

APPENDIX D

INFORMATION FOR PROPOSED PM&E MEASURES

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APPENDIX D INFORMATION FOR PROPOSED PM&E MEASURES

All protection, mitigation, and enhancement (PM&E) measures that were submitted to the California Department of Water Resources (DWR) (and/or the Work Groups) during the Collaborative process were tracked and are included in the disposition list provided on the following pages. This list allows stakeholders to track the outcome for PM&E measures of interest to them.

KEY TO COLUMN HEADINGS OF PM&E MEASURE DISPOSITION LIST

- A unique **PM&E measure number** was assigned by DWR to categorize PM&E measures by resource area as follows: 1001+ = Cultural Resources; 2001+ = Engineering and Operations; 3001+ = Environmental Resources; 4001+ = Aesthetics, Land Use and Management; and 5001+ = Recreation and Socioeconomic Resources. The 6001+ series represents PM&E measures submitted by the U.S. Forest Service (USFS) and the 7001+ series represents PM&E measures that were submitted to DWR late in the process after the Work Groups had submitted their recommendations.
- The **Work Group number** further identifies the PM&E measures that were worked on in the Collaborative Work Groups. Codes identify the resource area (e.g., “CWG” = Cultural Work Group, “EWG” = Environmental Work Group), and in the case of Recreation PM&E measures, additional coding identifies the location of the PM&E measure (e.g., “RWG-OR-01” describes PM&E measure 01 of the Recreation Work Group in the Lake Oroville area). For a list of all Work Group codes, see below.
- **Descriptions** of PM&E measures were taken from information sheets developed for each measure. Different stakeholders sometimes submitted similar measures, which may or may not have the same intent. The Work Groups worked to consolidate some measures and eliminate others that were redundant.
- The **Location** column identifies the geographic location where the measures would be applied. In some instances, the location is projectwide, while others are site-specific.
- **Nexus/Linkage to Project** identifies whether the PM&E measure meets any of the following criteria:
 - It addresses a baseline condition of the project (i.e., conditions resulting from the existing Oroville Facilities, not effects of new actions under consideration). Consistent with the Federal Energy Regulatory Commission’s (FERC) March 2001 Preliminary Draft Environmental Assessment (PDEA) guidance document, baseline conditions are those conditions that would continue under the No-Action Alternative if some new action that influences these conditions does not take place.

- It affects those resources (mostly land-based resources) that are geographically located within the official FERC project boundary; it is supported by study plan report results; and it would have a favorable effect on operations and management of project lands and facilities. Examples include some of the recreation facility-, fuel load management-, and invasive plant species-related PM&E measures. The fuel load and invasive plant species PM&E measures are examples of land management measures designed to manage project lands and nearby land outside of the FERC project boundary.
- It is a Recreation PM&E measure, supported by SP-R17, *Recreation Needs Analysis*.
- **System Effects on Power Generation, Water Supply, and/or Flood Risk** indicates whether a PM&E measure has the potential to affect power generation (change in megawatt-hours generated per year or available capacity or ancillary services) or the availability of water supplies, or to increase the risk of flooding. Power generation losses are important in evaluating the costs and benefits of proposed PM&E measures. PM&E measures that conflict with the flood management responsibilities of the Oroville Facilities may be determined to be infeasible.
- The **Disposition** column identifies whether the PM&E measure was included in any of the alternatives analyzed or whether it was considered for inclusion but eliminated.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
1001	CRWG01	Relocate Car-Top Boat Ramp (Foreman Creek).	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
1002	CRWG02	Site Stabilization.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
1003	CRWG03	Boat Ramp Extension (Enterprise).	Middle Fork	Yes		Proposed Action and Alternative 2.
1004	CRWG04	Signage Program—Protection.	Projectwide	Yes		Proposed Action and Alternative 2.
1005	CRWG04	Signage Program—Enhancement.	Projectwide	Yes		Proposed Action and Alternative 2.
1006	CRWG05	Closure (Foreman Creek).	Lake Oroville - Main Basin	Yes		Redirection and restrictions at Foreman Creek evaluated in the Proposed Action and Alternative 2.
1007	CRWG06	Expansion of Site Stewardship Program with Full-Time Archaeologist.	Projectwide	Yes		Proposed Action and Alternative 2. Proposed Action includes enhancement of Site Stewardship Program and Alternative 2 includes funding for a full-time archaeologist.

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1008	CRWG07	Public Education Program.	Projectwide, Outside of project Boundary	Yes		Signage Program (CRWG-04), in the Proposed Action and Alternative 2, includes an educational component.
1009	CRWG08	Data Recovery.	Projectwide	Yes		Proposed Action and Alternative 2.
1010	CRWG09	Display Enhancement for Lake Oroville State Recreation Area (LOSRA) Visitor Center.	Lake Oroville	Yes		Not included: represents an ongoing California Department of Parks and Recreation (DPR) activity.
1011	CRWG10	Boat-in Campground Access Restrictions.	Lake Oroville	Yes		Proposed Action and Alternative 2.
1012	CRWG11	Artifact Amnesty Program.	Outside of project boundary	No: not within project area		Not included; outside of the project scope.
1013	CRWG12	Natural Springs Restoration and Maintenance.	Outside of project boundary	No: is not within project area		Not included; located outside of the FERC project boundary.
1014	CRWG13	Relocate Mortar Cupules (Fish Hatchery).	Diversion Pool	Yes		Alternative 2.
1015	CRWG14	Funding of Associate State Park Archaeologist.	Projectwide	Yes		Alternative 2.

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1016	CRWG15	Additional State Park Ranger Positions.	Projectwide	Yes		Not included; CRWG04, CRWG05, and CRWG06 address cultural resources protection.
1017	CRWG16	Develop Publications and Brochures for Cultural Awareness Education – Protection.	Projectwide, Outside of project boundary	Yes		Interpretation and Education (I&E) Program has public interpretation components that address cultural resources. The signage program has an interpretive component.
1018	CRWG16	Develop Publications and Brochures for Cultural Awareness Education – Mitigation.	Projectwide, Outside of project boundary	Yes		I&E Program has public interpretation components that address cultural resources. The signage program has an interpretive component.
1019	CRWG17	Return/Donation of Local Cultural Materials.	Outside of project boundary	No: not within project area		Not included; outside of the project scope.
1020	CRWG18	State Park Interpreter I at LOSRA Visitor Center.	Lake Oroville	Yes		Not included; CRWG04 and CRWG06 address cultural resources protection.

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1021	CRWG19	Site Stabilization (Projectwide).	Projectwide	Yes		Proposed Action and Alternative 2.
1022	CRWG20	Historic Education Program.	Projectwide	Yes		Not included; may be part of Historic Properties Management Plan.
1023	CRWG21	Surcharge for all electric power sold outside the Feather River watershed.	Outside of project boundary	No		Not included; outside of the project scope.
1024	CRWG22	Surcharge for all water sold outside the Feather River watershed.	Outside of project boundary	No		Not included; outside of the project scope.
1025	CRWG23	Reconfigure recreation opportunities at Foreman Creek.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
1026	CRWG24	Traditional Planting Areas.	Projectwide	Yes		Proposed Action and Alternative 2.
1027	CRWG25	Restriction of Off-Highway Vehicle (OHV) Access to Culturally Sensitive Areas.	Lake Oroville	Yes		Proposed Action and Alternative 2.
1028	CRWG26	Cultural Resources Curation Facility.	Projectwide	Yes		Proposed Action and Alternative 2.
1029	CRWG27	Support Existing Local Native American Festivals.	Outside of project boundary	Yes		Not included; part of ongoing DWR activity.

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1030	CRWG28	Modify Wildlife Habitat Management Program (Brush structures for fisheries).	Projectwide	Yes		Not included; future Habitat Management Programs will be subject to appropriate impact analysis.
1031	CRWG29	Reconfigure present use of Foreman Creek area for repatriation/burial site, hiking/biking trailhead, and educational complex and/or Maidu Cultural Interpretation Center.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2 include redirection of recreational activities and curation facility only.
1032	CRWG30	Native American Cultural Complex.	Projectwide	Yes		Proposed Action and Alternative 2 include a curation facility and traditional planting sites.
1033	CRWG31	Protection, preservation, and access for Maidu Practitioners on Stringtown Mountain - a Traditional Cultural Property (TCP).	Outside of Boundary	Yes		Not included; located outside of the FERC project boundary.
2001	EO1	Thermalito Afterbay Water Temperature Improvements: Construct facilities to convey cold water directly to Thermalito Afterbay Outlet facility.	Thermalito Afterbay, High Flow Channel (outlet)	Yes		Not included; would affect Endangered Species Act (ESA) listed species in the Low Flow Channel.
2002	EO2	Thermalito Afterbay Water Temperature Improvements: Curtail pumpback and peaking during 4-week rice planting season.	Thermalito Afterbay		Power Generation	Not included; does not meet project purpose and need (would affect power generation).

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2003	EO3	Thermalito Afterbay Water Temperature Improvements: Operate Lake Oroville Temperature Control Device (TCD) to optimize for recreation, rice production, and fisheries needs.	Thermalito Afterbay			Not included; Alternative 2 includes operational flexibility to increase residence time of water in Thermalito Afterbay during the rice germination period.
2004	EO4	Thermalito Afterbay Water Temperature Improvements: Construct canal to allow river diverters to take water from Thermalito Afterbay.	Thermalito Afterbay	Yes	Power Generation	Not included; does not meet project purpose and need (would affect power generation).
2005	EO5**	Lake Oroville Oversight Committee.	Projectwide	For information, see RWG-S/O-8		Not included; a licensing compliance unit will be established at the Oroville Field Division (OFD) as part of all alternatives.
2006	EO6**	Lake Oroville Oversight Committee.	Projectwide	For information, see RWG-S/O-8		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.
2007	EO7	Develop an early-warning system to convey important information during flood events.	Projectwide		Flood Risk	Completed as Interim Project.
2008	EO8	Provide specific information on inundation, flood travel times, and flow/stage relationships at key locations along the Feather River.	Projectwide		Flood Risk	Completed as Interim Project.

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2009	EO9	Develop a watershed protection plan to reduce intensity of wildfires and improve water quality and quantity.	Projectwide	Yes, for water quality		Not included; outside of project scope.
2010	EO10	Develop and implement measures and programs to rectify past, present, and future Lake Oroville Facilities and operational impacts on local government services and infrastructures.	Projectwide			Not included; outside of project scope.
3001	EWG-1	Open Fish Barrier Pool to fish passage and allow the pool to be used as a spring Chinook salmon holding area. Requires the addition of a fish ladder to the Fish Barrier Dam and modifying the existing ladder with a branch to the Fish Barrier Pool.	Low Flow Channel	Yes: Chinook genetic introgression/ holding		Not included; Implementation of EWG-2A would more effectively address concerns related to genetic introgression.
3002	EWG-2A	Install a weir at or a size-exclusion device in the low-flow section (from July 1st to November 15th) to selectively pass desired fish species into the Low Flow Channel. Currently, fishes in the Feather River are allowed free access into the upper portions of the Low Flow Channel. This PM&E measure would address concerns about high salmonid spawning densities in the Low Flow Channel and provide an opportunity to segregate the spring and fall runs of Chinook salmon in the Feather River.	Low Flow Channel	Yes: Chinook genetic introgression		Proposed Action and Alternative 2.

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3003	EWG-101	Install a barrier weir at or a size-exclusion device in the low-flow section to selectively pass spring-run Chinook salmon, with the goal to spatially separate the spring- and fall-run. Studies have indicated that recent genetic studies have determined that fish hybridization (spring- and fall-run) is occurring, due to reduced spatial spawning separation. This PM&E measure would potentially address concerns about high salmonid spawning densities in the Low Flow Channel and provide an opportunity to segregate the spring and fall runs of Chinook salmon in the Feather River.	Low Flow Channel	Yes: Chinook genetic introgression		Not included; Implementation of EWG-2A would more effectively address concerns related to genetic introgression.
3004	EWG-88	Increase flows in the low-flow reach of the Feather River to increase available spawning habitat. This PM&E measure would increase flows above current levels (600 cubic feet per second [cfs]) during peak Chinook and steelhead spawning to increase the quantity of habitat available for salmonids.	Low Flow Channel	Yes: Chinook spawning habitat	Power generation	Alternative 2.

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3005	EWG-100	Introduced in July 2003 by National Oceanic and Atmospheric Administration (NOAA) Fisheries. This PM&E measure proposes to simulate aspects of historic flow regimes through periodic increases of flows in the Low Flow Channel to encourage outmigration of juvenile salmonids. This PM&E measure would periodically increase flows above current levels (600 cfs) to serve as migratory cues. This action for this measure could include a literature search. Additional description for this PM&E measure was provided in the Resource Action Information Form (RAIF) submitted by NOAA Fisheries.	Low Flow and High Flow Channels	Yes: Natural flow regime		Not included; SP-F10 indicates that juvenile Chinook emigrate almost immediately, so pulse flows for emigration are not necessary.

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3006	EWG-4A	Provide pulse flows from the Thermalito Afterbay Outlet or the Thermalito Diversion Dam to the high-flow section of the Feather River to facilitate upstream migration of adult sturgeon (February-June) and shad (May-June) to potentially reduce holding time below Shanghai Bench and Sunset Pumps. Under this PM&E measure, the same acre-footage of water would be released over the upstream migration time period, but the regime would be altered so that the flow pattern would include pulses that would not have previously existed.	High Flow Channel	Yes: Upstream migration		Not included; biological response of fish to changes in flow conditions is uncertain. Physical modifications for sturgeon at Shanghai Bench and Sunset Pumps to facilitate upstream passage (EWG-5) are more reliable than flow changes, with fewer potential adverse effects related to power generation and juvenile salmonid stranding. Passage for shad was determined not to be a problem in SP-F3.2.
3007	EWG-4B	Provide high-flow pulses in winter-spring (February-May) that will serve as attraction flows primarily for shad (May-June), sturgeon (February-June), and splittail (January-April). Secondly, pulse flows would serve as attraction flows for spring-run Chinook salmon and steelhead.	High Flow Channel	Yes: Attraction flows		Not included; biological response of fish to changes in flow conditions is uncertain. Potential steelhead redd dewatering and juvenile salmonid stranding impacts.

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3008	EWG-5	<p>This PM&E measure proposed to provide physical changes to the Sunset Pumps and/or Shanghai Bench areas to aid passage of sturgeon and shad. Under low-flow conditions, these locations may be impassable for sturgeon and/or American shad due to high water velocities in some areas and/or a vertical height barrier. There could be an increase in poaching by implementing this PM&E measure. Structural modifications could include:</p> <ul style="list-style-type: none"> • Blast a section of Shanghai Bench to turn it into a chute; • Add a ladder at Sunset Pumps; • Change channel configuration to increase the depth and proportion of flow in the existing side channel; and • Change channel configuration to create a low velocity side channel at Sunset Pumps. 	High Flow Channel	Yes: Sturgeon upstream migration		Alternative 2.

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3009	EWG-97A	<p>This measure proposed to evaluate providing upstream passage of anadromous fish (Central Valley spring-run Chinook and steelhead) to the upstream tributaries of Lake Oroville. Proposed methodologies include: "trap and haul" program. Downstream migrants could be captured in the tributaries using positive barrier screens during low flows, and surface collection devices ("gulpers") or air-acoustic and guidance devices (Bio-Acoustic Fish Fence) during high flows. According to NOAA's RAIF, increasing the quantity of habitat for spring-run Chinook and steelhead would greatly improve production of these fish. Studies or actions proposed by NOAA include: feasibility testing (no time frame given); install and evaluate "upstream collection system" (by March 2004); and upstream habitat estimate (June 2004). Additional description for this measure was provided in the NOAA submitted RAIF, including an acoustic doppler profiler and the installation of a prototype fish collection device.</p>	<p>Lower Feather River and Upstream Tributaries</p>	<p>Yes: Upstream passage</p>		<p>Not included; two options to pass fish were evaluated and eliminated from further consideration.</p>

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3010	EWG-97B	Provide upstream passage of adult anadromous fish through "trap and transport" program. Passage would be to upstream tributaries of Lake Oroville to the first fish barrier (e.g., Big Bend Dam).	Lower Feather River and Upstream Tributaries	Yes: Upstream passage		Not included; two options to pass fish were evaluated and eliminated from further consideration.
3011	EWG-13A	Add woody debris in the Feather River. Large woody debris would be anchored or inserted into the river at target locations to provide increased habitat complexity. Source areas for woody debris are upstream of Lake Oroville.	Low and High Flow Channels	Yes: Large woody debris		Proposed Action and Alternative 2.
3012	EWG-13B	Provide additional salmonid rearing habitat within the existing main channel of the Low Flow Channel by creating additional cover, edge, and flow complexity. This could be accomplished through the addition of large woody debris, boulders, and other objects, and by the creation of mid-channel gravel islands. The goal of these main channel enhancements would be to provide instream cover, but also to increase the area of shallow-edge habitats within existing riffles and glides. The primary target for this PM&E measure would be rearing steelhead and a secondary target would be rearing Chinook salmon.	Low Flow Channel	Yes: Complexity and diversity (large woody debris)		Proposed Action and Alternative 2.

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3013	EWG-15A	<p>Incrementally increase flows in the Low Flow Channel from relatively low flows (for example, 400-600 cfs or 600-800 cfs) to relatively high flows (for example, 800-1,000 cfs or 1,000-1,200 cfs) throughout the Chinook salmon spawning season (for example, September 1-December 1 or September 1-December 15) in order to change the lateral spawning habitat distribution from the center of the river channel during the early portion of the spawning season to the margins of the river channel in the later portion of the spawning season. Flows would be increased by some relatively consistent interval each week (for example, 25, 50, or 75 cfs/week) in order to increase usable spawning habitat and reduce superimposition of Chinook salmon redds. Once flows reach the high-flow target, the high-flow target would be maintained through May 30 in order to avoid dewatering steelhead redds through the incubation period.</p>	Low Flow Channel	Yes: Chinook spawning habitat and redd superimposition		Not included. Biological response of fish to Proposed Action is uncertain; also conflicts with providing salmonids with suitable water temperature for spawning.

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3014	EWG-15B	Provide relatively low flows (for example, 400-800 cfs) in the Low Flow Channel from the beginning of Chinook salmon spawning season (for example, September 1-October 7 or September 1-October 15) until spring-run Chinook salmon are believed to have spawned and then change flows to a relatively high flow (for example, 800-1,200 cfs from October 8-December 1 or October 16-December 15) in order to change the lateral spawning habitat distribution from the center of the river channel during the early portion of the spawning season to the margins of the river channel in the later portion of the spawning season. Flows would be increased once during the season in order to increase usable spawning habitat and reduce superimposition of spring-run Chinook salmon redds. Once flows reach the high-flow target, the high-flow target would be maintained through May 30 in order to avoid dewatering steelhead redds through the incubation period.	Low Flow Channel	Yes: Spawning habitat, redd superimposition		Not included. Biological response of fish to this action is uncertain; also conflicts with providing salmonids with suitable water temperature for spawning.

