4.12 WATER QUALITY

4.12.1 REGULATORY SETTING

Both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require consideration of impacts on water quality. A general discussion of NEPA and CEQA requirements is provided in Chapter 1 of this Tier 1 Environmental Impact Statement/Environmental Impact Report (EIS/EIR). In addition, other types of legislation influence water quality. Relevant laws and guidelines are described below.

4.12.1.1 Federal Regulations

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants to waters of the United States. Section 303 of the CWA requires states to adopt water quality standards.

The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) regulate activities in "waters of the United States" through Section 401 of the CWA. A 401 Certification will be necessary to obtain a 404 permit for construction of wetlands/habitat where "waters of the United States" are affected.

The U.S. Army Corps of Engineers (USCOE) regulates the placement of fill or dredged materials that affect the waters of the United States (including stream courses and jurisdictional wetlands) under the authority of Section 404 of the CWA. The USCOE would regulate any development that affects jurisdictional wetlands. As part of the 404 permit, coordination with U.S. Fish and Wildlife Service (USFWS) would be required.

4.12.1.2 State Regulations

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is the principal law governing water quality regulation in California. Porter-Cologne applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources. The study area is located within Region 5 – the Central Valley River Basin RWQCB. Porter-Cologne incorporates many provisions of the federal CWA, such as delegation to the SWRCB and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

NPDES Stormwater Discharge Permits

Surface water quality is regulated by the NPDES, which was developed by the U.S. Environmental Protection Agency (U.S. EPA) in accordance with Section 303 of the CWA. In the state of California, the SWRCB administers the NPDES program, with implementation and enforcement by the RWQCBs.

The California SWRCB Water Quality Order 99-08-DWQ: The NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) authorizes a general permit for stormwater discharges associated with construction activities that disturb one or more acres of land.

In 1999, the SWRCB issued an NPDES permit (Order No. 99-06-DWQ, CAS0000003) that regulates stormwater discharges from California Department of Transportation (Caltrans) facilities. The permit requires Caltrans to comply with the requirements of the Construction General Permit and regulates stormwater discharges from Caltrans rights-of-way both during and after construction. The permit requires Caltrans to maintain and implement an effective Stormwater Management Plan (SWMP) that

identifies and describes best management practices (BMPs) used to control the discharge of pollutants to waters of the United States.

Pollutant sources from Caltrans rights-of-way, properties, facilities, and activities include motor vehicles, highway maintenance, construction site runoff, maintenance facility runoff, illegal dumping, spills, and landscaping care.

Placer County and portions of Sutter County are designated within the NPDES Phase II General Permit. Under this permit, stormwater discharges shall not cause or contribute to an exceedance of water quality standards contained in a Statewide Water Quality Control Plan, the California Toxics Rule (CTR), or the applicable RWQCB Basin Plan. The applicable Basin Plan for the project area is the Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins (CVRWQCB, 1998). The Basin Plan establishes water quality objectives and implementation programs to meet stated objectives and protect the beneficial uses of water in the basin, in compliance with the CWA and Porter-Cologne.

The SWRCB regulates activities that could result in adverse impacts to groundwater quality. Policies and regulations promulgated by the SWRCB (under either its CWA authority or state-derived authority) are implemented and enforced by the Central Valley Regional Water Quality Control Board (CVRWQCB). Groundwater-related activities are governed by NPDES permits or Waste Discharge Requirements (WDRs) issued by the CVRWQCB. The CVRWQCB also oversees local implementation of underground storage tank management programs and other programs related to prevention and control of groundwater impacts.

California Lake and Streambed Alteration Program

The California Department of Fish and Game's (CDFG) Lake and Streambed Alteration Program (California Fish and Game Code Section 1600-1607) requires any project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the project.

4.12.1.3 General Plans and Policies

Sutter and Placer counties each have local regulations in their general plans that are relevant to water quality. The general plans contain goals and policies to minimize potential impacts associated with water quality. The counties are responsible for reviewing and approving development plans within their unincorporated areas. The Water Quality Technical Memorandum (URS, 2007i) lists the specific goals and policies.

4.12.2 AFFECTED ENVIRONMENT

This section describes the existing conditions with respect to water quality. The hydrologic setting is based on existing available data, maps, and reports.

Water quality affects the human and the natural environment, including fisheries, wildlife, recreation, and human health. Surface water quality generally can be characterized by surrounding land uses. The historical land use in the study area has been agricultural, primarily grazing and pasture. Typical constituents that would be expected in runoff from pasturelands would include nitrogen, phosphorus, and coliform bacteria. With recent urbanization in the study area, additional constituents that would be expected include oil, grease, metals, pesticides, and herbicides. Water quality degradation from nonpoint–source pollutants is primarily the result of stormwater runoff carrying pollutants from the land surface to the receiving waters. If stormwater runoff from rural and urban areas contains excessive levels of pollutants (e.g., pesticides, herbicides, or hydrocarbons), this can result in adverse effects on aquatic-dependent wildlife and fisheries.

In the study area, the urban/commercial uses that may contribute to nonpoint–source pollution include automobiles (tires, oil leaks, brake linings, catalytic converters), the improper use and disposal of chemicals (pesticides, fertilizers, herbicides, paints, paint thinners, solvents, petroleum chemicals), erosion of unprotected surfaces, structural surfaces (street pavement, galvanized pipes, roofing materials, wood preservatives), and solid waste (litter and debris, vegetative matter, pet droppings) (James M. Montgomery, 1992).

Stormwater runoff originating within the study area drains to the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, Pleasant Grove Creek, Curry Creek, and Auburn Ravine, which are tributaries to the Sacramento River. This river is a primary source of water for the City of Sacramento as well as for the Sacramento-San Joaquin Delta and is important as a source of domestic water and for recreation, fisheries, and wildlife habitats (James M. Montgomery, 1992). Key beneficial uses of the receiving waters are designated as municipal, domestic, and agricultural supply, recreation, and freshwater habitat (CVRWQCB, 1998); these beneficial uses depend, in part, on maintaining existing water quality. None of the creeks within the study area are on the RWQCB's 2002 list of designated impaired streams (i.e., the Section 303(d) list); however, the downstream section of the Sacramento River between Knights Landing and the Delta, approximately 16 miles long, is designated as an impaired stream for diazinon (agricultural source), mercury (abandoned mine source), and other toxins from unknown sources (CVRWQCB, 2003). In 2005, the RWQCB prepared to delist diazinon from the Section 303(d) list for this segment of the Sacramento River (RWQCB, 2005a; RWQCB, 2005b) because applicable water quality standards for this pollutant are not exceeded based on available data.

