a major part of the County’s economy. For the year 2000, agriculture generated a total production value of \$185.1 million. Table 2-4 lists employment levels according to industry type. This table reflects the recent decline of agriculture and manufacturing, historically the two most important industries in terms of jobs and income.

Table 2-4: Employment by Industry Type

Industry	# of Jobs	% of Total
Ag & Natural Resources	2,010	1
Government	16,700	11
Construction	11,560	8
Retail	18,750	13
Manufacturing & Wholesale	17,200	12
Transportation & Utilities	5,530	4
Financial & Leasing	10,130	7
Prof. & Managerial Services	11,380	8
Health & Educational Services	33,190	22
Arts, Rec. & Other Services	19,890	13
Total	146,340	100

Source: ABAG (Projections 2005)

Travis AFB is also a significant component of the local economy. In light of recent base realignments and closures, Solano County and the cities in the County have enacted land use policies to protect Travis AFB from urban encroachment and other adverse actions that could affect its continued viability of the Base. Travis Air Force Base employs 23,763 total employees, including military personnel, civilian, personnel, contractors, and dependents. Analysis prepared by Travis Air Force Base indicates that the Base contributes over \$1 billion dollars annually to the local economy (Table 2-3). Due to its significant economic contribution and the extent of land under its control, planners in Solano County need to consider Travis AFB in their land use planning efforts.

2.3 EXISTING AND DESIGNATED LAND USES AND PLAN PARTICIPANT FACILITIES

This section reviews the existing general plans and projected land use changes for each City within the County and describes the current service areas, facilities, operation and maintenance activities and projected annexation areas of SCWA and the participating irrigation, reclamation and special districts. Review of the existing and designated land uses for each Plan Participant provided the basis for delineating the Covered Activity Zones (Section 2.4) and identifying the activities proposed for coverage under the Plan (Section 2.5). Acreages identified in this section have been taken from the Plan Participants' general plans. Acreages listed in Section 8.0, Impact Assessment, indicate the extent of "take" covered under the HCP and were derived by applying the Conservation Program (Section 6.0) to the Plan Participants' general plans.

2.3.1 Urban Development

Each city adopts a General Plan to guide future growth within the community. The General Plan provides goals and policies that dictate how and where future development should occur and form the basis for all land use decisions. In addition to the goals and policies, the General Plan contains a Land Use Diagram (map) that designates areas for specific land uses. Typical land use designations include: residential (high, medium, and low density), commercial/office, industrial, public facilities, and open space.

Zoning Districts are established to implement the General Plan and to provide additional guidance for establishing compatible patterns of land use within the City's jurisdiction. Each parcel within the City is assigned to a Zoning District, as illustrated by the Zoning Maps. The Zoning Ordinance specifies the types of land uses allowed and the site development regulations and performance standards appropriate to the purpose and use of each district. If a landowner proposes a use that is not allowed in that zone, a change of zone, or a rezone, must occur. A change in the zoning designations must conform to the General Plan Land Use diagram. However, in some cases, both the General Plan and zoning designation may be amended. Rezoning requires a public hearing and City Council approval, and the City Councils have full discretion to support or deny the proposed rezoning request. Once a rezone is approved, it remains with the land until any future rezones are approved.

To assess the potential impacts of urban development on Covered Species planned future land uses were identified by reviewing the current general plans and other relevant documents for the participating cities of Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo. For the purposes of the HCP, lands zoned or designated as agriculture or open space are assumed to remain

undeveloped; Lands zoned for residential, industrial, commercial, active recreation, or similar designations are presumed to be suitable for development. The HCP does not distinguish between these development zoning categories and assumes that some rezoning from development to some other use may occur over the life of the HCP. The primary impact considered in the HCP is the conversion of undeveloped land to residential, commercial, industrial, or active recreational use such that the baseline condition of the land is eliminated or substantially altered.

Through the General Plan process, each City has established a boundary within which future growth would occur. The City of Fairfield urban limit line encompasses all of the lands within the existing city limits as well as 10,000 acres of Solano County land within Fairfield's Sphere of Influence. Land outside of the existing city limits would need to be annexed to the City of Fairfield prior to development. Vacaville, Dixon, Suisun and Rio Vista have not identified specific urban limit lines, but set limits on future growth based on their spheres of influence. Future growth boundaries in the City of Vallejo are based on the existing city limits.

Using current general plan information, areas zoned or designated for development were compared with current land use and vegetation maps to identify areas where land conversion could occur, resulting in impacts to Covered Species and their habitats. The City Plan Participants are seeking "take" coverage under the HCP for these areas. Future expansion beyond the boundaries assessed in the HCP will require an amendment to the HCP and implementation of additional conservation strategies. Planning horizons for the current general plans extend to 2020/2025. Future general plan updates will conform to the Solano HCP. In addition, a comprehensive revision of the Conservation Program will be conducted at Year 15; at which time, changes necessitated by any general plan updates will be incorporated into the HCP. If, however, significant changes occur to planned land uses prior to Year 15, the Plan Participants and Resource Agencies will review the conservation strategy to determine if alternative conservation actions should be implemented.

2.3.1.1 City of Fairfield. The City of Fairfield planning area occupies approximately 35,000 acres in the central portion of the County. Travis AFB lies within the eastern border of the City's urban limits and encompasses approximately 5,000 acres (Figure 2-2).

The total population of Fairfield has grown significantly over the last fifty years, from 3,118 in 1950, to 58,099 in 1980, 98,800 in 2000, and 105,026 in 2005 (U.S. Census Bureau 2006, ABAG 2002). Population growth has been accompanied by a substantial increase in urban land area from 311 acres circa 1950, to 3,852 acres in 1980, 12,030 acres in 2000, and 13,681 acres in 2005 (Figure 2-1). Fairfield issued an average of 604 housing permits per year during the 1970s and an average of 888 housing permits per year during the 1980s (Fairfield Observer 2001). During the 1990s, the number of housing permits issued fell to an average of 467 per year, a significant decline from the previous two decades.

In 2002, Fairfield modified its growth objectives to promote more compact and efficient growth, constrain the overall size of the City and limit population growth. To do this, Fairfield adopted the Comprehensive Amendment to the City of Fairfield General Plan (General Plan Amendment; City of Fairfield 2002). The General Plan Amendment outlines strategies to encourage efficient land development, preservation of agricultural uses, transportation alternatives to the automobile, and compatible land uses adjacent to Travis AFB. To implement these modified growth objectives, the

General Plan Amendment included a revised Land Use Diagram that reduced the total land area within the urban limit line and the amount of land area designated for development. The planning horizon for the General Plan Amendment is 2020, with buildout expected sometime after 2020. The General Plan Amendment is designed to accommodate a total population of 135,000 (at buildout), an increase of approximately 37 percent from the 2000 population.

In 2003, Fairfield voters adopted Measure L, requiring that any future General Plan amendment related to the Travis Reserve, urban limit line, or airport noise standards in the vicinity of Travis AFB, be submitted to the voters for approval through December 31, 2020 (City of Fairfield 2003). Except for certain minor modifications, such as updating the noise contours around Travis AFB, the City Council may not change these land use policies during this time period without voter approval. All other provisions of the General Plan may be amended by the City Council without voter approval.

