4.9 Transportation and Circulation

This section describes the existing transportation facilities in the project study area, including local and regional roadways, transit service, and bicycle routes as well as existing traffic conditions. This section focuses primarily on project construction effects, including potential impacts to (1) roadways that are adjacent to or within the construction corridor of various project facilities and could therefore be affected by construction, and (2) roadways that are potential routes that construction workers, materials delivery, and other equipment trucks could use to access construction sites. The effects on traffic circulation from project operation are also addressed.

4.9.1 Affected Environment

Regulatory Setting

Federal and State

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways in Contra Costa and Alameda Counties. Federal highway standards are implemented in California by Caltrans.

Local

Contra Costa County

The Contra Costa County General Plan (2005) contains goals and policies to inform agencies of the County-approved ways to maintain an efficient traffic circulation network. Such goals and policies discuss right-of-way requirements (Policy 5-5), emergency response efficiency (Policy 5-16), and roadway development (Policy 5-4). The general plan also outlines level of service (LOS) standards and routes of regional significance. For specific policies related to transportation and circulation in Contra Costa County, see Appendix E-2. The County has not designated local truck routes nor adopted specific policies regarding management of construction activities.

Alameda County

The Alameda County East County Area Plan (2002) contains goals and policies to inform agencies of the County-approved ways to maintain an efficient circulation network in the eastern portion of the county. Such goals include creating and maintaining a balanced multimodal transportation system (General Transportation Goal 1), cooperating with other regional transportation plans (Policy 178), integrating pedestrian use into the transportation system (Policy 212), and mitigating exceedances of LOS standards (Policy 193). The plan also discusses lane requirements for intercity arterials (Policy 193) and right-of-way requirements in the eastern portion of the county. For specific policies related to transportation and circulation in Alameda County, see Appendix E-1. Alameda County has not designated local truck routes nor adopted specific policies regarding management of construction activities.
Regional Setting

Figure 4.9-1 shows the regional roadway network consisting of state highways, regional freeways, and county roads. Figure 4.9-2 identifies the project facilities and the local and regional roadway network that could be affected by construction and operation of these facilities. Specific roadways are described below. Table 4.9-1 indicates the highways and roads that would or could be used for project construction traffic and those that would be affected by actual project construction activities (i.e., where construction activities are proposed in, adjacent to or across roads). Table 4.9-2 presents average daily traffic estimates for relevant regional roadways.

### TABLE 4.9-1
ROADWAYS USED AND/OR AFFECTED DURING PROJECT CONSTRUCTION

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Potential Construction Activity Travel Routes ¹</th>
<th>Roadways Affected by Project Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interstate Highway</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interstate 5</td>
<td>Yes – provides regional and statewide access to</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>the project region</td>
<td></td>
</tr>
<tr>
<td>Interstate 205</td>
<td>Yes – provides direct regional access to the</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>project area</td>
<td></td>
</tr>
<tr>
<td>Interstate 580</td>
<td>Yes – provides direct regional access to the</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>project area</td>
<td></td>
</tr>
<tr>
<td>Interstate 680</td>
<td>Possible – provides regional access to the</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>project region</td>
<td></td>
</tr>
<tr>
<td><strong>Regional Highway</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Route 4 and SR 4 Bypass</td>
<td>Yes – provide direct access to the project area</td>
<td>Yes – Delta Transfer Pipeline construction proposed adjacent to SR 4 between Old River and Bixler Rd. Possible new powerline construction proposed along SR 4 from just east of Bixler Rd to Bixler Rd.</td>
</tr>
<tr>
<td>Byron Highway</td>
<td>Yes – provides direct access to the project area from I-205</td>
<td>No</td>
</tr>
<tr>
<td><strong>County Roads</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasco Road</td>
<td>Yes – provides direct local access from I-580 to the project area</td>
<td>Yes – Transfer-Bethany Pipeline construction proposed adjacent to Vasco Road for approximately 2 miles from SR 4 south.</td>
</tr>
<tr>
<td>Walnut Boulevard</td>
<td>Yes – provides direct local access to project area</td>
<td>Yes – Transfer-LV Pipeline construction proposed in and adjacent to Walnut Boulevard roadway between approximately Camino Diablo and the Los Vaqueros Watershed entrance.</td>
</tr>
<tr>
<td>Camino Diablo</td>
<td>Yes – provides direct local access to project area</td>
<td>Transfer-Bethany Pipeline construction proposed across Camino Diablo.</td>
</tr>
<tr>
<td>Marsh Creek Road</td>
<td>Possible – provides direct access to the project area</td>
<td>No</td>
</tr>
<tr>
<td>Hoffman Road</td>
<td>Yes – provides local access to Delta-Transfer Pipeline alignment</td>
<td>Yes – Delta-Transfer Pipeline and possible powerline facilities construction proposed along this road west of Bixler Road.</td>
</tr>
<tr>
<td>Byron Hot Springs Road</td>
<td>Yes – provides local access to the</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Transfer-Bethany Pipeline alignment</td>
<td></td>
</tr>
<tr>
<td>Armstrong Road</td>
<td>Yes – provides local access to the</td>
<td>Yes – Transfer-Bethany Pipeline</td>
</tr>
<tr>
<td></td>
<td>Transfer-Bethany Pipeline alignment</td>
<td>construction proposed along a segment of this road.</td>
</tr>
</tbody>
</table>

¹ Potential construction travel route could be used by construction workers and/or for construction equipment and materials hauling.
AIP Intake and Pump Station

Old River Intake and Pump Station

Los Vaqueros Reservoir

Mount Diablo State Park

Contra Costa Canal

Los Vaqueros Pipeline

Old River Pipeline

Clifton Court Forebay

California Aqueduct

South Bay Aqueduct

Bethany Reservoir

Delta Mendota Canal

Discovery Bay

Balfour Road

Walnut Boulevard

Bixler Road

Delta Road

Camino Diablo

Byron Highway

W. Grant Line Road

Vasco Road

Altamont Pass Road

Kirker Pass Road

Bailey Road

W. Willow Pass Road

Marsh Creek Road

Lone Tree Way

Transfer Pipeline

Victoria Canal

Existing Reservoir (100 TAF)

160 TAF Inundation Area

275 TAF Inundation Area

CCWD Los Vaqueros Watershed Property Line

SOURCE: USGS, 1993 (base map); County of Contra Costa, 2005; and ESA, 2008

Figure 4.9-1
Regional Roadway Network

Los Vaqueros Reservoir Expansion Project EIS/EIR. 201110
Los Vaqueros Reservoir Expansion Project EIS/EIR, 201110

