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## 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](mailto:UFR.contact@gmail.com)

Please provide information in the tables below:

#### I. PROJECT PROPONENT INFORMATION

<b>Agency / Organization</b>	Sierra County Road Department
<b>Name of Primary Contact</b>	Tim Beals
<b>Name of Secondary Contact</b>	Bryan Davey
<b>Mailing Address</b>	P.O. Box 98 Downieville, CA 95936
<b>E-mail</b>	tbeals@sierracounty.ca.gov
<b>Phone</b>	530-289-3201
<b>Other Cooperating Agencies / Organizations / Stakeholders</b>	US Forest Service, SVRCD, CA Fish and Wildlife
<b>Is your agency/organization committed to the project through completion? If not, please explain</b>	Yes

#### II. GENERAL PROJECT INFORMATION

<b>Project Title</b>	MS-33:Sierra County Road Improvements
<b>Project Category</b>	<input type="checkbox"/> <b>Agricultural Land Stewardship</b> <input type="checkbox"/> <b>Floodplains/Meadows/Waterbodies</b> <input checked="" type="checkbox"/> <b>Municipal Services</b> <input type="checkbox"/> <b>Tribal Advisory Committee</b> <input type="checkbox"/> <b>Uplands/Forest</b>
<b>Project Description</b> (Briefly describe the project, in 300 words or less)	Drain stormwater on several County roads by installing culverts and drains, building small detention basins, creating drainages, implementing stream bank and land erosion control measures and reestablishing historic flows.
<b>Project Location Description</b> (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	Sierra County County maintained roads: Smithneck Road, Antelope Road, Old Truckee Road, Lemon Canyon Road, Campbell Hot Springs Road, Henness Pass Road (Little Truckee OHV), West Willow, A-23, Heriot Lane, A-24, Calpine Cutoff
<b>Latitude:</b>	39.47327
<b>Longitude:</b>	-120.84616

### 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.

<b>Upper Feather River IRWM Objectives:</b>	<b>Will the project address the objective?</b>	<b>Brief explanation of project linkage to selected Objective</b>	<b>Quantification (e.g. acres of streams/wetlands restored or enhanced)</b>
Restore natural hydrologic functions.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Restore historic flows and restore meadow/wetlands. Implement stabilization measures to stream banks and hillsides to reduce erosion and resulting sedimentation and turbidity in local creeks and the North Fork of the Feather River.	
Reduce potential for catastrophic wildland fires in the Region.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		
Build communication and collaboration among water resources stakeholders in the Region.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	This project is a collaborative effort of the following entities/agencies: USFS, California FWS, SVRCD, who all support and contribute to improvements to Public Land Resources.	
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 actions that improve water supply and water quality.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A		
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	<input type="checkbox"/> Yes		

<b>Upper Feather River IRWM Objectives:</b>	<b>Will the project address the objective?</b>	<b>Brief explanation of project linkage to selected Objective</b>	<b>Quantification</b> (e.g. acres of streams/wetlands restored or enhanced)
of municipal service providers to serve customers.	<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	Install storm runoff control management practices and sediment traps, restore flows truncated by roads, improve water quality, and implement meadow restoration. The project benefits wildlife and fisheries.	
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Many road drainages are adjacent to recharge areas and meadows. These meadows and wetlands will be restored and protected by this project,	
Improve coordination of land use and water resources planning.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	County, State and Federal Agencies will coordinate efforts to benefit natural resources through this project.	
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/communities/groups to make sure staff capacity exists for	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A	Sierra County Road Department, and our collaborators, US Forest	

<b>Upper Feather River IRWM Objectives:</b>	<b>Will the project address the objective?</b>	<b>Brief explanation of project linkage to selected Objective</b>	<b>Quantification</b> (e.g. acres of streams/wetlands restored or enhanced)
actual administration and implementation of grant funding.		Service, SVRCD, CA Fish and Wildlife Service, will ensure the staff capacity to successfully administer and implement of this grant project.	

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.