Designated Land Uses. The Fairfield Urban Limit Line (excluding Travis AFB¹) encompasses approximately 30,000 acres, of which approximately 14,000 acres are currently developed or have been approved for development by the City of Fairfield. Based on the General Plan, approximately 5,400 acres of undeveloped land are currently zoned for urban development. Figure 2-2 depicts the City of Fairfield Urban Limit Line and the habitat types that may be affected by potential land conversion. The designated Urban Limit Line also includes projected near-term and long-term annexation areas, such as the Rancho Solano North Master Plan Area (approximately 1,930 acre) and the Technology Park (approximately 800 acres) north of Travis AFB. Although 5,400 acres of land are currently designated for urban development, fewer acres will likely be converted based on known and suspected land use constraints and environmental considerations and the establishment of project specific mitigation lands and other conservation areas as a result of environmental constraints and other requirements (City of Fairfield 2002), including the HCP conservation strategies.

Approximately 10,600 acres of land remaining within the Fairfield Urban Limit Line are designated as open space, agriculture, and Travis Reserve, a special land use designation developed by Fairfield as part of the General Plan Amendment. The Travis Reserve, encompassing approximately 5,700 acres, allows only agricultural and open space uses, but contains provisions for expanding military, civilian and joint use facilities at Travis AFB. Future development associated with expansion of Travis AFB has not been included as a Covered Activity under the Solano HCP; however, Plan Participants have worked with the Travis AFB personnel to coordinate conservation actions and ensure that implementation of the Solano HCP Conservation Program does not affect the Base's operation.

Water Channel Maintenance Activities. The Operations Division of the City of Fairfield Public Works Department maintains the storm drainage system composed of 160 miles of storm drain pipeline (12 inches to 102 inches in diameter), box culverts, 6 miles of ditches, 4 miles of concrete lined channels, 9 miles of improved earthen channels, rip rap lined channels, 11 miles of natural creeks, approximately 3,500 drain inlets, and 126 acres of detention basins (Table 2-5). Maintenance activities, such as weed abatement and debris removal, ensure the system will function to capacity during a storm event. The Operations Division utilizes a three-person, full-

¹ Travis AFB is excluded from coverage under the HCP. As a federal facility, the effects of development activities on threatened and endangered species at Travis AFB are addressed through the Section 7 consultation process.

time crew supplemented by the California Conservation Corps and volunteer organizations to complete these tasks.

Routine water channel maintenance activities include spraying of herbicides to control vegetation growth, mowing, debris removal, pruning and raising tree limbs along access roads, and erosion repair. Maintenance activities occur annually between March 15th and November 30th and are performed system-wide. See Appendix A for a complete list of facilities and operation and maintenance activities.

2.3.1.2 City of Suisun City. Suisun City is located between the City of Fairfield and Suisun Marsh. It is bounded by the City of Fairfield on the north and west, Suisun Marsh on the south, and Travis AFB on the east, thereby limiting the potential for Suisun City to grow. Despite these constraints, the population of Suisun City has grown rapidly over the last three decades, from 2,917 people in 1970, to 26,118 people in 2000, and 27,716 people in 2005 (U.S. Census Bureau 2006, ABAG 2002). Based on such rapid growth, the Suisun City General Plan (Suisun City 1992) anticipated a population of approximately 32,000 at build out (year 2010). However, population growth in Suisun City is expected to slow due to the constraints on physical expansion imposed by neighboring communities and the Suisun Marsh. The planning horizon for the Suisun City General Plan is 2010.

Designated Land Uses. The Suisun City Urban Limit Line, based on the 1992 General Plan and adopted sphere of influence, encompasses approximately 5,145 acres, of which 2,270 acres are currently developed or have been approved for development by Suisun City (Figure 2-3). Approximately 1,000 acres of undeveloped land are currently zoned for urban development. However, fewer acres will likely be converted as a result of environmental constraints and other requirements, including the Solano HCP Conservation Strategies. Due to the environmental constraints on remaining undeveloped land within Suisun City's Urban Limit Line, the City has focused on redeveloping older sections of downtown Suisun.

Water Channel Maintenance Activities. Infrastructure maintained by Suisun City includes 43 miles of pipeline, 20 miles of lined and unlined channels, canals and ditches, 10 acres of stormwater detention basins, two water storage tanks, several pumping stations, and approximately 1,100 stormwater drain inlets (Table 2-5). Operation and maintenance activities associated with these facilities include protection and repair of channel banks, mechanical and chemical control of weeds along rights-of-way and within channels, and removal of silt from channels and detention basins. See Appendix A for a complete list of facilities and operation and maintenance activities.

2.3.1.3 City of Vacaville. Since 1980, the City of Vacaville has grown faster than all major cities in Solano County and throughout the Bay Area. In 1980, the total population of Vacaville was estimated at 43,367. By the year 2000, the City's population had grown to 88,000. The estimated population in 2005 was 96,735 (U.S. Census Bureau 2006, ABAG 2002). Over the last twenty years, the City of Vacaville has built an average of 700 housing units annually. In January 2000, the City contained an estimated 28,952 dwelling units. In 2001, 1,092 housing permits were issued. The General Plan anticipates a total of 37,000 to 44,500 dwelling units upon buildout of designated residential land (City of Vacaville 1990).

The rise in population has resulted in a substantial expansion of the Vacaville land area. Circa 1950, the urban area of Vacaville occupied approximately 309 acres. This area increased to 2,598 acres by the early 1980s, 12,536 acres by 2000, and 13,280 acres by 2005 (Figure 2-1). During the 1990s, the City attained an additional 3,000 acres (5 square miles) as a result of fifteen separate annexations.

ABAG (2002) predicts the population of Vacaville will reach 111,000 in 2010, and 117,600 in 2015. At buildout (2017), the Vacaville General Plan (updated in 1999) is designed to accommodate a total population between 108,500 and 128,500 people. The planning horizon for the Vacaville Comprehensive Annexation Plan (VCAP) is 2015. As identified in the VCAP, the availability of reasonably priced, developable land; the availability of financing for public services, industrial, business and commercial projects; and the demand for commuter housing will sustain growth in Vacaville.

Designated Land Uses. The City of Vacaville Urban Limit Line, as defined by the General Plan and VCAP encompasses approximately 22,300 acres, of which 14,250 acres are currently developed or have been approved for development by the City of Vacaville (Figure 2-4). Approximately 5,460 acres of undeveloped land are currently zoned for urban development. The majority of planned development areas is located along the southern and eastern city limits and is composed primarily of agricultural lands, with some vernal pool habitats and several creek corridors. Figure 2-4 depicts the various vegetation types that may be affected by proposed land conversions.

Water Channel Maintenance Activities. Vacaville's service area for routine water channel maintenance activities includes over 600 miles of pipeline, 13 miles of open channels, 35 miles of ditches, 25 miles of natural creeks, 319 acres or 12 detention basins, 10 water storage tanks, 10 pumping facilities, and approximately 4,100 stormwater drain inlets (Table 2-5). Operation and maintenance activities associated with these facilities include protection and repair of channel banks, mechanical and chemical control of weeds along rights-of-way and within channels, and removal of silt from channels and detention basins. See Appendix A for a complete list of facilities and operation and maintenance activities.

