Other Changes

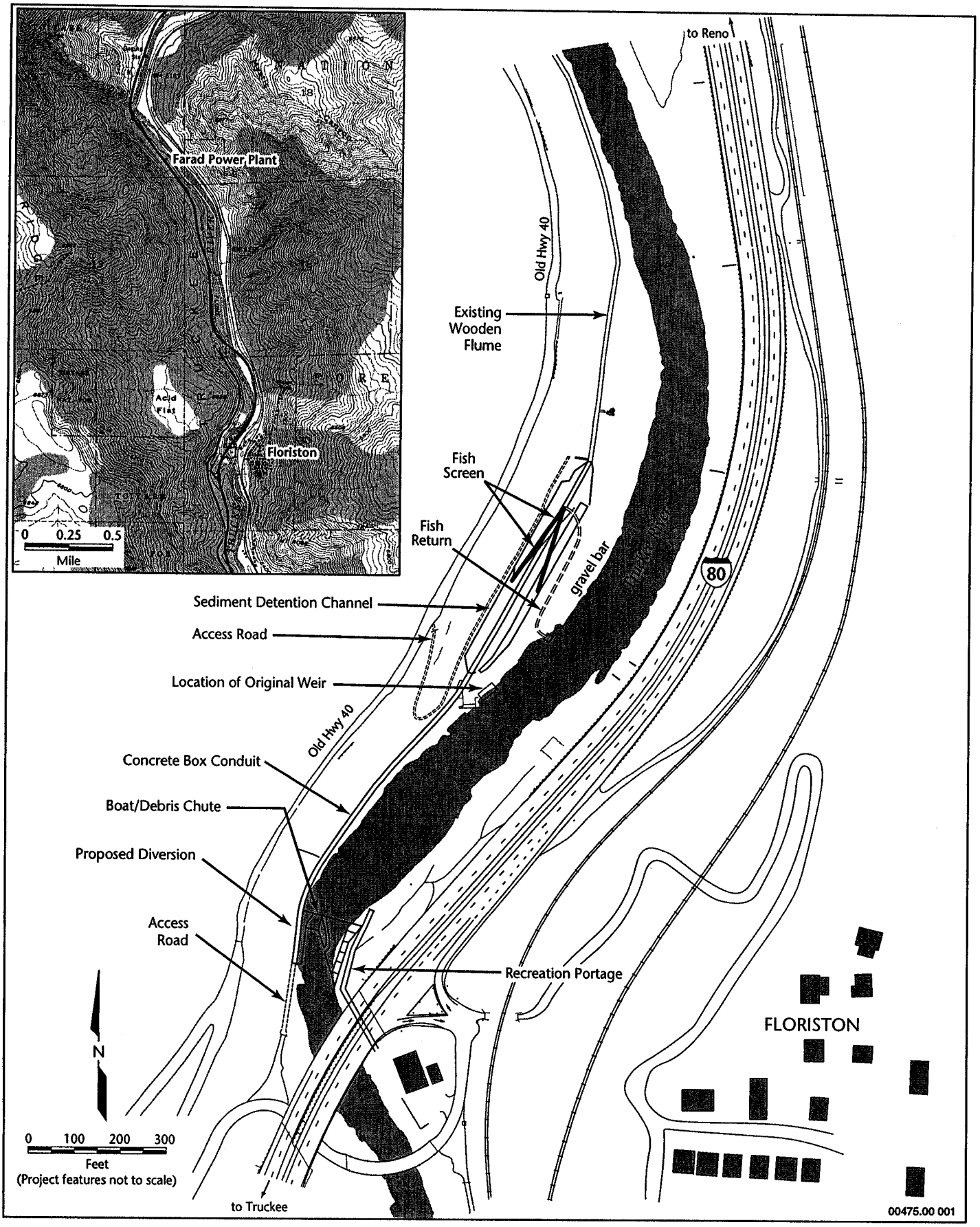

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Figure S-1
Proposed Project and Location

