ROUND 11 CAPITAL PROJECT NOMINATION FORM
LAKE TAHOE FEDERAL SHARE EIP CAPITAL PROJECTS
APPENDIX K

Project Name:	Angora Creek Channel Restoration	**EIP Number:** (***Required***)	985.01
Federal Agency Sponsor: (***Required***)	US Forest Service	**Contact:**	Richard Vacirca
Threshold:	WQ, SC, V, F, W, SR, R	**Phone Number:**	530-543-2768
Threshold Standard:	WQ2&4, SC2, V1, F2-3, W2, SR2	**Email:**	rvacirca@fs.fed.us
FUNDING REQUESTED IN THIS ROUND:	**$** 2,500,000		

Federal Share EIP Consideration

Select "yes" or "no" for each question. If you have a "yes" response, briefly describe. ***Projects must meet one or more of these 5 items.***

1. **Does the project involve federal land? If yes, is the federal land involved important to successful implementation of the project?** — ***Yes*** ☒ ***No*** ☐

The entire project occurs on Forest Service land along Angora Creek above Lake Tahoe Blvd.

2. **Is this project identified in the EIP? If yes, please ensure the EIP number is identified in the above project information box. If no, provide a description of the projects contribution to the EIP program.** — ***Yes*** ☒ ***No*** ☐

3. **Does the project involve the conservation of a federal or regional threatened, rare, endangered, or special interest species?** — ***Yes*** ☐ ***No*** ☒

4. **Does the project involve an identified federal interest such as the detection and eradication of non-native invasive species (aquatic or terrestrial)? If yes, identify the species?** — ***Yes*** ☐ ***No*** ☒

5. **Does the project contribute to supporting implementation of capital projects in the EIP? Such projects that fulfill this function would include technical assistance, data management, and/or resource inventories?** — ***Yes*** ☐ ***No*** ☒

Check all Capital Focus Area(s) that apply:

- ☒ 1. **Watershed and Habitat Improvement**
- ☐ 2. **Forest Health**
- ☐ 3. **Air Quality and Transportation**
- ☐ 4. **Recreation and Scenic**

Check all that apply (must meet a minimum of one category):

- ☐ 1. **Continued emphasis on forest ecosystem health/fuels reduction projects considering the LTBMU Stewardship Fireshed Assessment and Lake Tahoe Basin Multi-Jurisdictional Fuels Reduction and Wildfire Prevention Strategy.**

- ☒ 2. **Continued implementation of projects approved in Rounds 5 through 10 which implement the EIP. Project proposal should clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 10.**

  List Rounds and funding:

Round 9 - $300,000 (SNPLMA Project No. F132)

- ☒ *3.* **Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel).** ***NOTE: If "yes", then please respond to questions in the accomplishments section of the nomination proposal.***

- ☐ 4. **Control of aquatic invasive species and prevention and/or detection of new aquatic invasive species.**

Project Nomination Proposal Outline

Project Summary (a brief summary which clearly describes the proposed project –maximum 200 words)

- Summarize ONLY this Round 11 project**.**

This project proposes to implement stream channel restoration activities in Angora Creek, which includes large wood placement and direct modification to channel pattern, profile and dimension. Restoration activities are proposed to occur within the Angora Fire perimeter. Stream channel restoration will restore hydrologic function, water quality, aquatic habitat and meadow and riparian vegetation.

Project Description

Introduction

- Provide project background which explains the situation and state the problem and how it will be addressed.

Note: *Focus needs to be the project in Round 11 not a history of an ongoing project or program.*

In June 2007 the Angora Fire burned 3,100 acres and occurred roughly between Angora Ridge Road on the west, state highway 89 on the north, and US highway 50 on the east and south. A combination of high and moderate burn severities occurred in the valley bottoms. Higher fire intensities resulted in the consumption of all or most of the organic material in the soil layers and along stream banks leaving Angora Creek and its associated tributaries at risk to further channel incision. Coupled with past anthropogenic impacts, the Angora Fire has further compounded the need for active watershed management in the area.

