

**ROUND 10 LAKE TAHOE FEDERAL SHARE EIP CAPITAL
NOMINATION CRITERIA**
(Nomination Form begins on page 3)

Consistency with Lake Tahoe nomination criteria:

Project nominations must qualify as an Environmental Improvement Program (EIP) project and be the responsibility of the federal government (federal share responsibility); and have a willing and ready federal sponsor.

Projects identified as the responsibility of the federal government in the EIP must meet ONE or MORE of the following:

1. Does the project involve federal land?
 - If so, is the federal land involved important to successful implementation of the project?
2. Does the EIP identify the federal funding for the EIP project (project #)?
3. Does the project involve the conservation of a federal or regional threatened, rare, endangered or special interest species?
4. Does the project involve an identified federal interest such as the detection and eradication of noxious aquatic or terrestrial invasive species?
5. Does the project otherwise directly support federal implementation of capital projects in the EIP (e.g. technical assistance, data management, resource inventories, etc.)?

Project nominations must be consistent with one of the focus areas in the June 2006 Federal Vision (pp. 8-9) and fit into at least one category.
<http://www.fs.fed.us/r5/ltbmu/documents/ltbec/revised-FV-Final.pdf>

Projects 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 Fuel Reduction and Wildfire Prevention Strategy.
2. Continued implementation of projects approved in Rounds 5 through 9 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.
3. Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel). (*see attached TMDL references – page 6)
Consider and integrate the following in the project nomination:
 - a) Describe whether, and how, the project demonstrates advanced, alternative, or innovative practices.

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.

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).

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

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

ROUND 10 CAPITAL PROJECT NOMINATION FORM
LAKE TAHOE FEDERAL SHARE EIP CAPITAL PROJECTS
APPENDIX K

Project Name: Upper Truckee River, Middle Reaches 1 and 2 SEZ and Wildlife Enhancement Project

Federal Agency Sponsor: Bureau of Reclamation

Contact: Myrnie Mayville

Threshold: WQ,SC,V,F,W

Phone Number: (775)589-5240

Threshold Standard:WQ1-6, SC2, V1, F2-4, W1-2

Email Address:
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Funding Requested in this Round: \$1,000,000

Total Project Cost: \$2,500,000

Federal Share EIP rationale (select and describe appropriate EIP criteria from 5 items below – projects must meet one or more of these 5 items) :

1. Does the project involve federal land? **No**
 - If so, is the federal land involved important to successful implementation of the project? **No**
2. Does the EIP identify the federal funding for the EIP project (project #)? **Yes, #399 (Upper Truckee River/ Lower Phase III – Stream Habitat Restoration) and #650 (Restore 40 acres of SEZ – El Dorado County).**
3. Does the project involve the conservation of a federal or regional threatened, rare, endangered or special interest species? **Yes, the project will improve willow flycatcher habitat**
4. Does the project involve an identified federal interest such as the detection and eradication of noxious aquatic or terrestrial invasive species? **Yes, as one of the most degraded reaches of the Upper Truckee River this project has significant benefits to lake clarity.**
5. Does the project otherwise directly support federal implementation of capital projects in the EIP (e.g. technical assistance, data management, resource inventories, etc.)? **Yes, the project will support federal efforts to restore the Upper Truckee Watershed**

List Capital Focus Area(s) (as described in the 2006 Federal Vision):

Watershed and Habitat Improvement

Circle 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 Fuel Reduction and Wildfire Prevention Strategy.

2. Continued implementation of projects approved in Rounds 5 through 9 which implement the EIP. Project proposal should identify the applicable project(s) from Rounds 5 through 9 and clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 10.

③ Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel). List source category being addressed and integrate into the project nomination the following TMDL considerations (*see attached TMDL references – page 6). Source Category: Directly – Stream channel, Indirectly – Urban and Groundwater, Forested Upland

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

This project will utilize the innovative practice of restoring natural processes to improve water quality. This technique is highly desired due to the fact it is self sustaining, with little to no maintenance. The project will reduce fine sediment and nutrient delivery to the lake by reducing the capacity of the Upper Truckee River and thereby increasing the frequency and duration of flood flows on the adjacent floodplain. This increased overbanking of the river will cause more deposition of fine sediment and improved nutrient uptake from urban, upland, and channel sources, and therefore will significantly reduce these pollutants from entering Lake Tahoe. The project will directly reduce channel erosion by stabilizing the banks of the existing main channel and by filling a highly erosive gully channel.

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.

