

4.17 Socioeconomic Effects

This section provides an analysis of the potential socioeconomic impacts that would result from implementation of the Los Vaqueros Reservoir Expansion Project. The section includes a description of the existing conditions, the associated regulatory framework (including all applicable socioeconomic policies), impact assessment methodology, and an assessment of impacts.

4.17.1 Affected Environment

Regulatory Setting

Federal

National Environmental Policy Act

According to the provisions of the National Environmental Policy Act (Title 40, Code of Federal Regulations, Section 1508.14):

“...economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment.”

State

California Environmental Quality Act

Under the California Environmental Quality Act (CEQA) Guidelines (Section 15358[b]), the impacts analyzed in an Environmental Impact Report (EIR) must be “related to physical changes” in the environment. The CEQA Guidelines (Section 15131[a]) states, “Economic or social effects of a project shall not be treated as significant effects on the environment.” In some cases, however, economic effects can result in physical effects. Therefore guidelines also state:

An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes caused need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

Local

Contra Costa County General Plan

The Contra Costa County General Plan does not identify goals, policies, and implementation measures related to the social or economic effects of the project alternatives.

Alameda County General Plan

The Alameda County General Plan does not identify goals, policies, and implementation measures related to the social or economic effects of the project alternatives.

Socioeconomic Conditions

The proposed project facility sites are located in eastern Contra Costa County and adjoining Alameda County. Because the majority of facilities would be located in the eastern part of Contra Costa County, this county represents the primary affected environment for the socioeconomic impact analysis. In addition, Contra Costa County also encompasses the Contra Costa Water District (CCWD) service area boundaries and is the location of several communities that would contribute goods and services to the construction activities. Furthermore, focusing the impact analysis on this affected environment will ensure an assessment that is more conservative than would be obtained using a broader regional approach in which any effects would be dispersed over a greater area. For the purpose of this analysis, it is expected that about 40 percent of the construction employees would be county residents; the remaining 60 percent would travel to the area, depending on the contractor selected and range of construction capabilities they would bring to the project.

Table 4.17-1 presents the existing (baseline) economic conditions for each of the major industrial sectors within Contra Costa County. The services sector is by far the county's primary employment sector, providing over 43 percent of the jobs—more than three times the size of the next largest sector (Financial, Investment, and Real Estate). However, in terms of output, manufacturing industries produce more than twice the contribution to the county's economy, despite having only a ninth of the employees.

**TABLE 4.17-1
ANNUAL JOBS AND OUTPUT BY SECTOR – CONTRA COSTA COUNTY (2004)**

Industry Sector	Jobs	Output (in millions of 2008 dollars terms)
Agriculture	2,796	\$1,340
Construction	46,518	\$7,481
Manufacturing	24,398	\$44,782
Transportation, Communications, and Public Utilities	32,695	\$12,319
Trade	63,121	\$7,091
Financial, Investment, and Real Estate	67,310	\$16,574
Services	217,361	\$19,684
Government	45,719	\$8,837
TOTAL	499,918	\$118,108

SOURCES: MIG, 2007.

The western and northern area shorelines of Contra Costa County are highly industrialized, while the interior sections of the western part of the county are predominantly residential, commercial, and light industrial. Most of the county's employment and residential population is located in the western parts of the county, while the eastern areas in the project vicinity are relatively rural. Agriculture, service, and some construction employment provide most of the job opportunities for residents in the eastern part of the county. However, in recent years, considerable growth in residential development along the northern and northeastern county areas has occurred.

Table 4.17-2 presents Contra Costa County's population and unemployment figures. While the county has a relatively high rate of employment among its residents, there were an estimated 24,900 unemployed residents in 2007.

**TABLE 4.17-2
CURRENT POPULATION AND UNEMPLOYMENT IN CONTRA COSTA COUNTY (2007)**

Industry Sector	Contra Costa County	California
Total Population	1,042,321	37,662,518
Total Labor Force	526,100	18,188,100
Total Employment	501,200	17,208,900
Unemployment Rate	4.7%	5.4%

SOURCES: DOF, 2007; EDD, 2007.

4.17.2 Environmental Consequences

Methodology

The socioeconomic analysis of the proposed Los Vaqueros Reservoir Expansion Project evaluates potential economic changes resulting from project construction activities using an economic model, IMPLAN, which is described below. The analysis focuses on the potential construction related socioeconomic effects since this aspect of the project involves the greatest opportunity for mobilization and re-allocation of money, such that construction is expected to financially affect individuals and businesses within the local economy. This section also provides a quantitative assessment of potential project-related land use changes (i.e., temporary and long-term impacts on agriculture) and other local revenue-generation activities (i.e., recreation). Economic assessment of changes to agriculture and recreation involve a limited time period (approximately 3 year construction period) and relatively small amounts of money when compared with construction costs, and therefore spending related to these activities was not modeled in the same manner as construction costs.

Construction cost estimates for Alternative 1 were used to evaluate economic impacts for project construction. Because the facilities to be constructed are the same, Alternative 2 is expected to cost the same as Alternative 1. Cost estimates for Alternative 3 and Alternative 4 were not available at the time of EIS/EIR preparation, however since Alternative 1 has the

largest cost and also the largest potential for impacts, impacts resulting from Alternatives 3 and 4 would not be greater than those determined for Alternative 1.

The economic analysis of construction-related impacts involved: (1) determining the direct construction-related employment and income changes; and (2) estimating the secondary economic impacts (i.e., indirect and induced impacts) on associated businesses (such as local material and equipment suppliers). Analysis of the future construction cost estimates was performed to estimate future project-related job employment impacts, since construction is not expected to begin until early 2012. As for post-construction spending, economic effects related to project operation were not included in this analysis due to the relatively small amount of money to be generated per year when compared with about \$465 million of spending for construction materials and labor.

IMPLAN Input-Output Model

IMPLAN input-output modeling is used to estimate the direct and secondary multiplier effects for any spending change upon an area's economy, such as those resulting from a major construction project. The IMPLAN model represents the structure of a local economy and economic interrelationships among firms and industry sectors. The model can predict both the direct and secondary impacts of spending changes on local employment and income for each industry sector. For the Los Vaqueros Reservoir Expansion project, IMPLAN modeling was conducted for construction spending, however was not used to measure any indirect effects related to agriculture or recreation since their direct spending impacts are so minor in magnitude.

