



featherriver.org

UPPER FEATHER RIVER IRWM PROJECT INFORMATION FORM

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Please submit by 5:00 p.m. on August 3, 2015, to UFR.contact@gmail.com

Please provide information in the tables below:

I. PROJECT PROPONENT INFORMATION

| | |
|--|--|
| Agency / Organization | W.M. Beaty & Associates |
| Name of Primary Contact | Ryan Hilburn |
| Name of Secondary Contact | |
| Mailing Address | P.O. Box 1714 |
| E-mail | ryanh@wmbeaty.com |
| Phone | (530) 257-7191 |
| Other Cooperating Agencies / Organizations / Stakeholders | Lassen County Fire Safe Council |
| Is your agency/organization committed to the project through completion? If not, please explain | Yes |

II. GENERAL PROJECT INFORMATION

| | |
|--|--|
| Project Title | UF-10: Greenville Creek Biomass |
| Project Category | <input type="checkbox"/> Agricultural Land Stewardship <input type="checkbox"/> Floodplains/Meadows/Waterbodies <input type="checkbox"/> Municipal Services <input type="checkbox"/> Tribal Advisory Committee <input checked="" type="checkbox"/> Uplands/Forest |
| Project Description (Briefly describe the project, in 300 words or less) | The project would provide for biomass harvesting to be conducted on approximately 1,350 acres of private forestland that is adjacent to a recently funded pond and plug project on Greenville Creek which flows into Mountain Meadows Reservoir. This project will be designed to enhance this work by reducing the density of small understory trees, which will reduce the amount of evapotranspiration and canopy interception providing for increased infiltration into the soil. The project will also reduce fuel levels on the northern slopes of Keddie Ridge reducing the risk of catastrophic wildfire in that area protecting resources such as Deerheart and Homer Lakes. The project can be conducted in phases over a time period of 1 to 5 years. |
| Project Location Description (e.g., along the south bank of stream/river) | The project is located on timberlands adjacent to the south eastern portion of Mountain Meadows Reservoir. |

| | |
|---|---|
| between river miles or miles from Towns/intersection and/or address): | Approximately 7 miles south east of Westwood, CA. |
| Latitude: | 40° 14' 03" North |
| Longitude: | 120° 53' 38" West |

III. APPLICABLE IRWM PLAN OBJECTIVES ADDRESSED

For each of the objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective and how the project outcomes will be quantified. If the project does not address *any* of the IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the Region.

| Upper Feather River IRWM Objectives: | Will the project address the objective? | Brief explanation of project linkage to selected Objective | Quantification (e.g. acres of streams/wetlands restored or enhanced) |
|--|---|--|---|
| Restore natural hydrologic functions. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A | The biomass harvest will restore the forest to densities similar to what was found prior to fire suppression activities. These decreased densities will result in a decrease in evapotranspiration and interception resulting in a hydrologic function similar to historic hydrologic functions. | 1350 acres treated. |
| Reduce potential for catastrophic wildland fires in the Region. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A | This project will remove ladder fuels and reduce continuity in the canopy. This will reduce the risk of catastrophic fire in the watershed. | 1350 acres treated. |
| Build communication and collaboration among water resources stakeholders in the Region. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Work with DWR to develop strategies and actions for the management, operation, and control of SWP facilities in the Upper Feather River Watershed in order to increase water supply, recreational, and environmental benefits to the Region. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Encourage municipal service providers to participate in regional water management | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A | The project could be a demonstration for the use of sound forest management as a | 1350 acres treated |

| Upper Feather River IRWM Objectives: | Will the project address the objective? | Brief explanation of project linkage to selected Objective | Quantification (e.g. acres of streams/wetlands restored or enhanced) |
|--|---|---|--|
| actions that improve water supply and water quality. | | tool to provide for increased water supply and improved water quality. | |
| Continue to actively engage in FERC relicensing of hydroelectric facilities in the Region. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Address economic challenges of municipal service providers to serve customers. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the RWQC Basin Plan. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A | All timber harvest projects are conducted under a Waiver of Waste Discharge issued by the RWQCB and as such are consistent with the basin plan. | 1350 acres treated |
| Address water resources and wastewater needs of DACs and Native Americans. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Coordinate management of recharge areas and protect groundwater resources. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Improve coordination of land use and water resources planning. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Maximize agricultural, environmental and municipal water use efficiency. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Effectively address climate change adaptation and/or mitigation in water resources management. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Improve efficiency and reliability of water supply and other water-related infrastructure. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Enhance public awareness and understanding of water management issues and needs. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Address economic challenges of agricultural producers. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |
| Work with counties/ | <input type="checkbox"/> Yes | | |

| Upper Feather River IRWM Objectives: | Will the project address the objective? | Brief explanation of project linkage to selected Objective | Quantification (e.g. acres of streams/wetlands restored or enhanced) |
|--|---|--|--|
| communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding. | <input checked="" type="checkbox"/> N/A | | |

