
TABLE OF CONTENTS

	Page
4.0 Proposed Action	4-1
4.1 Project Components	4-2
4.1.1 Large Dams and Reservoirs	4-2
4.1.2 Medium Dams and Reservoirs	4-2
4.1.3 Small Dams and Diversion Pools	4-3
4.1.4 Water Conveyance Systems	4-3
4.1.5 Powerhouses.....	4-3
4.1.6 Gaging Stations and Weirs.....	4-3
4.1.6.1 Stream Gages	4-3
4.1.6.2 Diversion Flow Gages	4-6
4.1.6.3 Reservoir Gages	4-6
4.1.6.4 Powerhouse Gages.....	4-6
4.1.6.5 Leakage Weirs	4-6
4.1.7 Communication Lines and Powerlines.....	4-6
4.1.8 Photovoltaic Poles and Powerlines.....	4-7
4.1.8.1 Microwave Reflectors and Radio Towers	4-7
4.1.8.2 Disposal Areas	4-7
4.1.8.3 Sediment Augmentation Areas.....	4-8
4.1.8.4 Ancillary Facilities.....	4-8
4.1.8.5 Fences.....	4-8
4.1.9 Roads and Trails	4-9
4.1.9.1 Roads.....	4-9
4.1.9.2 Trails	4-9
4.1.10 Recreation Facilities	4-10
4.2 Project Boundary Modifications	4-12
4.3 Project Operations.....	4-13
4.3.1 Operating Objectives	4-14
4.3.2 Regulatory Requirements and Operating Agreements/Contracts.....	4-14
4.3.3 Consumptive Water and Power Demands.....	4-14
4.3.4 Water Management.....	4-15
4.3.5 Project Generation.....	4-15
4.4 Routine Facility Inspections, Testing, and Maintenance.....	4-15
4.4.1 Tunnel and Powerhouse Inspections, Testing, and Maintenance.....	4-15
4.4.2 Spillway Gate and Tainter Gate Testing	4-16
4.4.3 Vegetation Management	4-16

4.4.4	Pest Management	4-16
4.4.5	Noxious Weed Management	4-16
4.4.6	Sediment Management	4-17
4.4.6.1	Small Diversions.....	4-17
4.4.6.2	Medium Reservoirs	4-18
4.4.7	Slope Stabilization (Falling Rock Control)	4-18
4.4.8	Debris Management	4-18
4.4.9	Facility Painting	4-19
4.4.10	Pole Replacement/Retrofit.....	4-19
4.4.11	Road and Trail Maintenance.....	4-19
4.4.12	Recreation Facility Maintenance.....	4-19
4.5	New Environmental Programs, Measures, and Facilities	4-20
4.5.1	Water Resources.....	4-20
4.5.1.1	Instream Flow and Reservoir Minimum Pool Measure	4-20
4.5.1.2	Aquatic Monitoring Plans.....	4-20
4.5.1.3	Sediment Management Plan	4-21
4.5.1.4	Geomorphology Monitoring Plan	4-22
4.5.1.5	Riparian Monitoring Plan	4-22
4.5.2	Cultural Resources	4-22
4.5.2.1	Historic Properties Management Plan	4-22
4.5.3	Land Management.....	4-23
4.5.3.1	Transportation System Management Plan	4-23
4.5.3.2	Visual Management Plan (VMP)	4-23
4.5.3.3	Fire Prevention and Suppression Plan	4-24
4.5.4	Recreation Resources	4-24
4.5.4.1	Recreation Plan.....	4-24
4.5.5	Terrestrial Resources	4-25
4.5.5.1	Vegetation and Integrated Pest Management Plan	4-25
4.5.5.2	Bald Eagle Management Plan.....	4-26
4.6	Construction Projects	4-26
4.6.1	Hell Hole Reservoir Seasonal Storage Increase Improvement.....	4-27
4.6.2	Small Diversion Modifications.....	4-27
4.6.3	Outlet Works Modifications	4-27
4.6.4	Gage Construction.....	4-27

List of Tables

Table 4-1.	Proposed Action – Project Facilities and Features.
Table 4-2.	Proposed Action – Project Recreation Facilities and Features.
Table 4-3.	Project Gaging Stations and Weirs.
Table 4-4.	Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features.
Table 4-5.	Proposed Action - Description of Routine Maintenance at Project Roads and Trails.
Table 4-6.	Proposed Action - Description of Routine Maintenance at Project Recreation Facilities and Features.

List of Figures

Figure 4-1.	Benefits of the Proposed Action.
Figure 4-2.	Resource Stewardship Provided by the Proposed Action.

List of Maps

Map 4-1a.	Duncan Creek, French Meadows Area.
Map 4-1b.	Hell Hole Area.
Map 4-1c.	Long Canyon Area.
Map 4-1d.	Middle Fork Interbay Area.
Map 4-1e.	Ralston, Oxbow Area.
Map 4-2a.	Land Jurisdictions in the Immediate Vicinity of the Middle Fork Project. Duncan Creek, French Meadows Area.
Map 4-2b.	Land Jurisdictions in the Immediate Vicinity of the Middle Fork Project. Hell Hole Area.
Map 4-2c.	Land Jurisdictions in the Immediate Vicinity of the Middle Fork Project. Long Canyon Area.
Map 4-2d.	Land Jurisdictions in the Immediate Vicinity of the Middle Fork Project. Middle Fork Interbay Area.
Map 4-2e.	Land Jurisdictions in the Immediate Vicinity of the Middle Fork Project. Ralston, Oxbow Area.
Map 4-3.	FERC Project Boundary Modifications (includes Maps 4-3a–o).

List of Appendices

Appendix A.	Modified or New Facilities Construction Activities and Concept Designs.
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4.0 PROPOSED ACTION

This section describes the Proposed Action analyzed in the Draft Application for New License. The Proposed Action represents Placer County Water Agency's (PCWA) recommendations for continued operation and maintenance of the Middle Fork American River Project (MFP or Project), including new environmental programs, measures, and facilities. The Proposed Action considers input from state and federal resource agencies, Native American Tribes, non-governmental organizations, and members of the public acquired during extensive consultation activities completed for the relicensing of the MFP. The Proposed Action represents PCWA's recommendations.

The Proposed Action was developed by PCWA in collaboration with the MFP Finance Authority and Placer County. The key consideration in developing the Proposed Action was to ensure that future operation of the MFP maximizes the benefits to the people of Placer County. These benefits include power generation, consumptive water supply, system capability and reliability, and resource stewardship (Figure 4-1).

Environmental programs, measures, and facilities included in the Proposed Action were specifically developed to promote resource stewardship in the Middle Fork American River Watershed. An overview of resource stewardship under the Proposed Action is provided in Figure 4-2.

PCWA is requesting renewal of its license to continue operation and maintenance of the MFP with a license term of 50 years (expiring on March 1, 2063). The new license term is based on the substantial costs associated with relicensing of the MFP; capital improvements; new environmental measures, programs, and facilities; and extensive monitoring and ongoing resource agency consultation to ensure continued resource protection over the term of the new license.

Using the No-Action Alternative described in Section 3.0 as a baseline, this section identifies changes that will occur to the MFP under the Proposed Action. These include:

- Addition, removal, and modification of Project components (Section 4.1);
- Revisions to the existing Federal Energy Regulatory Commission (FERC or Commission) Project boundary (Section 4.2);
- Changes in Project operations (Section 4.3);
- Modification of testing and routine Project maintenance activities (Section 4.4);
- New environmental programs, measures, and facilities designed to protect and enhance environmental and cultural resources (Section 4.5); and
- Construction or modification of Project facilities (Section 4.6).

The following describes each of these changes to the MFP under the Proposed Action.

4.1 PROJECT COMPONENTS

Project facilities and features and Project recreation facilities and features included under the Proposed Action are identified in Table 4-1 and Table 4-2. Using Table 3-2 and Table 3-3 from the No-Action Alternative as a baseline, Table 4-1 and Table 4-2 have been updated to reflect changes that will occur under the Proposed Action (changes from the No-Action Alternative are shown in red). The location of Project facilities and features and Project recreation facilities and features included under the Proposed Action are depicted on Maps 4-1a through 4-1e and land jurisdictions in the immediate vicinity of the MFP are shown on Maps 4-2a through 4-2e.

Changes under the Proposed Action are described below, organized by facility type.

4.1.1 Large Dams and Reservoirs

- French Meadows Dam Outlet Works (modified)

French Meadows Dam Outlet Works will be modified as part of the French Meadows Outlet Works Modification to provide and monitor new minimum instream flows, pulse flows, and down ramp or spill flow requirements under the Proposed Action. In addition, two new gages will be installed to monitor compliance with instream flow requirements.

- Hell Hole Dam Outlet Works (modified)

Hell Hole Dam Outlet Works will be modified as part of the Hell Hole Dam Outlet Works Modification to provide and monitor new minimum instream flows, pulse flows, and down ramp or spill flow requirements under the Proposed Action. Hell Hole Dam will be modified as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement by adding 6-foot-high crest gates on the existing Hell Hole Dam Spillway. These crest gates may be raised under certain conditions to increase Hell Hole Reservoir storage.

4.1.2 Medium Dams and Reservoirs

- Middle Fork Interbay Dam Outlet Works (modified)

Middle Fork Interbay Dam Outlet Works will be modified to meet new minimum instream flows.

- Ralston Afterbay Dam Outlet Works

A new gage will be installed at the Ralston Afterbay Dam Outlet Works to monitor minimum instream flows.

4.1.3 Small Dams and Diversion Pools

The following small diversions will be modified to increase natural sediment delivery and transport of bedload and fine material downstream: Duncan Creek, North Fork Long Canyon Creek, and South Fork Long Canyon Creek diversion dams. Activities at the small diversions include installation of self-cleaning wedge-wire screens at the dams; modification of the low-level outlets to release the required instream flows; and modification or installation of gages. The small diversion modifications will result in diversion pools that are slightly shallower and more riverine.

4.1.4 Water Conveyance Systems

There are no new or modified water conveyance systems under the Proposed Action.

4.1.5 Powerhouses

There are no new or modified powerhouses under the Proposed Action.

4.1.6 Gaging Stations and Weirs

4.1.6.1 Stream Gages

The following gages will only be used to monitor instream flow requirements until new gages are installed (Table 4-3).

- Duncan Creek Gage and Weir above Diversion Dam (interim)

Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700) will continue to monitor minimum instream flows for compliance with the new license until the Duncan Creek Diversion Dam Modification is completed.

- Rubicon River Gage and Weir below Hell Hole Dam (interim)

Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800) will monitor minimum instream flows for compliance with the existing license conditions until the Hell Hole Dam Outlet Works Modification is completed.

- North Fork Long Canyon Gage and Weir below Diversion Dam (interim)

North Fork Long Canyon Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11433085) will monitor minimum instream flows for compliance with the existing license conditions until the North Fork Long Canyon Diversion Dam Modification is completed and the new North Fork Long Canyon Creek Gage and Weir below Diversion is constructed.

- South Fork Long Canyon Gage and Weir below Diversion Dam (interim)

South Fork Long Canyon Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11433065) will continue to monitor minimum instream flows for compliance with the existing license conditions until the South Fork Long Canyon Diversion Dam Modification is completed and the new South Fork Long Canyon Creek Gage and Weir below Diversion is constructed.

- Middle Fork American River Gage at Interbay Dam (interim)

Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770) will monitor minimum instream flows for compliance with the existing license conditions until the Middle Fork Interbay Dam Outlet Works Modification is completed and the new Middle Fork American River Gage and Weir below Interbay Dam is constructed.

The following are new gages to be constructed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement or outlet works modifications under the Proposed Action.

- Middle Fork American River Gages at French Meadows Dam Outlet Works (new)

Middle Fork American River Gages at French Meadows Dam Outlet Works will be installed as part of the French Meadows Dam Outlet Works modification. These AVM gages will monitor minimum instream flows, pulse flows, and down ramp of spill flows for compliance with the new license.

- Rubicon River Gage and Weir at Hell Hole Dam Spillway (new)

Rubicon River Gage and Weir at Hell Hole Dam Spillway will be installed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement to monitor pulse flows and down ramp of spill flows for compliance with the new license.

- Rubicon River Gages at Hell Hole Dam Outlet Works (new)

Rubicon River Gages at Hell Hole Dam Outlet Works will be installed as part of the Hell Hole Dam Outlet Works Modification. These AVM gages will monitor minimum instream flows, pulse flows, and down ramp of spill flows for compliance with the new license.

- Middle Fork American River Gage at Ralston Afterbay Dam Outlet Works (new)

Middle Fork American River Gage at Ralston Afterbay Dam Outlet Works will be installed at the end of the existing outlet pipe during routine maintenance activities to monitor minimum instream flows for compliance with the new license.

The precise location of the following new gages has not been determined. Project-specific National Environmental Policy Act (NEPA) analysis will be conducted at a later

date, and all necessary permits and approvals will be obtained prior to implementation of any construction activities.

- North Fork Long Canyon Creek Gage below Diversion Dam (new)

North Fork Long Canyon Creek Gage below Diversion Dam will be constructed downstream of the North Fork Long Canyon Diversion Dam to monitor minimum instream flows and pulse flows for compliance with the new license. The gage will also be used to collect real-time flow information for public dissemination.