Direct project-related employment includes not only construction laborers but also pre- and post-construction management and engineering staff (i.e., for project design, permitting, operation, and administration). Secondary impacts refer to the combined indirect and induced effects resulting from the procurement of construction-related supplies and services, materials, and equipment; future spending by construction workers; and indirect project-related employment. The magnitude of secondary impacts is estimated using IMPLAN multipliers that represent the typical flow of indirect and induced spending within the county economy.

Key construction cost components were evaluated to determine their potential effect on the local economy. This analysis also identifies the major materials, services, or other cost items that would be purchased from outside Contra Costa County and estimates their proportion of the construction cost. This adjustment ensures impacts are not overestimated by attributing job and income benefits for spending that would occur outside the county's economy. For the remaining construction items, the applicable IMPLAN data sector for each cost item was identified.¹ These direct costs were then used to model the expected indirect project-related economic effects.

¹ IMPLAN data sectors correspond to North American Industry Classification System and the Bureau of Economic Analysis commodity classifications, which are used to match spending with appropriate multipliers.

Assumptions

The following section identifies the key project-related assumptions used in the socioeconomic impact analysis.

Proportion of Construction Workers Residing in Contra Costa County

A central factor determining the magnitude of the project's future employment impacts is the proportion of jobs performed by county residents. The local job impacts are a function of the match between the project's labor needs and the availability of qualified local workers. The greater the number of county residents hired by the project, the greater the economic benefits to the county's economy. While there would also be benefits to the county economy from non-county residents employed by the project (e.g., from food and fuel sales), more of their earnings would be spent outside the county.

Because the project is predominately located in Contra Costa County, it is likely that a large proportion of construction workers would be local residents. According to 2000 U.S. Census data on local commuting patterns, 75.3 percent of all workers employed in Contra Costa County are also county residents. In addition, the size and duration of the Los Vaqueros Reservoir Expansion Project are expected to make employment very attractive to local construction workers. The project location in eastern Contra Costa County is also relatively accessible for workers living in San Joaquin County and eastern Alameda County.

The economic analysis also considered the possibility that an insufficient number of local workers would be available to meet the labor needs if the expansion were to coincide with any other major construction projects in the area. Section 4.1.3 Cumulative Impacts Analysis, and Appendix I, Projects Considered for Cumulative Analysis of Land-side Resources and Issue Areas, provide a list of projects that have the potential to occur during part or all of the 3-year Los Vaqueros Reservoir Expansion project construction period. Large public works projects, such as construction of the Altamont Water Treatment Plant in Alameda County and Vasco Road Improvements in Contra Costa County have the most potential to compete for workers who are skilled in electrical, concrete and other work on large-scale structures. Construction of other major land use projects including Mountain House (San Joaquin County), Cecchini Ranch and other Discovery Bay residential developments would likely also employ area construction workers. However these projects would not necessarily compete for the same type of workers who build larger scale facilities.

In 2007, Contra Costa County had an estimated combined unemployment rate of 4.7 percent compared to a state average of 5.4 percent (EDD, 2008). Furthermore, future regional employment growth has been estimated to continue at about 0.7 percent annually between 2002 and 2012.² Statewide new job growth is projected at approximately a rate of 1.5 percent annually between 2004 and 2014 (EDD, 2007). During this 10-year period, employment in the region's construction sector as a whole has been projected to increase by 9.3 percent, while heavy construction employment was projected to increase from 9,100 to 9,400 jobs (3.3 percent growth) (EDD, 2007).

² The California Employment Development Department (EDD) provides future employment projections for the Oakland Metropolitan Statistical Area, which consists of both Alameda and Contra Costa Counties.

Although the trends indicated above suggest there may be a reduced availability of local workers, the high desirability of reservoir expansion jobs (due to the size and duration of such work) would nonetheless encourage local employment by county residents. Based on the current national downturn in construction, it is not anticipated that there will be an insufficient number of local workers. Also, the expansion project could offer employment opportunities to a wider workforce than other large construction projects in the region (such as the on-going Bay Bridge replacement project) that have a greater need for specialized construction skills. Based on this information, and to provide a conservative estimate of the potential job benefits to Contra Costa County, an assumption that 40 percent of the project's employment would come from county residents is used in this analysis.

Procurement of Construction Material and Equipment

The magnitude of the construction spending impacts and related indirect economic effects would depend on the proportion of local procurement and on local value-added for construction materials and services. For example, if there is a greater availability of cranes and other construction equipment within the county, then there could be a greater amount of indirect local construction spending.

Key material costs for the project consist of pipe materials as well as concrete and other rock materials. Because of the size, type, and quantity of pipeline materials required by the project, virtually all the pipeline-related materials would be manufactured outside of Contra Costa County. Consequently, project expenditures on these items are expected to have a negligible economic impact on the local economy.

Similarly, major proportions of the sand, gravel, and other rock materials for the reservoir expansion project are expected to be imported to the site from quarries outside Contra Costa County. Embankment fill materials for the shell and core zone of the reservoir would be obtained mostly on site. However, extensive quantities of roller-compacted concrete and other import material (e.g. filter, drain, rip-rap, and bedding rock) needed for the dam enlargement and pipeline placement would have to be imported.

While rip-rap bedding for the original Los Vaqueros Reservoir construction was obtained within Contra Costa County from the Cemex Aggregate (formerly RMC Lonestar), most of the other rock materials for the project are expected to be acquired from quarries outside the county. During construction of the original Los Vaqueros Reservoir most of the drain rock was obtained from Granite Construction's Tracy Quarry (in San Joaquin County). Besides its Tracy location, Granite's Vernalis Quarry (also in San Joaquin County) is also considered a likely candidate source for the project's filter sand, drain gravel, and roller-compacted concrete aggregate supplies. Quarry run rock for the abutment may also be obtained from the Jackson Valley Quarry located in Amador County (URS, 2008).