Water monitoring studies for the Sacramento River indicate that the river's water quality is generally of high quality (Quad Knopf, 2006). The water quality is affected primarily by land use practices within the watershed and associated urban runoff, stormwater discharges, agricultural runoff, effluent discharge from wastewater treatment plants, and acid mine drainage from abandoned mines. Certain priority pollutants (e.g., trace metals and pesticides) have been detected in the Sacramento River at levels above state water quality objectives; however, most monitored constituents, with the exception of some metals, typically meet water quality objectives. As a raw municipal water source, total dissolved solids (TDS), total organic carbon (TOC), and pathogen levels are of concern for the Sacramento River but are currently at acceptable regulatory levels (Quad Knopf, 2006).

4.12.2.1 Natomas Basin

There are no streams within the Natomas Basin. Water is conveyed through the area via a system of canals. No water quality data are available for these canals.

4.12.2.2 Pleasant Grove Creek Watershed

Water quality sampling was conducted to support the Pleasant Grove/Curry Creek Ecosystem Restoration Plan (ERP) (Foothill Associates, 2005). The results from quarterly sampling conducted from spring 2004 through spring 2005 at several locations within the Pleasant Grove Creek watershed indicate the following potential concerns related to water quality for the creek:

- Water temperature during summer ranged from 20.8 degrees Celsius (°C) to 25.0°C (69.4 degrees Fahrenheit [°F] to 77°F), exceeding the 20°C (68°F) criteria set in the Basin Plan;
- Dissolved oxygen (DO) during summer was below the 5 milligrams per liter (mg/L) criteria set in the Basin Plan. Low flows and the resulting stagnation and increased water temperatures contributed to these low DO values; and

- Elevated levels of coliform and *Escherichia coli* (*E. coli*), which may be attributed to wildlife.

4.12.2.3 Curry Creek Watershed

Water quality sampling of Curry Creek was conducted quarterly from spring 2004 through spring 2005 at several locations within the Curry Creek watershed (Foothill Associates, 2005). The results, which are similar to those for Pleasant Grove Creek, indicate the following potential concerns related to water quality:

- Water temperature during summer ranged from 20.8°C to 25.0°C, exceeding the criteria of 20°C set in the Basin Plan;
- DO during summer was below the 5 mg/L criteria set in the Basin Plan. Low flows, and the resulting stagnation and increased water temperatures, contributed to these low DO values;
- Elevated levels of coliform and *E. coli*, which may be attributed to wildlife; and
- Elevated levels of turbidity and total suspended solids.

4.12.2.4 Auburn Ravine Watershed

The Auburn Ravine/Coon Creek ERP contains preliminary data on heavy metals and a number of other constituents for Auburn Ravine (Placer County, 2002). Cadmium, copper, and zinc were present at some times of the year at levels exceeding the California Toxic Rule objectives for aquatic life; however, other studies show that heavy metals did not exceed California Toxic Rule standards. In Auburn Ravine, the only metal that exceeds the standards at 50 mg/L hardness criterion is copper.

4.12.2.5 Natomas East Main Drainage Canal Watershed

NEMDC/Steelhead Creek, is a potentially significant cumulative source of urban loads of drinking water contaminants to the Sacramento-San Joaquin Delta. Water quality monitoring was performed from 1997 to June 2002 (DWR, 2003). Results indicated the following:

- TDS levels for water samples from NEMDC ranged from 58 to 338 mg/L and were higher overall than Sacramento area urban runoff, although the range of values was similar;
- Electrical conductivity (EC) was relatively high and ranged from 81 to 561 micrograms per liter (μg/L);
- Bromide levels were detected at levels above the Bay-Delta program target of concern of 0.05 mg/L for drinking water sources. Bromide levels averaged 0.054 mg/L, with a high value of 0.11 mg/L;
- Combined nitrate values were very high, often exceeding the maximum contaminant level (MCL) (10 mg/L as nitrogen). Of the total 64 combined samples, 22 exceeded the MCL, with high values of 22.8 mg/L and 16.3 mg/L; and
- Diazinon was detected in 9 of 14 samples, ranging from <0.01 μg/L to 0.19 μg/L. These results are not unexpected due to the historically high concentrations and the level of concern about this pesticide in the Arcade Creek watershed.

4.12.3 IMPACT ANALYSIS

4.12.3.1 Methodology for Impact Evaluation

Potential impacts to water quality were evaluated through a quantitative comparison of the potential impact of each of the proposed alternatives on relevant parameters affecting water quality. The criteria

used in this analysis were developed to allow comparison of potential impacts to water quality associated with each of the alternative corridors. The focus of this Tier 1 analysis was to identify potential impacts that differentiate between proposed build alternatives. For example, the measurement of impervious area quantifies the magnitude of that resource in the watersheds that potentially would be affected by the Parkway. An alternative that has more impervious area potentially would contribute more runoff and more pollutants. Comparison of the magnitude of impervious area for each corridor alignment alternative is a quantitative approach to comparing the relative potential impact of the various alternatives.

4.12.3.2 Evaluation Criteria

Potential significant impacts to water quality have been evaluated on a preliminary basis, using the evaluation criteria listed below.

Table 4.12-1 summarizes the evaluation criteria considered in the analysis of the corridor alignment alternatives. These criteria are described below.

Amount of Impervious Area. The increase in impervious area due to implementation of the Parkway would result in increased peak flows and runoff volumes. Potential pollutants from the paved roadway surfaces would be carried by the increased runoff from the roads to the streams. Highly impervious surfaces create high velocities that easily transport solids or scour contaminants from surfaces. Roadway surfaces, which are impervious, also increase the likelihood for first-flush flows (low flows with high concentration of pollutants) to occur.

With respect to construction activities, the amount of paved area is indicative of the amount of soil that may be disturbed and require erosion controls and stabilization.

The grading involved in construction of all the build alternatives would decrease vegetative cover and increase the potential for soil erosion and thereby could cause a temporary increase in suspended solids in runoff and local receiving waters. Surfaces disturbed during construction would be paved or vegetated, and the potential for erosion would be very low after construction has been completed. In addition to impacts from erosion, impacts to runoff water quality during construction potentially could result from leaks or spills of fuel or hydraulic fluid used in construction equipment; outdoor storage of construction materials; or spills of paints, solvents, or other potentially hazardous materials commonly used in construction. BMPs would be employed to ensure that such impacts on water quality are avoided.