Table S-1. Continued

Resource and Impact		Alternative A: Proposed Project			Alternative B: In-Kind Replacement			Alternative C: No Project		
		No Impact	Less than significant	Significant*	No Impact	Less than significant	Significant*	No Impact	Less than significant	Significant*
8-3:	Effect on Habitat Suitability for Mountain Yellow-Legged Frogs as a Result of Decreased Flow in Truckee River		✓			✓		✓		
8-4:	Decrease in Suitable Foraging Habitat for Special-Status Bats		✓			✓		✓		
8-5:	Disturbance to Special-Status Wildlife Species during Maintenance Activities		✓			✓		✓		
	Recreation									
9-1:	Change in Recreation Opportunities during Project Construction Mitigation Measure 9-1: Implement appropriate measures to ensure public safety during project construction			✓			✓	✓		
9-2:	Change in Angling Success during Project Construction		✓			✓		✓		
9-3:	(14-4) Change in Boat Passage Resulting from Project Implementation		✓				✓ Unavoidable	✓		
9-4:	Impairment of Flows Affecting Designated Beneficial Uses (Change in Recreational Boating Opportunities during Project Operation) <u>Mitigation Measure 9-2: Contribute Money to the Design, Development, and Implementation of a Whitewater Recreation Park in Downtown Reno</u> Mitigation Measure 9-~~1~~ 3: Maintain 1 weekend per month of recreational flows from April to September, when available ~~Mitigation Measure 9-2: Create improved recreation access at the Farad powerhouse~~			✓			✓	✓		

* All significant impacts are reduced to a less-than-significant level with mitigation unless indicated as "unavoidable."