<b>If applicable, describe benefits or impacts of the project with respect to:</b>		
<b>a. Native American Tribal Communities</b>	<input checked="" type="checkbox"/> N/A	
<b>b. Disadvantaged Communities<sup>1</sup></b>	<input checked="" type="checkbox"/> N/A	
<b>c. Environmental Justice<sup>2</sup></b>	<input checked="" type="checkbox"/> N/A	
<b>d. Drought Preparedness</b>	<input type="checkbox"/> N/A	Improvements will restore and/or direct previously impaired systems into watercourses or meadow areas.
<b>e. Assist the region in adapting to effects of climate change<sup>3</sup></b>	<input checked="" type="checkbox"/> N/A	
<b>f. Generation or reduction of greenhouse gas emissions (e.g. green technology)</b>	<input checked="" type="checkbox"/> N/A	
<b>g. Other expected impacts or benefits that are not already mentioned elsewhere</b>	<input checked="" type="checkbox"/> N/A	

<sup>1</sup> 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/>) .

<sup>2</sup> 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.

<sup>3</sup> 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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input 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/>).

<b>Resource Management Strategy</b>	<b>Will the Project incorporate RMS?</b>	<b>Description of how RMS to be employed, if applicable</b>
<b>Reduce Water Demand</b>		
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	
<b>Improve Flood Management</b>		
Flood management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reduced erosion and sediment in waterways and better flood management through improved drainages guiding water to meadows/wetlands.
<b>Improve Operational Efficiency and Transfers</b>		
Conveyance – regional/local	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
System reoperation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Water transfers	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Increase Water Supply</b>		
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	
<b>Improve Water Quality</b>		
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Salt and salinity management	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Urban storm water runoff management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Road drainages will be better controlled and properly discharged.
<b>Practice Resource Stewardship</b>		
Agricultural land stewardship	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Ecosystem restoration	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reduced stream bank erosion and reduced sedimentation and turbidity in Indian Creek improve cold freshwater habitat and spawning grounds.
Forest management	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Land use planning and management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Best Management Practices (BMPs) will be implemented, and the operation and maintenance of those BMPs will foster

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		coordination among various agencies.
Recharge area protection	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Sediment management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reduced sediment in creeks & rivers
Watershed management	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Improved management of drainages and meadows/wetlands will result in improved watershed health and values
<b>People and Water</b>		
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	
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:

<p>Water Quality improvements, reduce or eliminate drainage overflow onto County Roads, improve floodplain function</p>
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**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.

<b>PROJECT BUDGET</b>					
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	\$5,000	10,000 County Road Fund	0	\$15,000
b.	Land Purchase/Easement	0	0	0	0
c.	Planning/Design/Engineering / Environmental	\$25,000	0	0	\$25,000
d.	Construction/Implementation	\$400,000	0	0	\$400,000
e.	Environmental Compliance/Mitigation/Enhancement	\$5,000	5,000 County Road Fund	0	\$10,000
f.	Construction Administration	\$15,000	0	0	\$15,000
g.	Other Costs	0	0	0	0
h.	Construction/Implementation Contingency	\$45,000	1,500 County Road Fund	0	\$46,500
		<i>(10% of total)</i>			
i.	<b>Grand Total (Sum rows (a) through (h) for each column)</b>	\$495,000	16,500 Sierra County Road Fund	0	\$511,500
j.	<b>Can the Project be phased?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <b>If yes, provide cost breakdown by phases</b>				
		<b>Project Cost</b>	<b>O&amp;M Cost</b>	<b>Description of Phase</b>	
	<b>Phase 1</b>	\$170,500	No O&M anticipated during first year	Year 1: Approximately 1/3 of implementation: install culverts, drain pipes, rip rap, and other BMPs to enhance watershed function and reduce flooding of some County roads included in this project.	
<b>Phase 2</b>	\$170,500	TBD	Year 2: Approximately 1/3 of implementation: install culverts, drain pipes, rip rap, and other BMPs to enhance watershed function and reduce flooding of some County roads included in this		



				project.
	<b>Phase 3</b>	\$170,500	TBD	Year 1: Approximately 1/3 of implementation: install culverts, drain pipes, rip rap, and other BMPs to enhance watershed function and reduce flooding of some County roads included in this project.
	<b>Phase 4</b>			
<b>k.</b>	<b>Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).</b>		Annual County budget	
<b>l.</b>	<b>Has a Cost/Benefit analysis been completed?</b>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>m.</b>	<b>Describe what impact there may be if the project is not funded (300 words or less)</b>		Continued bank erosion, water turbidity, and flooding.	
*List all sources of funding. Note: See Project Development Manual, Exhibit B, for assistance in completing this table ( <a href="http://featherriver.org/documents/">http://featherriver.org/documents/</a> ).				