The most common contaminants in highway runoff are heavy metals, inorganic salts, aromatic hydrocarbons, and suspended solids that accumulate on the road surface as a result of regular highway operation and maintenance activities. Ordinary operations and the wear and tear of vehicles result in the dropping of oil, grease, rust, hydrocarbons, rubber particles, and other solid materials on the highway surface. These materials are washed off the highway during rain events. Receiving surface waters are susceptible to contamination from these sources (FHWA, 1999). Additionally, pollutants would tend to be flushed from impervious surfaces where they accumulate (e.g., paving) into drainage conveyances. Stormwater runoff from road surfaces and interchanges would be expected to contain oils, grease, and debris.

Stream Crossings. Stream crossings provide an opportunity for stormwater runoff that may contain pollutants to enter a waterway. Crossings may constrict or block natural streamflows and may result in erosion. Special considerations must be addressed when construction is performed in or near creeks, such as limiting fill placed in creeks and minimizing alteration of streams. Stream crossings in relation to the alternatives and segments are shown on Figure 4.11-3 in Section 4.11, Hydrology and Floodplains.

Table 4.12-1
Summary of Criteria Used for Evaluation of Alternatives:
Water Quality

Evaluation Criteria	Regulatory Concerns (Potential Impacts)	Quantitative Evaluation Approach	Justification
Amount of Impervious Area	• Increase amount of runoff and amount of pollutants from roadway surface • Increase the potential for erosion during construction activities	Magnitude of area affected; lower value better	Potential increase in impervious area and resultant increase in runoff and pollutants may affect downstream areas; objective is to minimize the increase in impervious area Larger area disturbed during construction increases potential for erosion
	• BMPs required to offset increases in runoff and eliminate discharge of pollutants	Magnitude of area potentially available for BMPs; higher value better	Opportunities to site BMPs (e.g., ability to locate detention basins/swales within the right-of-way to attenuate peak runoff)
Stream Crossings	• Provide discharge point for pollutants to enter stream • Crossing may require streambed alteration • Restriction on construction activities in channels	Number of streams crossed by each alternative; lower number better	Alternative crossing may affect water quality of downstream segments; objective is to minimize the number of streams potentially affected Streambed alteration requires permit from CDFG Placement of fill in channel requires Section 404 permit
Amount of Watershed Downstream of Stream Crossing	• Increase impacts to downstream reaches	Magnitude of area affected; lower value better	Alternative may affect water quality discharge to stream; objective is to minimize the amount of stream potentially affected, therefore crossing lower in the watershed is preferable
Amount of Wetlands and Vernal Pool Complex Areas Crossed	• Potential for pollutants to be discharged into sensitive areas	Magnitude of area affected; lower value better	Alternative may affect water quality discharge to adjacent wetlands or vernal pool complex areas; objective is to minimize the number of areas potentially affected
Canal Crossings	• Potential for pollutants to enter canal	Number of canals crossed by each alternative; lower number better	Alternative crossing may affect water quality of canal; objective is to minimize the number canals potentially affected

Amount of Watershed Downstream of Crossing. The location of stream crossings in relation to the watershed provides an indication on how much of the creek and watershed may be affected. Discharge of pollutants into the headwaters of a creek would affect the entire creek system, whereas discharge into the lower reaches would impact less of the system and may benefit from dilution effects of higher flows.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. Ecologically sensitive areas are particularly vulnerable to contamination. Special considerations may be required to prevent discharge of pollutants to these areas from construction activities. Discharge of road runoff that may contain pollutants should not be directed to these areas. Wetlands and vernal pool complex areas in relation to the alternatives and segments are shown on Figure 4.12-1.

Canal Crossings. Similar to stream crossings described above, roads and bridges that cross canals may discharge pollutants into canals. Canal crossings in relation to the alternatives and segments are shown on Figure 4.11-3 in Section 4.11, Hydrology and Floodplains.

Comparative data were collated and evaluated for each corridor alignment alternative and its segments (i.e., Western, Central, and Eastern) using Geographic Information System (GIS) technology. Tables 4.12-2 and 4.12-3 summarize the information for each alternative and segment.

4.12.3.3 Direct Impacts

The No-Build Alternative

Under the No-Build Alternative (see Section 2.3-1), land for the future construction of the Placer Parkway would not be acquired and the Parkway would not be constructed. No impacts on water quality would occur as a result of the No-Build Alternative.

Alternative 1 – the Red Alternative

Western Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 322 acres (see Table 4.12-2). Most of this is in the Natomas Basin watershed (316 acres), with the remaining 6 acres in the NEMDC/Steelhead Creek watershed. The amount of impervious area includes the road, shoulder, and interchanges.

Stream Crossings. In this part of the study area, the canals have intercepted the former creeks; therefore, there are no creek crossings along this segment. As discussed in Section 4.11, Hydrology and Floodplains, approximately half of the corridor associated with this segment would be within the 100-year floodplain, which is essentially an extensive and flat area.

Amount of Watershed Downstream of Crossing. Since there are no stream crossings within this segment, this criterion is not applicable.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. This segment crosses approximately 0.3 acre of wetlands and approximately 23 acres of vernal pool complex area (see Figure 4.12-1). Unless detailed mapping shows otherwise, it appears that the Parkway would not be able to avoid these areas.

Canal Crossings. This segment would cross the NEMDC/Steelhead Creek.