Figure 4.9-2
Project Area Roadways

SOURCE: California State Automobile Association, 2007; and ESA, 2007
4.9 Transportation and Circulation

**TABLE 4.9-2**
**EXISTING AVERAGE DAILY TRAFFIC VOLUMES ON CALIFORNIA HIGHWAYS IN THE PROJECT AREA**

<table>
<thead>
<tr>
<th>Highway</th>
<th>Segment</th>
<th>Vehicles (% Trucks)(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State Route 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contra Costa County</strong></td>
<td>Willow Pass Road (Concord) to Railroad Avenue (Pittsburg)</td>
<td>125,000 to 157,000 (4.6% to 5.2%)</td>
</tr>
<tr>
<td></td>
<td>Railroad Avenue to Contra Loma Boulevard (Antioch)</td>
<td>103,000 to 113,000 (4.6% to 5.2%)</td>
</tr>
<tr>
<td></td>
<td>Contra Loma Boulevard to SR 160 (Antioch)</td>
<td>38,000 to 103,000 (4.6% to 5.2%)</td>
</tr>
<tr>
<td></td>
<td>SR 160 to Lone Tree Way (Brentwood)</td>
<td>20,100 to 38,000 (13.8% to 15.4%)</td>
</tr>
<tr>
<td></td>
<td>Lone Tree Way to Byron Highway (Brentwood)</td>
<td>16,700 to 23,800 (13.8% to 15.4%)</td>
</tr>
<tr>
<td></td>
<td>Byron Highway to San Joaquin County line</td>
<td>9,700 to 19,400 (13.8% to 15.4%)</td>
</tr>
<tr>
<td><strong>San Joaquin County</strong></td>
<td>San Joaquin County line to Fresno Avenue (Stockton)</td>
<td>9,000 to 13,200 (9.8% to 16.5%)</td>
</tr>
<tr>
<td></td>
<td>Fresno Avenue to I-5</td>
<td>16,000 to 29,000 (9.8% to 16.5%)</td>
</tr>
<tr>
<td><strong>Interstate 580</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alameda County</strong></td>
<td>I-205 to Vasco Road</td>
<td>152,000 (10.2% to 12.5%)</td>
</tr>
<tr>
<td></td>
<td>Vasco Road to North Livermore Avenue</td>
<td>176,000 to 184,000 (12.2%)</td>
</tr>
</tbody>
</table>

\(^a\) Daily truck traffic as percent of total vehicle.

**SOURCE:** Caltrans, 2007.

**State Route 4**

State Route (SR) 4 is an east-west, four-lane highway that (as John Muir Parkway) connects Hercules at the Interstate 80 (I-80) junction to Martinez at the Interstate 680 (I-680) junction. East of Martinez, SR 4 becomes the California Delta Highway and passes through the cities of Concord, Pittsburg, and Antioch. The character of SR 4 changes at the Main Street interchange in Oakley, east of which SR 4 continues as a two-lane arterial roadway that passes through eastern Contra Costa County and then continues southward and eastward through the city of Brentwood and past Discovery Bay. SR 4 then crosses Old River and continues into San Joaquin County toward Stockton, where it intersects I-5. SR 4 crosses multiple waterways east of Discovery Bay, with generally narrow bridge crossings and curves in the road at entrances to the waterway crossings.

The SR 4 Bypass is a cooperative effort between Contra Costa County and the cities of Antioch, Brentwood and Oakley to ease traffic congestion through the Brentwood and Oakley areas by replacing the existing SR 4 from just south of the Main Street Interchange to the existing interchange with Marsh Creek Road. It has been constructed in three segments, with Segments 1 and 2 (from the existing SR 4 east of Hillcrest Avenue, in the Antioch/Oakley area, to Balfour Road in Brentwood)
and Segment 3 (Balfour Road to Marsh Creek Road, then along Marsh Creek Road to the existing SR 4 in Byron, with a Vasco Road Extension from Marsh Creek Road to Vasco Road at Walnut Boulevard) now open (SR 4 Bypass Authority, 2008).

**Regional Interstates**

I-580 is the major east-west truck travel route and main throughway in eastern Alameda County that connects to the Sacramento and San Joaquin Valleys. Other interconnecting regional transportation facilities include I-680, Interstate 205 (I-205), and I-5. The freeway interchanges that provide access to the project area road network are I-580 at Vasco Road and Grant Line Road, I-205 at West Grant Line Road (which connects to the Byron Highway), and I-5 at SR 4 (West Charter Way).

**Local Setting**

See Table 4.9-1, presented earlier in this section, for an overview of the roadways in the project area that would be used for construction traffic and/or affected by project construction activities. **Table 4.9-3** presents average daily traffic estimates for relevant local roadways. Weekday traffic within the east Contra Costa County area consists primarily of commuter traffic during morning and evening peak-traffic periods, and a mix of trips generated by residential, agricultural, and commercial/industrial uses throughout the day.

**TABLE 4.9-3**

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contra Costa County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasco Road</td>
<td>Walnut Boulevard to Camino Diablo</td>
<td>18,000</td>
</tr>
<tr>
<td></td>
<td>Camino Diablo to Alameda County line</td>
<td>21,790</td>
</tr>
<tr>
<td>Walnut Boulevard</td>
<td>Vasco Road to Camino Diablo</td>
<td>17,840</td>
</tr>
<tr>
<td>Camino Diablo</td>
<td>Byron Highway to Vasco Road</td>
<td>2,290</td>
</tr>
<tr>
<td></td>
<td>Vasco Road to Walnut Boulevard</td>
<td>7,785</td>
</tr>
<tr>
<td></td>
<td>Walnut Boulevard to Marsh Creek Road</td>
<td>1,815</td>
</tr>
<tr>
<td>Byron Highway</td>
<td>SR 4 to Camino Diablo</td>
<td>11,500</td>
</tr>
<tr>
<td></td>
<td>Camino Diablo to Alameda County line</td>
<td>10,980</td>
</tr>
<tr>
<td><strong>Alameda County</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vasco Road</td>
<td>South of Dalton Avenue</td>
<td>24,110</td>
</tr>
<tr>
<td></td>
<td>North of Dalton Avenue</td>
<td>23,130</td>
</tr>
</tbody>
</table>

**SOURCES:** Contra Costa County Traffic Engineering Division, 2005; City of Livermore, 2007

---

**Vasco Road**

Vasco Road is a major thoroughfare for travelers heading to the eastern and southern San Francisco Bay Area from the cities of Stockton, Brentwood, and Oakley. Locally, North Vasco Road heads south from Walnut Boulevard near Brentwood and crosses into Alameda County as it extends to
I-580. Vasco Road is primarily a two-lane arterial (with some four-lane segments, and some segments with two lanes in one direction and one lane in the opposite direction) that has heavy use during morning and evening commute hours. As described above, the last segment of the SR 4 bypass, including an extension of Vasco Road from Walnut Boulevard to Marsh Creek Road, has been completed and is now open for use.