During December 2002 (13th -16th) and December 2005 (30th -31st), large storms over the Ulatis Creek watershed caused widespread flooding of roads, farms, houses, and other structures. A study of the Ulatis Drainage System was conducted to identify potential flood control improvements (West Yost Associates 2007) and resulted in the development of a two-phase flood control project. Under Phase 1, a 540 acre-foot upstream regional detention basin will be constructed along Ulatis Creek east of Bucktown Lane and north of Vaca Valley Road and the following detention basins will be constructed along Alamo Creek:

- **Alamo Creek Regional Detention Basin:** a 970 acre-feet of detention storage located on Alamo Creek east of Pleasants Valley Road.
- **Encinosa Creek Regional Detention Basins:** three detention basins totaling about 200 acre-feet located on Encinosa Creek east of Pleasants Valley Road and north of Foothill Drive.
- **Laguna Creek:** a 440 acre-feet of detention storage located on Laguna Creek east of Pleasants Valley Road, and west and north of Cherry Glen Road.

As part of Phase 2, wing walls on the drop structure downstream of Nut Tree Road will be removed and a 3-foot levee (approximately 2,000 feet long) will be constructed downstream of Interstate 80 along Ulatis Creek. Along Alamo Creek, an additional 25-foot wide by 10-foot high reinforced concrete box culvert will be installed at Peabody Road and sediment will be removed upstream and downstream of Peabody Road. Improvements in Ulatis Creek would provide 100-year level of flood protection upstream of I-80 and about a 25-year level of flood protection along the remainder of Ulatis Creek. Improvements in Alamo Creek would provide about a 100-year level of flood protection downstream to the abandoned railroad/bike path and a 10- to 25-year level of flood protection along the remainder of Alamo Creek.

2.3.1.4 City of Vallejo. Vallejo is the largest city in Solano County in terms of population. As of the 2000 Census, the total population of Vallejo was 116,760, and the estimated population for 2005 was 121,221, just under the expected growth of 132,500 (U.S. Census Bureau 2006, ABAG 2002). The population of Vallejo is expected to reach 147,500 by 2025; however it is not expected to expand significantly in land area due to physical limitations on future growth.

Designated Land Uses. The Vallejo Urban Limit Line encompasses approximately 20,600 acres, of which 14,640 acres are currently developed or have been approved for development by the City of Vallejo (Figure 2-5). Approximately 1,840 acres of undeveloped land are currently zoned for urban development (Figure 2-5). Primary areas of undeveloped land include a few parcels in northern and eastern Vallejo along Columbus Parkway and in the Hunter Hill area west of I-80 (Figure 2-5).

Through 2025, most of the development in Vallejo will consist of in-fill development and redevelopment in existing urbanized areas, including the redevelopment of the former Mare Island Naval Shipyard, in western Vallejo. The Mare Island Final Reuse Plan (Reuse Plan) involves redevelopment of currently under-utilized parcels to promote civilian employment and to create a new neighborhood for the City of Vallejo. Mare Island is approximately 5,460 acres, 3,810 of which are comprised of wetlands, tidelands, and dredge sediment ponds. Under the Reuse Plan, approximately 3,800 acres of land would be set aside as open space; 2,845 of these acres are wetlands. Primary uses in the redevelopment areas include light industrial, warehouse, office and commercial. Approximately 1,800 residential units would be created as part of the Reuse Plan.

Water Channel Maintenance Activities. The routine water channel maintenance activities for the City of Vallejo are conducted by VSFCDD. VSFCDD is a special, independent, government agency responsible for collecting and cleaning wastewater and managing stormwater runoff. VSFCDD facilities are described in Section 2.3.3.7 and Appendix A.

2.3.1.5 City of Dixon. Dixon is located on the Interstate 80 corridor, 19 miles west of Sacramento and approximately 67 miles northeast of San Francisco. The population of Dixon has increased by 46 percent, from 10,417 in 1990, to 15,200 in 2000, and 17,179 in 2005 (U.S. Census Bureau 2006, ABAG 2002). Likewise, the number of households has increased from 3,413 in 1990 to 4,880 in

2000. If this rate of residential development remains constant, ABAG projects approximately 8,250 households with a total population of nearly 26,900 by 2020.

Designated Land Uses. Dixon's Urban Limit Line encompasses approximately 5,100 acres, of which 2,740 acres are currently developed or have been approved for development by the City of Dixon (Figure 2-5). Approximately 2,250 acres of undeveloped land are currently zoned for urban development (Figure 2-5). According to the Dixon General Plan (City of Dixon 1993), areas designated for potential development, are generally contiguous to existing residential areas (Figure 2-6). Future residential development (particularly infill development) would occur in areas of the City that are served by existing infrastructure or can be served by extending existing infrastructure. To better balance anticipated residential development, additional land has been designated for industrial and commercial development. As shown in Figure 2-6, future residential development would be concentrated primarily south and east of the existing city limits; future industrial and commercial development would be located in a large area north of the existing city limits and a smaller area in the southwest near I-80. For the duration of the HCP, development in Dixon is anticipated to extend out to the sphere of influence boundary as mapped in the 1993 General Plan (Figure 2-6).

Water Channel Maintenance Activities. Facilities under Dixon's jurisdiction include 7 miles of open channels, 166 acres of detention ponds, several pumping stations, and approximately 5 miles of access roads (Table 2-5). Operation and maintenance activities associated with these facilities include blading of access roads; disking, mowing, and chemically treating weed growth along access roads and rights of way; trash removal; silt removal from channels and basins; and channel bank repair. See Appendix A for a complete list of facilities and operation and maintenance activities.

2.3.1.6 City of Rio Vista. The City of Rio Vista is located in the heart of the Sacramento River Delta, 48 miles southwest of Sacramento and 65 miles northeast of San Francisco. Rio Vista's total population has increased by nearly 46 percent, from 3,496 in 1990, to 5,100 in 2000, and to an estimated 6,837 in 2005 (U.S. Census Bureau 2006, ABAG 2002). In 1991, the Rio Vista City Council adopted a General Plan Amendment to annex 2,509 acres of open land, representing a 250 percent increase in land area and a six-fold increase in the capacity for residential development within the city limits. ABAG projects the population of Rio Vista will grow to approximately 21,400 by 2020. At buildout (2020), the annexed lands will accommodate over 7,500 new homes and multi-family residences under current zoning and development agreement requirements (City of Rio Vista 2001).

Designated Land Uses. Rio Vista's Urban Limit Line encompasses approximately 3,870 acres, of which approximately 2,800 acres are currently developed (1,670 acres) or have been approved for development (1,130 acres) by the City of Rio Vista (Figure 2-7). Approximately 1,070 acres of remaining undeveloped land are currently zoned for urban development. Following the buildout of areas currently zoned for development (expected 2020), Rio Vista will double in size; therefore, no new annexations are planned during the timeframe of the current General Plan (1999-2020). Land is expected to convert fairly rapidly from vacant or agricultural to residential, commercial, and industrial uses. The majority of future growth and development will likely occur

in the annexed areas, including the Esperson and River Walk properties, Marks Ranch, and Gibbs Ranch.