Phase I (Round 9; $300,000) of this project was funded to complete the channel design process for the portion of Angora Creek that lies above the Lake Tahoe Blvd road crossing to approximately 1200 feet upstream. The funding will bring the conceptual design (which was included in the proposed action developed through the NEPA analysis (funded in FY 2008, 2009 and 2010) to 100% restoration design. A contract was initiated in 2009 in order to accomplish the development of 100% channel restoration designs. Restoration designs are being accomplished by conducting hydrologic, geomorphic and vegetation analysis and involve key restoration design metrics including: channel condition and departure, sediment transport, pattern and cross section geometry and vegetation characteristics. Design is scheduled to be completed by July 2010.

Phase II (Round 11; $2,500,000) builds upon restoration efforts funded in Round 9 by fully implementing methods identified in the channel design.

- Describe what Round 11 is specifically funding; list the number of years the requested funding will cover; briefly describe how this project links into previous and future projects, and identify other round funding.

NOTE: *Focus should be on finishing current/phased projects. If project is new in Round 11, clearly identify if the project is for planning or implementation and how it will be completed with Round 11 funds. Identify if Round 12 or other funds will be needed to complete the project. Please identify total non-SNPLMA funds that are being contributed/dedicated to the proposed Round 11 project and the source of those funds.*

Phase II (Round 11; $2,500,000) would fund the Angora Creek channel restoration implementation work. The project would include implementing stream restoration methods involving large wood placement and direct modification to channel pattern, profile and dimension. It is anticipated that additional contracts (i.e. heavy equipment) will be needed to accomplish the work. In addition, funding would also cover necessary federal and state NPDES permitting needed to perform the work. The following timeline of activities and associated project costs has been identified to accomplish all necessary work:

- Fall 2011 – Complete federal and state NPDES permitting ($50,000).
- Fall 2012 – Complete large wood placement ($950,000).
- Fall 2013 – Complete channel reconstruction ($1,500,000).

Although the complete $2,500,000 is being requested in Round 11 the above timeline and cost breakdown does allow for multiple round funding. For instance, this proposal could be scaled to $1,000,000 in Round 11 to fund project permitting and large wood placement. However, a proposal would be needed in Round 12 to fund the remaining stream restoration work in Angora Creek ($1,500,000).

Phase II will build on ongoing close coordination with stakeholders, including Eldorado County, Bureau of Reclamation, and California Tahoe Conservancy (CTC), which has occurred since 2008. These agencies are in the process of planning and implementing future rehabilitation efforts at the (road crossing replacement on Lake Tahoe Boulevard (also within the Angora Fire area) within the next two years. Coordination has involved the formation of a Technical Advisor Committee (TAC) to help guide an appropriate strategy to replace the current culvert structure. The project is scheduled to be completed by October 2013. This is the second round of SNPLMA funding requested for this project.

- Describe the "readiness" of this project to move forward (urgency, capacity, capability, environmental documentation, interagency agreements, etc)

The LTBMU is currently in the process of issuing a decision for the Angora Fire Restoration Environmental Assessment (EA). The EA outlines a strategy that addresses rehabilitating ecosystem processes, such as stream channel/floodplain function, soil productivity, vegetation and aquatic and terrestrial habitats. The large wood placement and modification to channel pattern, profile and dimension are included as sub-projects under the EA. A NEPA decision is anticipated by January 2010.

Furthermore, Phases I and II of this project are part of a larger interagency watershed conservation effort. Over the last decade, watershed restoration activities have been occurring in Angora Creek. In 2004, California State Parks completed 2 phases of stream restoration activities on Angora Creek from Hwy 50 through Washoe Meadows State Park. In 2006 as part of cooperative erosion control grant effort between the LTBMU and Eldorado County stream restoration activities were completed in Angora Creek between View Circle road and Lake Tahoe Boulevard. Finally, interagency efforts are underway to complete in-channel restoration designs in the Upper Truckee River (golf course reach to Sunset reach) with the objective of decreasing fine sediment inputs and restoring floodplain connectivity. This Round 11 project is the next step

in conducting sub-basin scale restoration efforts which target undesired erosion from stream banks and other floodplain features.

