

CALFED
BAY-DELTA
PROGRAM

Affected Environment and Environmental Impacts

Transportation

Draft Technical Report
September 1997

CALFED/699

AFFECTED ENVIRONMENT TRAFFIC, RAILWAYS AND SHIPPING ROUTES

1.0	SUMMARY	1
2.0	INTRODUCTION	2
3.0	SOURCES OF INFORMATION	3
4.0	ENVIRONMENTAL SETTING	3
4.1	STUDY AREA	3
4.2	DELTA REGION	3
	4.2.1 Freeways and Major Highways	3
	4.2.2 Railways	4
	4.2.3 Commercial Shipping Routes	4
4.3	BAY REGION	4
	4.3.1 Freeways and Major Highways	4
	4.3.2 Railways	4
	4.3.3 Commercial Shipping Routes	4
4.4	SACRAMENTO RIVER REGION	5
	4.4.1 Freeways and Major Highways	5
	4.4.2 Railways	5
	4.4.3 Commercial Shipping Routes	5
4.5	SAN JOAQUIN RIVER REGION	5
	4.5.1 Freeways and Major Highways	5
	4.5.2 Railways	5
	4.5.3 Commercial Shipping Routes	5
4.6	SWP AND CVP SERVICE AREAS OUTSIDE CENTRAL VALLEY	6
	4.6.1 Freeways and Major Highways	6
	4.6.2 Railways	6
	4.6.3 Commercial Shipping Routes	6
5.0	REFERENCES	7

1.0 SUMMARY

Existing highways, railways, and shipping routes in the Delta, San Francisco Bay Area, Sacramento Valley, San Joaquin Valley, and south coast region of California were described to characterize the existing transportation conditions of the CALFED study area. The larger, more populated cities in these areas have a more intricate network of highways and railways, with routes connecting the major cities of the state. Shipping routes are concentrated in the San Francisco Bay and Delta, following the natural waterways, with ports located at various cities on the shores of the Bay and Delta. Additional ports are located at other major southern California coastal cities (e.g., Santa Barbara, Long Beach, San Diego). The highway and freeway network around the major cities has grown over the last few decades, and is expected to continue to grow with population growth in those areas. The railway network is not likely to change significantly in the future, and shipping routes are likely to remain unchanged due to the geographical constraints of such transportation.

2.0 INTRODUCTION

The purpose of this report is to describe the affected environment for traffic, railways, and commercial shipping routes in the project study area in support of the continuing CALFED Bay-Delta Program (CALFED) planning efforts and environmental documentation process. This is one in a series of preliminary reports that will be used with other information to develop the CALFED Programmatic Environmental Impact Report/Environmental Impact Statement (EIR/EIS). This document is consistent with the goals of CALFED, the California Environmental Quality Act (CEQA), and the National Environmental Policy Act (NEPA) and reflects a level of detail appropriate for a programmatic approach to environmental review. The results of this evaluation are summarized in the EIR/EIS.

3.0 SOURCES OF INFORMATION

Sources of information used for the environmental setting and impacts include the Volumes on California State Highways (Caltrans 1994), which was used to describe the freeways and major highways in each of the study areas, the Atlas of California (Donley et. al. 1979), which was used for information on commercial ports and rail lines, and working tables for the Ecosystem Restoration Program Plan, Programmatic Actions, and Storage and Conveyance Alternatives (CH2M Hill 1997), which were used for information on potential impacts to transportation under each alternative and program action.

4.0 ENVIRONMENTAL SETTING

4.1 Study Area

The affected environment, and impact assessment, covers five geographic regions including: the Delta Region, Bay Region (North San Pablo Bay and Suisun Marsh), Sacramento River Region, San Joaquin River Region, and the Central Valley Project (CVP) and the State Water Project (SWP) Service Areas outside the Central Valley. This study area corresponds to that described for the Ecosystem Restoration Program Plan (ERPP) developed by CALFED as one of the four common programs.

The level of detail provided is greatest for the Delta region and less for other regions. For all regions, the discussion of transportation systems focuses on the major facilities only, such as freeways and interstates, major ports, and regional and interstate railways.

4.2 DELTA REGION

4.2.1 Freeways and Major Highways

The major access-controlled freeways that run north-south through the Delta Region are Interstate 5 and Interstate 99. Interstate 80, another access-controlled freeway, runs east-west through Sacramento, and U.S. 50 also runs eastward from Sacramento. Other minor, full-access highways run from Sacramento and Stockton to other small cities and towns in the Delta Region.

4.2.2 Railways

The major railways in California are Southern Pacific, Union Pacific, Western Pacific, and Atchison, Topeka and Santa Fe. Southern Pacific operates the most comprehensive system, with lines that span the state from north to south mainly along the Central Valley and Coast south of San Francisco.

The Delta Region is serviced by the Southern Pacific, Western Pacific, and Atchison, Topeka and Santa Fe lines. These lines run from Sacramento to Stockton, and the Southern Pacific line runs from these major cities to other smaller cities in the Delta Region.

