Organization Name:	**Board of Regents, NSHE obo Desert Research Institute**
Type:	**501(c)(3) EIN#88-6000024** **Governmental entity? N**
Address:	**2215 Raggio Parkway; Reno, NV 89512**
Project Name:	**Modeling, Monitoring and Social Assessment of Water Quality in the Upper Truckee River Basin: An interdisciplinary assessment to identify and promote best management practices to combat nonpoint source pollution**
Amount requested: $72,681	**Website: www.dri.edu**
This funding will be used to (complete this sentence with a max of 2 sentences):	The project is expected to generate science-based information that will be useful for decision makers and an understanding of the social criteria that will be important for basin management practices. The measurable outcomes will be to develop a methodology to assess social adoption and involvement in environmental programs, as well as to identify the local community's main problems and develop a water quality model that can be replicated along the watershed or in other basins to preserve water quality.
Key People:	**Director:** **N/A** **Board Chair:** **N/A** **Project Contact:** **Name:** Dr. Erick Bandala; **Position:** Associate Research Professor; **Phone:** 702-862-5395; **Fax:** 702-862-5427; **Email:** Erick.bandala@dri.edu
Organization Mission:	We excel in basic and applied research and the application of technologies to improve people's lives throughout Nevada and the world. We implement this mission by fostering scientific and engineering talent. We apply scientific understanding to the effective management of natural resources while meeting Nevada's needs for economic diversification and science-based educational opportunities.
Has your organization received other grants from the Truckee River Fund? **Yes XX No** (use additional page if necessary)	If yes, Date awarded: 10/01/2012; Project title: Cloud Seeding Project for Tahoe and Truckee Basins for WY2013; Amount of Award: $175,000 Date awarded: 10/01/2013; Project title: Cloud Seeding Project for Tahoe and Truckee Basins for WY2014; Amount of Award: $185,000 Date awarded: 10/01/2014; Project title: Cloud Seeding Project for Tahoe and Truckee Basins for WY2015; Amount of Award: $200,000

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☐ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☐ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☒ C. Projects that remove pollution from the Truckee River.
- ☐ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.
- ☐ E. Other projects that meet the evaluation criteria.

Modeling, Monitoring, and Social Assessment of Water Quality in the Upper Truckee River Basin: An interdisciplinary assessment to identify and promote best management practices to combat nonpoint source pollution

1. Project goals and measurable outcomes and how you will measure and report them. This proposal will identify nonpoint source (NPS) contamination, target the best management practices (BMPs), and assess the major obstacles for their adoption in the upper Truckee River Basin. The project will generate science-based information useful for decision makers and an understanding of the social criteria for basin management practices. The outcomes will be a methodology to assess and promote adoption of practices and social involvement in environmental programs, and a model that is replicable along the watershed or in other basins to preserve water quality.

2. Project location. This project will take place at the upper Truckee River Basin, specifically in the Lake Tahoe area.

3. Project description.

Rationale and Background

Statement of Problem. Lake Tahoe is the source of the Truckee River and provides 85% of the Truckee Meadows Water Authority's (TMWA) drinking water.[1] The decline in lake's water quality over the last 50 years is of growing concern[2] and several studies have been devoted to addressing the factors that drive this decline and to protecting the quality of the lake's water. Nonpoint sources are significant contributors to the contamination of the TMWA's water supply.[3] This proposal combines water quality data and hydrologic modeling of the Lake Tahoe Basin to identify the main NPS contaminants (i.e., nutrients and sediments) that contribute to water quality depletion and geographically target a suite of BMPs to combat NPS pollution in the basin. A social assessment of the main obstacles and opportunities for the promotion and adoption of BMPs to help maintain Lake Tahoe and the Truckee River water quality will also be conducted.

Hydrologic modeling of Lake Tahoe. A distributed conceptual hydrologic model to predict flow at each subbasin in the Lake Tahoe watershed will be developed.[4] The model uses monthly precipitation, temperature, and potential evapotranspiration (ET) to generate streamflow at the outlet of each subbasin. The modeling system is divided into four parts: snow accumulation and melt, rainfall/ET, base flow, and fast (overland) flow. A temperature threshold is used to determine the fraction of precipitation and the timing and amount of snowmelt. A portion of rainfall is subtracted as evaporation and the remaining precipitation contributes to soil storage, with a fraction lost as ET. Total ET is the sum of evaporation from precipitation and ET from soil storage. The remaining fraction of soil storage is converted into base flow and fast flow. Both base flow and fast flow contribute to the streamflow at the outlet of the subbasin.