- Describe partnerships for this project. (if applicable, project should identify committed/secured partner funding and/or other partner contributions (describe) and how it is integrated into the project)

As part of the Round 9 project design phase the LTBMU is worked closely with El Dorado County, City of South Lake Tahoe, South Tahoe Public Utilities District, California Department of Fish and Game, California Trout, California Tahoe Conservancy (CTC), Lahontan Regional Water Quality Control Board and the Tahoe Regional Planning Agency. These partners are represented on the TAC and will assist in development of project designs as well as review all planning and design documentation.

El Dorado County currently has funding secured to replace an existing undersized culvert with a bridge at Lake Tahoe Boulevard, which is the downstream boundary of the desired USFS channel restoration reach on Angora Creek. Since 2008 close coordination has occurred with the county and CTC regarding bridge and channel alignment designs as well as considerations for aquatic habitat.

Note: *The form requests information about project goals, objectives, accomplishments, and questions the program is designed to answer across several different sections. These issues are closely linked and your individual responses should provide a cohesive description.*

Goal – Purpose and Need ("larger" statement of future expected outcome – usually not measurable)

The goal of the project is to restore water quality, aquatic habitat and meadow and riparian vegetation on approximately 2.20 miles of stream in Angora Creek.

Objectives (specific measurable statements of action which when completed will move towards achieving the goal)

Note: *Objectives will form the basis for the milestones/deliverables to be identified in Appendix B-8*

- Describe how fulfilling objectives will contribute to the achievement of one or more environmental thresholds (air quality, water quality, soil conservation, vegetation, fisheries, wildlife, scenic, noise, recreation). Provide measures if applicable. For example: acres treated, miles of stream restored for each objective.

The Angora Creek Channel Restoration project objective is to conduct stream channel restoration activities on approximately 2.20 miles of Angora Creek and will contribute to achieving the following environmental thresholds:

<u>Water Quality (WQ) – Water Clarity (WQ2); Tributaries (WQ4)</u>

This project will restore sediment transport and storage characteristics as well as nutrient storage and uptake capabilities, to a level expected for a site in this geomorphic and hydrologic regime. This project will also restore other water quality elements, such as stream temperature by increasing water depth and riparian vegetation coverage (stream shade).

Soil Conservation (SC) – Stream Environment Zone (SC2)

This project will restore soil building and maintenance characteristics along upper Angora Creek by a) designing and implementing natural channel designs, which promote stable/well vegetated streambanks and floodplains that are more resistant to erosion, and b) creating resistance to channel headcutting and incision by improving energy dissipation through increasing both in-channel roughness and pool habitat.

Fisheries (F) - Stream Habitat (F2), In-stream Flow (F3)

Habitat (pools, cover, water temperature, spawning gravels and increasing depth of stream flow during summer months) will be enhanced for local fish populations and native amphibians.

Wildlife (W) – Habitats of Special Significance (W2)

This project will improve the riparian and meadow system habitats for wildlife species associated with SEZ systems, such as willow flycatcher whose foraging and nesting life histories depend on them.

Vegetation (V) – Common Vegetation (V1)

This project will restore riparian and meadow vegetation types and coincide with other upland vegetative rehabilitation efforts that will be prescribed by the LTBMU in the Angora Fire.

Scenic Resources (SR) – Scenic Quality Rating (SR2)

Evidence of wildfire has a negative effect on visual quality. Accelerated response of riparian vegetation as a result of restoration activities reduces the duration of those visual impacts.

- Describe the estimated environmental risks from unintended consequences of the proposed project (if applicable)**.**

Restoration technical specialists on the LTBMU strongly believe that, by initiating natural channel design methods and utilizing knowledge gained from local monitoring and research results, the risk of failure is minimal to none. First, when formulating channel designs careful consideration is given to historic morphological characteristics, how those characteristics exhibit themselves in current conditions and identifying the central tendencies of how Angora Creek is responding to land use impacts coupled with effects from the Angora Fire. Second, knowledge gained from post-project monitoring efforts in Cookhouse Meadow and other similar restoration efforts have showed consistent measure increases in water table levels, decreases in bank erosion and enhancement of aquatic habitat features. However, in the event the project does not perform as planned, the potential impacts to the environment may include:

- Channel and floodplain erosion
- Floodplain dessication followed by advancement of encroaching conifers
- Increased releases of fine sediment into the creek and down to Lake Tahoe
- Long-term invasion of noxious weeds from prescribed fire in and around meadows.