The site's location and access routes also favor transportation of these materials and other project supplies from the region east of Contra Costa County, accessed by interstate highways 5, 580, and 205. Consequently project expenditures on the majority of the concrete and other rock materials for the dam expansion can be expected to have a negligible economic impact on the local economy.

Therefore, for the purposes of the economic analysis it is estimated that only 10 percent of the dam material expenditures would be for materials procured from within Contra Costa County.

A major proportion of the equipment required for the project would be relatively specialized excavation, crane, and other hauling equipment likely obtained from outside Contra Costa County. The other major equipment cost would be fuel expenditures, which also have a near negligible “value added” component to Contra Costa’s economy. As a result, it is expected that project-related equipment expenditures would have a very minor economic impact on the Contra Costa County economy. For the purposes of the economic analysis it is conservatively estimated that only 5 percent of the project equipment expenditures (\$145M x 0.05 percent or approximately \$10M) would be for materials procured from within Contra Costa County (see Table 4.17-5).

Contingency Cost

Contingency costs were included in the projected construction spending estimates, which include future employment projections. Contingency spending was applied proportionately to the base cost item projections. If future construction does not require use of the contingency funds, then both the future direct impacts (employment and income effects) and secondary economic impacts on the county would be reduced correspondingly.

Construction Spending

The majority of the construction spending was assumed to match IMPLAN’s “Sector 40 – Water, Sewer, and Pipeline” category. Since the release of the 2001 IMPLAN data sets, the sectoring scheme for IMPLAN has been based on the North American Industry Classification System and has 509 sectors. This sectoring scheme very closely follows the 1997 BEA Benchmark Study for the United States sectoring. The sectoring scheme provides a systematic identification of businesses, which enables a community’s economy and economic interrelationships to be represented and modeled. Accordingly, IMPLAN multipliers for that category were used to estimate the direct and indirect employment and income impacts.

The full cost estimate for an expanded Los Vaqueros Reservoir would include mitigation and land acquisition costs. However, because land acquisitions can, in many cases, represent transfer in capital between owners both within and outside the county, such transactions might not result in any new spending in the economy. In such cases, it would be inappropriate to estimate economic impacts from the land exchange. The costs for future mitigation measures are currently insufficiently specified to estimate the nature and proportion of this spending that may be expected to benefit the Contra Costa County economy. To be conservative in the estimate of economic benefits associated with the expansion project, spending for mitigation and land acquisition was not included in the economic impact analysis. In any case, the magnitude of the potential mitigation spending is far less than the contingency expenditures included in the impact analysis. Consequently, the omission of the mitigation spending is not expected to substantially alter the project’s estimated economic impact to Contra Costa County.

Any remaining “other costs” are expected to consist predominantly of additional technical services for project design, construction management, and implementation. These costs were assumed to

correspond to IMPLAN's "Sector 506 – Engineering, Architectural Services" category. However, because these costs have not been determined and are by their nature unknown, these spending items were not included to be conservative in the economic impact analysis. Similarly, given the unknown nature and magnitude of the project's expenditures for "general conditions and unlisted items allowances," spending on these items was also excluded in the economic impact analysis for Contra Costa County.

Significance Criteria

For this analysis, the significance of impacts related to employment and income was determined based on the expected proportional changes in the corresponding economic sector. County economies are inherently dynamic and so are subject to fluctuation due to seasonal effects, population changes, and other natural economic cycles of growth and contraction. Therefore, for purposes of this analysis, an alternative was determined to result in a significant adverse socioeconomic effect if it would result in a substantial, discernible adverse change in Contra Costa County's existing economy (i.e., over 0.5 percent) as a result of one or more of the following:

- Local construction related income or employment changes
- Loss of agricultural production and value that would have a substantial adverse economic effect in the local or regional area in which the facilities are located such that substantial quantities of agricultural land would be taken out of production in addition to those directly affected by the project
- Loss of recreation-related visitor spending that would have a substantial adverse economic effect to the local or regional area's economy in which the facilities are located

Based on the total economic output for Contra Costa County (see Table 4.17-1) 0.5 percent of \$118,108M (output is provided in millions of dollars) is equal to nearly \$6 billion dollars.

Impact Summary

Table 4.17-3 provides a summary of the impact analysis for issues related to socioeconomics based on the project description including construction activities outlined in Chapter 3, Project Description.

Impact Analysis

No Project/No Action Alternative

Under the No Project/No Action Alternative, no new facilities would be constructed, and no agricultural lands would be temporarily or permanently removed from production or experience production decreases as a result of facility siting. Agricultural and recreational facility operations in the project area would continue in manners similar to current conditions. Therefore, the ongoing economic and fiscal benefits of agricultural production and recreation-related income in the project area would be expected to continue at existing levels. There would be no adverse socioeconomic impact under the No Project/No Impact Alternative.

**TABLE 4.17-3
SUMMARY OF IMPACTS – SOCIOECONOMICS**

Impact	Project Alternatives			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
4.17.1: Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy.	B	B	B	B
4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy.	LS	LS	LS	LS
4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy.	LS	LS	LS	LS
4.17.4 Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment.	B	B	B	B
4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary loss of agricultural land uses.	SU	SU	LS	LS
4.17.6 Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts.	LS	LS	LS	LS

NOTES:
 SU = Significant Unavoidable Impact
 LSM = Less-than-Significant Impact with Mitigation
 LS = Less-than-Significant Impact
 NI = No Impact
 B = Beneficial Impact

Impact 4.17.1: Project construction could temporarily generate new income and local employment that could benefit Contra Costa County's economy. (Beneficial Impact)

Alternative 1

Table 4.17-4 shows the estimated total construction costs for the Los Vaqueros Reservoir Expansion Project, assuming a 275,000-acre-foot (275 TAF) reservoir, conveyance pipelines, and other facilities fully described in Chapter 3, Project Description for Alternative 1. The project cost figures are escalated to a future anticipated "mid-point" of construction in order to avoid over or under-estimating future construction costs.