- South Fork Long Canyon Creek Gage below Diversion Dam (new)

South Fork Long Canyon Creek Gage below Diversion Dam will be constructed downstream of the South Fork Long Canyon Diversion Dam to monitor minimum instream flows and pulse flows for compliance with the new license. The gage will also be used to collect real-time flow information for public dissemination.

- Middle Fork American River Gage below Interbay Dam (new)

Middle Fork American River Gage below Interbay Dam will be constructed downstream of Middle Fork Interbay Dam to monitor minimum instream flows and pulse flows for compliance with the new license. The gage will also be used to collect real-time flow information for public dissemination.

- North Fork American River Gage above American River Pump Station (new)

North Fork American River Gage above American River Pump Station will be constructed to monitor recreation flow releases on the North Fork American River, downstream of the Middle Fork American River confluence, and collect flow data for real-time flow dissemination to the public.

The remaining stream gages are existing gages that will be incorporated into the MFP.

- Rubicon River Gage above Ralston Powerhouse (existing, added to MFP)

Rubicon River Gage above Ralston Powerhouse (USGS Gage No. 11433200) is an existing gage that will be incorporated into the MFP. This gage will collect real-time flow data for public dissemination.

- Rubicon River Gage at Ellicott Bridge (existing, added to MFP)

Rubicon River Gage at Ellicott Bridge is an existing gage that will be incorporated into the MFP. This gage will collect real-time flow data for public dissemination.

4.1.6.2 Diversion Flow Gages

- Duncan Creek Gage at Diversion Tunnel (new)

Duncan Creek Gage at Diversion Tunnel will be constructed as part of the Duncan Creek Diversion Dam Modification to monitor minimum instream flows and pulse flows for compliance with the new license.

- North Fork Long Canyon Gage at Diversion Tunnel (modified)

North Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433080) will be modified as part of the North Fork Long Canyon Diversion Dam Modification to monitor minimum instream flows for compliance with the new license.

- South Fork Long Canyon Gage at Diversion Tunnel (modified)

South Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433060) will be modified as part of the South Fork Long Canyon Diversion Dam Modification to monitor minimum instream flows for compliance with the new license.

4.1.6.3 Reservoir Gages

There are no new or modified reservoir gages under the Proposed Action.

4.1.6.4 Powerhouse Gages

- Oxbow Powerhouse Penstock Gage (new)

Oxbow Powerhouse Penstock Gage will be installed within the existing powerhouse penstock during routine maintenance activities to monitor operations of the Oxbow Powerhouse (ramping rate and maximum flows) for compliance with the new license.

4.1.6.5 Leakage Weirs

There are no new or modified leakage weirs under the Proposed Action.

4.1.7 Communication Lines and Powerlines

- Hell Hole Dam Spillway Crest Gates Control Building Powerline (new)

Hell Hole Dam Spillway Crest Gates Control Building Powerline will be constructed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement to provide power to the control building for operation of the spillway crest gates.

4.1.8 Photovoltaic Poles and Powerlines

The following pole-mounted photovoltaic arrays (also referred to as photovoltaic poles) and powerlines will be constructed to provide power to operate new gages. The precise location of the photovoltaic poles and powerlines has not yet been determined, with the exception of the pole and powerline at Duncan Creek. Therefore, Project-specific NEPA analysis will be conducted, and all required permits and approvals will be obtained, prior to installation of these poles and powerlines.

- Photovoltaic Pole and Powerline at Duncan Creek Gage at Diversion Tunnel (new)
- Photovoltaic Pole and Powerline at Middle Fork American River Gage below Interbay Dam (new)
- Photovoltaic Pole and Powerline at North Fork Long Canyon Creek Gage below Diversion Dam (new)
- Photovoltaic Pole and Powerline at South Fork Long Canyon Creek Gage below Diversion Dam (new)
- Photovoltaic Pole and Powerline at North Fork American River Gage above American River Pump Station (new)

The following photovoltaic poles and powerlines are existing and will be incorporated into the MFP.

- Photovoltaic Pole and Powerline at Rubicon River Gage above Ralston Powerhouse (existing, added to MFP)
- Photovoltaic Pole and Powerline at Rubicon River Gage at Ellicott Bridge (existing, added to MFP)

4.1.8.1 Microwave Reflectors and Radio Towers

There are no new or modified microwave reflectors or radio towers under the Proposed Action.

4.1.8.2 Disposal Areas

There are no new disposal areas under the Proposed Action. However, new disposal areas may be necessary during the term of the new license if the capacity of the existing disposal areas is exceeded. The actual location of any potential new disposal area has not yet been determined. Therefore, if it is determined that new disposal areas are necessary, Project-specific NEPA analysis will be conducted, and all required permits and approvals will be obtained prior to use of any new disposal areas.

4.1.8.3 Sediment Augmentation Areas

- Middle Fork Interbay Augmentation Areas (new)

Middle Fork Interbay Augmentation Areas (two locations) will be developed downstream of Middle Fork Interbay Dam to enhance natural sediment delivery and transport. Sediment of the suitable size, to benefit the aquatic ecosystem, that is excavated from Middle Fork Interbay during sediment management activities will be placed at the augmentation areas.

- Junction Bar Augmentation Area (new)

Junction Bar Augmentation Area will be developed downstream of Indian Bar to enhance sediment delivery and transport. Sediment of the suitable size, to benefit the aquatic ecosystem, that is excavated from Ralston Afterbay during sediment management activities will be placed at the augmentation area. A temporary construction bridge will be placed at the north end of Indian Bar and span the active channel to provide access during each augmentation event.

The following augmentation area is existing and will be incorporated into the MFP.

- Indian Bar Augmentation Area (existing, added to MFP)

Indian Bar Augmentation Area is an existing augmentation area that will be incorporated into the MFP to enhance sediment delivery and transport under the Proposed Action. Sediment of the suitable size, to benefit the aquatic ecosystem, that is excavated from Ralston Afterbay during sediment management activities will be placed at the augmentation area.

4.1.8.4 Ancillary Facilities

- Hell Hole Dam Spillway Crest Gates Control Building (new)

Hell Hole Dam Spillway Crest Gates Control Building will be constructed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement to house equipment to power the new spillway crest gates.

- Ralston Afterbay Sediment Removal Access Point (converted)

Ralston Afterbay Sediment Removal Access Point will be converted to the Ralston Afterbay Sediment Access Point Boat Launch to provide public boat launching access to the reservoir.

4.1.8.5 Fences

There are no new or modified Project fences under the Proposed Action.

4.1.9 Roads and Trails

4.1.9.1 Roads

- Hell Hole Dam Spillway Gates Road (new)

Hell Hole Dam Spillway Gates Road will be constructed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement to provide access to the new spillway gates.

4.1.9.2 Trails

The following trails will be constructed to provide access to operate and maintain new MFP gages. The precise location of these new trails has not yet been determined. Therefore, Project-specific NEPA analysis will be conducted at a later date and all required permits and approvals will be obtained prior to implementation of any construction activities.

- North Fork Long Canyon Creek Gage below Diversion Dam Trail (new)

North Fork Long Canyon Creek Gage below Diversion Dam Trail is a new trail that will be constructed to provide access to the new North Fork Long Canyon Creek Gage below Diversion Dam.

- South Fork Long Canyon Creek Gage below Diversion Dam Trail (new)

South Fork Long Canyon Creek Gage below Diversion Dam Trail is a new trail that will be constructed to provide access to the new South Fork Long Canyon Creek Gage below Diversion Dam.

- Middle Fork American River Gage below Interbay Dam Trail (new)

Middle Fork American River Gage below Interbay Dam Trail is a new trail that will be constructed to provide access to the new Middle Fork American River Gage below Interbay Dam.

- North Fork American River Trail above American River Pump Station (new)

North Fork American River Gage above American River Pump Station Trail is a new trail that will be constructed to provide access to the new North Fork American River Gage above American River Pump Station.

The following trails are existing and will be incorporated into the Project.

- Rubicon River Gage at Ellicott Bridge Trail (existing, added to MFP)

Rubicon River Gage at Ellicott Bridge Trail is an existing trail that provides access to the Rubicon River Gage at Ellicott Bridge and is necessary for operation of the Project.

- Rubicon River Gage above Ralston Powerhouse Trail (existing, added to MFP)

Rubicon River Gage above Ralston Powerhouse Trail is an existing trail that provides access to the Rubicon River Gage above Ralston Powerhouse and is necessary for operation of the Project.

4.1.10 Recreation Facilities

- Duncan Creek Diversion Primitive Recreation Site (new)

Duncan Creek Diversion Primitive Recreation Site will be developed under the Proposed Action to address sanitation issues in the Duncan Creek Diversion area and to reduce potential resource impacts related to dispersed recreation. Development of the site will include installation of the following features: one single-unit accessible vault toilet; barrier rocks to limit vehicle use and camping to specific areas; and a bear-resistant garbage container.

- Ahart Campground (enhanced)

Ahart Campground will be enhanced under the Proposed Action to provide a potable water source for recreation visitors and to reduce dust, erosion, and sedimentation along the campground access and loop roads. Specific enhancements will include: installing a groundwater well and hand pump within the recreation facility; paving the campground road and spurs to reduce dust and erosion; and paving about 0.6 mile of Forest Road 96 from the end of the existing pavement to approximately 200 feet past the Ahart Campground entrance.

- Poppy Campground (reduced)

Poppy Campground will be reduced under the Proposed Action because the site is underutilized based on use data and capacity information. Reduction of the site will involve removing all of the tables, fire rings, stoves, and user-created fire rings from four sites and allowing vegetation in the vicinity of each removed campsite and along remnant trails to return to natural conditions.

- French Meadows Boat Ramp (enhanced)

Under the Proposed Action, French Meadows Boat Ramp will be extended up to 365 linear feet, to an elevation of about 5,175 feet, which is 25 vertical feet lower than the bottom of the existing boat ramp.

- McGuire Picnic Area and Beach (converted)

McGuire Picnic Area and Beach will be converted to the McGuire Group Campground under the Proposed Action due to low day-use levels. This conversion will involve removing all of the amenities at the existing picnic sites and reconfiguring the site for group use. Buoys and signage in the vicinity of the beach will be removed and the beach area will be allowed to return to natural conditions.

- McGuire Group Campground (new)

McGuire Picnic Area will be converted to the McGuire Group Campground to provide additional group camping opportunities. The campground will include two group camp sites. Development of the group campground will require the installation of new accessible picnic and serving tables, fire rings and benches, cooking grills, bear-resistant food storage lockers, signage, and barriers to delineate each site. The existing bathroom will be converted to meet accessibility standards or will be replaced.

- McGuire Boat Ramp and Associated Parking (modified)

McGuire Boat Ramp and Associated Parking Areas and the Poppy Campground Parking Area (and associated support facilities), will be consolidated due to low use levels. Consolidating these areas involves: removing the Poppy Campground Trailhead Parking Area and access road; installing barrier rock at the entrance to the Parking Area access road to prohibit future vehicle use; treating the surface of the road and parking area to allow for natural revegetation; removing one wood toilet building; replacing the existing vault toilet building; relocating water faucets; extending the Poppy Trail to one of the McGuire Boat Ramp Parking Areas; and relocating the trailhead signage and information boards.

- Hell Hole Campground (reduced)

Hell Hole Campground will be reduced under the Proposed Action due to low use levels and to protect nearby sensitive resources. Reduction of the site will involve removing all tables, concrete and steel grills, fire pits, and site markers from two sites. The campsites will be allowed to naturally revegetate and a new barrier will be installed at the southeast boundary of the campground to limit recreation use to within the campground boundary.

- Upper Hell Hole Campground (removed)

Upper Hell Hole Campground will be removed under the Proposed Action due to low use levels and to protect nearby sensitive resources. The following features will be removed: all tables, fire rings, masonry stoves, and user-created fire rings from sites 1–13; four pit toilets; and existing signage and information boards. Vegetation within the campground will be allowed to return to natural conditions.

- Hell Hole Boat Ramp (enhanced)

Under the Proposed Action, Hell Hole Boat Ramp will be extended up to 250 linear feet, to an elevation of about 4,485 feet, which is 45 vertical feet lower than the bottom of the existing boat ramp.

- Ralston Afterbay Picnic Area (reduced)

Ralston Afterbay Picnic Area will be reduced under the Proposed Action because the site is underutilized based on use data and capacity information. Reduction of the site will involve removing the table, pedestal grill, and signage from one site and allowing the vegetation in the vicinity of site and along the trail to site to return to natural conditions.

- Ralston Afterbay Sediment Removal Access Point Boat Ramp (new)

Ralston Afterbay Sediment Removal Access Point will be improved to accommodate boat launching by the public. This includes delineating the boat ramp and parking area with barrier rocks or other barrier devices; grading the ramp to remove large cobbles and rocks; and installing signage and barriers to limit parking and direct visitors to the Ralston Afterbay Picnic Area for additional parking.

- Indian Bar Rafting Access and General Parking (enhanced)

Indian Bar Rafting Access and General Parking will be enhanced under the Proposed Action to accommodate recreation use by commercial whitewater boaters and to improve conditions for other day use visitors. This enhancement includes installing an additional accessible vault toilet or modifying the existing vault toilet to accommodate peak use; installing powered ventilation systems in the existing toilets; reconstructing the existing boat ramp and installing a supplemental slide ramp downstream of the existing ramp; and installing a changing pavilion.