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3015	EWG-16A	Create side-channel habitat adjacent to the low-flow reach in the Feather River. DWR studies have found that juvenile steelhead trout strongly select shallow riffle/glide and nearshore habitats with abundant riparian and instream cover. Habitats meeting these criteria are most often found in side channels. Currently preferred habitats of juvenile steelhead are not common in the Low Flow Channel. To expand availability of preferred rearing habitat, side channels should be constructed at various suitable areas within the Low Flow Channel. Potential sites for side-channel creation in the Low Flow Channel include (from upstream to downstream): Aleck Riffle; Great Western Riffle; Robinson Riffle/Borrow Pond; Steep Riffle, between Eye and Gateway Riffles; and the Oroville Wildlife Area southeast of the Thermalito Afterbay Outlet.	Low Flow Channel	Yes: Salmonid rearing habitat		Alternative 2.

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3016	EWG-16B	Restore and/or improve side-channel habitat adjacent to the low-flow reach in the Feather River. The two existing side channels at the upstream end of the Low Flow Channel, Hatchery Ditch and Moe's Ditch, would benefit from habitat and flow enhancements. Hatchery Ditch, a primary steelhead spawning and rearing reach, is currently fed solely by seepage from the Feather River Fish Hatchery settling pond. Discharge in Hatchery Ditch is directly related to water use in the hatchery. Hatchery Ditch requires its own water source so that it can function independently. This need is particularly pressing since the Feather River Fish Hatchery water system is overdue for a major overhaul, which requires shutting down the hatchery water supply for several months. Moe's Ditch is a manmade spawning channel adjacent to Hatchery Ditch. Currently Moe's Ditch suffers from a lack of flow (due to upstream changes in bed morphology) and a lack of cover and channel sinuosity.	Low Flow Channel	Yes: Salmonid rearing habitat		Proposed Action and Alternative 2.

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3017	EWG-92	This measure proposes gravel replacement on spawning riffles in the Low Flow Channel that are found to be of poor spawning quality. Includes EWG-91 and likely would require continued gravel supplementation over time. Source of gravel could be obtained from the Oroville Wildlife Area (OWA).	Low Flow Channel	Yes: Salmonid spawning habitat		Proposed Action and Alternative 2.
3018	EWG-18	In areas where armoring has occurred, selected sections of the low-flow reach of the Feather River would be ripped with the goal of improving spawning gravel quality for Chinook salmon and steelhead. This PM&E measure is not specific to location at this time; results from geomorphology studies (SP-G2) will be used to better define ripping and target locations in the low-flow reach.	Low Flow Channel	Yes: Salmonid spawning habitat		Proposed Action and Alternative 2.
3019	EWG-19A	Modify existing or build vegetated "benches" at various stage elevations in the lower Feather River (i.e., near Verona) to enhance splittail spawning habitat and Chinook salmon rearing habitat.	High Flow Channel	Yes: Splittail spawning and salmonid rearing habitat		Not included; EWG 16A and EWG 16B address Chinook salmon rearing habitat. Splittail spawning habitat outside FERC project boundary.

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3020	EWG-104	This measure proposes mechanical or hydraulic changes to increase the connectivity between the lower Feather River channel and its floodplain habitats (including low-elevation terraces) to increase/enhance the spawning and rearing habitat for splittail and salmonids. This could be accomplished by setting back levees to create/enhance habitats for Chinook salmon, splittail, and steelhead, or by providing increased flows (higher and longer duration) in the winter and spring. One potential source for the increased flows could be the Thermalito Afterbay Outlet.	High Flow Channel	Yes: Splittail spawning and salmonid rearing habitat		Not included; permitting issues, land acquisition, water, and power effects. There are other means of increasing fish habitat (i.e., EWG-16A/B, EWG-19A), which are included in the Proposed Action and Alternative 2.
3021	EWG-26	Provide habitat enhancement in areas without weeds, primarily through added structure, for warmwater or other target species (i.e., black bass).	Thermalito Afterbay	Yes: Bass rearing habitat		No-Action Alternative, Proposed Action, and Alternative 2.
3022	EWG-28	Manage water levels in Thermalito Afterbay to provide increased nesting and initial rearing habitat for nesting warmwater species.	Thermalito Afterbay	Yes: Bass nesting and rearing habitat	Effect on power generation	Not included; eliminates function of Thermalito Afterbay for power generation.

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3023	EWG-29	This measure proposes to control aquatic weeds (primarily primrose) to enhance fish habitat in the OWA ponds using various methods, including mechanical control, chemicals, or altering the flows. Pounded water from beaver dams has killed cottonwood trees.	OWA	Yes: OWA habitat		Proposed Action and Alternative 2; included in Invasive Plant Species Control. (See EWG-75).
3024	EWG-103	This measure proposes to use brood ponds as nursery habitat for warmwater species (i.e., black bass) in Thermalito Afterbay.	Thermalito Afterbay	Yes: Bass nesting and rearing habitat		Not included. Conflicts with purpose of brood pond for waterfowl habitat.
3025	EWG-31	This measure proposes to continue/maintain habitat enhancement program for fish rearing/refuge in Lake Oroville through the placement of woody debris, tree reefs, or other methods. This measure could include enhancement of spawning and nesting shelters for resident fish (bass and catfish) through the addition of riprap, concrete, or weighted pipes, or by adding artificial reefs in the shallow areas of Lake Oroville. Habitat improvements will need to take into account seasonal reservoir fluctuations.	Lake Oroville	Yes: Bass rearing habitat		No-Action Alternative, Proposed Action, and Alternative 2.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3026	EWG-98	Create or enhance spawning and rearing habitat in the tributaries of the lower Feather River. The PM&E measure proposes to engineer new habitat or enhance underutilized habitats in the lower Feather River with year-round water supplies (derived from the project water - Feather River, Oroville Dam releases, etc.). Water supplies could be delivered to these habitats through conduits constructed from the project waters, to supply the habitats with year-round cold water for the benefit of anadromous fishes. The goal of the PM&E measure is to create third-order stream habitats, similar to that in higher elevations (upstream of Oroville Dam).	Lower Feather River	Yes: Salmonid spawning and rearing habitat		Not included. Habitat enhancement is more reliably achieved by implementation of EWG-16A/B.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3027	EWG-99	Create or enhance side-channel habitats, within existing levees, to enhance spawning and rearing habitat for spring-run Chinook and steelhead. The proposed channel locations for enhancement could include any project waters from the Low Flow Channel or High Flow Channel, down to lower Honcut Creek. Water supplies could be delivered to these habitats through conduits constructed from the project waters.	Lower Feather River to Honcut Creek	Yes: Salmonid spawning and rearing habitat		Not included. Addressed through EWG-16A and EWG-16B.
3028	EWG-35A	Reduce water temperatures at the Thermalito Afterbay Outlet to reduce the feeding rates of juvenile salmonid predators on rearing and emigrating juvenile salmonids in the Feather River.	High Flow Channel	Yes: Predation		Not included. 800 cfs in Low Flow Channel, under Alternative 2, assists in achieving lowering water temperature.
3029	EWG-35B	Reduce water temperatures in particular areas of the Feather River to exclude predators of rearing and emigrating juvenile salmonids.	High and Low Flow Channels	Yes: Predation		Not included. Not a feasible means to prevent predation due to the coldwater predator species complex (e.g., Sacramento pikeminnow).

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3030	EWG-42	Release hatchery steelhead at a smaller size or alter release timing (release them earlier) to reduce their impacts on salmonid survival (as predators).	High Flow Channel	Yes: Predation		Proposed Action and Alternative 2. Evaluated in Hatchery Adaptive Management Program.
3031	EWG-36	This measure proposes to operate the Oroville Facilities in a manner that would provide additional cold water in the Low Flow Channel of the Feather River for benefit of Chinook salmon and steelhead. This PM&E measure would likely be implemented during the early fall (September and October), during the early spawning period for fall-run Chinook salmon (spawning and incubation period).	Low Flow Channel	Yes: Salmonid spawning, egg incubation, and rearing water temperatures		Alternative 2 includes increased flows in Low Flow Channel.

Table D-2. PM&E measure disposition list.

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3032	EWG-102	<p>The measure proposes to manage the Low Flow Channel or lower Feather River to provide water temperatures in the river that mimic historic (pre-Oroville Dam) conditions to help maintain the genetic integrity of the spring-run Chinook salmon (i.e., manage water temps to mimic upper watershed elevation water temperature). This measure could benefit other fish species in the Feather River system (i.e., steelhead, sturgeon, and splittail). Construction of a device that would direct water from the Thermalito Pumping-Generating Plant to the Thermalito Afterbay Outlet has been proposed and thereby potentially increasing outputs from the Thermalito Dam. Comparisons of water temps to Deer Creek and Mill Creek have indicated that the Feather River generally has lower summer water and higher winter water temperatures. Proposed actions also include: literature search for historic temperatures, constructing an “unimpaired” temperature profile, and determining alternative water sources.</p>	Lower Feather River	Yes: Genetic integrity through water temperatures		Not included. Not operationally feasible and does not provide a desirable outcome based on available scientific literature.

Table D-2. PM&E measure disposition list.

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3033	EWG-37	This measure proposes to operate the Oroville Facilities in a manner that would provide additional cold water in the High Flow Channel of the Feather River for benefit of Chinook salmon and steelhead. Timing of this measure would be similar to EWG-36.	High Flow Channel	Yes: Salmonid spawning, egg incubation, and rearing water temperatures		Not included. Does not support purpose and need.
3034	EWG-38	Manage withdrawals from Lake Oroville to minimize reduction of the coldwater pool.	Lake Oroville	Yes: Coldwater fishery water temperatures		Not included. Not an identified project issue.
3035	EWG-40	Decrease hatchery production of salmon so that there is less crowding and competition for limited spawning habitat in the low-flow section of the Feather River (FR-12, FR-31).	Low Flow Channel	Yes: Hatchery, Chinook redd superimposition		Not included. Other included actions address crowding and segregation.
3036	EWG-44	Screen all stocked fish for fish diseases. Evaluate current rainbow trout stocking program in Thermalito Forebay to look at angler preferences and to prevent the spread of fish diseases (C. Shasta or infectious hemapoetic necrosis [IHN]). Potentially cease fish planting in Thermalito Forebay to prevent disease transmission to fishes in the Feather River.	Thermalito Complex	Yes: Hatchery (disease)		Not included. Addressed in EWG-50.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3037	EWG-45	Create trophy salmonid stocking program in Thermalito Afterbay similar to trophy program in Lake Oroville. This would use a Feather River strain of steelhead (to reduce disease concerns).	Thermalito Afterbay	Yes: Coldwater fishery stocking		Not included; reduces flexibility to meet warmwater beneficial uses in Thermalito Afterbay (EWG-87).
3038	EWG-47	Create trout stocking program in suitable OWA ponds (without weed issues). The program would operate seasonally and all stocked fish would be screened for disease.	OWA	Yes: Coldwater fishery stocking		Not included; seasonally limited program with few opportunities for appropriate location and angler access. Potential fish disease concerns with Feather River wild fish.
3039	EWG-48A	Stock warmwater species (e.g., Florida strain bass) in selected OWA ponds to create trophy-angling areas. This measure could be designed as mitigation for the operations management of Thermalito Afterbay.	OWA	Yes: Warm-water fishery stocking		Not included; all alternatives assess a warmwater species stocking program for Lake Oroville.
3040	EWG-50	This measure proposes to continue or maintain the coldwater fishery in Lake Oroville. This could include evaluating additional options for alternative stocking procedures in the reservoir. DWR and the California Department of Fish and Game (DFG) are currently under a FERC order to stock fish in Lake Oroville.	Lake Oroville	Yes: Coldwater fishery stocking		No-Action Alternative, Proposed Action, and Alternative 2.

Table D-2. PM&E measure disposition list.

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3041	EWG-105	The PM&E measure was originally introduced to the Environmental Work Group (EWG) with a goal of mitigating the dewatering of Ruddy Creek. This measure proposes to re-water Ruddy Creek by utilizing the Thermalito Afterbay seepage valves, and enhance historic wetlands. The EWG initially looked at the measure to potentially provide salmonid spawning and rearing habitat in a tributary of the Feather River; however, a secondary option would be provide habitat for warmwater species or enhance the OWA by adding additional waters.	Thermalito Forebay	Yes: Habitat (warmwater species)		Not included; eliminated by collaborative EWG.
3042	EWG-56	This measure proposes to construct and maintain additional brood ponds to accommodate brooding waterfowl in Thermalito Afterbay.	Thermalito Afterbay	Yes		Proposed Action and Alternative 2.
3043	EWG-57A	This measure proposes to enhance upland nesting cover in the vicinity of Thermalito Afterbay for the benefit of nesting waterfowl. PM&E measures could include the use of various species (e.g., DFG seedmix [wheatgrass/ vetch/barley, etc.]).	Thermalito Afterbay	Questionable/Yes		Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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3044	EWG-57B [formerly EWG-69]	This measure proposes to enhance upland food (approximately 60 acres) in the vicinity of Thermalito Afterbay for the benefit of wintering waterfowl and upland gamebirds. PM&E measures could include the use of various species (e.g., DFG seed mix [milo, barley, safflower, etc.]).	Thermalito Afterbay	Questionable/Yes		Proposed Action and Alternative 2.
3045	EWG-58	This measure proposes to install wood duck/wildlife nest boxes in the OWA. Need to determine a target goal for the number of duck/wildlife boxes.	OWA	Questionable		Proposed Action and Alternative 2.
3046	EWG-59	This measure proposes to modify recreational use patterns in the Feather River, the OWA, and the Thermalito reach to minimize impacts on sensitive species.	Thermalito Complex, OWA, Low Flow Channel, High Flow Channel	Yes		No-Action Alternative, Proposed Action, and Alternative 2; recreation disturbances of wildlife populations will be reduced by implementation of draft Biological Assessment (BA) measures included in all alternatives.

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3047	EWG-61	Develop a hydrologic flow regime (management protocols) to support natural regeneration of riparian recruitment along the Feather River. An option to this measure would be to determine project-related impacts and develop offsite mitigation measures.	Low Flow Channel, High Flow Channel	Yes		Not included; DFG conducts a yearly habitat enhancement program that is included in all alternatives.
3048	EWG-62	This measure proposes to implement vegetation or restoration activities to enhance or restore native plant communities in the Lake Oroville upland areas.	Lake Oroville	Yes		Proposed Action and Alternative 2; included in Invasive Species Management Plan.
3049	EWG-65	This measure proposes to implement measures to reduce recreational disturbances (i.e., trespass and grading) on wildlife populations as needed based on the results of SP-T9.	Lake Oroville	Yes		No-Action Alternative, Proposed Action, and Alternative 2.
3050	EWG-66	Develop a hydrologic flow regime to support natural regeneration of riparian vegetation along the Feather River. An option to this measure would be to determine project-related impacts and develop offsite mitigation measures.	Low Flow Channel, High Flow Channel	Yes		Not included; DFG conducts a yearly habitat enhancement program that is included in all alternatives.

Table D-2. PM&E measure disposition list.

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3051	EWG-67	This measure proposes to initiate active vegetation plantings in the Thermalito Afterbay area.	Thermalito Afterbay	Yes		Not included; however, plant replacement is included in Invasive Species Management Plan in the Proposed Action and Alternative 2.
3052	EWG-68A	This measure proposes to recharge brood ponds at 3-week intervals for the brooding periods (April 15 to June 31, with the possibility to extend this until June 1).	Thermalito Afterbay	Questionable/Yes		No-Action Alternative, Proposed Action, and Alternative 2.
3053	EWG-68B	This measure proposes to build or enhance riparian habitat in the fluctuation zone of Lake Oroville.	Lake Oroville	Yes		Not included; there has been very little success with these types of enhancements along the shoreline of Lake Oroville and other reservoirs.
3054	EWG-70	This measure proposes to control/eliminate noxious plants via biological control, herbicidal treatment, or mechanical control and replant with native species.	Projectwide	Yes		Proposed Action and Alternative 2. (Invasive Species Management Plan.)
3055	EWG-73	This measure proposes to control non-native and undesirable plant species (e.g., purple loose-strife) in the Thermalito Complex.	Thermalito Complex, OWA	Yes		Proposed Action and Alternative 2. (Invasive Species Management Plan.)

Table D-2. PM&E measure disposition list.

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3056	EWG-74A	This measure proposes to eliminate noxious plants via biological control, herbicidal treatment, or mechanical control and replant with native species.	Projectwide	Yes		Proposed Action and Alternative 2. (Invasive Species Management Plan.)
3057	EWG-74B	This measure proposes to control/eliminate noxious plants via biological control, herbicidal treatment, or mechanical control and replant with native species.	Projectwide	Yes		Proposed Action and Alternative 2. (Invasive Species Management Plan.)
3058	EWG-75	This measure proposes to develop management protocols to control primrose (in OWA ponds).	OWA	Yes		Proposed Action and Alternative 2. (Invasive Species Management Plan.)
3059	EWG-78A	Develop maintenance and recreational management actions to avoid impacts on special-status species within the project area.	Projectwide	Yes		No-Action Alternative, Proposed Action, and Alternative 2; disturbances of ESA species will be reduced by implementation of draft BA measures included in all alternatives.

Table D-2. PM&E measure disposition list.

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3060	EWG-78B	Develop operational management actions to avoid impacts on special-status species within the project area. Specific measures associated with this PM&E measure are not identified at this time.	Projectwide	Yes		No-Action Alternative, Proposed Action, and Alternative 2; disturbances of ESA species will be reduced by implementation of draft BA measures included in all alternatives.
3061	EWG-79	Enhance riparian habitat. One component of the measure will be a Valley Elderberry Longhorn Beetle (VELB) Management Plan; other plant species may be included in this.	Projectwide	Yes		No-Action Alternative, Proposed Action, and Alternative 2; VELB management is included as a draft BA measure in all alternatives.
3062	EWG-80	Develop maintenance and recreational management actions to avoid impacts on special-status species within the project area.	Projectwide	Yes		No-Action Alternative, Proposed Action, and Alternative 2; maintenance and management actions are included in draft BA measures.

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3063	EWG-82	This measure proposes to develop protection and avoidance actions for sensitive plant populations in the Lake Oroville area.	Lake Oroville	Yes		No-Action Alternative, Proposed Action, and Alternative 2; disturbances of sensitive plant populations will be reduced by implementation of draft BA measures included in all alternatives.
3064	EWG-83	Operate the Thermalito Complex to provide colder water to the lower Feather River for the benefit of salmonids.	High Flow Channel	Yes: Salmonid rearing water temperatures		Not included. Alternative 2 addresses increased flow in Low Flow Channel to benefit salmonids.
3065	EWG-84A	The settling ponds associated with the Feather River Fish Hatchery are designed to hold effluent until evaporation occurs, but there is high connectivity between the ponds and the Feather River. Leaching occurs from the settling ponds to the Feather River. The ponds' gravel bottom provides some unknown level of filtration. This PM&E measure would construct new settling ponds at the existing location or in a different area that would prevent leaching and/or enhance evaporation.	Low Flow Channel	Yes: Fish habitat (water quality)		Would be evaluated in Hatchery Adaptive Management Program. (No water quality impacts have been identified associated with the hatchery settling ponds. Implementation would remove the water source for the hatchery ditch, where the majority of steelhead spawning occurs.)

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3066	EWG-84B	Line existing holding pond with impermeable barrier to prevent leaching.	Low Flow Channel	Yes: Fish habitat (water quality)		Would be evaluated in Hatchery Adaptive Management Program. (No water quality impacts have been identified associated with the hatchery settling ponds. Implementation would remove the water source for the hatchery ditch, where the majority of steelhead spawning occurs.)
3067	EWG-86A	Develop a program to educate the public on the need and ways to maintain water quality in project waters. This could involve an educational signage program for public awareness of water supply uses and sources.	Feather River, OWA, and Thermalito Complex	Yes: Water quality (education)		Proposed Action and Alternative 2.
3068	EWG-86B	Develop a program to provide information to the public community concerning health related issues relating to project waters. This program could include a water quality signage program such as "Don't Eat the Fish" or "No Swimming."	Feather River, OWA, and Thermalito Complex	Yes: Water quality (education)		Proposed Action and Alternative 2.

