

CHAPTER 4

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter includes a description of the environment encompassed by the CCWD service area that could be affected by the proposed long-term water service contract renewal. It describes the existing regional and sub-regional conditions; environmental goals and policies to be considered in relation to the proposed contract renewal action; the direct and indirect environmental consequences of each of the alternatives; and cumulative effects. The description of the environment includes an overview of the CCWD service area, facilities, and operations.

Resources evaluated in detail in this EA include land use, socioeconomics, biological resources, and cultural resources, and Indian trust assets. The land use discussion provides a context in which the proposed action can be understood. It summarizes the prevalent land uses and describes County-wide growth management programs. (Growth-inducing impacts as an indirect effect of the proposed action are discussed in Chapter 5, “Other Impacts.”) Socioeconomic resources are evaluated because of the potential impacts resulting from the revised pricing structure included as part of the proposed action. Because of the project-specific nature of socioeconomic resources, they were identified in the CVPIA PEIS as the single resource area that would require future evaluation. Biological resources are evaluated to integrate on-going consultations among Reclamation, CCWD, and the Service. These consultations included the Biological Assessment for the proposed long-term water service contract for the Contra Costa Water District (Reclamation 2004), and the Biological Opinion, issued by the Service in April 2000, which establishes the responsibilities of CCWD regarding sensitive biological resources for future CCWD water supply projects. Cultural resources are included in this EA to disclose the federal requirements specific to the proposed action, and the role of Reclamation in complying with Section 106 of the National Historic Preservation Act.

CONTRACT SERVICE AREA DESCRIPTION

The CCWD contract service area (112,922 acres) is composed of Central and East Contra Costa County. Contra Costa County has been one of the fastest growing counties in the San Francisco Bay Area, due in large part to the availability of housing that is generally more affordable than in the majority of the surrounding region. Contra Costa County encompasses over 470,000 acres, much of which will approach buildout within the next 15 to 20 years. As the County has undergone a transition from rural to increased urban land uses, urbanized development has moved from the central part of the county to the east and into the CCWD service area.

Early growth in the Central County occurred in Martinez along the San Joaquin River, with subsequent suburban growth reflecting the outfall from San Francisco. Over the last two decades, employment centers have developed within the Central County. The majority of the Central County has been urbanized, and future development will generally be limited to in-fill of the few vacant parcels remaining and redevelopment along major transportation corridors. Many of the cities in

this region are now reaching planned buildout. Interstate 680 provides a major north-south transportation and commercial corridor through the region.

The East County includes Antioch, Bay Point, Pittsburg, and Oakley. Antioch is projected to add the highest number of households of any area within the County by the year 2010; Bay Point and Pittsburg are projected to add the second highest (Association of Bay Area Governments 1997). The majority of recent growth has occurred in open space and ranch land previously used for grazing. State Highway 4 provides a major east-west transportation corridor through the region. East County also includes much of the hilly terrain of the Diablo Range.

CONTRA COSTA WATER DISTRICT

CCWD was formed in 1936 under the authority of the State Water Code and is the primary supplier of water to users in central and eastern Contra Costa County. Originally formed to provide water for irrigation and industry, CCWD now serves primarily M&I users. The service area is approximately 137,127 acres. The CCWD receives up to 195,000 acre-feet of CVP water and also receives water from other sources; in dry years, however, virtually 100 percent of its water comes from the CVP. CCWD obtains raw (untreated) water primarily from Reclamation's Contra Costa Canal, a CVP facility. The canal was built by Reclamation in 1948 and is operated by CCWD.

In 2003, CCWD served approximately 450,000 people (both untreated and treated water supplies) (CCWD, Annual Report, 2003a). The untreated water is supplied to about 220,000 people through other water retailers, including the cities of Antioch, Martinez, and Pittsburg; the Southern California Water Company (for Bay Point); and Diablo Water District (Oakley). In addition, raw water is served to more than 50 industries and major businesses, agricultural users, and landscape irrigators. The treated water is supplied to about 230,000 people in the communities of Clayton, Clyde, Concord, Pacheco, Port Costa, portions of Pleasant Hill, Martinez, Walnut Creek, and other unincorporated areas of Contra Costa County. Figure 1-1 shows the CCWD federal contract service areas and other non-federal services areas within the CCWD.

Contra Costa Water District Supplies and Facilities

The CCWD operates raw water distribution and pumping facilities, reservoirs, water treatment plants, and treated water distribution facilities (Figure 1-2). CCWD's raw water comes from the San Francisco Bay-Sacramento-San Joaquin Delta (Delta). The backbone of CCWD's raw water conveyance system is the 48-mile long Contra Costa Canal. Four pumping plants, within the first 7 miles of the canal lift water 124 feet to flow the remaining length of the canal by gravity. Additional raw water facilities operated by the CCWD include the Los Vaqueros facilities (100,000 acre-foot reservoir and associated conveyance and pumping facilities) and the Mallard Slough Pump Station and pipeline. CCWD operates four reservoirs, Martinez, Contra Loma, Mallard and Los Vaqueros, and two water treatment plants, the Bollman water treatment plant and the Randall-Bold water treatment plant. The Randall-Bold plant is jointly owned by CCWD and Diablo Water District.

In 1998, CCWD completed construction of the Los Vaqueros Reservoir, which allows for additional water quality control for water supplied by the Contra Costa Canal. In 2003, CCWD completed the 21-mile Multi-Purpose Pipeline project, a non-CVP project.

CCWD is almost entirely dependent on the Delta for its water supply. The Contra Costa Canal and the Los Vaqueros project make up CCWD's principal water supply and delivery system. CCWD diverts unregulated flows and regulated flows from storage releases from Shasta, Folsom, and Clair Engle reservoirs into the Sacramento River as a contractor to Reclamation's CVP. Under the 1994 Amendatory Contract (Water Service Contract 175r-3401 [amended]) with Reclamation, CCWD can divert and re-divert up to 195,000 acre-feet per year of water from Rock Slough and the new Old River intake for M&I and agricultural uses. CCWD also can divert up to 26,780 acre-feet per year of water from Mallard Slough under its own water rights (Water Rights License No. 317 and Permit No. 19856). The city of Antioch and several industrial customers of CCWD have water rights permits to divert water from the Delta.

The Los Vaqueros Reservoir and related facilities provide the CCWD with the ability to store up to 100,000 acre-feet of water. The primary purposes of the Los Vaqueros project are to improve the quality of water supplied to CCWD customers, to minimize seasonal quality changes, and to improve the reliability of the emergency water supply available to CCWD. The Los Vaqueros Reservoir site is located approximately 8 miles south of Brentwood in southeastern Contra Costa County. Water to fill the reservoir comes from the southern Delta by means of a new pump station on Old River near Highway 4. The Old River pump station can be used for direct diversions and to fill the reservoir. The filling of the reservoir began in February 1998.

On June 2, 1994, the State Board issued Decision 1629, giving CCWD additional rights to divert and store water for beneficial uses. The State Board subsequently issued Water Rights Permits No. 20749 and 20750 for filling Los Vaqueros Reservoir from the new intake at Old River and diversion and storage of the water of Kellogg Creek (up to 9,640 acre-feet per year). These rights are in addition to the contractual rights to divert and store water furnished through the CVP. Up to 95,850 acre-feet per year may be diverted for storage between November 1 of each year and June 30 of the succeeding year under Water Rights Permit No. 20749.

CCWD Federal Contract (CVP) Service Area

Under the CVP, CCWD federal contract water is provided to approximately 112,922 acres (CCWD 2004). CCWD's total service area is approximately 137,127 acres (CCWD 2003a). Water is pumped into the canal from Rock Slough east of Oakley and from Old River east of Discovery Bay. Water from Old River may be pumped to either the Los Vaqueros Reservoir or the Contra Costa Canal near Pumping Plant 4. Water can also be released by gravity to the Contra Costa Canal from the Los Vaqueros Reservoir. Water from Rock Slough is pumped for the first 7 miles of the canal and then flows by gravity approximately 40 miles to Martinez Reservoir. Martinez Reservoir, owned by Reclamation, is the terminal reservoir for the Canal.

LAND USE AND PLANNING

Affected Environment

Existing Land Uses

The County General Plan identifies three distinct geographic areas in the County: West County, Central County, and East County. The East County region, encompassing the largest land area, is further divided into the subareas of Pittsburg-Antioch and Other East County. The Contra Costa Canal is located in the Central and East County regions defined in the County General Plan.

Central County and East County are composed of both urban and suburban land uses. The urban areas consist of single-family and multiple-family residential, commercial, and industrial uses. The suburban areas consist of scattered developed and undeveloped properties and open space and recreational uses. Figure 4-1 illustrates general land uses in Contra Costa County.