**Byron Highway**

Byron Highway is a two-lane highway that extends across southeastern Contra Costa County into San Joaquin County connecting to I-205. It

**Walnut Boulevard**

Walnut Boulevard is a two-lane road that travels south from Brentwood and serves as the north entrance of the Los Vaqueros Reservoir watershed. Walnut Boulevard extends as Los Vaqueros Road to the existing Los Vaqueros Dam.

**Camino Diablo**

Camino Diablo is a two-lane road that heads west from the Byron Highway through the town of Byron; it crosses Vasco Road and Walnut Boulevard and ends at Marsh Creek Road.

**Marsh Creek Road**

Marsh Creek Road is a two-lane road that travels from just east of SR 4 (Byron Highway) near Discovery Bay westward to the town of Clayton. Marsh Creek Road heads west just south of the city of Brentwood and then travels south until it reaches Camino Diablo, where it again heads west. As described above, the last segment of the SR 4 bypass, which ties in to Marsh Creek Road, has been constructed and, as part of that work, Marsh Creek Road has been improved to Caltrans standards for a conventional two-lane expressway from west of Walnut Boulevard to the existing SR 4 (Byron Highway/California Delta Highway) in Byron.

**Hoffman Road, Byron Hot Springs Road, Armstrong Road**

These three roads are each local, two-lane paved rural roads in the project area providing access to rural residences and farmland areas.

**Routes of Regional Significance**

The Contra Costa Transportation Authority has established routes of regional significance. These routes are the roads that connect two or more regions in the county, cross county boundaries, carry a significant amount of through traffic, or provide access to a regional highway or transit facility. Regional routes of significance include all state highways and freeways as well as key arterials. The regional routes within the project area that would be affected by construction and operational traffic for the Los Vaqueros Reservoir Expansion Project include: Vasco Road from Walnut Boulevard to the Alameda County line; Camino Diablo from Marsh Creek Road to Vasco Road; and the SR 4 Bypass and SR 4 from Bixler Road to Old River.
Public Transit

The project area is served by two transit agencies that provide bus service to areas in eastern Contra Costa and Alameda Counties: the Eastern Contra Costa Transit Authority (Tri-Delta) and Livermore Amador Valley Transit Authority (LAVTA).

Eastern Contra Costa Transit Authority

Tri-Delta Transit operates 14 local bus routes and serves the cities of Brentwood, Antioch, Oakley, Pittsburg, and Bay Point. Bus routes 300, 383, 386, and 391 operate on the Brentwood Boulevard portion of SR 4 in the project area, but do not extend south through the project area. The Authority operates a regional route that provides bus service from Antioch, Oakley and Brentwood south to Livermore and Dublin Bart; the route follows SR 4 to Byron Highway south to I-580.

LAVTA (Wheels)

Wheels is a service of the LAVTA, which provides local public transit service to the cities of Dublin, Livermore, and Pleasanton and to the adjacent unincorporated areas of Alameda County. Lines 11 and 15 cross and run along portions of Vasco Road up to about one mile north of I-580, but not north of Livermore, or in to the project area north in Contra Costa County.

Bikeways/Pedestrian Circulation

The regional network of bicycle facilities includes a variety of Class I (bicycle paths), Class II (bicycle lanes, striped in roads), and Class III (bicycle routes without striping) bikeways within the cities and communities of Contra Costa County. The closest Class I, II, and III bikeways to the project sites are in Brentwood, over two miles north of the project area; none of these bikeways would be affected by project construction due to the fact that no project components would be constructed in or adjacent to bikeways, and it is anticipated that construction traffic would not use local Brentwood streets.

4.9.2 Environmental Consequences

Methodology

Construction

Construction activities for major infrastructure projects such as the Los Vaqueros Reservoir Expansion Project can result in short-term traffic and circulation impacts as a result of temporary increases in traffic from construction workers and transport of equipment and materials as well as construction activities in or near roadways that affect traffic flow and/or property access. The analysis of project construction effects on traffic, circulation and access is based on the description of project construction activities and schedule presented in Chapter 3, Project Description. Construction activities are described for each proposed facility throughout Section 3.5 and a summary of the overall project construction schedule, work force and key construction assumptions is presented in Section 3.5.7.
The impact analysis focuses on Alternative 1, which involves the maximum extent of new and/or expanded facilities and therefore represents the most extensive construction activity among the alternatives. For purposes of this impact analysis it is assumed that construction activity would be occurring at all facility sites at the same time, representing a peak construction scenario. The actual schedule of construction activities would be determined after final design and largely by the construction contractors. While some phasing of construction activities would be expected, in order to complete the facilities included in Alternative 1 on the proposed three-year construction schedule, some level of construction activity would need to occur concurrently at most facility sites. Construction characteristics, including proposed labor and equipment, location of construction, and rate of construction, were used to conservatively estimate the manpower level and number of vehicles that would be required for facilities installation.

Alternative 2 is the same as Alternative 1 in terms of facilities construction and therefore shares the same construction assumptions. Alternatives 3 and 4 involve fewer new or expanded facilities than Alternatives 1 and 2 and would generate less construction impact to traffic circulation and access than described for Alternatives 1 and 2.