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3069	EWG-87	Operate or modify the Oroville Complex in a manner to provide suitable warm water for agricultural and recreational purposes, while providing adequate coldwater releases at the Thermalito Afterbay Outlet.	Thermalito Afterbay	Yes: Habitat (water quality)		Not included; this cannot be achieved solely by operational changes.
3070	EWG-89	Create levee setbacks to increase meandering nature of river and improve gravel composition in critical spawning reaches of the low-flow reach. This could be introduced into the south area (of the low-flow section).	Low Flow Channel	Yes: Habitat (gravel)		Not included; permitting issues, land acquisition, water, and power effects. There are other more reliable means of increasing fish habitat (i.e., EWG-16A/B, EWG-19A).
3071	EWG-93A	Mechanical or hydraulic changes to areas in the low-flow reach have been suggested to improve fish habitat. This PM&E measure could include several options, such as leveling off selected gravel bars so they are inundated at particular flows and digging side channels that provide suitable velocity and cover for juvenile fishes.	Low Flow Channel	Yes: Habitat (gravel)		Not included; the Proposed Action and Alternative 2 assess salmonid habitat improvement. Mechanical component is redundant with another PM&E measure (EWG-16A/B).

Table D-2. PM&E measure disposition list.

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3072	EWG-93B	Regrade the High Flow Channel, using similar methods as above (EWG-93A). This could include reconfiguring selected sections of the stream channel to establish additional inundated benches to provide suitable splittail spawning habitat.	High Flow Channel	Yes: Habitat (channel reconfiguration)		Not included; the Proposed Action and Alternative 2 assess salmonid habitat improvement. (EWG-16B).
3073	EWG-3	This PM&E measure would increase flows during critical upstream passage periods for sturgeon at Steep Riffle. Currently, flows in the low-flow reach are maintained at 600 cfs, except during flood events or occasional temporary changes in project operations.	Low Flow Channel	Yes: Sturgeon upstream migration		Not included; targets an outcome (improving sturgeon passage at Steep Riffle) that is not an identified project issue. No apparent physical passage impediments for sturgeon are identified at Steep Riffle.
3074	EWG-7	Assist in field calibration of sturgeon passage information from University of California, Davis, studies (conducted in lab in 2003).	High Flow Channel	Yes: Sturgeon upstream migration		Not included; not an identified project issue.
3075	EWG-8	Conduct field-tracking studies to determine timing and movement patterns of sturgeon in the Feather River (i.e., field-verify whether sturgeon can migrate past Sunset Pumps and Shanghai Bench).	High Flow Channel	Yes: Upstream migration		Not included; not an identified project issue.

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3076	EWG-10A	Provide resident fish with access to the upstream tributaries by removing sediment plugs that block access to the upstream tributaries of Lake Oroville to increase the quantity and quality of available salmonid spawning habitat.	Upstream Tributaries	Yes: Upstream passage		Not included; eliminated by collaborative EWG.
3077	EWG-10B	Provide resident fish with access to the upstream tributaries by removing boulders and manmade barriers. This PM&E measure could include the removal of Big Bend Dam or the construction/repair of fish passage facilities at this site to open up the Poe Reach.	Upstream Tributaries	Yes: Upstream passage		Not included; eliminated by collaborative EWG.

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3078	EWG-11	Prevent downstream passage of rainbow trout from the Thermalito Complex into the Feather River. Currently rainbow trout are stocked in Thermalito Forebay for a "put and take" fishery. This PM&E measure will address concerns about hatchery-origin trout interacting with natural steelhead in the Feather River. Opportunities to prevent downstream passage of rainbow trout include changing the species that are stocked in Thermalito Forebay (i.e., stock steelhead, Chinook salmon, Coho salmon, or brown trout instead of rainbow trout) or eliminating stocking in the forebay.	High Flow Channel	Yes: Coldwater fish stocking down-stream passage		Not included; targets an outcome (prevention of hatchery-origin and wild trout interaction) that is not an identified project issue. Hatchery-origin and wild trout are genetically the same and there is weak concern for disease transmission. Also not practical because implementation would require screening the entire river during floodflows.
3079	EWG-12	Install a fish-counting and identification device at the Thermalito Afterbay Outlet and Thermalito Diversion Dam.	High Flow Channel	Yes: Down-stream fish passage		Not included; eliminated by collaborative EWG.
3080	EWG-27	Isolate, modify, fill, or reclaim Robinson Riffle borrow pond (used for gravel extraction) to reduce predator habitat.	Low Flow Channel	Yes: Fish predation, fish habitat water temperature, gravel recruitment		Not included. Benefit not quantifiable.

Table D-2. PM&E measure disposition list.

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3081	EWG-30	Regulate reservoir drawdown to less than 9 feet (ft)/month to reduce bass nest dewatering and subsequent mortality.	Lake Oroville	Yes: Warm-water fish nesting		Not included; bass nest survival is adequate to support sustainable bass populations in Lake Oroville.
3082	EWG-32	This PM&E measure would supplement tributaries to Lake Oroville with salmon carcasses or carcass analogs (chemicals) to increase levels of marine-derived nutrients (assuming nutrient supplementation is desired).	Upstream Tributaries	Yes: Nutrients		Not included - marginal benefit provided by nutrient supplementation would not outweigh the potentially substantial adverse environmental impacts.
3083	EWG-33	Provide resident salmonids with access to the upstream tributaries by removing sediment plugs, boulders, and manmade barriers. This PM&E measure could include the removal of Big Bend Dam or the construction/repair of fish passage facilities at this site to open up the Poe Reach.	Upstream Tributaries	Yes: Upstream fish passage		Not included; eliminated by collaborative EWG.
3084	EWG-39	Evaluate all proposed management actions for relevance to fish disease concerns.	Low Flow Channel	Yes: Disease		Not included; this is an evaluation criterion, not a PM&E measure. Would be considered in fishery management actions.

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3085	EWG-52	Modify recreational use patterns in Feather River to minimize impacts on important terrestrial species.	Low Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration. Draft BA actions are designed to address recreation-wildlife conflicts and addressed in EWG-59.
3086	EWG-53	Provide improved vegetation cover and improved recreational screening within important migration corridors.	High Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3087	EWG-54	Modify recreational use patterns in the Thermalito Complex to minimize impacts on important terrestrial species (exact measures dependent on analysis in upcoming report).	Thermalito Complex	Yes		Not included; eliminated by collaborative EWG from further consideration. Draft BA actions are designed to address recreation-wildlife conflicts and addressed in EWG-59.
3088	EWG-55	Provide improved vegetation cover and improved screening within important corridors.	Thermalito Complex	Yes		Not included; eliminated by collaborative EWG from further consideration.
3089	EWG-60	Provide improved vegetation cover and screening within important corridors or nursery areas within the OWA.	OWA	Yes		Not included; eliminated by collaborative EWG from further consideration.

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3090	EWG-63	Retrofit or modify existing Lake Oroville recreational facilities to remove potential food sources, nesting sites, and rodent refuge areas for nuisance or pest species. This could also include implementing measures to reduce populations of nuisance non-native wildlife in the Lake Oroville areas (this is to include EWG-64).	Lake Oroville	Yes		Not included; eliminated by collaborative EWG from further consideration.
3091	EWG-71	Develop flow regime to control establishment of noxious species below the Thermalito Afterbay Outlet.	High Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3092	EWG-72	Develop construction and recreational management protocols to control the spread of noxious species.	High Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3093	EWG-77	Enhance or add riparian habitat for threatened and endangered species in the low-flow section of the Feather River.	Low Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3094	EWG-95	Stabilize target stream and reservoir banks to prevent mass wasting. The appropriate bank stabilization method is unknown at this time.	Lake Oroville	Yes: Bank stabilization/ dam safety		Not included; eliminated by collaborative EWG from further consideration.

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3095	EWG-96	Stabilize hill slope near Black Canyon (aka Dark Canyon) and remove sediment barrier. Related to fish passage PM&E measures associated with sediment plugs.	Upstream Tributaries	Yes: tributary passage		Not included; eliminated by collaborative EWG from further consideration.
3096	EWG-2B	Install a size exclusion device such as a lattice grating near Bedrock Park from July 1st to November 15th in order to provide spatial separation of holding and spawning habitat for spring-run and fall-run Chinook salmon. The latticed grate would be designed to block movement of adult salmonids but not juveniles.	Low Flow Channel	Yes: Chinook genetic introgression		Not included; issue addressed by EWG-2A, which is included in both the Proposed Action and Alternative 2.
3097	EWG-6	Recondition the existing benches along the lower Feather River reach to improve fisheries habitat.	High Flow Channel	Yes: Habitat		Not included; EWG 16A and EWG 16B address Chinook salmon rearing habitat. Splittail spawning habitat outside FERC project boundary.
3098	EWG-9	Provide increase flows to allow fish passage over barriers in the lower Feather River.	High Flow Channel	Yes: Salmonid upstream passage		Not included; SP-F10, Task 1C report found this not to be a project issue.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3099	EWG-14	Create deep pools in the low-flow reach of the Feather River to provide holding habitat for spring-run Chinook salmon. Deep pools would be created in reaches where water temperatures are expected to be cool enough to provide summer habitat for spring-run Chinook salmon.	Low Flow Channel	Yes: Spring-run Chinook holding habitat		Not included; SP-F10, Task 1E report found this not to be a project issue.
3100	EWG-17	Enhance riparian vegetation (including trees) along banks for shading and increased habitat complexity. This could include the use of cottonwoods or alders.	Low Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3101	EWG-19B	Increase the operational flexibility to allow for decreases in water temperatures downstream of the Thermalito Afterbay Outlet to encourage gravel utilization downstream of the Thermalito Afterbay Outlet.	High Flow Channel	Yes: Salmonid spawning habitat		Not included; eliminated by collaborative EWG from further consideration.
3102	EWG-20	Add woody debris in the Feather River. Large woody debris would be anchored or inserted into the river at target locations to provide increased habitat complexity.	High Flow Channel	Yes: Large woody debris		Addressed in the Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3103	EWG-21	Increase the quantity of shallow-water rearing habitat for juvenile salmonids in the high-flow section of the Feather River by releasing higher flows.	High Flow Channel	Yes: Salmonid rearing habitat		Not included; permitting issues, land acquisition, water, and power effects. There are other means of increasing fish habitat (i.e., EWG-16A/B, EWG-19A), which are included in the Proposed Action and Alternative 2.
3104	EWG-22	Increase connectivity between river channel and floodplain habitats (including low-elevation terraces) in the lower Feather River by setting back levees to create seasonal habitats for Chinook salmon, splittail, and steelhead.	High Flow Channel	Yes: Salmonid rearing habitat		Not included; Other method of increasing fish habitat (i.e., EWG-16 A/B) is included in Alternative 2.
3105	EWG-23	Provide higher and longer duration flows in winter/spring. Provide flow in the High Flow Channel to inundate floodplains to provide high quality rearing habitat. This PM&E measure would provide higher flows, which would increase quantity of fish habitat (splittail spawning and rearing and Chinook rearing habitat).	High Flow Channel	Yes: Salmonid rearing habitat		Not included; other method of increasing fish habitat (i.e., EWG-16 A/B) is included in Alternative 2.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3106	EWG-24	Construct or create permanent juvenile fish rearing areas for steelhead and Chinook on existing State owned lands or on newly purchased areas (for floodplains and side channels).	High Flow Channel	Yes: Salmonid rearing habitat		Not included; other method of increasing fish habitat (i.e., EWG-16 A/B) is included in Alternative 2.
3107	EWG-25	Use flow releases from the Thermalito Afterbay Outlet to provide additional floodplain habitats adjacent to the river channel.	High Flow Channel	Yes: Salmonid rearing habitat		Not included; other method of increasing fish habitat (i.e., EWG-16 A/B) is included in Alternative 2.
3108	EWG-34	Exclusionary devices (e.g., weirs) placed at the lower part of the low-flow section would have a potential benefit of reducing predation on salmonids in the low-flow section of the Feather River.	Low Flow Channel	Yes: Fish predation		Not included; issue addressed by EWG-2A, which is included in both the Proposed Action and Alternative 2.
3109	EWG-41	Use a weir to monitor and restrict access of returning adult Chinook salmon to the low-flow section of the Feather River. This PM&E measure potentially would reduce genetic introgression between Chinook races and between hatchery/wild salmonids. This PM&E measure also would potentially reduce crowding and competition for limited spawning habitat.	Low Flow Channel	Yes: Chinook genetic introgression		Proposed Action and Alternative 2.
3110	EWG-43	Evaluate all proposed management actions for relevance to fish disease concerns.	High Flow Channel	Yes: Fish disease		Not included; redundant with another PM&E measure (EWG-39).

Table D-2. PM&E measure disposition list.

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3111	EWG-46	Evaluate all proposed management actions for relevance to fish disease concerns.	Thermalito Complex	Yes: Fish disease		Not included; redundant with another PM&E measure (EWG-39).
3112	EWG-49	Evaluate all proposed management actions for relevance to fish disease concerns.	Lake Oroville	Yes: Fish disease		Not included; redundant with another PM&E measure (EWG-39).
3113	EWG-51	Enhance riparian vegetation and trees along banks for shading and increased habitat complexity.	Low Flow Channel	Yes		Not included; eliminated by collaborative EWG from further consideration.
3114	EWG-64	Implement measures to reduce populations of nuisance non-native wildlife in the Lake Oroville area.	Lake Oroville	Yes		Not included; eliminated by collaborative EWG from further consideration.
3115	EWG-76	Develop a variety of control measures, including hydrologic regime, to support and protect native riparian vegetation in the OWA.	OWA	Yes		Not included; eliminated by collaborative EWG from further consideration.
3116	EWG-81	Develop disturbance avoidance plans in the vicinity of nest sites during the nesting season of bald eagles and peregrine falcons.	Lake Oroville	Yes		Draft BA actions included in the No-Action Alternative, the Proposed Action, and Alternative 2 are designed to address bald eagle habitat issues.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
3117	EWG-90	Rip sections of the low-flow reach to improve spawning gravel composition for Chinook salmon and steelhead. This PM&E measure is not specific to location at this time; results from geomorphology studies (SP-G2) will be used to better define ripping and target locations in the low-flow reach.	Low Flow Channel	Yes: Salmonid spawning habitat (gravel)		Proposed Action and Alternative 2.
3118	EWG-91	Supplement the low-flow reach with suitable spawning gravel to increase productivity (i.e., number of fish produced per unit area).	Low Flow Channel	Yes: Salmonid spawning habitat (gravel)		Proposed Action and Alternative 2.
3119	EWG-94	Increase floodplain connectivity between the OWA and the mainstream Feather River with the goal of increasing inflow to selected OWA ponds during higher flows.	OWA	Yes: Habitat (channel reconfiguration)		Not included; other method of increasing fish habitat (i.e., EWG-16 A/B) is included in Alternative 2.
3120	EWG-48B	Stock warmwater species (e.g., Florida strain bass) in Lake Oroville to continue to develop and create trophy angling opportunities in the lake.	Lake Oroville	Yes		Not included; warmwater species self-sustaining in Lake Oroville.
3121	EWG-106	Develop and implement an appropriate marking/tagging program for all anadromous fish produced and released by the Feather River Hatchery.	Feather River Fish Hatchery	Yes: Hatchery		Alternative 2 includes expanded marking program.

Table D-2. PM&E measure disposition list.

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3122	EWG-107	Provide for review and revision of Feather River Fish Hatchery practices. This would include assessment of (1) production goals, (2) release strategies (including timing size at release and release location), (3) straying impacts, (4) genetic integrity of Feather River stocks, (5) marking program effectiveness, (6) interactions with wild fishes, (7) diseases within and propagated by the Feather River Fish Hatchery, and (8) rearing practices, including potential implementation of NATURES type program. DWR would provide necessary staff to evaluate these issues, implement necessary changes, and coordinate finding/decisions with a Feather River Fish Hatchery advisory committee. An adaptive approach to addressing these issues is necessary because goals of the Feather River Fish Hatchery are likely to change, and because of uncertainty regarding necessary changes in hatchery operations.	Feather River Fish Hatchery	Yes: Hatchery		Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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4001	LWG-2A1	Use of native low-water-consuming plants for landscaping. Encourage the use of native plantings around project facilities to limit water use including but not limited to the Feather River Fish Hatchery, State Parks Headquarters/OFD, Spillway Launch facility, and trails (coordinate with EWG).	Feather River Fish Hatchery, State Parks Headquarters/OFD, Spillway Launch facility, and trails	Yes: Should encourage more environmentally responsible management of landscaped areas at the project's developed facilities and to improve the aesthetic conditions of project facilities.		Native plants landscaping at Feather River Fish Hatchery completed as an Interim Project.

Table D-2. PM&E measure disposition list.

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4002	LWG-3	Screen-remove dump areas. Dump and storage areas used by DWR need to be removed or screened (AE5).	Diversion Pool: below the Fish Barrier Dam and along the Feather River below the Table Mountain Boulevard Bridge and below the State Route (SR) 70 bridge and other sites.	Yes: Will improve the aesthetic quality of the project by removing or screening construction debris from original and more recent project construction.		The Proposed Action and Alternative 2 include measures to screen materials storage area north of Oroville Dam emergency spillway.
4003	LWG-4	Transfer of federal lands (U.S. Bureau of Land Management [BLM]) within or near the FERC project boundary to the State with assistance from DWR and DPR.	Projectwide	Yes: The transfer of some additional land (from BLM to DPR) is related to the project if it is within the FERC boundary.		Alternative 2.

Table D-2. PM&E measure disposition list.

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4004	LWG-7	Provide an emergency fire and rescue boat for the California Department of Forestry and Fire Protection (CDF).	Lake Oroville	Yes		Not included; not supported by studies.
4005	LWG-8	Establish regular, routine trash type debris collection program for public access areas, shorelines, and camping areas using volunteers, DWR staff, etc., to augment budget for the program ("Adopt a Shoreline Program"). Develop a debris and trash collection program with DPR, DFG, and other interested parties. The program will involve collecting debris and trash from the waters and lands of the project with a focus on camping and public use areas.	Projectwide	Yes: Will improve the aesthetic quality of the project by managing and reducing litter.		Proposed Action and Alternative 2; included in operations and maintenance (O&M).

Table D-2. PM&E measure disposition list.

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4006	LWG-17	Plant vegetation along SR 99. Plant appropriate vegetation including trees at intervals along the highway easement east of SR 99 and west of the Thermalito Afterbay levee to break up the visual impact created by the levee as viewed from SR 99. Groups of appropriate vegetation including trees would be randomly planted between the toe of the levee and the edge of the SR 99 right-of-way. Appropriate vegetation including trees would help visually break up the long, lineal, horizontal form of the levee. The appropriate vegetation including trees would have to be sited and maintained so that they would not affect vernal pools or other sensitive areas.	Thermalito Afterbay	Yes: Levee is on DWR land within the FERC boundary		Not included; potential impact on vernal pools and conflicts with highway right-of-way.
4007	LWG-18	Remove the existing billboards east of SR 99 (west of the Thermalito Afterbay levee) that are on DWR managed lands to improve the visual quality.	Thermalito Afterbay	Yes: Billboards are on DWR land within the FERC boundary		Not included; outside of the project scope.