4.2 PROJECT BOUNDARY MODIFICATIONS

The FERC Project boundary will be modified under the Proposed Action as follows:

- Increase the boundary to include:
 - New Project facilities constructed as part of the Proposed Action;
 - Existing facilities added to the MFP that are necessary for operation and maintenance of the Project; and
 - Footprint of all Project recreation facilities.

- Decrease the boundary to remove excess lands currently within the existing FERC Project boundary that are not necessary for operation and maintenance of the MFP (particularly around Project reservoirs).

These revisions are depicted on Map 4-3 (includes Maps 4-3a–o). Note that no Pacific Gas & Electric (PG&E) transmission lines are involved in FERC boundary additions. Detailed maps and specific parcel and acreage information is available in Exhibits A and G of this Draft Application for New License.

Under the No-Action Alternative, the FERC Project boundary encompasses 4,554 acres of land including: 1,883 acres within the Tahoe National Forest (TNF) and 1,385 acres within the Eldorado National Forest (ENF). The remainder of the MFP is located on PCWA-owned land or private land.

Under the Proposed Action, the revised FERC Project boundary will encompass 4,150 acres of land including: 1,742 acres within the TNF and 1,305 acres within the ENF. The remainder of the MFP will be located on PCWA-owned land, private land, or land owned by the Bureau of Land Management.

4.3 PROJECT OPERATIONS

Overall, there are relatively minor modifications to Project operations under the Proposed Action. Under the Proposed Action, Project operations will be modified to comply with the Instream Flow and Reservoir Minimum Pool Measure (IFRM) (PCWA 2010a; SD A). This measure modifies Project operations compared to the No-Action Alternative by requiring:

- Higher minimum instream flow releases in the bypass and peaking reaches;
- Spring pulse flows in the bypass reaches;
- Down ramp of spill flows from May–July below Hell Hole Reservoir and French Meadows Reservoir;
- Modified ramping rates at Oxbow Powerhouse in the peaking reach;
- Cap on flow releases from Oxbow Powerhouse (Saturday of Memorial Day weekend to Labor Day) in Dry, Critical, and Extreme Critical water years;
- Consultation with representatives for the Tevis Cup and Western States 100 to identify and provide flows suitable for adequate trail crossing conditions (when flows are controllable by the MFP);
- Recreational flow releases in the peaking reach; and
- Modified minimum reservoir pool requirements in Hell Hole Reservoir and French Meadows Reservoir.

The Hell Hole Reservoir Seasonal Storage Increase Improvement also modifies Project operations by providing an additional 7,600 acre-feet (ac-ft) of storage in Hell Hole Reservoir.

4.3.1 Operating Objectives

Under the Proposed Action, operating objectives of the MFP will not change from the No-Action Alternative. The MFP will continue to be operated to meet the four objectives identified in Section 3.5.1, namely:

- Meet FERC license requirements that protect environmental resources and provide for recreation;
- Meet PCWA's consumptive water demands;
- Generate power to help meet California's energy demand and provide valuable support services required to maintain the overall quality and reliability of the state's electrical supply system; and
- Maintain Project facilities to ensure their continued availability and reliability.

4.3.2 Regulatory Requirements and Operating Agreements/Contracts

Under the Proposed Action, the regulatory requirements affecting Project operations identified in Section 3.5.2 (i.e., water rights permits and license issued by the State Water Resources Control Board [State Water Board]) will remain in effect. New license conditions issued by FERC for the MFP will replace the existing license conditions. The Hell Hole Reservoir Seasonal Storage Increase Improvement requires a new water right from the State Water Board to allow for additional storage for power generation (non-consumptive use) at Hell Hole Reservoir.

Operating agreements/contracts affecting Project operations identified in Section 3.5.2 (i.e., water supply contracts and the Water Forum Agreement) will remain in effect with the exception of the existing power purchase contract which expires on April 30, 2013. PCWA is currently negotiating a new power purchase contract, which will be in place prior to the expiration of the current PG&E contract. It is anticipated that the new contract will be from three to ten years in length, with provisions for renewal with the mutual agreement of both parties. This power purchase contract will be consistent with the FERC license conditions, water rights, and existing operating agreements/contracts and will not result in additional limitations or constraints in Project operations.

4.3.3 Consumptive Water and Power Demands

Consumptive water and power demands are unchanged under the Proposed Action. An overview of consumptive water and power demands is provided in Section 3.5.3.

4.3.4 Water Management

PCWA's overall water management strategy will not change substantially under the Proposed Action. An overview of water management is provided in Section 3.5.4.

A minor change in water management will occur as a result of the Hell Hole Reservoir Seasonal Storage Increase Improvement. This improvement will allow PCWA to utilize a portion of the existing flood control pool, above the present normal maximum operating water level, to store additional water during the spring and summer after the peak runoff period. An approximate 7,600 ac-ft increase in seasonal storage in the reservoir will be achieved by installing 6-foot-high crest gates on the existing dam spillway. In years when either French Meadows or Hell Hole reservoirs would have spilled, this improvement allows the MFP to capture additional water in storage in Hell Hole Reservoir which can later be used to increase net annual energy generation. In all but the driest years, this improvement also allows the MFP to shift the timing of some generation from the spring runoff period to the summer peak energy demand period.

4.3.5 Project Generation

Project generation will be reduced by 4.79% under the Proposed Action compared to the No-Action Alternative as a result of implementation of the new IFRM (PCWA 2010a; SD A) and construction of the Hell Hole Reservoir Seasonal Storage Increase Improvement. As summarized in Table 3-16, annual average generation from the MFP is 1,036,125 MWh (1967-2006). Under the Proposed Action, the MFP will have an annual average generation of 986,495 MWh (a reduction of 49,630 MWh).

4.4 ROUTINE FACILITY INSPECTIONS, TESTING, AND MAINTENANCE

As identified in Tables 4-4, 4-5, and 4-6, under the Proposed Action, routine facility inspections, testing, and maintenance activities related to Project facilities and features, Project roads and trails, and Project recreation facilities and features are modified from the No-Action Alternative. These modifications include revisions in the location, timing, and methods for implementation of routine maintenance activities. In addition, the Proposed Action specifies additional programs and measures for protection of environmental and cultural resources. These modifications have been incorporated within various management plans as described in Section 4.5 – Environmental Programs, Measures, and Facilities.

Changes in routine facility inspections, testing, and maintenance under the Proposed Action are summarized below:

4.4.1 Tunnel and Powerhouse Inspections, Testing, and Maintenance

Tunnel and powerhouse inspections, testing, and maintenance activities will remain the same as the No-Action Alternative.

4.4.2 Spillway Gate and Tainter Gate Testing

Spillway gate and tainter gate testing will remain the same under the Proposed Action at all facilities except Hell Hole Dam. At Hell Hole Dam, the new spillway crest gates installed as part of the Hell Hole Reservoir Seasonal Storage Increase Improvement will be inspected and tested annually.

4.4.3 Vegetation Management

As described in the Vegetation and Integrated Pest Management Plan (VIPMP) (PCWA 2010b; SD A), the following changes to vegetation management will occur under the Proposed Action:

- Implementation of vegetation management (trimming by hand, trimming with equipment, and/or herbicide use) at new Project facilities and features, Project roads and trails, and Project recreation facilities and features;
- Authorized application of herbicides and surfactants at existing Project facilities and features and Project roads where herbicides were not previously used; and
- Implementation of additional programs and measures to protect and enhance environmental and cultural resources during vegetation management.

4.4.4 Pest Management

As described in the VIPMP (PCWA 2010b; SD A), the following changes to pest management will occur under the Proposed Action:

- Implementation of physical rodent control (e.g., snap traps) and over-the-counter rodenticides (e.g., d-CON®) at new Project facilities;
- Authorized rodenticide use (e.g., fumigants) at Hell Hole and French Meadows dams; and
- Established methods for rodenticide use to reduce the risk of secondary poisoning of non-target species.

4.4.5 Noxious Weed Management

Noxious weed management was not a Project maintenance activity under the No-Action Alternative. However, as described in the VIPMP (PCWA 2010b; SD A), implementation of noxious weed management will result in the following changes under the Proposed Action:

- Required manual and chemical (herbicide use) noxious weed control;
- Establishment of protective buffers around streams, reservoirs, and other aquatic sites when applying herbicides;

- Implementation of measures to limit the introduction or spread of noxious weeds;
- Implementation of measures and programs to protect and enhance environmental resources during noxious weed management; and
- Required monitoring of noxious weed manual and chemical treatment sites.

4.4.6 Sediment Management

As described in the Sediment Management Plan (SMP) (PCWA 2010c; SD A), the following changes to sediment management at the small diversion pools and medium reservoirs will occur under the Proposed Action:

4.4.6.1 Small Diversions

Sediment management at small diversions (Duncan Creek Diversion, North Fork Long Canyon Diversion, and South Fork Long Canyon Diversion) will include interim and contingency sediment management and long-term routine maintenance.

Interim Sediment Management will be conducted at small diversions prior to modification of diversion dams. Similar to the No-Action Alternative, interim sediment management includes physical removal of sediment by heavy equipment during the low-flow period (late summer or fall) on an as-needed basis. However, under the Proposed Action, the following changes will occur:

- Implementation will only occur during the interim years between license issuance and completion of the infrastructure modifications;
- Reduced level of sediment removal activity (duration, extent of equipment needed, volume of sediment removed, and disposal area); and
- Implementation of additional measures to protect and enhance environmental and cultural resources during sediment management.

Contingency Sediment Management will be conducted following implementation of the small diversion modifications. Under the Proposed Action, implementation of contingency sediment management (physical removal with equipment) is considered to be unlikely, but may be necessary following implementation of the small diversion modifications. Contingency sediment management will result in the following changes from the No-Action Alternative:

- Reduced level of sediment removal activity (duration, extent of equipment needed, volume of sediment removed, and disposal area); and
- Implementation of additional measures to protect and enhance environmental and cultural resources during sediment management.

Long-term Routine Maintenance of the modified small diversions will change under the Proposed Action. Specifically, this includes the following:

- Substantially reduce the need for routine physical removal of sediment by heavy equipment;
- Reduce the need for trash rack cleaning; and
- Reduce monitoring of intakes during winter and spring storm event.

4.4.6.2 Medium Reservoirs

As described in the SMP (PCWA 2010c; SD A) the following changes to sediment management at the medium reservoirs will occur under the Proposed Action:

- Establishment of new augmentation areas (Middle Fork Interbay Augmentation Areas and Junction Bar Augmentation Area) and use of an existing augmentation area (Indian Bar Augmentation Area);
- Required sediment augmentation below Middle Fork Interbay and Ralston Afterbay;
- Required sediment transport monitoring at augmentation areas and replenishment of sediment transported from the area;
- Reduction in the volume of sediment stored and decreased need for additional sediment disposal areas; and
- Implementation of additional measures to protect and enhance environmental resources during sediment management activities.

4.4.7 Slope Stabilization (Falling Rock Control)

Slope stabilization activities will remain the same as the No-Action Alternative.

4.4.8 Debris Management

Following implementation of the small diversion infrastructure modifications, debris management may occur as part of contingency sediment management activities as described in the SMP (PCWA 2010c; SD A). This includes:

- Removal of accumulated sediment, woody debris, and/or vegetation within the existing diversion pool that restricts or threatens operations of the diversion facility or natural sediment transport downstream; and
- Placement of removed large woody debris downstream of the diversion or disposal of at an approved disposal area.

4.4.9 Facility Painting

Facility painting will remain the same as the No-Action Alternative except that PCWA will consult with the United States Department of Agriculture-Forest Service (USDA-FS) on the selection of appropriate colors per the Visual Management Plan (VMP).

4.4.10 Pole Replacement/Retrofit

As described in the Bald Eagle Management Plan (BEMP) (PCWA 2010d; SD A), the following changes to pole replacement/retrofit will occur under the Proposed Action:

- Scheduled replacement/retrofit of Project powerlines to meet Avian Power Line Interaction Committee (APLIC) Guidelines within 15 years of license issuance; and
- New powerline designs will be consistent with APLIC Guidelines.

4.4.11 Road and Trail Maintenance

As described in the Transportation System Management Plan (TSMP) (PCWA 2010e; SD A), the following changes to road and trail maintenance will occur under the Proposed Action:

- Required annual and periodic maintenance of new Project roads and trails;
- Established schedule for implementation of annual and periodic maintenance at existing and new roads and trails; and
- Implementation of additional programs and measures to protect and enhance environmental and cultural resources during annual and periodic road and trail maintenance.

4.4.12 Recreation Facility Maintenance

As described in the Recreation Plan (PCWA 2010f; SD A), the following changes to recreation facility maintenance will occur under the Proposed Action:

- Required annual and heavy maintenance of new Project recreation facilities;
- Established schedule for implementation of heavy maintenance at existing Project recreation facilities; and
- Implementation of additional programs and measures to protect and enhance environmental and cultural resources during annual and heavy maintenance.

4.5 NEW ENVIRONMENTAL PROGRAMS, MEASURES, AND FACILITIES

This section identifies new environmental programs, measures, and facilities to be implemented under the Proposed Action which are designed to protect or enhance environmental and cultural resources over the term of the new license. The following subsections provide a description of each environmental program and/or measure.