Water Channel Maintenance Activities. The City of Rio Vista currently maintains 10 miles of pipeline, 1 mile of open channels, 1 mile of ditches, 3 miles of natural creeks, 1 water storage tank, 100 drain inlets, and 1 detention basin; additional facilities will likely be required to accommodate future growth (Table 2-5). Operation and maintenance activities associated with these facilities include mowing, disking, and chemical treatment of weeds along rights of way; trash removal; removal of silt and placement of bank protection in open channels; and upkeep of pumping stations. See Appendix A for a complete list of facilities and operation and maintenance activities.

2.3.2 SCWA and Participating Irrigation, Reclamation and Special Districts

This section provides information on the background, existing service area and facilities, current operation and maintenance activities and proposed future annexation areas of SCWA and other participating irrigation, reclamation and special districts including: SID, MPWD, RD 2068, Dixon RCD, Dixon Regional Watershed JPA, FSSD, and VSFCD. The primary activities, undertaken by these Plan Participants are associated with the operation and maintenance of existing facilities (e.g., flood control, water supply and drainage channels and other associated facilities). Additional information on the location of specific facilities and routine operation and maintenance activities is provided in Appendices A and D.

2.3.2.1 Solano County Water Agency (SCWA). In 1951, the State Legislature created the Solano County Flood Control and Water Conservation District (SCFC&WCD). As with other countywide flood control and water conservation districts established at that time, the SCFC&WCD was granted water supply and flood control authorities over Solano County. The first major action of the SCFC&WCD was to contract with USBR for water supply from the Solano Project. In 1988, the legislative act was amended to modify the governing board of the SCFC&WCD and to make other minor updates. In 1989, the name of SCFC&WCD was changed to the Solano County Water Agency (SCWA).

The SCWA Board of Directors includes the five members of the Solano County Board of Supervisors, the mayors from all seven cities in the County, and a board member from each of the three agricultural irrigation districts (SID, MPWD, and RD 2068). An Advisory Commission consisting of public works directors and irrigation district managers from each of the member agencies provides technical advice and recommendations to the SCWA Board of Directors. SCWA's jurisdiction includes all of Solano County, and the property of the University of California, Davis in Yolo County.

SCWA is primarily responsible for providing wholesale, untreated water to cities, districts and state agencies from the Solano Project. As shown in Table 2-6, the entire available water supply from the Solano Project has been contracted to the various Solano Project Member Agencies. Solano Project Member Agencies are: Fairfield, Suisun City, Vacaville, Vallejo, SID, the MPWD, the University of California at Davis, and California State Prison – Solano. Exchanges and transfers of Solano Project entitlements have taken place. For example, MPWD has agreed to provide 10,000 acre-feet per year

of its Solano Project entitlement to the SID in exchange for receiving a larger amount of SID’s agricultural return flows.

Table 2-6: Solano Project Annual Entitlements

Agency	Annual Entitlement (acre-feet)
Fairfield	9,200
Suisun City	1,600
Vacaville	5,750
Vallejo	14,600
Solano Irrigation District	141,000
Maine Prairie Water District	15,000
UC Davis	4,000
California State Prison – Solano	1,200
Project Operating Loss (average estimated)	15,000
TOTAL PROJECT	207,350

Existing Facilities. SCWA is responsible for operation and maintenance of USBR Solano Project facilities. The primary conveyance facility for the Solano Project is the Putah South Canal, a 33-mile concrete lined canal that extends from the Putah Diversion Dam to the Terminal Reservoir near Cordelia. The canal has five distinct reaches with varying capacities (from 180 – 950 cubic feet per second). SID performs operation and maintenance of the Solano Project facilities by contract on behalf of SCWA.

SCWA is also responsible for operation and maintenance of the Ulatis and Green Valley Flood Control Projects (Figure 2-8) and has authority to manage all flood control matters within the boundaries of SCWA. SCWA has prepared a Flood Control Master Plan to address countywide flooding and drainage problems. A primary recommendation of the Flood Control Master Plan is to develop watershed studies that address flooding problems on a watershed basis. Several watershed studies have been completed and projects are being considered for implementation. SCWA also funds localized flood control projects and drainage projects that meet specified criteria.

The Ulatis Flood Control Project is located in the Vacaville-Elmira drainage basin and extends from the hills northwest of Vacaville to the Delta. Upon completion in 1972, the Federal Soil Conservation Service turned the project over to SCWA for operations and maintenance. The Ulatis Project was designed to prevent flooding of agricultural lands south of Vacaville and within areas of the City of Vacaville. The Ulatis Flood Control Project consists of 57 miles of unlined channel located on private property with access easements granted to SCWA for operations and maintenance. The Natural Resource Conservation Service reviews any plans for major modifications or improvements to the Ulatis Project; SCWA is responsible for all maintenance activities and capital improvements. SCWA contracts with the Solano County Resource Management Department for maintenance of the Ulatis Project including annual

removal of trees and woody vegetation and channel dredging and chemical herbicide application (as needed) to maintain adequate flood capacity. SID and MPWD use some of the channels of the Ulatis Project to convey agricultural irrigation water during the irrigation season. Eleven temporary dams are installed to store water during the irrigation season and removed prior to the rainy season. SCWA works closely with the City of Vacaville to ensure that development projects adequately mitigate impacts associated with storm water runoff. As part of long-term maintenance the Ulatis Project, channels are monitored to ensure that they retain adequate flood control capacity to meet increasing demand.

The Green Valley Flood Control Project is located in the Cordelia area and extends from the hills between Vallejo and Fairfield to the Suisun Marsh. Upon completion in 1962, the Corps turned the project over to SCWA for operations and maintenance. The Green Valley Flood Control Project was designed to prevent flooding of unincorporated land around the City of Fairfield and areas within the City of Fairfield. The Green Valley Flood Control Project consists of 6 miles of unlined channel located on private property with access easements granted to SCWA for operations and maintenance. The Corps conducts annual inspections of the Green Valley Project and reviews any plans for major modifications or improvements to the Project; however, SCWA is responsible for all maintenance and capital improvements. SCWA contracts with the Solano County Resource Management Department for maintenance of the Green Valley Project, including annual removal of trees and woody vegetation and channel dredging and chemical herbicide application (as needed) to maintain adequate flood capacity. SCWA works closely with the City of Fairfield to ensure that development projects adequately mitigate impacts associated with storm water runoff. As part of long-term maintenance of the Green Valley Flood Control Project, channels are monitored to ensure that they retain adequate flood control capacity to meet increasing demand.

Operation and Maintenance Activities. SCWA is responsible for all maintenance and capital improvements to both the Ulatis and the Green Valley Flood Control Projects. Maintenance activities include: grading access roads, weed abatement, mowing, rock slope protection, tree and brush removal, channel dredging, culvert installation and replacement, installation of rock-weirs for grade control, and right-of-way fencing and access gate repair and replacement. Maintenance activities are limited to the dry season (occurring mainly between April and October) and are performed system-wide. The amount of maintenance required varies from year to year.