Table D-2. PM&E measure disposition list.

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4008	LWG-19	Fuel Load Management Plan Vegetation Management Plans and implementation to reduce biomass on wildlands adjacent and in the vicinity of urban areas: Develop and implement a vegetation management plan to reduce fuels along the vicinity of the wildland/urban interface of Lake Oroville. Actions will be consistent with DPR goals for management of natural resources at LOSRA and incorporate management techniques on large enough areas to duplicate the effects of natural process such as periodic wildfire.	Lake Oroville - Main Basin	Yes: Loafer Creek recreational area within FERC boundary and adjacent Kelly Ridge		Alternative 2.
4009	LWG-2B	Develop a program to evaluate future development proposals within the project area to ensure preservation and protection of open space when possible. Require a greenbelt area as a component of any new development within the project area.	Projectwide	Yes, if in FERC project boundary		Not included; outside of the project scope.
4010	LWG-5	Potential for DWR to sell, for private development, some lands currently held by the State. This would get the land back on tax rolls.	Projectwide			Not included; outside of the project scope.

Table D-2. PM&E measure disposition list.

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4011	LWG-13	Camouflage the power line towers. Paint the towers within the FERC project boundary complementary colors such as brown and green so as to better blend into their surroundings.				Not included; infeasible, as most towers not owned by DWR.
4012	LWG-26	The creation of a Joint Powers Authority lake water district utilizing the State Water Project (SWP) area of origin entitlement of 27,500 acre-feet with the suggested share based upon the weight of the current vote of the agency presently sitting on the Lake Oroville Joint Powers Authority (LOJPA).				Not included; would conflict with existing water rights and entitlements.
4013	LWG-27	A dollar amount will be negotiated for any sales of the Butte County water entitlement and set aside in a mitigation water bank fund for watershed modeling and resource conservation planning and any PM&E measure as a result of these studies.				Not included; would conflict with existing water rights and entitlements.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
4014	LWG-29	During drought season and/or when the Lake Oroville water capacity falls below acceptable levels deemed appropriate by the LOJPA, the SWP contractors shall enforce water conservation methods to prevent further decline to the reservoir. Contractors shall be charged a higher rate once Lake Oroville falls below LOJPA levels.				Not included; would conflict with established contracts.
4015	LWG-21	Watershed approach to reduce the intensity of wildfire and improve quality and quantity of useable runoff from the Feather River watershed by removal of ladder fuels in overstocked forest stands and restoring floodplain function to degraded meadows and streams in the Feather River basin.	Projectwide/ Outside of project boundary	No: Outside of project boundary		Not included; Alternative 2 includes fuel load management within the FERC project boundary.
4016	LWG-16	Transfer administration of grazing lease from DWR to DPR when the current 5-year lease terminates on 9/30/04. As appropriate, grazing practices will be modified to mitigate (yet to be determined) adverse impacts on natural, cultural, and recreational resources: including monthly stocking rates, annual presence, and fencing of boundary and sensitive resource areas.	Projectwide	No: Settlement item		Not included; administration of grazing leases outside the project scope.

Table D-2. PM&E measure disposition list.

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4017	LWG-24	Centralized facility is needed for law enforcement and fire/rescue protection in the highly visible low-flow recreation area. With the increased usage, there is a need for a facility that is central to the Thermalito Afterbay Outlet, the OWA, and the Low Flow Recreation Area.	Undetermined	No: Does not mitigate impacts or address goals		Not included; additional safety-related actions included in Recreation Management Plan (RMP).
4018	LWG-31	Protect and enhance Thermalito Forebay wildlife resources. Campbell Hills must be purchased and included in the Thermalito Forebay State Recreation Area (SRA) to protect the biological integrity of the area. A management plan for elimination of noxious plants must be developed and carried out.	Campbell Hills	No: Does not mitigate impacts or address goals		Not included; no nexus, outside of boundary.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
4019	LWG-2A	Develop a Vegetation Management Program and replacement schedule/plan for specific identified developed areas at project facilities that have landscaped areas. Would include an integrated pest management approach and encourage the use of native plantings and removal of lawns to limit water use and decrease maintenance.	Specific identified developed areas at project facilities that have landscaped areas such as the Feather River Fish Hatchery, the Lake Oroville Visitors Center, and the face of Oroville Dam	Yes: Will improve environmental quality in the project area		Not included; the pest management portion is included in the Proposed Action and Alternative 2 as part of the Invasive Species Management Plan. Native plants landscaping at the Feather River Fish Hatchery (Interim Project) included in all alternatives.
4020	LWG-1	Increase communication on issues relating to present DWR land usage around the reservoir area so it shifts from unused to recreational or appropriate public use.	Projectwide	Yes: Affects lands inside boundary		Not included; PM&E measure too vague.

Table D-2. PM&E measure disposition list.

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4021	LWG-20	Provide catch-up funding to DFG, enhance wildlife area, fund road and sign construction and maintenance, provide adequate security, and encourage organization cooperation.	Projectwide	Yes		Not included; sign construction and maintenance included in I&E program for both alternatives. Security and cooperation approach included in RMP.
4022	LWG-25	Bedrock Park Renovation. A renovation of the Bedrock Park river corridor by updating the 1977 Feather River Enhancement Project.	Outside of project boundary	No		Not included; this proposed PM&E measure is outside of boundary and lacks project nexus.
4023	LWG-30 ⁺	Requesting that Matthews Ready Mix property leased to Matthews by the Department of Wildlife Conservation Board and DFG be put into a public trust for accessibility by all.	Matthews Ready Mix property in the OWA	Yes: Matthews Ready Mix property is in the project area		Not included; involves land/easement acquisition may not be financially feasible.
4024	LWG-23	Lake Oroville Oversight Committee.	Projectwide	Yes		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.

Table D-2. PM&E measure disposition list.

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4025	LWG-6	Use site specific, integrated pest management approach to control forest pests, employing mechanical, cultural, biological, and/or chemical methods based on effectiveness, cost efficiency, and protection of human health and environmental quality (see LWG-2a).	Projectwide	Yes		Not included; the pest management portion is included in the Proposed Action and Alternative 2.
4026	LWG-9	Remove old railroad trestle and other debris from river (AE2) (see LWG-3).				Not included; eliminated by collaborative Land Use, Land Management, & Aesthetics Work Group (LUWG).
4027	LWG-10	Clean up shoreline, particularly adjacent to camping and public access areas. Use county prisoner-release programs, if necessary, to maintain clean shorelines (AE3) (see LWG-8).	Projectwide	Yes		Proposed Action and Alternative 2; included in O&M.
4028	LWG-11	Remove concrete and construction debris in Feather River including below the Fish Barrier Dam, below the Table Mountain Bridge, below the SR 70 Bridge (AE4) (see LWG-3).				Not included; eliminated by collaborative LUWG.
4029	LWG-12	Dump areas used by DWR need to be removed (AE5) (see LWG-3).				Not included; eliminated by collaborative LUWG.
4030	LWG-14	Expand use of "low impact" (AE9).				Not included; eliminated by collaborative LUWG.

Table D-2. PM&E measure disposition list.

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4031	LWG-15	Native plant landscaping (potential sites: Feather River Fish Hatchery, State Parks Headquarters, DWR Field Office, Spillway Launch Facility—future) and restoration of native plant communities (AE12) (see LWG-2a).	Feather River Fish Hatchery, etc.	Yes, if in FERC project boundary		Not included; native plants landscaping at Feather River Fish Hatchery (Interim Project) included in all alternatives.
5001	RWG-DP1	Lakeland Boulevard Access: Acquire authorization to use existing road or build new road to old railroad grade. Provide limited facilities (parking, tables, pole stoves, restroom, access to water's edge for hikers and car-top boats) to facilitate use.	Diversion Pool (Lakeland Boulevard)	Yes: In FERC project boundary		Proposed Action and Alternative 2.
5002	RWG-DP2	Equestrian trailhead improvements: Extend water line to trailhead and adjacent area. Provide additional horse tethering facilities and permanent restrooms. Gravel surfacing of dirt road.	Diversion Pool	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5003	RWG-DP3	Camping improvements: Provide a few initial primitive camping facilities in the vicinity of the trailhead; more expansive development contingent upon DP5 below.	Diversion Pool	Yes: In FERC project boundary		Not included; not identified in the Needs Analysis (SP-R17). Low public support. Primitive campsites opposed by local county.
5004	RWG-DP4	Equestrian trail head parking improvements: Included in DP2 above.	Diversion Pool	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.

Table D-2. PM&E measure disposition list.

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5005	RWG-DP5	Acquire adjacent land for expansion: Acquire 80-acre parcel adjacent to (downstream of) Lakeland Boulevard Trailhead from PG&E. Use for development of overnight facilities and additional trail and park development.	Diversion Pool (near Lakeland Boulevard)	No: Outside of FERC project boundary		Not included; involves land/easement acquisition—may not be financially feasible.
5006	RWG-DP6	Day use sites for trail users and boaters: In addition to DP1 above, develop spur trails and boat-landing areas with picnic tables, pole stoves, and trash cans at remote points along north and south shores of the Diversion Pool; requires shoreline access for maintenance.	Diversion Pool			Alternative 2.
5007	RWG-DP7	Clean up area/remove exotic plants: More frequent routine maintenance of public use areas (similar to other LOSRA developed areas), and develop a native vegetation management plan in coordination with DPR; provide screening of adjacent maintenance area.	Diversion Pool	Yes: In FERC project boundary		Not included; O&M and Invasive Species Management Plan included in the Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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5008	RWG-DP8	Opportunities for nature interpretation: Develop interpretive sites at Lakeland Boulevard trailhead, and numbered stations along existing trail(s) for use with a trail brochure. Coordinate opportunities for guided walks with the Feather River Nature Center and/or Lake Oroville Visitors Center.	Diversion Pool (Lakeland Boulevard trailhead)	Yes: In FERC project boundary		Not included; I&E program part of Proposed Action and Alternative 2.
5009	RWG-DP9	Open Diversion Pool Dam to trail linkage use: Construct any modifications necessary to safely allow public crossing (foot, bicycle, walked-mount) of Thermalito Diversion Dam; alternatively, create a new crossing near Diversion Pool (in addition to DP11, which is upstream).	Diversion Pool (Diversion Dam)	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5010	RWG-DP10	Safe crossing of railroad tracks and river for users and connection to trail system: Obtain Union Pacific Railroad (UPRR) authorization to develop trail access under south abutment of railroad bridge, or permission to construct pedestrian bridge over tracks.	Diversion Pool	Yes: but not in FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.

Table D-2. PM&E measure disposition list.

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5011	RWG-DP11	Multi-use loop trail around Diversion Pool: In addition to DP9 above, add a second (probably suspension) footbridge (including short connecting trails) at the head of the Diversion Pool, to connect Burma Road with the old railroad grade.	Diversion Pool	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5012	RWG-DP12	Seasonal pontoon bridge or other crossing over the Diversion Pool: Covered in DP9 and/or DP11 above.	Diversion Pool	Yes: In FERC project boundary	Flood risk high	Not included; public safety and flood risk issues.
5013	RWG-DP13	Paved Bike Trail on Railroad Grade from Diversion Dam to Oroville Dam.	Diversion Pool (Thermalito Diversion Dam to Oroville Dam)	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5014	RWG-DP14	Demonstration mountain bike loop trail: Develop a trail parallel to the Dan Beebe Trail for separation of equestrian and bicycle use, including special technical features designed in conjunction with local enthusiasts.	Diversion Pool (parallel to Dan Beebe Trail)	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.

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5015	RWG-DP15	Paved bike trail—Nature Center, across Diversion Pool and down river: In conjunction with DP9 above, pave trail through Nature Center property to connect to city streets; also pave trail connection from Diversion Dam to Feather River Fish Hatchery.	Diversion Pool	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5016	RWG-DP16	Acquisition of 83 acres for regional park and connection to trails system: Same as DP5 above.	Diversion Pool	No: Outside of FERC project boundary		Not included; involves land/easement acquisition—may not be financially feasible.
5017	RWG-DP17	Use of DWR property next to Thermalito Diversion Dam for multi-use center: Additional development at "staging area." Interim Project (arena, fencing, delineated parking, water, restrooms, small concession/office building, grandstand seating).	Diversion Pool	Yes, if in FERC project boundary		Flexible events center included in Alternative 2.
5018	RWG-DP18	Easement/acquisition of Pacific Gas and Electric Company (PG&E) land adjacent to the Diversion Pool: Same as DP5 and DP16 above.	Diversion Pool	No: Outside of FERC project boundary		Not included; involves land/easement acquisition—may not be financially feasible.
5019	RWG-DP19**	Oroville Dam Boulevard Bike Lane Extension: Extend connection of bike lane from Orange Avenue up Oroville Dam Boulevard to Canyon Drive (near Oroville Dam; add blacktop, widen as needed).	Diversion Pool (Orange Avenue to Canyon Drive)	No: Outside of FERC project boundary		Not included; outside of FERC project boundary. No nexus.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5020	RWG-DP19**	Oroville Dam Boulevard Bike Lane Extension: Extend connection of bike lane from Orange Avenue up Oroville Dam Boulevard to Canyon Drive (near Oroville Dam; add blacktop, widen as needed).	Diversion Pool (Orange Avenue to Canyon Drive)	No: Outside of FERC project boundary		Not included; outside of FERC project boundary. No nexus.
5021	RWG-TF1	Safe, warmwater swimming w/sand beaches: Modify circulation, provide pumped water, or investigate sub-impoundment to allow more warming of swim cove and enhance safety at North Thermalito Forebay; perhaps a "play feature" (shallow "stream," smooth boulders) and landscaping.	Thermalito Forebay	Yes: In FERC project boundary	Operations could result in major modification of flows, water releases, or temperature of water eventually discharged to the Feather River.	Options to potentially warm the water to enhance swimming opportunities included in the Proposed Action and Alternative 2.
5022	RWG-TF2	Expand day use facilities at South Thermalito Forebay: Develop sand beach, grass, and/or trees, additional tables and pole stoves, fish cleaning station, paved parking. Fencing (barbed-wire) to protect vernal pools.	Thermalito Forebay	Yes: In FERC project boundary		Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5023	RWG-TF3	Acquire Campbell Hills property, ~100 acres: Purchase parcel overlooking the north side of North Thermalito Forebay, if willing seller. Allow public access from expanded North Thermalito Forebay parking lot, any development must be consistent with natural resource values; manage/remove noxious plants.	Thermalito Forebay (north side)	No: Outside of FERC project boundary		Not included; involves land/easement acquisition—may not be financially feasible.
5024	RWG-TF4	Lakefront resort: Allow and encourage concession for development of commercial lodging and amenities on the north shore of Thermalito Forebay; provide required expansion of utilities and infrastructure (parking, boat docks, etc.).	Thermalito Forebay (north shore)	Yes, if in FERC project boundary		Not included; outside of project scope.
5025	RWG-TF5	Golf course: 18-hole course just north of Thermalito Forebay, proposed as public/private partnership operated by lease. Eventually, possibly part of a recreational complex, including a lakefront resort, warmwater swimming, boating/special events area, and an expanded aquatics center.	Thermalito Forebay	Yes, if in FERC project boundary		Not included; outside of project scope.
5026	RWG-TF6	Utilities/infrastructure to area: This is not a stand-alone project, but an element necessary for the additional developments described in TF4 and TF5.	Thermalito Forebay	Yes, if in FERC project boundary		Not included; outside of project scope.

Table D-2. PM&E measure disposition list.

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5027	RWG-TF7	Expand boating aquatics center: Provide additional covered storage and utilities at existing North Thermalito Forebay "Boat Storage Facility"; make use of facilities available to active groups.	Thermalito Forebay (North Forebay)	Yes: In FERC project boundary		Basic facility improvements to the boating aquatics center included in the Proposed Action and Alternative 2.
5028	RWG-TF8**	Boating events venue and support facilities—DPR: Develop a Boating Information and Safety Center, with 120-person multipurpose room, four classrooms, men's/women's locker rooms and showers, docks, landscaping.	Thermalito Forebay	Yes: In FERC project boundary		Not included; basic facility improvements to the boating aquatics center included in the Proposed Action and Alternative 2.
5029	RWG-TF8**	Boating events venue and support facilities—LOJPA: possibly as part of recreational complex (golf, resort).	Thermalito Forebay	Yes, if in FERC project boundary		Not included; basic facility improvements to the boating aquatics center included in the Proposed Action and Alternative 2.
5030	RWG-TF9	Expand day use facilities at North Thermalito Forebay—Add shade ramadas and expand parking at existing recreation area.	Thermalito Forebay (North Forebay)	Yes, if in FERC project boundary		Not included; environmentally sensitive area. Day use facilities included at South Thermalito Forebay in Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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5031	RWG-TF10	New DPR visitors center: Construct a visitors center similar in size and to generally replace the Lake Oroville Visitors Center, close to one of the SR 70 exits.	Thermalito Forebay	Yes, if in FERC project boundary		Not included; not identified in the Needs Analysis (SP-R17) as current need.
5032	RWG-TF11	SR 70/Diversion Canal bridge connection (also see TA-16): Additional/pedestrian access route to the North Thermalito Forebay recreation area; possible candidate for Transport Efficiency Act of 1991 (TEA) grant (requires matching funds and coordination with County Transportation Commission and Caltrans).	Thermalito Forebay (North Forebay)	Yes: In FERC project boundary		Not included; outside of project scope. Not identified in the Needs Analysis (SP-R17), good access already exists.
5033	RWG-TF12	Fishing access: Create additional shoreline access points around North Thermalito Forebay; may include some removal of aquatic vegetation and a disabled-access fishing pier.	Thermalito Forebay (North Forebay)	Yes: In FERC project boundary		Proposed Action and Alternative 2.
5034	RWG-TF13	Develop DPR maintenance facility: Construct equipment yard and staffing space in the vicinity of Thermalito Forebay, allowing more direct attention to maintenance needs of the North and South Thermalito Forebay recreation areas' existing and new facilities.	Thermalito Forebay	Yes: In FERC project boundary		Not included; maintenance facility already exists.

Table D-2. PM&E measure disposition list.

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5035	RWG-TF14	Enhance wildlife values at Thermalito Forebay, and protect resource for non-motorized recreation: Enhance opportunities with paddleboat, etc., rentals (concessionaire space) coordinated with expansion of boat storage facility.	Thermalito Forebay	Yes: In FERC project boundary		Not included; basic facility improvements to the boating aquatics center included in the Proposed Action and Alternative 2.
5036	RWG-TF15	Cost share with Utility District on upsizing of lines to site, to support additional development: Variation of TF6, intended as part of development/cluster described in TF4.	Thermalito Forebay	Yes: In FERC project boundary		Not included; outside of project scope.
5037	RWG-TF16	Same as TA11 - North Thermalito Forebay/Sports Complex Bridge over canal: Construct a pedestrian access bridge and associated connecting trail segment(s) to connect these two recreational areas (the Feather River Recreation and Parks District [FRRPD] has not filled out form, but has provided additional information).	Thermalito Forebay (North Forebay)	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.