4.5.1 Water Resources

4.5.1.1 Instream Flow and Reservoir Minimum Pool Measure

PCWA currently provides minimum instream flows (MIF) for aquatic habitat and protection of beneficial uses in accordance with existing FERC license conditions and permits issued by the State Water Board. The IFRM (PCWA 2010a; SD A) includes higher MIFs; spring pulse flows; down ramp of spill flows; modified operation of Oxbow Powerhouse (ramping rate, maximum flow release); required recreation flows; and modified reservoir minimum pool requirements.

4.5.1.2 Aquatic Monitoring Plans

PCWA will implement four aquatic monitoring plans under the Proposed Action, these include:

- Flow and Reservoir Monitoring Plan (FRMP) (PCWA 2010g; SD A)

The FRMP defines the criteria and monitoring approach for documenting compliance with instream flow and reservoir minimum pool requirements described in the new FERC license for the MFP. Specifically, the FRMP (PCWA 2010g; SD A) addresses the following instream flow requirements:

- Minimum instream flows in the bypass and peaking reaches;
- Pulse flows in the bypass reaches;
- Recreation flow releases in the peaking reach;
- Ramping rates and maximum flow releases for Oxbow Powerhouse;
- Down ramping for spills from Hell Hole Dam and French Meadows Dam; and
- Minimum pool requirements in Hell Hole and French Meadows reservoirs.

- Fish Population Monitoring Plan (FPMP) (PCWA 2010h; SD A)

The FPMP (PCWA 2010h; SD A) describes monitoring and reporting of fish species composition, abundance, condition factor, and population age class structure at select sites in the bypass and peaking reaches associated with the MFP over the term of the license. This information will be used to evaluate

effects of the flow regimes specified in the license on fish populations. Specific objectives of the FPMP (PCWA 2010h; SD A) are to:

- Identify monitoring sites and schedule;
 - Identify sampling and analysis methods; and
 - Identify reporting requirements.
- Foothill Yellow-legged Frog Monitoring Plan (FYLFMP) (PCWA 2010i; SD A)

The FYLFMP (PCWA 2010i; SD A) describes monitoring and reporting of FYLF populations at select sites in the bypass and peaking reaches associated with the MFP over the term of the license. This information will be used to evaluate effects on FYLF populations of the flow regimes specified in the license. Specifically, the objectives of the FYLFMP (PCWA 2010i; SD A) are to:

- Monitor FYLF species abundance in select locations in the bypass and peaking reaches, including tributaries;
 - Document the upstream distribution of FYLF in the Rubicon River and the Middle Fork American River; and
 - Determine the timing of the initiation of FYLF breeding season in the Rubicon River and Middle Fork American River.
- Water Temperature Monitoring Plan (WTMP) (PCWA 2010j; SD A)

The WTMP (PCWA 2010j; SD A) describes methods for the collection of periodic water temperature data at select sites in bypass reaches associated with the MFP with known populations of FYLF. This information will be used to evaluate potential effects of the flow regimes specified in the license on water temperatures within these reaches. Specific objectives of the WTMP (PCWA 2010j; SD A) are to:

- Identify monitoring sites and schedule;
- Establish sampling and analysis methods; and
- Identify reporting requirements.

4.5.1.3 Sediment Management Plan

The SMP (PCWA 2010c; SD A) describes sediment management activities necessary for continued operation of the MFP at the three small diversion pools (Duncan Creek, North Fork Long Canyon Creek, and South Fork Long Canyon Creek) and two medium reservoirs (Middle Fork Interbay and Ralston Afterbay). Implementation of the SMP (PCWA 2010c; SD A) will result in improved system reliability; reduced facility

maintenance; increased natural delivery and transport of sediment (bedload and suspended load) downstream of Project diversions; and enhanced aquatic and riparian habitat downstream of Project diversions.

The SMP (PCWA 2010c; SD A) includes measures to protect and enhance environmental resources during implementation of sediment management activities. These include measures that:

- Define limited operating periods;
- Establish contingency plans in the event of hazardous spills or fires; and
- Incorporate appropriate USDA-FS Best Management Practices (BMP).

The SMP also describes monitoring (turbidity monitoring and sediment transport monitoring) and reporting requirements, and agency consultation associated with sediment management activities to be implemented over the term of the new license.

4.5.1.4 Geomorphology Monitoring Plan

The Geomorphology Monitoring Plan is currently in development. PCWA will distribute a draft monitoring plan to resource agencies, Native American Tribes, non-governmental organizations, and members of the public in late 2010 for review and comment. A final plan, addressing comments will be included in the Final Application for New License.

4.5.1.5 Riparian Monitoring Plan

The Riparian Monitoring Plan is currently in development. PCWA will distribute a draft monitoring plan to resource agencies, Native American Tribes, non-governmental organizations, and members of the public in late 2010 for review and comment. A final plan, addressing comments will be included in the Final Application for New License.

4.5.2 Cultural Resources

4.5.2.1 Historic Properties Management Plan

The Historic Properties Management Plan (HPMP) (PCWA 2010k; SD E) addresses the management of cultural resources that are eligible for inclusion on the National Register of Historic Places (NRHP). Specifically, the HPMP (PCWA 2010k; SD E) identifies measures that PCWA will implement at the four NRHP-eligible sites during operation and maintenance of the MFP and/or recreation use. Specific measures identified in the HPMP (PCWA 2010k; SD E) include the following:

- Implementation of an Employee Resource Awareness Training Program;
- Development of public education materials, which will be mounted on information boards located in the Project recreation facilities;

- Implementation of avoidance measures (design and buffers) when conducting heavy maintenance or ground-disturbing activities at select Project campgrounds;
- Notification of local Tribes prior to conducting any construction or ground-disturbing activities at or near one of the four NRHP-eligible sites to allow a local Tribal representative to be present and monitor site conditions during ground disturbing activities;
- Monitoring of NRHP-eligible sites once every five years to document their condition over time; and
- Conducting additional surveys at Hell Hole Reservoir to identify cultural resources that may have been submerged during previous survey efforts.

All of these measures will be implemented in consultation with the USDA-FS and local Native American Tribes.

4.5.3 Land Management

4.5.3.1 Transportation System Management Plan

The TSMP (PCWA 2010e; SD A) identifies PCWA's responsibilities over the term of the new license related to the operation and maintenance of: (1) Project roads and trails; and (2) Project recreation facility access roads. Specific measures and commitments identified in the TSMP (PCWA 2010e; SD A) include the following:

- Funding of resource agency administrative oversight activities;
- Implementation of routine annual and periodic maintenance of Project roads and trails and Project recreation facility access roads;
- Documenting the condition of Project roads, Project trails, and Project recreation facility access roads, once every five years;
- Implementation of special road and trail projects; and
- Establishing work areas, limited operating periods, protective buffer area, and preventative measures and BMPs for protection of environmental and cultural resources.

4.5.3.2 Visual Management Plan (VMP)

The VMP is currently in development. PCWA will distribute a draft monitoring plan to resource agencies, Native American Tribes, non-governmental organizations, and members of the public in late 2010 for review and comment. A final plan, addressing comments will be included in the Final Application for New License.

4.5.3.3 Fire Prevention and Suppression Plan

The Fire Prevention and Suppression Plan (FPSP) (PCWA 2010l; SD A) outlines the responsibility of PCWA and its contractors for fire prevention and suppression activities; sets up reporting and attack procedures in the event of a fire in the vicinity of the MFP; and ensures that fire prevention and suppression techniques are carried out in accordance with federal, state, and local regulations. The FPSP (PCWA 2010l; SD A) includes fire prevention and fire suppression measures that will be implemented during Project operation, maintenance, and construction activities; specific fire response procedures and emergency coordination; and agency consultation requirements to be implemented over the term of the new license.

4.5.4 Recreation Resources

4.5.4.1 Recreation Plan

The Recreation Plan (PCWA 2010f; SD A) identifies PCWA's responsibilities related to the management of recreation resources associated with the MFP over the term of the new license. The Recreation Plan (PCWA 2010f; SD A) specifies the measures/commitments that PCWA will implement related to: (1) operation, maintenance, and enhancement of Project recreation facilities; and (2) enhancement of Project recreation opportunities. Specific measures and commitments identified in the Recreation Plan (PCWA 2010f; SD A) include:

- Funding of resource agency administrative oversight;
- Routine annual and heavy maintenance of Project recreation facilities;
- Removal, reduction, consolidation, conversion, enhancement, and improvements to select Project recreation facilities;
- Periodic recreation use monitoring; and
- Resource protection and enhancement measures.

Specific measures included in the Recreation Plan (PCWA 2010f; SD A) that are designed to enhance Project recreation opportunities include:

- Dissemination of real-time flow information in the bypass and peaking reaches;
- Dissemination of reservoir water surface elevation information;
- Development and distribution of recreation opportunity marketing information;
- Fish stocking in large Project reservoirs; and
- Trail enhancements.

The Recreation Plan (PCWA 2010f; SD A) also includes an implementation schedule and specifies PCWA's commitments regarding consultation with the land management agencies over the term of the new license.

4.5.5 Terrestrial Resources

4.5.5.1 Vegetation and Integrated Pest Management Plan

The VIPMP (PCWA 2010b; SD A) defines vegetation and pest management activities (i.e., noxious weed management and rodent control) to be implemented at Project facilities and features, Project roads and trails, and Project recreation facilities and features, as well as measures for the enhancement and/or protection of environmental and cultural resources during implementation of these activities.

Vegetation management measures include:

- Activity buffers to restrict vegetation management activities in the vicinity of special-status plant populations;
- Restrictive activities in the vicinity of active nests; and
- USDA-FS Water Quality BMPs and restrictive application and disposal methods for herbicides, surfactants, and fungicides to avoid non-target plant and wildlife species and protect water quality.

Pest management conducted under the VIPMP (PCWA 2010b; SD A) includes both noxious weed management and rodent control. The noxious weed management program will enhance habitat for native plant and wildlife species in the MFP, and could promote establishment of new special-status plant populations through improved habitat conditions by reducing competition with invasive noxious weeds. Elements of the noxious weed management program include:

- Manual/chemical treatment of noxious weeds and associated monitoring of treated sites;
- Measures to limit the introduction or spread of noxious weeds (truck and equipment cleaning, maintenance of material stockpiles, inspection of workers clothing and boots, use of weed-free material for erosion control); and
- Educating employees about noxious weed prevention measures.

Rodent control, which includes both physical control (e.g., snap traps) and rodenticide use (over-the-counter rodenticides and fumigants), is necessary to protect the structural integrity of dams and prevent rodent infestations in building interiors. The VIPMP (PCWA 2010b; SD A) includes specific rodenticide application methods to be used to protect water quality and prevent secondary poisoning of raptors and other scavengers.

The VIPMP (PCWA 2010b; SD A) also includes several additional measures to enhance environmental resources including conducting special-status plant and noxious weed inventory surveys, implementation of an Environmental Training Program (ETP), and consulting annually with resource agencies.

4.5.5.2 Bald Eagle Management Plan

The BEMP (PCWA 2010d; SD A) addresses management of the bald eagle during routine maintenance and operation of the MFP. Implementation of the BEMP (PCWA 2010d; SD A) will reduce the risk of bald eagle or other raptor electrocution on Project power poles/powerlines; enhance monitoring of bald eagle nests and winter roosts in the vicinity of the MFP; and protect future bald eagle nests or roosts that may be identified during the term of the new license. The BEMP (PCWA 2010d; SD A) includes the following protection and enhancement measures:

- Evaluation and reporting of all power poles/powerlines involved in electrocution of a bald eagle or other raptor to determine a feasible approach to eliminate the mortality risk;
- Reporting protocols for bald eagle and other raptor mortalities;
- Implementation of raptor-safe design configurations for all new and/or replaced power poles/powerlines and replacement/retrofit of those that pose a risk for avian electrocution within 15 years of license issuance;
- Restrictions on the removal of bald eagle or other raptor nests from powerline poles;
- Implementation of the ETP to ensure that PCWA employees and contractors are aware of measures for protection of bald eagle and other raptors;
- Conducting annual bald eagle nest monitoring and five-year bald eagle nest and roost surveys to document newly occupied bald eagle territories or nesting activity in the vicinity of the MFP; and
- Conducting annual agency consultation to discuss powerline retrofit or replacement activities.

4.6 CONSTRUCTION PROJECTS

Under the Proposed Action, several construction projects will be implemented to improve operations and maintenance of the Project, enhance environmental resources, and/or meet the requirements specified in new environmental programs and measures. The construction projects include modifications to existing and construction of new Project facilities and features. The location of each modified/new Project facility is depicted on Map 4-1a through 4-1e. Refer to Appendix A – Modified or New Facilities Construction Activities and Concept Designs for: detailed information on construction

activities and schedule; associated Best Management Practices (BMPs) and avoidance and protection measures (as applicable); and concept design drawings for each modified/new facility. Cost information associated with each modified/new facility is included in Section 11.0 – Economic Analysis. The objective of each of these construction projects is briefly described below.

4.6.1 Hell Hole Reservoir Seasonal Storage Increase Improvement

The Proposed Action includes construction of the Hell Hole Reservoir Seasonal Storage Increase Improvement. The objective of this improvement is to seasonally increase the storage capacity of Hell Hole Reservoir. The improvement will utilize a portion of the existing flood control pool, above the present normal maximum operating water level, to store additional water during the spring and summer after the peak of the runoff period. An approximate 7,600 ac-ft increase in seasonal storage in the reservoir will be achieved by installing 6-foot-high crest gates on the existing dam spillway. The crest gates may be raised between April 15 and October 30 to increase reservoir storage.