Some of the above impacts are already evident and will continue to worsen if the project is not implemented.

Accomplishments

- Describe the anticipated project accomplishments (i.e. products or identifiable environmental benefits being produced or implemented under this project)

Note: *Differentiate between direct and/or primary project effects and secondary and/or overall watershed effects.*

Round 11 funding would result in the following accomplishments:

1. Complete federal and state NPDES permitting.
2. Complete large wood placement in Angora Creek on approximately 2 miles of stream.
3. Complete modification to channel pattern, profile and dimension on approximately 1200 feet of Angora Creek.

- Describe how the project results/accomplishments will be communicated and made available to the public.

Results/accomplishments will be summarized in Annual Forest Monitoring Program Report, as well as project-specific monitoring/accomplishment reports. The information created from this project will be disseminated to three audiences: 1) the general public, 2) other resource agencies, and 3) the broader scientific community. The audiences will be informed respectively through the USFS website, public/interagency meetings, and peer-reviewed publications.

- If you checked "yes" for the project being consistent with and contributes to TMDL pollutant reductions please consider and integrate the following in the project description:

a) Describe whether, and how, the project demonstrates advanced, alternative, or innovative practices.

Development, analysis, selection, and deployment of corrective practices that result in a self-sustaining channel-floodplain in this meadow is advanced when compared traditional stream repair approaches that are often site-specific (i.e. bank protection).

b) If project includes project level monitoring, describe ability of proposed monitoring strategy to contribute to the state of TMDL knowledge. Also describe if purpose of the capital project is to conduct data collection and/or analysis related to Lake Tahoe clarity.

Project level monitoring will include elements that are indirect measures of how water quality is assumed to improve as water passes through this site. Examples of such elements include: water table response and geomorphic channel condition.

c) Describe treatment approach for reducing pollutants and/or measures to address connectivity between pollutant sources and Lake Tahoe or its tributaries. Identify target pollutants, and, to the degree feasible, provide quantitative estimates of project effectiveness at reducing pollutant loads (and/or a commitment to provide post-project estimates).

Reconnection of the stream with the surrounding floodplain, as well as structural elements that promote in-stream and floodplain sediment storage is anticipated to be the primary treatment approach. The target pollutant is fine sediment (particles with a diameter less than 0.63 microns) and to lesser extent nutrients generated by the

Angora Fire if mass wasting and erosion from burn areas upstream occurs.

d) If appropriate, describe whether, and how, the project can be combined or coordinated with other TMDL implementation projects.

This project is part of a larger effort, with three stream-meadow restoration projects already completed, to restore stream-meadow processes along Angora Creek. In addition, the Angora Fire Restoration EA includes a sub-project which would restore wetland conditions and recover in-stream flow regimes at Seneca Pond. All stream restoration projects that have occurred in the Upper Truckee River watershed contribute to increased sediment storage and nutrient uptake capability.

Monitoring

- Describe the project monitoring that will be implemented as part of this project including:

  - List the questions the monitoring program is designed to answer.

    - Are state sediment and turbidity standards being achieved during construction for channel restoration projects?
    - To what degree have restoration efforts been successful in restoring floodplain connectivity, stabilizing stream banks, and reducing fine sediment loads?

  - Describe any coordination with, or input from, the science community on monitoring and adaptive management that has occurred on the development of this nomination and what changes (if any) to the project were made as a result of this input.

During the development of proposed actions for the Angora Fire Restoration NEPA planning phase a number of ecologists were consulted when considering a range of vegetative treatments. However, no specific scientist(s) was consulted when considering the need to conduct channel restoration actions. As stated earlier, Angora Creek exhibits strong indicators of incision and associated erosion. The role of the channel design contract was to clearly identify restoration approaches to meet desired conditions.