4.2.3 Commercial Shipping Routes

Commercial shipping routes originate at the Golden Gate and traverse the San Francisco Bay, San Pablo Bay, Suisun Bay, and Delta waterways, where the destinations are commercial and industrial ports. In the Delta Region, commercial and industrial ports are situated along rivers in the Delta. Two ports are located along the Sacramento River between Sacramento and Walnut Grove. Another commercial port is located at Isleton, also along the Sacramento River. An additional commercial port is located near Terminous, on the Little Potato Slough, and two ports are located adjacent to one another, on the Old River and Middle River, northeast of Brentwood. Finally, a commercial port is located in Stockton, the Port of Stockton, on the San Joaquin River.

4.3 BAY REGION

4.3.1 Freeways and Major Highways

The Bay Region is served by numerous access-controlled interstate and U.S. freeways. On the west side of the San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstate 880 and 680 run north-south on the east side of the Bay, and Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. State Routes 92 and 84, both full-access highways in certain parts of the region, become access-controlled freeways that run east-west and cross the Bay. Interstate 580 starts in San Leandro on the east side of the Bay and runs eastward toward Livermore.

4.3.2 Railways

Southern Pacific is the predominant rail line in the Bay Region, with minor spurs of Western Pacific and Atchison, Topeka and Santa Fe.

4.3.3 Commercial Shipping Routes

Commercial shipping routes originate at the Golden Gate and traverse the San Francisco Bay, San Pablo Bay, and Suisun Bay, where the destinations are commercial and industrial ports. Numerous commercial ports are located along the northeastern and eastern bayshore of San Francisco, and are also located at Treasure Island and Yerba Buena Island. In addition, shipping routes

go southward into San Francisco Bay, where there are commercial ports along the peninsula in South San Francisco and San Carlos. On the east side of San Francisco Bay, commercial ports are located in Alameda and Oakland. Shipping routes that go north into the San Pablo Bay have ports at San Rafael and along the bayshore of Richmond, San Pablo, Hercules, Rodeo, Vallejo, and Mare Island. The shipping route continues through the Carquinez Strait and into Suisun Bay, with ports at Crockett, Martinez, Port Chicago, Pittsburg, and Antioch.

4.4 SACRAMENTO RIVER REGION

4.4.1 Freeways and Major Highways

State Route 45 follows the Sacramento River north from Sacramento. This is a full-access highway. Interstate 5, which is an access-controlled freeway, parallels State Route 45 and the Sacramento River, to the west and passes through Redding. State Routes 99 and 70, which are both full-access freeways on a portion of the route and limited-access expressways on other portions of the route, also run north-south from Sacramento northward toward Chico.

4.4.2 Railways

Southern Pacific is the main line serving this area, roughly following the Interstate 5 route. Western Pacific also has lines in this area, traveling farther east through Marysville and Oroville.

4.4.3 Commercial Shipping Routes

A deep water ship channel runs from the Cache Slough in the Delta Region to Sacramento, where the Port of Sacramento port is located.

4.5 SAN JOAQUIN RIVER REGION

4.5.1 Freeways and Major Highways

Interstates 5 and 99 and the two major access-controlled freeways that run north-south from Stockton through the Central Valley to Bakersfield. Other minor full-access highways connect smaller cities and towns in the Central Valley with the two interstate freeways, and State Route 152, which is mostly a limited-access expressway, runs east-west, connecting Los Banos and Chowchilla.

4.5.2 Railways

This area is served mainly by Southern Pacific and Atchison, Topeka and Santa Fe lines, which roughly follow the route of Interstate 5 through the San Joaquin Valley.

4.5.3 Commercial Shipping Routes

There are no commercial ports or shipping routes located in this region.

4.6 SWP AND CVP SERVICE AREAS OUTSIDE CENTRAL VALLEY

4.6.1 Freeways and Major Highways

This service area is located mainly in the western portion of southern California, below the Central Valley boundary, and including San Luis Obispo County. This area is served by numerous full-access highways and limited-access expressways. U.S. 101 travels north and south near the coast from San Luis Obispo south to Los Angeles, and Interstate 5 travels north and south from the Central Valley through Los Angeles to San Diego. The Los Angeles area is served by a very extensive and intricate freeway system. Interstates 15, 10 and 8 runs east from Los Angeles toward Arizona.

4.6.2 Railways

The mountainous area east of the Sacramento Valley is served mainly by the Western Pacific line, with a Southern Pacific line traveling through the northeast plateau of the state, through Alturas. The Southern Pacific line also runs north and south near the coast, from the Bay Area, through Los Angeles, then southeast toward the Arizona/Mexico border. A small spur of the Burlington Northern line runs south from Oregon and connects with the Western Pacific line at Beiber. There are no significant rail lines in the mountainous area east of the San Joaquin Valley; a minor spur of the Southern Pacific line runs from Mojave northeast to Lone Pine. Finally, the Atchison Topeka line runs

from the Central Valley southeast toward Arizona.

4.6.3 Commercial Shipping Routes

There are several harbors along the coast from San Luis Obispo to San Diego that serve commercial shipping. These harbors are located at San Luis Obispo, Santa Barbara, Carpinteria, Port Hueneme, El Segundo, Redondo Beach, Los Angeles, Long Beach, and San Diego.