Comprehensive monitoring of the effects stream restoration projects have on water quality is extremely expensive, so in order to quantify benefits the project will use recent modeling advances. A number of models have been developed to assess floodplain processes, but none have been validated on Tahoe specific water quality issues. Presently there are a number of SNPLMA research projects working on this validation and it is anticipated that they can be used to quantify the water quality benefits of stream restoration projects. With extensive pre-project water quality data just downstream of the project, if funding does become available additional field based measurements can be implemented.

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).

By reducing the capacity of the Upper Truckee River and conversely increasing the river's flood frequency the project will take advantage of over 150 acres of SEZ to treat fine sediment and nutrients. The project will utilize natural process such as floodplain deposition and nutrient uptake by vegetation to reduce loads of targeted pollutants (fine sediment, nitrogen, and phosphorus) to the lake. It has been well documented that the Upper Truckee River is the largest producer of fine sediment in the basin and that this reach is one of the largest contributors on the river. It is estimated that over 15,000 cubic yards of material has been generated from the gully channel alone since it was activated in 1997. At this time it is very difficult to estimate not only how much sediment reduction will occur due to the project but also how much sediment treatment the floodplain can achieve. Recent modeling advances should provide us with some quantification of the benefits.

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

The project is part of a coordinated effort to restore the Upper Truckee River. This is one of five projects on the river that are either in construction or planning phases. As stated earlier the Upper Truckee River has been deemed by far the largest fine sediment producer in the basin, and therefore it's restoration is a very significant part of achieving TMDL goals. The project is also closely tied to water quality projects in the Sierra Tract neighborhood (the river borders the neighborhood for about a mile) that are expected to benefit the TMDL.

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

By simply gaining access to the private lands that the river flows through it will allow us to monitor activities and detect and prevent invasive species much more easily.

Provide an overall Project Summary (maximum 200 words): (describe ONLY this Round 10 project):

Following a large flood event in 1997 an irrigation ditch in the meadow was captured by the Upper Truckee River. A new second channel was formed that carries as much as half the flow of the Upper Truckee River. This gully channel has been deemed a major fine sediment producer to Lake Tahoe. The proposed project intends to fill this eroding channel and redirect all flows back into the original river channel. Portions of the filled channel will be only partially filled to create depressional wetlands and willow flycatcher habitat. The material to fill the channel will be generated by excavating large bank failures just upstream of the gully and converting them to SEZ floodplain. Along the mainstem bank stabilization features, habitat structures, and revegetation will be implemented to improve habitat and water quality. The project will improve water quality by reducing bank erosion and increasing sediment deposition on the floodplain.

Aquatic habitat will be improved by constructing habitat features and returning full flows to the mainstem. Terrestrial habitat will be improved by increasing groundwater levels and restoring wet meadow and riparian communities throughout the 150 acres of meadow. Additional benefits include the generation of a few acres of SEZ from uplands by constructing an inset floodplain where the gully fill material is generated.

Please provide clear and concise written responses to each of the items below. Please state “not applicable” if you believe the item or question is not applicable to your project.

Is this project proposed as a multi-round project (previous or future)? (If yes, for previous or future projects describe in the Detailed Project Description below number of years or phases and which year the requested funding will cover).

No, the project is planned to be a single construction season.

Detailed Project Description (focuses on what Round 10 is funding; list the number of years the requested funding will cover; briefly describe how this project links into previous and future projects).

Numerous agencies are involved in the comprehensive restoration of the Upper Truckee River. Five projects are either in construction or planning along the lower nine miles of the river. This project focuses on Middle Reaches 1 and 2 just upstream of Highway 50 in the City of South Lake Tahoe, El Dorado County. During the large 1997 flood event a second channel formed adjacent to the river. When this secondary channel formed it generally received little flow, but as time has passed the channel has eroded and it now captures over 50% of the flow. It is now estimated that ~20,000 cubic yards of material is needed to fill the channel. The project will partially fill the gully channel and enhance the adjacent SEZ and wildlife habitat. Parts of the gully channel will become depressional wetlands that will be planted with willow to create large willow clumps to enhance willow flycatcher habitat. By filling the gully channel the present capacity will be reduced by at least half which will increase the frequency of overbanking to more historic conditions.

This gully filling and increased flooding frequency will have wide reaching benefits that include:

Water quality –Channel erosion will be greatly reduced in the project area by stopping erosion of the gully and reducing mainstem bank erosion. Additionally, the increased flooding will reduce the out of project sources by increasing sediment deposition and vegetative nutrient uptake. Also, the depressional wetlands along the gully channel will be ideal sediment depositional areas in addition to the 150 acres of meadow.