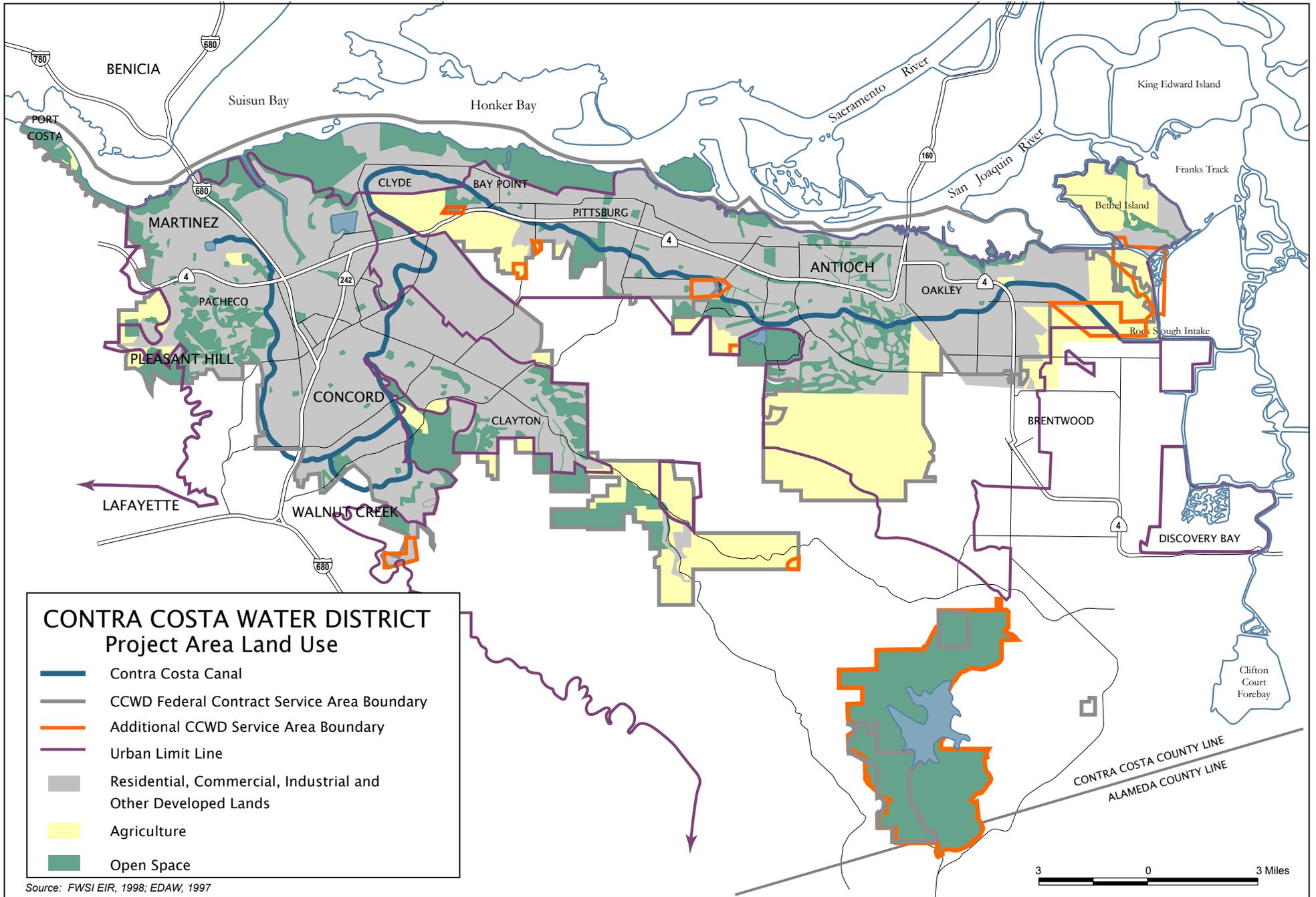
Plans and Agreements

Contra Costa County and the cities served by the CCWD have general plans and other planning vehicles with planning horizons through the year 2000 and beyond. These plans contain goals, policies, and implementation measures that, together with land use designations and zoning codes, are designed to guide land use and resource planning and development to the planning horizon. The County General Plan provides tools to control the pace of growth within the County and policies protecting agricultural land and mineral resources, vegetation and wildlife habitats, natural pathways, and visual, cultural, and wind resources. More specific discussions of these goals and policies can be found in the County General Plan EIR, FWSI EIR, and MPP EIR/EIS, which are incorporated by reference into this EA. Sections 53091 and 53096 of the California Government Code exempt public water supply facilities from regulation under local zoning ordinances. Contra Costa County also provides specific growth-management programs in its General Plan Growth Management Element.

Contra Costa County General Plan Growth Management Element

The Growth Management Element of the County General Plan provides three major tools to control the current pace of growth within the County: the 65/35 Land Preservation Standard; the Urban Limit Line; and the Growth Management Program.

The 65/35 Land Preservation Standard. In 1990, the County Board of Supervisors developed legislation, passed into law through a voter initiative, that established the 65/35 Contra Costa County Land Preservation Standard. This standard limits urban development in the County to not more than 35 percent of the County's total land area and preserves the remaining 65 percent for non-urban uses. These non-urban uses include agriculture, wetlands, open space, and parks. The legislation also developed the Urban Limit Line, described below, as a method for implementing the standard.



**Figure 4-1
Project Area Generalized Land Use**

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The Urban Limit Line. The County's Urban Limit Line generally defines the boundaries where new development can occur through the life of the County General Plan (see Figure 4-1). The Urban Limit Line is the demarcation of the 65/35 Land Preservation Standard and limits growth beyond those boundaries.

Growth Management Program. The Growth Management Program uses performance standards to verify that services and infrastructure can be provided by developers or are already in place to gain project approvals. Growth management standards include performance standards for traffic levels of service, park land acreage, and drainage and flood management.

Reclamation, CCWD, and East Bay Regional Park District Management Agreement

Reclamation, CCWD, and the East Bay Regional Park District (EBRPD) entered into a management agreement in 1975 concerning the development, administration, operation, and maintenance of recreation uses of the Contra Costa Canal. This agreement (Contract No. 14-06-200-7803A, as amended) states that the primary use of the Contra Costa Canal right-of-way (ROW) is for transporting and distributing the public water supply, transmitting electric power, and accomplishing other purposes of the CVP. All other uses, including recreational uses, are secondary, and the CCWD can temporarily suspend EBRPD's license to use the ROW whenever necessary for public safety, national security, or the operation and maintenance of the Contra Costa Canal system.

The agreement designates responsibility for facility maintenance and operation. Recreational facilities on the Contra Costa Canal are operated and maintained by EBRPD with no cost to CCWD. CCWD maintains the Canal service roads but splits the cost with EBRPD, depending on its share of the wear-and-tear on the service roads. If CCWD finds it necessary to modify EBRPD facilities, the contract requires that CCWD consult with EBRPD and consider means to minimize adverse effects on EBRPD-maintained trails. If, after such consideration, the CCWD still finds it necessary to remove or damage EBRPD facilities, then CCWD will repair, replace, or relocate such facilities to their former condition, function, and use, or will pay EBRPD the depreciated value of the affected facilities.

Contra Costa Water District Code of Regulations Enforcement

Under CCWD's Code of Regulations, Section 5.04.120, proponents of an annexation or applicants for water service to newly annexed lands are required to provide all necessary environmental documentation and approvals by the appropriate regulatory agencies, including the Service, before CVP water can be provided. CCWD will continue to enforce Section 5.04.120 and will keep the Service informed of enforcement actions related to endangered species.

Environmental Consequences

No Action Alternative

Because the proposed long-term water service contract renewal does not include the development of any physical facilities and structures, it would not have a direct effect on land use. Additionally, the

proposed contract renewal would not conflict with any adopted land use or conservation plan. Indirect effects to land use that could occur with growth accommodated by the continued provision of water have been adequately addressed in the FWSI EIR and MPP EIR/EIS, which incorporate the County General Plan EIR by reference. Renewal of the long-term water service contract under the No Action Alternative would aid in the implementation of the FWSI, which was specifically developed to respond to growth projected in the County General Plan and other local planning documents. The FWSI, and thus the long-term water service contract and the No Action Alternative, directly implement Contra Costa County General Plan Policy 7-17, which directs the County to encourage water service agencies to develop supplies and facilities to meet future water needs based on the growth policies contained in the County and cities' general plans.

The majority of future population and housing growth in Contra Costa County is planned for East County, especially within currently existing rural and agricultural land use areas, although some redevelopment is planned for pockets of currently developed cities. Land use development within Contra Costa County is largely governed by the County's Growth Management Element and the Urban Limit Line. Together these programs are responsible for directing, controlling, and monitoring the location and extent of urban development within the County. The FWSI EIR and its adopted findings acknowledged that the intensification of land use and development in the vacant areas of Contra Costa County would reduce open space and alter existing land use patterns. It further noted, however, that development decisions are a function of local and regional planning agencies in the County. CCWD has no land use management authority.

The County General Plan EIR identified significant and unavoidable impacts to natural open spaces as a result of achieving buildout. Since the certification of the County General Plan EIR, however, approximately 40,000 acres of open space have been added to the County inventory. Approximately half of the acres were added as a result of implementing the 1988 voter-approved Bond Measure AA, and the other half were added as a result of CCWD's construction of the Los Vaqueros Reservoir and purchase of the watershed. The County General Plan Growth Management Element also includes performance standards for park land acreage, which would discourage new development from being approved unless provisions for park land are accommodated.

Alternative 1

Alternative 1 is assumed to have effects to land use within Contra Costa County similar to those of the No Action Alternative. These effects to land use are largely governed by the County's Growth Management Element and the Urban Limit Line. CCWD has no land use management authority.

Alternative 2

Alternative 2 is assumed to have effects to land use within Contra Costa County similar to those of the No Action Alternative. These effects to land use are largely governed by the County's Growth Management Element and the Urban Limit Line. CCWD has no land use management authority.

Cumulative Impacts

Implementing the long-term water service contract under each of the alternatives would continue the delivery of CVP water to the CCWD service area at historic levels of up to 195,000 acre-feet,

resulting in no change to existing conditions for water users in the CCWD federal service area. The proposed action would not result in the construction of new facilities or the introduction of additional structures into the CCWD and Reclamation water supply system. Therefore, no physical change to the environment would result from renewal of the long-term water supply contract under any of the alternatives. The differences among the alternatives are contractual features, including water cost, definition of M&I users, and water measurement. None of the alternatives would change the water service amount, increase water system capacity, or introduce new facilities. Therefore, there would be no direct cumulative impacts to land use from the contract renewal action.

Cumulative impacts associated with implementation of the CVPIA, which included long-term CVP water supply contract renewals, were adequately evaluated in the CVPIA PEIS, from which this EA is tiered. Because the differences between the alternatives are essentially contractual features, cumulative impacts associated with implementation of the CVPIA would be the same under the three alternatives evaluated in this EA.

The cumulative impacts related to the planned growth envisioned by the cities' and County land use planning documents in areas that would be served by CVP water through the Contra Costa Canal have been adequately analyzed in the County General Plan EIR, FWSI EIR, and MPP EIR/EIS. These documents found that the cumulative impacts associated with projected countywide growth would be offset by policies and mitigation measures in the general plans and project-level environmental documents. The County's Growth Management Element discourages new development from being approved in unincorporated areas unless there is verification that performance standards can be met, or a funding mechanism has been established to meet the standards at the time of development. The enforcement and implementation of the growth management process is the responsibility of Contra Costa County and is supported through interjurisdictional coordination with the cities, Local Agency Formation Commission (LAFCO), the County Transportation Authority, and various service districts, including CCWD.

SOCIOECONOMICS

This socioeconomic analysis is composed of two technical components. The first component examines the M&I water that the CCWD would receive under proposed the long-term water service contract, focusing specifically on the potential impacts on water-related costs and demographics under Alternatives 1 and 2 compared to the No Action Alternative.¹ The second component evaluates the potential regional economic impacts of the changes to water cost and land use assessed in the first component of the analysis. To the extent possible, the technical areas addressed, methodological approaches employed, and temporal setting of the analysis tier directly from the CVPIA PEIS.

¹ The CVPIA PEIS refers to M&I water as "urban" water. However, for the present analysis, since some of the water designated by Reclamation as M&I is used for agriculture but priced at M&I rates, CVP water is identified based on its designation for rate-setting purposes and end use.

The potential socioeconomic impacts of the long-term water service contract renewal on commercial fishing and recreation were excluded from the analysis because CCWD's CVP water supply and management would not be affected by Alternatives 1 and 2 compared to the No Action Alternative.