5.0 REFERENCES

Donley, Michael W., Stuart Allan, Patricia Caro, and Clyde P. Patton. 1979. Atlas of California.

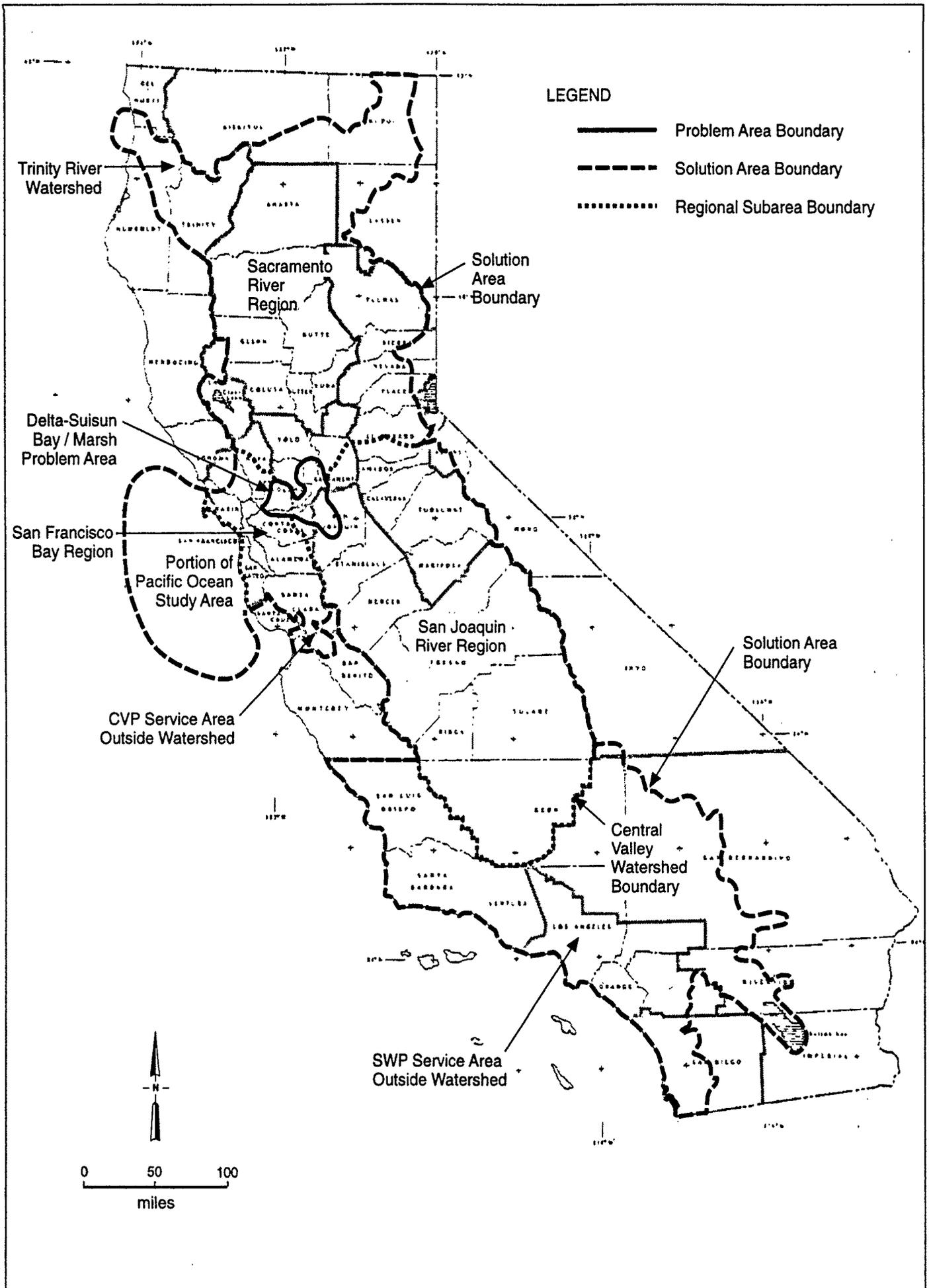
Caltrans. 1994. Traffic Volumes on California State Highways. State of California Business, Transportation, and Housing Agency, DOT, Division of Traffic Operations, Sacramento.

CH2M Hill 1997. Working Tables - Ecosystem Restoration Program Plan; Programmatic Actions; Storage and Conveyance Alternatives. May.