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5038	RWG-TF17	Loop trail around the entire Thermalito Forebay and Thermalito Afterbay: Improve existing trail and create several hundred feet of new trail, connecting existing segments of the Brad Freeman Trail, to allow multiple-use nonmotorized access around margin of these water bodies.	Thermalito Forebay (Forebay + Afterbay)	Yes: In FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5039	RWG-TF18	Whitewater Recreation Park: Create a competition-style public artificial channel near the outlet of Thermalito Forebay that flows to the afterbay, with support facilities (parking, stairs, restrooms, grandstand); periodically divert 400-1,000 cfs through channel.	Thermalito Forebay (at outlet)	Yes: In FERC project boundary		Consideration of the whitewater recreation park at the Diversion Pool included in Alternative 2.
5040	RWG-TF19	Additional North Thermalito Forebay En-route Camping: Develop 25 additional campsites with tables, ramadas, and a combination shower/restroom building; landscaping, overlooking the Thermalito Power Canal.	Thermalito Forebay (North Forebay)	Yes: In FERC project boundary		Not included; additional en-route camping not identified in the Needs Analysis (SP-R17).
5041	RWG-TF20	Expand the Accessible Fishing Pier: Enlarge existing fishing platform and add shade structure.	Thermalito Forebay	Yes: In FERC project boundary		Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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5042	RWG-TF21	Deed ~44 acres of DWR land to FRRPD (currently under FRRPD lease) for development of a soccer complex and protection of some onsite and adjoining wetlands.	Thermalito Forebay	Yes, if in FERC project boundary		Not included; requires land sale/easement.
5043	RWG-TA1	Expand existing day use facility: More beach and sand, more picnic sites, add shade trees and ramadas, and more parking for boaters, at Monument Hill.	Thermalito Afterbay (Monument Hill)	Yes: In FERC project boundary		Not included; conflicts with ESA species protection.
5044	RWG-TA2~	Add launch ramp at existing facility: Either add additional lanes at Monument Hill (with commensurate additional parking), or upgrade the car-top ramp at Larkin Road to a two-lane conventional ramp with new (commensurate) boat-trailer parking.	Thermalito Afterbay (Monument Hill or Larkin Road)	Yes: In FERC project boundary		Not included; conflicts with ESA species protection.
5045	RWG-TA3~	Add boat-in improvements: More boat-in picnic sites, and perhaps primitive boat-in campsites, at remote shoreline or island areas of Thermalito Afterbay.	Thermalito Afterbay	Yes: In FERC project boundary		Not included; conflicts with ESA species protection.
5046	RWG-TA4~	Plant trees around Thermalito Afterbay: Plant trees at recreation sites (Monument, Larkin, and boat-in picnic sites) and at other non-levee vista areas. Assume low-maintenance native species or noninvasive domestic-landscaping ornamentals.	Thermalito Afterbay (Monument Hill, Larkin Road)	Yes: In FERC project boundary		Not included; conflict with Waterfowl Management Plans, may conflict with Draft BA measures.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5047	RWG-TA5	Add year-round resort project: Large-scale development at undetermined afterbay-adjacent site to include commercial lodging and camping, special-event and trail-support facilities, "KOA-type" amenities, perhaps (not necessarily) a golf course.	Thermalito Afterbay	Yes, if in FERC project boundary		Not included; outside of project scope.
5048	RWG-TA6	Consider Thermalito Afterbay for alternate equestrian center site: At a suitable site (likely similar undetermined point as TA5, above), construct the "multiuse center" (equestrian event staging area) described in DP17 (Diversion Pool, previous page).	Thermalito Afterbay	Yes, if in FERC project boundary		Not included; conflicts with ESA species protection.
5049	RWG-TA7	Add swimming at existing facility: Designated beach and swim area (new construction/addition = beach sand, shade trees, ramadas) at Larkin Road.	Thermalito Afterbay (Larkin Road)	Yes: In FERC project boundary		Proposed Action and Alternative 2.
5050	RWG-TA8	Develop campground at Thermalito Afterbay (RE9): Convert 50 acres from Wildlife Area status to Recreation Area status. Phased development of 200-site campground across the street from Larkin Road Car-top Boat Ramp within the OWA (see WA-2).	Thermalito Afterbay (near Larkin Road car-top access)	Yes: In FERC project boundary		Not included; organized camping facility at the Thermalito Afterbay Outlet included in the Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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5051	RWG-TA9	Develop facilities (including grandstands, toilets, campground) at Thermalito Forebay/Thermalito Afterbay to support competitive powerboat events (RE28): location likely close to cove designated (afterbay) for water-ski activities, or undetermined site at South Thermalito Forebay.	Thermalito Afterbay (or South Forebay)	Yes: In FERC project boundary		Not included; inconsistent with wildlife values.
5052	RWG-TA10	Include a marina and launching of boats along with many recreational activities at the afterbay, with the entrance to the facilities off SR 99 (RE29): Construct new marina (includes store, boat rentals, boat storage, infrastructure/utilities).	Thermalito Afterbay (off SR 99)	Yes: In FERC project boundary		Not included; large-scale recreation development is not consistent with intent of the OWA. Potential impacts on fisheries and wildlife.
5053	RWG-TA11	Provide additional day use and camping at Southeast Thermalito Afterbay complex (RE137): See TA8 above; to support activities at Larkin Road, Thermalito Afterbay Outlet Fishing Area, and vicinity trails with day use facilities/area and river access.	Thermalito Afterbay (southeast)	Yes: In FERC project boundary		Additional day use facilities at Larkin Road are included in the Proposed Action and Alternative 2. Day use facilities and camping are included at the Thermalito Afterbay Outlet in Proposed Action and Alternative 2. Trails may be addressed in Trails Program as part of the RMP.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5054	RWG-TA12	Site improvements to existing flying site for model airplanes: As initially scoped, most has been completed as Interim Project.	Thermalito Afterbay	Yes, if in FERC project boundary		Completed as part of an Interim Project.
5055	RWG-TA13	Improve OHV Recreation Area (Clay Pit State Vehicular Recreation Area [SVRA]) at the Oroville complex. Includes but not limited to 4x4 areas for training, safety, but also motor-cross type tracks (designate areas, add signs/markers).	Thermalito Afterbay (Clay Pit)	No: Outside of FERC project boundary		Not included; outside of FERC project boundary.
5056	RWG-TA14	Allow seaplane landings on Thermalito Afterbay, provide minimal facilities for docking near the model airplane flying area, allow access through gate (Wilbur Road) to fuel trucks from local airport.	Thermalito Afterbay	No		Not included; the need is met at Lake Oroville, inconsistent with wildlife values.
5057	RWG-WA1	Reestablish boat launch ramp on west side of river in wildlife area: Improve ramp near Thermalito Afterbay Outlet (currently dirt, rough); include parking and related minimal amenities (vault toilet).	OWA (near Thermalito Afterbay Outlet)	Yes		Not included; planned by California Department of Boating and Waterways (DBW).

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5058	RWG-WA2*	Same as TA8 - Add camping at Thermalito Afterbay Outlet: Improve and expand existing primitive camping area (additional sanitary facilities; create standard campground including designated individual sites, install tables, provide potable water).	OWA (Thermalito Afterbay Outlet)	Yes		Not included; organized camping facility at Thermalito Afterbay Outlet included in the Proposed Action and Alternative 2.
5059	RWG-WA3~	Add launch ramp at Thermalito Afterbay Outlet: Same as WA1 above.	OWA (Thermalito Afterbay Outlet)	Yes		Not included; planned by DBW.
5060	RWG-WA4	Restore natural values of Wildlife Area: Elevate management priority for primary State Wildlife Area purposes – reduce emphasis on recreation, restore native vegetation, restrict or eliminate high-speed motorized uses.	OWA	Yes		Proposed Action and Alternative 2 include Recreation Planning and Management coordination to resolve conflicts between wildlife management objectives and recreational activities in the OWA.
5061	RWG-WA5~	Add fishing ponds for kids: Designate 1 or 2 existing ponds for use by anglers age 15 and under; provide special fishery/habitat management, enhance access, and install signage.	OWA	Yes		Not included; not identified in needs analysis (SP-R17).

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5062	RWG-WA6	Expand wetlands: Could probably be included in WA4, but otherwise should be referred to other Work Groups (EWG, LUWG).	OWA	Yes		Not included; too vague.
5063	RWG-WA7	Increase off-river spawning: Construct side channels for spawning, restrict fishing at these areas (allow "wildlife viewing"); otherwise should be referred to EWG.	OWA	Yes		Salmonid habitat improvement included in the Proposed Action and Alternative 2.
5064	RWG-WA8	Add information center off Larkin Road: Construct easily visible but unstaffed information kiosk, with interpretive displays and tourist information, at entrance to Larkin Road Car-top Boat Ramp area (handful of designated, improved parking spots).	OWA (off Larkin Road)	Yes, if in FERC project boundary		Not included; I&E program part of Proposed Action and Alternative 2.
5065	RWG-WA9	Add wildlife viewing and interpretation: Install additional interpretive panels at all OWA entrances; designate marked trails (with self-guided literature and markings) for wildlife viewing.	OWA	Yes		Not included; I&E program part of the Proposed Action and Alternative 2: includes two Americans with Disabilities Act (ADA) accessible watchable wildlife sites.
5066	RWG-WA10	Add day use facilities at Thermalito Afterbay Outlet: Designate area near river but away from camping area and install picnic tables and BBQs.	OWA (Thermalito Afterbay Outlet)	Yes		Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5067	RWG-WA11	Provide funding for operations and maintenance of Wildlife Area: Increase DFG budget appropriation to restore past levels of service or increase service level; "subsidize" with DWR O&M funds if Legislative/DFG appropriation is reduced.	OWA	Yes		Recreation planning and management coordination in the OWA will be addressed in the RMP in the Proposed Action.
5068	RWG-WA12	Trade to remove 50-100 acres, outlet property from Wildlife Area for campground: Build new, improved campground near site of existing primitive camp area; amend operating agreement for management of this portion of the OWA if necessary.	OWA	Yes, if in FERC project boundary		Not included; organized camping facility at the Thermalito Afterbay Outlet included in the Proposed Action and Alternative 2 to discourage primitive undeveloped camping in the OWA.
5069	RWG-WA13	Restore or provide mitigation for dewatering of Ruddy Creek: Divert/pump water into abandoned Ruddy Creek channel to restore fishery and wildlife-viewing values; otherwise should be referred to EWG (Butte County included this as element of S/O-13).	OWA (Ruddy Creek)	Portions, Yes, if in FERC project boundary		Not included; eliminated by collaborative LUWG and EWG from further consideration.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5070	RWG-WA14	Local fish and wildlife improvements: Funding for DFG, appropriate to adequately operate facilities/OWA (Butte County included as element of S/O-13).	OWA	Yes		Recreation planning and management coordination in the OWA will be addressed in the RMP in Proposed Action and Alternative 2.
5071	RWG-WA15	Open the river to gold dredging from SR 70 through the OWA. Limit to 4 inch dredge, high banking, sluicing, and panning allowed, establish concession and interpretive building. Open Memorial Day to Labor Day – establish marketer to buy/sell gold and related items; closed during fish runs.	OWA	Yes		Not included; inconsistent with wildlife values and ESA species protection.
5072	RWG-WA16	Improve water-ski area and/or develop pond in OWA: Existing area already improved (Interim Project); additional/alternative site is a large pond in the OWA; construct parking, grandstands, restroom, and upgrade road.	OWA	Yes		Not included; not identified in the needs analysis (SP-R17).
5073	RWG-WA17	Clean out the silt of all ponds and remove excess brush around ponds with clear paths to each and plant some warmwater fish in each; dredging, aquatic weed control, trail construction/maintenance, fish planting.	OWA	Yes		Not included; potential impacts on sensitive wildlife species and habitat.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5074	RWG-WA18	One Mile Pond, plant with rainbows and brook trout and increase camping sites: manage for coldwater fishery and expand designated (primitive) camping area, perhaps designate individual sites by installing tables.	OWA (One Mile Pond)	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5075	RWG-WA19	Restore historic Hamilton Cemetery: Restore fencing and maintain grounds of ~1-acre site; install interpretive panel. (Formerly OR61).	OWA	No: Outside of FERC project boundary		Not included; not in FERC project boundary, and no nexus to project.
5076	RWG-WA20	Shooting Range: Upgrade facilities at shooting area (completed as Interim Project).	OWA (shooting range)	No: Outside of FERC project boundary		Not included; completed as Interim Project, but outside of FERC project boundary.
5077	RWG-LF1	Create a transportation link on the old railroad alignment from Diversion Pool to the Wildlife Area: Acquire title or easement to pre-project railroad grade, develop multiuse (non-motorized) unpaved trail between Diversion Pool and the OWA.	Low Flow Channel (Diversion Pool to Thermalito Afterbay)	Yes, if in FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5078	RWG-LF2	Restore river natural conditions; remove exotic plants: not implying Oroville Dam removal, but vegetation management and flow modifications to restore more natural hydrograph and temperature; otherwise should be referred to other Work Groups (EWG, Engineering and Operations Work Group [EOWG], LWG).	Low Flow Channel	Yes		Not included; exotic plant removal included in Invasive Species Management Plan in the Proposed Action and Alternative 2. Restoration of natural hydrograph conditions eliminated by collaborative EWG.
5079	RWG-LF3	Add whitewater park: Create a competition-style public artificial channel on the right bank below the Diversion Pool, with support facilities (parking, stairs, restrooms, grandstand); periodically divert 400-1,000 cfs through that channel.	Low Flow Channel (right bank below Diversion Pool)	Yes		Alternative 2.
5080	RWG-LF4	Establish Tribal Cultural Center along the river: Construct a special visitor center on public land near downtown or off SR 70, which will be managed by local federally recognized tribes for public education, tribal activities, and preservation of local cultural artifacts (CRWG PM&E measures: CWG30, CWG29, CWG26).	Low Flow Channel (near downtown or off SR 70)	Yes, if in FERC project boundary		Not included; the Proposed Action and Alternative 2 include a curation facility, interpretive signage program, and traditional planting sites.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5081	RWG-LF5	Finish Riverbend Park: In addition to current implementation of Interim Settlement Project, finish additional development of bike trail extension (to SR 162) and visitor information and cultural center, as described in existing environmental documentation.	Low Flow Channel (Riverbend Park)	No: Outside of FERC project boundary		Not included; outside FERC project boundary (no project nexus).
5082	RWG-LF6	Add DWR Visitor Information Center, as described in LF7 and LF9.	Low Flow Channel	Yes, if in FERC project boundary		Not included; not identified in the Needs Analysis (SP-R17) as current need. Outside FERC project boundary (no project nexus).
5083	RWG-LF7	Add interpretive/historic/cultural center: Construct a visitor center, probably in conjunction with "New Visitor Center" (see TF10), on public land (probably close to one of the SR 70 exits), which includes extensive pre/historic interpretation.	Low Flow Channel (off SR 70)	Yes, if in FERC project boundary		Not included; not identified in the Needs Analysis (SP-R17) as current need. Outside FERC project boundary (no project nexus).
5084	RWG-LF8	Modify swimming area, Bedrock Park: Restore side channel/pools to enhance swimming, wading, and help water warm, also modify degraded flow to enhance water quality; improve with waterside turf, concrete, and sand areas; additional support facilities (parking, etc.).	Low Flow Channel (Bedrock Park)	No: Outside of FERC project boundary		Not included; this proposed PM&E measure is outside of the FERC project boundary and could negatively affect water quality.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5085	RWG-LF9	Develop SR 70 gateway to LOSRA: Increase signage and develop significant new visitor/information center near one of the SR 70 exits, probably alternate to that proposed in TF10 or additional project similar to WA8.	Low Flow Channel (along SR 70)	Yes, if in FERC project boundary		Not included; new visitor center not identified in the Needs Analysis (SP-R17) as current need. Outside FERC project boundary (no project nexus).
5086	RWG-LF10	Hotel complex (southeast side of river): Allow concessionaire to use public land for development of tourism-enhancing recreation-facilitating overnight lodging (perhaps resort-style) development, with conference facilities/capability.	Low Flow Channel (southeast side of river)	Yes, if in FERC project boundary		Not included; outside of project scope.
5087	RWG-LF11	Loop historic cultural trail (funded): Enhance existing and create new multiuse trail with interpretive materials that emphasize cultural resources and history/prehistory of the area; both sides of river from SR 70 bridge to Thermalito Diversion Dam.	Low Flow Channel (SR 70 bridge to Thermalito Diversion Dam)	No: Outside of FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP. Sewim Bo River Trail completed 2004.
5088	RWG-LF12	Aquatic center with water ski course - west of Feather River Fish Hatchery, north side of river: Either in addition to or replacement of existing area on Thermalito Afterbay; designate area with buoys, construct parking, grandstands, restroom, and upgrade road (similar to WA16).	Low Flow Channel (west of Feather River Fish Hatchery, north side of river)	Yes, if in FERC project boundary		Not included; water ski course exists in Thermalito Afterbay. Cold water not favorable to water skiers. Not compatible with fishing.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5089	RWG-LF13	Add spawning riffle observation/interpretation facility: Create nature trail, either from Feather River Fish Hatchery or downtown, that leads to viewing platform (new; perhaps also on new constructed side channel) where natural salmonid spawning can be observed.	Low Flow Channel (near Feather River Fish Hatchery)	Yes, if in FERC project boundary		Alternative 2 includes spawning riffle observation access.
5090	RWG-LF14	Add improvements to the Nature Center: Additional day use, trail, and interpretive facilities; these are being implemented as an Interim Project.	Low Flow Channel (Nature Center)	No: Outside of FERC project boundary		Sewim Bo River Trail completed 2004.
5091	RWG-LF15	Repave Old Ferry Road at bathroom: Short segment (<0.25 mile) of resurfacing existing road.	Low Flow Channel (Old Ferry Road)	Yes, if in FERC project boundary		Sewim Bo River Trail completed 2004.
5092	RWG-LF16	Redevelop Hammond Park: Rehabilitate and upgrade day use facilities.	Low Flow Channel (Hammond Park)	Yes, if in FERC project boundary		Not included; outside of FERC project boundary.
5093	RWG-LF17	Relocate DWR maintenance yard: Move the storage area and other DWR facilities (now upstream of the right abutment of the Thermalito Diversion Dam) to an undetermined location, to enhance existing/expanded Group Staging Area.	Low Flow Channel (upstream of right abutment of Thermalito Diversion Dam)	Yes: In FERC project boundary		Not included; project operations dependent on maintenance facility. Not known if alternative locations are available and/or feasible.

Table D-2. PM&E measure disposition list.

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5094	RWG-LF18	Add swim center: Construct large, indoor competition-capable downtown public swim facility on City land in the center of the existing downtown residential neighborhoods.	Low Flow Channel (downtown)	No		Not included; outside FERC project boundary.
5095	RWG-LF19	Acquire land at SR 70 crossing (north and south sides): Expand public land by negotiation with willing sellers, for expansion of existing park areas (Riverbend, Bedrock) and/or new high-visibility visitor/information center (see TF10 and/or LF9).	Low Flow Channel (SR 70 crossing)	No		Not included; outside project scope.
5096	RWG-LF20	Add recreational vehicle (RV) campground (northeast side of river): Build new campground (includes utilities) on public land, exact location TBD.	Low Flow Channel (northeast side of river)	Yes, if in FERC project boundary		Not included; PM&E measure too vague.
5097	RWG-LF21	Provide river access: Clear signage from SR 70 and SR 162 to new and existing developed river access points, such as Riverbend Park, Flash Dam area, Green Bridge, and afterbay outlet; new areas will require creation/upgrading of access roads (OWA) and parking.	Low Flow Channel (along SR 70 and SR 162)	Yes		Signage program included in the Proposed Action and Alternative 2.