The potential socioeconomic impacts of the proposed contract renewal on agriculture were excluded from the analysis because of the proposed conversion of CCWD's CVP agricultural water allocation (1,000 acre-feet) to M&I water and the rapid decline in agricultural activity in Contra Costa County. CCWD agricultural deliveries account for less than 1 percent of all annual deliveries, and these deliveries will be accommodated through non-CVP sources. Apples, wine grapes, peaches, strawberries, pecans, pistachios, and kiwi are the crops grown on the approximately 450 acres served by CCWD. The quantity of water supplied by CCWD for agricultural purposes was approximately 200 acre-feet in 2003, down from over 2,000 acre-feet toward the end of the last decade (CCWD 2004). It is expected that the CCWD will no longer deliver water to agricultural users in the very near term as urbanization displaces the County's agricultural lands.

Affected Environment

This section briefly characterizes the existing socioeconomic and water use conditions in the CCWD service area and Contra Costa County. Additional detail on existing conditions may be found in the County General Plan as well as the FWSI EIR.

Municipal & Industrial Water Use and Cost

In 2003, CCWD served an estimated population of 450,000 (CCWD 2004) and covered an area of 137,127 acres (CCWD 2004). The CCWD depends almost entirely on CVP water, with less than 11 percent of its water coming from other sources (CCWD 1999b). CCWD provides treated water to Clayton, Clyde, Concord, Pacheco, Port Costa, Pleasant Hill, parts of Martinez, Walnut Creek, and unincorporated areas of Contra Costa County. Raw water is provided to Antioch, parts of Martinez, Pittsburg, Southern California Water Company (Bay Point), and Diablo Water District (Oakley) as well as more than 50 industries, agricultural customers, and various landscape irrigators (CCWD 1999b).

According to the County General Plan, the District's service area may be expanded to include Hotchkiss Tract, Veale Tract, Knightsen, Bethel Island, southern Oakley, and other unincorporated areas of East County. This expansion would increase the CCWD service area by 12,280 acres (CCWD 1999b).

In 2003, CCWD recorded 60,036 connections in the treated water service area that used 36,822 acre-feet per year of water. CCWD's M&I raw water sales included approximately 75 metered connections recording 74,900 acre-feet of deliveries. The total water delivered by CCWD, not including a 7 percent estimated raw water loss, was 112,400 acre-feet (CCWD 2004).

Several of CCWD's industrial customers and the City of Antioch hold water rights for water from the San Joaquin River. These supplies are not reliable because of the poor water quality that often exists in the San Joaquin River. In dry years, little or no water is available from this source, and these customers rely on CCWD and the CVP to meet their demands. In 2003, these customers

diverted approximately 9,000 acre-feet of water under their San Joaquin River water rights. CCWD’s main industrial water users, Tesoro Golden Eagle (formerly Tosco Oil), USS-Posco, Shell Oil, Gaylord Container, and DuPont, account for one-third of CCWD water use. CCWD deliveries to these customers averaged 38,790 acre-feet per year for the years 1984-1993 (CCWD 1999).

Groundwater resources in the CCWD service area do not supply significant amounts of water. There are an undetermined number of wells throughout the CCWD service area owned by industries, private individuals, and public municipal water utilities. CCWD does not manage groundwater and does not have precise figures concerning how much water is pumped from these wells, but it estimates that the annual groundwater use within the CCWD service area is 3,000 acre-feet.

Table 4-1 summarizes CCWD's 1994 and 2003 cost-of-service and full-cost rates for CVP M&I water. In 2003, the average annual residential water bill for CCWD’s service area totaled \$590, and household use averaged 370 gallons per day (CCWD 2004).

**TABLE 4-1
CCWD 1994 and 2003 PUBLISHED CVP COST-OF-SERVICE WATER RATES**

	<i>Cost-of-Service Rate (\$ per acre-foot)</i>	<i>Mid-Point Rate (\$ per acre-foot)^a</i>	<i>Full-Cost Rate (\$ per acre-foot)</i>
<i>1994</i>			
M&I Rates	\$26.65 ^b	\$29.92	\$33.19 ^c
<i>2003</i>			
M&I Rates	\$37.14	\$39.49	\$41.83

Source: Bureau of Reclamation, CH2M Hill, and Dornbusch & Company

a. Calculated as the average of the cost-of-service and full-cost rate.
 b. As reported by CH2M Hill in the M&I economic analysis model in the CVPIA PEIS.
 c. In 1994, the Bureau did not estimate the full cost rate for CVP M&I water because full cost was not a factor in M&I rate setting at that time. 1997 was the first year that full-cost rates were published for CVP M&I water. Accordingly, the ratio of CCWD’s full-cost to cost-of-service rates for CVP M&I water in 1997 was used to estimate the 1994 full-cost rate.

Regional Economy

Contra Costa County is one of the fastest growing counties in the San Francisco Bay Area. The California Department of Finance projects the County’s population will increase to more than 1.26 million by the year 2040, compared to 972,100 at the start of 2001. The estimated average annual unemployment rate for Contra Costa County in 2000 was 2.7 percent (EDD 2004). In 1999, the County ranked eighth out of the state’s 58 counties with respect to per-capita income (EDD 2004).

Table 4-2 summarizes 1991 industrial output, employment, and income by place-of-work (Income POW) for the County. California's Employment Development Department (EDD) reported that the County's unemployment rate in that year was 5 percent (EDD 2000). The table indicates that the largest sector of the County economy in terms of industrial output is manufacturing. However, the table also shows that the services sector is the County's largest employer. (Data from 1991 rather than more current data are presented for the purposes of establishing an economic baseline that is temporally consistent with the economic baseline conditions presented in the CVPIA PEIS.)

**TABLE 4-2
INDUSTRIAL OUTPUT, EMPLOYMENT, AND INCOME BY PLACE OF WORK
(1991)**

<i>Type of Work</i>	<i>Output (\$M)</i>	<i>Employment (Jobs)</i>	<i>Income POW (\$M)</i>
Agriculture	\$278	5,245	\$118
Mining	\$3,204	3,100	\$1,617
Construction	\$3,238	31,958	\$1,278
Manufacturing	\$15,180	31,629	\$4,188
Transportation	\$3,398	25,150	\$2,057
Trade	\$3,327	81,585	\$2,064
Finance, Insurance, and Real Estate	\$6,498	50,636	\$4,328
Services	\$5,578	113,006	\$3,444
Government	\$1,742	51,940	\$1,626
Total	\$42,443	394,249	\$20,719
<i>Source: Minnesota IMPLAN Group 1991</i>			

Assessment Methodologies

Municipal and Industrial Water Costs

The assessment of the potential incremental impacts of Alternatives 1 and 2 on the cost of M&I water compared to the No Action Alternative is based on M&I water demand models developed for the CVPIA PEIS. A detailed description of these models is presented in the Municipal Water Costs technical appendix of the PEIS (Reclamation and Service 1997). In summary, the PEIS M&I models are designed to estimate the potential impact on the cost of CVP M&I water resulting from anticipated CVPIA-associated changes in CVP water rates and water deliveries. Thus, the M&I water cost impacts presented in the PEIS derive from (1) the proposed introduction of 80/10/10 tiered pricing, (2) a flat restoration charge applied to each acre-foot of delivered water, and (3) the anticipated cost incurred by individual CVP contractors to acquire alternative water supplies and implement conservation measures to mitigate for water delivery reductions resulting from CVPIA-mandated in-stream and refuge flow set-asides.

Consistent with the PEIS, the primary source of data used to model water demands, local supplies, and costs in evaluating socioeconomic and associated land use impacts from the long-term water service contract renewal were obtained from California Department of Water Resources Bulletin 160-93. Estimates of future CVP deliveries with and without CVPIA were derived using the

PROSIM and SANJASM models. (See the PEIS technical appendices for a description of these hydrologic modeling tools.)

The results of the analysis of the impacts on water cost in the CVPIA PEIS were aggregated into four regions, with the CCWD included in the San Francisco Bay Area Region. An implicit assumption of the PEIS M&I cost impact analysis was that both residential and commercial/industrial water users are extremely price inelastic within a fairly large range of prices for water (i.e., they will effectively not change their use of water in response to even fairly substantial changes in the price of water). Certainly, price does influence the choice of water supply. However, in the case of CCWD, the PEIS analysis concluded that reliable alternative (non-CVP) water supplies would cost an average of \$340 per acre-foot, well above the effective CVP M&I water rates for any of the CCWD long-term water service contract renewal proposals under consideration. Accordingly, no incremental change in CCWD's future demand for M&I water from the CVP is anticipated under either Alternatives 1 or 2 when compared to the No Action Alternative.

Consistent with the CVPIA PEIS, the socioeconomic impact analysis for the CCWD long-term water service contract renewal focuses on both the long-run average and short-run drought hydrologic conditions, and associated CVP deliveries. Projected post-CVPIA delivery of CVP water to the CCWD for M&I uses was obtained from the PEIS M&I models prepared by CH2M Hill.

The analysis of M&I cost under the Preferred Alternative in the CVPIA PEIS (the No Action Alternative in this EA) was conducted assuming 80/10/10 tiered pricing and 1994 CVP M&I rates for the CCWD (see Table 4-3). Alternative 1 would not alter the rate-setting scheme stipulated in the No Action Alternative and, therefore, would not have an actual incremental effect on CCWD's CVP M&I water costs relative to the No Action Alternative. Alternative 2, however, would affect CCWD's actual CVP M&I water costs. As Table 4-3 indicates, the M&I cost impact analysis for Alternative 2 was conducted assuming the adoption of 80/10/10 tiered pricing, Category 1/Category 2 water designation, and the 2003 CCWD CVP M&I rates.

The projected year 2044 M&I water cost impacts under Alternative 2 are presented as the increment above CCWD's estimated cost of CVP M&I water under the No Action Alternative for both the long-run average and short-run dry hydrologic condition. These cost impacts are translated into percentage terms with respect to CCWD's cost of CVP water and the associated approximate effect on average residential water bills within the CCWD.

CVP M&I water rates under Alternatives 1 and 2 are not expected to have any impact on CCWD's demand for CVP M&I water. In addition, the two alternatives do not differ from the No Action Alternative with respect to projected CVP water supply or reliability, although reliability may differ under the alternatives as compared to existing conditions. Therefore, the M&I water provisions in the alternatives are not anticipated to have an impact on demographics or land use. Accordingly, demographic and land use impacts are not addressed in the impact analysis for M&I water. The analysis examines only CCWD CVP water cost-related impacts. As in the CVPIA PEIS, it is assumed that any projected change in CCWD's cost of CVP water would be passed directly on to CCWD's customers.