The estimated cost for Alternative 1 facility construction is about \$465 million in "above the line" spending. The "above the line" costs are the most assured spending components directly related to the physical construction of the new facility. Other more variable project costs include design

**TABLE 4.17-4
ESTIMATED CONSTRUCTION COST FOR EXPANDED
LOS VAQUEROS RESERVOIR – ALTERNATIVE 1**

Item Description	Cost (in millions of mid-term dollars)
Reservoir Expansion	\$110
Transfer Facility Reservoir / Pump Station Expansion	\$40
Delta Pump Station	\$20
Raw Water Conveyance	\$225
Power Supply	\$40
Subtotal	\$465
Design & Construction Management	\$170
Other (Land Acquisition / Mitigation)	\$25
General Conditions & Unlisted Items Allowance ^a	\$210
Contingency	\$145
Total construction cost	\$985

^a Includes future cost escalation to project's mid-term. All costs approximate and may not total exactly due to rounding.

SOURCE: URS, 2008.

and construction management costs of about \$170 million, potential contingency spending of up to \$145 million, and other possible cost increases from the estimated future cost escalation and design changes (“General Conditions and Unlisted Items Allowance”) that could add as much as \$210 million. Overall, the total construction cost for the proposed Alternative 1 is conservatively estimated to be \$985 million (URS, 2008).

Table 4.17-5 shows the estimated total project construction cost by cost type and the proportion of that spending expected to occur from Contra Cost County workers and businesses to evaluate the economic impacts of the future construction spending specifically within Contra Costa County. A relatively minor proportion of the project’s equipment and materials spending is expected to occur within Contra Costa because many of these items are highly specialized (e.g. pipeline materials) and therefore are expected to be obtained from manufacturers, distributors, or quarries located outside Contra Costa County (URS, 2008). The estimated spending column for Contra Costa County shows the estimated maximum in-county spending after major imported materials (such as pipelines), imported equipment, and out-of-county labor costs were removed. These adjusted county spending estimates were then used in the IMPLAN model to determine the local direct and indirect economic impacts of the project.³

As shown in Table 4.17-5, it is estimated that about \$115 million of the project’s total construction cost would be spent within Contra Costa County for labor, technical services, equipment, or materials. Construction labor and technical services are expected to be the primary

³ Only major cost items were removed from the construction spending. The IMPLAN model also adjusts its secondary impact estimates based on past patterns of county economic leakage for the industry.

**TABLE 4.17-5
ESTIMATED CONSTRUCTION SPENDING – ALTERNATIVE 1**

Cost Type	Estimated Cost (in millions of 2008 dollars)	Estimated Contra Costa Spending^b (in millions of 2008 dollars)	Estimated Other Regional Spending^c (in millions of 2008 dollars)
Construction Labor / Technical Services ^a	\$70	\$30	\$40
Equipment ^a	\$145	\$10	\$135
Materials ^a	\$220	\$10	\$210
Design & Construction Management	\$170	\$15	\$155
Other (Land Acquisition / Mitigation)	\$25	-	\$25
General Conditions & Unlisted Items ^d	\$210	\$30	\$180
Contingency ^d	\$145	\$20	\$125
Total construction cost	\$985	\$115	\$870

^a Mid-points of construction values have been used for the estimated allocation by cost type.

^b The spending estimates have been adjusted to remove major expense items that would not have a direct economic effect on the county's economy, either because materials and equipment must be imported (e.g., pipelines) or because the spending would make little direct economic contribution (e.g., land sales), or it insufficiently specified to allocate (e.g. mitigation).

^c For the purposes of the analysis the greater Bay Area Region consists of the Bay Area Counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma, and San Joaquin.

^d The contingency and general conditions spending in Contra Costa is based on the estimated construction spending in Contra Costa.

SOURCE: MWH 2007; URS 2008.

component of the project-related spending within Contra Costa since most of the materials and equipment would most likely be obtained from businesses elsewhere in the greater Bay Area region. Approximately 40 percent of the project's direct labor and technical services are expected to be provided by Contra Costa County businesses and residents which is equivalent to approximately \$30 million in direct spending. For the project's equipment expenditures, approximately 95 percent (\$135 million of the project's total \$145 million) of the estimated equipment cost is expected to consist of fuel, services, and specialized construction equipment that would be imported from outside the Contra Costa County. A similar proportion of the project's estimated materials cost (\$220 million of the project's total \$230 million) is expected to consist of sand, gravel, pipelines and other specific materials that must be imported from outside the county. Although such "other regional spending" will not benefit Contra Costa's economy, the expenditures will directly benefit both the region's economies and the state as a whole.

The proportion of estimated project spending for project design, general conditions and contingency cost items (i.e. expenses not related to "direct" construction labor, material or equipment) within Contra Costa County are based on the estimated distribution for the above direct construction spending within the Contra Costa. Since most labor and technical services are non-taxable, the estimated project-related sales tax benefits to Contra Costa County would be up to \$0.85 million. Actual sales tax benefits could be further reduced depending on the proportion of the design, contingency and other non-labor "below the line costs" are in fact incurred by the project. These estimates of the Contra Costa County and other regional spending are approximate but reflect both the character of the local and regional economies and the project location which favors importation of materials, equipment, and workers from San Joaquin and Alameda Counties.

In addition to the income and related employment benefits that Contra Costa County would gain from construction expenditures paid to its local businesses and residents, Contra Costa County would also receive significant project-related sales and/or use tax⁴ benefits on expenses related to construction materials. Under California tax regulations, Contra Costa County could receive sales and use tax revenues equal to 1 percent of total taxable sales spending for the entire project.⁵ Material and equipment purchases would be taxable while most labor and services spending would not be taxable. Consequently, based on the estimated sales distribution in Table 4.17-5, assuming that up to \$825 million of the total construction costs could be for taxable materials and equipment items, Contra Costa County could receive up to \$8.25 million in future sales and use tax revenues from the project (this would include the local sales tax benefits from the expected \$85 million in construction spending within Contra Costa described in the previous paragraph).⁶ The magnitude of the tax benefit to Contra Costa will vary depending on the both the extent actual construction spending and the proportion of the purchased materials and services whose providers have already collected the applicable sales taxes.