Table D-2. PM&E measure disposition list.

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5098	RWG-LF22	Add event meadow (northeast side of river): At the same (undetermined) site for LF20, provide area and support facilities (parking, sanitary, utilities) for outdoor "festival," "fair," and/or music events.	Low Flow Channel (northeast side of river)	Yes, if in FERC project boundary		Not included; PM&E measure too vague. Flexible event center next to Thermalito Diversion Dam included in Alternative 2.
5099	RWG-LF23	Add Bedrock Park skate and bike park: Surface existing trails in the vicinity of Bedrock Park and lay out new short trails for beginning skaters; establish signage to convey this is an appropriate staging-point for these activities (FRRPD has not filled out form, but has provided additional information).	Low Flow Channel (Bedrock Park)	No nexus		Not included; outside project scope.
5100	RWG-LF24	Add warmwater swimming and/or play stream and pond: At Bedrock Park, construct new shallow, isolated, very-low-flow side channel to facilitate water use by children and bathers; may include concrete at some pool/poolside areas.	Low Flow Channel (Bedrock Park)	No nexus	Operations: Could result in modification of flows, water releases, or temperature of water in the Feather River.	Not included; conflicts with wildlife values in the Low Flow Channel.

Table D-2. PM&E measure disposition list.

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5101	RWG-LF25**	Add Waterfront Linear Park: Multi-use trails on both sides of river, two footbridges, levee road, several stair accesses to river, possible venue for Veteran's Park; generally through downtown from nature center to Riverbend.	Low Flow Channel (along river in downtown)	No: Outside of FERC project boundary		Not included; outside project scope.
5102	RWG-LF25**	Add Waterfront Linear Park: Multi-use trails on both sides of River, two footbridges, levee road, several stair accesses to river, possible venue for Veteran's Park; generally through downtown from Nature Center to Riverbend.	Low Flow Channel (along river in downtown)	No: Outside of FERC project boundary		Not included; outside project scope. Trails may be addressed in Trails Program as part of the RMP.
5103	RWG-LF26**	Add Gateway Park: Visitor day use and information facilities between Riverbend facilities and Bedrock Park (near SR 70 exit and visible from freeway).	Low Flow Channel (between Riverbend and Bedrock)	No: Outside of FERC project boundary		Not included; new visitor center not identified in the Needs Analysis (SP-R17) as current need. Outside FERC project boundary (no project nexus).
5104	RWG-LF26**	Add Gateway Park: Visitor day use and information facilities between Riverbend facilities and Bedrock Park (near SR 70 exit and visible from freeway).	Low Flow Channel (between Riverbend and Bedrock)	No: Outside of FERC project boundary		Not included; new visitor center not identified in the Needs Analysis (SP-R17) as current need. Outside FERC project boundary (no project nexus).

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5105	RWG-LF27**	Add Downtown Riverfront Park: Element of LF25 with river access/trails (both sides); possible site of Cultural Center Museum and amphitheater to accommodate a variety of types of events.	Low Flow Channel (downtown)	No: Outside of FERC project boundary		Not included; the Proposed Action and Alternative 2 include a curation facility, interpretive signage program, and traditional planting sites.
5106	RWG-LF27**	Add Downtown Riverfront Park: Element of LF25 with river access/trails (both sides); possible site of Cultural Center Museum and amphitheater to accommodate a variety of types of events.	Low Flow Channel (downtown)	No: Outside of FERC project boundary		Not included; the Proposed Action and Alternative 2 include a curation facility, interpretive signage program, and traditional planting sites.
5107	RWG-LF28**	Add Whitewater Park: Same as LF3, except for more downtown location.	Low Flow Channel (downtown)	No: Outside of FERC project boundary		Alternative 2 includes whitewater park at different location.
5108	RWG-LF28**	Add Whitewater Park: Same as LF3, except for more downtown location.	Low Flow Channel (downtown)	No: Outside of FERC project boundary		Alternative 2 includes whitewater park at different location.

Table D-2. PM&E measure disposition list.

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5109	RWG-LF29**	Add flexible event staging/group camping area: Combination of LF20 and LF22; adjacent to the Interim Project staging area (across/above Power Canal from proposed whitewater park, right bank of channel).	Low Flow Channel (above Power Canal, right bank)	Yes, if in FERC project boundary		Not included; flexible event center next to Thermalito Diversion Dam included in Alternative 2. Camping at this location not identified in the Needs Analysis (SP-R17).
5110	RWG-LF29**	Add flexible event staging/group camping area: Combination of LF20 and LF22; adjacent to the Interim Project staging area (across/above Power Canal from proposed whitewater park, right bank of channel).	Low Flow Channel (above Power Canal, right bank)	Yes, if in FERC project boundary		Not included; flexible event center next to Thermalito Diversion Dam included in Alternative 2. Camping at this location not identified in the Needs Analysis (SP-R17).
5111	RWG-LF30**	Add equestrian event staging/group camping area: Left bank of channel near Thermalito Diversion Dam and existing trailhead; similar elements to LF20 and LF22 but Oroville/Oroville Redevelopment Authority (RDA) Information Form specifies location and plan view.	Low Flow Channel (near Thermalito Diversion Dam, left bank)	Yes, if in FERC project boundary		Not included; flexible event center next to Thermalito Diversion Dam included in Alternative 2. Camping at this location not identified in the Needs Analysis (SP-R17).

Table D-2. PM&E measure disposition list.

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5112	RWG-LF30**	Add equestrian event staging/group camping area: Left bank of channel near Thermalito Diversion Dam and existing trailhead; similar elements to LF20 and LF22 but Oroville/RDA Information Form specifies location and plan view.	Low Flow Channel (near Thermalito Diversion Dam, left bank)	Yes, if in FERC project boundary		Not included; Flexible event center next to Thermalito Diversion Dam included in Alternative 2. Camping at this location not identified in the Needs Analysis (SP-R17).
5113	RWG-LF31**	Add Neighborhood Park/Aquatic Center/Swim Complex: Essentially the same as LF18, with some park-like landscaping (paths, tables, and benches) outside new building.	Low Flow Channel	No: Outside of FERC project boundary		Not included; outside project scope.
5114	RWG-LF31**	Add Neighborhood Park/Aquatic Center/Swim Complex: Essentially the same as LF18, with some park-like landscaping (paths, tables, and benches) outside new building.	Low Flow Channel	No: Outside of FERC project boundary		Not included; outside project scope.
5115	RWG-LF32	Replace Flash Dam: Restore seasonal placement of the abandoned/removed Western Canal flashboard dam, providing warming backwater for swimming and boating on the river; minimal (primitive) improvements for access, parking, and sanitation.	Low Flow Channel (at old Western Canal flashboard dam)	No: Outside of FERC project boundary		Not included; eliminated by collaborative EWG.

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5116	RWG-LF33	Add warmwater swimming area (near Flash Dam): Instead of restoring seasonal operation of flashboards (LF32), construct lower-flow side channel with waterside improvements and access enhancements (parking, seasonal day use facilities, sanitation).	Low Flow Channel (at old Western Canal flashboard dam)	No: Outside of FERC project boundary		Not included; eliminated by collaborative EWG.
5117	RWG-LF34	Establish river access (near Flash Dam) for boating and special events: Graded (un-surfaced) access and designated parking, signage from existing facilities and main roads; basic waterside improvements (seasonal day use facilities, sanitation).	Low Flow Channel (at old Western Canal flashboard dam)	No: Outside of FERC project boundary		Not included; outside of FERC project boundary.
5118	RWG-LF35	Improve appearance of SR 70 corridor: Landscaping of SR 70 viewshed, especially in vicinity of freeway exits and existing parks (Riverbend) and any new visitor facilities (like TF10 and LF6).	Low Flow Channel (SR 70 corridor)	No: Outside of FERC project boundary		Not included; outside project scope. SR 70 under California Department of Transportation (Caltrans) jurisdiction.
5119	RWG-LF36	Acquire property for river access from Caltrans: Negotiate purchase of surplus right-of-way to facilitate recreational use, development, and access to the river from existing recreation areas and proposed SR 70 interchange.	Low Flow Channel	No: Outside of FERC project boundary		Not included; outside project scope.

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5120	RWG-LF37	Add historical interpretation of historic gold dredge: At existing recreation area near SR 70 exit (such as Riverbend Park entrance), place historic gold dredging equipment and interpretive exhibits.	Low Flow Channel	No: Outside of FERC project boundary		Not included; outside project scope.
5121	RWG-LF38	Remove concrete and construction debris in Feather River including below the Fish Barrier Dam, below the Table Mountain Bridge, and below the SR 70 bridge (RE89).	Low Flow Channel (in Feather River)	Yes		Not included; eliminated by collaborative EWG.
5122	RWG-LF39	Replace landscaping at the Feather River Fish Hatchery and adjacent river areas (RE100): This is being implemented as an Interim Project.	Low Flow Channel (Feather River Fish Hatchery)	Yes		Completed as Interim Project.
5123	RWG-LF40	Establish a historic railroad from Flash Dam site to Nature Center: Use existing trail and acquire some additional land to construct a narrow-gauge tourist railway along the river connecting its several parks; includes boarding/station facilities.	Low Flow Channel (Flash Dam to Nature Center)	Yes, if in FERC project boundary		Not included; outside project scope.

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5124	RWG-LF41	Collaborative Public Safety Center: Construct or designate a building for centralized law-enforcement and water-rescue capability; location on public land central to the river, Thermalito Forebay, Thermalito Afterbay, and the OWA.	Low Flow Channel	Yes, if in FERC project boundary		Not included; additional safety-related actions included in RMP.
5125	RWG-LF42	Formerly DP13: Safe/legal passage for bicycles from SR 162 bridge down to trail below: Coordinate development of project proposal with County Transportation Commission and Caltrans—possible TEA grant requiring matching funds.	Low Flow Channel (below SR 162 bridge)	Yes, if in FERC project boundary		Not included; outside project scope. Trails may be addressed in Trails Program as part of the RMP.
5126	RWG-LF43	O&M Funding for Riverbend Park: Establish recurring allocation of project funds for operation and maintenance of Riverbend Park.	Low Flow Channel (Riverbend Park)	No: Outside of FERC project boundary		Not included; outside of project scope.
5127	RWG-OR1	Relocate 50 campsites at Bidwell Canyon: Convert "Big Pine" loop to marina parking; construct new Campground (CG) loop adjacent to "Gold Flat" loop (retain existing number of sites at relocated campground site).	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.

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5128	RWG-OR2	Expand Bidwell Marina parking: Construct new parking lot (requires clearing, grading, paving) on site of half of Bidwell Campground; construct new campground loop (36 sites) adjacent/connected to remaining campground loop.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
5129	RWG-OR3	Upgrade visitors center: New displays and interpretive features; renovation, modernization.	Lake Oroville - Main Basin	Yes		Not included; represents an ongoing DPR activity.
5130	RWG-OR4	Add Saddle Dam Trailhead improvements: Mostly completed Interim Project.	Lake Oroville	Yes		Completed as Interim Project.
5131	RWG-OR5a	Add camp store shell at Bidwell Canyon: Provide facilities for operation by concessionaire to support expansion of campground activities; ~1,000 sq ft building with utilities and aisle/shelf space, ~10 parking spaces.	Lake Oroville - Main Basin	Yes		Alternative 2.
5132	RWG-OR5b	Add camp activity center at Bidwell Canyon: Provide facilities for operation by concessionaire to support expansion of campground activities, such as 1 acre of turf, shade structures, tables and seats, outdoor games (horseshoes, volleyball court, campfire circle).	Lake Oroville - Main Basin	Yes		Camp store shell included in Alternative 2.

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5133	RWG-OR6	Add dry boat storage: Designate one or two areas close to existing marinas for public rental of covered and/or uncovered storage space -- install cyclone fencing, gate, and electronic security; access/operation managed by marina concessionaire(s).	Lake Oroville (undefined)	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5134	RWG-OR7	Add tram to marinas (Lime Saddle, Bidwell): Establish tram service from day use parking to marinas during low-water periods.	West Branch + Lake Oroville - Main Basin	Yes		Not included; outside of project scope.
5135	RWG-OR8	Widen Olive Avenue: Coordinate with Caltrans and County Road Department to convert 2-lane section to 4 or 5 lanes, from Oroville Dam Boulevard to turnoffs for Bidwell and/or Loafer areas (5 to 7 miles of road with mostly private frontage).	Outside of Boundary	No		Not included; outside of project scope.
5136	RWG-OR9	Add stable warmwater swimming area and/or water play area at Loafer Creek: Construct 5-acre stable (900 ft) sub impoundment adjacent to lawn/picnic area; needs 30,000 cubic yards (cu yd) fill and concrete for dam, plus circulation and probably chlorination system.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2 include a feasibility study to improve swimming at either Loafer Creek or Lime Saddle.

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5137	RWG-OR10	Add group RV camping at Loafer Creek: New group camp loop including installation/extension of utilities, 50 hookup campsites, 1,500 sq ft meeting building, 0.25 acre turf, adjacent restroom/shower building.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
5138	RWG-OR11	Add concession with campground store at Loafer Creek: Similar to OR5a (above) except near existing Loafer Creek facilities.	Lake Oroville - Main Basin	Yes		Not included; campground store shell at Bidwell Marina included in Alternative 2.
5139	RWG-OR12	Add parking for special events and equestrians at Loafer Creek: Clear and grade a new overflow parking area with a capacity of up to 100 vehicles with trailers; probably gravel, not paved.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).
5140	RWG-OR13	Add activity center at Loafer Creek: Similar to OR5b (above) except near existing Loafer Creek facilities.	Lake Oroville - Main Basin	Yes		Alternative 2.
5141	RWG-OR14	Extend launch ramp and add low ramp/marina parking: construct new parking lot(s) in inundation zone for use during low water (DPR submitted form for Bidwell): Extension of Spillway, Bidwell, Lime Saddle ramps to ~700 ft completed, plan additional extension for future.	Lake Oroville - Main Basin + West Branch	Yes		Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.

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5142	RWG-OR15**	Acquire PG&E parcel near Lime Saddle: State purchase of ~5 acre parcel near existing "Parish Cove" parking for use by marina operations and day use; requires site assessment and negotiation.	West Branch	No: Outside of FERC project boundary		Alternative 2.
5143	RWG-OR15**	Acquire PG&E parcel near Lime Saddle: State purchase of ~5 acre parcel near existing "Parish Cove" parking for use by marina operations and day use; requires site assessment and negotiation.	West Branch	No: Outside of FERC project boundary		Alternative 2.
5144	RWG-OR16**	Expand parking facilities at Lime Saddle, including area of relocated maintenance yard, and low-water parking: New (overflow) lot built in conjunction with CG project (2001); DPR submitted form to construct new parking lot(s) in inundation zone for use during low water.	West Branch	Yes		Alternative 2.
5145	RWG-OR16**	Expand parking facilities at Lime Saddle, including area of relocated maintenance yard, and low-water parking: New (overflow) lot built in conjunction with Campground project (2001); DPR submitted form to construct new parking lot(s) in inundation zone for use during low water.	West Branch	Yes		Alternative 2.

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5146	RWG-OR17	Move maintenance yard at Lime Saddle Marina: Construct shop and storage facility for marina maintenance (screened, near current or PG&E parcel; 500 sq ft office, 2-car garage-shop, covered storage for 2 additional vehicles, 1 acre outside fenced storage).	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5147	RWG-OR18	Add stable warmwater swimming area and/or water play area at Lime Saddle: Construct 2-5 acre stable sub impoundment in ravine west of campground; needs >50,000 cu yd fill and concrete for jurisdictional dam, plus circulation and probably chlorination, and maintenance area (OR17).	West Branch	Yes		The Proposed Action and Alternative 2 include a feasibility study.
5148	RWG-OR19	Add special events meadow at Lime Saddle: Construct a day use/event parking area (gravel or paved) between CG and marina and designate an open grassy area for special events; requires extension of existing utilities and probably periodic mowing, and maintenance area (OR17).	West Branch	Yes		Not included; flexible event center next to Thermalito Diversion Dam included in Alternative 2.
5149	RWG-OR20	Add day use improvements at Lime Saddle: Designate area and provide grassy area, add covered picnic tables near marina; upgrade landscaping so area is weed-free.	West Branch	Yes		Alternative 2.

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5150	RWG-OR21**	Add 100 individual/family camping sites to Lime Saddle: Add additional loops to CG, sufficient infrastructure/utilities/maintenance area nearby need to be expanded; proposed in conjunction with OR25 (50-unit Group Camp). (DPR submitted form for 50-site expansion).	West Branch	Yes		Alternative 2 includes 25-50 new campsites based on monitoring results.
5151	RWG-OR21**	Add 100 individual/family camping sites to Lime Saddle: Add additional loops to CG, sufficient infrastructure/utilities/maintenance area nearby need to be expanded; proposed in conjunction with OR25 (50-unit Group Camp). (DPR submitted form for 50-site expansion.)	West Branch	Yes		Alternative 2 includes 25-50 new campsites based on monitoring results.
5152	RWG-OR22	Add camp activity center and store shell at Lime Saddle: Provide facilities for operation by concessionaire to support expansion of campground activities; small building with utilities and aisle/shelf space, outdoor tables and games, and support/maintenance area (OR17).	West Branch	Yes		Not included; Alternative 2 includes camp activity center at Loafer Creek and camp shell at Bidwell.
5153	RWG-OR23	Extend and widen boat launch at Lime Saddle: Add another 1-2 lanes down to at least 800 ft; extend ramp 10-20 ft below current 700 ft extension (2002) at next very-low-water period.	West Branch	Yes		The Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.

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5154	RWG-OR24	Add concession improvements infrastructure at Lime Saddle: Add infrastructure for concession improvements (campground store, restaurant, lodge) to enhance attractiveness of long-term concession lease and coordinate with other enhancements and parking expansion.	West Branch	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5155	RWG-OR25	Add group RV camping at Lime Saddle: Build new 50-unit group camp loop near existing camps; will include installation/extension of nearby utility services and new maintenance area (OR17).	West Branch	Yes		Alternative 2 includes a group RV campsite based on monitoring results.
5156	RWG-OR26	Rehabilitate Lime Saddle Marina, develop complex: Use reconstruction as an opportunity to improve boat dock capacity; add group picnic facilities, low water shuttle system, and marina store.	West Branch	Yes		The Proposed Action and Alternative 2 support and encourage efforts to rehabilitate wind damaged marina.
5157	RWG-OR27	Add dry boat storage at Lime Saddle: Designate area close to marina for public rental of covered and/or uncovered storage space—install cyclone fencing, gate, and electronic security; access/operation managed by marina concessionaire.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).

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5158	RWG-OR28	Add tournament fishing facilities at Lime Saddle: Build a stage/dais with bleachers or amphitheater-style concrete seating (similar to new facility at Spillway) for public viewing of precision scales and fishing events.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5159	RWG-OR29	Add water ski tournament area at Lime Saddle: Designate with buoys and float-line a cove/area, and spectator area, for water ski activity and competition; designate speed restriction (5 mph) for all other vessels not using ski course; restrict use more during events.	West Branch	Yes		Not included; water ski course exists in Thermalito Afterbay. Not identified in the Needs Analysis (SP-R17).
5160	RWG-OR30	Add holding tank pump-out station at Lime Saddle: May be part of OR24; develop dump station for discharge and storage of gray and black water from houseboats.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5161	RWG-OR31	Replace porta-potties with restrooms at water line at Lime Saddle: Engineer permanent but movable restroom as part of the movable dock/store complex, to replace current "floating" restrooms currently serving marina staff and visitors.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17) to replace existing restrooms.