4.6.2 Small Diversion Modifications

The Proposed Action includes modification of Duncan Creek, North Fork Long Canyon, and South Fork Long Canyon diversion dams to:

- Improve MFP system reliability;
- Increase natural sediment delivery and transport of bedload and fine material downstream of the small diversions;
- Enhance aquatic and riparian habitat downstream of the small diversions by re-establishing sediment connectivity; and
- Reduce operation and maintenance costs by reducing the need for manual debris removal and periodic sediment removal from each diversion.

4.6.3 Outlet Works Modifications

The Proposed Action includes modification of outlet works at French Meadows Dam, Hell Hole Dam, and Middle Fork Interbay Dam. The purpose of these modifications is to enhance the ability of the outlet works to release new instream flow requirements, and where appropriate, install new gages to collect flow data necessary for documenting compliance under the new license.

4.6.4 Gage Construction

The Proposed Action includes modification of existing gages and construction of new gages to monitor flows for compliance with the new license and collect flow data for real-time flow dissemination to the public. Modifications will occur at existing Project facilities (i.e., dam outlet works, spillways, diversion tunnels, and penstocks). New gage construction will occur along stream/river locations in the bypass and peaking reaches

and includes installation of pole-mounted photovoltaic arrays (referred to as photovoltaic poles) and powerlines to provide power, and development of a new trail to provide access. The precise location of the new gages, trails, and photovoltaic poles and powerlines along stream/river locations has not yet been determined. Project-specific NEPA analysis will be conducted at a later date for these gages and all necessary permits and approvals will be obtained prior to implementation of any construction activities.

LITERATURE CITED

- Placer County Water Agency (PCWA). 2010a. Instream Flow and Reservoir Minimum Pool Measure. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010b. Vegetation and Integrated Pest Management Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010c. Sediment Management Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010d. Bald Eagle Management Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010e. Transportation System Management Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010f. Recreation Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010g. Flow and Reservoir Monitoring Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010h. Fish Population Monitoring Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010i. Foothill Yellow-Legged Frog Monitoring Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010j. Water Temperature Monitoring Plan. Available in PCWA's Application for New License – Supporting Document A.
- _____. 2010k. Historic Properties Management Plan. Available in PCWA's Application for New License – Supporting Document E.
- _____. 2010l. Fire Prevention and Suppression Plan. Available in PCWA's Application for New License – Supporting Document A.

TABLES

Table 4-1. Proposed Action - Project Facilities and Features.

Dams, Reservoirs, and Diversion Pools
Large Dams
French Meadows Dam and Outlet Works (modified)
Hell Hole Dam and Outlet Works (modified)
Medium Dams
Middle Fork Interbay Dam and Outlet Works (modified)
Ralston Afterbay Dam and Outlet Works
Small Dams
Duncan Creek Diversion Dam (modified)
North Fork Long Canyon Diversion Dam (modified)
South Fork Long Canyon Diversion Dam (modified)
Large Reservoirs
French Meadows Reservoir
Hell Hole Reservoir
Medium Reservoirs
Middle Fork Interbay
Ralston Afterbay
Small Diversion Pools
Duncan Creek Diversion Pool (modified)
North Fork Long Canyon Diversion Pool (modified)
South Fork Long Canyon Diversion Pool (modified)
Water Conveyance Systems
Tunnels
Duncan Creek - Middle Fork Tunnel
French Meadows - Hell Hole Tunnel
Hell Hole - Middle Fork Tunnel
Middle Fork - Ralston Tunnel
Ralston - Oxbow Tunnel
Diversion Pipes and Drop Inlets
North Fork Long Canyon Diversion Pipe and Drop Inlet
South Fork Long Canyon Diversion Pipe and Drop Inlet
Surge Shafts and Adits
Brushy Canyon Adit
Hell Hole - Middle Fork Tunnel Surge Shaft and Tank
Middle Fork - Ralston Tunnel Surge Shaft and Tank
Removable Sections and Portals
Duncan Creek - Middle Fork Tunnel Portal
French Meadows - Hell Hole Tunnel Removable Section
Hell Hole - Middle Fork Tunnel Removable Section
Middle Fork - Ralston Tunnel Removable Section
North Fork Long Canyon Crossing Removable Section
Intakes and Gatehouses
Duncan Creek - Middle Fork Tunnel Intake
French Meadows - Hell Hole Tunnel Gatehouse
French Meadows - Hell Hole Tunnel Intake
Hell Hole - Middle Fork Tunnel Gatehouse
Hell Hole - Middle Fork Tunnel Intake
Middle Fork - Ralston Tunnel Intake and Gatehouse
Ralston - Oxbow Tunnel Intake

Table 4-1. Proposed Action - Project Facilities and Features (continued).

Water Conveyance Systems (continued)
Penstocks and Valve Houses
French Meadows Powerhouse Penstock and Butterfly Valve House
Middle Fork Powerhouse Penstock and Butterfly Valve House
Ralston Powerhouse Penstock and Butterfly Valve House
Powerhouses, Switchyards, and Substations
French Meadows Powerhouse and Switchyard
Hell Hole Powerhouse
Hell Hole Substation
Middle Fork Powerhouse and Upper and Lower Switchyards
Ralston Powerhouse and Switchyard
Oxbow Powerhouse and Switchyard
Gaging Stations and Weirs
Stream Gages and Weirs
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700) (interim) ¹
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)
Middle Fork American River Gages at French Meadows Dam Outlet Works (new) ²
Rubicon River Gage and Weir at Hell Hole Dam Spillway (new) ²
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800) (interim) ¹
Rubicon River Gages at Hell Hole Dam Outlet Works (new) ²
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085) (interim) ¹
North Fork Long Canyon Creek Gage below Diversion Dam (new) ²
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065) (interim) ¹
South Fork Long Canyon Creek Gage below Diversion Dam (new) ²
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770) (interim) ¹
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)
Middle Fork American River Gage below Interbay Dam (new) ²
Middle Fork American River Gage Near Foresthill (USGS Gage No. 11433300)
Middle Fork American River Gage at Ralston Afterbay Dam Outlet Works (new) ²
Rubicon River Gage above Ralston Powerhouse (USGS Gage No. 11433200) (existing, added to MFP) ³
North Fork American River Gage above American River Pump Station (new) ²
Rubicon River Gage at Ellicott Bridge (existing, added to MFP) ³
Diversion Gages
Duncan Creek Gage at Diversion Tunnel (new) ²
North Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433080) (modified)
South Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433060) (modified)
Reservoir Gages
French Meadows Reservoir Gage (USGS Gage No. 11427400)
French Meadows Reservoir Staff Gage
Hell Hole Reservoir Gage (USGS Gage No. 11428700)
Hell Hole Reservoir Staff Gage
Middle Fork Interbay Reservoir Gage
Ralston Afterbay Reservoir Gage
Powerhouse Gages
French Meadows Powerhouse Gage (USGS Gage No. 11427200)
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)
Ralston Powerhouse Gage (USGS Gage No. 11427765)
Oxbow Powerhouse Gage (USGS Gage No. 11433212)
Oxbow Powerhouse Penstock Gage (new) ²

Table 4-1. Proposed Action - Project Facilities and Features (continued).

Gaging Stations and Weirs (continued)
Leakage Weirs
French Meadows Dam Leakage Weirs Nos. 1-6
Hell Hole Dam Leakage Weir
Project Communication Lines and Powerlines
French Meadows Area
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline
Hell Hole Area
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline
French Meadows Powerhouse and Switchyard to Hell Hole - Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline
Dormitory and Cottages Water Supply Tank Powerline
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline
Hell Hole Dam Spillway Crest Gates Control Building Communication Line/Powerline (new) ²
Middle Fork Interbay Area
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole - Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline
Middle Fork Powerhouse to Middle Fork - Ralston Tunnel Intake and Gatehouse Communication Line/Powerline
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline
Ralston - Oxbow Area
Ralston - Oxbow Tunnel Intake to Ralston Powerhouse Communication Line
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline
Ralston Afterbay Dam Generator Building to Ralston - Oxbow Tunnel Intake Communication Line/Powerline
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline
Photovoltaic Poles and Powerlines
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam
Photovoltaic Pole and Powerline at Duncan Creek Gage at Diversion Tunnel (new) ²
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse
Photovoltaic Pole and Powerline at Middle Fork American River Gage below Interbay Dam (new) ²
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage below Diversion Dam (new) ²
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage below Diversion Dam (new) ²
Photovoltaic Pole and Powerline at Rubicon River Gage above Ralston Powerhouse (existing, added to MFP) ⁴
Photovoltaic Pole and Powerline at Middle Fork American River Gage below Oxbow Powerhouse
Photovoltaic Pole and Powerline at North Fork American River Gage above American River Pump Station (new) ²
Photovoltaic Pole and Powerline at Rubicon River Gage at Ellicott Bridge (existing, added to MFP) ⁴
Microwave Reflectors and Radio Towers
Passive Microwave Reflector Station above Middle Fork Interbay
Radio Communications Tower near French Meadows - Hell Hole Tunnel Gatehouse
Radio Communications Tower and Repeater near Hell Hole - Middle Fork Tunnel Surge Shaft and Tank
Passive Microwave Reflector Station above Ralston Afterbay
Disposal Areas
Duncan Creek Diversion Sediment Disposal Area
North Fork Long Canyon Crossing Sediment Disposal Area
Middle Fork Interbay Sediment Disposal Area

Table 4-1. Proposed Action - Project Facilities and Features (continued).

Disposal Areas (continued)
Ralston Ridge Sediment Disposal Area
Sediment Augmentation Areas
Middle Fork Interbay Augmentation Areas (new)
Junction Bar Augmentation Area (new)
Indian Bar Augmentation Area (existing, added to MFP) ⁴
Ancillary Facilities
French Meadows Dam Generator Building
French Meadows Dam Staging Area
Dormitory Facility
Dormitory and Cottages Water Supply Tank
Hell Hole Staging Areas
Operator Cottages and Shop
Hell Hole Dam Spillway Crest Gates Control Building (new) ²
Ralston Afterbay Dam Generator Building
Storage Building at Middle Fork - Ralston Tunnel Surge Shaft and Tank
Ralston Afterbay Sediment Removal Access Point (converted)⁵
Project Fences
Slope Fences
French Meadows Powerhouse Penstock Rock Fence
French Meadows Powerhouse Slope Fence
Long Canyon Crossing Slope Fence
Middle Fork Powerhouse Upper Switchyard Slope Fence
Middle Fork Interbay Dam Slope Fence
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences
Ralston Powerhouse Slope Fence
Oxbow Powerhouse Slope Fence
Public Safety Fences
Dormitory Facility Barrier Fence
Hell Hole Dam General Parking Area Barrier Fence
North Fork Long Canyon Crossing Removable Section Barrier Fence
Project Roads
Duncan Creek Area
Duncan Creek Diversion Intake Road
Duncan Creek Diversion Dam Road
Duncan Creek Diversion Pool Road
French Meadows Area
Duncan Creek - Middle Fork Tunnel Portal Road
French Meadows - Hell Hole Tunnel Gatehouse Road
French Meadows Dam Outlet Works and South Leakage Weir Road
French Meadows Dam Staging Area and Spillway West Access Road
French Meadows Spillway East Access Road
French Meadows Dam North Leakage Weir Road
Hell Hole Area
Hell Hole Dam and Powerhouse Road
Rubicon River Gage and Weir below Hell Hole Dam Road
Hell Hole Dam Leakage Weir Road
Hell Hole Dam Spillway Northern Access Point Road
French Meadows - Hell Hole Tunnel Portal Road
French Meadows Powerhouse Road

Table 4-1. Proposed Action - Project Facilities and Features (continued).

Project Roads (continued)
Hell Hole Area (continued)
Hell Hole - Middle Fork Tunnel Gatehouse Road
Dormitory Facility Road
Operator Cottage and Shop Road
Spur on North Side of Operator Cottage
Spur on South Side of Operator Cottage
Hell Hole Dam Spillway Discharge Channel Road Spur to Communication Line/Powerline
Hell Hole Dam Spillway Discharge Channel Road
Hell Hole Dam Spillway Gates Road (new) ²
Long Canyon Area
North Fork Long Canyon Diversion North Road
North Fork Long Canyon Diversion South Road
North Fork Long Canyon Diversion Drop Inlet Road
South Fork Long Canyon Diversion and Drop Inlet Road
South Fork Long Canyon Diversion and Drop Inlet Cutoff Road
South Fork Long Canyon Diversion Drop Inlet Access Road
North Fork Long Canyon Crossing Removable Section North Road and Parking Area
North Fork Long Canyon Crossing Removable Section South Road
Middle Fork Interbay Area
Middle Fork Interbay Dam Road
Middle Fork Interbay Dam to Powerhouse Road
Middle Fork Powerhouse Butterfly Valve House Road
Middle Fork Powerhouse Penstock and Butterfly Valve House Road
Middle Fork Powerhouse Upper Switchyard Road
Ralston - Oxbow Area
Brushy Canyon Adit Road
Ralston Powerhouse Butterfly Valve House Road
Ralston Afterbay Dam Access Road
Indian Bar Access Road
Oxbow Powerhouse Road
Ralston - Oxbow Tunnel Intake Road
Ralston Afterbay Private Boat Ramp Road
Ralston Afterbay Dam and Access Point Road
Project Trails
Duncan Creek Area
Duncan Creek Diversion Dam North Trail
Duncan Creek Diversion Dam South Trail
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail
Duncan Creek Gage and Weir above Diversion Trail
Duncan Creek Gage and Weir below Diversion Trail
Hell Hole Area
Rubicon River Gage at Ellicott Bridge Trail (existing, added to MFP) ³
Long Canyon Area
North Fork Long Canyon Creek Gage below Diversion Dam Trail (new) ²
South Fork Long Canyon Creek Gage below Diversion Dam Trail (new) ²
Middle Fork Interbay Area
Middle Fork American River Gage above Middle Fork Powerhouse Trail
Passive Microwave Reflector Station above Middle Fork Interbay Trail
Middle Fork American River Gage below Interbay Dam Trail (new) ²

Table 4-1. Proposed Action - Project Facilities and Features (continued).