ENVIRONMENTAL IMPACTS/CONSEQUENCES

1.0	INTRODUCTION	1
2.0	SUMMARY OF OVERALL EFFECTS BY ALTERNATIVE	2
2.1	Summary of Potential Significant Impacts	2
2.2	Summary of Mitigation Measures	3
2.3	Summary of Potential Significant Unavoidable Impacts	3
3.0	ASSESSMENT METHODS	4
4.0	SIGNIFICANCE CRITERIA	4
5.0	ENVIRONMENTAL IMPACTS/CONSEQUENCES	5
5.1	NO ACTION ALTERNATIVE	5
5.1.1	Delta Region	5
5.1.2	Bay Region	5
5.1.3	Sacramento River Region	5
5.1.4	San Joaquin River Region	5
5.1.5	SWP and CVP Service Areas Outside Central Valley	6
5.2	DELTA REGION	6
5.2.1	Summary of Potential Significant Impacts	6
5.2.2	Summary of Mitigation Measures	7
5.2.3	Summary of Potential Significant Unavoidable Impacts	7
5.2.4	Direct and Construction Related Impacts	7
5.2.5	Indirect and Operational Impacts	8
5.3	BAY REGION	9
5.3.1	Summary of Potential Significant Impacts	9
5.3.2	Summary of Mitigation Measures	9
5.3.3	Summary of Potential Significant Unavoidable Impacts	9
5.3.4	Direct and Construction Related Impacts	9
5.3.5	Indirect and Operational Impacts	10
5.4	SACRAMENTO RIVER REGION	10
5.4.1	Summary of Potential Significant Impacts	10
5.4.2	Summary of Mitigation Measures	10
5.4.3	Summary of Potential Significant Unavoidable Impacts	11
5.4.4	Direct and Construction Related Impacts	11

5.4.5	Indirect and Operational Impacts	11
5.5	SAN JOAQUIN RIVER REGION	12
5.5.1	Summary of Potential Significant Impacts	12
5.5.2	Summary of Mitigation Measures	12
5.5.3	Summary of Potential Significant Unavoidable Impacts	12
5.5.4	Direct and Construction Related Impacts	12
5.5.5	Indirect and Operational Impacts	13
5.6	SWP AND CVP SERVICE AREAS OUTSIDE CENTRAL VALLEY	14
5.6.1	Summary of Potential Significant Impacts	14
5.6.2	Summary of Mitigation Measures	14
5.6.3	Summary of Potential Significant Unavoidable Impacts	14
5.6.4	Direct and Construction Related Impacts	14
5.6.5	Indirect and Operational Impacts	14



Project No. S9634	CALFED BAY-DELTA PROGRAM Environmental Impact/ Consequences Technical Report	CALFED STUDY AREA AND REGIONS	Figure 1-1
Woodward-Clyde			

S9634-6600/082297/wcc/graphics/mci

1.0 INTRODUCTION

This report presents the evaluation of impacts for traffic and transportation systems for the CALFED Bay-Delta Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The results of this evaluation are summarized in this report and in the EIR/EIS.

Following the summary of impacts presented in this technical appendix, the assessment methods and significance criteria used to evaluate impacts are discussed. These sections identify assessment tools, methods for impact assessment and the significance criteria used to satisfy California Environmental Quality Act (CEQA) guidelines for establishment of thresholds for impact significance.

The CALFED Bay-Delta Program has developed three comprehensive solution alternatives that meet the program goals. Each alternative is composed of a set of four common programs (ecosystem quality, water quality, levee system vulnerability, and water supply reliability), a relative constant within each alternative, and a set of features unique to each alternative variations. All of the features were developed independently of the alternatives to meet specific goals. Physical differences between the alternatives lie mainly in the method of transporting water through or around the Delta (conveyance), and the amount of additional water storage included in each alternative. Each of the three alternatives includes a variety of potential combinations, or variations of conveyance and storage consistent with the fundamental differences between the three concept constructs (i.e., Variations 1A-1C, 2A-2E, and 3A-3I). While the basic composition of the common programs remains relatively constant in each alternative, they may perform somewhat differently depending on the storage and conveyance components included within a specific alternative formulation. This programmatic approach results in descriptions of alternatives that include various levels of detail. In most cases the physical components are described in some detail while the locations are described in more general terms. Because the specific location for most of the alternative features is not known, a site-specific impact analysis cannot be made.

The impact assessment begins with a description of the No Action Alternative. Then, impacts from each of the three alternatives is discussed. Each of these discussions is done separately for each of the geographic regions, e.g., Delta, that comprise the CALFED solution area (Figure 1-1). Under the analysis for each alternative, all four common programs are addressed as well as the storage and conveyance components that vary by alternative.

2.0 SUMMARY OF OVERALL EFFECTS BY ALTERNATIVE

2.1 Summary of Potential Significant Impacts

Table 2-1 summarizes impacts to transportation. In the Delta Region, activities under Alternatives II and III would involve construction of new bridges, relocations of some local roads, and relocation of Highways 4 and 160. During construction, traffic may be diverted to temporary detours while construction of the bridge or new location of the segment of highway is completed. Impacts to traffic would likely be minimal in this case if detour locations are convenient to the existing traffic demand. If the detours are significant during the construction period, some impact to traffic volumes could occur as a portion of the existing traffic would use another route altogether. Indirect and operational impacts to traffic could occur as a result of relocation of local roads and highways, particularly if any additional modifications (e.g. widening) are done that would attract or divert traffic from the route.

Additional activities under Alternatives II and III involve construction of a bridge for the Atchison Topeka Railroad. If construction of the bridge takes place on the current rail line, it could be necessary to divert the train traffic to a temporary detour line. This could potentially alter the route or schedule of these trains.