Future project-related employment has been determined based on the expected crew staffing levels over the length of the project's approximately 3-year-long projected construction period. During construction, about 400 employees would be working at full mobilization. Correspondingly, it is conservatively estimated that the total project employment would be about 1,200 full-time equivalents (FTEs). Employment figures are expressed as full-time equivalent employment, a computed statistic representing the number of full-time employees or workers that would be employed if the number of hours worked by part-time employees is calculated as if worked by full-time employees.

Applying a conservative full-burdened average labor expense of \$145,000 per employee (MWH, 2007), it is estimated that employment of 1,200 FTEs would correspond to \$174 million in project labor costs. This would be consistent with the approximate estimate of \$70 million for the direct construction spending and \$170 million in design and construction management spending shown in Table 4.17-5.

Of the project's total employment, it is estimated that about 40 percent of these workers might reasonably be expected to represent Contra Costa residents during their period of project employment. Jobs created are calculated as full-time equivalents for the entire construction period. The actual number of construction workers onsite during peak construction periods would vary, as some workers could be employed for shorter periods of time than others and some workers may work part-time. It is expected that a considerable proportion of the "white collar" and more senior

⁴ Purchasers (such as the Contra Costa Water District or the construction contractor) are required to pay "use" taxes to the California Board of Equalization on their taxable goods or services purchases if applicable sales taxes have not been collected by the seller. California State Board of Equalization regulations allow for the direct distribution of the local taxes to the local jurisdiction of the construction site for certain qualifying contracts. Construction contractors who enter into a construction contract equal to or greater than \$5 million may elect to direct allocation of tax to the jurisdiction in which the jobsite is located.

⁵ Under the 2004 "triple flip" tax legislation (Code Section 97.68) the State of California retained ¼ percent of the sales tax returns to cities and counties to repay economic recovery bonds. However, the local governments receive ad valorem property tax revenues in lieu of the withheld revenues to make up the difference.

⁶ Construction cost estimates include applicable sales taxes.

jobs could likely be filled by non-Contra Costa County residents, since these jobs are not as location dependant and have skill requirements that may need to be obtained from a more regional area.

Table 4.17-6 shows both the direct construction jobs and secondary jobs that could be generated by the project. The majority of the secondary jobs would be service or trade industry jobs, including new jobs in support industries (providing services and materials required by project construction) as well as other service and trade jobs resulting from the increased spending within the county by construction workers making purchases with their earnings.

**TABLE 4.17-6
EMPLOYMENT IMPACTS IN CONTRA COSTA COUNTY BY SECTOR**

	Projected Employment (Full-Time Equivalent)		Annual Total ^b	Current (2004)	% Change
	Direct	Secondary ^a			
Agriculture				2,796	-
Construction	480	4	161	46,518	< 0.1%
Manufacturing		8	3	24,398	< 0.1%
Transportation, Communications, and Public Utilities		29	10	32,695	< 0.1%
Trade		96	32	63,121	< 0.1%
Financial, Investment, and Real Estate		42	14	67,310	< 0.1%
Services		316	105	217,361	< 0.1%
Government		2	1	45,719	< 0.1%
Total	480	497	326	499,917	< 0.1%

^a Includes both indirect and induced impacts.

^b Based on a 3-year estimated construction period.
Totals may not add exactly due to rounding.

SOURCES: MIG 2007; ESA.

Based on the assumption that 40 percent of construction workers reside in Contra Costa County, it is estimated that about 480 jobs (FTEs) would be filled by Contra Costa residents while the remaining 720 FTE jobs would predominantly be staffed by Alameda or San Joaquin residents. As a result of project-related local income and employment growth, nearly an additional 500 indirect or secondary jobs would be generated by the expected \$115 million of spending on wages and materials within the county. These jobs would be created in businesses providing project-related goods and services, or alternatively in other businesses catering to project employees (e.g. retail, food etc.). Of these jobs, the majority would likely be lower skilled positions. Because these jobs would primarily be associated with services needed to support project construction, these jobs would constitute indirect employment and, as such, would represent secondary project-related economic benefits.

The projected employment impacts were also estimated on an annual basis over the main construction period to determine the expected annual project-related employment. The annualized employment effects were then compared to existing conditions to evaluate the magnitude of the projected economic impacts.

In addition to employment benefits, the project would also have direct and secondary benefits on Contra Costa County's level of economic output. **Table 4.17-7** presents the project's expected impacts on the county's output for the major industrial sectors.

**TABLE 4.17-7
OUTPUT IMPACTS IN CONTRA COSTA COUNTY BY SECTOR**

	Projected Output (in millions of 2008 dollars)			Current (2004)	% Change
	Direct	Secondary ^a	Annual Total ^b		
Agriculture				\$1,340	–
Construction	\$115		\$38	\$7,481	0.5%
Manufacturing		\$8	\$3	\$44,782	< 0.1%
Transportation, Communications, and Public Utilities		\$5	\$2	\$12,319	< 0.1%
Trade		\$10	\$3	\$7,091	0.1%
Financial, Investment, and Real Estate		\$12	\$4	\$16,574	< 0.1%
Services		\$28	\$9	\$19,684	0.1%
Government		\$8	\$3	\$8,837	< 0.1%
Total	\$115	\$71	\$62	\$118,108	< 0.1%

^a Includes both indirect and induced impacts.

^b Based on a 3-year construction period and to the nearest million dollars.
Totals may not add exactly due to rounding.

SOURCES: MIG 2007; ESA.

Table 4.17-7 shows both the direct construction-related and secondary economic output generated by the project. Output represents the value added to the economy by the economic activity. The majority of the secondary output associated with the project would be in the service, trade, and financial-related industry sectors. Overall, about a \$71 million beneficial output impact is projected for the secondary impacts to the Contra Costa County economy, which would result in beneficial effects. Because the amount of spending is less than 0.5 percent of the Countywide economy, however, the project effect represents a less than significant beneficial economic impact upon the Contra Costa County economy.