Project Trails (continued)
Ralston Afterbay Area
Passive Microwave Reflector Station above Ralston Afterbay Trail
Rubicon River Gage above Ralston Powerhouse Trail (existing, added to MFP) ³
North Fork American River Gage above American River Pump Station Trail (new) ²

¹Existing gage to remain in place until infrastructure modification is complete.

²This facility or feature will be constructed under the Proposed Action.

³Existing gage or trail now required for Project operation and maintenance.

⁴Existing facility that has been added to the Project.

⁵Converted to Ralston Afterbay Sediment Removal Access Point Boat Ramp.

Table 4-2. Proposed Action - Project Recreation Facilities and Features.

Duncan Area
Duncan Creek Diversion Primitive Recreation Site (new)
French Meadows Area
Ahart Campground (enhanced)
Coyote Group Campground
Poppy Campground (reduced)
French Meadows Campground
Gates Group Campground
Lewis Campground
French Meadows Picnic Area
French Meadows Boat Ramp (enhanced)
French Meadows Dump Station
McGuire Picnic Area and Beach (converted)¹
McGuire Group Campground (new)
McGuire Boat Ramp and Associated Parking (modified)
Hell Hole Area
Big Meadows Campground
Hell Hole Campground (reduced)
Upper Hell Hole Campground (removed)
Hell Hole Vista
Hell Hole Boat Ramp (enhanced)
Hell Hole General Parking Area and Hell Hole Boat Ramp Parking Area
Ralston Afterbay Area
Ralston Picnic Area (reduced)
Ralston Picnic Area Cartop Boat Ramp
Ralston Afterbay Sediment Removal Access Point Boat Ramp (new) ²
Indian Bar Rafting Access and General Parking (enhanced)
Long Canyon Area
Middle Meadows Group Campground
Project Recreation Facility Water Supplies and Associated Maintenance Trails
Dolly Creek Water Supply
French Meadows Campground Water Supply and Trail
Big Meadows Campground Water Supply and Trail
Middle Meadows Group Campground Water Supply and Trail

¹This facility will be converted to the McGuire Group Campground.

²This facility replaces the Ralston Afterbay Sediment Removal Access Point.

Table 4-3. Project Gaging Stations and Weirs.

	MIF	Pulse Flow	Down Ramp of Spill Flows	Operations of Oxbow Powerhouse (ramping rate/max flow)	Recreation Flow Releases	Reservoir Minimum Pool	Real-Time ¹	Gage Type
Gaging Stations and Weirs								
Stream Gages and Weirs								
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700) (interim) ²	X							Gage/Weir
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)	X	X					X	Gage/Weir
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)	X ³	X	X				X	Gage/Weir
Middle Fork American River Gages at French Meadows Dam Outlet Works (new) ⁴	X	X	X					AVM
Rubicon River Gage and Weir at Hell Hole Dam Spillway (HHDS) (new) ⁴		X	X					Gage/Weir
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800) (interim) ²	X							Gage/Weir
Rubicon River Gages at Hell Hole Dam Outlet Works (new) ⁴	X	X	X					AVM
North Fork Long Canyon Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11433085) (interim) ²	X							Gage/Weir
North Fork Long Canyon Creek Gage below Diversion Dam (NFLCC) (new) ⁴	X	X					X	Gage
South Fork Long Canyon Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11433065) (interim) ²	X							Gage/Weir
South Fork Long Canyon Creek Gage below Diversion Dam (SFLCC) (new) ⁴	X	X					X	Gage
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770) (interim) ²	X							AVM
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)							X	Gage
Middle Fork American River Gage below Interbay Dam (MFARIB) (new) ⁴	X	X					X	Gage
Middle Fork American River Gage near Foresthill (USGS Gage No. 11433300)	X			X	X		X	Gage
Middle Fork American River Gage at Ralston Afterbay Dam Outlet Works (new) ⁴	X							AVM
Rubicon River Gage above Ralston Powerhouse (USGS Gage No. 11433200) (existing, added to MFP) ⁵							X	Gage
North Fork American River Gage above American River Pump Station (NFARPS) (new) ⁴					X		X	Gage
Rubicon River Gage at Ellicott Bridge (RREB) (existing, added to MFP) ⁵							X	Gage
Diversions Gages								
Duncan Creek Gage at Diversion Tunnel (DCDT) (new) ⁴	X	X						Sonar
North Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433080) (modified)	X							Sonar
South Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433060) (modified)	X							Sonar
Reservoir Gages								
French Meadows Reservoir Gage (USGS Gage No. 11427400)						X	X	Storage Recorder
French Meadows Reservoir Staff Gage								Staff Gage
Hell Hole Reservoir Gage (USGS Gage No. 11428700)						X	X	Storage Recorder
Hell Hole Reservoir Staff Gage								Staff Gage
Middle Fork Interbay Reservoir Gage								Storage Recorder
Ralston Afterbay Reservoir Gage								Storage Recorder
Powerhouse Gages								
French Meadows Powerhouse Gage (USGS Gage No. 11427200)								Electrical
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)								Electrical
Ralston Powerhouse Gage (USGS Gage No. 11427765)								Electrical
Oxbow Powerhouse Gage (USGS Gage No. 11433212)								Electrical
Oxbow Powerhouse Penstock Gage (OXBPP) (new) ⁴				X				AVM

Table 4-3. Project Gaging Stations and Weirs.

	MIF	Pulse Flow	Down Ramp of Spill Flows	Operations of Oxbow Powerhouse (ramping rate/max flow)	Recreation Flow Releases	Reservoir Minimum Pool	Real-Time ¹	Gage Type
Gaging Stations and Weirs								
Leakage Weirs								
French Meadows Dam Leakage Weirs Nos. 1-6								Weir
Hell Hole Dam Leakage Weir								Weir

Notes:

¹Real-time flows from stream gages are measures at 15-minute intervals and flows at reservoir gages are measured daily.

²Existing gage to remain in place until infrastructure modification is completed.

³Interim gage to be replaced with Middle Fork American River Gages at French Meadows Dam Outlet Works for MIF only. This gage will be maintained as part of the MFP to monitor pulse flows, down ramp of spill flows, and collect real-time flow data.

⁴This facility or feature will be constructed under the Proposed Action.

⁵Existing gage, now required for Project operations.

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features.

Project Facility or Feature <i>[Items in red represent a change from the No-Action Alternative]</i>	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit		
									Small Diversions		Medium Reservoirs										
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation	Sediment Disposal	Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks
Dams, Reservoirs, and Diversion Pools																					
Large Dams																					
French Meadows Dam and Outlet Works (modified)		A	A		A	X			X												
Hell Hole Dam and Outlet Works (modified)	A ²	A	A		A	X			X												
Medium Dams																					
Middle Fork Interbay Dam and Outlet Works (modified)		A	A						X												
Ralston Afterbay Dam and Outlet Works		A	A						X												
Small Dams																					
Duncan Creek Diversion Dam (modified)			A																		
North Fork Long Canyon Diversion Dam (modified)			A			X															
South Fork Long Canyon Diversion Dam (modified)			A																		
Large Reservoirs																					
French Meadows Reservoir																				X	
Hell Hole Reservoir																	I		X		
Medium Reservoir																					
Middle Fork Interbay												I		I ³			I	R	X		
Ralston Afterbay												I		I ³			I	R	X		

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit			
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions			Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks	Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation							
Dams, Reservoirs, and Diversion Pools (continued)																					
Small Diversion Pools																					
Duncan Creek Diversion Pool																					
Pre-modification of diversion dam			A															R	*		
Post modification of diversion dam			A																		
North Fork Long Canyon Diversion Pool																					
Pre-modification of diversion dam			A			X													R		
Post modification of diversion dam			A			X															
South Fork Long Canyon Diversion Pool																					
Pre-modification of diversion dam			A			X													R		
Post modification of diversion dam			A			X															
Water Conveyance Systems																					
Tunnels																					
Duncan Creek - Middle Fork Tunnel																					
French Meadows - Hell Hole Tunnel																					
Hell Hole - Middle Fork Tunnel																					
Middle Fork - Ralston Tunnel																					
Ralston - Oxbow Tunnel	A																				
Diversion Pipes and Drop Inlets																					
North Fork Long Canyon Diversion Pipe and Drop Inlet			A																		
South Fork Long Canyon Diversion Pipe and Drop Inlet			A																		

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																		
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit	
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions		Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair	Large Woody Debris			Cleaning Trash Racks
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment				Sediment Augmentation	Sediment Disposal	
Water Conveyance Systems (continued)																			
Surge Shafts and Adits																			
Brushy Canyon Adit			A			X													
Hell Hole - Middle Fork Tunnel Surge Shaft and Tank			A																I
Middle Fork - Ralston Tunnel Surge Shaft and Tank			A			X													I
Removable Sections and Portals																			
Duncan Creek - Middle Fork Tunnel Portal			A																I
French Meadows - Hell Hole Tunnel Removable Section			A																I
Hell Hole - Middle Fork Tunnel Removable Section			A			X													I
Middle Fork - Ralston Tunnel Removable Section			A																I
North Fork Long Canyon Crossing Removable Section			A			X													I
Intakes and Gatehouses																			
Duncan Creek - Middle Fork Tunnel Intake			A																
French Meadows - Hell Hole Tunnel Gatehouse			A																
French Meadows - Hell Hole Tunnel Intake			A																
Hell Hole - Middle Fork Tunnel Gatehouse			A																
Hell Hole - Middle Fork Tunnel Intake			A																
Middle Fork - Ralston Tunnel Intake and Gatehouse			A			X													
Ralston - Oxbow Tunnel Intake			A			X													

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																		
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions		Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair	Large Woody Debris	Cleaning Trash Racks		
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment					Sediment Augmentation	Sediment Disposal
Water Conveyance Systems (continued)																			
Penstocks and Valve Houses																			
French Meadows Powerhouse Penstock and Butterfly Valve House			A		A														I
Middle Fork Powerhouse Penstock and Butterfly Valve House			A		A	X								I					I
Ralston Powerhouse Penstock and Butterfly Valve House			A		A														I
Powerhouses, Switchyards, and Substations																			
French Meadows Powerhouse and Switchyard	A		A		A	X	X	X											
Hell Hole Powerhouse	A		A			X	X	X											
Hell Hole Substation			A			X	X	X											
Middle Fork Powerhouse and Upper and Lower Switchyards	A		A		A	X	X	X											
Ralston Powerhouse and Switchyard	A		A		A	X	X	X											
Oxbow Powerhouse and Switchyard	A		A		A	X	X	X											
Gaging Stations and Weirs																			
Stream Gages and Weirs																			
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700) (interim) ⁴			A																
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)			A																
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)			A																

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																			
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit	
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions		Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair	Large Woody Debris	Cleaning Trash Racks			Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment							
Gaging Stations and Weirs (continued)																				
Stream Gages and Weirs (continued)																				
Middle Fork American River Gage at French Meadows Dam Outlet Works (new) ⁵																				
Rubicon River Gage and Weir at Hell Hole Dam Spillway (new) ⁵																				
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800) (interim) ⁴			A																	
Rubicon River Gages at Hell Hole Dam Outlet Works (new) ⁵																				
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085) (interim) ⁴			A																	
North Fork Long Canyon Creek Gage below Diversion Dam (new) ⁵			A																	
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065) (interim) ⁴			A																	
South Fork Long Canyon Creek Gage below Diversion Dam (new) ⁵			A																	
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770) (interim) ⁴			A																	
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)			A																	

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit			
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions			Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks	Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation							
Gaging Stations and Weirs (continued)																					
Stream Gages and Weirs (continued)																					
Middle Fork American River Gage below Interbay Dam (new) ⁵			A																		
Middle Fork American River Gage Near Foresthill (USGS Gage No. 11433300)			A																		
Middle Fork American River Gage at Ralston Afterbay Dam Outlet Works (new) ⁵																					
Rubicon River Gage above Ralston Powerhouse (USGS Gage No. 11433200) (existing, added to MFP) ⁶			A																		
North Fork American River Gage above American River Pump Station (new) ⁵			A																		
Rubicon River Gage at Ellicott Bridge (existing, added to MFP) ⁶			A																		
Diversion Gages																					
Duncan Creek Gage at Diversion Tunnel (new) ⁵																					
North Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433080) (modified)																					
South Fork Long Canyon Gage at Diversion Tunnel (USGS Gage No. 11433060) (modified)																					
Reservoir Gages																					
French Meadows Reservoir Gage (USGS Gage No. 11427400)																					