Central Segment

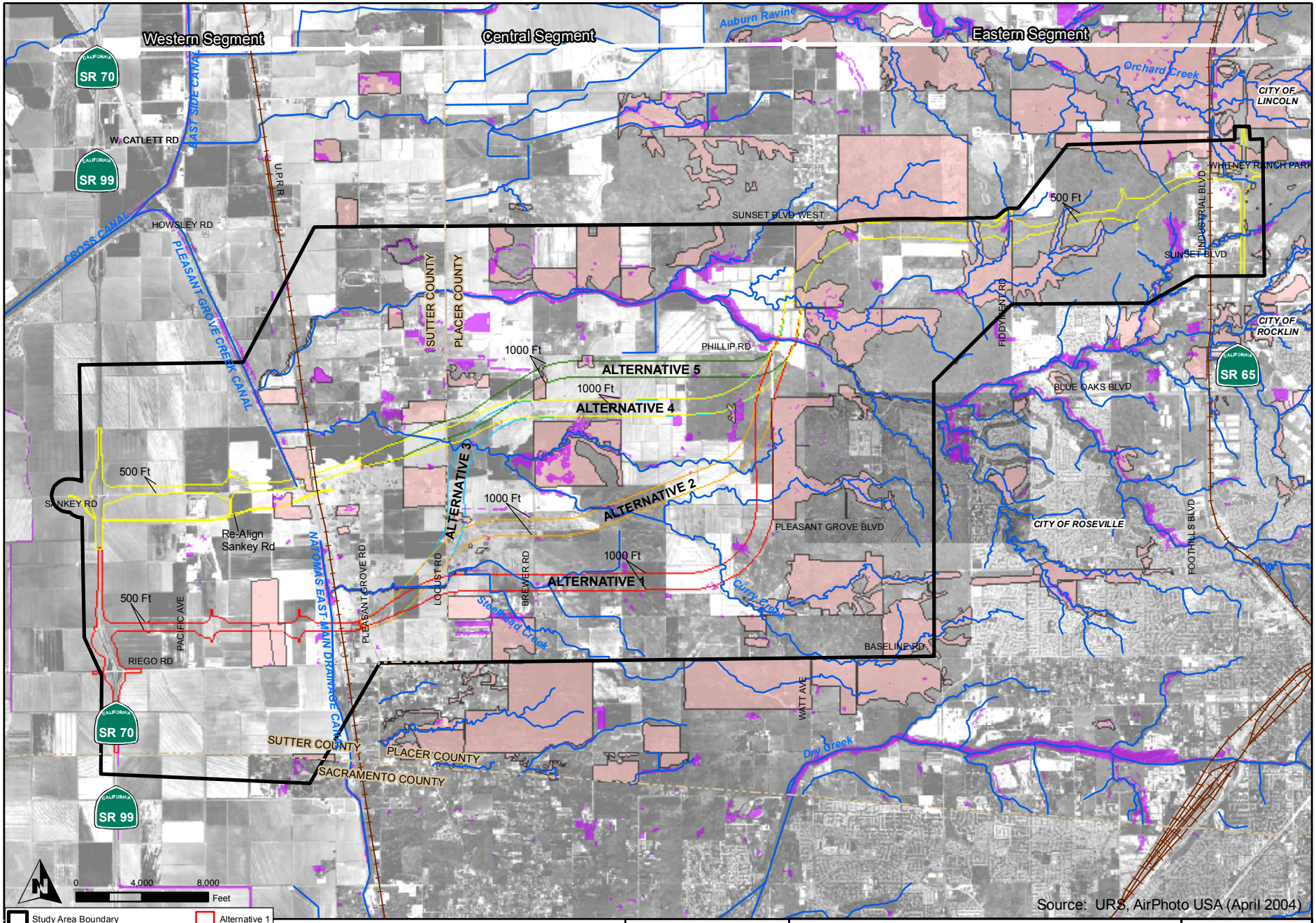
Amount of Impervious Area. The estimated amount of impervious area associated with the Central Segment is 103 acres. Approximately 51, 33, and 19 acres are within the NEMDC/Steelhead Creek, Curry Creek, and Pleasant Grove Creek watersheds, respectively.

Table 4.12-2
Summary of Corridor Alignment Alternatives: Water Quality Parameters

Alternative	Segment	Length (feet)	Number of Watersheds Traversed	Impervious Area (acres)	Wetlands Crossed (acres)	Vernal Pool Complex Areas Crossed (acres)	Inter-changes (#)	Number of Stream Crossings (#)	Canal Crossings (#)
1	Western	15,300	2	322	0.3	23	3	0	1
	Central	40,600	3	103	15.5	6	0	9	0
	Eastern	29,600	2	321	20.0	94	3	6	0
	Total	85,500	5	745	35.8	123	6	15	1
2	Western	15,300	2	322	0.3	23	3	0	1
	Central	36,400	3	94	10.6	7	0	5	0
	Eastern	29,600	2	321	20.0	94	3	6	0
	Total	81,300	5	737	30.9	124	6	11	1
3	Western	15,300	2	322	0.3	23	3	0	1
	Central	37,500	3	97	11.7	10	0	4	0
	Eastern	29,600	2	321	20.0	94	3	6	0
	Total	82,400	5	740	32.0	127	6	10	1
4	Western	15,300	2	223	0.3	9	2	0	1
	Central	30,600	2	80	8.0	4	0	3	0
	Eastern	29,600	2	321	20.0	94	3	6	0
	Total	75,500	4	624	28.3	107	5	9	1
5	Western	15,300	2	223	0.3	9	2	0	1
	Central	30,100	2	78	7.7	21	0	3	0
	Eastern	29,600	2	321	20.0	94	3	6	0
	Total	75,000	4	622	28.0	124	5	9	1

Notes:

Alternatives and segments are shown on Figures 2-1, 4.11-1, 4.11-3, and 4.12-1. Impervious area includes assumptions for paved road surface, paved shoulders, and interchanges. Road surface assumes six lanes (three in each direction).



PLACER PARKWAY CORRIDOR PRESERVATION

Tier 1 EIS/EIR

Watershed Boundaries, Wetlands, and Vernal Pool Complexes

Figure 4.12-1

June 2007

Table 4.12-3
Summary of Distribution of Watersheds Crossed by Corridor Alignment Alternatives

Alternative	Total Watershed Area (sq. mi.)	Area Downstream of Crossing (sq. mi.)	Area in Corridor (sq. mi.)	Area Upstream of Crossing (sq. mi.)	Percentage of Watershed Downstream of Crossing
Steelhead Creek Watershed					
1	9	2.7	0.7	5.6	48
2	9	1.8	0.6	6.6	27
3	9	1.6	0.3	7.1	21
4	9	0	0	0	0
5	9	0	0	0	0
Curry Creek Watershed					
1	17	10.2	0.5	6.3	63
2	17	8.3	0.5	8.2	52
3	17	3.6	0.8	12.6	26
4	17	1.5	0.9	14.6	14
5	17	1.6	0.8	14.6	14
Pleasant Grove Creek Watershed					
1	47	11	0.3	35.7	24
2	47	11	0.3	35.7	24
3	47	11.1	0.2	35.7	24
4	47	11.1	0.3	35.7	24
5	47	11	0.3	35.7	24
Auburn Ravine Watershed					
1-5	79	0.4	0.2	0	99

Notes:
1. Areas based on information from CH2M Hill (1993).
2. The crossing is the same for all alternatives. Stream crossed is a minor tributary of Auburn Ravine. The total area of this tributary's watershed is approximately 0.6 square mile. The values in the table for area upstream and downstream of the crossing represent the areas within this tributary's watershed.

Stream Crossings. There are nine stream crossings within the Central Segment of Alternative 1: four on Steelhead Creek, three on Curry Creek, and two on Pleasant Grove Creek. This segment crosses approximately 7,000 feet of the NEMDC/Steelhead Creek longitudinally. Depending on the alignment of the road within the corridor, realignment of this section of Steelhead Creek may be required. Realignment or reconfiguration of this creek would require a Streambed Alteration agreement from CDFG.