Under Alternatives I and II there would be no alterations or modifications to existing commercial shipping routes or commercial ports; thus, there would be no impact. Under Alternative III however, there could be potential impacts to commercial shipping traffic. The Sacramento River Deep Water Ship Channel Closure and Pumps feature under the Conveyance Facilities Program has a sub-component (Sub-Component 1) that includes closure of the Port of Sacramento. This feature, if actually implemented, would have an impact on commercial shipping traffic using the Port of Sacramento. These ships would either travel to another port in the Delta Region, or use a shipping port in another of the study regions.

In the Bay Region, no direct or indirect impacts to traffic would occur with any of the alternatives, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with any of the alternatives.

In the Sacramento River Region, each alternative would include several reservoir and lake storage enlargement projects in the Storage Facilities Program that would involve relocation of roads, bridges, railroad tracks, and residences that are near the reservoirs and lakes. This would cause both direct, construction-related and indirect, operational impacts to traffic in those areas. Refer to the Summary of Potential Impacts for the Delta Region for a discussion of the nature of such impacts.

In the San Joaquin River Region, reservoir and lake storage enlargement projects in each of the alternatives in the Storage Facilities Program would involve relocation of roads, bridges, railroad tracks, and residences that are near reservoirs and lakes. This would cause both direct, construction-related and indirect, operational impacts to traffic in those areas. Refer to the

**TABLE 2-1
TRANSPORTATION IMPACTS EXECUTIVE SUMMARY TABLE**

Region	Alternatives																	
	No Action	Alternative 1			Alternative 2					Alternative 3								
		1a	1b	1c	2a	2b	2c	2d	2e	3a	3b	3c	3d	3e	3f	3g	3h	3i
Delta	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
San Francisco Bay	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Sacramento River	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
San Joaquin River	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SWP-CVP Service Areas	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Summary of Potential Impacts for the Delta Region for a discussion of the nature of these impacts.

In the CVP and SWP service areas outside the Central Valley, no impacts to traffic would occur with any of the alternatives, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with any of the alternatives.

2.2 Summary of Mitigation Measures

In the Delta Region, potential direct and construction-related impacts to traffic from relocation and modifications to Highways 4 and 160 could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place. Potential impacts to railway traffic during construction of the Atchison Topeka Railroad bridge could be mitigated by allowing trains to use the existing track while the bridge is being built.

In the Bay Region, mitigation measures would not be required as there would be no significant impacts under any of the alternatives.

In the Sacramento River Region, potential direct and construction-related impacts to traffic from relocation of local roads could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place. Potential impacts to railway traffic during construction of the Southern Pacific Railroad bridge could be mitigated by allowing trains to use the existing track while the bridge is being built.

In the San Joaquin River Region, potential direct and construction-related impacts to traffic from relocation of local roads could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place.

For the Delta, Sacramento River, and San Joaquin Regions, where there could be indirect and operational traffic and railway impacts, there would not likely be any mitigation for impacts associated with the relocation of roads or rail lines.

In the CVP and SWP service areas outside the Central Valley, mitigation measures would not be required as there would be no significant impacts under any of the alternatives.

2.3 Summary of Potential Significant Unavoidable Impacts

For each region where roads, highways, or rail lines would be relocated or modified, potential significant unavoidable impacts to traffic flow and patterns, and train schedules and routes could occur with the modifications that would be made to local roads and highways.

In the Bay Region and CVP and SWP service areas outside the Central Valley, there would be no significant unavoidable impacts under any of the alternatives.

3.0 ASSESSMENT METHODS

Background information on freeways, major highways, rail lines, and commercial shipping routes and ports was gathered to characterize existing conditions. Features of each of the Program Actions were reviewed to evaluate whether or not there would be any modifications or relocations of roads, rail lines, or shipping routes. If any feature involved a change to existing conditions, it was considered to be an impact.

4.0 SIGNIFICANCE CRITERIA

Significance of impacts was based primarily on activities that would change the way existing traffic behaves or change the volume of traffic using an existing route. As such, significance criteria are summarized as follows:

- * Changes to traffic flows or patterns
- * Attraction to or diversion from an existing route of substantial traffic volumes

5.0 ENVIRONMENTAL IMPACTS / CONSEQUENCES

This section describes the impacts to transportation systems by region. Tables 5-1 through 5-5 list these impacts by region and by alternative.

5.1 NO ACTION ALTERNATIVE

5.1.1 Delta Region

Without the proposed project, existing trends in traffic patterns in this region are expected to continue. This area has experienced considerable growth over the last several years, as people seeking affordable housing move to the area. Many of these people work in the Bay Area, and traffic on the major freeways and highways has increased. This has direct impacts to traffic in the region, but there is not sufficient information to evaluate the significance of such impacts.

It is unlikely there would be any major changes to the existing railway system and existing commercial shipping routes without the proposed project. Under the no action alternative, no impacts would be anticipated.