SCWA also provides wholesale raw water supply from the North Bay Aqueduct of the State Water Project. Contracting cities for the North Bay Aqueduct are: Vallejo, Benicia, Suisun City, Dixon, Rio Vista, Vacaville, and Fairfield. SCWA has contract rights to 47,756 acre feet per year (afy) of water supply from the State Water Project via the North Bay Aqueduct. Operation and maintenance activities are conducted by the California Department of Water Resources; these activities are not covered in the HCP.

2.3.2.2 Solano Irrigation District (SID). SID was formed in 1948 under the provisions of California Irrigation District Law for the purpose of contracting for surface water entitlements from the Solano Project. SID delivers approximately 150,000 afy of water to 1,650 agricultural and rural residential customers in its 73,000-acre service area, including most of unincorporated Solano County and parts of Dixon and Suisun City. The majority of SID land lies to the east of the Vaca Mountains between

Vacaville, Winters, and Davis. SID also performs operation and maintenance of the Solano Project on behalf of SCWA.

Existing Facilities. SID's distribution system consists of approximately 185 miles of pipeline, 144 miles of open channel and canals, 250 pump stations, 6 reservoirs, and numerous steel water storage tanks located throughout the distribution service area. Most of the diversions are gravity fed or pumped to service areas upslope. SID farmers discharge their excess tailwater into creeks and drainage channels that are operated and maintained by SID. Planned modifications to existing SID facilities include: lining existing unlined channels, piping existing canals, or replacing deteriorating pipelines. Figure 2-8 illustrates SID's boundaries and facilities.

Operation and Maintenance Activities. Annual maintenance activities include canal bank reconstruction; meter replacements; flashboard riser installation and maintenance; turbine pump, motor and electrical equipment rehabilitation, replacement and installation; drain undercrossing replacements; canal gate replacements; pipeline gate replacements; sectionalizing valve replacements; trash removal and safety barrier rehabilitation on drainage and irrigation systems (see Appendix A for more details).

2.3.2.3 Maine Prairie Water District (MPWD). The MPWD was formed on December 12, 1958 under provisions of the California Water Code, Division 13 (California Water Districts) to bring irrigation water to lands that were primarily dry farmed or dry pastureland. Located in central Solano County, the MPWD encompasses approximately 15,000 acres and serves eighty-eight landowners. The MPWD service area is bordered by SID on the north and west, RD 2068 to the east, and dry land farming and pasture land to the south. MPWD delivers water to 35 water users (some landowners and some water users that lease property) for agricultural use only; no domestic water service is provided. Through a contract with Solano County Water Agency, MPWD receives 15,000 afy of Solano Project water from Lake Berryessa. Through a contract with Solano Irrigation District, 10,000afy of Solano Project water is exchanged for 20,000afy of drain water. The remaining 5,000 afy of Solano Project water is used to supplement drain water during the irrigation season.

Existing Facilities. Facilities within the MPWD service area are limited to approximately 24 miles of irrigation channels, 52 miles of ditches and five pump stations and check structures. The MPWD receives water through Sweeney Creek, Gibson Creek, Horse Creek, Ulatis Creek, Sawtelle Drain, and Alamo Creek. A check-up structure (Dam 1) is located in Sweeney Creek; two check-up structures (Dams 2 and 3) are located in Ulatis Creek; one check-up structure (Dam 5) is located in Horse Creek; and one check-up structure (Dam 4) is located in Alamo Creek. The main dam, Dam 1, holds a one to two days supply of water for MPWD. Dam 1, Dam 5 and Sawtelle Drain feed Dam 2. Dam 2 and Alamo Creek feed Dam 3. All of the dams are constantly fed by drain water from SID and supplemented by Solano Project water when needed. None of these dams is permanent and must be removed prior to the commencement of winter rains.

MPWD also holds seven water rights licenses with the State Water Resources Control Board. Approximately 52 miles of ditches are used to deliver water from the dams to the farmers' field pumps. Although MPWD does not own the field pumps or the meters, it does own and maintain a number of weirs that aid in the distribution of water throughout the system. MPWD also has a

contract with RD 2068 for drain water at Swan Road in the southeast corner of the MPWD service area

Operation and Maintenance Activities. Regular operation and maintenance activities include reconstruction of earthen or concrete lined channel banks, sediment removal, grading of channel access roads, and control of aquatic and terrestrial weeds using mechanical methods and herbicides. Other operation and maintenance activities include repair and replacement of pumping stations, meters, valves, and check structures.

2.3.2.4 Reclamation District No. 2068 (RD 2068). RD 2068 was organized in 1924 as a public agency pursuant to the State Reclamation District Act, currently Division 15 of the State Water Code. The formation of RD 2068 was the culmination of an effort to organize a much larger and more ambitious irrigation project under the name of the East Dixon Drainage Association. Planning and design studies began in 1917 and RD 2068 was formed on April 7, 1924. Immediately following formation, RD 2068 took possession of the assets of the East Dixon Drainage District, including a water right filing. Plans of reclamation were adopted, a bond issue in the amount of \$550,000 was authorized and water deliveries began in 1926. RD 2068's primary responsibility is the delivery of irrigation water within its 13,000 acre boundary (Figure 2-8). RD 2068 also supplies supplemental water, as needed, to an additional 3,000 acres, beyond their service area boundary.

Existing Facilities. RD 2068 is comprised of levees, drains and an irrigation system of pumping plants, canals and distribution system components. The delivery system contains four primary pumping plants, approximately 47 miles of irrigation canals, 24 drainwater recovery pumps, and approximately 47 miles of drainage canals. These facilities are capable of delivering in excess of 255 cubic feet per second to the irrigation system.

Operation and Maintenance Activities. Annual maintenance activities include canal and levee bank maintenance and reconstruction; flashboard riser installation, replacement, and maintenance; pump, motor and electrical equipment repair and replacement; customer turnout pipe and gate installation and replacement; siphon and culvert repair and replacement; canal gate repair and replacement; drainage pipe repair and replacement; canal control structure repair and replacement; weed control; silt and trash removal; erosion repair; and roadway grading and repair.

2.3.2.5 Dixon Resource Conservation District (Dixon RCD). The Dixon RCD was formed on September 2, 1952 as a political subdivision of the State of California, authorized under Division 9 of the Public Resources Code. Resource Conservation Districts (RCDs) have been given the authority to develop and carry out natural resource conservation programs affecting their districts. RCDs receive technical assistance from the Natural Resources Conservation Service and other government agencies. Encompassing approximately 115,000 acres, the Dixon RCD is located in the northeastern portion of Solano County and a portion of Yolo County referred to as the "Yolo Bypass."

The Dixon RCD was originally formed to construct, operate and maintain the Dixon Drain (Drain), a system of ditches designed to provide winter drainage, reduce duration of flooding, and diminish ponding of winter water on agricultural lands. It is also used to collect irrigation tailwater in the

spring and summer. Currently the Drain is 70-miles long and is accessed by private properties via flashboard risers.