Key construction scenario assumptions used in the analysis of potential project effects on traffic and circulation during construction include:

- A 3-year overall construction schedule for Alternatives 1, 2, and 3; a 2-year construction schedule for Alternative 4.
- Double-shift and Saturday work are implemented.
- The construction labor force for Alternatives 1 and 2 would consist of as many as six crews of about 50 to 70 workers each plus construction management personnel for a maximum total of up to 400 construction workers at all work sites at one period of the construction.
- The equipment specified for clearing/excavation/foundation, building construction, and interior mechanical/electrical activities would operate for about 8 to 16 hours a day (up to two shifts per day) over approximately 24 months. Equipment operations would occur over two 8-hour shifts typically extending from 6 a.m. to 10 p.m. Equipment might be removed from the site when no longer needed for construction activities.
- During road work, utility, and landscaping activities, equipment would also be used 8 to 10 hours a day, but the duration would decrease to about one year. Some equipment such as backhoes and light-duty trucks would be used during multiple stages of project construction, and therefore overlap of equipment types and duration is expected.
- An estimated 25 percent of the excavated soil would be hauled away from the work sites for disposal or reuse elsewhere. The remaining 75 percent would be stockpiled near the construction work zones for later use as backfill material and/or sidecast on to adjacent land. Trench and tunnel dimensions based on pipe diameters and lengths were used to calculate the amount of hauled material.

This analysis relies on available information, a field inventory of the project area, and estimates of daily vehicle trips generated by project-related activities, augmented by professional traffic engineering judgment. Existing traffic volumes on project area roadways were gathered from Contra
Costa County and Alameda County documents and Caltrans’ website (2007a and 2007b). Field reconnaissance was undertaken to determine characteristics of roads that are proposed to accommodate construction-generated vehicle trips, including the number of travel lanes and land uses served by the affected roadways. Estimates of increased roadway traffic volumes generated by the project were compared to existing traffic volumes, and the effect of that percent increase on traffic flow was judged by a qualified expert in traffic analysis based upon experience and knowledge of the relevant roadway facilities and conditions.

**Project Operation**

The analysis for long-term increases in traffic associated with project operation considers the extent of additional employees required to operate the expanded facilities and the need for additional facilities maintenance activities. Project operation is projected to require very few additional employees, less than ten, and require little additional maintenance activity. Current maintenance and inspection trips to monitor the existing Los Vaqueros system would simply be extended to inspect new and expanded facilities. The potential for increased visitor traffic to the expanded recreation facilities within the Los Vaqueros Watershed is also evaluated.

**Significance Criteria**

The thresholds for determining the significance of impacts for this transportation and circulation analysis are based on the environmental checklist in Appendix G of the CEQA Guidelines as well as professional traffic engineering judgment. These thresholds also encompass the factors taken into account under the National Environmental Policy Act to determine the significance of an action in terms of its context and the intensity of its effects.

For this analysis, the project would be considered to have a significant impact on transportation and circulation if it would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (e.g., result in a substantial increase in traffic congestion affecting vehicle or transit circulation);
- Substantially impede access to local streets or adjacent uses, including access for emergency vehicles;
- Substantially increase traffic safety hazards due to incompatible use (e.g., construction in or adjacent to roadways, heavy truck traffic, and roadway wear-and-tear);
- Exceed, either individually or cumulatively, a level of service (LOS) standard established by the county congestion management agency for designated roads or highways.

The following transportation, traffic and circulation issues (including some identified in Appendix G of the CEQA guidelines) do not apply to this project and, as a result, are not addressed in this analysis, as explained below.

- Interference with Rail Service or Operations. Bore-and-jack construction techniques (see Chapter 3, Project Description) would be used to install project pipelines underneath
railroad tracks at the few places where a project pipeline crosses an existing railroad corridor. This construction technique involves tunneling beneath railroad tracks without compromising their stability or restricting rail activity. Therefore, the project alternatives would not affect rail service or operation.

- Change in Air Traffic Patterns resulting in substantial safety risks. Project alternatives would not affect air traffic patterns of the Byron Airport in the project area. Although some of the proposed pipelines and electrical transmission lines would be located within the Byron Airport Influence Area, construction equipment and project components would not exceed height restrictions within this area. Also, the project alternatives would not alter air traffic patterns nor result in substantial safety risks associated with airport operations (see airport impact discussion in Section 4.7 Land Use, under impacts 4.7.3 and 4.7.4).

- Result in inadequate parking capacity. Construction of facilities under each project alternative would not disrupt or displace existing parking facilities. Facilities construction would occur on existing CCWD property, along public road rights-of-way or across private property in agricultural use. There is no street parking provided on most roads in the project area. Parking areas would be needed to accommodate construction workers at each facility site but such parking areas would be provided within the construction easement or work area onsite. Construction workers would not park in areas used by others for parking.

- Increased Hazards Due to a Design Feature. The project alternatives would not include new design features for any roadways (e.g., new facilities or obstructions within public roadways) or alterations of existing features (e.g., road realignment). Therefore, the project alternatives would not result in hazards caused by a design feature.

- Conflicts with Adopted Policies, Plans, or Programs Supporting Alternative Transportation. Project alternatives would not directly or indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.). In addition, project alternatives would not include changes in policies or programs that support alternative transportation, and it would not construct facilities in locations in which future alternative transportation facilities are planned. Therefore, the project alternatives would not conflict with adopted policies, plans, or programs supporting alternative transportation. The potential effect of project construction on existing bus transit service in the project area is discussed in Impact 4.9-1.

**Impact Summary**

Table 4.9-4 provides a summary of the impact analysis for issues related to transportation and circulation based on actions outlined in Chapter 3.

**Impact Analysis**

**No Project/No Action Alternative**

Under the No Project/No Action Alternative, no new facilities would be constructed and no existing facilities would be altered, expanded, or demolished. Because no additional vehicle trips would be generated, this alternative would not result in any adverse environmental effects with respect to transportation and circulation. Further, the No Project/No Action Alternative would not contribute to any cumulative transportation impacts.
### TABLE 4.9-4
**SUMMARY OF IMPACTS – TRANSPORTATION AND CIRCULATION**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.9.1: Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.</td>
<td>LSM</td>
<td>LSM</td>
<td>LSM</td>
<td>LS</td>
</tr>
<tr>
<td>4.9.2: Project construction activities would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or due to possible road wear.</td>
<td>LSM</td>
<td>LSM</td>
<td>LSM</td>
<td>LS</td>
</tr>
<tr>
<td>4.9.3: Traffic associated with operation of project facilities, including the expanded recreation facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.</td>
<td>LS</td>
<td>LS</td>
<td>LS</td>
<td>LS</td>
</tr>
<tr>
<td>4.9.4: Construction of project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, and traffic safety).</td>
<td>LSM</td>
<td>LSM</td>
<td>LSM</td>
<td>LS</td>
</tr>
</tbody>
</table>

**NOTES:**

SU = Significant and Unavoidable  
LSM = Less-than-Significant Impact with Mitigation  
LS = Less-than-Significant Impact  
NI = No Impact

**Impact 4.9.1:** Project construction activities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways. (Less than Significant with Mitigation for Alternatives 1, 2, and 3; Less than Significant for Alternative 4)

**Alternative 1**

As described in Chapter 3.0 Project Description and summarized in the impact methodology section above for construction, construction activities at all of the facility sites included in Alternative 1 could involve up to six construction crews of 50 to 70 workers each plus construction management personnel, for a total of up to 400 construction workers active on the project at one time. For purposes of impact analysis it is assumed that each construction worker makes one daily round-trip to and from the project area resulting in 400 round trips per day. An additional 100 round trips per day (25 percent of workers) are added to this count to reflect the assumption that some construction workers would make another trip to and from a construction site during the day (e.g., for lunch). Thus, for the peak construction activity period scenario it is
assumed that construction workers contribute a total of 500 round-trips per day to roads within the project area.