**TABLE 4-3
M&I WATER RATE SETTING
COMPARISON OF THE ALTERNATIVES**

	<i>Rate Tiering Method</i>	<i>Rate Calculation Method</i>
No Action Alternative	80/10/10	Current
Alternative 1	80/10/10 (same as No Action Alternative)	Current (same as No Action Alternative)
Alternative 2	Category 1/Category 2 80/10/10 on Category 1 Full Cost Rate on Category 2	Revised to adjust capital and deficit repayment period to reflect 5-year rolling average deliveries
<i>Source:</i> Personal communication, Buford Holt, Reclamation		

Regional Economics

The assessment of regional economic impacts under Alternatives 1 and 2 uses the same data sources, models, and model assumptions used for the regional economic impact analysis in the CVPIA PEIS. A detailed description of these data sources, models, and model assumptions was presented in the Regional Economics technical appendix to the PEIS (Reclamation 1997).

In summary, the PEIS regional economic impact model was designed to estimate the impacts on regional employment, output, and income that would result from anticipated changes in M&I, agricultural, and recreational water use and cost resulting from CVPIA implementation. For the assessment in the PEIS, the CVP project area was aggregated into seven sub-regions. CCWD is included in the San Francisco Bay Area Region.

The input-output model Impact Analysis for Planning (IMPLAN) was the primary tool used to quantify the potential regional economic impacts of CVPIA implementation in the PEIS and, accordingly, to assess the regional economic impacts of CCWD's long-term water service contract renewal. A detailed description of the IMPLAN model is provided in the IMPLAN Model technical appendix to the PEIS (Reclamation 1997). Briefly, IMPLAN is used to quantify impacts from changes in policy and resource allocation. The model provides estimates of the total (or multiplied) economic effects that would result from an initial stimulus to an industrial sector (e.g., construction, transportation, utilities). As in the current case, the stimulus might be a reduction in consumer spending in the retail sector resulting from escalation of household water bills.

IMPLAN is extremely useful for characterizing the economic interdependence of different sectors of an economy. Changes in the purchases and sales in one sector of an economy can affect numerous other sectors. Economists call the sum of these changes "multiplier effects." There are many different kinds of economic multipliers. Sales or output multipliers are estimates of the effect on total private sector sales resulting from an initial change in sales. Employment and income multipliers are estimates of a change's effect on jobs and income in an area. Each of these

multipliers provides estimates of the impacts on an economy from a change in output (or jobs or income) in one or more of its sectors.

IMPLAN's multipliers are typically expressed for every \$1 million of spending. For example, if the total employment multiplier in the construction sector for an area's economy is estimated at 22, a \$1 million drop in spending in that sector would be expected to result in the loss of 22 jobs (both directly in construction and secondarily in other sectors as a result of changes in construction-related spending). IMPLAN multipliers are derived from long-run average relationships between industrial sectors. Accordingly, the regional economic impacts of the anticipated CVP M&I cost effects of Alternative 2 were evaluated only for the long-run average hydrologic condition. Under the short-run drought condition scenario, it is likely that the economic impacts indicated by the IMPLAN model would be overstated since short-run effects tend to be smaller than long-run effects (i.e., there is a delayed response).

Contra Costa County as a whole is the area used for the regional economic impact assessment of Alternatives 1 and 2. While the potential economic effects of the contract renewal alternatives may extend outside of Contra Costa County, it is reasonable to anticipate that the majority of the impacts would be within the County. Furthermore, the localized effects of contract renewal are the most relevant in evaluating local community plans.

Contra Costa County IMPLAN data from 1991 were used for the analysis to be consistent with the CVPIA PEIS. As with the PEIS, the analysis focuses on three economic variables: industrial output, employment, and Income POW. Income POW is defined as the sum of employee compensation, proprietor's income, and other property income. The CCWD contract renewal IMPLAN analysis is also aggregated into the same industrial sector groupings as reported in the PEIS.

The projected impacts of contract renewal on the Contra Costa County economy are presented in terms of the incremental change from the No Action Alternative. The 1991 baseline IMPLAN data are the primary data source used to characterize the affected economic environment (existing conditions) in Contra Costa County. These data are also adjusted to account for the anticipated incremental impact of the CVPIA PEIS preferred alternative on the Contra Costa County economy relative to the "without-CVPIA" condition. These adjusted IMPLAN data define the No Action Alternative for this EA. All of the IMPLAN data are presented in 1991 dollars.² Accordingly, while the estimated incremental cost impacts of Alternative 2 are presented in 2003 dollars, those costs are converted to 1991 dollars for the County-level economic impact analysis. In this manner, the magnitude of the potential incremental economic impacts of Alternative 2 is consistently evaluated in 1991 dollars.

If the cost of water for CCWD's residential customers were to increase to pay the government for higher CVP water rates, the increase would have a direct effect on those individuals' disposable income available for other purchases in the local region. Consistent with the PEIS urban water

² The baseline data were used throughout the analysis because the structure of Contra Costa County in 2044 cannot be predicted without substantial speculation. This approach is consistent with the PEIS.

analysis, it is assumed that escalation in residential water costs resulting from renewal of the long-term water service contract would cause disposable income to decrease dollar for dollar. The income change is allocated among all the consumer expenditure categories reported in the IMPLAN model for Contra Costa County to estimate the output, employment, and income effects of that reduction in disposable income. In theory, no such analysis should be conducted for the large-scale industrial customers of the CCWD, since increases to their water bill would simply increase their cost of doing business. Because those industrial water customers are large publicly held companies, it is unlikely that the escalation of their water bills would have any meaningful local impact on the economy. Nonetheless, consistent with the PEIS, all of the anticipated M&I water cost impacts of the contract renewal proposals are assumed to directly affect local consumer spending.

Environmental Consequences

Municipal And Industrial Water Costs

No Action Alternative

Table 4-4 presents the estimated total cost of delivered CVP M&I water in the year 2044 in 1994-dollar terms for the No Action Alternative under both average and dry hydrologic conditions. The table shows that in the year 2044 under the No Action Alternative in a year of average hydrologic conditions, CCWD would have to pay an estimated \$8.2 million to acquire (a) the 155.7 thousand-acre-feet of CVP M&I water that would be made available to its customers and (b) an additional approximately 11,000 acre-feet of supplies from alternative water sources it would need to address demand not met by CVP supplies. The table also shows that the projected cost of CCWD M&I water under the No Action Alternative in a dry year increases to over \$20 million (assuming the average cost of alternative water supplies for the CCWD is \$340 per acre-foot, a 1994 estimate developed by CH2M Hill for the CVPIA PEIS).

**TABLE 4-4
CCWD PROJECTED M&I WATER COST (2044)
NO ACTION ALTERNATIVE**

<i>Hydrologic Condition</i>	<i>Long-Run Average Hydrologic Condition</i>
2044 Average-Year CVP Delivery Only	155.7 taf ¹
2044 Average-Year Other Water Supplies	11.3 taf
Total CCWD Cost (in 1994 dollars)	\$8.2 million
	<i>Short-Run Dry Hydrologic Condition</i>
2044 Dry-Year CVP Delivery Only	117.3 taf
2044 Dry-Year Other Water Supplies	49.3 taf
Total CCWD Cost (in 1994 dollars)	\$20.2 million
<i>Source: Dornbusch & Company and CH2M Hill</i>	
¹ thousand acre feet	

Alternative 1

Alternative 1 is assumed to have effects on M&I water costs, water use, and land within the affected region similar to the No Action Alternative. Therefore, this alternative would result in no environmental effects.

Alternative 2

Table 4-5 shows the projected incremental change in CCWD’s cost for CVP M&I water in the year 2044 under Alternative 2 compared to the No Action Alternative. The table indicates, for example, that in an average hydrologic year following five dry hydrologic years, CCWD’s cost of CVP water would be about \$1.5 million more or about 30 percent higher than under the No Action Alternative. While this district-level increase in the cost of water is large, the expected increase in the District’s recent average residential water bill of \$590 per year would be only about \$5.00, or less than 1 percent, because the cost of water is actually a relatively small component of CCWD’s cost to treat, store, and deliver water to its customers.

**TABLE 4-5
CCWD PROJECTED M&I WATER COST (2044)
ALTERNATIVE 2**

		<i>Changes Compared to No-Action</i>		
<i>Hydrologic Condition</i>	<i>No Action Alternative</i>	<i>Alternative 2</i>		
	<i>Long-Run Average Condition</i>	<i>Average-Average</i>	<i>Dry-Average</i>	<i>Wet-Average</i>
2044 Average-Year CVP Delivery Only	155.7 taf ¹	0	0	0
2044 CVP Cost (in 2003 dollars)	\$4.3 million	\$1.3 million	\$1.5 million	\$1.2 million
Incremental Change in CCWD Cost (CVP water only)	N/A	29%	35%	28%
Change in total cost of water (including non-CVP supplies)	N/A	15%	18%	15%
	<i>Short-Run Dry Hydrologic Condition</i>	<i>Average-Dry</i>	<i>Dry-Dry</i>	<i>Wet-Dry</i>
2044 Dry-Year CVP Delivery Only	117.3	0	0	0
2044 CVP Cost (in 2003 dollars)	\$3.2	\$0.82	\$0.95	\$0.82
Incremental Change in CCWD Cost (CVP water only)	N/A	25%	29%	25%
Change in total cost of water (including non-CVP supplies)	N/A	4%	5%	4%
Source: Dornbusch & Company and CH2M Hill.				
¹ thousand acre feet				

Table 4-5 also compares CCWD’s projected CVP M&I water costs under Alternative 2 in a year of dry hydrologic conditions compared to No Action Alternative levels in a dry year. The table indicates that in a dry year, the anticipated incremental increase in CCWD’s cost for CVP M&I water under Alternative 2 and in CCWD’s total cost for M&I water following 5 years of dry, average, or wet hydrologic conditions would be as much as 29 percent and 5 percent, respectively.

Cumulative Impacts

In addition to the potential escalation of CCWD M&I water rates, and thus residential water costs, under Alternative 2, additional escalations in future M&I water cost are anticipated as a result of the addition of new water facilities and the upgrading of existing facilities in the CCWD water system to accommodate planned expansion of the CCWD service area.

Regional Economics

No Action Alternative

Table 4-6 presents in 1991 terms the estimated year 2044 total industrial output, employment, and Income POW in Contra Costa County under the No Action Alternative.