Alternative 2

Because Alternative 2 facilities and construction would be the same as for Alternative 1, the benefits from construction spending and employment associated with Alternative 2 would be the same as Alternative 1. Because the amount of spending is less than 0.5 percent of the Countywide economy, however, the project effect represents a less than significant beneficial economic impact upon the Contra Costa County economy.

Alternative 3

The benefits from construction spending and employment associated with Alternative 3 would be similar to but less than Alternative 1, because this alternative would not include construction of either the new Delta Intake and Pump Station or the Transfer-Bethany Pipeline. Modifications to the Old River Intake and Pump Station would be constructed under Alternative 3 however costs and associated socioeconomic benefits would be less than the cost of a completely new intake. Full cost estimates are not available for Alternative 3, but like Alternative 1, this alternative would result in beneficial economic effects. Because the amount of spending is less than 0.5 percent of the Countywide economy, however, the project effect represents a less than significant beneficial economic impact upon the Contra Costa County economy.

Alternative 4

The benefits from construction spending and employment associated with Alternative 4 would be similar in nature to but much less in magnitude than Alternative 1 because this alternative would involve a smaller reservoir expansion (160 TAF rather than 275 TAF) and fewer facility improvements. Full cost estimates are not available for Alternative 4, but like Alternative 1, this alternative would result in beneficial economic effects. Because the amount of spending is less than 0.5 percent of the Countywide economy, however, the project effect represents a less than significant beneficial economic impact upon the Contra Costa County economy.

Mitigation: None required.

Impact 4.17.2: Loss of agricultural land use associated with project construction and development could affect Contra Costa County and Alameda County's economy. (Less than Significant)

Introduction

Temporary or long-term reduction in agricultural resources has the potential to affect Contra Costa County's economy. As indicated in Table 4.17-1, the County has an estimated 2,796 agricultural jobs and \$1,340,000,000 in agricultural output, measured in 2008 dollars. The Contra Costa County Department of Agriculture 2007 Crop Report indicates that of the County's 482,000 total acres, the Land in Farms is 126,228 acres (2002 Census) and Harvested Cropland is 26,018 Acres (2002 Census) (Contra Costa County, 2007).

As discussed in Section 4.8, Agriculture, there are six classifications of agricultural land found in the project vicinity; however, only the Prime Farmland, Farmland of Statewide Importance, and Unique Farmland classifications are considered for purposes of determining impact significance. Although impacts to Farmland of Local Importance, Grazing Land and Other Land are not considered significant, they are assessed in Section 4.8 for disclosure purposes (see Figure 4.8-1).

Reservoir Expansion and Recreation Facilities. The CCWD Watershed property includes land designated under the FMMP as Farmland of Local Importance, Grazing Land or Other Land.

Intake Facilities. The new Delta Intake and Pump Station would be sited on land designated Farmland of Statewide Importance. The existing Old River Intake and Pump Station is also located on land designated Farmland of Statewide Importance, however no property beyond the existing facility boundaries is proposed for use.

Conveyance Facilities. The eastern portion of the Delta-Transfer Pipeline extends through areas of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. The western portion of the Delta-Transfer Pipeline and the Transfer-LV Pipeline would occur primarily on Grazing Land and Farmland of Local Importance. The Transfer Facility Expansion would occur on land designated as Farmland of Local Importance. The Transfer-Bethany Pipeline would primarily pass through lands designated Farmland of Local Importance and, to a lesser degree, through areas designated as Grazing Land.

Power Supply Facilities. Under Power Option 1 (Western Only), the proposed Western substation and its access road would occur on lands designated as Grazing Land. Proposed transmission lines would connect with one or both intakes near Old River, passing through lands designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. To the west, near the existing Transfer Station, existing and proposed transmission lines pass through lands designated as Prime Farmland, Farmland of Local Importance, and Other Lands.

Under Power Option 2 (Western & PG&E), the proposed PG&E substation and its access road would occur on lands designated as Grazing Land. Proposed transmission lines would connect with one or both intakes along Old River, passing through lands designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. To the west, near the existing Transfer Station, existing and proposed transmission lines pass through lands designated as Prime Farmland, Farmland of Local Importance, and Other Land.

Alternative 1

As analyzed in Section 4.8, Agriculture, and shown in Table 4.8-5, temporary construction activities associated with Alternative 1 (under Power Option 1) would affect as much as 91 acres of Prime Farmland, 39 acres of Unique Farmland, and 41 acres of Farmland of Statewide Importance for total impacts to Important Farmland of 170 acres. The project construction, including pipeline and transmission line construction, would occur over a period of up to 3 years, so only a portion of the acreage that would be temporarily affected would be out of agricultural production in any one year. The affected acreage represents a small proportion of Contra Costa County's total active agricultural land base: in 2006 there were over 262,000 total acres, of which 41,619 acres were determined to be Important Farmland, as shown in Table 4.8-1 (DLRP, 2008).

Although much of the CCWD Watershed property is used for grazing, the purpose of the grazing is for habitat management. As mitigation for construction of the existing Los Vaqueros Reservoir, the

CCWD Watershed Lands are managed to provide premium kit fox habitat as defined by the Biological Opinion for the original reservoir project. Land management activities include grazing cattle and sheep on large portions of the District property (approximately 10,000 acres) in order to provide 800 to 1200 pounds of forage per acre as specified by the Biological Opinion.

Construction of the project components for Alternatives 1 would require the permanent conversion of 21.7 acres of Farmland of Statewide Importance. The additional agricultural acreages that would be converted are listed by project component in Table 4.8-6.

Overall, the loss of 21.7 acres of Important Farmland attributed to the proposed project would be small in comparison to the more than 41,619 acres of farmland in Contra Costa County, an estimated 0.001 percent. The relatively small proportion of affected agriculture lands indicates that Alternative 1 would not result in any substantial displacement of agricultural workers, associated loss in employment income and tax revenues, or other loss of revenues. The economic and associated socioeconomic effects upon Important Farmland are less than significant.

Alternative 2

Because the facilities construction would be the same, Alternative 2 would have the same impacts as Alternative 1. The economic and socioeconomic effects of Alternative 2 upon Important Farmlands are less than significant.