If no objectives are addressed, describe how the project relates to a challenge or opportunity for the Region:

IV. PROJECT IMPACTS AND BENEFITS

Please provide a summary of the expected project benefits and impacts in the table below or check N/A if not applicable; **do not leave a blank cell**. Note that DWR encourages multi-benefit projects.

| If applicable, describe benefits or impacts of the project with respect to: | | |
|--|---|---|
| a. Native American Tribal Communities | <input checked="" type="checkbox"/> N/A | |
| b. Disadvantaged Communities ¹ | <input type="checkbox"/> N/A | The project is located in close proximity to the town of Westwood. |
| c. Environmental Justice ² | <input checked="" type="checkbox"/> N/A | |
| d. Drought Preparedness | <input checked="" type="checkbox"/> N/A | |
| e. Assist the region in adapting to effects of climate change ³ | <input type="checkbox"/> N/A | The project will reduce the risk of catastrophic wildfire. |
| f. Generation or reduction of greenhouse gas emissions (e.g. green technology) | <input type="checkbox"/> N/A | This project when considered in regards to the reduced risk of wildfire will result in a net reduction of greenhouse gas emissions. |
| g. Other expected impacts or benefits that are not already mentioned elsewhere | <input checked="" type="checkbox"/> N/A | |

¹ A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. DWR’s DAC mapping is available on the UFR website (<http://featherriver.org/maps/>) .

² Environmental Justice is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations and policies. An example of environmental justice benefit would be to improve conditions (e.g. water supply, flooding, sanitation) in an area of racial minorities.

³ Climate change effects are likely to include increased flooding, extended drought, and associated secondary effects such as increased wildfire risk, erosion, and sedimentation.

DWR encourages multiple benefit projects which address one or more of the following elements (PRC §75026(a)). Indicate which elements are addressed by your project.

| | | | |
|---|---|--|---|
| a. Water supply reliability, water conservation, water use efficiency | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | g. Drinking water treatment and distribution | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| b. Stormwater capture, storage, clean-up, treatment, management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | h. Watershed protection and management | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A |
| c. Removal of invasive non-native species, creation/enhancement of wetlands, acquisition/protection/restoration of open space and watershed lands | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A | i. Contaminant and salt removal through reclamation/desalting, other treatment technologies and conveyance of recycled water for distribution to users | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| d. Non-point source pollution reduction, management and monitoring | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | j. Planning and implementation of multipurpose flood management programs | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A |
| e. Groundwater recharge and management projects | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | k. Ecosystem and fisheries restoration and protection | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A |
| f. Water banking, exchange, reclamation, and improvement of water quality | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A | | |

V. RESOURCE MANAGEMENT STRATEGIES

For each resource management strategy (RMS) employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the RMS can be found in Volume 2 of the 2013 California Water Plan (<http://featherriver.org/2013-california-water-plan-update/>).

| Resource Management Strategy | Will the Project incorporate RMS? | Description of how RMS to be employed, if applicable |
|---|---|--|
| Reduce Water Demand | | |
| Agricultural Water Use Efficiency | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Urban water use efficiency | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Improve Flood Management | | |
| Flood management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Improve Operational Efficiency and Transfers | | |
| Conveyance – regional/local | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| System reoperation | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |

| Resource Management Strategy | Will the Project incorporate RMS? | Description of how RMS to be employed, if applicable |
|---|---|---|
| Water transfers | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Increase Water Supply | | |
| Conjunctive management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Precipitation Enhancement | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Municipal recycled water | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Surface storage – regional/local | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Improve Water Quality | | |
| Drinking water treatment and distribution | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Groundwater remediation/aquifer remediation | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Matching water quality to water use | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Pollution prevention | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Fuels reduction; reduction in catastrophic fire potential and resultant pollution impacts |
| Salt and salinity management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Urban storm water runoff management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Practice Resource Stewardship | | |
| Agricultural land stewardship | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Ecosystem restoration | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Biomass harvest will aid in the restoration of the ecosystem to a condition similar to those found prior to current fire suppression practices. |
| Forest management | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | The biomass harvest will target those trees that are suppressed and most susceptible to insects and disease. This will help to promote a healthy forest while reducing the risk of catastrophic wildfire. |
| Land use planning and management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Recharge area protection | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Biomass harvest will aid in the restoration of the ecosystem to a condition similar to those found prior to current fire suppression practices, thereby improving recharge area functionality. |
| Sediment management | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Watershed management | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Project is designed to reduce hazardous fuel profiles, reduce risk of high severity stand-replacing fire, and improve forest conditions within the watershed |
| People and Water | | |
| Economic incentives | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Outreach and engagement | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Water and culture | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |

| Resource Management Strategy | Will the Project incorporate RMS? | Description of how RMS to be employed, if applicable |
|------------------------------|---|--|
| Water-dependent recreation | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| Wastewater/NPDES | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |

Other RMS addressed and explanation:

VI. PROJECT COST AND FINANCING

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs, as well as the source of the project cost in the table below.

| PROJECT BUDGET | | | | | |
|--|---|------------------------|--|---------------------------------------|------------|
| Project serves a need of a DAC?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| Funding Match Waiver request?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | Category | Requested Grant Amount | Cost Share: Non-State Fund Source* (Funding Match) | Cost Share: Other State Fund Source* | Total Cost |
| a. | Direct Project Administration | \$2,400 | | | \$2,400 |
| b. | Land Purchase/Easement | 0 | | | 0 |
| c. | Planning/Design/Engineering / Environmental | \$1,200 | | | \$1,200 |
| d. | Construction/Implementation | \$337,500 | | | \$337,500 |
| e. | Environmental Compliance/ Mitigation/Enhancement | 0 | | | 0 |
| f. | Construction Administration | \$4,530 | | | \$4,530 |
| g. | Other Costs | | | | |
| h. | Construction/Implementation Contingency | | | | |
| i. | Grand Total (Sum rows (a) through (h) for each column) | \$345,630 | | | \$345,630 |
| j. | Can the Project be phased? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, provide cost breakdown by phases | | | | |
| | | Project Cost | O&M Cost | Description of Phase | |
| | Phase 1 | \$86,400 | | Treatment of approximately 340 acres. | |
| | Phase 2 | \$86,400 | | Treatment of approximately 340 acres. | |
| | Phase 3 | \$86,400 | | Treatment of approximately 340 acres. | |
| | Phase 4 | \$86,400 | | Treatment of approximately | |

| | | | |
|--|--|---|------------|
| | | | 340 acres. |
| k. | Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded). | The forested area will be maintained by the landowner through periodic biomass and timber harvests. | |
| l. | Has a Cost/Benefit analysis been completed? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| m. | Describe what impact there may be if the project is not funded (300 words or less) | The timber stands in the watershed will remain in an overstocked condition with fuel levels that are conducive to catastrophic wildfire. A catastrophic wildfire in this area would result in significant adverse impacts to water quality. | |
| <p>*List all sources of funding. Note: See Project Development Manual, Exhibit B, for assistance in completing this table (http://featherriver.org/documents/).</p> | | | |

VIII. PROJECT STATUS AND SCHEDULE

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage. If unknown, enter **TBD**.

| Project Stage | Check the Current Project Stage | Completed? | Description of Activities in Each Project Stage | Planned/ Actual Start Date (mm/yr) | Planned/ Actual Completion Date (mm/yr) |
|--|-------------------------------------|--|--|------------------------------------|---|
| a. Assessment and Evaluation | <input type="checkbox"/> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | | |
| b. Final Design | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | | | |
| c. Environmental Documentation (CEQA / NEPA) | <input type="checkbox"/> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Completion of appropriate biological and archaeological surveys. | 1/16 | 5/16 |
| d. Permitting | <input type="checkbox"/> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Preparation of appropriate harvest documents for submittal to CAL FIRE. | 5/16 | 5/16 |
| e. Construction Contracting | <input type="checkbox"/> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Prepare bid package for contractors and develop an agreement with a purchaser. | 6/16 | 6/16 |
| f. Construction Implementation | <input type="checkbox"/> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Conduct biomass harvest. | 6/16 | 9/16 |

| | |
|---|--|
| <p>Provide explanation if more than one project stage is checked as current status</p> | |
|---|--|

IX. PROJECT TECHNICAL FEASIBILITY

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project. See www.featherriver.org/catalog/index.php for documents gathered on the UFR Region.