**TABLE 4-6
2044 OUTPUT, EMPLOYMENT AND INCOME POW
NO ACTION ALTERNATIVE (1991)**

<i>Sector</i>	<i>Output (\$Millions)</i>	<i>Employment (FTE¹ Jobs)</i>	<i>Income POW (\$Millions)</i>
Agriculture	\$278	5,244	\$118.
Mining	\$3,204	3,100	\$1,617.
Construction	\$3,238	31,958	\$1,278.
Manufacturing	\$15,180	31,621	\$4,188.
Transportation	\$3,398	25,146	\$2,057.
Trade	\$3,327	81,562	\$2,063.
Finance, Insurance, and Real Estate	\$6,498	50,625	\$4,328.
Services	\$5,578	112,977	\$3,443.
Government	\$1,742	51,936	\$1,626.
Total	\$42,437	394,169	\$20,717.
<i>Source: Dornbusch & Company and Minnesota IMPLAN Group</i>			
¹ full-time equivalent			

Alternative 1

Alternative 1 is assumed to have impacts on the regional economy similar to the No Action Alternative. Therefore, Alternative 1 would result in no environmental impacts.

Alternative 2

Table 4-7 shows the estimated impacts on total industrial output of the projected cost of M&I water under Alternative 2 by major industrial sector for Contra Costa County. The table indicates that under Alternative 2, the projected incremental decrease in total industrial output in the County in the year 2044 is projected to be from \$1.8 million in a year of average hydrologic conditions following 5 years of wet hydrologic conditions to \$2.1 million in a year of average hydrologic conditions following 5 years of dry hydrologic conditions (in 1991 dollars). This range represents a decrease of less than 0.01 percent in the County’s total projected industrial output.

**TABLE 4-7
2044 INDUSTRIAL OUTPUT IMPACTS
ALTERNATIVE 2 (1991 DOLLARS)**

	<i>No-Action Average Condition</i>	<i>Change Compared to No-Action Average Condition</i>		
		<i>Alternative 2</i>		
<i>Place of Work</i>	<i>Output (\$Millions)</i>	<i>Dry- Average</i>	<i>Average- Average</i>	<i>Wet-Average</i>
Agriculture	\$278	-\$0.01	-\$0.01	-\$0.01
Mining	\$3,204	\$0.00	\$0.00	\$0.00
Construction	\$3,238	\$0.00	\$0.00	\$0.00
Manufacturing	\$15,180	-\$0.49	-\$0.43	-\$0.40
Transportation	\$3,398	-\$0.16	-\$0.14	-\$0.13
Trade	\$3,327	-\$0.40	-\$0.34	-\$0.32
Finance, Insurance, and Real Estate	\$6,498	-\$0.38	-\$0.33	-\$0.31
Services	\$5,578	-\$0.58	-\$0.50	-\$0.47
Government	\$1,742	-\$0.06	-\$0.05	-\$0.05
Total	\$42,437	-\$2.09	-\$1.80	-\$1.68
<i>Source: Dornbusch & Company and Minnesota IMPLAN Group</i>				

Table 4-8 presents the total estimated impacts on Contra Costa County employment resulting from contract renewal-related changes in CCWD's M&I and agricultural water costs. The table indicates that the projected year 2044 incremental decrease in total employment in the County under Alternative 2 would be from about 22 full-time-equivalent (FTE) jobs in an average hydrologic year following five wet hydrologic years to 28 jobs in an average hydrologic year following 5 years of dry hydrologic conditions (in 1991 terms). This range of impacts represents a decrease of less than 0.01 percent in the County's employment base compared to the No Action Alternative.

Table 4-9 presents the estimated total impacts on Income POW in Contra Costa County resulting from the CCWD M&I and agricultural water costs anticipated under Alternative 2. The table indicates that in the year 2044, the projected incremental decrease in total Income POW in the County under Alternative 2 ranges from about \$940,000 during a year of average hydrologic conditions following 5 years of wet hydrologic conditions to almost \$1.2 million in a year of dry hydrologic conditions following 5 years of dry hydrologic conditions (in 1991 dollars). This range of impacts represents a decrease of less than 0.01 percent in the County's total Income POW compared to estimated conditions under the No Action Alternative.

**TABLE 4-8
2044 EMPLOYMENT IMPACTS
ALTERNATIVE 2 (1991 DOLLARS)**

<i>Place of Work</i>	<i>No-Action Average Condition</i>	<i>Change Compared to No-Action Average Condition</i>		
		<i>Alternative 2</i>		
	<i>Employment (FTE¹ Jobs)</i>	<i>Dry- Average (FTE Jobs)</i>	<i>Average- Average (FTE Jobs)</i>	<i>Wet-Average (FTE Jobs)</i>
Agriculture	5,244	-0.2	-0.2	-0.2
Mining	3,100	0.0	0.0	0.0
Construction	31,958	0.0	0.0	0.0
Manufacturing	31,621	-2.8	-2.4	-2.3
Transportation	25,146	-1.5	-1.3	-1.2
Trade	81,562	-8.0	-6.9	-6.4
Finance, Insurance, and Real Estate	50,625	-3.7	-3.2	-3.0
Services	112,977	-10.1	-8.6	-8.1
Government	51,936	-1.4	-1.2	-1.1
Total	394,169	-27.8	-23.9	-22.4
<i>Source: Dornbusch & Company and Minnesota IMPLAN Group</i>				
¹ full-time equivalent				

Cumulative Impacts

It is not anticipated that any currently planned future action, other than planned expansion of the CCWD service area, will have a cumulative impact on the Contra Costa County economy in addition to those impacts projected to result from CVP contract renewal under either Alternatives 1 or 2.

**TABLE 4-9
2044 PLACE-OF-WORK INCOME IMPACTS
ALTERNATIVE 2 (1991)**

Place of Work	No-Action Average Condition	Change Compared to No-Action Average Condition		
		Alternative 2		
	Income POW ¹ (1991 \$ Millions)	Dry- Average (1991 \$ Millions)	Average- Average (1991 \$ Millions)	Wet-Average (1991 \$ Millions)
Agriculture	\$118	-\$0.01	-\$0.01	-\$0.01
Mining	\$1,617	\$0.00	\$0.00	\$0.00
Construction	\$1,278	\$0.00	\$0.00	\$0.00
Manufacturing	\$4,188	-\$0.18	-\$0.16	-\$0.15
Transportation	\$2,057	-\$0.10	-\$0.08	-\$0.08
Trade	\$2,063	-\$0.24	-\$0.21	-\$0.19
Finance, Insurance, and Real Estate	\$4,328	-\$0.24	-\$0.21	-\$0.20
Services	\$3,443	-\$0.35	-\$0.30	-\$0.28
Government	\$1,626	-\$0.05	-\$0.04	-\$0.04
Total	\$20,717	-\$1.16	-\$1.00	-\$0.94
<i>Source:</i> Dornbusch & Company and Minnesota IMPLAN Group				
¹ full-time equivalent				

BIOLOGICAL RESOURCES

This section describes the biological resources in the CCWD service areas and the potential indirect effects of the long-term water service contract renewal. This description is provided for informational purposes to summarize project-specific impacts of the contract renewal and to describe on-going consultations among Reclamation, CCWD, the Service, and NOAA-Fisheries regarding biological resources in the CCWD service area.

The information in this section is summarized from the *Biological Assessment on the Contra Costa Canal Long-Term Water Service Contract Renewal* (Reclamation 2004) that Reclamation prepared concurrently with this Revised Draft EA. The submittal of the biological assessment (BA) to the Service and NOAA-Fisheries will serve to initiate formal consultation under Section 7 of the Endangered Species Act (ESA). If the assessment indicates that the federal action will or may affect species listed as threatened or endangered under the ESA (listed species), a draft biological opinion subsequently issued to Reclamation by the Service will determine whether implementing the proposed long-term water service contract with the CCWD is likely to jeopardize the existence of listed species occurring in the CCWD service area.

The discussion of biological resources in the 2000 Draft EA was based on information in the FWSI EIR and MPP EIR/EIS and the biological opinions that resulted from those projects. These and other relevant biological opinions are listed in the BA, which is incorporated by reference.

Affected Environment

Land Use/Land Cover Conditions

The CCWD service area has a diverse range of land cover/community types and unique species. The topographic variety of Contra Costa County, from the summit of Mount Diablo to the San Francisco Bay–Delta estuary complex, combines to form the setting for its range of land cover types and wildlife. Contra Costa County is bounded by San Francisco Bay and San Pablo Bay to the west, by Suisun Bay and the channels of the Sacramento and San Joaquin Rivers to the north, and by Alameda County to the south. The San Francisco Bay–Delta system (including San Pablo Bay) is generally regarded as the most important water body in California. It is used extensively for both recreational and commercial purposes, and it supports diverse wildlife, fish, and plant species.

Historically, the region surrounding the CCWD contained a diverse and productive patchwork of water, wetland, riparian forest, and surrounding terrestrial communities that supported abundant populations of resident and migratory species of wildlife. Huge herds of pronghorn antelope (*Antilocapra americana*), tule elk (*Cervus elaphus nannodes*), and mule deer (*Odocoileus hemionus*) grazed the prairies, and large flocks of waterfowl gathered in the extensive wetlands.

Today, the dominant community types associated with the CCWD service area include water, wetlands, grassland/rangelands, scrub and shrublands, orchards and vineyards, cropland and pastures, forests, urban areas, and barrens. Land uses in the CCWD include agricultural, residential, and M&I uses. Over the years, land has been converted from native land cover types to cultivated fields, pastures, residences, water impoundments, flood control structures, and other developments. Natural communities are now restricted in their distribution and size and are largely fragmented. As a result, these natural communities are increasingly important to resident and migratory wildlife species.

As a result of the conversion of native communities, many species, including listed species, have been displaced or extirpated from the region. Most of the species that occurred historically are now restricted to patches of natural community that are fragmented and isolated, making it difficult for viable populations to exist. Some species have adapted to portions of the new landscape and are able to maintain populations. However, as a result of the largely fragmented natural communities, the potential for expansion or growth of these populations is greatly reduced. Because of the reduction in habitat available to these species, remnants of natural communities such as wetlands and riparian forest/woodlands are increasingly valuable. Substantial natural areas that support federally or state-listed species are protected by public agencies (e.g., Mt. Diablo State Park and the Antioch Dunes National Wildlife Refuge). Wetlands, especially marshes scattered along the County's shoreline, have also been afforded substantial legal and policy protection.

Historical fishery resources within the CCWD service area were different from today's fishery resources. Many native species have declined in abundance and distribution, and several introduced

species have become well established. All CCWD water drains either directly or indirectly into the San Francisco Bay–Delta system. A water quality plan (“basin plan”) has been prepared that serves as a blueprint for water pollution control activities for the Bay. The basin plan identifies a number of beneficial uses of the Bay that must be protected, including non-contact recreation, wildlife habitat, preservation of rare and endangered species, estuarine habitat, warm freshwater and cold freshwater fish habitat, fish spawning and migration, industrial service supply, navigation, and commercial and sport fishing.