Projected equipment and materials needs were used to estimate truck trips required to support construction at each site. Materials hauling requirements for this project are minimized by several features of this project including: 1) most of the material required for the dam expansion would come from borrow areas within the CCWD watershed; 2) most of the material from the existing dam would be reused and any minor amounts of remaining material would be disposed of onsite within the reservoir inundation area; and 3) up to 75 percent of the materials removed from the pipeline trenches would be reused as backfill or spread out over adjacent range land, eliminating the need to haul this material off site for disposal or import additional backfill materials.

Construction equipment (refer to Table 3.7) would be delivered to and removed from each project facility site in phases for site clearing, grading, excavation and foundation work; structure and building construction; interior, mechanical and electrical work; and finally, for road work, utilities and site finishing / landscaping. Materials that need to be imported for project construction would include sand filters and gravel drains for the reservoir that would be imported from commercial sources within the region (expected haul distances of up to 30 miles), and for all facilities both raw and pre-fabricated materials that would be transported to the project site such as gravel, aggregate, bulk cement, steel, asphalt, pipeline segments, pre-fabricated building materials, and mechanical and electrical equipment. Materials to be removed from project facility sites would be limited to some building materials that could not be reused as part of facilities expansion and excess excavated material. Most of the excavated material is expected to be reused on site and extra materials would, in most cases, be used as clean fill on other development sites. In some instances it might be necessary to haul materials to a specific waste disposal site.

Appendix H presents a breakdown of the truck trip assumptions developed for each of the eight facilities included in Alternative 1 based on the construction scenario and basic facility design information: 1) reservoir expansion, 2) Transfer Facility expansion, 3) new Delta Intake and Pump Station, 4) Delta-Transfer Pipeline, 5) Transfer-LV Pipeline, 6) Transfer-Bethany Pipeline and South Bay Connection, 7) Power Supply (Option 1 or 2), and 8) Recreation facility replacement and expansion within the Los Vaqueros Watershed. In summary, under the peak construction activity scenario that assumes construction activity occurs on all eight facilities concurrently, total daily truck trips to the project area could total approximately 1,150 round-trips (2,300 one-way trips) per day. While it is assumed that construction crews would work two shifts per day for a total 16-hour work period between approximately the hours of 6 am and 10 pm, it is expected that materials and equipment would likely be delivered within a 10-hour, day-time period per day. Under this assumption, truck trips scheduled throughout the day to deliver and remove materials from project facilities sites would average approximately 230 trips per hour.

Assuming concurrent construction at all project sites, the combination of construction worker commute and truck trips for equipment and materials hauling would generate the addition of approximately 1,650 daily round trips to the project area (up to 3,300 one-way trips per day). This
scenario reflects a conservative peak construction activity scenario for the extent of construction traffic that would be generated by the project.

Assessment of the short-term effect that project construction traffic could have on local and regional roads includes review of existing traffic volume information and consideration of both the percentage increase the project construction traffic would contribute over existing conditions and the capacity of the road to handle the additional traffic. Since the number of vehicles on roads vary from day-to-day and over the course of a day and routinely range plus or minus five percent, a change in traffic volume of five percent or less is generally not perceptible to the average motorist. Further, although in some cases project-generated construction traffic might represent more than a five percent increase in traffic volume over existing conditions, the effect on traffic flow is not substantial because traffic volumes would remain well within the design carrying capacity levels for these roads. As a reference point, depending on design features, the carrying capacity of a typical two lane local road is 20,000 to 25,000 vehicles per day. Traffic volume on project area roads is typically highest during morning and evening peak commute hours (generally between 7 am to 9 am and 4 pm to 6 pm); traffic increases that occur during these peak periods may exacerbate short-term congestion.

The main regional highways expected to be used to access the project area are I-5, I-205, and I-580, which would provide access to the project area from the east and south (see Figure 4.9-1 and Table 4.9-1). Some construction workers and trucks delivering equipment and materials would also come to the project area from the west, using I-680, I-580, and/or SR-4 but these are not expected to carry the majority of construction traffic for the project. The existing volume of traffic on I-580 is shown on Table 4.9-2; in the stretch of highway around the Vasco Road exit that leads to the project area, the existing average daily traffic volume ranges from 150,000 to 184,000 vehicles per day. Even if all 3,300 daily project construction trips used I-580, this level of short-term traffic increase would represent two percent or less of the existing traffic volume; as such this would not be a substantial traffic increase on major highways like I-580.

The main roads providing access from the highway system to the project area and access to specific facility sites include: Vasco Road, Byron Highway, SR-4 and the SR 4 Bypass (see Figure 4.9-1 and 4.9-2). Construction traffic to and from the eight different project facility sites would be distributed on each of the roads. For the three pipeline facilities, construction traffic would use different roads to access different portions of the alignments such that there is not a single point of access.

As shown on Figure 4.9-2, Vasco Road provides access to the Los Vaqueros Watershed, both the south and north entrances, and would be used by construction workers and truck haulers going to the dam expansion site and the recreation facility replacement and expansion sites within the watershed. Construction workers, equipment and materials haulers would use both the south and north entrance to the watershed. Vasco Road would also be used by project construction traffic going to and from the Transfer Station Expansion site, the Transfer-LV Pipeline and to access the western portion of the Delta-Transfer Pipeline route, Power Option 2, and the northern portion of the Transfer-Bethany Pipeline. Assuming concurrent construction at all sites and a concentration
of work being completed at facility sites accessed by Vasco Road, approximately two-thirds of the total project-generated construction trips, or 2,000 trips per day could occur on Vasco Road during the peak project construction period. Compared to the existing average daily traffic on Vasco Road (shown on Table 4.9-3), this would represent about a 10 percent increase in daily traffic during the peak construction period. On an hourly basis, this would represent an additional 200 trips per hour. In the off-peak commute hours, this additional traffic would not represent a substantial increase in traffic volume that would appreciably affect traffic congestion; however if this project construction traffic increase were to occur during the peak commute hours (typically 7 am to 9 am and 4 pm to 6 pm), then this could result in a noticeable increase in traffic congestion, and might delay emergency service providers traveling through this area as well.