### 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)
<b>a. Assessment and Evaluation</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Specific site ID, Agency coordination, develop scope of work	Within 60 days of grant procurement	1-3 years after grant funding secured
<b>b. Final Design</b>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Implementation plans and materials lists	Within 180 days of grant procurement	1-3 years after grant funding secured
<b>c. Environmental Documentation (CEQA / NEPA)</b>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Anticipated exemption(s)	Within 365 days of grant procurement	1-3 years after grant funding secured
<b>d. Permitting</b>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	TBD	TBD	1-3 years after grant funding secured
<b>e. Construction Contracting</b>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	N/A Agency work – no contracting required	N/A Force Account	1-3 years after grant funding secured

<b>f. Construction Implementation</b>	<input type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	TBD	TBD	3 years after grant funding secured
<b>Provide explanation if more than one project stage is checked as current status</b>					

### 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](http://www.featherriver.org/catalog/index.php) for documents gathered on the UFR Region.

<b>a. List the adopted planning documents the proposed project is consistent with or supported by</b> (e.g. General Plans, UWMPs, GWMPs, Water Master Plan, Habitat Conservation Plans, TMDLs, Basin Plans, etc.).	Sierra County General Plan, RCD Plan, USFS Forest Plan, RWQCB Basin Plan for the Sacramento and San Joaquin Rivers
<b>b. List technical reports and studies supporting the feasibility of this project.</b>	Smithneck Wildlife Area EIR Antelope and Smithneck CRMP
<b>c. Concisely describe the scientific basis</b> (e.g. how much research has been conducted) <b>of the proposed project in 300 words or less.</b>	For the protection of aquatic species and habitat, sediment loads (TSS, turbidity, etc.) in streams and rivers are regulated by the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) and by established TMDLs. This project will reduce sediment inputs to local waterways in support of compliance with the Basin Plan and established TMDLs.
<b>d. Does the project implement green technology</b> (e.g. alternate forms of energy, recycled materials, LID techniques, etc.).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A If yes, please describe.  Recycled asphalt
<b>e. Are you an Urban Water Supplier<sup>1</sup>?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
<b>f. Are you an Agricultural Water Supplier<sup>2</sup>?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
<b>g. Is the project related to groundwater?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A If yes, please indicate which groundwater basin.
<sup>1</sup> 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. <sup>2</sup> 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.	

## 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: MS-33: Sierra County Road Improvements

Project applicant: Sierra County Road Department

## 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

### 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

### 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.)

Reduced sediment loads and turbidity result in improved cold freshwater habitat and spawning habitat.

### 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

Culverts and BMPs will be implemented to reduce flooding of County roads and runoff of sediment and other possible contaminants into local waterways. The project will reduce erosion and sedimentation and direct drainage water into retention basins/meadows/wetlands for flood management.

### **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

The project when completed will reduce the erosion and sedimentation in waterways, and will restore natural watercourses and meadows/wetlands to improve ecosystem function and habitat for wildlife and fisheries.

### **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

MS-33: Sierra County Road Improvements

**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 <sub>2</sub> e
Excavators	1	5	2
Tractors/Loaders/Bac khoes	2	5	3
Dumpers/Tenders	1	5	0
Off-Highway Trucks	1	5	6
			0
			0
			0
			0
			0
			0
<b>Total Emissions</b>			<b>11</b>

The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total MTCO <sub>2</sub> e
10	30	0

The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total MTCO <sub>2</sub> e
5	10	60	1

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.

MS-33: Sierra County Road Improvements

**Project Operating Emissions**

The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total MTCO <sub>2</sub> e
	kWh (Electricity)	0
	Therm (Natural Gas)	0

The project will generate electricity. If yes:

Annual kWh Generated	Total MTCO <sub>2</sub> 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 <sub>2</sub> e
	0

\*A negative value indicates GHG reductions

The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total MTCO <sub>2</sub> e
	0

\*A negative value indicates GHG reductions

The project will include new trees. If yes:

Acres of Trees Planted	Total MTCO <sub>2</sub> e
0	0

\*A negative value indicates GHG reductions

Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

**GHG Emissions Summary**

Construction and development will generate approximately:	13 MTCO <sub>2</sub> e
In a given year, operation of the project will result in:	0 MTCO <sub>2</sub> e