Vegetation – Increased flooding will raise groundwater levels in the adjacent meadow and enhance wet meadow and riparian communities.

Wildlife - Enhanced vegetation in the meadow and along the stream will have significant benefits to small and large mammals, birds (including willow flycatchers), and fish.

Along the mainstem of the river, habitat structures constructed of large woody debris will be installed. These structures expect to enhance aquatic habitat by improving velocity refugia, channel structure and morphology, and in-stream cover. Upstream of the gully channel, where the fill for the gully will be generated, SEZ will actually be created from uplands. To generate enough fill there is the potential to create up to 3 acres of new SEZ.

Presently the project is at 75% plans with preparation of environmental documentation scheduled to be completed next spring. Once environmental documentation is complete the restoration easement can be finalized. Final plans and permits are expected to be completed in winter and spring of 2010. The project is scheduled to be constructed in one season during the summer of 2010.

Describe the specific goals and objectives of the project and describe how fulfilling those objectives will contribute to the achievement of one more environmental thresholds (air quality, water quality, soil conservation, vegetation, fisheries, wildlife, scenic, noise, recreation).

The project has very simple goals to improve water quality and habitat. The Upper Truckee River Watershed Advisory Group (UTRWAG) has developed detailed goals and objectives that will guide the monitoring efforts. As stated above it is anticipated that the project will have benefits to numerous thresholds, including water quality, soil conservation, vegetation, fisheries, and wildlife.

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

The project will fill a gully channel that is approximately 3400 feet long and 20,000 yd³ in volume, and thereby will return flows to the mainstem of the Upper Truckee River. This will increase the flood frequency and improve water quality and terrestrial and aquatic habitat. Enhancements in the form of large woody debris habitat structures and bank stabilizations will improve aquatic habitat and reduce bank erosion. Generation of material to fill the gully will result in the conversion of 2 – 3 acres of upland to SEZ. The project will ultimately enhance over 6,000 feet of stream channel and potentially up to 150 acres of SEZ.

Describe the “readiness” of this project to move forward (urgency, capacity, capability, environmental documentation, interagency agreements, etc.):

The project is presently at 75% plans with environmental documentation expected to be completed in the spring of 2009. Easement acquisition finalization will occur in summer 2009, with final plans and permits in late 2009 and early 2010. Construction is scheduled for summer 2010 with irrigation for at least one year post project and monitoring for at least 2 years post project. The urgency of this project is critical due to the fact that the gully is eroding more each year and

additionally receiving more flow. Eventually because it is more efficient for the river flow through the gully the mainstem will become disconnected during most of the year.

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):

This project was initially developed by the Tahoe Resource Conservation District (TRCD) with \$440,000 of Bureau of Reclamation funding. The California Tahoe Conservancy has granted the TRCD an additional \$350,000 to complete the planning effort. The project has collaborated with numerous other agencies through a Technical Advisory Committee (TAC) and the UTRWAG. At this time, the Conservancy intends to commit up to \$1,500,000 to complete the project. Other funding opportunities will be explored over the next year and half.

Describe the estimated environmental risks from unintended consequences of the proposed project:

There is minimal risk to the environment from the proposed project. Temporary construction BMP's will mitigate impacts to the environment. If extreme weather events occur during or after construction there is the potential for some environmental impacts, but they are most likely less than what would occur if the project did not occur. The greater risk to the environment is if there is no project.

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

1) The questions the monitoring program is designed to answer

The project will develop a comprehensive monitoring plan that will primarily focus on five monitoring groups: Photographs, Hydrology and Geomorphology, Water Quality, Vegetation, and Terrestrial and Aquatic Wildlife. The primary questions the monitoring will answer are: What is the effect of the project on water quality, surface and groundwater hydrology, aquatic and terrestrial wildlife habitat and populations, and vegetation communities? Additional geomorphic and photographic monitoring will answer questions relating to the success of design.

Although a specific project level monitoring plan has not been developed, the UTRWAG's monitoring guidelines that define goals and objectives and specific protocols will be utilized as a guideline. Below are the riverwide goals and objectives that the UTRWAG has developed. Although each goal and objective will not be relevant to this project those that are will be part of the plan.

Goal #1: Restore properly functioning geomorphic channel configuration

- Objective 1a: Increase frequency of inundation on floodplain to approximate estimated historic flood frequency (about 1.5-2 yr. return interval).
- Objective 1b: Increase pool and riffle dynamics through restoration of meandering planform.