Walnut Boulevard, which provides access from the north to the Los Vaqueros Watershed and connects with Vasco Road, carries a similar but slightly lower volume of existing daily traffic (18,000 trips per day; Table 4.9-3) compared to Vasco Road. Some construction workers and haul trucks would use this road for some project construction-related trips, though not to the extent expected to use Vasco Road. Project construction traffic impacts to Walnut Boulevard would be similar but less than that described above for the peak project construction traffic scenario for Vasco Road.

Byron Highway would provide access to the Delta-Transfer Pipeline alignment, the new Delta Intake and Pump Station, Power Option 1 and portions of Power Option 2, and most of the Transfer-Bethany Pipeline. Similar to the assumptions made about the use of Vasco Road, assuming concurrent construction activity on all project sites accessed by Byron Highway, about one-third of the total estimated construction traffic, a maximum of approximately 1,250 trips per day, would use this road. This represents about 125 trips per hour, or about an eleven percent increase in the existing average daily traffic volume on this highway (see Table 4.9-3). In the off-peak commute hours, this additional traffic would not represent a substantial increase in traffic volume that would appreciably affect traffic congestion; however if this project construction traffic increase were to occur during the peak commute hours (typically 7 am to 9 am and 4 pm to 6 pm), then this could result in a noticeable increase in traffic congestion.

SR 4, in the segment west of Old River to Byron Highway, would be used to access the new Delta Intake and Pump Station site and the eastern portion of the Delta-Transfer Pipeline. Peak project construction traffic associated with these two facilities would total about 708 trips per day, or an average of 78 additional trips per hour. Compared to existing average daily traffic volumes for SR 4 in the reach between Byron Highway and the San Joaquin County line to the east, the project could contribute an increase of 4 to 7 percent (See Table 4.9-2). As for Vasco Road and the Byron Highway, while this is not a substantial traffic flow increase for this roadway, if this project construction traffic increase were to occur during the peak commute hours, then this could result in a noticeable increase in traffic congestion, and might cause delays for emergency service providers traveling through this area as well.

For the smaller, more local roads in the project area such as Hoffman Road, Byron Hot Springs, and Armstrong Road, project-related construction traffic would use these roads to access a
specific facility site. Hoffman Road provides local access to the western end of Delta-Transfer Pipeline; both Byron Hot Springs Road and Armstrong Road would be used to access portions of the Transfer-Bethany Pipeline alignment. Existing traffic on these roads is light. Project construction traffic could represent a noticeable percentage increase in traffic on these roads but the total traffic including project construction vehicles trips would remain well below the road capacity and would not result in congested traffic flow conditions.

With respect to project construction effects on existing bus transit services, Eastern Contra Costa Transit Authority operates a regional bus route that uses the Byron Highway and LAVTA operates a route that extends into North Livermore along Vasco Road about one mile north of I-580. The short-term traffic increases that would occur on these roads during project construction would not disrupt transit service but, as noted, above, traffic increases during morning and evening peak commute hours could increase traffic congestion and add to transit delays. Mitigation measures are proposed to minimize project construction traffic during peak commute hours.

**Alternative 2**

Alternative 2 project components would be the same as those proposed under Alternative 1; therefore, potential projected-related traffic impacts on traffic flow and congestion, would be the same as described above for Alternative 1. During morning and evening peak commute hours, project-related construction traffic could cause a substantial increase in traffic and congestion conditions.

**Alternative 3**

Impacts under Alternative 3 would be less than those analyzed under Alternative 1, above. Under this alternative, the Old River Intake and Pump Station would be expanded instead of constructing the new Delta Intake and Pump Station. In addition, there would be no construction of a Transfer-Bethany Pipeline. All other facilities would be as proposed under Alternative 1. Consequently, Alternative 3 would generate total estimated peak construction period traffic of about 2,340, or about 70 percent of the amount estimated for Alternative 1. Without construction of the new Delta Intake and Pump Station or the Transfer-Bethany Pipeline it is expected that Byron Highway would receive less project construction traffic than under Alternative 1, although this road would still be used to some extent by construction traffic accessing the project area and specific project sites such as the Delta-Transfer Pipeline alignment.

Since this alternative still includes expansion of the reservoir to 275 TAF, expansion of the Transfer Facility and construction of the Delta-Transfer and Transfer-LV Pipelines along with additional power, Vasco Road, Walnut Boulevard, and Camino Diablo would experience similar though lower levels of project construction traffic increases as described for Alternative 1. Other roads affected by project construction traffic increases under Alternative 1 would not be affected under Alternative 3 including Byron Hot Springs Road, and Armstrong Road. Although Alternative 3 would generate less project construction traffic than Alternative 1, project construction traffic could still add to congestion on project area roads, particularly during
morning and evening peak commute periods. Therefore, mitigation measures are also proposed for this alternative to minimize peak hour traffic increases.

**Alternative 4**

Impacts under Alternative 4 would be substantially less than those analyzed under Alternative 1 because this alternative involves construction of a smaller reservoir expansion and upgrade but not expansion of the Transfer Facility and does not include any of the other major intake or pipeline facilities proposed under Alternative 1. The total estimated peak construction period traffic for this alternative would be approximately 425 vehicle trips per day, or about 13 percent of the amount of peak construction traffic estimated for Alternative 1. Under this alternative construction activity would occur primarily within the Los Vaqueros Watershed and the main access roads used would be Vasco Road and Walnut Boulevard, with some use of Byron Highway, SR 4, SR 4 Bypass, and Camino Diablo also expected. The level of traffic increases associated with project construction activity under this alternative would not be substantial enough to cause significant delays in traffic, including transit or emergency service providers. Project construction traffic effects would be less than significant and no mitigation is required.

**Mitigation Measure**

- **Measure 4.9.1a**: Schedule project generated construction truck trips on Vasco Road, Byron Highway, SR 4, and SR 4 Bypass outside the peak morning and evening commute hours such that the frequency of construction truck trips on these roads would be no greater than one every two minutes (i.e., 30 trucks per hour) during these peak commute periods.