Water quality data collection. Because Lake Tahoe is the main water source for the Truckee River, it is important to prevent contaminants entering the lake to maintain the water quality of the entire basin. The efficiency of the different plans, management practices, and guidance for preserving water quality in the basin remains controversial mainly because of a lack of proper long-term water quality data analysis, particularly NPS contamination data. Urban storm-water runoff and soil erosion negatively affect the trophic state of the basin.[5,6]

Social assessment of attitudes and awareness of water quality issues and the obstacles and opportunities for adoption of BMPs. The adoption of BMPs at the local level is essential for adapting to climate change[7] and decreasing NPS pollution. However, the adoption rates of these types of conservation practices are highly dependent on the locale and specific BMPs under consideration.[8-10] Uncertainty that results from a poor understanding of low adoption rates in a given locale undermines the success of outreach programs. The social assessment conducted during this project will identify the main obstacles and opportunities for the adoption of the BMPs that were identified during the modeling and monitoring stages of this project.

Objectives

This proposal focuses on selecting BMPs and developing an outreach plan for their promotion and adoption to address the problem of NPS contamination depleting water quality in the basin. This work is vital for the following reasons: (i) Lake Tahoe is the source of the Truckee River, which provides 85% of the TMWA's drinking water; (ii) NPS contamination is a major contributor to water quality depletion in the basin; (iii) the successful implementation of any control measure should include community involvement; (v) no studies in the area have assessed community willingness to adopt BMPs or evaluated overall attitudes toward water quality issues and programs; and (vi) the identification and geographical targeting of appropriate BMPs will contribute to the success of conservation initiatives within the basin.

Objective 1: Develop a hydrologic model to identify the main NPS contamination and the effect of runoff spatial patterns.

Objective 1 Hypotheses Tested

1) The proposed model can simulate important hydrologic processes in the study region.
2) The major NPS contaminants can be identified based on the hydrologic simulation results.
3) The quantity of NPS contamination in the system is related to the runoff spatial patterns.

Objective 2: Collect historical and current water quality data.

Objective 2 Hypotheses Tested

1) NPS contamination significantly contributes to water quality depletion in the watershed.
2) Understanding the behavior of NPS contaminants will identify BMPs to avoid water quality reduction.
3) Water quality serves as an index to estimate BMP efficiency to improve water quality.

Objective 3: Social assessment of attitudes and awareness of water quality issues and the obstacles and opportunities for adopting BMPs.

Objective 3 Deliverables

1) Understanding landowners' awareness of and attitudes toward water quality issues and outreach programs in the Truckee River watershed.
2) Understanding the motivation of landowners to adopt and maintain BMPs in the watershed.
3) Watershed management recommendations for setting adoption goals and promoting practices to potential adopters.

General Plan of Work to Accomplish Objectives

Objective 1: Approaches/Activities.

Collect historical hydrologic data. Monthly grid precipitation and temperature will be collected from PRISM (Parameter-elevation Relationships on Independent Slopes Model) datasets and used as input data for the proposed hydrologic model. Streamflow at the outlet

of each subbasin and snow water equivalent data from existing Snow Telemetry (SNOTEL) products will be collected for hydrologic model calibration.

Model development, calibration, and simulation. The water balance model[6] will be applied using a 12 km grid to create a distributed model for each subbasin in the watershed and calibrated using gauge flow from the U.S. Geological Survey (USGS). Future climate scenarios will then be applied to determine flow changes.

Identify the main NPS and its connection with runoff spatial patterns. The hot spots of the main NPS contaminants (i.e., nutrients and sediments) that contribute to water quality depletion in the basin will be located based on the simulated hydrologic processes.

Objective 2: Approaches/Activities.

Search of historical water quality data. A search of effluents and NPS contaminants in historical water quality data from research institutions working in the field will be performed. Once the data are collected, they will be organized and digitalized to allow for statistical analyses or to feed the hydrologic model.

Assess current water quality data. In agreement with the hydrologic model, the main NPS contaminants identified will be monitored for these parameters and the information will be contrasted with the available historical data to determine their agreement.

Identify BMPs. Based on historical and current water quality data, BMPs (e.g., storm water catchment and treatment, constructed wetlands, and rain barrels) will be identified for application at the major contributors to water quality depletion to test their community acceptance and adoption.[10]

Objective 3: Preliminary Activities and Approaches/Activities

Community surveying. A 5-wave, modified Dillman[12] survey mailing method will be conducted using a randomized sample of mailing addresses of households and businesses in targeted subwatersheds. Each address will be contacted via mail 5 times (advance letter, 1st mailing of paper survey, reminder postcard, 2nd mailing of paper survey, 3rd mailing of a paper survey with a reminder postcard), which should ensure a response rate above 40%.[11]

Data analysis. Results from the survey will shed light on the factors that influence the awareness of and attitudes toward water quality and the adoption and maintenance of conservation BMPs in the watershed. This evaluation will provide a baseline understanding of these important social processes and factors that will improve future education and outreach programs of the TMWA and other watershed advocacy groups in the region.