5.1.2 Bay Region

The Bay Region is one of the most populated regions in the study area, and there are numerous freeways and highways serving the Bay Region's traffic demands. Growth in the area is continuing and so is the traffic demand for the existing roadway system. Without the proposed project, there would likely be continued increasing traffic volumes on the existing roadways,

even though use of public transit is encouraged, and this would result in an impact to traffic. There is insufficient information at this time to evaluate the significance of these impacts. Impacts to railways and commercial shipping routes would be the same as those discussed for the Delta Region.

5.1.3 Sacramento River Region

Traffic in the Sacramento Metropolitan Area is heavily congested, and the area is expected to continue to experience growth, resulting in continued impacts to traffic. North of the Sacramento urbanized area, however, the major freeways and highways are not heavily congested, and it is unlikely that there would be impacts to traffic in the future, as this area is not one of heavy growth. Impacts to railways and commercial shipping routes under the No Action alternative would be the same as those discussed for the Delta Region.

5.1.4 San Joaquin River Region

Areas of the Central Valley that are near urban centers experience fairly heavy traffic congestion. Growth near these urban centers (e.g., Stockton, Fresno, Bakersfield) is expected to continue, which would further increase impacts to the already congested traffic. The significance of this impact cannot be evaluated at this time because there is insufficient information to perform any kind of quantitative analysis. Impacts to railways and commercial shipping routes under the No Action alternative would be the same as those discussed for the Delta Region.

TABLE 5-1

**SUMMARY OF POTENTIAL IMPACTS, COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
ECOSYSTEM RESTORATION**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	x ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-1
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
WATER QUALITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	x ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-1
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
WATER USE EFFICIENCY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-1
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
LEVEE SYSTEM INTEGRITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003372

TABLE 5-1
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
CONVEYANCE FACILITIES

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Railways					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Shipping Routes										X	X	X	X	X	X	X	X	X
Operational Changes to Existing Roads and Highways	X ^a				X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Railways					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Shipping Routes										X	X	X	X	X	X	X	X	X

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-1
(concluded)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
DELTA REGION
STORAGE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways					X	X	X	X	X									
Construction-Related Changes to Railways					X	X	X	X	X									
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a				X	X	X	X	X									
Operational Changes to Railways					X	X	X	X	X									
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-2

SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION

ECOSYSTEM RESTORATION

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-2
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION
WATER QUALITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	x*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003376

**TABLE 5-2
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION
WATER USE EFFICIENCY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-2
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION
LEVEE SYSTEM INTEGRITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-2
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION
CONVEYANCE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-2
(concluded)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN FRANCISCO BAY REGION
STORAGE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-3

**SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
ECOSYSTEM RESTORATION**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-3
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
WATER QUALITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003382

**TABLE 5-3
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
WATER USE EFFICIENCY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-3
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
LEVEE SYSTEM INTEGRITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-3
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
CONVEYANCE FACILITIES

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-3
(concluded)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SACRAMENTO RIVER REGION
STORAGE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-4

**SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
ECOSYSTEM RESTORATION**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-4
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
WATER QUALITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-4
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
WATER USE EFFICIENCY PROGRAM

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-4
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
LEVEE SYSTEM INTEGRITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003390

**TABLE 5-4
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
CONVEYANCE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways																		
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-4
(concluded)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SAN JOAQUIN RIVER REGION
STORAGE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Railways		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

TABLE 5-5

**SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
ECOSYSTEM RESTORATION**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-5
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
WATER QUALITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003394

**TABLE 5-5
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
WATER USE EFFICIENCY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

C-003395

**TABLE 5-5
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
LEVEE SYSTEM INTEGRITY PROGRAM**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-5
(continued)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
CONVEYANCE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	X ^a																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

^a An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

**TABLE 5-5
(concluded)
SUMMARY OF POTENTIAL IMPACTS COMPARED TO THE NO ACTION ALTERNATIVE
SWP AND CVP SERVICE AREA OUTSIDE THE CENTRAL VALLEY
STORAGE FACILITIES**

EMISSIONS	NO ACTION ALTERNATIVE	Alternative 1			Alternative 2					Alternative 3								
		A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Construction-Related Changes to Existing Roads and Highways																		
Construction-Related Changes to Railways																		
Construction-Related Changes to Shipping Routes																		
Operational Changes to Existing Roads and Highways	x*																	
Operational Changes to Railways																		
Operational Changes to Shipping Routes																		

* An "x" indicates that there could be a change to the resource under the specific alternative. For the No Action alternative, an "x" indicates that the transportation system will be affected in the future by growth or other changes not related to the CALFED program.

5.1.5 SWP and CVP Service Areas Outside Central Valley

This area includes Ventura, Los Angeles, Orange, and San Diego Counties, which are some of the most populated regions in the study area. There are numerous freeways and highways serving these counties. Growth in the area is continuing and so is the traffic demand for the existing roadway system. Without the proposed project, there would likely be continued increasing traffic volumes on the existing roadways, even though use of public transit is encouraged, and this would result in an impact to traffic. There is insufficient information at this time to evaluate the significance of these impacts. Impacts to railways and commercial shipping routes would be the same as those discussed for the Delta Region. Impacts to railways under the No Action alternative would be the same as those discussed for the Delta Region. There would be no impact to commercial shipping routes, as there are none in this region.