- **Measure 4.9.1b**: Develop and implement a construction truck hauling plan that designates specific routes to be used to access the various project facilities when multiple facility sites are under construction concurrently so that project-generated construction traffic is dispersed over a number of roads in the project area.

**Impact Significance after Mitigation**: Less than Significant.

---

Impact 4.9.2: Project construction activities would intermittently and temporarily impede access to local streets or adjacent uses, including access for emergency vehicles and could substantially increase traffic hazards due to construction in or adjacent to roads or due to possible road wear. (Less than Significant with Mitigation for Alternatives 1, 2, and 3; Less than Significant for Alternative 4)

**Alternative 1**

Alternative 1 would involve construction of new pipelines and powerlines adjacent to, and in a few instances across, local roads in the project area. Although project pipelines and supporting electrical transmission powerlines are not proposed for construction directly within the paved travel lanes, project construction adjacent to roads could result in some road restrictions that affect the vehicle travel lanes in order to provide adequate construction work area adjacent to the roadway and/or adequate access to the construction right-of-way. Such major construction
activity along roadways could create traffic safety hazards. In addition, construction adjacent to roadways would temporarily block vehicle, bicycle and pedestrian access to local streets or property driveways, including access for emergency vehicles. Finally, construction activity along roads as well as heavy truck traffic delivering equipment and materials to other facilities sites could result in road wear and damage that result in a driving safety hazard.

The Delta-Transfer Pipeline would be constructed adjacent to portions of SR 4 in the reach west of Old River to about Bixler and along a portion of Hoffman Road. The Transfer-LV Pipeline would be constructed along the southern end of Walnut Boulevard before it enters the Los Vaqueros Watershed. The Transfer-Bethany Pipeline would be constructed long the northern end of Vasco Road and along a segment of Armstrong Road. Under Power Option 2, an additional powerline would be extended along Hoffman Road, adjacent to the Delta-Transfer Pipeline. Construction along these roadways would restrict access to adjacent properties, which are primarily rural residences and farmland.

The use of trucks to transport equipment and material to and from the project work sites could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the existing roadway design (pavement type and thickness) and existing condition of the road. Freeways, major arterials and collectors (e.g., I-580, SR 4, SR 4 Bypass, Byron Highway, and Vasco Road) are designed to accommodate a mix of vehicle types, including heavy trucks. The project’s impacts are expected to be negligible on those roads. However, rural roadways may not have been constructed to support the weight and use of large construction equipment. Construction damage on designated haul routes used by construction vehicles would be a significant impact.

During the 36-month construction period, trucks delivering materials and equipment and removing debris would be entering and exiting unpaved areas along SR 4, Vasco Road, Camino Diablo, and Walnut Boulevard. In some areas this could create a traffic safety hazard requiring the need for traffic control. At times the presence of slow-moving trucks entering or exiting construction areas along roadways could pose a traffic hazard to other vehicles. The creation of potential traffic safety hazards as a result of project construction would be a significant impact.

**Alternative 2**

Alternative 2 project components would be the same as those proposed under Alternative 1; therefore, impacts would be the same as described above for Alternative 1.

**Alternative 3**

Under Alternative 3 the Delta-Transfer Pipeline, Transfer-LV Pipeline and Power Option 2 facilities would be constructed adjacent to project area roads as described under Alternative 1. The Transfer-Bethany Pipeline would not be constructed and thus there would be no construction adjacent to Vasco Road, Armstrong Road and Byron Hot Springs Road under this alternative. Construction adjacent to roadways could create a traffic safety hazard and would also restrict access to adjacent properties, including emergency service access. In addition to project
construction activities adjacent to roads, like Alternative 1, under this alternative slow moving construction haul trucks entering and exiting project facility sites, particularly unpaved areas, could pose a traffic safety hazard and road wear due to heavy truck traffic could also result in a driving hazard. This impact would be significant.

**Alternative 4**

Construction activity under Alternative 4 would not create significant traffic safety hazards because there would be no construction adjacent to public roads that would create a driving hazard or restrict access to adjacent properties. In addition, this alternative would generate limited construction truck traffic compared to Alternative 1 and would not represent a significant traffic safety hazard or be expected to result in road wear that would create a driving hazard. The impact under this alternative would be less than significant.

**Mitigation Measure**

- **Measure 4.9.2a:** Maintain alternative property access or trench plates on site to restore access for emergency vehicles at all times.

- **Measure 4.9.2b:** Provide pre-notification to local police, fire, and emergency service providers of the timing, location, and duration of construction activities that could affect the movement of emergency vehicles on area roadways.

- **Measure 4.9.2c:** Install traffic control devices as specified in Caltrans’ Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. This measure includes the use of signage to alert motorists of construction activities, potential hazards and travel detours as well as the use of flaggers when appropriate.

- **Measure 4.9.2d:** Prior to construction, CCWD or its contractors will survey and describe the pre-construction roadway conditions on rural roadways and residential streets (including, but not limited to, Walnut Boulevard and Camino Diablo). Within 30 days after construction is completed, CCWD will survey these same roadways and residential streets in order to identify any damage that has occurred. Roads damaged by construction will be repaired to a structural condition equal to the condition that existed prior to construction activity.

**Impact Significance after Mitigation:** Less than Significant.

**Impact 4.9.3:** Traffic associated with operation of project facilities under all alternatives, including the expanded recreational facilities, would not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways. (Less than Significant)

**Alternative 1**

Operation of the expanded Los Vaqueros Reservoir system facilities under Alternative 1 is projected to require only a few additional employees, less than ten. As a result, the project would
result in negligible additional worker commute trips. In addition, maintenance and inspection of the expanded system facilities would be incorporated into the existing system operations and maintenance effort. Under Alternative 1 the new Delta Intake and Pump Station would be added to the District staff rounds for routine inspection. Day-to-day operations of this facility would be managed remotely and no employees would be permanently located at this new intake facility. The new pipelines added to the system under this alternative would be inspected as part of the District’s routine system inspection effort. Since the Delta-Transfer and Transfer-LV Pipelines would parallel existing system pipelines, only the Transfer-Bethany Pipeline would add new territory for District maintenance staff to cover. Traffic trips for inspection and maintenance of the expanded system under Alternative 1 would result in a negligible increase in traffic trips on project area roads.