Land Cover/Community Types

This section describes the land cover/community types in the CCWD service area, as depicted in Figure 4-2. The following electronic data sources were consulted to generate the land cover and community types shown on the figure: Reclamation Federal Water District, the California Natural Diversity Database (CNDDDB), the Service’s Wetlands Inventory and Conservation Program, and the California-Gap Analysis Project (CA-GAP) (USGS et al. 1998).

Fifteen land cover/community types were identified within the CCWD service area: annual grassland, barren, blue oak/foothill pine, blue oak woodland, coastal oak woodland, chamise redshank chaparral, cropland, estuarine, lacustrine, mixed chaparral, montane hardwood, orchard and vineyard, riverine, saline emergent wetland, and urban.

Because the distribution of land cover/community types on Figure 4-2 is identified at the landscape level, community boundaries are approximate and small areas (areas of less than approximately 10 acres) and linear habitat features (e.g., corridors of riparian vegetation) are not mapped but could be present as inclusions within larger mapped units of land cover. The minimum mapping unit was 250 acres for upland cover and 100 acres for wetlands.

Table 4-10 shows the acreages of land cover/community types in the CCWD service area. The predominant native land cover type is the annual grassland community, which constitutes approximately 23 percent of the CCWD service area. Approximately 41 percent of the CCWD service area remains in native land cover, approximately 2 percent is used for agriculture, and 57 percent is developed or barren. The BA (Reclamation 2004) describes the land cover types in the CCWD service area in more detail.

Table 4-10. Land Cover/Community Types and Acreages in the CCWD Service Area

<i>Land Cover/Community Type</i>	<i>Acres</i>
<i>Water</i>	
Estuarine	5,277
Lacustrine	122
Riverine	1
Subtotal	5,400
<i>Wetlands</i>	
Coastal Brackish Marsh	3,145
Northern Coastal Salt Marsh	102
Saline Emergent Wetland	3,128
Subtotal	6,375
<i>Grasslands</i>	
Annual Grassland	25,479
<i>Scrub/Shrub Lands</i>	
Chamise Redshank Chaparral	286
Mixed Chaparral	1,488
Subtotal	1,774
<i>Forests</i>	
Blue Oak – Foothill Pine	436
Blue Oak Woodland	6,102
Coastal Oak Woodland	78
Montane Hardwood	178
Riparian Woodland	107
Subtotal	6,901
<i>Agricultural Lands</i>	
Cropland	2,384
Orchard and Vineyard	328
Subtotal	2,712
<i>Other Land Cover Types</i>	
Urban	64,021
Barren	180
Stabilized Interior Dunes	80
Subtotal	64,281
TOTAL	112,922

Protected Species and Critical Habitats

Protected species are plants and animals that are legally protected under the federal Endangered Species Act (ESA) and species that are considered candidates by the scientific community to qualify for such protection. Critical habitats are habitats that are legally protected under the ESA. Protected plants and animals are defined as follows:

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**Figure 4-2
Land Cover Types in the
Project Area and Vicinity**

*Contra Costa Water District Long-Term
Water Service Contract Replacement*

-  CCWD Federal Contract Service Area
-  Additional CCWD Service Area
-  CCWD Reservoirs
-  County Boundaries

WHR Habitat Types in the CCWD Service Area

-  Annual Grassland
-  Barren
-  Blue Oak - Foothill Pine
-  Blue Oak Woodland
-  Coastal Oak Woodland
-  Chamise Redshank Chaparral
-  Cropland
-  Estuarine
-  Lacustrine
-  Mixed Chaparral
-  Montane Hardwood
-  Orchard and Vineyard
-  Riverine
-  Saline Emergent Wetland
-  Urban

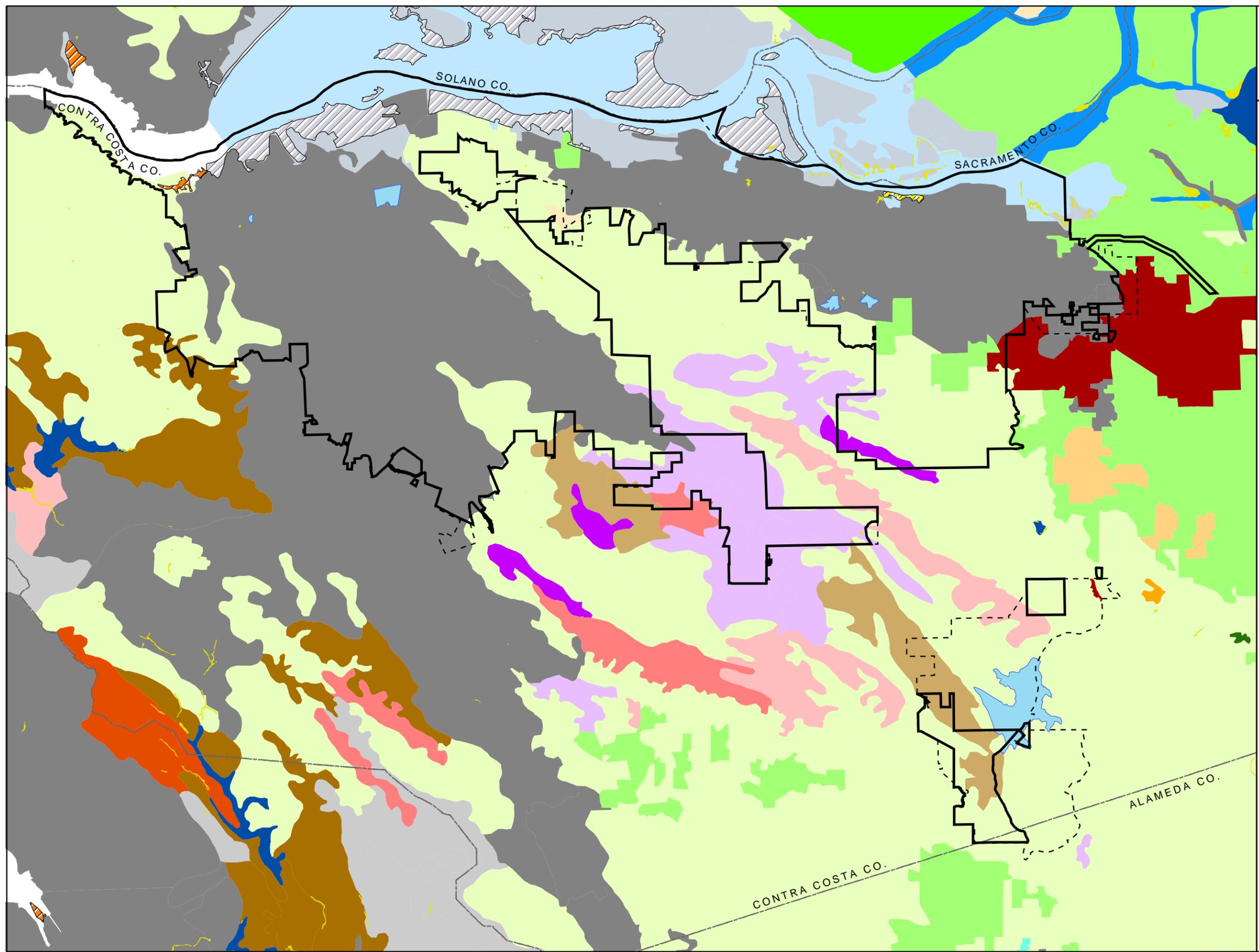
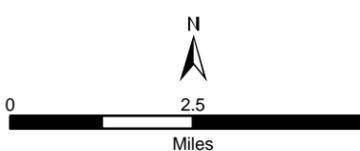
Source: GAP Analysis of Mainland California, 1998

-  Riparian Woodland
- Source: National Wetlands Inventory, 1997

-  Coastal Brackish Marsh
 -  Northern Coastal Salt Marsh
 -  Stabilized Interior Dunes
- Source: California Natural Diversity Database, 2003

Other WHR Habitat Types in the Project Vicinity

-  Coastal Scrub
 -  Deciduous Orchard
 -  Eucalyptus
 -  Freshwater Emergent Wetland
 -  Pasture
 -  Redwood
 -  Valley Foothill Riparian
- Source: GAP Analysis of Mainland California, 1998



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- Species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed wildlife and fish], and various notices in the Federal Register [FR] [proposed species]);
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 7596-7613, February 28, 1996).

Critical habitat is defined as “the specific areas within the geographic area occupied by a species on which are found those physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species.”

In 2001, in conjunction with the 2000 Draft EA and BA, Reclamation requested from the Service a list of species and critical habitats that could occur in the CCWD service area, in accordance with requirements of the ESA. The Service provided a species list in June 2001, and Reclamation met with the Service to discuss the scope of analysis and level of detail for a BA. A BA, dated November 2001, was drafted, but not submitted to the Service at the discretion of Reclamation. Reclamation began to revise and update the BA in 2003. A new species list was downloaded from the Service’s Sacramento Field Office website (http://sacramento.fws.gov/es/spp_list.htm) on January 29, 2004. A memorandum of Request for Concurrence with this species list was sent to the Service and NOAA-Fisheries on February 25, 2004. The species list, which also shows critical habitats in the CCWD service area, is included as Appendix B.

Plans and Policies

Numerous laws, planning regulations, and previous environmental commitments provide protection for specific biological resources in the CCWD service area.

Some of the potential secondary effects of growth on terrestrial biological resources, including special-status species, will be avoided or minimized through general plan policies and implementation measures; through mitigation measures identified in EIRs on general plans adopted by the County and by city jurisdictions within the CCWD service area; and through compliance with CEQA; NEPA; the federal and state ESAs; and Section 404 of the Clean Water Act. In addition, these laws and regulations may require compensation or mitigation to offset some effects on species and their habitats. Biological opinions also establish protections for sensitive species.

Biological Assessment on Long-Term Water Contract Renewals

As described above, Reclamation has prepared a *Biological Assessment on the Contra Costa Canal Long-Term Water Service Contract Renewal* (Reclamation 2004). Reclamation’s determination in the BA is that the proposed long-term water service renewal contract with CCWD:

- *may affect, but is not likely to adversely affect* listed fish species or their critical habitat because the proposed contract renewal would not result in any changes in conditions in the Delta and, therefore, would not affect the habitat or populations of those fish species that

have a moderate potential of occurring in the CCWD service area. The operations of the CVP, including the export of water from the Delta, are governed by separate criteria in biological opinions on CVP operations, by the CVPIA, and by hydrologic conditions.

- *may affect, but is not likely to adversely affect* listed or proposed wildlife species or their critical habitat because the proposed contract renewal would not result in any direct changes to land use and, therefore, would not affect the habitat or populations of those wildlife species with a moderate potential of occurring in the CCWD service area.
- *may affect, but is not likely to adversely affect* listed or proposed plant species or their critical habitat because the proposed contract renewal would not result in any direct changes to land use and, therefore, would not affect the habitat or populations of those plant species with a moderate potential of occurring in the CCWD service area.