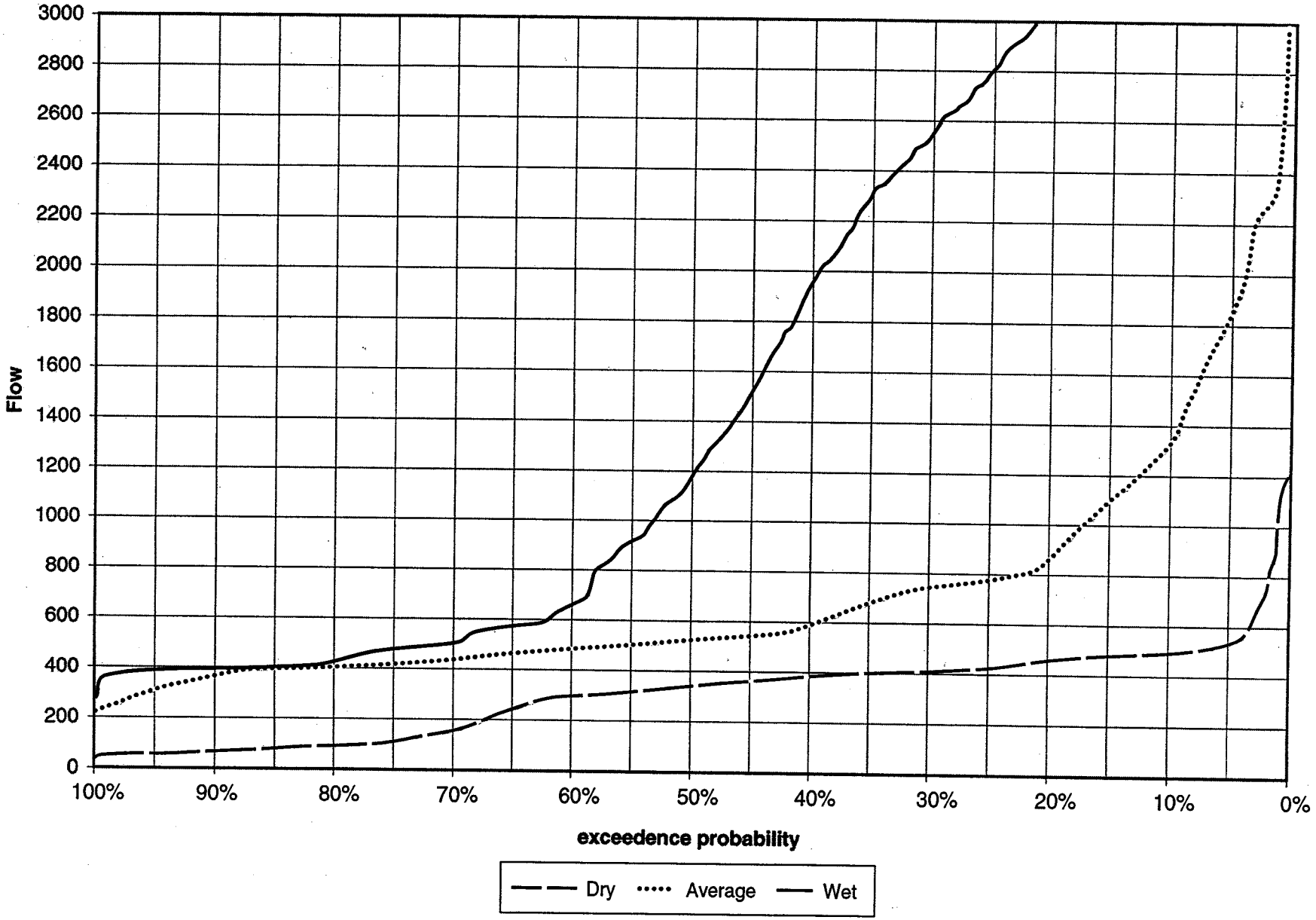

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Figure 3-4
Exceedence Probability at Floriston for the Driest, Average, and Wettest Years

Table 3-3. Flow Distribution through Proposed Project Facilities and Resulting Flows in the Truckee River

Truckee River upstream of diversion	Low-Flow Channel[1]	Inflatable Dam	High-Flow Channel	Fish Screen	Flume[2]	Power House	Truckee River downstream of diversion
≤50	≤50	0	0	0	5–7	0	≤ 50
>50	50	≤175	0	0	5–7	0	>50
>185 ≤525	50	0	0	10	25	> 100 ≤ 400	60
> 525	≥ 50	≥ 1	0	10	25	400	> 60
> 1,500	≥ 50	≥ 1,015	≥ 1	10	25	400	> 1,075

Notes:
[1] Flow split between low-flow roughened channel and inflatable dam varies depending on dam elevation.
[2] Quantity of water required to prevent deterioration of flume.

3.4.2 Groundwater

Groundwater in the project reach is confined to fluvial deposits adjacent to the active river channel; consequently, the groundwater level is essentially the same as the water level in the river. Although surface flows would be substantially reduced, groundwater levels would be largely unaffected because of the hydraulic conditions, primarily slope, and the river stage would not substantially change with increases or decreases in flow in the 425-cfs magnitude of the diversion.

3.5 Impacts and Mitigation Measures of Alternative A: Proposed Project

3.5.1 Construction-Related Impacts

Impact 3-1: Erosion and Siltation Resulting from Project Construction

Impact 3-1: Erosion and Siltation Resulting from Project Construction

The proposed project would require a temporary diversion of the course of the Truckee River to facilitate construction of project facilities. As described in chapter 2, "Description of Project Alternatives," the river would be diverted to a ~~bypass~~ temporary diversion channel east of the existing channel. The ~~bypass~~ diversion channel would be excavated in fluvial deposits that have accumulated along the inside bend of the river, and would be constructed of grouted boulders, concrete, and rocks. By diverting and isolating the river via the temporary diversion erosion and siltation due to other activities in the construction area would be minimized. ~~Although likely containing more fine material than the substrate in the active river channel, the deposit primarily consists of large~~

behind the diversion structure. Fine sediments would pass through the low-flow and high-flow bypass channels and would not silt up the pool. Because the proposed project would pass most sediment, there would not be accelerated erosion or winnowing of fine materials downstream of the diversion structure.