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5162	RWG-OR32	Add Berry Creek road improvements: Coordinate with USFS and County Road Department to re/surface and improve 1-2 miles of 2-lane road, from SR 162 to LOSRA.	Lower North Fork	No: Outside of FERC project boundary		Not included; outside project scope.
5163	RWG-OR33	Add Berry Creek camping improvements: Develop a new (primitive: vault toilets, tables, fire pits) campground, probably 10-20 sites, on the North Fork Feather River arm, LOSRA.	Lower North Fork	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5164	RWG-OR34	Add launch ramp extension at Enterprise: Excavate and fill area at or near the foot of existing ramp (835 ft) to develop a second-stage ramp extending to about 750 ft.	South Fork	Yes		Proposed Action and Alternative 2.
5165	RWG-OR35	Establish tent camping at Enterprise launch ramp: Develop a new (primitive: vault toilets, tables, fire pits) campground, probably 10-20 sites, near the existing Enterprise lot/area.	South Fork	Yes		Not included; the Proposed Action and Alternative 2 include improved day use facilities.
5166	RWG-OR36	Add Craig Saddle road improvements: Increase frequency of road maintenance, resurface with gravel or asphalt to facilitate access to shoreline, old trails, and local private property.	South Fork	No: Outside of FERC project boundary		Not included; outside project scope.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5167	RWG-OR37	Add Foreman Creek day use area: Add basic facilities to existing car-top boat access area—picnic tables, shade ramadas, vault restrooms, trash containers and pick-up, landscaping (grass lawn and trees), interpretive signage.	Lower North Fork	Yes		Proposed Action and Alternative 2.
5168	RWG-OR38	Preserve and enhance Craig Access Park: Associated with OR36; enhance day use access to Craig Saddle Boat-in Campground and adjoining shoreline areas of LOSRA.	South Fork	Yes		Not included; not identified in Needs Analysis (SP-R17).
5169	RWG-OR39	Add access at Potter's Ravine: Upgrade newly constructed/proposed trail to vehicle access, to provide an additional day use destination with picnic tables and shoreline access.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).
5170	RWG-OR40	Add year-round boat-in campsites east of Loafer Creek: Develop a new boat-in (primitive) campground, probably 6-15 sites, on the South or Middle Fork. Feather River arm, LOSRA.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).

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5141	RWG-OR14	Extend launch ramp and add low ramp/marina parking—Construct new parking lot(s) in inundation zone for use during low water (DPR submitted form for Bidwell): Extension of Spillway, Bidwell, Lime Saddle ramps to ~700 ft completed, plan additional extension for future.	Lake Oroville - Main Basin + West Branch	Yes		The Proposed Action includes a low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.
5142	RWG-OR15**	Acquire PG&E parcel near Lime Saddle: State purchase of ~5 acre parcel near existing "Parish Cove" parking for use by marina operations and day use; requires site assessment and negotiation.	West Branch	No: Outside of FERC project boundary		Alternative 2.
5143	RWG-OR15**	Acquire PG&E parcel near Lime Saddle: State purchase of ~5 acre parcel near existing "Parish Cove" parking for use by marina operations and day use; requires site assessment and negotiation.	West Branch	No: Outside of FERC project boundary		Alternative 2.
5144	RWG-OR16**	Expand parking facilities at Lime Saddle, including area of relocated maintenance yard, and low-water parking: New (overflow) lot built in conjunction with CG project (2001); DPR submitted form to construct new parking lot(s) in inundation zone for use during low water.	West Branch	Yes		Alternative 2.

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PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5145	RWG-OR16**	Expand parking facilities at Lime Saddle, including area of relocated maintenance yard, and low-water parking: New (overflow) lot built in conjunction with CG project (2001); DPR submitted form to construct new parking lot(s) in inundation zone for use during low water.	West Branch	Yes		Alternative 2.
5146	RWG-OR17	Move maintenance yard at Lime Saddle Marina: Construct shop and storage facility for marina maintenance (screened, near current or PG&E parcel; 500 sq ft office, 2-car garage-shop, covered storage for 2 additional vehicles, 1 acre outside fenced storage).	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5147	RWG-OR18	Add stable warmwater swimming area and/or water play area at Lime Saddle: Construct 2-5 acre stable sub impoundment in ravine west of campground; needs >50,000 cu yd fill and concrete for jurisdictional dam, plus circulation and probably chlorination, and maintenance area (OR17).	West Branch	Yes		The Proposed Action includes a feasibility study; Lime Saddle location evaluated in Alternative 2.

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5148	RWG-OR19	Add special events meadow at Lime Saddle: Construct a day use/event parking area (gravel or paved) between CG and marina and designate an open grassy area for special events; requires extension of existing utilities and probably periodic mowing, and maintenance area (OR17).	West Branch	Yes		Not included; flexible event center next to Thermalito Diversion Dam included in Alternative 2.
5149	RWG-OR20	Add day use improvements at Lime Saddle: Designate area and provide grassy area, add covered picnic tables near marina; upgrade landscaping so area is weed-free.	West Branch	Yes		Alternative 2.
5150	RWG-OR21**	Add 100 individual/family camping sites to Lime Saddle: Add additional loops to CG, sufficient infrastructure/utilities/maintenance area nearby need to be expanded; proposed in conjunction with OR25 (50-unit Group Camp). (DPR submitted form for 50-site expansion)	West Branch	Yes		Alternative 2 includes 25-50 new campsites based on monitoring results.
5151	RWG-OR21**	Add 100 individual/family camping sites to Lime Saddle: Add additional loops to CG, sufficient infrastructure/utilities/maintenance area nearby need to be expanded; proposed in conjunction with OR25 (50-unit Group Camp). (DPR submitted form for 50-site expansion.)	West Branch	Yes		Alternative 2 includes 25-50 new campsites based on monitoring results.

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5152	RWG-OR22	Add camp activity center and store shell at Lime Saddle: Provide facilities for operation by concessionaire to support expansion of campground activities; small building with utilities and aisle/shelf space, outdoor tables and games, and support/maintenance area (OR17).	West Branch	Yes		Not included; Alternative 2 includes camp activity center at Loafer Creek and camp shell at Bidwell.
5153	RWG-OR23	Extend and widen boat launch at Lime Saddle: Add another 1-2 lanes down to at least 800 ft; extend ramp 10-20 ft below current 700 ft extension (2002) at next very-low-water period.	West Branch	Yes		The Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.
5154	RWG-OR24	Add concession improvements infrastructure at Lime Saddle: Add infrastructure for concession improvements (campground store, restaurant, lodge) to enhance attractiveness of long-term concession lease and coordinate with other enhancements and parking expansion.	West Branch	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5155	RWG-OR25	Add group RV camping at Lime Saddle: Build new 50-unit group camp loop near existing camps; will include installation/extension of nearby utility services and new maintenance area (OR17).	West Branch	Yes		Alternative 2 includes a group RV campsite based on monitoring results.

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5156	RWG-OR26	Rehabilitate Lime Saddle Marina, develop complex: Use reconstruction as an opportunity to improve boat dock capacity; add group picnic facilities, low-water shuttle system, and marina store.	West Branch	Yes		The Proposed Action and Alternative 2 support and encourage efforts to rehabilitate wind damaged marina.
5157	RWG-OR27	Add dry boat storage at Lime Saddle: Designate area close to marina for public rental of covered and/or uncovered storage space—install cyclone fencing, gate, and electronic security; access/operation managed by marina concessionaire.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5158	RWG-OR28	Add tournament fishing facilities at Lime Saddle: Build a stage/dais with bleachers or amphitheater-style concrete seating (similar to new facility at Spillway) for public viewing of precision scales and fishing events.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5159	RWG-OR29	Add water ski tournament area at Lime Saddle—Designate with buoys and float-line a cove/area, and spectator area, for water ski activity and competition; designate speed restriction (5 mph) for all other vessels not using ski course; restrict use more during events.	West Branch	Yes		Not included; water ski course exists in Thermalito Afterbay. Not identified in the Needs Analysis (SP-R17).

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5160	RWG-OR30	Add holding tank pump-out station at Lime Saddle: May be part of OR24; develop dump station for discharge and storage of gray and black water from houseboats.	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5161	RWG-OR31	Replace porta-potties with restrooms at water line at Lime Saddle: Engineer permanent but movable restroom as part of the movable dock/store complex, to replace current "floating" restrooms currently serving marina staff and visitors.	West Branch	Yes		Not included; no need identified in Needs Analysis (SP-R17) to replace existing restrooms.
5162	RWG-OR32	Add Berry Creek road improvements: Coordinate with USFS and County Road Department to re/surface and improve 1-2 miles of 2-lane road, from SR 162 to LOSRA.	Lower North Fork	No: Outside of FERC project boundary		Not included; outside project scope.
5163	RWG-OR33	Add Berry Creek camping improvements: Develop a new (primitive: vault toilets, tables, fire pits) campground, probably 10-20 sites, on the North Fork arm, LOSRA.	Lower North Fork	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5164	RWG-OR34	Add launch ramp extension at Enterprise: Excavate and fill area at or near the foot of existing ramp (835 ft) to develop a second-stage ramp extending to about 750 ft.	South Fork	Yes		Proposed Action and Alternative 2.

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5165	RWG-OR35	Establish tent camping at Enterprise launch ramp: Develop a new (primitive: vault toilets, tables, fire pits) campground, probably 10-20 sites, near the existing Enterprise lot/area.	South Fork	Yes		Not included; the Proposed Action and Alternative 2 include improved day use facilities.
5166	RWG-OR36	Add Craig Saddle road improvements: Increase frequency of road maintenance, resurface with gravel or asphalt to facilitate access to shoreline, old trails, and local private property.	South Fork	No: Outside of FERC project boundary		Not included; outside project scope.
5167	RWG-OR37	Add Foreman Creek day use area: Add basic facilities to existing car-top boat access area—picnic tables, shade ramadas, vault restrooms, trash containers and pick-up, landscaping (grass lawn and trees), interpretive signage.	Lower North Fork	Yes		Proposed Action and Alternative 2.
5168	RWG-OR38	Preserve and enhance Craig Access Park: Associated with OR36; enhance day use access to Craig Saddle Boat-in Campground and adjoining shoreline areas of LOSRA.	South Fork	Yes		Not included; not identified in Needs Analysis (SP-R17).
5169	RWG-OR39	Add access at Potter's Ravine: Upgrade newly constructed/proposed trail to vehicle access, to provide an additional day use destination with picnic tables and shoreline access.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).

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5170	RWG-OR40	Add year-round boat-in campsites east of Loafer Creek: Develop a new boat-in (primitive) campground, probably 6-15 sites, on the South or Middle Fork arm, LOSRA.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).
5171	RWG-OR41	Establish bass tournament areas around lake: Develop Spillway-type amphitheater and staging area to cater to spectators and television at one or more other main boat ramps (Lime Saddle, Bidwell Canyon, Loafer Creek); see OR28.	Lake Oroville	Yes		Alternative 2 includes temporary event grandstand space at Bidwell. Need met at spillway. Existing fishing tournaments function adequately without improvements.
5172	RWG-OR42	Provide houseboat anchor sites east of Loafer Creek: Place mooring buoys in coves along the South or Middle Fork arm, LOSRA, in areas of accessible shoreline.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17) and potential ESA conflict.
5173	RWG-OR43	Establish bank fishing sites around the lake near campgrounds: Develop marked trails from campgrounds (Lime Saddle, Loafer Creek) to lakeshore, sign for "Fishing Access."	Lake Oroville	Yes		The Proposed Action and Alternative 2 include improved shoreline access at Loafer Creek.
5174	RWG-OR44	Open spillway road to Potter's Ravine for recreation development: same as OR39; may eventually consider/allow potential for more than just picnic facilities.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17).

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5175	RWG-OR45	Open all closed lake accesses: Allow public vehicular travel on all LOSRA paved and dirt roads that lead to or near the shoreline.	Lake Oroville	Yes		Not included; not identified in Needs Analysis (SP-R17).
5176	RWG-OR46	Improve roads around reservoir: Coordinate maintenance of State, County, and LOSRA internal roads; more frequent grading and graveling of dirt roads, resurfacing of rough roads, conversion to pavement of popular dirt roads.	Lake Oroville	Yes, if in FERC project boundary		Not included; outside project scope.
5177	RWG-OR47	Open forks of reservoir for boating: Create passage-gaps in booms on arms, to allow easier houseboat access to remote reaches of full reservoir.	South Fork, Middle Fork, West Branch, Upper North Fork, Lower North Fork	Yes		Not included; not identified in Needs Analysis (SP-R17).
5178	RWG-OR48	Add year-round summer resort project east of Loafer Creek: Develop new destination resort (including extension of all utilities) on the South or Middle Fork Feather River; RV camping, lodging, and conference facilities accessed off of Lumpkin Road.	Lake Oroville - Main Basin	Yes		Not included; outside project scope.

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5179	RWG-OR49	Add day use and boat ramp to east side of the North Fork Feather River: Develop new (primitive: vault toilets, tables, fire pits) picnic area near Berry Creek Road or similar area (see OR33); include two-lane ramp (or adapt Foreman Boat-in Campground (BIC) for land/vehicle access).	Lower North Fork	Yes, if in FERC project boundary		Not included; not identified in Needs Analysis (SP-R17).
5180	RWG-OR50	Add additional floating restrooms and campsites east of Loafer Creek: See OR40 (6-12 unit boat-in campground); includes placement of one additional two-unit floating restroom on South Fork arm.	Lake Oroville - Main Basin	Yes		Alternative 2 includes additional floating campsites.
5181	RWG-OR51	Add historical interpretive exhibits around reservoir: Place new interpretive panels and/or defunct historic heavy/mining equipment at 5-10 locations (existing recreation areas and overlooks).	Lake Oroville	Yes, if in FERC project boundary		Not included; I&E program part of Proposed Action and Alternative 2.
5182	RWG-OR52	Add improvements to car top boat launch areas east of Loafer Creek: Add picnic tables and upgrade vault restrooms at Stringtown and Enterprise areas; create better parking and turnaround areas at Stringtown.	Lake Oroville - Main Basin	Yes		Alternative 2.

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5183	RWG-OR53	Extend all boat ramps to low pool: Extend all boat ramps to about 640 ft at the next opportunity; requires substantial fill and excavation.	Lake Oroville	Yes		The Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.
5184	RWG-OR54	Add aquatic center on the reservoir: Create a "boathouse," similar to the facility at North Thermalito Forebay, at Spillway, or at one of the other established recreation areas, for storage of club/class equipment and coordination of interpretive/safety programs.	Lake Oroville - Main Basin	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5185	RWG-OR55	Add more restrooms around the reservoir: Add a floating restroom to each of the arms (about four more); install vault toilets at each vehicular access point (about five more).	Lake Oroville	Yes, if in FERC project boundary		Vault toilets installed at six locations in project area (Foreman Creek, Bidwell and Enterprise) as Interim Projects. Vault toilets currently exist at most vehicular access points.
5186	RWG-OR56	Remove floating logs from reservoir/launch ramps: Manually remove large debris that may pose hazard to navigation or interferes with ease of launching.	Lake Oroville	Yes		The Proposed Action and Alternative 2 include increased debris removal at boat ramps (O&M measure).

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5187	RWG-OR57	Improve whitewater opportunities at Poe Dam area: Coordinate with USFS to improve/develop access (graded dirt road) to the North Fork Feather River and upper reaches of the lake from Big Bend Road and/or French Creek/Four Mile Ridge Roads.	Upper North Fork	No		Not included; outside of FERC project boundary.
5188	RWG-OR58	Establish new reservoir records for fishing and establish a record keeper (group or business): Select local authority to certify and maintain maximum size records for each fish species, publicize succession of new records and report "near-misses."	Lake Oroville	No		Not included; outside of project scope.
5189	RWG-OR59	Resurvey river and Lake Oroville for depth and mark dangerous areas with buoys. Publish new depth charts and make available to the public: Bathymetric survey of 3,600 acres of reservoir and 12 miles of river.	Lake Oroville	Yes		Not included; hazard marking is an ongoing DPR activity.
5190	RWG-OR60	Construct road and bridge improvements within and adjoining LOSRA: Widen and resurface roads leading to existing recreation areas.	Lake Oroville (surrounding areas)	Yes, if in FERC project boundary		Not included; outside of project scope.

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5191	RWG-OR61	Develop Self-Contained Camping Spaces at Spillway: Develop camp spurs, with tables and 50-A electrical service; landscaping.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17). Potential security issue. Alternative 2 evaluates need for “en-route” camping.
5192	RWG-OR62	Preserve Historical Trail Designation and Status: Designate Dan Beebe, Roy Rogers, and Loafer Loop Trails as Historical Equestrian Trails.	Lake Oroville - Main Basin	Yes		Not included.
5193	RWG-OR63	Floating Campgrounds: Add new floating campsites in the North Fork and West Branch arms of the lake; about 4 to 5 new units @ \$100,000.	Lake Oroville - Main Basin	Yes		Alternative 2.
5194	RWG-OR64	Improve car-top boat launch at Nelson Bar: Widen ramp, designate turnaround area(s), create additional parking above 894 ft (level of lot that is inundated when reservoir is full).	West Branch	Yes		Not included; not identified in the Needs Analysis (SP-R17). Severe resource constraints to widening.
5195	RWG-OR65	New Multipurpose Trails in the Lime Saddle Marina Area: Connect existing and proposed facilities (marina, campground, swim area, event meadow, etc.) with loops around vista points.	West Branch	Yes		Not included; may be addressed in Trails Program as part of the RMP. Alternative 2 includes a trail linking Marina to Campground.

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5196	RWG-OR66	Increase Bidwell Boat Ramp Parking: New parking for periods of high pool levels, accomplished by excavating a knoll between the ramp and the existing parking lot, and paving/painting more boat-trailer spaces.	Lake Oroville - Main Basin	Yes		Alternative 2.
5197	RWG-OR67	Increase Lime Saddle Marina Parking: Expand parking capacity at high water by expanding day use parking onto knoll near existing access.	West Branch	Yes		Alternative 2.
5198	RWG-OR68	Add fish cleaning station to Lime Saddle Campground: Includes a couple of parking spaces at the existing trailer dump station.	West Branch	Yes		Not included; need currently met at Lime Saddle boat ramp. Two additional fish cleaning stations are included in the Proposed Action and Alternative 2.
5199	RWG-OR69	New maintenance yard at Lime Saddle Campground: Not a stand-alone project, but element of any future Lime Saddle Campground expansion (includes storage facility for maintenance equipment (screened, 2-car garage-shop, 2-car covered storage, 600 sq ft fenced storage).	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17). Alternative 2 includes relocation of existing maintenance facility.