References

1 Watanabe S., Vincent M. et al., 2016. Limnol. Oceanog. Methods 14, 100-109.
2 Vincent W.F., Bertola C. 2014. Limnology and Oceanography e-Lect. 4, 1–47.
3 Reardon K.E., Moreno-Casas P.A., et al. 2016. Lake Res. Manage. 32(2), 132-145.
4 Xu C.Y., Seibert J., Halldin S. 1996. *Journal of Hydrology 180*(1-4), 211-236.
5 Bandala E.R., Goonetilleke A. 2016. UN Global Sustainable Development Report.
6 Harrison N.M., Stubblefield T., et al., 2016. Forest Ecol. Manage. 360, 40-51.
7 Wuebbles D.J., Hayhoe K., Parzen J. 2010. J. Great Lakes Res. *36*, 1-6
8 Ulrich-Schad J.D., Babin N., et al., 2016. Land Use Policy 54, 602-613.
9 Gao Y., Babin N., et al., 2016. Landscape Urban Planning 153, 99-110.
10 Babin N., Mullendore N.D., Prokopy L.S. 2016. Land Use Policy 55, 327-333.
11 Mase A.S., Babin N., Prokopy L.S., Genskow K. 2015. *JAWRA* 51(6), 1656-1666.
12 Dillman D.A. 2000. Mail and internet surveys: The tailored design method. New York: Wiley.

4. Grant priorities. This project is highly relevant to the following grant priority topic area for the TMWA: Projects that Remove Pollution from the Truckee River because it includes local storm water improvements by generating stewardship and environmental awareness, as well as leveraging stakeholder assets and participation.
5. Permitting. Permits for accessing historical water quality data and taking water samples from the lake and NPS contamination sites will be required and requested from the appropriate authorities. No associated costs are expected.
6. Future phases. Once the most reliable green technologies have been identified and evaluated for social involvement and adoption resulting from this proposal, other funding sources will be pursued to support the implementation of the BMPs identified in this project. Funding is expected from NSF, USEPA, and other governmental dependencies as well as philanthropic foundations, such as the Woodard & Curran Foundation and Environmental Research & Education Foundation.
7. Principals involved. Erick R. Bandala, PI, Desert Research Institute; Peng Jiang, Co-PI, Desert Research Institute; Nicholas Babin, Co-PI, Sierra Nevada College.
8. Staff positions involved. Four part-time staff.
9. Volunteers involved. None.
10. Time Line. Some delays in the time line proposed could be expected, most likely related with unexpected severe weather conditions impeding water sampling campaigns or delays access to historical water quality data from other institutions.

Tasks	Month 1	2	3	4	5	6	7	8	9	10	11	12
Objective 1:												
Collecting historical hydrologic data												
Model development, calibration, and simulation												
Identification of NPS contaminants												
Objective 2:												
Search of historical water quality data												
Assessment of current water quality data												
Identification of BMPs												
Objective 3												
Community surveying												
Data analysis												

11. Success. This proposal will be considered a success if the proper technologies are identified to help reduce the entrance of suspended solids and nutrients from NPS contamination into the basin, and an understanding of the social viewpoints of BMP adoption and best ways to reach stakeholders are achieved. These results will be considered the starting point for a bigger project that will include the implementation and evaluation of the technologies identified here to measure their effect on improving water quality in the watershed.
12. Grant Match. Match amount to be provided: $26,657. Cash: $2,056; In-kind: $24,600. Cash portion is in hand, being held for this project. Cash comes from Sulo and Aileen Maki Endowment Funding. In-kind is forgiven indirect cost.

13. Project budget.

	Rate	Year 1				Total Project	
		TRF		DRI MATCH		TRF	DRI
SALARIES		Units	Total	Units	Total		
Bandala, Erick	8,390	1.00	8,390	0.00	0	8,390	-
Jiang, Peng	5,116	0.75	3,837	0.25	1,279	3,837	1,279
MS Grad Research Asst.	1,750	9.00	15,750	0.00	0	15,750	-
SUBTOTAL SALARIES			27,976		1,279	27,976	1,279
FRINGE BENEFITS							
Professional	48.1%		4,035		0	4,035	-
Post Doc	21.7%		833		278	833	278
Grad Research Asst	29.2%		4,599		0	4,599	-
SUBTOTAL FRINGE BENEFITS			9,467		278	9,467 -	278 -
TOTAL SALARY/FRINGE BENEFITS			37,443		1,556	37,443	1,556
TRAVEL							
Travel-Domestic							
Field work- Lake Tahoe							
Motor Pool Vehicle	0.55	300	165			165	-
Per diem-lodging	250	6	1,500			1,500	-
Per diem-meals	74	8	592			592	-
Airfare	450	2	900			900	-
Ground transportation	30	2	60			60	-
TOTAL TRAVEL			3,217			3,217	-
OPERATING							
Computer			0		0	-	-
Publishing			0		0	-	-
Conference fees			0		0	-	-
Laboratory supplies			2,500		500		
TOTAL OPERATING			2,500		500	2,500	500
SUBCONTRACTORS						-	-
Sierra Nevada College			15,000			15,000	-
TOTAL SUBCONTRACTS			15,000			15,000 -	- -
TOTAL DIRECT COSTS			58,160		2,056	58,160	2,056
IN KIND FORGIVEN INDIRECT COST					24,086	-	24,086
INDIRECT COSTS	25.000%		14,540		514	14,540	514
TOTAL COST ESTIMATE			**72,700**		**$26,657**	72,700	26,657