This determination was based on the following:

- The proposed long-term water service contract renewal would continue the deliveries of CVP water to the CCWD and would not result in changes to or alterations of habitat used by species listed or proposed for listing as threatened or endangered that are known to occur or have the potential to occur in the CCWD service area
- The contract renewal would not affect the habitat or populations of fish species listed or proposed for listing as threatened or endangered that have a moderate potential of occurring in the CCWD service area. The operations of the CVP, including the export of water from the Delta, are governed by separate criteria in biological opinions on CVP operations, by the CVPIA, and by hydrologic conditions.
- Application of the Reasonable and Prudent Measures, Terms and Conditions, and Conservation Recommendations provided in the *Final Biological Opinion on the Construction of the Multipurpose Pipeline and Future Water Supply Implementation Program, Contra Costa County*, and provided in the CVPIA biological opinion would mitigate for potential site-specific effects to wildlife species listed or proposed for listing as threatened or endangered that have a moderate potential of occurring in the CCWD service area.

Environmental Consequences

No Action Alternative

The No Action Alternative for the long-term service contract for continued provision of water to the CCWD service area would not introduce new structures or result in any physical changes to the environment. Therefore, no direct effects on biological resources are expected to occur as a result of renewing the long-term water service contract for the CCWD service area.

Indirect effects to terrestrial resources related to the secondary effects of growth within CCWD's service area were adequately evaluated in the FWSI EIR. The FWSI EIR found that the continued provision of water would result in indirect effects to native land and agricultural habitats, special-

status communities, and special-status species. These impacts were mitigated through the biological opinion on the MMP and the FWSI.

The biological opinion sets forth the process for addressing the indirect effects on terrestrial species related to the renewal of CCWD's CVP contract, as provided under the consultation on the Implementation of the CVP Improvement Act and Operation of the CVP (1-1-98-F-0124). The Service concluded that five species were not likely to be jeopardized by the effects of construction of the MPP and that 12 plant and wildlife species would not likely be jeopardized by the indirect effects of urban development associated with the FWSI program. The Service's conclusion was predicated on the commitment of CCWD to the conservation measures contained in the biological opinion.

Alternative 1

Alternative 1 is assumed to have effects to biological resources similar to the No Action Alternative. Biological consultations are required by the Consultation and Coordination requirements established by Executive Order for all Reclamation activities. Impacts have been mitigated through the biological opinion for the MPP and FWSI.

Alternative 2

Alternative 2 is assumed to have effects to biological resources similar to the No Action Alternative. These impacts have been mitigated through the biological opinion for the MPP and FWSI.

Cumulative Impacts

Implementing the long-term water service contract under each of the alternatives would continue the provision of CVP water to the CCWD federal service area up to their existing contract amount, resulting in no change to existing conditions for water users in the CCWD service area. The contract renewal does not include construction of new facilities or the introduction of additional structures into the CCWD and Reclamation water supply system. Therefore, no physical change to the environment would result from renewal of the long-term water service contract under any of the alternatives. The differences among the alternatives are contractual features, including water cost, definition of M&I users, and water measurement. None of the alternatives would change the water service amount, increase water system capacity, or introduce new facilities. Therefore, there would be no direct cumulative impacts to biological resources from the replacement of the existing water contract with a long-term water service contract.

Cumulative impacts associated with implementation of the CVPIA, which included a long-term CVP water supply contract with CCWD, were adequately evaluated in the CVPIA PEIS, from which this EA is tiered. Since the differences among the alternatives are essentially contractual features, cumulative impacts associated with implementation of the CVPIA to biological resources would be the same under all alternatives. The ROD developed by Reclamation and the Service for the CVPIA PEIS incorporated strategies for maintaining protected biological resources.

Cumulative impacts to biological resources related to the planned growth envisioned by the cities' and County land use planning documents, including continued water service by Reclamation, were adequately analyzed in the FWSI EIR and the MPP EIR/EIS, which incorporated the discussion from the County General Plan EIR. The biological opinion developed for the FWSI program and MPP project identified specific conservation measures to be undertaken by CCWD to ensure that protected species would not be jeopardized by these actions. Development, however, is planned and managed through the County and cities' general plans and land management processes. Reclamation and CCWD have no jurisdiction over local land use policy or decision-making relative to specific land development proposals.

CULTURAL RESOURCES

This section describes cultural resources in the project area and programs in place to protect these resources. The discussion is summarized from the FWSI EIR and MPP EIR/EIS, which are incorporated by reference into this EA, because cultural resources potentially affected by these projects are the same as those within the CCWD service area. These documents considered cultural resources in the CCWD service area. Cultural resources include prehistoric and historic archaeological sites, districts, and objects; standing historic structures and buildings; and locations of important historic events, or sites of traditional/cultural importance.

Study Methods

To prepare the FWSI EIR and MPP EIR/EIS, prehistoric and historic site record and literature searches were conducted by the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park (CHRFS/NWIC File Nos. 98-150, 97-348, 97-563, 98-25). In addition, focused prehistoric, ethnographic, and general historical research was conducted using reference material from the Bancroft Library, University of California, Berkeley, and Basin Research Associates, San Leandro.

The cultural resources evaluation for the MPP project also involved the following:

- Focused prehistoric, ethnographic, and general historical research, as well as a review of specialized findings;
- Review of 30 cultural resource compliance reports on file with the CHRIS/NWIC which include or are adjacent to the area analyzed for the project alternatives. Twenty-four reports are relevant to the Contra Costa Canal;
- A field survey of selected areas along the Contra Costa Canal was conducted. The Canal was previously surveyed during the archaeological inventory of the Contra Costa Canal for the Bureau of Reclamation in 1996 (West and Welch 1996).
- An Environmental Documentation Study and Cultural Resources Review also was prepared by Basin Research Associates for the MPP project.

Affected Environment

The CCWD service area is within the San Francisco Bay and San Pablo Bay Region, which is part of the Coast Ranges geomorphic province, with San Francisco Bay marking the division between the North and South Coast ranges. This region of central California has a long history of human occupation beginning 12,000 to 10,000 years ago.

Prehistoric Period

Contra Costa County was an area especially favored by prehistoric Native Americans due to favorable environmental conditions and the variety of landforms (e.g., Self et al. 1993). The majority of the CCWD service area has no archaeological sensitivity rating assigned by the County General Plan, since it is located in or adjacent to developed urban areas and publicly owned lands.

In general, Native American occupation sites appear to have been selected for accessibility, protection from seasonal flooding, and the availability of resources. Sea-level changes over the past 6,000-8,000 years have also influenced site location and distribution, especially in the Delta portions of the service area (Bickel 1978a-b; Moratto 1984; West 1977).

Prior to 5,000-4,500 years ago, Native American use of the San Francisco Bay region appears to have been intermittent and sparse. Evidence of early occupation along the bayshore may have been hidden by rising sea levels from about 15,000 to 7,000 years ago or buried under sediments caused by bay marshland infilling along estuary margins from 7,000 years onward (Moratto 1984). Early groups probably focused on hunting and the gathering of various plant foods along with shellfish collection. A three-part development sequence has been used by archaeologists to explain local and regional cultural change in prehistoric central California from 4,500 years ago to European contact (Lillard et al. 1939). This scheme of three major time periods called horizons—Early, Transitional, and Late—is known as the central California Taxonomic System (Beardsley 1948, 1954). Recent chronological placement of the divisions suggests that the Early Horizon dated to ca. 4,500-3500/3000 years ago, the Middle Horizon to ca. 3,500-1,500 years ago, and the Late Horizon to ca. 1500-250 years ago (Moratto 1984). Overviews of regional prehistoric information are presented in Elsasser (1978), C. King (1978a-b), Moratto (1984), Stewart (1981), and West and Welch (1996).

Historic Period

The CCWD service area was explored by the Spanish between 1772 and 1811. After this initial period of Spanish exploration, the Spanish concentrated on the founding of presidios, missions, and secular towns along the California coast (1769-1821). The closest Spanish settlements to the CCWD service area were Mission San Jose in present-day Fremont and San Francisco de Asis in San Francisco.

Control of California passed from Spain to Mexico in 1822. Mexican policy stressed individual ownership of the land, with large ranchos being granted to individuals. Five former ranchos are located in the *Central County Primary Region*. One former rancho was located in the *East County Primary Region*, and no ranchos granted or patented were located in the *Rural East County Primary*

Region. For the most part, the CCWD service area was used for grazing during the Hispanic and early American Periods (Hendry and Bowman 1940; Beck and Haase 1974).

Control of California passed to the United States in 1847. Throughout the late 19th century, ranchos and other lands were subdivided as the result of population growth. Reclamation of the Delta was undertaken to provide land for agriculture, with agricultural activities predominating during the American Period and into the Contemporary Period. Further development of the area was facilitated by the development of regional rail and road networks to service both industry and agriculture with market links, the introduction of the refrigerator railcar in the 1880s allowing the transport of agricultural produce to distant markets, and a coal mining boom from the 1850s-1880s. Towns along Suisun Bay/San Joaquin River were important points for services and the transport of goods shipped to San Francisco and Sacramento by water and later by rail (Goddard 1857, Whitney 1873, Elliot Publishing Company 1893, Smith and Elliot 1897, Slocum 1882, Weber & Co. ca. 1914, Gudde 1974, Emanuels 1986, Fickewirth 1992, and McLeod 1994). The Southern Pacific Railroad constitutes both a major 19th as well as 20th century feature in the CCWD service area along with the San Pablo and Tulare Railroad (owned and controlled by the Central Pacific Railroad) and the San Francisco and San Joaquin Railroad Company (later purchased by the Santa Fe Railroad Company). The town of Clyde is notable, as it was designed by Bernard Maybeck as a residential community for the Pacific Coast Shipbuilding Company to house workers during World War I (Sloan & Robson 1918, Gudde 1974, Kyle 1990).

Identified Cultural Resources

Numerous cultural resources studies have been completed in the CCWD service area over the past 30 years, usually in support of environmental compliance requirements. Approximately 300 reports are on file that include the CCWD service area, although systematic surveys are rare. Two “reported” cultural resources, C-810 and C-811 (near James Donlon Boulevard in Antioch), and an “earthmound” noted on the Stratton and Thompson 1865-1869 Rancho Los Medanos plat at Post Marker #9 (near Serrana Court in Pittsburg) have been identified as being located south of the Contra Costa Canal. These resources were not relocated during the archaeological inventory of the Contra Costa Canal conducted for Reclamation in 1996 (West and Welch 1996) or during the construction of the canal, according to Reclamation records. No indicators of these three potential resources were observed during a field review conducted by Basin Research Associates in 1997.