- Objective 1c: Increase stability of banks by increasing the elevation of ground water, and associated improvement in riparian vegetation.
- Objective 1d: Eliminate or reduce the need for maintenance by designing a geomorphically stable channel. Note that stability in this sense is a dynamic equilibrium; the channel is not intended to be perfectly stable in one location over time. However, change should not be catastrophic, but rather characterized by slow movement of meanders over time, with erosion and depositional processes in balance.

Goal #2: Improve aquatic and wildlife habitat/populations

- Objective 2a: Increase or enhance aquatic and terrestrial wildlife habitats (fish, birds, small mammals, reptiles, amphibians, macro-invertebrates, etc.).
- Objective 2b: Add complexity to aquatic habitat by increasing the number of pools and riffles.
- Objective 2c: Improve stream substrate for fish spawning and aquatic macro-invertebrate habitat through increased sorting of substrate.
- Objective 2d: Improve habitat for terrestrial wildlife that use riparian habitat.
- Objective 2e: Decrease peak water temperatures (decreased width to depth ratios and increased channel shading from riparian vegetation).
- Objective 2f: Protect sensitive wildlife habitat areas from excessive public use by managing public access.

Goal #3: Improve functionality of floodplain for improving water quality.

- Objective 3a: Increase storage of flood flows on and in floodplain (increase contact time with wetland plants).
- Objective 3b: Raise the level of groundwater and the potential for water quality treatment by wetland plants.
- Objective 3c: Filter and store suspended sediment on floodplain by restoring the native and historic wet meadow plant communities.

Goal #4: Improve riparian, meadow, and upland vegetation.

- Objective 4a: Increase spatial extent and vigor of native obligate wetland species and wet meadow plant communities.
- Objective 4b: Increase spatial extent, canopy cover, and recruitment of montane riparian scrub vegetation.
- Objective 4c: Increase groundwater elevations and flooding (water availability) throughout the growing season in the floodplain to support wet meadow plant communities.
- Objective 4d: Remove conifer encroachment in aspen stands.
- Objective 4e: Reduce wildfire threat near residential areas.
- Objective 4f: Improve upland forest habitat structure.
- Objective 4g: Eliminate invasive species.

Goal #5: Construct projects effectively and efficiently.

- Objective 5a: High success in project re-vegetation.
- Objective 5b: Protect existing resources during construction.
- Objective 5c: High construction efficiency given project constraints.

- 2) **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)**

The following approaches will be used in the project monitoring:

Photographs:

Ground based photo points will be established throughout the project area and in conjunction with other surveys (groundwater, geomorphology). Additionally, aerial photos will be obtained for monitoring changes in channel planforms, plant communities, and meadow vegetation structure.

Hydrology and Geomorphology:

Discharge measured at the USGS gage just downstream of the project area will be used to determine the effect of the project on reducing the peak and timing of the hydrograph. Groundwater will be monitored with wells to determine if the project raises seasonal groundwater elevations. The channel will have extensive geomorphic monitoring using standard protocols, including: longitudinal profiles, cross sections, and sediment surveys. These surveys will also utilize photos to document changes. This monitoring will evaluate the effectiveness of the project at creating a geomorphically stable channel and potentially lead to adaptive management.

Water Quality:

Due to the complex and expensive nature of measuring water quality benefits of the project a modeling approach will be used to determine the benefits. Presently a number of SNPLMA research projects are developing and validating floodplain and channel process models that will be used to quantify the benefits of the project at reducing fine sediment contributions to Lake Tahoe

Vegetation:

Vegetation will be monitored with both ground and aerial photos. Ground photos will be used to measure the vigor of vegetation in the restored meadow. These photos will be linked to local groundwater elevations to determine the seasonal effects of the project. Aerial photos will be analyzed to determine if plant communities have changed and to determine the effect of the project on meadow structure (willow development).

Aquatic and Terrestrial Wildlife:

It is planned that macro invertebrates, fish, and bird species will benefit most from the project. A comprehensive riverwide bioassessment is funded and will collect baseline data and be repeated after restoration. Bird and fish surveys will also be conducted to determine the effect of the project. Components of other monitoring groups such as vegetation, photos, geomorphology, and hydrology will be utilized to help assess habitat quality in order to determine a comprehensive assessment of the project's effect on wildlife.

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

As described above the project monitoring will fit within the extensive watershed scale monitoring of the Upper Truckee River. The UTRWAG and their monitoring guidelines ensure that the monitoring will not only describe the benefits of the project but will put it into the context of the larger nine mile restoration of the river.