| | |
|---|--|
| <p>a. List the adopted planning documents the proposed project is consistent with or supported by (e.g. General Plans, UWMPs, GWMPs, Water Master Plan, Habitat Conservation Plans, TMDLs, Basin Plans, etc.).</p> | |
| <p>b. List technical reports and studies supporting the feasibility of this project.</p> | <p>Bales et al 2011. Forests and Water in the Sierra Nevada. SWEEP, Sierra Nevada Research Institute Report 11.1</p> <p>Biswell H and J Agee, 1989. Prescribed Burning in California Wildlands Vegetation Management. Univ. of California Press.</p> <p>Bohm, B., 2008. Canopy interception in a coniferous forest in eastern Plumas County, California. Final Technical Summary Report. Prepared for Brian Morris, Plumas County Flood Control and Water Conservation District. Plumas Geo-Hydrology, July 28, 2008.</p> <p>Bosch, J.M. and Hewlett, J.D., 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. J. of Hydrology, 103: 323-333.</p> <p>Dunne, T. and Leopold, L.B., 1978, Water in environmental planning. W.H. Freeman and Company. New York. 814 pages.</p> <p>Miralles et al. 2010. EOS, Vol. 91, No. 43, page 404, 26 Oct., 2010.</p> <p>Pruitt, W.O., Freres, E., Snyder, R.L., 1987, Reference Evapotranspiration (ET_o) for California. Agricultural Experiment Station, University of California. Bulletin 1922.</p> |

| | |
|---|--|
| | <p>Sahin V and M J Hall, 1996. The effects of afforestation and deforestation on water yields. Journal of Hydrology 178 (1996) 293-309.</p> <p>Troendle et al 2007 Impacts of Vegetation Management on Water Yield. The Herger-Feinstein Quincy Library Group Project</p> |
| <p>c. Concisely describe the scientific basis (e.g. how much research has been conducted) of the proposed project in 300 words or less.</p> | <p>As shown above numerous studies have been conducted that show that a reduction in forest canopy results in reduced interception which increases groundwater recharge and streamflow.</p> |
| <p>d. Does the project implement green technology (e.g. alternate forms of energy, recycled materials, LID techniques, etc.).</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>If yes, please describe.</p> <p>The harvest will result in the production of wood chips which will be transported to a local co-generation plant where it will be burned to generate power.</p> |
| <p>e. Are you an Urban Water Supplier¹?</p> | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</p> |
| <p>f. Are you are an Agricultural Water Supplier²?</p> | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</p> |
| <p>g. Is the project related to groundwater?</p> | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>If yes, please indicate which groundwater basin.</p> |
| <p>¹ Urban Water Supplier is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually.</p> <p>² Agricultural Water Supplier is defined as a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding the acreage that receives recycled water.</p> | |

Climate Change – Project Assessment Checklist

This climate change project assessment tool allows project applicants and the planning team to assess project consistency with Proposition 84 plan standards and RWMG plan assessment standards. The tool is a written checklist that asks GHG emissions and adaptation/resiliency questions.

Name of project: UF-10: Greenville Creek Biomass

Project applicant: W. M. Beatty and Associates

GHG Emissions Assessment

Project Construction Emissions

(If you check any of the boxes, please see the attached worksheet)

- The project requires nonroad or off-road engines, equipment, or vehicles to complete.
- The project requires materials to be transported to the project site.
- The project requires workers to commute to the project site.
- The project is expected to generate GHG emissions for other reasons.
- The project does not have a construction phase and/or is not expected to generate GHG emissions during the construction phase.

Operating Emissions

(If you check any of the boxes, please see the attached worksheet)

- The project requires energy to operate.
- The project will generate electricity.
- The project will proactively manage forests to reduce wildfire risk.
- The project will affect wetland acreage.
- The project will include new trees.
- Project operations are expected to generate or reduce GHG emissions for other reasons.

Adaptation & Resiliency Assessment

Water Supply

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water supply vulnerability issues:

- Not applicable
- Reduced snowmelt
- Unmet local water needs (drought)
- Increased invasive species

More resilient by improving available soil moisture for surrounding trees, and by enhancing recharge to groundwater aquifers.

Water Demand

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water demand vulnerability issues:

- Not applicable
- Increasing seasonal water use variability
- Unmet in-stream flow requirements
- Climate-sensitive crops
- Groundwater drought resiliency
- Water curtailment effectiveness

More resilient by creating more availability of groundwater to feed nearby streams and by reducing water stress for water dependent vegetation.

Water Quality

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water quality vulnerability issues:

- Not applicable
- Increasing catastrophic wildfires
- Eutrophication (excessive nutrient pollution in a waterbody, often followed by algae blooms and other related water quality issues)
- Seasonal low flows and limited abilities for waterbodies to assimilate pollution
- Water treatment facility operations
- Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

More resilient by reductions in catastrophic wildfires and associated reductions in severely burned soils and erosion related impairments to water quality. And more resilient through increased seasonal low flows to nearby streams and aquifers from reducing fire-prone conifer densities. Reduced forest densities in turn, reduce evapotranspiration competition and water stress levels for retained mature vegetation, including streamside vegetation, during the growing season. And more resilient by making more water available for beneficial uses through enhanced stormwater infiltration and groundwater recharge to forest soils and aquifers during the dormant season. Cold freshwater spawning habitat and wildlife habitat is enhanced by stream cooling in the summer that results from higher inputs of shallow groundwater to nearby streams and through enhanced shading and temperature moderation by well-watered streamside vegetation.