The segment crosses Curry Creek and its tributaries in three locations. Within the Pleasant Grove Creek watershed, this segment crosses the main stem of Pleasant Grove Creek and its northern tributary.

Amount of Watershed Downstream of Crossing. The Central Segment of Alternative 1 crosses the NEMDC/Steelhead Creek in several locations, all of which are in the lower portion of the watershed. Approximately 38 percent of the watershed is below these stream crossings (see Table 4.12-3).

This segment crosses Curry Creek and its tributaries in three locations within the upper portion of the watershed. The estimated drainage areas above each crossing (southern, middle, and northern crossings) are approximately 4 square miles, 2 square miles, and less than 0.5 square mile, respectively. Approximately 63 percent of the watershed is below these stream crossings (see Table 4.12-3).

In the lower portion of Pleasant Grove Creek watershed, this segment crosses the main stem of Pleasant Grove Creek and its northern tributary. The estimated total drainage area of Pleasant Grove Creek above the proposed Parkway crossing is approximately 36 square miles. The estimated drainage area for the northern tributary to Pleasant Grove Creek above the Parkway crossing is approximately 5 square miles. Approximately 24 percent of the watershed is below these stream crossings (see Table 4.12-3).

Amount of Wetlands and Vernal Pool Complex Areas Crossed. The Central Segment of Alternative 1 crosses approximately 15.5 acres of wetlands and approximately 5.5 acres of vernal pool complex area (see Figure 4.12-1).

Within the Curry Creek watershed, this segment runs alongside and immediately downstream of a large vernal pool complex area. It is unlikely that stormwater runoff from the roadway would discharge into this area.

A portion of this segment near the northern Pleasant Grove Creek tributary crossing passes through a vernal pool complex area.

Canal Crossings. The Central Segment of Alternative 1 does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Eastern Segment

Amount of Impervious Area. The estimated amount of impervious area associated with the Eastern Segment is 321 acres, of which approximately 299 acres are within Pleasant Grove Creek watershed and the remaining 22 acres are within Auburn Ravine. The amount of impervious area includes the road, shoulder, and interchanges.

The total width of the proposed Parkway corridor is approximately 1,000 feet west of Fiddyment Road and approximately 500 feet wide east of Fiddyment Road segment. The corridor includes a 100-foot unpaved median, six travel lanes, and the Parkway's shoulders.

Stream Crossings. Six new stream crossings are within the Eastern Segment of Alternative 1: four on tributaries of Pleasant Grove Creek and two on tributaries of Orchard Creek. All of these crossings are in the headwaters of the creeks; therefore, culverts would be used at these crossings. In addition, this segment includes three existing stream crossings along SR 65.

Amount of Watershed Downstream of Crossing. This segment crosses several tributaries of Pleasant Grove Creek within the headwaters of each tributary. These tributaries join the main stem of Pleasant Grove Creek within the lower portion of the watershed.

Similarly, this segment crosses the tributaries of Orchard Creek at their headwaters. These tributaries join Auburn Ravine in the lower portion of the watershed.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. The Eastern Segment crosses approximately 16 acres of wetlands and approximately 94 acres of vernal pool complex area (see Figure 4.12-1). Most of these areas are associated with Pleasant Grove Creek and its tributaries. A small portion is associated with the tributaries of Orchard Creek within the Auburn Ravine watershed.

All three of the Pleasant Grove Creek tributary crossings coincide with vernal pool complex areas. The three Orchard Creek tributary crossings appear to be adjacent to or immediately upstream of the vernal pool complex areas.

Canal Crossings. The Eastern Segment of Alternative 1 does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Alternative 2 – the Orange Alternative

Western Segment

The Western Segment of Alternative 2 would be the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Central Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 94 acres. Approximately 41, 35, and 19 acres are within the NEMDC/Steelhead Creek, Curry Creek, and Pleasant Grove Creek watersheds, respectively.

Stream Crossings. Five stream crossings are within the Central Segment of Alternative 2: one on Steelhead Creek, two on Curry Creek, and two on Pleasant Grove Creek. Culverts may be used at smaller creek crossings. Where creek crossings coincide with floodplain crossings, the road would be elevated on a bridge.

Amount of Watershed Downstream of Crossing. The Central Segment of Alternative 2 crosses Steelhead Creek in the lower portion of the watershed. Approximately 27 percent of the watershed is below these stream crossings (see Table 4.12-3).

This segment crosses Curry Creek and its tributaries in three locations within the middle portion of the watershed. Approximately 52 percent of the watershed is below these stream crossings (see Table 4.12-3).

Within the Pleasant Grove Creek watershed, this segment crosses the main stem of Pleasant Grove Creek and its northern tributary within the lower portion of the watershed. The estimated total drainage area of Pleasant Grove Creek above the proposed Parkway crossing is approximately 30 square miles. The estimated drainage area for the northern tributary to Pleasant Grove Creek above the Parkway crossing is approximately 5 square miles. Approximately 24 percent of the watershed is below these stream crossings (see Table 4.12-3).

Amount of Wetlands and Vernal Pool Complex Areas Crossed. The Central Segment of Alternative 2 crosses approximately 10.6 acres of wetlands and approximately 6.9 acres of vernal pool complex area (see Figure 4.12-1).

Canal Crossings. The Central Segment of Alternative 2 does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Eastern Segment

The Eastern Segment of Alternative 2 is the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Alternative 3 – the Blue Alternative

Western Segment

The Western Segment of Alternative 3 would be the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Central Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 97 acres. Approximately 23, 58, and 16 acres are within the NEMDC/Steelhead Creek, Curry Creek, and Pleasant Grove Creek watersheds, respectively.

Stream Crossings. Four stream crossings are within this segment: one on the NEMDC/Steelhead Creek, one on Curry Creek, and two on Pleasant Grove Creek. Culverts or a bridge could be used at the Steelhead Creek crossing. The Curry Creek and Pleasant Grove Creek crossings coincide with floodplain crossings; therefore, the road would be elevated on a bridge.

Amount of Watershed Downstream of Crossing. The Central Segment of Alternative 3 crosses the NEMDC/Steelhead Creek in the lower portion of the watershed. Approximately 21 percent of the watershed is below these stream crossings (see Table 4.12-3).

This segment crosses Curry Creek and its tributaries in three locations within the lower portion of the watershed. Approximately 26 percent of the watershed is below these stream crossings (see Table 4.12-3).

Within the Pleasant Grove Creek watershed, impacts are identical to the Central Segment of Alternative 2.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. This segment crosses approximately 11.7 acres of wetlands and approximately 10.4 acres of vernal pool complex area (see Figure 4.12-1).