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																						
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management								
									Small Diversions		Medium Reservoirs												
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation	Sediment Disposal	Gunite (erosion control)	Rock Removal/Fence Repair	Large Woody Debris	Cleaning Trash Racks	Log Booms	Facility Painting	Pole Replacement/Retrofit	
Gaging Stations and Weirs (continued)																							
Reservoir Gages (continued)																							
French Meadows Reservoir Staff Gage																							
Hell Hole Reservoir Gage (USGS Gage No. 11428700)																							
Hell Hole Reservoir Staff Gage																							
Middle Fork Interbay Reservoir Gage																							
Ralston Afterbay Reservoir Gage																							
Powerhouse Gages																							
French Meadows Powerhouse Gage (USGS Gage No. 11427200)																							
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)																							
Ralston Powerhouse Gage (USGS Gage No. 11427765)																							
Oxbow Powerhouse Gage (USGS Gage No. 11433212)																							
Oxbow Powerhouse Penstock Gage (new) ²																							
Leakage Weirs																							
French Meadows Dam Leakage Weirs Nos. 1-6			A																				
Hell Hole Dam Leakage Weir			A			X																	

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit		
									Small Diversions		Medium Reservoirs										
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation	Sediment Disposal	Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks
Project Communication Lines and Powerlines																					
French Meadows Area																					
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline			A			X															S
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline			A																		S
Hell Hole Area																					
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline			A		A																S
French Meadows Powerhouse and Switchyard to Hell Hole - Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline			A																		S
Dormitory and Cottages Water Supply Tank Powerline			A																		S
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline			A																		S
Hell Hole Dam Spillway Crest Gates Control Building Communication Line/Powerline (new)																					
Middle Fork Interbay Area																					
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline			A		A																S

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit			
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions			Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks	Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation							
Project Communication Lines and Powerlines (continued)																					
Middle Fork Interbay Area (continued)																					
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole - Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline			A			X													S		
Middle Fork Powerhouse to Middle Fork - Ralston Tunnel Intake and Gatehouse Communication Line/Powerline			A			X													S		
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline			A			X													S		
Ralston - Oxbow Area																					
Ralston - Oxbow Tunnel Intake to Ralston Powerhouse Communication Line			A			X													S		
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline			A		A	X													S		
Ralston Afterbay Dam Generator Building to Ralston - Oxbow Tunnel Intake Communication Line/Powerline			A			X													S		
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline			A			X													S		
Photovoltaic Poles and Powerlines																					
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam			A																		

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																			
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management				Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit	
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions		Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair	Large Woody Debris	Cleaning Trash Racks			Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment							
Project Communication Lines and Powerlines (continued)																				
Photovoltaic Poles and Powerlines (continued)																				
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam			A																	
Photovoltaic Pole and Powerline at Duncan Creek Gage at Diversion Tunnel (new) ^f			A																	
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam			A																	
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse			A																	
Photovoltaic Pole and Powerline at Middle Fork American River Gage below Interbay Dam (new) ^f			A																	
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam			A																	
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage below Diversion Dam (new) ^f			A																	
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam			A																	
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage below Diversion Dam (new) ^f			A																	
Photovoltaic Pole and Powerline at Rubicon River Gage above Ralston Powerhouse (existing, added to MFP) ⁷			A																	

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																				
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit			
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions			Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks	Log Booms
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation							
Project Communication Lines and Powerlines (continued)																					
Photovoltaic Poles and Powerlines (continued)																					
Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse			A																		
Photovoltaic Pole and Powerline at North Fork American River Gage above American River Pump Station (new) ⁵			A																		
Photovoltaic Pole and Powerline at Rubicon River Gage at Ellicott Bridge (existing, added to MFP) ⁷			A																		
Microwave Reflectors and Radio Towers																					
Passive Microwave Reflector Station above Middle Fork Interbay			I																		
Radio Communications Tower near French Meadows - Hell Hole Tunnel Gatehouse			I																		
Radio Communications Tower and Repeater near Hell Hole - Middle Fork Tunnel Surge Shaft and Tank			I																		
Passive Microwave Reflector Station above Ralston Afterbay			I			X															
Disposal Areas																					
Duncan Creek Diversion Sediment Disposal Area																					
North Fork Long Canyon Crossing Sediment Disposal Area						X															
Middle Fork Interbay Sediment Disposal Area						X															
Ralston Ridge Sediment Disposal Area						X															

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																			
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit		
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Small Diversions			Medium Reservoirs		Gunite (erosion control)	Rock Removal/Fence Repair			Large Woody Debris	Cleaning Trash Racks
										Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation			Sediment Disposal			
Sediment Augmentation Areas																				
Middle Fork Interbay Augmentation Areas (new)																				
Junction Bar Augmentation Area (new)			A			X														
Indian Bar Augmentation Area (existing, added to MFP) ⁷			A			X														
Ancillary Facilities																				
French Meadows Dam Generator Building			A		A		X	X												I
French Meadows Dam Staging Area					I	X														
Dormitory Facility			A		A		X	X												I
Dormitory and Cottages Water Supply Tank			A		I		X	X												I
Hell Hole Staging Areas					A															
Operator Cottages and Shop			A		A	X	X	X												I
Hell Hole Dam Spillway Crest Gates Control Building (new) ⁵			A				X	X												
Ralston Afterbay Dam Generator Building			A		A	X	X	X												I
Storage Building at Middle Fork - Ralston Tunnel Surge Shaft and Tank			A		A	X														
Ralston Afterbay Sediment Removal Access Point (converted)⁹																				
Project Fences																				
Slope Fences																				
French Meadows Powerhouse Penstock Rock Fence																				A
French Meadows Powerhouse Slope Fence			I			X														A

Table 4-4. Proposed Action - Description of Routine Facility Inspections, Testing, and Maintenance Activities at Project Facilities and Features (continued).

Project Facility or Feature [Items in red represent a change from the No-Action Alternative]	Inspections, Testing, and Maintenance Activities																					
	Inspections & Maintenance		Vegetation Management			Pest Management			Sediment Management			Slope Stabilization (Falling Rock Control)		Debris Management			Facility Painting	Pole Replacement/Retrofit				
	Tunnel and Powerhouse Inspection, Testing, and Maintenance	Spillway & Tainter Gate Testing	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ¹	Physical Rodent Control (snap traps)	Over-the-Counter Rodenticide Use	Rodenticide Use - Fumigants	Physical Removal w/Equipment	Interim Sediment Mgmt.	Contingency Sediment Mgmt.	Physical Removal w/Equipment	Sediment Augmentation	Sediment Disposal	Gunite (erosion control)			Rock Removal/Fence Repair	Large Woody Debris	Cleaning Trash Racks	Log Booms
Project Fences																						
Slope Fences																						
Long Canyon Crossing Slope Fence			I														A					
Middle Fork Powerhouse Upper Switchyard Slope Fence					I	X											A					
Middle Fork Interbay Dam Slope Fence																	A					
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences					I	X											A					
Ralston Powerhouse Slope Fence					I	X											A					
Oxbow Powerhouse Slope Fence					I	X											A					
Public Safety Fences																						
Dormitory Facility Barrier Fence																	A					
Hell Hole Dam General Parking Area Barrier Fence						X											A					
North Fork Long Canyon Crossing Removable Section Barrier Fence						X											A					

A = Activity occurs on an annual basis.

I = Activity occurs on an infrequent basis.

R = Completed as-needed during diversion season.

S = Scheduled retrofit or replacement.

X = Activity occurs or ancillary facility is present.

¹Indicates areas where manual and chemical treatment of target noxious weed populations will be implemented. Manual and chemical treatments may be completed at other locations during the term of the license if new target noxious weed populations are identified during inventory surveys.

²Inspection of 1,000 feet of outlet conduit.

³Sediment augmentation will be implemented at Middle Fork Interbay Augmentation Areas, Junction Bar Augmentation Area, and Indian Bar Augmentation Area; and sediment disposal will occur at Project sediment disposal areas or other agency-approved disposal areas.

⁴Existing gage to remain in place until infrastructure modification is complete.

⁵This facility or feature will be constructed under the Proposed Action.

⁶Existing gage or trail now required for Project operation and maintenance.

⁷Existing facility that has been added to the Project.

⁸Material excavated from medium reservoirs will be placed at this sediment augmentation area.

⁹Converted to Ralston Afterbay Sediment Removal Access Point Boat Ramp.

Table 4-5. Proposed Action - Description of Routine Maintenance at Project Roads and Trails.

Project Road or Trail [Items in red represent a change from the No-Action Alternative]	Annual Road and Trail Maintenance ¹		Vegetation Management		Pest Mgmt	Periodic Road and Trail Maintenance ³
	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ²		
Project Roads						
Duncan Creek Area						
Duncan Creek Diversion Intake Road	X	A	A			X
Duncan Creek Diversion Dam Road	X	A	A			X
Duncan Creek Diversion Pool Road	X	A	A			X
French Meadows Area						
Duncan Creek - Middle Fork Tunnel Portal Road	X	A	A		X	X
French Meadows - Hell Hole Tunnel Gatehouse Road	X	A	A	I		X
French Meadows Dam Outlet Works and South Leakage Weir Road	X	A	A	A	X	X
French Meadows Dam Staging Area and Spillway West Access Road	X	A	A		X	X
French Meadows Spillway East Access Road	X	A	A			X
French Meadows Dam North Leakage Weir Road	X	A	A		X	X
Hell Hole Area						
Hell Hole Dam and Powerhouse Road	X	A		A	X	X
Rubicon River Gage and Weir below Hell Hole Dam Road	X	A	A		X	X
Hell Hole Dam Leakage Weir Road	X	A	A		X	X
Hell Hole Dam Spillway and Northern Access Point Road	X	A	A		X	X
French Meadows - Hell Hole Tunnel Portal Road	X	A	A			X
French Meadows Powerhouse Road	X	A	A		X	X
Hell Hole - Middle Fork Tunnel Gatehouse Road	X	A	A			X
Dormitory Facility Road	X	A	A			X
Operator Cottage and Shop Road	X	A	A			X
Spur on North Side of Operator Cottage	X	A	A			X
Spur on South Side of Operator Cottage	X	A	A			X
Hell Hole Dam Spillway Discharge Channel Road Spur to Communication Line/Powerline	X	A	A			X
Hell Hole Dam Spillway Discharge Channel Road	X	A	A			X
Hell Hole Dam Spillway Gates Road (new) ⁴	X					X

Table 4-5. Proposed Action - Description of Routine Maintenance at Project Roads and Trails (continued).

Project Road or Trail [Items in red represent a change from the No-Action Alternative]	Annual Road and Trail Maintenance ¹	Vegetation Management			Pest Mgmt	Periodic Road and Trail Maintenance ³
		Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ²	
Project Roads (continued)						
Long Canyon Area						
North Fork Long Canyon Diversion North Road	X	A	A			X
North Fork Long Canyon Diversion South Road	X	A	A			X
North Fork Long Canyon Diversion Drop Inlet Road	X	A	A			X
South Fork Long Canyon Diversion and Drop Inlet Road	X	A	A			X
South Fork Long Canyon Diversion and Drop Inlet Cutoff Road	X	A	A			X
South Fork Long Canyon Diversion Drop Inlet Access Road	X	A	A			X
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	X	A	A		X	X
North Fork Long Canyon Crossing Removable Section South Road	X	A	A		X	X
Middle Fork Interbay Area						
Middle Fork Interbay Dam Road					X	
Middle Fork Interbay Dam to Powerhouse Road	X	A	A		X	X
Middle Fork Powerhouse Butterfly Valve House Road	X	A	A			X
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	X	A	A	A	X	X
Middle Fork Powerhouse Upper Switchyard Road	X	A	A		X	X
Ralston - Oxbow Area						
Brushy Canyon Adit Road	X	A	A		X	X
Ralston Powerhouse Butterfly Valve House Road	X	A	A	A	X	X
Ralston Afterbay Dam Access Road	X	A	A		X	X
Indian Bar Access Road	X	A	A		X	X
Oxbow Powerhouse Road	X	A	A		X	X
Ralston - Oxbow Tunnel Intake Road	X	A	A		X	X
Ralston Afterbay Private Boat Ramp Road	X	A	A			X
Ralston Afterbay Dam and Access Point Road	X	A	A		X	X

Table 4-5. Proposed Action - Description of Routine Maintenance at Project Roads and Trails (continued).