Industrial and residential development in Contra Costa County has already affected archaeological resources. Development, particularly in the Ygnacio Valley and along the Bay margins, has destroyed an unknown number of both prehistoric sites and historic resources associated with the early development of the area. However, a number of archaeological sites are known to be present in the CCWD service area, both in currently developed areas and in the primarily agricultural areas east of Oakley. There is also the potential for the discovery of unknown sites in both urban and rural contexts, with some potential for deeply buried sites in both the inland and Delta areas of the CCWD service area.

Areas specifically designated for development in the County General Plan within the CCWD service area that are sensitive for cultural resources include the Alhambra Valley Road west of Martinez (Central County Area). Other sensitive areas within the East County area include the

Lone Tree Valley area of Antioch and areas to the south; two areas along Marsh Creek Road, one east of Mt. Diablo State Park and the area east of Clayton; and the eastern areas of the City of Pittsburg south of State Highway 4. Portions of the Veale Tract in the Rural East County are also extremely sensitive for prehistoric archaeological resources. A total of 72 archaeological sites have been recorded in or adjacent to the primary regions within the CCWD service area. These include 52 prehistoric sites, 19 historic sites, and one multi-component site with both a prehistoric and historic component.

Prehistoric Resources

The 52 prehistoric sites include village sites, temporary camps, lithic scatters, milling sites, petroglyph sites, quarry sites, middens, and burial sites. Prehistoric sites occur throughout the service area, although a locational analysis study was not undertaken. Research undertaken by West and Welch (1996) suggests a strong correlation between site location and soils/landform elevation. However, intact prehistoric cultural deposits are more likely to be present in areas relatively unaffected by urbanization and agriculture, although subsurface deposits could exist below the plow zone or underneath pavement or structures.

Historic Resources

The 19 historic sites located within the CCWD service area include railroad grades and associated railroad features, ranches and farmsteads, water conveyance systems and wells, mine sites, industrial sites, refuse deposits, and architectural features. Historic resources are likely to occur throughout the area, although many are likely to have been destroyed by subsequent development or redevelopment. The CCWD service area is situated within a number of former ranchos and includes the City of Martinez in the former *Rancho El Pinole*, which has a number of former adobe dwelling sites as well as several extant adobe structures. Potential historic properties associated with the built environment, rural farms and farm complexes, transportation-related features including roads, bridges, and landings, and historic archaeological sites may be present in both developed and undeveloped areas, although the resources may have been affected by urbanization, agriculture, and industrial development.

Traditional Cultural Properties

Mount Diablo, a dominant natural feature located just outside of the CCWD service area but visible throughout the service area, is a California State Landmark and designated Native American Ethnic Site. It has spiritual significance to the Costanoan as the focal point of their creation myth as well as for its role in several Miwok legends. No reservations or rancherias are present in the CCWD service area. A number of Native American burial sites are known as the result of archaeological discoveries, and there is a potential for others. The locations of these sites are considered sacred by Native American groups. Other traditional cultural properties (e.g., gathering areas, sacred use areas) may be present in rural areas.

In compliance with 36 CFR 800.4(a) (4), Reclamation has sent letters to Indian tribes requesting their input regarding the identification of any properties to which they might attach religious and cultural significance within the area of potential effect. To date, Reclamation has not received any comments or formal responses from the tribes.

National Register of Historic Places and Other Listed Cultural Resources

At least 44 individual properties or districts (buildings, building sites, landings, etc.) listed on the National Register of Historic Places (NHRP) or eligible for listing are located in the three primary regions of the CCWD service area. These historic properties are also included in the California Register of Historical Resources (CRHR).

The Contra Costa Canal facility was evaluated and was determined not to be eligible for the National Register by Reclamation and the State Historic Preservation Officer (SHPO) in 1992 (West and Welch 1996). No National Register and/or California Register historic properties, architecturally significant structures, landmarks, or points of interest are present either within or adjacent to the canal.

Plans and Policies

National Historic Preservation Act

The primary law governing cultural resources is the National Historic Preservation Act (NHPA), 16 USC 470-470mm. This act established the NRHP and the Advisory Council on Historic Preservation (ACHP).

Section 106 of the NHPA requires that federal agencies consult with the ACHP prior to any undertaking that would affect a property either on or eligible for the NRHP. Since compliance with Section 106 of the NHPA is usually in response to a proposed action that has the potential to affect historic properties, consultation with the California SHPO, interested parties, and, when appropriate, the ACHP is required.

According to federal law, significant cultural resources are those that are either listed on the NHRP, nominated to the NHRP, eligible for listing on the NHRP, designated a National Historic Landmark, or valued by modern Native Americans for maintaining their traditional culture.

Environmental Consequences

No Action Alternative

The No Action Alternative would not introduce new structures, construction activities, or result in physical changes to the environment, and would therefore not directly affect cultural resources. Indirect effects to cultural resources would result from the planned growth and development projected in the County General Plan and evaluated in the County General Plan EIR. Any potential indirect impacts would be the responsibility of the decision-making land management agencies. Demographic, economic, political, and other factors, independent of the proposed contract renewal, that result in changes with direct and indirect effects to cultural resources are beyond the range of Reclamation's NHPA Section 106 responsibilities. Reclamation would need to consider the effects to historic properties when Reclamation *approves* new lands being brought into an irrigation district (Inclusions) and when Reclamation *approves* a change in use that could lead to an effect on a historic property.

The County General Plan EIR previously examined impacts to significant historical or archaeological resources associated with projected development from buildout under the General Plan. The EIR found that secondary impacts resulting from development in currently non-urban areas could affect both known and undiscovered archaeological resources, especially in areas of high sensitivity. Areas specifically identified in the County General Plan EIR, which are included in the CCWD service area, include the Alhambra Road west of Martinez. The County General Plan EIR identified potentially significant adverse impacts to significant historic or archaeological resources associated with growth (CCC CDD 1992).

In addition to the Countywide growth impacts evaluated in the County General Plan EIR, the FWSI EIR evaluated impacts of the CCWD water supply plan developed in response to projected increased future demand at buildout under the General Plan. The FWSI EIR concluded that implementation of the water supply plan would not result in impacts to cultural resources in the service area beyond those identified in the County General Plan EIR. The MPP EIR/EIS also concluded that implementation of the MPP project would not result in impacts to cultural resources beyond those identified in the County General Plan EIR.

The following Historic and Cultural Resource Implementation Measures were provided in the County General Plan EIR to reduce the potential impacts of Countywide development on cultural resources:

- Develop an archaeological sensitivity map to be used in the environmental review process for discretionary permits;
- Include a procedure to be followed in the event that archaeological resources are encountered during development or construction as a condition of approval of discretionary permits;
- Develop design guidelines for areas adjacent to or within scenic corridors or historic sites;
- Review existing County ordinances and guidelines and make amendments as necessary;
- Promote the use of the State of California Historic Building Code to protect sites;
- Encourage owners of eligible historic properties to apply for registration of these sites and participate in programs for historic restoration;
- Seek coordination and cooperation with government agencies and organizations to fund preservation, restoration, and enhancement of unique historic sites;
- Identify funding mechanisms to fund preservation, restoration, and enhancement of unique historic sites; and
- For development in areas with medium to high sensitivity, perform, at a minimum, a Phase I, Level I survey.

Alternative 1

Alternative 1 is assumed to have effects to cultural resources similar to the No Action Alternative. Therefore, there are no environmental impacts anticipated for this alternative beyond those identified in the County General Plan EIR. These impacts would be minimized by implementation of Historic and Cultural Resource Implementation Measures.

Alternative 2

Alternative 2 is assumed to have effects to cultural resources similar to the No Action Alternative. Therefore, there are no environmental impacts anticipated for this alternative beyond those identified in the County General Plan EIR. These impacts would be minimized by implementation of Historic and Cultural Resource Implementation Measures.

Cumulative Impacts

Implementing the long-term water service contract under each of the alternatives would continue the provision of CVP water to the CCWD service area at historic levels, resulting in no change to existing conditions for water users in the CCWD service area. The contract renewal action would not result in the construction of new facilities or introduction of additional structures into the CCWD and Reclamation water supply system. Therefore, no physical change to the environment would result from renewal of the long-term water supply contract under any of the alternatives. The differences among the alternatives are contractual features, including water cost, definitions of M&I users, and water measurement. None of the alternatives would change the water service amount, increase water system capacity, or introduce new facilities. Therefore, there would be no direct cumulative impacts to cultural resources from the contract renewal action.

Cumulative impacts associated with implementation of the CVPIA, which included long-term CVP water supply contract renewal, were adequately evaluated in the CVPIA PEIS from which this EA is tiered. The PEIS analysis provides the programmatic cumulative analysis for the No Action Alternative to which Alternatives 1 and 2 are compared. Since the differences among the alternatives are essentially contractual features, cumulative impacts associated with implementation of the CVPIA to cultural resources would be the same under all alternatives.

Cumulative impacts to cultural resources related to planned growth have been adequately analyzed in the FWSI EIR, and MPP EIR/EIS, which incorporated the discussion from the County General Plan EIR. The effects to cultural resources resulting from planned development actions supported by the County and cities' general plans and other land use planning programs are beyond the range of Reclamation's Section 106 responsibilities. For example, Reclamation is not responsible for the development of housing tracts or industrial development in a community. Such actions are approved locally and at the state level. Further, if a farmer changes from one irrigated crop to another because of economic reasons, Reclamation does not control the farmer's decision. For actions undertaken by CCWD or Reclamation within the federal service area that could affect historic resources, Reclamation and CCWD are required to comply with Section 106 of the NHPA.

INDIAN TRUST ASSETS

Affected Environment

Indian trust assets are legal interests in property that are held in trust by the U.S. Government for Indian tribes or individuals. The Secretary of the Interior is the trustee for the United States on behalf of recognized Indian tribes. Examples of trust assets are lands, minerals, hunting and fishing rights, and water rights.

Reclamation shares the responsibility to protect and maintain Indian trust assets reserved by or granted to Indian tribes or Indian individuals by treaty, statute, or Executive Order. Reclamation carries out its activities in a manner that protects trust assets and avoids impacts, where possible. Where not possible, compensation or mitigation is provided in consultation with affected tribes.

There are no known federally recognized Indian trust assets within the contract service area of the CCWD.

Environmental Consequences

No Action Alternative

There would be no environmental effects to Indian trust assets under the No Action Alternative.

Alternative 1

There would be no environmental effects to Indian trust assets under Alternative 1.

Alternative 2

There would be no environmental effects to Indian trust assets under Alternative 2.

Cumulative Effects

Implementation of Alternative 1 or Alternative 2 would not affect Indian trust assets and would therefore not contribute to cumulative effects to those assets.