As with any in-channel structure, some material may accumulate during unusually large flood events and require maintenance activities to ensure that the fish screens operate and that there is appropriate passage for both fish and boaters. However, the proposed project would not require regular instream maintenance to remove accumulated sediments.

Because of the proposed design and location of the diversion structure, the project would not cause an effect on erosion or siltation, and this impact is ***considered less than significant.*** No mitigation is required.

Impact 3-4: No Effect on the Rate or Amount of Surface Runoff

Neither construction nor operation of the proposed project would have an effect on the rate or volume of surface runoff because of the small amount of additional paved surface area created by project facilities. Also, because project facilities make use of an existing pool, the overall hydrology of this area of the river is not expected to change. Therefore, this impact is considered ***less than significant.*** No mitigation is required.

Impact 3-5: No Effect on Existing or Planned Stormwater Drainage Systems

Neither construction nor operation of the proposed project would have an effect on the rate or volume of surface runoff because of the small amount of additional paved surface area created by project facilities; consequently, the proposed project would have no effect on existing or planned stormwater infrastructure. The project would improve stormwater drainage along Old Highway 40 by preventing runoff from overtopping and eroding the embankment between the river and Old Highway 40 and would include measures to stabilize flows out of the culvert. Therefore, this impact is considered ***less than significant.*** No mitigation is required.

Impact 3-6: Placement of Housing Within the 100-Year Flood Hazard Zone

The proposed project does not include any housing; therefore, no impact related to placement of housing would occur. No mitigation is required.

Existing regulatory standards (specifically, the Lahontan RWQCB's Basin Plan) for hazardous materials and for ambient water quality were used to define the significance of water quality impacts. Any alteration of surface water quality, including, but not limited to, changes in temperature, dissolved oxygen, or turbidity, is considered a significant impact if it affects identified beneficial uses or violates the water quality objectives.

4.4 Impacts and Mitigation Measures of Alternative A: Proposed Project

4.4.1 Construction-Related Impacts

Impact 4-1: Degradation of Surface Water Quality during Project Construction

The severity of construction-related water quality impacts is dependent upon soil erosion potential; construction practices; the frequency, magnitude, and duration of precipitation events; and the proximity of construction activities to the river channel. An overview of the beneficial uses and water quality objectives, and potential effects of project construction and operation is provided in table 4-1.

Construction activities would expose disturbed and loosened soils to erosion caused by rainfall, water, and wind. Most natural erosion occurs at slow rates; however, the rate of erosion increases when the land is cleared or altered and left disturbed. Construction activities remove the protective cover of vegetation and diminish the soil's natural resistance to rainfall-impact erosion. Sheet erosion occurs when slope length and runoff velocity increase on disturbed areas. As runoff accumulates, it concentrates into rivulets that cut grooves (rills) into the soil surface. If the flow is sufficient, these rills may develop into gullies.

Sedimentation is the settling out of soil particles transported by water. Sedimentation occurs when the velocity of water in which soil particles are suspended is slowed sufficiently to allow particles to settle out. Larger particles such as gravel and sand settle out more rapidly than fine particles such as silt and clay. Sediment is considered a pollutant by the RWQCB, and it transports other adsorbed pollutants, such as nutrients, hydrocarbons, and metals.

Excessive sediment can cause increased turbidity and reduced light penetration, resulting in the reduction in prey capture for sight-feeding predators, reduction of light available for photosynthesis, clogging of the gills and filters of fish and aquatic invertebrates, reduced spawning and juvenile fish survival, smothering of bottom dwelling organisms, changes in substrate composition, and reduction in aesthetic values. As the Truckee River is currently impaired for sediment, any increase in sediment has the potential to adversely affect aquatic resources.

oil, hydraulic fluids, antifreeze, sanitary waste, or other substance is considered ***significant.***

Implementation of Mitigation Measure 4-1 would reduce this impact to a less-than-significant level.