Alternative 3

Impacts to agriculture under Alternative 3 would be less than Alternatives 1 and 2 because this alternative does not include construction of a new Delta Intake or Transfer-Bethany Pipeline. Although this Alternative would include expansion of the Old River Intake and Pump Station, construction would not extend beyond the existing facility site and there would be no farmland permanently converted under Alternative 3. Alternative 3 (under Power Option 1) would temporarily affect as much as 91 acres of Prime Farmland, 39 acres of Unique Farmland, and 19 acres of Farmland of Statewide Importance for total impacts to Important Farmland of 149 acres. As with Alternative 1, the project's construction would occur over a period of up to 3 years, so only a portion of the acreage that would be temporarily affected would be out of agricultural production in any one year. Based on the relatively small proportion of affected agriculture lands, Alternative 3 is not expected to result in any substantial displacement of agricultural workers, associated loss in employment income and tax revenues, or other loss of revenues. The economic and socioeconomic effects of Alternative 3 upon Important Farmlands are less than significant.

Alternative 4

Alternative 4 would result in less impact than under Alternative 1 because it would involve a smaller reservoir expansion and construction of fewer facilities including no pipeline construction. There would be no Important Farmland temporarily affected or permanently converted under Alternative 4. Based on no impacts to Important Farmland, Alternative 4 is not expected to result in displacement of agricultural workers, associated loss in employment income and

tax revenues, or other loss of revenues. The economic and socioeconomic effects of Alternative 4 upon Important Farmland are less than significant.

Mitigation: None required.

Impact 4.17.3: Short-term loss of recreation income associated with project construction could affect Contra Costa County's economy. (Less than Significant)

Alternative 1

Under Alternative 1, recreational use of Los Vaqueros Reservoir and its watershed would be precluded for a 6 to 12 month period to drain the reservoir and then about 4 years to allow for construction of the dam expansion and refilling the expanded reservoir. The most recent visitor data, attendance by month over a 6-year period (July 2001 through June 2008), indicates that annual attendance ranges by year from 28,966 (during the 12-month period ending June 30th 2002) to 18,129 (ending June 30th 2006) with most visitors to the watershed during the spring (March to May) and autumn (September and October). During a recent 12-month period (ending June 30th, 2008), total visitation at Los Vaqueros was 23,717.

Based on the daily fishing access pass permits sold during 2007-08 financial year, the total number of user days by anglers fishing at the reservoir were estimated to be 20,237 (85% of visitors). With approximately 85 percent of current visitor use for fishing or boating, annual hiking and other non-reservoir uses (e.g. picnicking) lake would be an estimated 15 percent or about 3,480 visitors (Mueller, 2008).

According to the analysis in Section 4.15, Recreation, most fishing use at the reservoir is expected to be temporarily displaced from the county to other locations such as Lake Del Valle, San Francisco Bay, the Bay-Delta, the San Joaquin River, and other water bodies. Hiking would be displaced to the numerous East Bay Regional Park District parks (many located within Contra Costa County), Mt. Diablo State Park, and other local parks. Given that the proportion of non-resident users is high, and that comparable alternative water recreation locations within the county are limited, it is conservatively assumed that up to 90 percent of the spending by the displaced recreational visitors could occur outside of Contra Costa County's economy during project construction.

There are few recreational analyses estimating the average daily spending locally by recreational users. However, spending by hikers is generally recognized to be very limited. The most comparable analysis of the recreational user spending in the region was performed as part of a comprehensive economic impact study performed by Economic Planning Systems for the neighboring East Bay Regional Park District in 2000. The economic analysis estimated that typical local spending by park users was about \$6 per visit (in 2008 dollars) (EPS, 2000). This would suggest that the approximately 3,480 non-fishing visitors (primarily hikers) at Los Vaqueros would generate about \$20,880 in local spending.

The past permit sales and boat rental revenues indicate recreational boating activity and spending at the reservoir since all anglers must purchase permits and only electric watercraft rented from the Los Vaqueros Reservoir's marina operations are permitted to be used on the reservoir. In 2008, an estimated total of 20,237 anglers spent nearly \$75,900 on fishing access fees at Los Vaqueros (Mueller, 2008). In addition, the 1,808 boat rentals at the reservoir generated \$77,400 in sales during the 2007-08 financial year. Total sales revenues at the reservoir (including nearly \$138,000 in additional revenues from parking and retail sales) were about \$291,000. Combined with the estimated local spending by non-fishing visitors to Los Vaqueros, the total local spending directly associated with Los Vaqueros recreationists can be estimated to be up to \$311,900⁷.

Using the conservative assumption that up to 90 percent of the reservoir's current recreational use could be displaced out of the county economy temporarily during project construction, then about \$280,700 of annual recreational spending would be lost by the Contra Costa economy. However, as a proportion of the county's total annual income of about \$26,775 million by its Trade and Services sectors (and given the concurrent benefits of the construction-related income), the loss of \$280,700 in recreation-related spending (approximately a 0.001 percent decrease) would represent a less-than-significant impact on the county's economy. Therefore, the impact on the economy from the temporary lost recreation use under Alternative 1 would be less than significant.

Alternative 2

Because the facilities construction would be the same under Alternative 2 as Alternative 1, Alternative 2 impacts are the same impacts as Alternative 1. Therefore, the impact on the economy from the temporary lost recreation use under Alternative 2 would be less than significant.

Alternative 3

Recreation-related socioeconomic impacts under Alternative 3 would be the same as under Alternative 1 because Alternative 3 would involve the same level of reservoir expansion to 275 TAF and would include the same level of replacement and enhancement of recreation facilities within the Los Vaqueros Watershed as Alternative 1, and for the same duration. Therefore, the impact on the economy from the temporary lost recreation use under Alternative 3 would be less than significant.