5.2 DELTA REGION

5.2.1 Summary of Potential Significant Impacts

Activities under Alternatives II and III, Conveyance Facilities program, would involve construction of new bridges, relocations of some local roads, and relocation of Highways 4 and 160. During construction, traffic may be diverted to temporary detours while construction of the bridge or new location of the segment of highway is completed. Impacts to traffic would likely be minimal in this case if detour locations are convenient to the existing traffic demand. If the detours are significant during the construction period,

some impact to traffic volumes could occur as a portion of the existing traffic would use another route altogether.

Additional activities under this alternative involve construction of a bridge for the Atchison Topeka Railroad. If construction of the bridge takes place on the current rail line, it could be necessary to divert the train traffic to a temporary detour line. This could potentially alter the route or schedule of these trains.

Under Alternatives I and II there would be no alterations or modifications to existing commercial shipping routes or commercial ports; thus, there would be no impact. Under Alternative III however, there could be potential impacts to commercial shipping traffic. The Sacramento River Deep Water Ship Channel Closure and Pumps feature under the Conveyance Facilities Program has a sub-component (Sub-Component 1) that includes closure of the Port of Sacramento. This feature, if actually implemented, would have an impact on commercial shipping traffic using the Port of Sacramento. These ships would either travel to another port in the Delta Region, or use a shipping port in another of the study regions.

Potential indirect and operational impacts could occur under Alternatives I and II, which involve modifications to Highways 4 and 160. There could be the potential for improvements to (e.g., widening) or rerouting of these roads during construction associated with the proposed project. This could potentially attract more traffic to or divert traffic from the route, and there may be environmental impacts associated with such activities.

Once construction of the Atchison Topeka Railroad bridge is complete, trains would

be able to use the bridge as part of the regular route, there would be no long-term impacts to the operation of this railroad line.

Each of the activities that are associated with impacts to traffic, railways, and shipping routes were obtained from a table that summarizes the programmatic actions for each region for the Ecosystem Restoration Program Plan and Storage and Conveyance Alternatives.

5.2.2 Summary of Mitigation Measures

Potential direct and construction-related impacts to traffic from relocation and modifications to Highways 4 and 160 could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place. Potential impacts to railway traffic during construction of the Atchison Topeka Railroad bridge could be mitigated by allowing trains to use the existing track while the bridge is being built.

5.2.3 Summary of Potential Significant Unavoidable Impacts

Potential significant unavoidable impacts to traffic flow and patterns could occur with the modifications that would be made to local roads and Highways 4 and 160. Examples of such modifications would be improvements or widening that could attract additional traffic.

5.2.4 Direct and Construction Related Impacts

Alternative I

Ecosystem Restoration Program

No impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as those for Alternative I.

Storage Facilities

This feature could involve relocation of some roads, bridges, residences, and railroad tracks near reservoirs and lakes where modifications may occur. These activities would have an impact on traffic

in the area that would have to detour while construction is taking place.

Conveyance Facilities

This feature could involve the relocation of several miles of local roads, relocation of highways, and construction of new bridges. These activities would cause an impact to traffic that would have to detour during construction/relocation.

Under this alternative there would be no alterations or modifications to existing commercial shipping routes or commercial ports; thus, there would be no impact.

Alternative III

Potential impacts under all common programs are the same as for Alternatives I and II.

Conveyance Facilities

5,000 cfs Screened Deep Water Ship Channel and West Delta Tunnel: There could be potential impacts to commercial shipping traffic under this alternative. This feature has a sub-component (Sub-Component 1) that includes closure of the Port of Sacramento. If this feature were to be implemented, it would have an impact on commercial shipping traffic using the Port of Sacramento. These ships would either travel to another port in the Delta Region, or use a shipping port in another of the study regions.

5.2.5 Indirect and Operational Impacts

Alternative I

Ecosystem Restoration Program

No indirect or operational impacts to traffic would occur with this alternative, as there would be no modifications to any freeways

or major highways that would alter traffic flow or traffic patterns. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternatives I and II.

Impacts to commercial shipping would be the same as those discussed for Alternative III, Direct and Construction-Related

Impacts, except here the operational impacts would continue past the construction period.

5.3 BAY REGION

5.3.1 Summary of Potential Significant Impacts

No direct or construction-related impacts to traffic would occur with any of the alternatives, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with any of the alternatives.

No indirect or operational impacts to traffic would occur with any of the alternatives, as there would be no modifications to any freeways or major highways that would alter traffic flow or traffic patterns. There would also be no indirect or operational impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with any of the alternatives.

5.3.2 Summary of Mitigation Measures

Mitigation measures would not be required as there would be no significant impacts under any of the alternatives.

5.3.3 Summary of Potential Significant Unavoidable Impacts

There would be no significant unavoidable impacts under any of the alternatives.