Mitigation Measure 4-1: Locate construction equipment and supplies outside the 100-year floodplain

The project applicant or its contractors will not store or locate above-ground storage tanks, chemical toilets, or any hazardous materials in the 100-year floodplain ~~between December and April~~. Heavy equipment, such as excavators and bulldozers, will be parked outside the normal high-water mark when not in use during the flood season. This measure will minimize the potential for floodwaters to contact equipment and cause a release of fuel, oil, hydraulic fluids, antifreeze, sanitary waste, or other substances.

4.4.2 Operation-Related Impacts

Impact 4-3: Violation of Water Quality Standards during Project Operation

An overview of the beneficial uses and water quality objectives, and potential effects of resulting from project construction and operation is provided in table 4-1. As described in chapter 3, "Hydrology," implementation of the project would substantially reduce the quantity of water in the Truckee River between the Farad Diversion Dam and the water's point of return from the Farad Power Plant. Lower flows could result in higher summer temperatures and more winter ice formation resulting in stresses on aquatic ecosystems. Other Basin Plan water quality standards, which are primarily chemical objectives, would not be affected by operation of the proposed project. Because operation of the project would not discharge substances or cause the discharge of substances to the Truckee River, the chemical characteristics of the Truckee River would be unchanged.

The Basin Plan states that the natural receiving water temperature of all waters shall not be altered unless it can be demonstrated to the satisfaction of the RWQCB that such an alteration in temperature does not adversely affect the water's suitability for beneficial uses, such as COLD, WILD, RARE, MIGR, and SPWN. The Basin Plan further states that for waters designated as "Cold Freshwater Habitat (COLD)," such as the Truckee River, shall not be altered.

A number of factors can alter water temperatures in rivers: flow rate, shade, reservoir storage, and releases. River width and depth, which are linked to flow, also affect water temperature, especially during periods of low-to-moderate flows

14.2.8 Cultural Resources

Implementation of Alternative B would result in the same impact on cultural resources as that described for the proposed project. No additional impacts would be anticipated under this alternative.

14.2.9 Noise

Implementation of Alternative B would result in the same impacts and require the same mitigation measures related to noise as those described for the proposed project. No additional impacts would be anticipated under this alternative.

14.2.10 Transportation

Implementation of Alternative B would result in the same impacts and require the same mitigation measures related to transportation as those described for the proposed project. No additional impacts would be anticipated under this alternative.

14.2.11 Aesthetics

Implementation of Alternative B would result in similar impacts as those described for the proposed project. Changes in views of the project construction area resulting from implementation of Alternative B would be similar to those of the proposed project, except that the structural components associated with project implementation would be located ~~approximately 750 feet downstream of~~ at the old diversion site~~. Therefore, this alternative~~ and would not require the use of a diversion conduit. Downstream views would change as a result of the presence of the new diversion facility, fish screen facility, and outlet weir. However, this impact is considered ***less than significant*** under both the proposed project and Alternative B. All other construction and operation impacts are the same as for the proposed project.

Transportation losses may adversely affect beneficial uses (i.e., Cold Freshwater Habitat) of the river because this water reduces the in-stream flow needed for aquatic resources. Because this effect would result in an impact to beneficial uses during low-flow periods, this impact is considered ***significant.***

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure 4-2: Limit flume diversions during low-flow periods

At or~~flows~~ below 150 cfs, the project applicant will not divert more than 5-7 cfs, to keep the flume wet or will implement other measures to ensure water is not wasted or used unreasonably, thus protecting the beneficial uses identified in the Basin Plan. Other possible measures include sealing leaks in the flume with nontoxic sealant or lining the flume with high-density polyethelene (HDPE) plastic. Sealing the leaks or lining the flume would result in the loss of approximately 0.5 acre of wetland vegetation that is currently created by keeping the flume wet.