KEEP TRUCKEE MEADOWS BEAUTIFUL

August 2016 Proposal to Truckee River Fund

Organization Name:	Keep Truckee Meadows Beautiful	
Type:	501(c)(3) EIN# 88-02549757	Governmental entity? No
Address:	P.O Box 7412/2000 Del Monte Lane, Reno NV	
Project Name:	2017 Spring Invasive Weed Pull & Fall Truckee River Cleanup	
Amount requested: $60,625	Website: www.ktmb.org	
This funding will be used to	remove invasive weeds and trash from along the Truckee River corridor and its tributaries during KTMB's Great Community Cleanup and KTMB's Truckee River Cleanup Day, monitor the impact of current cleanup efforts, and engage more year-round cleanup support.	

Key People:	Director:	Christi Cakiroglu
	Board Chair:	Peter Gower
	Project Contact:	Name: Christi Cakiroglu and Lindsey Panton Position: Executive Director and Program Manager Phone: 775-851-5185 Fax: 775-851-5182 Email: christi@ktmb.org/lindsey@ktmb.org
Organization Mission:	Dedicated to creating a cleaner, more beautiful region through education and active community involvement.	

Has your organization received other grants from the Truckee River Fund?

Yes X See attached page

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☐ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☐ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- X C. Projects that remove pollution from the Truckee River.
- X D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.
- ☐ E. Other projects that meet the evaluation criteria.

KEEP TRUCKEE MEADOWS BEAUTIFUL

NARRATIVE

1. Specific **project goals and measurable outcomes and how you will measure and report them.**

In 2017, KTMB will continue to build partnerships that work strategically to protect and conserve the Truckee River, while expanding the thriving litter and invasive weed removal projects along the Truckee River watershed. Reporting will include survey results, partner letters verifying completion, sign-in sheets, minutes from meetings, and spreadsheets showing measurable outcomes for the following:

Great Community Cleanup – Spring 2017

- Provide 15 educational presentations that address the environmental and economic impacts of litter, invasive weeds and illegal dumping in the river and in the community at large;
- Recruit and coordinate a minimum of 150 volunteers to pull invasive weeds at weed sites;
- Remove 100 yards of weeds and two tons of trash from within the Truckee River Watershed;
- Hold a "Zero Waste" cleanup event, and provide invasive weed, recycling and litter-reduction education to volunteers at cleanup sites, and during volunteer post-cleanup lunch;
- Involve a minimum of 100 youth through partnerships with youth programs;
- Survey weed participants and analyze results to determine the success and impact of the event;
- Work with partners to identify and target a minimum of six invasive weed "hot spot" locations along Truckee River tributaries for weed removal and native plant restoration;
- Support accurate mapping of invasive weed zones as tracked by NLT and TMWCG;
- Enhance marketing and outreach to attract Adopt-A-River groups to improve participation in 2017;
- Expand KTMB's evidence based Litter Survey to establish consistent Truckee River site evaluations.

Truckee River Cleanup – Fall 2017

- Engage minimum of 700 volunteers in river cleanup, storm drain stenciling and weed removal projects;
- Remove 10-20 tons of trash from the river corridor at cleanup locations from Verdi to Lockwood;
- Work with area park staff to identify and wrap trees as needed along the river corridor;
- Hold a "Zero Waste" cleanup event, and provide invasive weed, recycling and litter-reduction education to volunteers at cleanup sites, and during volunteer post-cleanup lunch;
- Maximize resources and community awareness efforts by stenciling a minimum of 150 storm drains in conjunction with Urban Watershed Awareness Day (as all drains flow to the river!);
- Involve a minimum of 100 youth through partnerships with youth programs;
- Survey participants and compile analyzed results to determine the success and impact of the event;
- Host a minimum of 25 "on the river" volunteers including kayakers, fly-fishers, tubers and heavy equipment as needed to remove debris from within the river;
- Spread Christmas tree mulch for soil erosion projects, wrap trees along river, and remove graffiti;

2. **Project location.**

Spring and Fall Cleanups

For the Spring Great Community Cleanup, invasive weed locations within the Truckee River watershed will be determined by TMWCG. The Truckee River Cleanup, which is typically scheduled for the final week of September, follows the original Champions of the Truckee River "Streamkeepers Map," stretching from the Verdi Dam to Lockwood, including John Champion Park, Mayberry Park, Crystal Peak

KEEP TRUCKEE MEADOWS BEAUTIFUL

Park, Cottonwood Park, Oxbow Park, Dorostkar Park, Rock Park, Barbara Bennett Park, and other sections of the river. Storm drain stenciling on the day of the cleanup will be determined by local municipalities and watershed experts. **(Grant Priorities V, VI, VII, VIII)**