5.3.4 Direct and Construction Related Impacts

Alternative I

Ecosystem Restoration Program

No impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.3.5 Indirect and Operational Impacts

Alternative I

Ecosystem Restoration Program

No indirect or operational impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways that would alter traffic flow or traffic patterns. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.4 SACRAMENTO RIVER REGION

5.4.1 Summary of Potential Significant Impacts

Several potential reservoir and lake storage enlargement projects in the Storage Facilities Program could involve relocation of roads, bridges, railroad tracks, and residences that are near reservoirs and lakes. Examples of storage enlargement projects that could take place include the Sites/Colusa Reservoir Project, Cottonwood Creek Reservoir Complex, Lake Berryessa Enlargement, and Shasta Lake Enlargement, Thomes-Newville Reservoir, and Red Bank Project. This would cause both direct, construction-related and indirect, operational impacts to traffic in those areas. Refer to the Summary of Potential Impacts for the Delta Region for a discussion of the nature of such impacts.

5.4.2 Summary of Mitigation Measures

Potential direct and construction-related impacts to traffic from relocation of local roads could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place. Potential impacts to railway traffic during construction of the Southern Pacific

Railroad bridge could be mitigated by allowing trains to use the existing track while the bridge is being built.

5.4.3 Summary of Potential Significant Unavoidable Impacts

There could potentially be significant unavoidable impacts associated with the storage facilities enhancement features, but there is insufficient information at this time to evaluate the significance of those impacts.

5.4.4 Direct and Construction Related Impacts

Alternative I

Ecosystem Restoration Program

No impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

This feature could involve relocation of some roads near the reservoir, and there would be an impact to local traffic. Under this alternative there would be no alterations or modifications to existing commercial shipping routes or commercial ports; thus, there would be no impact.

Conveyance Facilities

An unknown distance of roads could require relocation with implementation of some of the conveyance facilities projects. This would cause an impact to local traffic.

Under this alternative there would be no alterations or modifications to existing commercial shipping routes or commercial ports; thus, there would be no impact.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.4.5 Indirect and Operational Impacts

Alternative I

Ecosystem Restoration Program

No indirect or operational impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways that would alter traffic flow or traffic patterns. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

The residential, road, freeway, and railroad track relocations discussed under the Direct and Construction-Related Impacts section would also cause long-term, indirect, and operational impacts.

Conveyance Facilities

Impacts under this program would be the same as those under the Storage Facilities Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.5 SAN JOAQUIN RIVER REGION

5.5.1 Summary of Potential Significant Impacts

Reservoir and lake storage enlargement projects in the Storage Facilities Program

(for example, the Montgomery Reservoir Project and the Millerton Lake Enlargement) could involve relocation of roads, bridges, railroad tracks, and residences that are near the reservoirs and lakes. This would cause both direct, construction-related and indirect, operational impacts to traffic in those areas. Refer to the Summary of Potential Impacts for the Delta Region for a discussion of the nature of these impacts.

5.5.2 Summary of Mitigation Measures

Potential direct and construction-related impacts to traffic from relocation of local roads could be mitigated by providing a convenient and parallel detour to those routes while construction is taking place.

5.5.3 Summary of Potential Significant Unavoidable Impacts

There could potentially be significant unavoidable impacts associated with the storage and conveyance facilities enhancement features.

5.5.4 Direct and Construction Related Impacts

Alternative I

Ecosystem Restoration Program

No impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Several roads could require relocation with implementation of some of the storage facilities projects. This would cause an impact to local traffic.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.5.5 Indirect and Operational Impacts

Alternative I

Ecosystem Restoration Program

No indirect or operational impacts to traffic would occur with this alternative, as there would be no modifications to any freeways

or major highways that would alter traffic flow or traffic patterns. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

The residential and road relocations discussed under the Direct and Construction-Related Impacts section would also cause long-term, indirect, and operational impacts. There is insufficient information at this time to evaluate the significance of such impacts.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.6 SWP AND CVP SERVICE AREAS OUTSIDE CENTRAL VALLEY

5.6.1 Summary of Potential Significant Impacts

No impacts to traffic would occur with any of the alternatives, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with any of the alternatives.

5.6.2 Summary of Mitigation Measures

Mitigation measures would not be required as there would be no significant impacts under any of the alternatives.

5.6.3 Summary of Potential Significant Unavoidable Impacts

There would be no significant unavoidable impacts under any of the alternatives.

5.6.4 Direct and Construction Related Impacts

Alternative I

Ecosystem Restoration Program

No impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways. There would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

5.6.5 Indirect and Operational Impacts

Alternative I

Ecosystem Restoration Program

No indirect or operational impacts to traffic would occur with this alternative, as there would be no modifications to any freeways or major highways that would alter traffic flow or traffic patterns. There

would also be no impacts to existing railways or commercial shipping routes, as no changes to either of these would occur with this alternative.

Water Quality Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Water Use Efficiency Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Levee System Integrity Program

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Storage Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Conveyance Facilities

Impacts under this program would be the same as those under the Ecosystem Restoration Program.

Alternative II

Potential impacts under all common programs are the same as for Alternative I.

Alternative III

Potential impacts under all common programs are the same as for Alternative I.

*Printed by
Department of Water Resources
Reprographics*

C - 0 0 3 4 0 9

C-003409