Flooding

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority flooding vulnerability issues:

- Not applicable
- Aging critical flood protection
- Wildfires
- Critical infrastructure in a floodplain
- Insufficient flood control facilities

More resilient through less risk of “fire, flood, and mud” effects to downslope water bodies from large areas of severely burned forest stands and soils.

Ecosystem and Habitat

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority ecosystem and habitat vulnerability issues:

- Not applicable
- Climate-sensitive fauna or flora
- Recreation and economic activity
- Quantified environmental flow requirements
- Erosion and sedimentation
- Endangered or threatened species
- Fragmented habitat

More resilient from less erosion and sedimentation caused by severe wildfires. More resilient to habitat fragmentation by wildfire that is so severe and extensive that large acreages of mature forest habitats are converted into non-forest conditions, thereby reducing habitat availability and habitat connectivity for the iconic fish and wildlife species that are dependent on connected mosaics of mature forest habitats.

Hydropower

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority hydropower vulnerability issues:

- Not applicable
- Reduced hydropower output

May be applicable where fuels reduction projects at a landscape scale are effective in enhancing measureable summer flows in hydropower source watersheds (e.g. the North Fork Feather River that drains to Pulga, or in the watersheds draining to Lake Oroville on the Middle Fork of the Feather River below Sierra Valley.

Upper Feather River IRWMP
Project Assessment - GHG Emissions Analysis

UF-10: Greenville Creek Biomass

GHG Emissions Analysis

Project Construction Emissions

The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

| Type of Equipment | Maximum Number Per Day | Total 8-Hour Days in Operation | Total MTCO ₂ e |
|------------------------------|------------------------|--------------------------------|---------------------------|
| Rubber Tired Loaders | 2 | 134 | 108 |
| Excavators | 1 | 134 | 59 |
| Excavators | 1 | 134 | 59 |
| Other Construction Equipment | 1 | 134 | 11 |
| | | | 0 |
| | | | 0 |
| | | | 0 |
| | | | 0 |
| | | | 0 |
| | | | 0 |
| Total Emissions | | | 236 |

The project requires **biomass** materials to be transported outside of the UFR watershed. If yes:

| Total Number of Round Trips | Average Trip Distance (Miles) | Total MTCO ₂ e |
|-----------------------------|-------------------------------|---------------------------|
| 1,104 | 43 | 73 |

The project requires workers from outside of the UFR watershed. If yes:

| Average Number of Workers | Total Number of Workdays | Average Round Trip Distance Traveled (Miles) | Total MTCO ₂ e |
|---------------------------|--------------------------|--|---------------------------|
| | | | 0 |

The project is expected to generate GHG emissions for other reasons. If yes, explain:

The project does not have a construction phase and/or is not expected to generate GHG emissions during the construction phase.

Upper Feather River IRWMP
Project Assessment - GHG Emissions Analysis

UF-10: Greenville Creek Biomass

Project Operating Emissions

The project requires energy to operate. If yes:

| Annual Energy Needed | Unit | Total MTCO ₂ e |
|----------------------|---------------------|---------------------------|
| | kWh (Electricity) | 0 |
| | Therm (Natural Gas) | 0 |

The project will generate electricity. If yes:

| Annual kWh Generated | Total MTCO ₂ e |
|----------------------|---------------------------|
| | 0 |

*A negative value indicates GHG reductions

The project will proactively manage forests to reduce wildfire risk. If yes:

| Acres Protected from Wildfire | Total MTCO ₂ e |
|-------------------------------|---------------------------|
| 1,350 | -8,505 |

*A negative value indicates GHG reductions

The project will affect wetland acreage. If yes:

| Acres of Protected Wetlands | Total MTCO ₂ e |
|-----------------------------|---------------------------|
| | 0 |

*A negative value indicates GHG reductions

The project will include new trees. If yes:

| Acres of Trees Planted | Total MTCO ₂ e |
|------------------------|---------------------------|
| | 0 |

*A negative value indicates GHG reductions

GHG Emissions Summary

| | |
|---|----------------------------|
| Construction and development will generate approximately: | 309 MTCO ₂ e |
| In a given year, operation of the project will result in: | -8,505 MTCO ₂ e |