4) 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

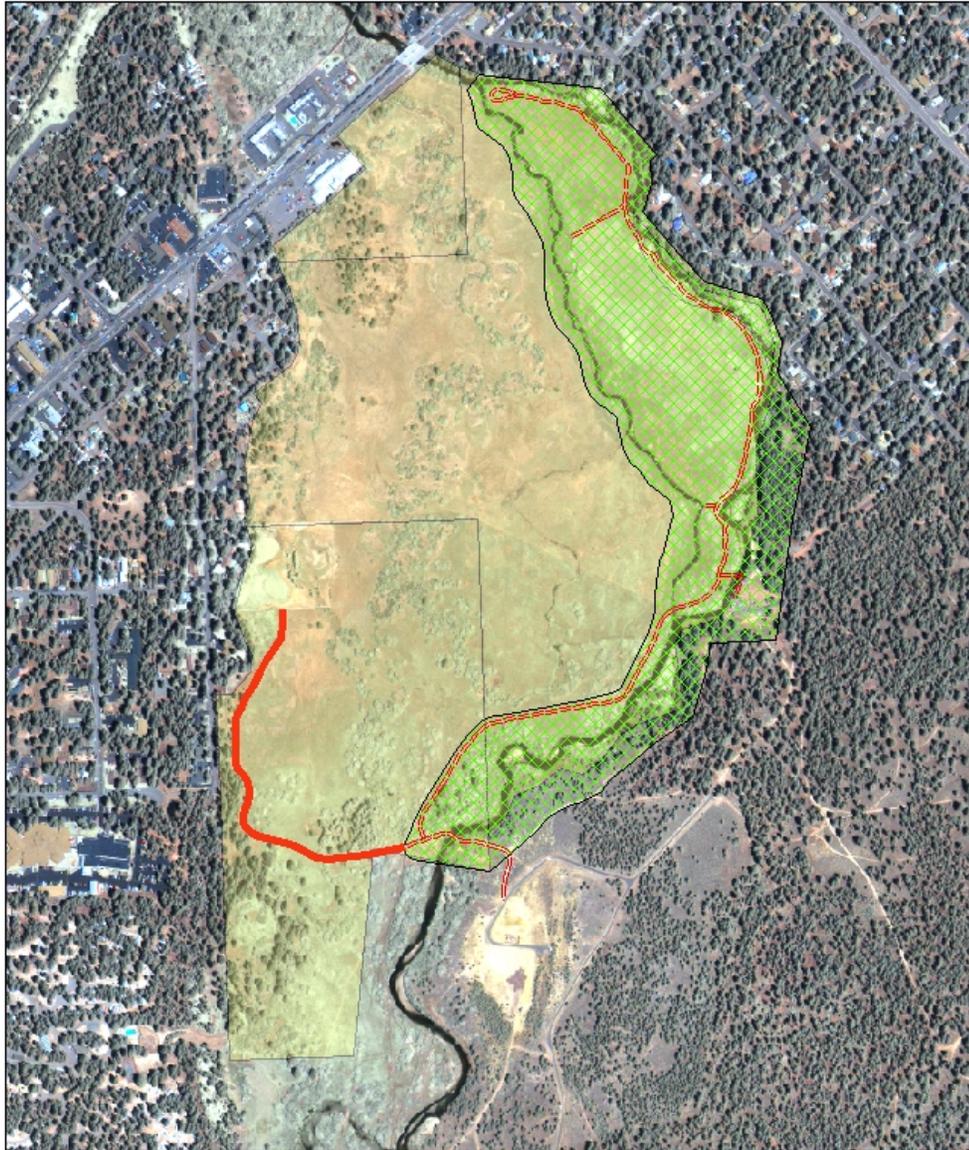
As part of the monitoring the project the Conservancy plans to implement adaptive management on the project. The Conservancy plans to meet biannually to review monitoring information that will inform potential adaptive management actions. It is anticipated that this process will either identify more targeted monitoring to determine appropriate actions or directly lead to actions that enhance or improve the project. The monitoring information will also be used to inform future projects that will result in better designed projects in the future.

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

It is anticipated the results of the project will be presented in a number of ways, including local agency groups such as LTIMP and UTRWAG, public meetings, and local and regional conferences. Information will also be made available online through our own and others' websites (TIIMS). There also may be opportunities to publish results in research journals.

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

Middle Reach 1 and 2 Project Area



Legend

-  Maintenance Access Road
-  Temporary Access Road
-  Project_Area
-  Area of Potential Effect