Existing Facilities. The Drain is composed of four segments: Tremont #1, Tremont #2, Tremont #3 and the Dixon Main Drain, and is located within three distinct watersheds. Tremont #1, within the Putah Creek Watershed, begins approximately one-half mile east of Interstate 80, just north of Tremont Road and drains into Putah Creek, east of Mace Blvd. Tremont #2, located in the Yolo Bypass Watershed, begins at Sikes Road, just south of Tremont Road and drains east into the Yolo Bypass. Tremont #3, located in the Dickson-Dudley Creek Watershed, begins at Robben Road just south of Tremont Road and drains southeast into RD 2068's canal. The Dixon Main Drain is a network of ditches that drain the land within the Dixon RCD south of Dixon, emptying into the RD 2068's canal on Swan Road near Sikes Road. Winter runoff from the City of Dixon is also collected by the Dixon Main Drain system.

Operation and Maintenance Activities. The Dixon RCD oversees the operation and maintenance of the Drain. Annual maintenance activities include canal bank maintenance and reconstruction; flashboard riser installation, replacement and maintenance; culvert repair and replacement; drainage pipe repair and replacement; weed control; silt and trash removal; erosion repair; and roadway grading and repair.

2.3.2.6 Dixon Regional Watershed Joint Powers Authority (Authority/Dixon Regional Watershed JPA). The Dixon Resource Conservation District, City of Dixon, MPWD, and RD 2068 formed the Dixon Regional Watershed JPA on September 29, 2005 pursuant to Chapter 5 of Division 7 of Title 1 of the California Government Code (commencing with section 6500) related to the joint exercise of powers.

The purpose of the Authority is to provide for the planning, financing, acquisition, ownership, construction, improvement, operation, and maintenance of drainage facilities that serve the Dixon Regional Watershed and to increase economic development, flood protection, farmland preservation, and habitat preservation in the Dixon Regional Watershed. The boundary of the Dixon Regional Watershed over which the Authority has jurisdiction is contiguous with the boundaries of its member agencies.

Existing and Proposed Facilities. The Authority currently manages one drainage facility and is planning additional drainage improvements. Current planning efforts are directed toward improving the Dixon Main Drain, referred to as the New South Channel. Future projects may include enhancements to Tremont #3 and connections to the City of Dixon. These improvements will enhance existing facilities and result in the construction of 2 miles of additional channel to improve drainage in the area south and east of Dixon. The New South Channel project will commence near Pedrick Road and Interstate 80 and terminate near Hass Slough at RD 2068's intake channel.

Operation and Maintenance Activities. The Authority oversees operation and maintenance of approximately 7 miles of ditches scattered throughout the Dixon Regional Watershed. An additional 15 miles of new and enhanced drainage facilities are planned to be constructed and added to DWJPA facilities. Currently, maintenance activities occur on the Lateral 1 drain located

on the west side of State Highway 113. Annual maintenance activities include canal bank maintenance and reconstruction; flashboard riser installation, replacement and maintenance; culvert repair and replacement; drainage pipe repair and replacements weed control; silt and trash removal; erosion repair; and roadway grading and repair.

2.3.2.7 Vallejo Sanitation and Flood Control District (VSFCD). The VSFCD was created by a special act of the California State Legislature in 1952. This act was put forward by the City of Vallejo and Solano County for a service area that encompassed approximately 23 square miles, most of it unincorporated county land. Their current service area is approximately 26 square miles, 90 percent of it incorporated into the City of Vallejo. Since its inception, the VSFCD has worked to improve the quality of wastewater discharges to the Carquinez and Mare Island Straits. VSFCD is responsible for collecting and cleaning wastewater and managing stormwater runoff. The VSFCD covers approximately 17,000-acres and serves the City of Vallejo and unincorporated areas in the greater Vallejo area, including Mare Island, Glen Cove, Home Acres, and Sky Valley.

Existing Facilities. VSFCD's storm drainage system consists of 150 miles of pipes and channels, as well as five pump stations.

Operation and Maintenance Activities. Annual storm ditch maintenance activities include debris and sediment removal, weed abatement, mowing, and vegetation removal. These activities occur annually after July 15th on selected channels throughout the system. Additional debris and vegetation removal occurs, as-needed, particularly during and after each storm event.

2.3.2.8 Fairfield-Suisun Sewer District (FSSD). FSSD provides tertiary level treatment of wastewater from the City of Fairfield, City of Suisun City, and several properties in unincorporated Solano County. The FSSD service area encompasses a population of about 130,000 people (2003 over approximately 32,000 acres. From October 2003 to September 2006, the daily average dry weather flow into the wastewater treatment plant varied between 15.0 and 16.0 million gallons per day (mgd) and the estimated average dry weather flow into the plant at buildout (2030) is projected to be between 19.5 and 21.0 mgd (FSSD 2008). Of the total flow treated, about 10 percent is reclaimed for agricultural irrigation; the remainder is discharged to Boynton Slough and Suisun Slough.

Existing Facilities. FSSD maintains sanitary sewer force mains that parallel Cordelia Road from Pitman Road to the treatment plant and from old town Suisun to the treatment plant. FSSD also maintains an approximately 1.25 mile long treated effluent outfall line to Boynton Slough that passes through Suisun Marsh. A new outfall line is currently in the environmental review process. This 1.2 mile line will discharge treated effluent to Ledgewood Creek and will be constructed within the Cordelia Road right of way on land generally owned by FSSD.

Operation and Maintenance Activities. FSSD's sanitary sewer force mains require periodic inspection (semi-annual to annual) of pipeline right of way and will require maintenance on a very rare (tens of years) basis. The effluent outfall line requires annual inspection of the outfall structure at Boynton Slough and internal inspection of the pipeline (once every five years). The internal inspection does not require disturbance of the wetlands. Construction of the new outfall line is not covered under the HCP; but operation and maintenance of the line, once constructed, are included as Covered Activities.

2.4 COVERED ACTIVITY ZONES

The proposed Solano HCP establishes a framework for complying with state and federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the Plan Participants within the Plan Area. Because of the varying interests and authorities of the Plan Participants and the presence of other non-participating agencies with land use authority over portions of the Plan Area (e.g., the County of Solano and City of Benicia have chosen not to participate in the HCP), the Plan Area is divided into three Covered Activity Zones (Figure 1-4). Within each Covered Activity Zone varying types of activities affecting Covered Species will be authorized. These zones include: 1) an urban zone (Zone 1); 2) the zone that encompasses the lands within the SCWA, irrigation, reclamation and special district boundaries (including their annexation areas) (Zone 2); and 3) the remainder of the Plan Area (Zone 3). The extent of approved Covered Activities varies in each zone. For example, operation and maintenance of Plan Participant facilities is authorized in Zones 1 and 2 but only urban development is authorized in Zone 1 (see Table 2-7 for a summary of Covered Activities included in each Covered Activity Zone). Each Covered Activity Zone is described in more detail below.