Traffic associated with operation of project facilities would also be generated by visitors to the expanded recreation facilities within the Los Vaqueros Watershed. Under Alternative 1, recreational facilities would be relocated and/or new facilities constructed to replace and expand the recreational facilities that would be displaced with the Los Vaqueros Reservoir Expansion Project. This includes the relocation of existing hiking trails and access roads along with installation of additional access roads and hiking trails and the relocation/addition of other facilities (i.e., fishing piers, picnic areas, restrooms and parking). Under Alternative 1, the major change would involve relocation of the Marina from the south end to the north end of the reservoir, with construction of a new Marina Complex plus an interpretive center and amphitheatre.

The majority of visitors to the watershed are fishermen as well as school-age children that participate in week-day educational programs sponsored by CCWD. Los Vaqueros Reservoir competes with other fishing locations in the region, most notably the Delta, for visitors. Although visitation to the Los Vaqueros Watershed may increase some in the future as population increases in the eastern Contra Costa County and Alameda County communities, this would be expected to occur with or without the project. The replacement and enhancement/expansion of recreation facilities proposed under this project alternative is not projected to result in significant additional recreational visitors to the watershed.

The most recent visitor data (attendance by month) for the six-year period July 2001 through June 2007 indicate that annual attendance at the Los Vaqueros Watershed ranged from about 18,000 to 29,000 visitors, with highest attendance during the spring and autumn. Data gathered between September 2001 and June 2002 (the most recent available information concerning point of origin) indicate that about 74 percent of the visitors to the reservoir use the south entrance. The proposed relocation of the Marina to the north end of the reservoir would shift vehicle access patterns on roadways in the project area. Information indicates that the origin of visitor trips is split equally between north/northwest and south/southwest of the reservoir. Thus, even with the relocation of Marina to the north end, the total two-way visitor-generated traffic volumes on area roads (e.g., Vasco Road, Marsh Creek Road, and I-580) would be similar to current conditions, that is – approximately half of the visitors would drive to the watershed from the north and the other would drive from the south. Traffic would not increase appreciably on the segment.
of Vasco Road between the southern watershed entrance and Walnut Boulevard, the northern watershed entrance. Visitors who live south/southwest of the reservoir would travel on northbound Vasco Road northeast of the existing Marina to reach the new Marina Complex on the north (an increase in traffic volume on Vasco Road), but visitors who live north/northwest of the reservoir would no longer travel on southbound Vasco Road to the existing Marina entrance location (a decrease in traffic volume on Vasco Road).

Traffic volumes might increase slightly on the roads providing direct access to the new Marina Complex (i.e., Camino Diablo, Walnut Boulevard and Los Vaqueros Road), but only by the amount of traffic currently using two-lane Los Vaqueros Road to access the existing southern Marina location. That amount of traffic varies from day to day, and season to season, but recent CCWD quarterly visitation reports indicate that between 900 and 2,000 people obtained fishing passes each month during the six-month period from July through December 2007. The maximum number of people per day over that period would be about 66 people. The impact of vehicle trips by those 66 people, spread over the course of a day, would be less than significant.

**Alternative 2**

Alternative 2 recreational components would be the same as those proposed under Alternative 1; therefore, impacts would be the same as described above for Alternative 1. Impacts would be less than significant under Alternative 2.

**Alternative 3**

Like Alternative 1, Alternative 3 would expand the existing reservoir to 275 TAF and result in construction of a new Marina Complex, interpretive center and additional trails. These recreational components would be the same as those proposed under Alternative 1; therefore, impacts would be the same as described above for Alternative 1, less than significant.

**Alternative 4**

Effects related to recreational traffic under Alternative 4 would be substantially less than those analyzed under Alternative 1 because Alternative 4 would not result in construction of a Marina Complex or a new interpretive center on the north end of the watershed. There would be no change in traffic patterns because the Marina would remain in an area accessed from the south, the same as existing conditions. Impacts would be less than significant under Alternative 4.

**Mitigation:** None required.
Impact 4.9.4: Construction of the project alternatives, when combined with construction of other future projects, could contribute to construction-related short-term cumulative impacts to traffic and transportation (traffic congestion, access, parking, traffic safety, and pavement wear-and-tear). (Less than Significant with Mitigation)

All Alternatives

The geographic scope of potential cumulative traffic impacts includes access routes to area freeways, and arterial and collector roadways used for haul routes and construction equipment/vehicle access to the Los Vaqueros Reservoir Expansion Project sites. Locating and operating the facilities associated with the project alternatives, described above, would not result in long-term traffic-related impacts. However, Impact 4.9.1 identifies short-term increases in traffic volumes associated with construction of the project facilities. Additional construction-related traffic impacts include temporary increases in traffic congestion, temporary and intermittent impedances to access and increased potential for traffic safety hazards. These impacts would be temporary, occurring during the estimated 36 month construction period.

The project has the potential to contribute incrementally to cumulative construction-related impacts as a result of (1) cumulative projects that generate increased traffic at the same time on the same roads as would the project facilities, causing increased congestion and delays such as land development projects; and (2) infrastructure projects in roads that would be used by project construction workers and trucks, which could affect detour routes around project work zones or could delay project-generated vehicles past the work zones of those other projects.

A review of planned development and infrastructure improvement projects in the project area indicate a few projects that could also generate construction-related traffic impacts at the time that the Los Vaqueros Reservoir Expansion Project is under construction (see Table 4.1-2). Implementation of circulation and detour plans, installing traffic control devices, and scheduling, to the extent feasible, truck trips outside of peak morning and evening commute hours (as identified for the project alternatives in Mitigation Measure 4.9.1) would reduce the project’s contribution to the cumulative impacts. However, some traffic disruption and increased delays would still occur during project construction, even with mitigation. Given the lack of certainty about the timing (and identification) of other projects, specifically what projects would be constructed during construction of the project alternatives (2012-2015+), it is prudent to conclude that significant cumulative traffic and circulation impacts could occur and that impacts would be significant.

Mitigation Measure

Measure 4.9.4: Prior to construction, CCWD will coordinate with the appropriate local government departments in Brentwood, Contra Costa County, Alameda County, and Caltrans, and with utility districts and agencies regarding the timing of construction projects that would occur near project sites. Specific measures to mitigate potential significant impacts will be determined as part of the interagency coordination, and could include measures such as employing flaggers during key construction periods, designating alternate haul routes, and providing more outreach and community noticing.

Impact Significance after Mitigation: Less than Significant.