  - Describe the methods and strategies (i.e. monitoring, research, or both) that will be used to verify whether the project goals and objectives have been met? (*Note: A detailed monitoring plan and/or research plan is not required, however, enough detail must be provided to allow someone that is unfamiliar with the project to understand and evaluate the proposed methods and strategies.*)

This proposal will include funding for short-term monitoring of project effectiveness, for the first two years post-construction. The parameters to be examined include:

- groundwater elevations
- vegetation composition and cover
- channel morphology
- suspended sediment and turbidity in stream flows (NOTE: This project may contribute funds to the interagency post-fire stream flow monitoring effort or that effort may be funded other sources; see below).

- Describe whether the monitoring or research associated with this project fits into or is part of a larger monitoring or research program.

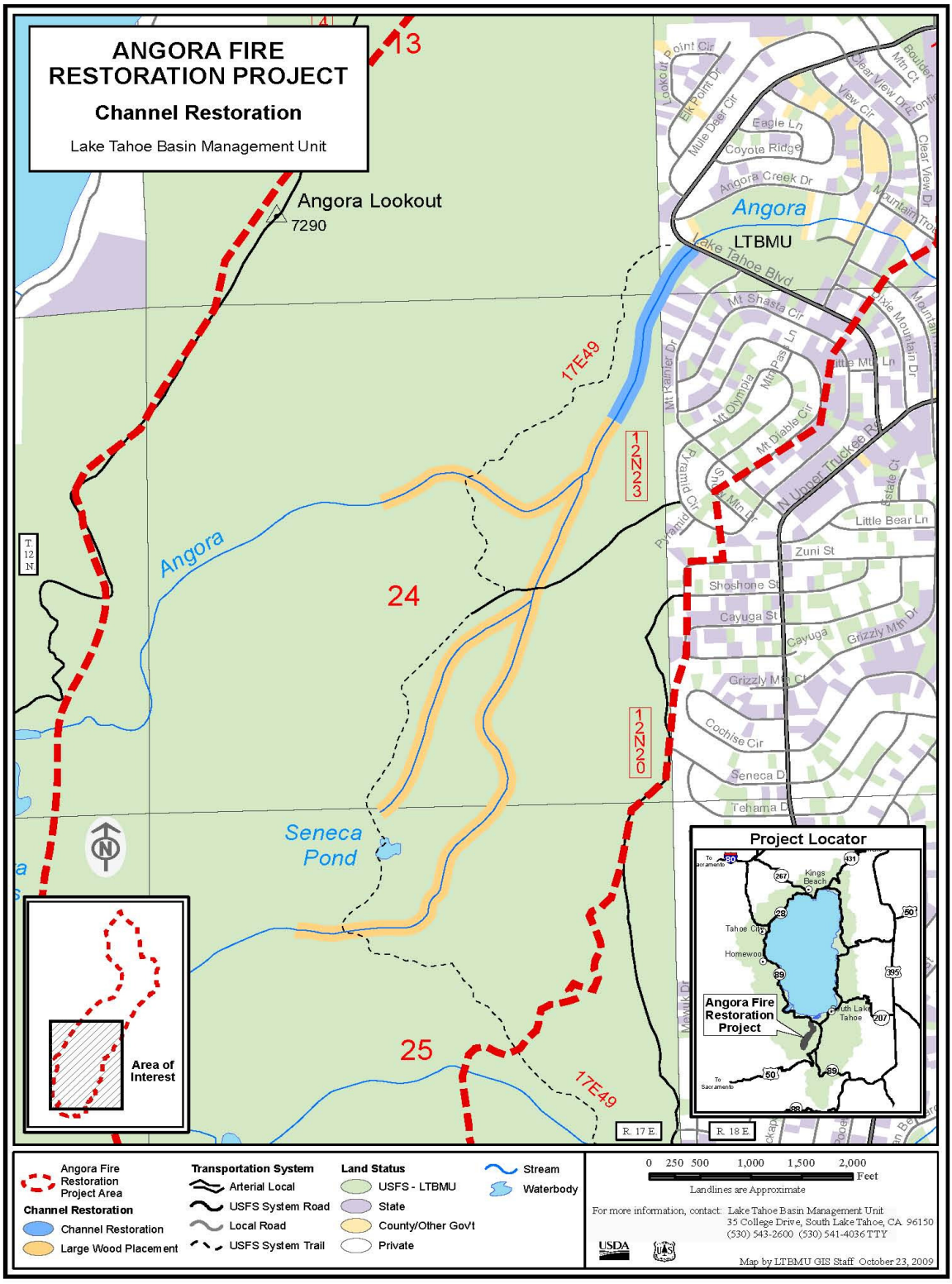
Pre-project monitoring efforts have occurred, which will be utilized to inform managers during the design and implementation phases of the project. The acquisition of these data was initially funded through FY2007 USFS appropriated funds and includes aerial photos, a channel geomorphic survey (cross sections, longitudinal profile), stream temperature, and fish population assessment. Additional baseline monitoring was collected in 2009. In addition, a multi-agency effort has maintained a stream channel water quality monitoring program to monitor the impacts of the fire in Angora Creek stream flows, and into the receiving Upper Truckee River. Water quality data have been collected on Angora Creek since 1992.