Table 2-7: Summary of the Applicability of Covered Activities by Covered Activity Zone

Covered Activity	Plan Participants	Applicable Covered Activity Zones
Development	City of Vacaville, City of Fairfield, Suisun City, City of Vallejo, City of Dixon, City of Rio Vista	1
Irrigation District Service Area Inclusions, Expansions, and Annexations	SID, MPWD, RD 2068, VSFCD, FSSD	1 and 2
Operations and Maintenance Activities of Public Facilities	All Plan Participants	1, 2, and 3
Applicant Activities Outside of Urban Boundaries	All Plan Participants	1, 2, and 3
Management, Enhancement, Habitat Restoration/Construction, Monitoring, Scientific Collection, and Associated Compatible Activities On Designated Reserves, Mitigation Sites/Banks, and Open Space Lands and Adjacent Lands	All Plan Participants	1, 2, and 3
Relocation of Covered Species	All Plan Participants	1, 2, and 3

2.4.1 Covered Activity Zone 1 – Urban Zone

Covered Activity Zone 1 encompasses all of the land within the urban limit lines of Dixon, Fairfield (excluding Travis AFB), Rio Vista, Suisun City, Vacaville, and Vallejo, approximately 87,000 acres. For the purposes of the HCP, the designated urban limit line for each city encompasses all of the designated land use area, including future annexation areas, as defined by their General Plans and relevant supporting documents. Their boundaries are shown on Figures 2-2 through 2-7 and were derived from the following sources:

- City of Dixon: 1993 General Plan
- City of Fairfield: 2002 Comprehensive Amendment to the City of Fairfield General Plan
- City of Rio Vista: 2001 General Plan
- Suisun City: 1992 General Plan and adopted sphere of influence
- City of Vacaville: 1990 General Plan, Amended in November 1999 and
- City of Vallejo: 1999 Vallejo General Plan

In addition to the participating cities, two special districts participating in the HCP, FSSD and VSFCDD, are primarily located within Zone 1 (Figure 2-8). Facilities maintained by SCWA and SID are also located within Zone 1 (Figure 2-8).

Within Zone 1, all Covered Activities (see Section 2.5) affecting Covered Species conducted in compliance with the goals, objectives, and conservation measures described in the Conservation Strategy (Section 6.0) and implemented under the authority/control of the Plan Participants (see Table 2-7) would be authorized. Of the Covered Activities authorized under the HCP, urban development has the largest impact on Covered Species and their associated habitats. Project development within Zone 1 would result in the conversion of 4,390 acres of Valley Floor Grassland and Vernal Pool Habitat, 2,860 acres of habitat within the Inner Coast Range, and 5,770 acres of Irrigated Agriculture. Table 2-8 identifies the extent of land conversion associated with urban development in each city. The impacts within the Inner Coast Range are delineated by Covered Species, primarily: California tiger salamander, California red-legged frog, Callippe silverspot butterfly, Swainson's hawk, and burrowing owl.

2.4.2 Covered Activity Zone 2 – SCWA and Irrigation and Reclamation District Zone

Covered Activity Zone 2 (approximately 160,000 acres) consists of the lands, outside of Zone 1, that are within the boundaries of SCWA, SID, MPWD, RD 2068, Dixon RCD, Dixon Regional Watershed JPA, FSSD, VSFCDD, and any existing and future flood control channels/facilities maintained by the cities that extend beyond the cities urban limit lines (Figure 1-4). Zone 2 also encompasses SID's future annexation areas (Figure 2-8). The boundaries and the location of existing facilities of each district are mapped on Figure 2-8. Covered Activities within this zone are primarily related to ongoing operation and maintenance of irrigation and flood control facilities and construction of new irrigation and flood control facilities for irrigation district service area inclusions (lands within the irrigation district service area that do not currently receive service) and annexations (lands currently outside of the irrigation district service area that may be included in the future). The portion of the Plan Area located in Yolo County falls within Zone 2.

Table 2-8: Urban Development Land Conversions by City

Natural Community/ Conservation Area	Land Conversion (Acres ^ψ)						
	Dixon	Fairfield	Rio Vista	Suisun City	Vacaville	Vallejo	Total
Valley Floor and Vernal Pool Grassland	0	1,600	980	280	1,260	270	4,390
Inner Coast Range: California tiger salamander	0	10		0	130	0	140
California Red-legged Frog and Callippe Silverspot Butterfly	0	420	0	0	0	680	1,100
Callippe Silverspot Butterfly only	0	110	0	0	0	0	110
Inner Coast Range: Swainson's Hawk and Burrowing Owl only	0	980	0	0	510	20	1,510
Agriculture	2,240	400	50	0	3,070	10	5,770
Riparian, Stream and Freshwater Marsh	0	2	0.5	1.5	18	<0.1	22
Total Land Conversion	2,240	3,522	1,031	282	4,988	980	13,042

^ψNumbers are rounded to the nearest 10 acres.

2.4.3 Covered Activity Zone 3 – Remainder of the County

Covered Activity Zone 3 consists of the remainder of the County, approximately 338,000 acres (Figure 1-4). Covered Activities within this zone relate primarily to implementation of the HCP reserve system, including adaptive management and monitoring, habitat enhancement, habitat restoration and creation, and other associated compatible activities (Sections 4.0, 5.0, 6.0 and 7.0 contain additional details on compatible activities) on designated reserves/preserves, mitigation sites/banks, open space lands and adjacent lands. Plan Participants may also extend incidental take coverage for Covered Activities conducted by third parties who fall under their direct regulatory control. Third party applicants seeking authorization under the HCP for Covered Activities must complete a participating special entity² process (see Section 10.4). Agricultural lands within 0.5 miles

² A participating special entity must have a contractual relationship or be under the regulatory control of a Plan Participant such that the Plan Participant has legal authority to enforce compliance of HCP conditions. Contractual or direct regulatory authority allows the third party to receive incidental take authority under the Solano HCP. Such entities may include school districts, private landowners and commercial mitigation banks who agree to enter into operating agreements with SCWA.

of any property acquired as habitat mitigation for the HCP, including institutional and commercial mitigation banks established and certified by SCWA for conservation purposes, have the option of receiving permit coverage as part of the Solano HCP Good Neighbor Policy (see Section 10.5.4). Other Covered Activities within this zone include non-agricultural activities carried out under the authority of the Plan Participants on lands outside of the designated urban boundaries (i.e., communication towers, water supply reservoirs such as underground storage tanks, detention basins and recreation facilities management).

2.5 COVERED ACTIVITIES

The Solano HCP provides a comprehensive Conservation Program³ for impacts to Covered Species and Natural Communities for designated activities undertaken by or under the permitting authority/control of the Plan Participants within the Planning Area and applicable Covered Activity Zones. Table 2-7 provides a summary of the Covered Activities authorized in each Covered Activity Zone. Plan Participants may also extend incidental take coverage for Covered Activities conducted by third parties who fall under their direct regulatory control. Third party applicants seeking authorization under the HCP for Covered Activities must complete a participating special entity process (see Section 10.4).

Covered Activities affecting Covered Species within the Plan Area have been divided into six broad categories. These six categories are described below. Information on which type of Covered Activity is authorized within each Covered Activity Zone is also provided.

2.5.1 Development (Zone 1 only)

Development includes all ground- or habitat-disturbing projects and activities needed to accommodate urban growth including the construction and maintenance of public and private facilities, consistent with local general plans and local, state, and federal laws. This category includes, but is not limited to, the construction, maintenance, and operation of new commercial, residential, institutional, and industrial uses and associated infrastructure and facilities (i.e., roads, utilities, storm water control measures, parks, golf courses). Such actions could be either ministerial or discretionary as defined by the CEQA Guidelines, Sections 15369 and 15357. The development category also includes annexations and agricultural uses within Covered Activity Zone 1, requiring discretionary entitlements or permits by the applicable Plan Participant Covered Activities associated with development would be confined to Covered Activity Zone 1, as shown in Figures 2-2 through 2-7.