Project Road or Trail [Items in red represent a change from the No-Action Alternative]	Annual Road and Trail Maintenance ¹		Vegetation Management		Pest Mgmt	Periodic Road and Trail Maintenance ³
	Annual Road and Trail Maintenance ¹	Trimming by Hand	Trimming w/Equipment	Herbicide Use	Noxious Weed Management ²	
Project Trails						
Duncan Creek Area						
Duncan Creek Diversion Dam North Trail	X	A				X
Duncan Creek Diversion Dam South Trail	X	A				X
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	X	A				X
Duncan Creek Gage and Weir above Diversion Trail	X	A				X
Duncan Creek Gage and Weir below Diversion Trail	X	A		I		X
Hell Hole Area						
Rubicon River Gage at Ellicott Bridge Trail (existing, added to MFP) ⁵	X	A				X
Long Canyon Area						
North Fork Long Canyon Creek Gage below Diversion Dam Trail (new) ⁴	X	A				X
South Fork Long Canyon Creek Gage below Diversion Dam Trail (new) ⁴	X	A				X
Middle Fork Interbay Area						
Middle Fork American River Gage above Middle Fork Powerhouse Trail	X	A			X	X
Passive Microwave Reflector Station above Middle Fork Interbay Trail	X	A				X
Middle Fork American River Gage below Interbay Dam Trail (new) ⁴	X	A				X
Ralston Afterbay Area						
Passive Microwave Reflector Station above Ralston Afterbay Trail	X	A			X	X
Rubicon River Gage above Ralston Powerhouse Trail (existing, added to MFP) ⁵	X	A				X
North Fork American River Gage above American River Pump Station Trail (new) ⁴	X	A				X

A = Activity occurs on an annual basis.

I = Activity occurs on an infrequent basis.

X = Activity occurs or ancillary facility is present.

¹Annual maintenance generally includes, but is not limited to, the following types of activities: debris removal; vegetation management; noxious weed control; basic repairs, including filling of potholes; maintenance of erosion control features such as culverts, drains, ditches, and water bars; repair, replacement, or installation of access control structures such as posts, cables, rails, gates, and barrier rock; repair and replacement of signage; and snow removal and sanding.

²Indicates areas where manual and chemical treatment of target noxious weed populations will be implemented. Manual and chemical treatments may be completed at other locations during the term of the license if new target noxious weed populations are identified during inventory surveys.

³Periodic maintenance generally includes, but is not limited to, the following types of activities: placement or replacement of culverts and other drainage features; bridge deck or ford replacement; major road repairs; grading; sealing; resurfacing; road replacement; and hazard tree removal.

⁴This facility or feature will be constructed under the Proposed Action.

⁵Existing gage or trail now required for Project operation and maintenance.

Table 4-6. Proposed Action - Description of Routine Maintenance at Project Recreation Facilities and Features.¹

Recreation Facility or Feature <i>[Items in red represent a change from the No-Action Alternative]</i>	Recreation Facility Annual Maintenance ²	Vegetation Management		Pest Mgmt	Recreation Facility Heavy Maintenance ⁴
		Trimming by Hand	Fungicide Use	Noxious Weed Management ³	
Duncan Area					
Duncan Creek Diversion Primitive Recreation Site (new)	X	A			X
French Meadows Area					
Ahart Campground (enhanced)	X	A	I		X
Coyote Group Campground	X	A	I		X
Poppy Campground (reduced)	X	A	I		X
French Meadows Campground	X	A	I		X
Gates Group Campground	X	A	I		X
Lewis Campground	X	A	I		X
French Meadows Picnic Area	X	A	I		X
French Meadows Boat Ramp (enhanced)	X	A	I	X	X
French Meadows Dump Station	X				X
McGuire Picnic Area and Beach (converted) ⁵	X				X
McGuire Group Campground (new)	X	A	I		X
McGuire Boat Ramp and Associated Parking (modified)	X	A	I		X
Hell Hole Area					
Big Meadows Campground	X	A	I	X	X
Hell Hole Campground (reduced)	X	A	I		X
Upper Hell Hole Campground (removed)	X	A	I		X
Hell Hole Vista	X	A	I		X
Hell Hole Boat Ramp (enhanced)	X	A		X	X
Hell Hole General Parking Area and Hell Hole Boat Ramp Parking Area	X	A		X	X
Ralston Afterbay Area					
Ralston Picnic Area (reduced)	X	A		X	X
Ralston Picnic Area Cartop Boat Ramp	X	A		X	X
Ralston Afterbay Sediment Removal Access Point Boat Ramp (new) ⁶	X	A		X	X
Indian Bar Rafting Access and General Parking (enhanced)	X	A		X	X
Long Canyon Area					
Middle Meadows Group Campground	X	A	I	X	X
Project Recreation Facility Water Supplies and Associated Maintenance Trails					
Dolly Creek Water Supply	X	I			X
French Meadows Campground Water Supply and Trail	X	I			X
Big Meadows Campground Water Supply and Trail	X	I			X
Middle Meadows Group Campground Water Supply and Trail	X	I			X

A = Activity implemented annually throughout the year.

I = Activity implemented on an infrequent basis.

X = Activity is implemented.

¹Project recreation facility and feature maintenance includes maintenance of recreation facility access roads at Project recreation facilities.

²Annual maintenance includes: site cleaning; basic repairs and maintenance of facility features; garbage clean-up; signing; toilet cleaning and restocking; toilet pumping; graffiti removal; removal of debris from boat ramps; basic maintenance of pathways; routine testing of water supplies; annual winterizing and opening activities; and hazard tree

³Indicates areas where manual and chemical treatment of target noxious weed populations will be implemented. Manual and chemical treatments may be completed at other locations during the term of the license in new target noxious weed populations are identified during inventory surveys.

⁴Heavy maintenance includes: repair and resurfacing of parking areas and spurs; repair or replacement of barrier structures and devices; repair and/or replacement of site/facility amenities; repair and replacement of signage, information boards, and fee tubes; repair, maintenance, and painting of bathroom structures; repair and maintenance of potable water supplies and distribution lines; repair and maintenance of septic systems; repair and sealing of boat ramps; repair or installation of retaining walls; site leveling and removal of obstacles; fuels reduction; and maintenance of pathways.

⁵This facility will be converted to the McGuire Group Campground.

⁶This facility replaces the Ralston Afterbay Sediment Removal Access Point.

FIGURES

Figure 4-1. Benefits of the Proposed Action.

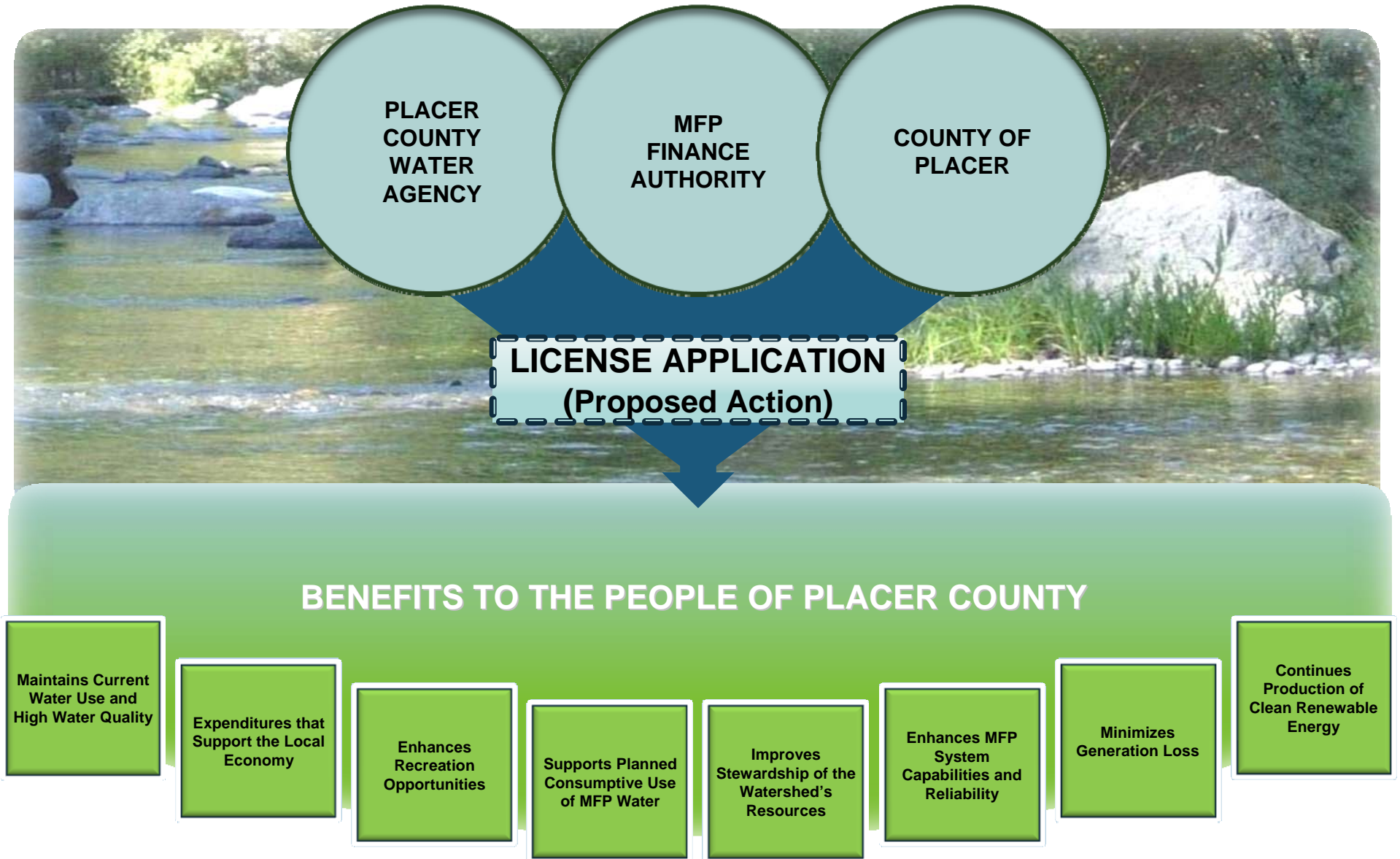
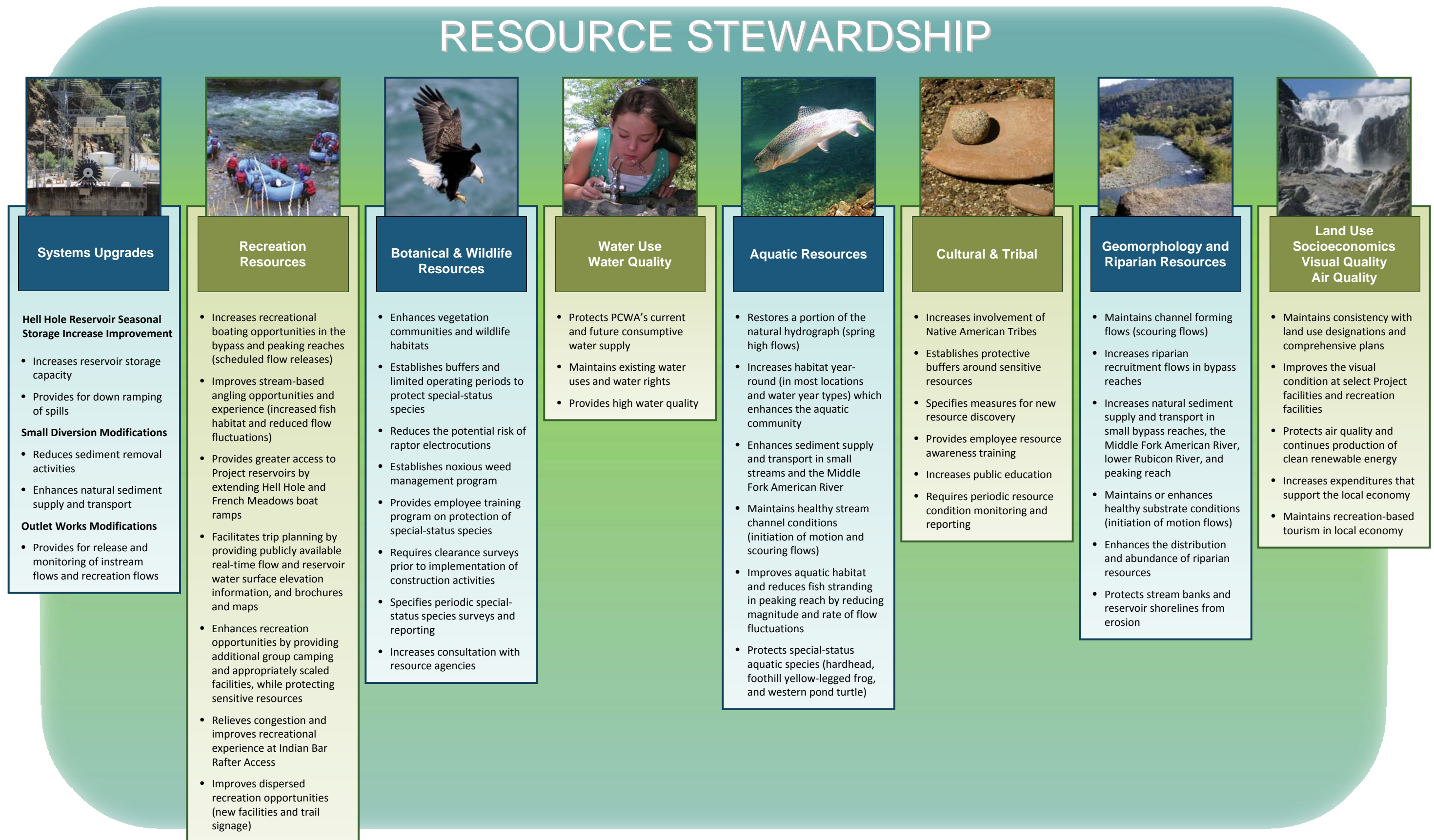


Figure 4-2. Resource Stewardship Provided by the Proposed Action.



MAPS