3. **Project description.**

During KTMB's Spring Great Community Cleanup volunteers remove invasive weeds at several hot spots along the Truckee River and its tributaries, as identified by weed experts at Nevada Land Trust and members of the TMWCG. Local park staff report that weed removal is often the most challenging aspect of their job. With current staff reductions, the incorporation of weed removal prior to weed seeding in the spring is vital and aligns perfectly with the timing of KTMB's Great Community Cleanup. **(Grant Priorities VI, VII, VIII).**

Champions of the Truckee and Truckee River Yacht Club volunteers organized this event until 2004 when KTMB became involved to provide staff support. Through the support of the Truckee River Fund, this cleanup has more than doubled, from 300 volunteers in September 2005 to more than 700 volunteers annually. River and tributary sites are identified by park staff and project partners as areas in need of litter pickup and trash removal, tree wrapping, weed pulling, mulch spreading (to prevent soil erosion), graffiti removal and storm drain stenciling. **(Grant Priorities V, VI, VII, VIII).**

These projects are designed to address both the direct and immediate presence of weeds, litter and nonpoint pollution runoff, and the underlying causes of these challenges by educating and engaging the community to understand that:

- The Truckee River is the heart of our community and our drinking water;
- Noxious weeds negatively affect native plant communities, habitats, and watershed;
- Litter and pollution are harmful to human health, wildlife, the local environment and economy;
- By working together, we can create a cleaner, more beautiful, healthier and happier community, while saving precious taxpayer dollars that would otherwise be spent on cleanup.

Throughout the year, KTMB pursues our vision of becoming America's cleanest and weed-free community by:

- Educating and informing residents and visitors about the importance of maintaining a healthy river and watershed by removing litter and noxious weeds;
- Producing key messaging about responsible river recreation and keeping the river clean; and
- Presenting to City and County NABS/CABS, churches, recreation/outdoor groups, city council and county commission meetings, service organizations, KTMB Beautiful Businesses, as well as K-12 children through our Weed, Water, and Waste Warriors programs, and on-site educational opportunities along the river and in Idlewild Park's Sensory Garden. **(Grant Priorities VI and VIII).**

Supporting Evidence & Studies

In addition to the measurement of success listed below (in Section 11), several studies support this proposal:

- American states, counties, municipalities and NGOs spend $11.2 billion annually to clean up litter. (Keep America Beautiful, 2010) KTMB saves tax payer money by conducting annual cleanup events.

KEEP TRUCKEE MEADOWS BEAUTIFUL

- California cities spend $428 million annually to remove litter from waterways, canals and beaches (NRDC);
- Chemicals leaching from roadside dumps impact surface and ground water quality. (Penn State, 2005).
- Chemicals in cigarette butts harm freshwater and marine fish and mammals. (Slaughter, et al., 2011).
- Communities see more crime and disobedience in the presence of litter, urban decay and graffiti. (Gladwell, 2000; Keizer, et al., 2008; Coglan, 2008).

4. **Grant priorities:** Addressed throughout the narrative including V, VI, VII, and VIII.

5. **Permitting**

Few permits are needed and for the most part cooperation has already been secured. Since 2005, the only required permits for KTMB's Great Community and Truckee River cleanups include health department permits for the post-event volunteer barbecues. These permits can easily be secured from the Washoe County Health Department 4-6 weeks prior to the event(s).

6. If **future phases** of the project will be needed, identify anticipated sources of funding:

The Truckee River Fund's annual support of KTMB's Great Community Invasive Weed Pull and Truckee River cleanups assists in maintaining the health of the Truckee River and its greater watershed. It provides opportunities for KTMB to engage partner agencies, municipalities, groups, foundations and caring citizens, and to leverage in-kind support and funding from other sources. In addition, KTMB's efforts with NLT to provide the leadership necessary to complete Phase I of the One Truckee River is building the partnerships, fundraising mechanisms, fundable projects and capacity to address not only the symptoms of Truckee River health (weeds, litter and nonpoint pollution runoff) but also the underlying problems (education, environmental awareness, and civic participation and stewardship) community-wide. TRF support will enhance our ability to build these capacities.

7. **Principals involved** in leading or coordinating the project or activity:

KTMB is the principal coordinating agency for project implementation, management, volunteer recruitment and coordination. KTMB relies on the time and expertise of a variety of project partners including the Washoe County Parks, City of Reno Parks, City of Sparks Parks and Recreation, The Nature Conservancy, Nevada Department of Agriculture, Nevada Department of Wildlife, Nevada Land Trust, Sierra Nevada Journeys, Reno-Sparks Indian Colony, Truckee Meadows Weed Coordinating Group, Truckee River Fly Fishers, Sagebrush Chapter of Trout Unlimited, Truckee River Foundation, and Washoe County Sheriff's Office. Former members of the Truckee River Yacht Club and Champions of the Truckee River continue to provide logistical and promotional support as needed.