Alternative 4

Recreation-related socioeconomic impacts under Alternative 4 would be less than under Alternative 1 because Alternative 4 would involve reservoir expansion to only 160 TAF, resulting in shorter construction duration of about 2 years. Alternative 4 would not include a marina complex or interpretive center, however it would include replacement of existing recreation facilities within the Los Vaqueros Watershed, with an overall smaller effect on recreation and the

⁷ The EPS estimates presumably represent conservative visitor spending projections. Consequently, for estimating total local spending by Los Vaqueros visitors, the EPS spending estimate has been added to the actual total Los Vaqueros sales (even though some hiker's sales will have likely been made at the Reservoir).

county's economy than Alternative 1. Therefore, the impact on the economy from the temporary lost recreation use under Alternative 4 would be less than significant.

Mitigation: None required.

Impact 4.17.4: Construction of the project alternatives, when combined with construction of other future projects, could have a potentially beneficial effect on income and local employment. (Beneficial Impact)

All Alternatives

Impact 4.17.1 identifies a temporary increase in income and local employment resulting from the location of the project facilities and construction of the project alternatives. This represents an incremental cumulative contribution to local and regional incomes and employment. Public works and land development projects identified in Section 4.1.3 Cumulative Impacts Analysis, and Appendix I, Projects Considered for Cumulative Analysis of Land-side Resources and Issue Areas, indicate that there could be other construction underway during part or all of the 3-year Los Vaqueros Reservoir Expansion project construction period. Large public works projects, such as construction of the Altamont Water Treatment Plant in Alameda County and Vasco Road Improvements in Contra Costa County plus land development projects such as Mountain House (San Joaquin County), Cecchini Ranch and other Discovery Bay residential developments could result in construction expenditure effects to local or regional residents and businesses, which would then similarly affect local and regional employment and income conditions. The location of the project facilities and construction of the project alternatives, in combination with construction of other future development, would be considered a cumulative beneficial impact. While this effect is relatively minor within the context of County income and employment, it is considered to be beneficial.

Mitigation: None required.

Impact 4.17.5: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary loss of agricultural land uses. (Less than Significant for Alternatives 3 or 4; Significant and Unavoidable for Alternatives 1 or 2)

Alternative 1

Impact 4.17.2 indicates that the socioeconomic impacts associated with temporary loss of agricultural land use resulting from construction activities would be less than significant. Due to the small area affected by these impacts and the temporary nature of the construction activities, these impacts were determined to be negligible in relation to the overall regional economy. However, in Section 4.8, the agricultural analysis determined that the project would have significant

cumulative impact on the region's agricultural resources because the project would result in the permanent reduction of Important Farmland (Impact 4.8.4).

With or without the project, the trend of land conversion from agricultural uses to urban and other non-agricultural uses (e.g., wildlife habitat enhancement) in the Central Valley would continue. It is likely that other future projects, such as expansion of Discovery Bay into the Cecchini Ranch property that would require large tracts of land, would convert agricultural lands to non-agricultural uses; these lands may or may not be designated Prime Farmland, Unique Farmland, and Farmland of Statewide Importance and may or may not be under Williamson Act contracts.

As a number of the proposed projects listed in Appendix I, "Local Development Projects Considered in Cumulative Impact Analyses," are not yet in the environmental planning stage, the acreage of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance that could be converted by these projects is not known. However, in general, the acreage of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Contra Costa County and, to a lesser degree, in Alameda County, is expected to decline. The proposed project would contribute incrementally to this decline. Therefore, the incremental contribution of farmland conversion associated with the proposed project would be a cumulatively considerable contribution to an existing significant cumulative impact. This impact would therefore be significant and unavoidable.

Alternative 2

Under Alternative 2, which would construct the same facilities as Alternative 1, the project would result in a significant and unavoidable cumulative impact with respect to the cumulative conversion of Farmland of Statewide Importance to non-agricultural use, even with implementation of mitigation Measure 4.8.2a and 4.8.2b. The incremental contribution of farmland conversion associated with the proposed project would be a cumulatively considerable contribution to an existing significant cumulative impact. Under Alternative 2, this impact would therefore be significant and unavoidable.

Alternative 3

Under Alternative 3, no Important Farmland would be permanently impacted because this Alternative does not involve construction of the new Delta Intake and Pump Station or the Transfer-Bethany Pipeline. Impacts under Alternative 3 would not be cumulatively considerable, and therefore the level of significance would be less than significant.

Alternative 4

Under Alternative 4, no Important Farmland would be permanently impacted because this Alternative does not involve construction of the new Delta Intake and Pump Station or new water conveyance pipelines through agricultural areas. Furthermore, Alternative 4 would not involve construction of Power Supply facilities. Impacts under Alternative 4 would not be cumulatively considerable, and therefore the level of significance related to cumulative impacts would be less than significant.

Mitigation Measure

Implementation of Agricultural Resources Mitigation Measures 4.8.1 and 4.8.2 (a and b) would minimize potential impacts under Alternatives 1 and 2; however, those measures would not reduce cumulative impacts to less than significant levels. The level of significance after mitigation would be a significant and avoidable cumulative impact.

Impact Significance after Mitigation: Significant and Unavoidable for Alternatives 1 or 2; Less than Significant for Alternatives 3 and 4.

Impact 4.17.6: Construction of the project alternatives, when combined with construction of other future projects, could have a potential cumulative effect on Contra Costa County's economy as a result of temporary recreational impacts. (Less than Significant)

All Alternatives

As described in Section 4.15, "Recreation," the project-related temporary loss of recreational opportunities and subsequent relocation of Los Vaqueros recreational facilities would result in a less than significant cumulative impact on recreational facilities and use. The project's recreational impacts are also projected to be temporary with no long term change to the area's recreational facilities and uses. Given the less than significant cumulative impact on recreation resources, there would correspondingly be a less than significant related cumulative impact on the region's economy from the project. The recreational-related economic sector is only a minor component of the area's economy, so a very large change in that sector would need to occur to be sufficient in magnitude to result in a significant economic impact on the economy as a whole. The recreational analysis concludes that no other development projects that would affect recreation at Los Vaqueros or other state and regional parks in the area. Therefore, no corresponding economic changes would be expected associated with the recreational use at these other parks.

As a result, the cumulative economic impacts from project-related construction and relocation of the recreation facilities are determined to be less than significant.

Mitigation: None required.