Within the Curry Creek watershed, the corridor runs near, but not adjacent to, a vernal pool complex for approximately 6,000 feet. Along this portion of the corridor, the proposed road would be upstream of the vernal pool complex and Curry Creek. Special considerations with respect to selection and siting of BMPs therefore may be required to ensure that the vernal pool complex area is not affected adversely by stormwater runoff from the Parkway.

Canal Crossings. This segment does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Eastern Segment

The Eastern Segment of Alternative 3 is the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Alternative 4 – the Yellow Alternative

Western Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 223 acres.

Stream Crossings. In this part of the study area, the canals have intercepted the former creeks; therefore, there are no creek crossings along this segment. As discussed in the Floodplain Technical Memorandum (URS, 2007i), essentially all of the Western Segment associated with Alternative 4 would be within the 100-year floodplain, which is an extensive area of flat land.

Amount of Watershed Downstream of Crossing. Since there are no stream crossings within this segment, this criterion is not applicable.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. The Western Segment of Alternative 4 crosses approximately 0.3 acre of wetlands and approximately 9 acres of vernal pool complex area (see Figure 4.12-1). Unless detailed mapping shows otherwise, it appears that the proposed roadway would not be able to avoid these areas.

Canal Crossings. This segment would cross the Pleasant Grove Creek Canal. This portion of the road would be elevated on a bridge. The approximate width of the canal at this crossing is on the order of 150 to 200 feet.

Central Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 80 acres. Approximately 60 and 19 acres are within the Curry Creek and Pleasant Grove Creek watersheds, respectively.

Stream Crossings. Three stream crossings are within the Central Segment of Alternative 4: one on Curry Creek and two on Pleasant Grove Creek. The Curry Creek and Pleasant Grove Creek crossings coincide with floodplain crossings; therefore, the road would be elevated on a bridge.

Amount of Watershed Downstream of Crossing. The Central Segment of Alternative 4 crosses Curry Creek in the lower portion of the watershed. Approximately 14 percent of the watershed is below these stream crossings (see Table 4.12-3).

Within the Pleasant Grove Creek watershed, impacts are identical to the Central Segment of Alternative 2.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. The Central Segment crosses approximately 8 acres of wetlands and approximately 3.7 acres of vernal pool complex area (see Figure 4.12-1).

Depending on the alignment of the roadway within the corridor, it may be possible to avoid most of the wetlands and vernal pool complex areas. Similar to the Central Segment for Alternative 3, the corridor runs near, but not adjacent to, a vernal pool complex for approximately 6,000 feet within the Curry Creek watershed. Along this portion of the corridor, the proposed road would be upstream of the vernal pool complex and Curry Creek.

Canal Crossings. This segment does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Eastern Segment

The Eastern Segment of Alternative 4 would be the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Alternative 5 – the Green Alternative

Western Segment

The Western Segment of Alternative 5 would be the same as for Alternative 4. Therefore, the potential impacts for this segment are the same as discussed for Alternative 4.

Central Segment

Amount of Impervious Area. The estimated amount of impervious area associated with this segment is 78 acres. Approximately 60 and 19 acres are within the Curry Creek and Pleasant Grove Creek watersheds, respectively.

Stream Crossings. Three stream crossings are within this segment: one on Curry Creek and two on Pleasant Grove Creek. The Curry Creek and Pleasant Grove Creek crossings coincide with floodplain crossings; therefore, the road would be elevated on a bridge.

Amount of Watershed Downstream of Crossing. The Central Segment of Alternative 5 would cross Curry Creek in the lower portion of the watershed. Approximately 14 percent of the watershed is below these stream crossings (see Table 4.12-3).

Within the Pleasant Grove Creek watershed, impacts are identical to the Central Segment of Alternative 2.

Amount of Wetlands and Vernal Pool Complex Areas Crossed. This segment crosses approximately 7.7 acres of wetlands and approximately 21 acres of vernal pool complex area (see Figure 4.12-1).

A section of the corridor (less than approximately 1,000 feet) runs through a vernal pool complex area within the Curry Creek watershed. Special considerations with respect to selection and siting of BMPs therefore may be required to ensure that the vernal pool complex area is not affected adversely by stormwater runoff from the Parkway.

Canal Crossings. This segment does not cross any existing canals. Therefore, there would be no potential impacts to canals.

Eastern Segment

The Eastern Segment of Alternative 5 would be the same as for Alternative 1. Therefore, the potential impacts for this segment are the same as discussed for Alternative 1.

Comparison of Alternatives

The five alternatives are summarized and ranked in Table 4.12-4. The No-Build Alternative is not shown on Table 4.12-4 because no impacts would be associated with this alternative.

Alternative 1 would be the longest route and would have the largest increase in impervious area, and Alternative 5 would be the shortest route and have the smallest amount of impervious area. The difference between these two alternatives is 123 acres, which is approximately 20 percent. Increased

Table 4.12-4
Summary of Alternative Ranking: Water Quality

Alternative	Total Length		Impervious Area		Stream Crossings		Canal Crossings		Watersheds	
	Feet	Rank	Acres	Rank	Number	Rank	Number	Rank	Number	Rank
1	85,500	5	745	5	15	4	1	0	5	2
2	81,300	3	737	3	11	3	1	0	5	2
3	82,400	4	740	4	10	2	1	0	5	2
4	75,500	2	624	2	9	1	1	0	4	1
5	75,000	1	622	1	9	1	1	0	4	1

Alternative	Wetlands Crossed		Vernal Pool Complex Areas Crossed		Number of Interchanges		Amount of Curry Creek Watershed Downstream of Crossing		Total Rank
	Acres	Rank	Acres	Rank	Number	Rank	Percentage	Rank	
1	35.8	5	123	2	6	2	63	4	32
2	30.9	2	124	3	6	2	52	3	18
3	32	4	127	4	6	2	26	2	24
4	28.3	3	107	1	5	1	14	1	12
5	28	1	124	3	5	1	14	1	9

Note:
Rankings range from least impact per category (1) to most impact per category (5).

roadway surface increases the volume of runoff; therefore, Alternative 1 would have a greater potential impact on water quality, as described above. Three of the alternatives (Alternatives 1, 2, and 3) would have six interchanges, and the other two (Alternatives 4 and 5) would have five. The amount of impervious area associated with the interchanges is included in the amount of impervious area for each alternative.