8. Number of **staff positions involved** in project: **Five Part-Time Staff**

9. Number of **volunteers involved** in project and an estimated number of volunteer hours.
   Great Community Cleanup: 100-250 volunteers Estimated hours: 350-875 hours
   Truckee River Cleanup: 500-700 volunteers Estimated hours: 1,750-2,450 hours

KEEP TRUCKEE MEADOWS BEAUTIFUL

10. **Time Line** of Project. (GCC = Great Community Cleanup & TRC = Truckee River Cleanup)
The timelines for 2017 GCC and TRC are the same as in past years. Details available on request.
Winter 2016-2017: Meet with project partners to identify Great Cleanup locations and begin planning.
Spring 2017: Survey length of River on a four point scale and create data points. Implement weed pull on April 29. Spring/Summer 2017: Compile survey data from weed pull and re-survey. Begin planning for September 30 River Cleanup.
Fall/Winter: Hold September 30 River cleanup and re-survey length of river.

11. **Success**. The success of this project will be measured in the following ways:

- 700 community volunteers engaged in trash and invasive weeds removal along the Truckee River and its tributaries during KTMB's Great Community and Truckee River cleanups in 2017;
- 200 youth volunteers engaged in watershed stewardship through Truckee River volunteer projects;
- 10 Speakers Bureau presentations to adult groups;
- 10-20 tons of invasive weeds and trash will be removed from Truckee River Watershed in 2017;
- 150 storm drains will be stenciled;
- Evidence Based Litter Survey conducted along length of the River to evaluate cleanup efforts;
- Improve Adopt-A-River participation by 100%;

12. **Grant match**. All applicants must provide a match of at least 25 percent for dollars requested.

<table>
<tr><td>Match amount to be provided:</td><td>$119,300</td></tr>
<tr><td>Match details:</td><td>Please provide the form of your matching funds. If match is made up of both cash and in-kind, fill in both sections.
Match is:<table><tr><td>Cash</td><td>$15,000 from UPS Grant cash supporter since 2015</td></tr><tr><td>In-kind</td><td>$104,300 Total</td></tr></table>For the cash portion of your match, is the funding already being held by the applicant for this project? Yes __ No X</td></tr>
<tr><td>Description of matching funds/in-kind donations:</td><td>▪ KTMB has secured $8,990 to support volunteer needs.
▪ KTMB is projecting $56,000 in volunteer time at a rate of $20/hour per individual and a minimum of 700 volunteers.
▪ Project Partners will provide a minimum of $11,360 in staff time
▪ Project Partners have agreed to provide a minimum of $4,950 in project supplies, equipment, and various volunteer materials (i.e.: bags, tools, heavy equipment as needed, etc.).
▪ Media partners will provide a minimum of $1,500 for media buys.
▪ Washoe County Regional Parks & Open Space regularly contributes staff time, promotion and materials valued at $2,500.
▪ City of Sparks Parks and Recreation regularly contributes staff time, promotion and materials valued at $3,500.
▪ City of Reno Parks, Recreation, & Community Services regularly contributes staff time, promotion and materials valued at $3,500.</td></tr>
</table>