- Describe how information from the monitoring and/or research will be used to improve the continued performance of the proposed project or future similar projects.

Post-project monitoring results from Cookhouse and Cold Creek (in High Meadows) Channel Restoration projects will be used to inform both the design and constructability of this project. Conversely, monitoring results from the Angora Channel Restoration Project would be available to inform similar projects on the effectiveness of geomorphic and aquatic habitat modifications.

Attachments

- If applicable, include 8 ½ X 11 map depicting the project


ANGORA FIRE RESTORATION PROJECT
Channel Restoration
Lake Tahoe Basin Management Unit
Angora Lookout
7290
Angora
LTBMU
Angora
Seneca Pond
24
25
17E49
12N23
12N20
T. 12 N.
R. 17 E.
R. 18 E.
Area of Interest
Project Locator
Angora Fire Restoration Project
Angora Fire Restoration Project Area
Channel Restoration
Channel Restoration
Large Wood Placement
Transportation System
Arterial Local
USFS System Road
Local Road
USFS System Trail
Land Status
USFS - LTBMU
State
County/Other Gov't
Private
Stream
Waterbody
0 250 500 1,000 1,500 2,000 Feet
Landlines are Approximate
For more information, contact: Lake Tahoe Basin Management Unit
35 College Drive, South Lake Tahoe, CA. 96150
(530) 543-2600 (530) 541-4036 TTY
Map by LTBMU GIS Staff October 23, 2009

Appendix B-8

LAKE TAHOE RESTORATION PROJECTS
ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Project Name:	Angora Creek Channel Restoration	Agency:	US Forest Service
Prepared by:	Richard Vacirca	Phone:	530-543-2768
SNPLMA Project #:	F132	EIP #:	985.01

Identify estimated costs of eligible reimbursement expenses:

1. Planning, Environmental Assessment and Research Costs (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)	$ 30,000	1.2 %
2. FWS Consultation – Endangered Species Act	$ 0	0 %
3. Direct Labor (Payroll) to Perform the Project	$ 300,000	12 %
4. Project Equipment (tools, software, specialized equipment, etc.)	$ 150,000	6 %
5. Travel (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)	$ 5,000	0.2 %
6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project)	$ 5,000	0.2 %
7. Cost of Contracts, Grants and/or Agreements to Perform the Project	$ 1,610,000	64.4 %
8. Other Direct and Contracted Labor: Agency payroll for the Contracting Officer to do project procurement, COR, Project Inspector, Sec. 106 Consultation if required, NEPA Lead, Project Manager, Project Supervisor, and subject experts to review contracted surveys, designs/drawings, plans, reports, etc.; Also covered is the cost to contract for a Project Manager and/or Project Supervisor if contracted separately from other project contracts)	$ 100,000	4 %
9. Other Necessary Expenses (see Appendix B-9)	$ 300,000	12 %
TOTAL:	$ 2,500,000	100 %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Complete federal and state water quality permitting	December 15, 2011
Complete large wood placement	October 15, 2012
Complete modification to channel pattern, profile and dimension	October 15, 2013
Final Completion Date:	**February 1, 2014**

COMMENTS: Work is anticipated to be complete by use of government service contracts.