Of the Covered Activities authorized under the HCP, urban development has the largest impact on Covered Species and associated habitats. After application of the Solano HCP Conservation Strategy (Section 6.0), urban development will result in the conversion of 4,390 acres of Valley Floor Grassland and Vernal Pool Habitat, 2,860 acres of habitat within the Inner Coast Range, and 5,770 acres of Irrigated Agriculture (see Table 2-8).

³ The Conservation Program consists of avoidance and minimization measures (Section 5.0), biological goals, objectives, and conservation measures (Section 6.0), and monitoring and adaptive management (Section 7.0)

2.5.2 Construction of New Irrigation and Flood Control Facilities to support Irrigation District Service Area Inclusions, Expansions, and Annexations (Zones 1 and 2)

This category includes construction of new irrigation and flood control facilities for irrigation district service area inclusions (lands within the irrigation district service area that do not currently receive service) and annexations (lands currently outside of the irrigation district service area that may be included in the future). Examples of Covered Activities that fall within this category include improvements to the Dixon Drain System operated under the authority of the DRWJPA. Covered Activities associated with construction of new irrigation and flood control facilities would be authorized in Covered Activity Zones 1 and 2.

2.5.3 Operation and Maintenance of Public Facilities (Zones 1 and 2)

This category includes minor construction, operation, and maintenance activities conducted by Plan Participants, including non-federal transportation and flood control projects; pipelines, irrigation canals and associated facilities; water treatment facilities; and development of parks, recreation areas and trails within designated urban boundaries and service areas.

Routine maintenance activities are required to protect the integrity of existing infrastructure such as roads, parks, trails, water control structures (pipes, conduits, culverts, etc.), pump stations, reservoirs, levees, canals, and distribution systems and to ensure that facilities operate efficiently and safely. Routine activities include: removal of sediment, vegetation, and debris from culverts, drains, canals, flood control channels, and reservoirs; replacement of utilities; backfilling of gullies and holes caused by soil erosion; trimming of over-grown or over-hanging vegetation and/or use of herbicides on trails, canal maintenance roads, or embankments to prevent excess growth of weeds and for fire control; and the use of rodenticides to prevent damage from burrowing animals.

Routine operation and maintenance activities covered under the HCP are:

- general operation, routine maintenance, and minor construction activities (for existing levees, canals, pathways, roads, etc.);
- erosion control activities;
- vegetation management and weed control activities;
- pest control activities;
- firebreak activities;
- temporary de-watering and removal of sediment from water supply reservoirs and other water control structures; and
- flood control channel maintenance.

Detailed lists and descriptions of operation and maintenance activities (including linear miles of facilities maintained) conducted by each Plan Participant are provided in Appendix A. Impacts associated with these activities and appropriate measures to avoid or minimize such impacts are described in Appendix D. Covered Activities associated with operation and maintenance of public facilities would be authorized in Covered Activity Zones 1 and 2.

2.5.4 Plan Participant Activities Outside of Urban Boundaries (Zones 2 and 3)

This category includes non-agricultural activities carried out under the authority of, or participation by, Plan Participants on lands outside of Covered Activity Zone 1. Such activities may include, but are not limited to:

Communication Services Facilities. Covered Activities would include construction, operation, and maintenance of public communication facilities that provide electronic communication of audio/visual information via cable, microwave, or radio frequency transmission and attendant infrastructure such as access roads, drainage facilities, and electrical connections.

Flood Control Facilities. Covered Activities would include construction, operation, and maintenance of new flood control facilities that fall outside Covered Activity Zone 1, such as the City of Vacaville's Ulatis Drainage System flood control project (West Yost Associates 2007).

2.5.5 Management, Enhancement, Habitat Restoration/Construction, Monitoring, and Associated Compatible Activities on Designated Reserves, Mitigation Sites/Banks, and Open Space Lands and Adjacent Lands (Zones 1, 2, and 3)

This category includes habitat management, habitat creation and restoration activities, approved agricultural and recreation uses, and other approved compatible uses on existing and future reserve lands designed to contribute to the conservation requirements of Covered Species and their habitats. Covered Activities also include take associated with routine activities on adjacent lands consistent with the Solano HCP Good Neighbor Policy and USFWS regulations. Covered Activities that fall within this category would be authorized in all three Covered Activity Zones.

2.5.6 Relocation of Covered Species (Zones 1, 2, and 3)

This category includes activities to salvage, transplant, or relocate Covered Species as required to fully implement the Solano HCP Conservation Program. Covered Activities associated with the relocation of Covered Species would be authorized in all three Covered Activity Zones.

2.6 PROJECTS AND ACTIVITIES NOT COVERED BY THIS HCP

Activities for which the Plan Participants are not seeking take authorization for and hence are not covered under the HCP include:

- activities undertaken under the authority of non-Plan Participants;
- aggregate mining;
- dredging of inter-tidal habitats that are not associated with flood control channel maintenance;
- instream flow releases from reservoirs;
- federal projects;
- expansion of Travis AFB facilities for non-military uses;

- maintenance and management of non-reserve lands in Suisun Marsh;
- oil and gas drilling and production, except where designated as a compatible use on certain reserves;
- commercial wind power facilities;
- normal agricultural activities undertaken by non-Plan Participants;
- operation and maintenance activities associated with the North Bay Aqueduct;
- the application of pesticides and herbicides as part of operation and maintenance activities undertaken by Plan Participants; and,
- commercial communication towers outside of Zone 1.

Coverage under this HCP will not be provided to activities or projects that:

- could preclude the achievement of conservation goals and objectives of this HCP;
- are not the type of impacts evaluated in Section 7.0 and in the Biological Opinion issued for this HCP;
- substantially reduce the amount of take coverage available under the permit for expected future activities and projects; and/or,
- require a major or minor amendment to the HCP/are not specifically analyzed in this HCP.

Although the activities listed above and other activities occurring outside of the Plan Area are not directly covered under the HCP, the conservation strategies in the HCP are designed to serve as a template upon which the Resource Agencies can base future mitigation requirements/actions so that non-covered activities do not conflict with the conservation goals and objectives of the Solano HCP. Compliance with applicable state and federal regulations must also be obtained through individual Section 7 consultations, Section 10 permits, and/or Fish and Game Code requirements.

Figure 2-1: Urban Growth Trends 1950 to 2025

Figure 2-2: City of Fairfield Habitat Types and Proposed Land Conversions

Figure 2-3: Suisun City Habitat Types and Proposed Land Conversions

Figure 2-4: Vacaville Habitat Types and Proposed Land Conversions

Figure 2-5: Vallejo Habitat Types and Proposed Land Conversions

Figure 2-6: Dixon Habitat Types and Proposed Land Conversions

Figure 2-7: Rio Vista Habitat Types and Proposed Land Conversions

Figure 2-8: Solano County Water Agency, Solano Irrigation District, Maine Prairie Water District,
and Reclamation District No. 2068 Service Areas and Facilities

Table 2-5: Summary of facilities maintained by Plan Participants

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