Truckee River Fund 2016 Project Budget

2017 Spring Invasive Weed Pull & Fall Truckee River Cleanup

Category	Justification	KTMB TRF Request Spring Weed Pull/AAR	KTMB TRF Request Fall/Survey	Cash & In Kind Total	Total TRF + In kind	Total TRF Request
COORDINATION & IMPLEMENTATION						
Keep Truckee Meadows Beautiful	Project, Partner, and Volunteer Management	$11,000.00	$16,000.00	$10,500.00	$37,500.00	$27,000.00
Keep Truckee Meadows Beautiful	Personnel/Benefits/Payroll Taxes		$3,200.00	$3,000.00	$6,200.00	$3,200.00
Bureau of Land Mgmt	Staff Time, Materials, Equipment & Dumpsters			$2,500.00	$2,500.00	$0.00
TMWCG Project Partner	Weed Project: Identify, Monitor, Train, Supervise	$2,000.00	$0.00	$2,500.00	$4,500.00	$2,000.00
TMWCG Project Partner	Personnel/Benefits/Payroll Taxes		$0.00	$1,260.00	$1,260.00	$0.00
Washoe County Parks	Staff Time, Materials & Equipment		$0.00	$1,500.00	$1,500.00	$0.00
City of Reno Parks	Staff Time & Equipment		$0.00	$3,500.00	$3,500.00	$0.00
Reno Fire Dept Water Entry Team	Swiftwater rescue technicians and equipment			$1,200.00	$1,200.00	$0.00
Truckee Meadows Watershed Committee	Storm drain stenciling supplies, staff time, education and give-aways			$3,500.00	$3,500.00	$0.00
City of Sparks Parks	Staff Time, Materials & Equipment			$500.00	$500.00	$0.00
Nevada Department of Wildlife	Staff Time, Materials & Equipment			$400.00	$400.00	$0.00
Reno Sparks Indian Colony	Staff Time, Materials & Equipment			$1,500.00	$1,500.00	$0.00
The Nature Conservancy	Staff Time			$500.00	$500.00	$0.00
Otis Bay	Staff Time, Materials & Equipment			$500.00	$500.00	$0.00
Volunteer Hours	700 volunteers x4 hours x $20.00/hour		$0.00	$56,000.00	$56,000.00	$0.00
	Sub-Total	**$13,000.00**	**$19,200.00**	**$88,860.00**	**$121,060.00**	**$32,200.00**
EQUIPMENT						
Sani-Huts	United Site Services (5 Deluxe Restrooms, 2 Sinks, $55/unit, damage waivers and $300 delivery fees)	$250.00	$900.00	$1,000.00	$600.00	$1,150.00
Dumpsters	Dumpsters vary each cleanup, along with discounts	$1,200.00	$3,600.00	$3,600.00	$1,200.00	$4,800.00
Garbage Bags	Epolystar - 30 x 36, 250/case, $76.22/case; 40 x48, 100/case, $54.80; star seal on roll	$400.00	$400.00		$800.00	$800.00
First Aid Kits	REMSA Basic First Aid Kits			$100.00	$100.00	$0.00
KTMB Truck for Site Surveying/Event Implementation	Fuel & Maintenance/Mileage	$200.00	$500.00		$700.00	$700.00
Trash Pickers	ULINE - 32" ($14/picker)		$375.00		$375.00	$375.00
Project Supplies	Tools, tree wrap, paint, mask, gloves, etc.	$750.00	$800.00		$1,550.00	$1,550.00
In-Water Cleanup Equipment	Tahoe Whitewater Tours (rafts & kayaks)		$0.00	$250.00	$250.00	$0.00
	Sub-Total	**$2,800.00**	**$6,575.00**	**$4,950.00**	**$14,325.00**	**$9,375.00**
VOLUNTEER COORDINATION						
Volunteer Appreciation BBQ Snacks, Coffe	Catered by project partners, lunch, snacks, coffee, etc.	$0.00	$500.00	$7,490.00	$7,990.00	$500.00
Event Signage	509C - 24"x18" double-sided, includes Hstakes & 24" x 6" Arrow signs $20/sign	$200.00	$500.00		$700.00	$700.00
Reusable Aluminum Bottles	Branded Screen Printing (HKI-201, 24 oz $4.49/bottle w/ $500 discount)	$1,500.00	$4,000.00		$5,500.00	$5,500.00
Health Permit for Picnic	Washoe County Health District	$25.00	$25.00		$50.00	$50.00
Volunteer Project Leader Tech Shirts	Branded Screen Printing (Sport TekDri-Mesh, LS Competitor Tee, ST350L & LST353LS, $8/shirt)	$2,000.00	$2,000.00		$4,000.00	$4,000.00
Volunteer wristbands	Debossed (1/2" - Youth, Green)	$200.00	$200.00		$400.00	$400.00
Volunteer Raffle Prizes	REI Products	$0.00	$0.00	$1,500.00	$1,500.00	$0.00
Radio/Print/Television Education Campaign	Multi media through various groups	$2,500.00	$4,000.00	$1,500.00	$8,000.00	$6,500.00
Zero Waste Supplies	Serving ware, utensils, signage	$700.00	$700.00	$0.00	$1,400.00	$1,400.00
	Sub-Total	**$7,125.00**	**$11,925.00**	**$10,490.00**	**$29,540.00**	**$19,050.00**
	Total	**$22,925.00**	**$37,700.00**			$60,625.00
TOTAL DIRECT CHARGES				**$104,300.00**	**$164,925.00**	**$60,625.00**

Funding received from the Truckee River Fund

Date awarded:	October 22, 2016
Project title:	TRF #165 Truckee River Cleanup/Invasive Weed Pull
Amount of Award:	$48,325
Date awarded:	February, 2015
Project title:	TRF #156 Phase I Truckee River Corridor Management Plan
Amount of Award:	$90,000
Date awarded:	September, 2014
Project Title:	TRF #154 Invasive Weed Pull & River Cleanup
Amount of Award:	$46,000
Date awarded:	October 2013
Project Title:	TRF 126: Truckee River Youth Education/Invasive Weed Pull/Cleanup 2014
Amount of Award	$57,050
Date awarded:	September 2012
Project title:	Truckee River Cleanup 2013
Amount of Award:	$46,450
Date awarded:	October 2011
Project title:	TRF #89 Truckee River Cleanup 2012
Amount of Award:	$44,950
Date awarded:	November 2010
Project title:	#82 Truckee River Cleanup May 2011 Invasive Weed Pull and September 2011 Truckee River Cleanup Day
Amount of Award:	$42,900
Date awarded:	December 2009
Project title:	Invasive Weed Pull May 2010, River Cleanup Sep 2010
Amount of Award:	$42,050
Date awarded:	February 2009
Project title:	Truckee River Cleanup Day, September 2009
Amount of Award:	$26,975
Date awarded:	January 2008
Project title:	Truckee River Cleanup Day, September 2008
Amount of Award:	$25,604.85
Date awarded:	November 2006
Project title:	Truckee River Cleanup Day, September 2007
Amount of Award:	$24,730
Date awarded:	July 2006
Project title:	Truckee River Cleanup Day, September 2006
Amount of Award:	$13,175
Date awarded:	December 2005
Project title:	Truckee River Cleanup Day, September 2006
Amount of Award:	$9,402.50