Alternative 3 would have the fewest stream crossings, and Alternative 1 would have the most. Alternative 1 would cross Steelhead Creek longitudinally for approximately 7,000 feet; this may require relocation of the creek or realignment of the corridor. Alternatives 4 and 5 would cross Curry Creek lower in the watershed than would Alternatives 1, 2, and 3; therefore, these alternatives would have fewer potential impacts on the water quality of Curry Creek (i.e., less of Curry Creek would be affected by the project). In addition, Alternatives 4 and 5 would avoid Steelhead Creek and thus potentially affect one less watershed and stream than would Alternatives 1, 2, and 3.

The corridor associated with Alternative 1 traverses the largest amount of wetlands; Alternative 3 would traverse the largest amount of vernal pool complex areas; Alternative 5 would cross through the smallest amount of wetlands area; and Alternative 4 would traverse the smallest amount of vernal pool complexes. Although they would not cross through a large venal pool complex area, Alternatives 3 and 4 would run nearby and upstream of approximately 6,000 feet of vernal pool complex area.

Therefore, from a water quality perspective, Alternative 1 would represent the corridor with the highest potential to affect water quality and Alternative 5 would represent the corridor with the least potential. However, all alternatives would be designed and constructed with appropriate mitigation to avoid any adverse impacts on water quality.

4.12.3.4 Secondary and Indirect Impacts

No-Build Alternative

Under the No-Build Alternative (see Section 2.3-1), land would not be acquired and the Parkway would not be constructed. There would be no secondary or indirect impacts on water quality.

Alternatives 1 Through 5

Under build alternatives 1 through 5, secondary and indirect impacts on water quality could occur as a result of direct impacts associated with the Parkway. These impacts would be associated primarily with runoff. Secondary and indirect impacts associated with anticipated growth are discussed in Section 6.1, Growth.

Although it is not possible to predict with any certainty where increased runoff will occur, it is reasonable to assume that secondary and indirect impacts associated with reduction in pervious land cover and increased runoff, either from the construction of the Parkway or as a result of growth induced by the Parkway, could affect water quality adversely. This could occur in a number of ways:

- Increased nonpoint–source water pollution of surface water bodies through increased runoff from new developments;
- Impacts on aquatic flora and fauna as a result of degraded water quality and increased sedimentation; or
- Additional contamination of surface water bodies associated with new stream crossings required by new developments.

Secondary and indirect impacts are required to be mitigated through the NPDES Phase II General Permit for the Discharge of Stormwater.

4.12.3.5 Cumulative Impacts Evaluation

No-Build Alternative

Under the No-Build Alternative (see Section 2.3-1), land would not be acquired and the Parkway would not be constructed. There would not be any cumulative impacts on water quality.

Alternatives 1 Through 5

Future development projects would result in development of a large portion of the study area and adjacent areas. This would result in an increase in impervious services and loss of water features such as streams, wetlands, and vernal pools. The combined effects of increased areas of impervious surfaces associated with multiple projects, with the potential for the paved roadway surfaces to carry increased runoff from the roadway to the study area streams, could exacerbate adverse water quality impacts associated with individual projects through a corresponding increase in the volume and rate of runoff due to reduced percolation of surface water. Additionally, construction in, across, and/or over streams, wetlands, vernal pools, and canals has the potential to degrade water quality. The potential adverse impacts on water quality associated with this development would contribute to cumulative impacts on water quality in the study area.

Impacts associated with Placer Parkway would include an increase in impervious area, potentially resulting in increased peak flows and runoff volumes. The amount of impervious area associated with Placer Parkway would be roughly one square mile (ranging from approximately 0.98 square mile for Alternative 5 to approximately 1.2 square miles for Alternative 1). Although this is a very small amount compared to the total area of the watersheds and the Parkway's contribution to peak flows and volumes in the creeks would be expected to be small when combined with potential upstream flow increases, the cumulative impacts on water quality still could be substantial.

The Sutter County and Placer County General Plan policies and programs are intended to offset the potential direct and cumulative flooding and water quality problems that may arise from development. Both Sutter and Placer counties have ordinances that limit construction in floodplains. Given the specific policy directives of the General Plans, the project would have less than cumulatively considerable contributions to peak flows and floodplains. Although the amount of impervious area associated with the proposed Parkway would be approximately 1 square mile (ranging from approximately 0.98 square mile for Alternative 5 to approximately 1.2 square miles for Alternative 1), this is a very small portion of the total area of watershed and the project's contribution to peak flows and volumes in the creeks would be expected to be minor.

In addition, Placer County's General Plan policies and programs are intended to offset the potential direct and cumulative water quality problems that may arise from development. New developments are required to detain onsite drainage such that the rate of runoff is maintained at predevelopment levels. Because peak runoff rates from new development would be maintained at predevelopment levels, increases in channel erosion and sedimentation are not expected to occur. Given this regulatory environment, the relatively minor amount of impervious surface associated with Placer Parkway in comparison to the overall cumulative development scenario, and with development of the mitigation strategies identified in this section into enforceable mitigation measures, Placer Parkway's incremental contribution to cumulative impacts related to water quality would not be cumulatively considerable.

Construction activities must be performed in accordance with the NPDES General Permit for Construction Activities. No cumulative impacts related to water quality are expected to occur.

4.12.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

4.12.4.1 Tier 1 – Avoidance/Minimization Strategies

- During the development of alternatives, in order to reduce environmental impacts, avoidance alternatives were also considered (see Section 2.5.4). These alternatives did not meet the project Purpose and Need and were therefore eliminated from further consideration.

- During development of the Tier 1 conceptual design of the Parkway, efforts were made which directly or indirectly helped to avoid impacts on water quality. These efforts included:

  – The use of bridges to span floodplains. Culverts would be used at smaller creek crossings as appropriate, depending on local conditions and permit requirements. The Pleasant Grove Creek floodplain would be crossed by 1,600-foot multi-span bridges (one in each direction) supported by abutments located approximately 800 feet on either side of the creek to avoid the riparian habitat associated with the creek. Maximum span length would be 150 feet, with support by columns located outside of the ordinary high water level.

  – Roadway elevation within the 100-year floodplain such that the bottom of any new bridges would be above the 100-year water surface elevation. The roadway support structures and bridges would be designed to minimize environmental impact and not impede stream and flood flows.

  – The restriction of access between Pleasant Grove Road and Fiddyment Road. This would reduce the creation of impervious surfaces and associated water quality impacts.

  – The location of the Parkway within a no-development buffer zone (see Section 2.5) that would preserve open space and agricultural uses adjacent to the Parkway and limit future development in the buffer zone. This would help to minimize water quality impacts.

4.12.4.2 Tier 2 – Consultation

- PCTPA will continue to coordinate with local jurisdictions in Tier 2 to reduce the likelihood of impacts on water quality. Coordination will include development of specific project design details to minimize impacts as described below, and consultation regarding the design and location of other planned and proposed development in the study area.