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5200	RWG-OR70	Lime Saddle Campground Campfire Center: Seating for 100 with stage and screen and A-V setup (near Entrance Station).	West Branch	Yes		Not included; not identified in Needs Analysis (SP-R17).
5201	RWG-OR71	Two New Group Camps at Loafer Creek: created by converting southern portion of the day use area to two new group camp areas.	Lake Oroville - Main Basin	Yes		Proposed Action and Alternative 2.
5202	RWG-OR72	Ten New Group Camps at Loafer Creek: New 25-person sites, including restrooms, parking, ramadas, tables, tent pads, and fire rings; location TBD but near existing campground.	Lake Oroville - Main Basin	Yes		Not included; the Proposed Action and Alternative 2 include 2 new group camps and a group RV campsite with 50 hook-ups.
5203	RWG-OR73	Enlarge Group Camp Areas at Loafer Creek: Add additional tent and parking spaces at half of existing (six) Loafer Group sites.	Lake Oroville - Main Basin	Yes		Not included; the Proposed Action and Alternative 2 include 2 new group camps and a group RV campsite with 50 hook-ups.
5204	RWG-OR74	Upgrade Campsites at Loafer Creek: Convert 75 basic sites to RV sites (extend utilities for hook-ups, additional paving).	Lake Oroville - Main Basin	Yes		Not included; the Proposed Action and Alternative 2 include a group RV campsite with 50 hook-ups.

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5205	RWG-OR75	Expand Loafer Creek Horse Camp: construct ten additional sites on the west side of existing equestrian campground.	Lake Oroville - Main Basin	Yes		Loafer Creek Equestrian Camp improvements completed as Interim Project.
5206	RWG-OR76	Develop a Full-Service Marina at Spillway: New marina facility including slips and moorings, office, fuel dock, supply store, restrooms, ferry service, and pump-out facility.	Lake Oroville - Main Basin	Yes		Not included; inappropriate site. Likely conflicts with existing boat ramp, day use areas. Spillway cove dewatered as reservoir is drawn down.
5207	RWG-OR77	Develop Self-Contained Camping Spaces at Spillway: Develop camp spurs, with tables and 50-A electrical service; landscaping.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17). Potential security issue. Alternative 2 evaluates need for "en-route" camping.
5208	RWG-OR78	Lake Oroville Overlook Improvement 2—Postponed Interim Project: Vegetation clearing, excavation, grading, and paving a parking area adjacent to SR 162, immediately north of Simpson Ranch Road near Bidwell Bar Bridge.	Lake Oroville - Main Basin	Yes		Not included; not identified in Needs Analysis (SP-R17). Lake Oroville Overlook Improvement 1 completed as Interim Project.

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5209	RWG-OR79	Low-Water Boat Ramp Access at Loafer Creek: Create a new road off the point within the Loafer Creek day use area to allow ~two-lane access during low-water conditions (recognizes existing ramp cannot be lengthened; FRRPD has not filled out form, but has provided additional information).	Lake Oroville - Main Basin	Yes		The Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway.
5210	RWG-OR80	Boat Landing Ramp at Lime Saddle Campground: Create a landing ramp and pedestrian access walkway and trail to allow campers with boats to land and more directly access the campground at Lime Saddle.	West Branch	Yes		Alternative 2.
5211	RWG-OR81	Winterize Floating Campsites: Modify enclosure/design of floating campsites to encourage off-season use (dismissed as Interim Project).	Lake Oroville	Yes		Not included; eliminated by collaborative Recreation (and Socioeconomics) Work Group (RWG).
5212	RWG-OR82	Open Service Roads to Boat-In Campgrounds during Low Water, to Allow Car-Camping: Allow public access to currently closed roads; will probably require grading and gravel surfacing.	Lake Oroville	Yes		Not included; not identified in Needs Analysis. Potential ESA conflicts.

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5213	RWG-OR83	Adjustable-Height Swim Dock: Construct a floating platform at existing day use area (like Loafer Creek or Spillway) to allow swimmers access to deeper water at a range of water levels (dismissed as Interim Project).	Lake Oroville - Main Basin	Yes		Not included; eliminated by collaborative RWG.
5214	RWG-OR84	Develop stairs and ADA access at left abutment of Oroville Dam, so dam walkers and others can access existing parking lot on terrace above.	Lake Oroville - Main Basin	Yes		Not included; not identified in the Needs Analysis (SP-R17).
5215	RWG-OR85	Consolidated Project Trails Plan: Consolidation of many of the individual PM&E measures listed herein, synthesized through Collaborative Task Force and submitted by The Dangermond Group 10/30/03.	Projectwide	Yes, if in FERC project boundary		Not included; may be addressed in Trails Program as part of the RMP.
5216	RWG-FR1	Share in acquisition/development of SR 99 visitor center in Gridley: Coordinate with the County, Chamber, and Caltrans to establish and operate Traveler Information Center in or near Gridley (site with easy access to SR 99), to publicize Oroville recreation.	Feather River (SR 99-Gridley)	No		Not included; outside project scope.
5217	RWG-FR2	Gridley/Biggs/Oroville Recreation Path: A paved trail connecting these south-county areas; an alternative, safer trail/bicycle route to areas served by Larkin Road, SR 162, and SR 99.	Feather River (Gridley-Biggs to Oroville)	No		Not included; outside project scope.

Table D-2. PM&E measure disposition list.

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5218	RWG-S/O1	Oroville/LOJPA Water District: New local district to administer the 27,500-acre-foot area of origin entitlement.	Projectwide	No		Not included; outside project scope.
5219	RWG-S/O2**	Forebay/Afterbay Recreational Feasibility Study: Study local agency control of Thermalito Forebay and Thermalito Afterbay recreational facilities, with the objective of providing funding to a local agency for operation of the recreation facilities.	Thermalito Forebay + Afterbay	No		Not included; outside project scope.
5220	RWG-S/O2**	Forebay/Afterbay Recreational Feasibility Study: Study local agency control of Thermalito Forebay and Thermalito Afterbay recreational facilities, with the objective of providing funding to a local agency for operation of the recreation facilities.	Thermalito Forebay + Afterbay	No		Not included; outside project scope.
5221	RWG-S/O3	Marketing Oroville: Expanded marketing program to promote tourism (TV, radio, billboards, newspaper ads) in all major Northern California/Nevada markets.	Projectwide + Outside of Boundary (Regional)	No		Not included; outside project scope.
5222	RWG-S/O4	Art Gallery Cooperative: Adapt an existing downtown building to showcase local artists of all media, to operate as a cooperative.	Outside of Boundary (Oroville community)	No: Outside of FERC project boundary		Not included; outside project scope.

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5223	RWG-S/O5	Agriculture Business Cooperative: Adapt an existing downtown building to showcase local agricultural products and companies, to operate as a cooperative.	Outside of Boundary (Oroville community)	No: Outside of FERC project boundary		Not included; outside project scope.
5224	RWG-S/O6	Solar Solutions: Facilitate and support the continued preeminence of Oroville as a renewable energy community, promote development of solar generation at all commercial facilities.	Outside of Boundary (Oroville community)	No: Outside of FERC project boundary		Not included; outside project scope.
5225	RWG-S/O7	Low-Flow Mitigation Fund: Develop a mitigation water bank fund to fund resource and watershed conservation planning, based on transfers involving Butte County's entitlement of 27,500 acre-feet.	Projectwide	No		Not included; outside project scope.
5226	RWG-S/O8**	Lake Oroville Oversight Committee: Establish a group of local, State, and Tribal representatives that will coordinate with (or supersede) the Oroville Recreation Advisory Committee (ORAC), to monitor and reconcile recreation and tourism-related issues. (Two stakeholders submitted forms with slightly different concepts.)	Projectwide	Yes: Management of project lands		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.

Table D-2. PM&E measure disposition list.

PM&E Measure No.	Work Group No.	Description	Location	Nexus/ Linkage to Project	System Effects on Power Generation, Water Supply, and/or Flood Risk	Disposition (if included in the No-Action Alternative, Proposed Action, and/or Alternative 2)
5227	RWG-S/O8**	Lake Oroville Oversight Committee: Establish a group of local, State, and Tribal representatives that will coordinate with (or supersede) ORAC, to monitor and reconcile recreation and tourism-related issues. (Two stakeholders submitted Forms with slightly different concepts.)	Projectwide	Yes: Management of project lands		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.
5228	RWG-S/O9	Lake Oroville Water Conservation Initiative: Impose restrictions/conservation on State Water Contractors when Lake Oroville drops below certain levels; charge a higher rate for water under those conditions, proceeds to fund local parks and facilities.	Projectwide	Yes: Affects project operations		Not included; outside project scope.
5229	RWG-S/O10	Thermalito Schools Environmental Education: Allocate funds to target schoolchildren of local immigrant populations, to build/support a new wildlife day camp, nature path at Poplar Avenue School, recreational outreach and curriculum development.	Thermalito Area (Poplar Avenue)	No: Not in FERC project boundary or related to the project		Not included; outside project scope.
5230	RWG-S/O11	New Master Recreation Plan: Alternative to the Recreation Plan to be developed by DWR and the Relicensing Collaborative, prepared by the LOJPA.	Projectwide	No		Not included; outside project scope. The RMP is part of the application.

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5231	RWG-S/O12	Measurable Standards to Ensure an Exceptional Recreation Experience and Proper Cultural Resource Protection: Include recreational performance standards in FERC License, based on annual audit by Oversight Committee; annual expenditure/performance report from agencies.	Projectwide	No		Not included; outside project scope.
5232	RWG-S/O13	Local Fish and Wildlife Improvements: Supplement DFG funding for OWA with SWP funds/project revenues; enhance OWA facilities, roads, maintenance, security; restore Ruddy Creek or mitigate for it.	OWA	No		Not included; vague and redundant with other PM&E measures that were eliminated by the collaborative LUWG and EWG.
5233	RWG-S/O14	Measures and Programs to Rectify Past, Present, and Future Lake Oroville Facilities and Operational Impacts on Local Government Services and Infrastructure: Provide supplemental funds for County road maintenance, pave high-use existing OWA gravel roads, widen SR 162.	Projectwide	No		Not included; outside project scope.
5234	RWG-S/O15	Local Economic Development Programs and Projects: Allocate a portion of project revenues to be administered by local agency(s) for infrastructure improvements and local business recruitment and development.	Outside of Boundary (Oroville community)	No		Not included; outside project scope.

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5235	RWG-S/O16**	"SHARE THE WEALTH" Economic Benefits to the Local Economy: Allocate portion of project revenues to provide additional funding for recreation and wildlife enhancement.	Projectwide	No		Not included; outside project scope.
5236	RWG-S/O16**	"SHARE THE WEALTH" Economic Benefits to the Local Economy: Allocate portion of project revenues to provide additional funding for recreation and wildlife enhancement.	Projectwide	No		Not included; outside project scope.
5237	RWG-S/O17**	"SUSTAINABLE FUNDING" Establish a Steady Funding Stream for Resource Managing Agencies: Additional funding for DFG and DPR activities from project revenues to supplement Legislative appropriations to those agencies (which are variable and unpredictable).	Projectwide	No		Not included; outside project scope. State funding allocation issue.
5238	RWG-S/O17**	"SUSTAINABLE FUNDING" Establish a Steady Funding Stream for Resource Managing Agencies: Additional funding for DFG and DPR activities from project revenues to supplement Legislative appropriations to those agencies (which are variable and unpredictable).	Projectwide	No		Not included; outside project scope. State funding allocation issue.

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5239	RWG-S/O18**	"MANAGEMENT STRUCTURE" Establish a Better Way to Manage the Resources of the Project: Alternative entities for the management of economic resources should be identified and evaluated to see if they are more responsive to local needs and concerns.	Projectwide	Yes, if economic resources are in FERC project boundary		Proposed Action and Alternative 2.
5240	RWG-S/O18**	"MANAGEMENT STRUCTURE" Establish a Better Way to Manage The Resources of the Project: Alternative entities for the management of economic resources should be identified and evaluated to see if they are more responsive to local needs and concerns.	Projectwide	Yes, if economic resources are in FERC project boundary		Proposed Action and Alternative 2.
5241	RWG-S/O19**	"ACCOUNTABILITY": A locally based "Oversight Committee" with decision making powers to cut through the red tape and buck passing (agency decisions subject to local approval).	Projectwide	Yes: Management of project area		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.
5242	RWG-S/O19**	"ACCOUNTABILITY": A locally based "Oversight Committee" with decision making powers to cut through the red tape and buck passing (agency decisions subject to local approval).	Projectwide	Yes: Management of project area		Not included; a licensing compliance unit will be established at OFD as part of all alternatives.

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5243	RWG-S/O20**	[Mitigation for] "LOW LAKE LEVELS": Funding agreements to compensate the local economy for impacts of more water withdrawals than anticipated at time of project development.	Outside of Boundary (Oroville community)	No		Not included; outside project scope and licensee control.
5244	RWG-S/O20**	[Mitigation for] "LOW LAKE LEVELS": Funding agreements to compensate the local economy for impacts of more water withdrawals than anticipated at time of project development.	Outside of Boundary (Oroville community)	No		Not included; outside project scope and licensee control.
5245	RWG-S/O21	"LICENSE RE-OPENER": A License provision that allows for additional mitigation to be determined and required when adverse effects are not mitigated properly or arise due to new information.	Projectwide	Yes: applied to project license		Not included; standard re-opener expected to be included in new license.
5246	RWG-S/O22	Provide at-cost water and electricity from the project to local industry to facilitate economic development.	Outside of Boundary (Oroville community)	No: Economic development is based outside FERC project boundary		Not included; outside project scope.

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5247	RWG-S/O23	Project Promotion, Marketing, and Public Relations: Similar to RWG-S/O3, solidify and increase the current year-to-year DWR support of Chamber outreach; new proposed agreement, initially \$125,000/year, would increase 4% per year for the term of the License.	Outside of Boundary (Regional)	No: Economic development is based outside FERC project boundary		Not included; the Proposed Action and Alternative 2 include continued website maintenance and promotion of recreation facilities consistent with other state water facilities promotion.
5248	RWG-S/O24	Funding Coordinator: Hire staff to seek grants for recreation and program development at project and other local facilities and management areas (deferred Interim Project).	Projectwide	No		Not included; outside project scope.
5249	RWG-S/O25	Add Rangers/Increase LOSRA Security: Hire and support additional (four or five?) staff members to patrol Lake Oroville, Diversion Pool, and Thermalito Forebay facilities, to increase frequency of law-enforcement presence and protect resources and visitors.	Projectwide	Yes: Safety at project facilities		Not included; additional safety-related actions included in RMP.
5250	RWG-S/O26	Reservation System: Establish locally operated single-source reservation agent to coordinate use of recreation facilities with special events (deferred Interim Project).	Projectwide	Yes: Access to project lands		Not included; ongoing DPR reservation system already serves the LOSRA.

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5251	RWG-LF44	Historic Matthews Riffle Fishing Access (former LWG-30): Coordinate with DFG/WCB to acquire easement on portion of Matthews Ready Mix property to allow for river users to access streamside areas that have been recently fenced.	OWA	Yes: Nexus because access is to project land		Not included; involves land/easement acquisition—may not be financially feasible.
5252	RWG-OR86	Increase communication on issues relating to present DWR land usage around the lake area so it shifts from unused to recreational or appropriate public use (LWG-1).	Projectwide	Yes: Affects lands in FERC project boundary		Not included; PM&E measure too vague.
5253	RWG-S/027	Measurement of the socioeconomic aspects of settlement agreement and new FERC License.	Projectwide	Yes: Based on lands in FERC project boundary		Not included; not a PM&E measure. Evaluation of socioeconomic effects will be in the environmental documents prepared in support of new FERC license.
6001		Feather Falls Management.	Middle Fork - Outside of Boundary	No: Outside FERC project boundary		Not included; outside of FERC project boundary.
6002	USFS-6002	Floating Debris Management at McCabe Creek.	Lake Oroville - South Fork	Yes: mitigates impacts		Proposed Action and Alternative 2.

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6003		Recreation Facility Improvements at Berry and French Creeks.	Lower North Fork	Yes: in FERC project boundary		Not included; not identified in the Needs Analysis.
6004		Transfer of Energy and Nutrients Upstream of Oroville Dam.	Upstream Tributaries	Yes: nutrients		Not included; eliminated by collaborative EWG.
6005		Coordinate any drawdown zone revegetation on USFS lands with the USFS.				Not included; no revegetation on USFS lands is contemplated.
6006		Ensure that interagency wildlife coordination occurs on at least an annual basis.				Designation of ESA coordinator is included in all alternatives as part of Draft BA measures.
6007		Fuels management—some level of commitment for landscape fuel breaks				Alternative 2.
PM&E Measures that Were Submitted Late, and Not Evaluated by the Work Groups						
7001	no related PM&E measure	Continuation of the Black Bass Action Committee (BBAC) Release Boat Program.	Projectwide			Not included; too vague.
7002	No related PM&E measure	Identify sources of funding for the new license agreement and clearly identify who is responsible for providing those funds.	Projectwide			Not included; not a PM&E measure.

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7003		A full-time biologist to implement and coordinate all aspects of new license requirements; to be permanently funded by licensee.	Projectwide			Not included; DWR currently funds full-time biologist at OFD and ESA coordinator position in all alternatives.
7004	No related PM&E measure, see license application	Establish a written management plan for Lake Oroville, the OWA, Thermalito Forebay, Thermalito Afterbay, and the Diversion Pool.	Projectwide			Sport fishery Management measures included in all alternatives.
7005	Supportive PM&E measures for this statement: EWG-26, EWG-29, EWG-48, EWG-50 Recreation	Establish a warmwater stocking program for Florida bass. This would continue the intent of the original FERC contract that stated, "Lake Oroville would always be managed as a trophy black bass and trout fishery."	Lake Oroville			Not included; all alternatives include continued enhancement and maintenance of warmwater species habitat for Lake Oroville.

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7006	Supportive PM&E measures for this statement: EWG-68B	Establish a permanent willow nursery for Lake Oroville to provide living habitat for fish and wildlife. This could be done in conjunction with local schools and/or colleges. This would not only provide habitat, it would also create hands-on experience for students and employment.	Projectwide			Not included; not necessary, as they are readily available at commercial nurseries.
7007	See RWG-OR79, RWG-OR79	Extend the Loafer Creek Launch Ramp to an elevation that would be equal to all existing concrete ramps.	Lake Oroville - Main Basin - Loafer Creek			The Proposed Action includes low-water access ramp at Bidwell. Alternative 2 evaluates ramp extensions at Lime Saddle and Spillway and opening Loafer Creek gravel service road for car top boat launching.
7008	No PM, possible low-priority recreation enhancement, not addressed in Work Group	With the advent of a pond smelt forage base, we would recommend studying the feasibility of introducing a good strain of crappie or bluegill as a more catchable fish for the general public.	N/A			Not included; all alternatives assess a warmwater species habitat enhancement program for Lake Oroville.

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7009		Identify culturally sensitive areas, both archaeological and traditional cultural properties, that are in areas with excessive fuel loads. Once areas have been identified, systematically remove the excessive fuel load and then begin a prescribed burn program to maintain the fire safe, resilient landscape.	Projectwide			Alternative 2 evaluates a Fuel Load Management Program.
7010	Related to LWG-20	Local Fish and Wildlife Improvements.	Projectwide			Not included; too vague.
7011	Related to LWG-20	Improve Project Security and Law Enforcement Coordination.	Projectwide			Not included; additional safety-related actions included in RMP.
7012	Related to EO10 and RWG-SO-14	Develop and implement measures and programs to rectify past, present, and future Lake Oroville Facilities and operational impacts on local government services and infrastructures.	Projectwide			Not included; outside of project scope.

~ - Denotes that no RAIF has been submitted but the two proponents appear to agree on the proposed PM&E measure.

** - Denotes that two groups submitted similar Resource Action Identification Forms and these have been combined and considered one PM&E measure in the Work Group.

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