4.12.4.3 Tier 2 – Mitigation Commitments

- Compliance with standard conditions in the form of regulatory requirements of federal, state and local agencies including compliance with NPDES requirements and Sutter and Placer county ordinances during Parkway construction and operations with respect to the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP)

and BMPs to prevent erosion, control runoff, reduce roadway and vehicle pollutants from entering watercourses; and prevention of pollution discharge off site. Additional details of these strategies are included in the Placer Parkway Water Quality Technical Memorandum. Specific strategies would include:

- Meeting Sutter and Placer county, and Reclamation District No. 1000 requirements for siting and design of facilities.
- Pursuant to the Phase II NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, the Parkway also must incorporate long-term, post-construction BMPs and monitoring to protect water quality and control runoff. Projects in Placer County must currently comply with these requirements. To comply with federal and state CWA requirements, local agencies may be required to adhere to Low Impact Development (LID) principles to protect water quality in the interest of fish and wildlife. LID strategies that integrate BMPs to protect water quality may also reduce runoff quality. Compliance with the applicable Caltrans and county NPDES Stormwater Permits; includes preparation and implementation of a Water Quality Management Plan.
- Compliance with the NPDES General Construction Activity Stormwater Permit; includes preparation and implementation of an SWPPP.
- Compliance with the applicable Sutter and Placer county ordinances that require Erosion and Grading Plans.

- If the Parkway involves discharge or places fill material into navigable water or wetlands, an application for a Section 404 permit must be submitted to the USCOE. This permit is required to ensure that discharge will not violate water quality standards.
- If the Parkway requires realignment of streams, which may include installation of culverts in streams, a Streambed Alteration agreement must be obtained from CDFG.
- In the event that during detailed design the need arises for dewatering during construction, the Placer County Transportation Planning Agency (PCTPA) will file an application for the Dewatering and Low Threat Discharges to Surface Waters Permit, Order No. 5-00-175 (NPDES CAG995001).
- The Caltrans Stormwater Quality Handbook (Caltrans, 2003a) Statewide Stormwater Management Plan (Caltrans, 2003b), and other Caltrans reference documents identify permanent and temporary BMPs that have been approved for statewide application and which must be considered during the planning and design process. Details of these BMPS are provided in the Placer Parkway Water Quality Technical Memorandum.

4.12.4.4 Tier 2 – Mitigation Considerations

- To offset the increased volume of runoff created by the Parkway, the Parkway proponents could contribute to an expansion of the Reason Farms Regional Retention Basin.. PCTPA will evaluate the potential use of an expansion of this retention basin as part of mitigation for the Parkway. Such an expansion would require City of Roseville approval and additional environmental review. PCTPA would also incorporate additional mitigation facilities to minimize run-off in areas outside of the Roseville Basin.

- PCTPA will identify and address, as needed, Pleasant Grove Creek/Curry Creek Watershed Management Groups' requirements. Objectives from the Pleasant Grove/ Curry Creek ERP may be relevant and should be considered during planning, design, and construction of Placer Parkway.

- Tier 2 design would consider, where possible, implementation of the following strategies to reduce potential impacts on water quality:

  – Limitation of disturbance during construction to minimize impacts, particularly near creeks, wetlands and vernal pool complexes, including limiting amount of fill placed in creeks, wetlands, or vernal pool complex areas and restoring disturbed areas to minimize erosion.

  – Locating the roadway to avoid or minimize impacts to streams and ecologically sensitive areas (e.g., wetlands and vernal pool complex areas).

  – Avoidance or minimization of stream crossings.

  – Consideration of bridges or viaducts across stream crossings where the angle of the crossing is 45 degrees or less.

  – Consideration of the use of a combination of a viaduct/conventional highway in the western part of the Parkway.

  – Alignment of the roadway within the corridor to decrease impervious cover by reducing the area of pavement or number of road miles.

  – Provision of sufficient setback distances in accordance with Caltrans and county requirements between the highway right-of-way and wetlands or riparian areas.

  – Location of the Parkway and bridges away from sensitive areas and establish buffer zones.

  – Mimic natural patterns as much as possible, including considering LID whenever appropriate.

  – Locate the alternative as low in the watershed as possible, to minimize the area affected.

  – Design project features to avoid direct discharge of roadway runoff that may contain pollutants into streams and other sensitive sites (e.g., wetlands and vernal pool complex areas).

  – Use of structural runoff controls, such as vegetated swales.

  – Obtaining floodplain easements on private land adjacent to the Parkway in order to provide potential detention/retention facilities to mitigate excessive run-off and provide flood control.

  – Identify and address, as needed, Natomas Basin Habitat Conservation Plan (NBHCP)'s Requirements, including ensuring that stormwater runoff from the Parkway should not be discharged directly into habitat areas of special-status

species (see the Placer Parkway Water Quality Technical Memorandum for further details).

4.12.5 TIER 1 AND TIER 2 STUDIES

- Analyses that will begin in Tier 2

  – Preparation of a Stormwater Data Report (SWDR) that summarizes the stormwater quality issues of the project. Guidelines for the SWDR and its accompanying checklists are provided in Caltrans' Project Planning and Design Guide (Caltrans, 2002). For Tier 2, the SWDR and the checklists will be preliminary because not all information will be available. The SWDR is updated as the project proceeds.

  – Preparation of a Stormwater Quality Assessment (SWQA). This identifies applicable stormwater regulations and stormwater impacts to be mitigated. It also identifies the receiving water discharges and evaluates the potential project-related stormwater impacts on the receiving water quality. Caltrans is preparing detailed information regarding the preparation of the SWQA; these guidelines will be available in the SWQA Guidance Document, Volume 5 of the Caltrans Standard Environmental Reference (web site http://www.dot.ca.gov/ser).

  – Selection of applicable BMPs to be considered for design based on Caltrans and county guidance and considering needs of the Pleasant Grove/Curry Creek ERP and NBHCP. Guidelines for BMP selection and its accompanying checklists are provided in Caltrans' Project Planning and Design Guide. For Tier 2, BMP selection will be preliminary because not all information will be available and will be refined as the proposed project proceeds. BMPs should be selected based on the information presented in the SWDR and SWQA. The analysis should include reviewing and completing the following Caltrans decision trees and checklists:

    1. Design Pollution Prevention Decision Tree DPP-1
    2. Checklist DPP-1, Design Pollution Prevention BMPs
    3. Treatment Decision Tree T-1
    4. Checklist T-1, Treatment BMPs