Supplemental Page to Truckee River Fund 2016 Spring Submission

Updated August, 2016

Cover Sheet

Organization Name:	Truckee River Watershed Council (TRWC)		
Type:	501(c)(3) EIN#91-1818748	**Governmental entity?** No	
Address:	P.O. Box 8568, Truckee, CA 96162		
Project Name:	Donner Creek Bank Stabilization Downstream of Railroad Culvert Final Design		
Amount requested: $92,000		**Website:** www.truckeeriverwc.org	
This funding will be used to (complete this sentence with a max of 2 sentences):		Decrease sedimentation (TMDL pollutant) to Donner Creek and the Truckee River with bank stabilization and riparian restoration.	

Key People:	**Director:**	Lisa Wallace
	Board Chair:	Michael Park
	Project Contact:	**Name:** Lisa Wallace
		Position: Executive Director
		Phone: 530-550-8760 x 2
		Fax:
		Email: lwallace@truckeeriverwc.org
Organization Mission:	We bring the community together for the Truckee to restore, protect, ad enhance the Truckee River watershed.	

Has your organization received other grants from the Truckee River Fund?
Yes X **No**
(use additional page if necessary)

If yes,

Date awarded:	April 2016
Project title:	Johnson Canyon Westside Restoration – Construction Implementation
Amount of Award	$67,000
Date awarded:	October 2015
Project title:	Johnson Canyon Westside Restoration
Amount of Award	$25,000

Please see Attachment A for a full list of awarded grants

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☒ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☒ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☒ C. Projects that remove pollution from the Truckee River.
- ☐ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.
- ☐ E. Other projects that meet the evaluation criteria.

1. **Project Goals and Measurable Outcomes and how you will measure and report them.** The goal of the Donner Creek Bank Stabilization Below Railroad Culvert Final Design (Donner Creek Bank Stabilization Design) is to complete design, permitting and pre-implementation monitoring of a project that will ultimately improve water quality and habitat along Donner Creek, and decrease sedimentation reaching the Truckee River. TMDL Monitoring completed by the Truckee River Watershed Council (TRWC) concludes that this reach of Donner Creek is in the top three sedimentation dischargers within the Town of Truckee to the Truckee River. (Middle Truckee River TMDL Suspended Sediment Monitoring Report WY 2011, 2012, 2013, 2014). Donner Creek is an important waterway delivering water supply for Reno/Sparks via the Truckee Meadows Water Authority. The Middle Truckee River watershed, including Donner Creek, is listed as Clean Water Act impaired by sediment by the U.S. EPA, with an approved TMDL (Lahontan Water Board, 2008).

   TRWC completed the Donner Basin Assessment in early 2016 that outlines the causes of degradation and recommends restoration and management priorities. The Assessment identified this project as one of the top priorities to address sedimentation to the Truckee River, and a project concept was included in the final report. The result of the restoration will be significantly decreased sedimentation and improved wildlife habitat.

   Outcomes of the project are:
   - Final restoration design;
   - Permits and environmental documentation;
   - Pre-Project Monitoring.

   We will know we are successful when the project is ready for construction. Ultimately, project construction and pre- and post- project monitoring will confirm erosion reduction.

2. **Project location**. Donner Creek is the only outflow of Donner Lake, located within the California portion of the Truckee River watershed. The project is on the lower portion of the creek, approximately one quarter of a mile above the confluence with the main stem of the Truckee River. See Figure 1 for the project location.

Figure 1. Donner Basin and Project Location.

3. **Project description**. Just downstream of the railroad culvert, the right bank of Donner Creek and hillslope above show severe erosion. This is likely caused by the railroad culvert directing high velocity flows at the soft soils of the bank. The project will create final designs to re-profile the bank and stabilize the area with a combination of large wood, rock, erosion control fabric, revegetation with native, drought tolerant grasses and sedges and riparian plantings. This will stabilize a severely eroding stream bank, thus largely eliminating one of the largest sources of fine sediment to the downstream-most portion of Donner Creek. Additionally, it will enhance riparian habitat and, depending on design, improve in-stream habitat.

   Final Design
   Based on the findings of the Donner Basin Assessment and the associated project concept, the final project design will include access, stockpile, and staging locations; grading quantity estimates; revegetation plan; erosion prevention plan; and materials, equipment, and cost estimates. Restoration design will include estimates of sediment reduction and wetland gains.

   Permitting
   As a part of this project, TRWC and our partners will secure all necessary permits and complete State of California Environmental Quality Act (CEQA) compliance between September 2017 and December 2017. We anticipate securing permits from the California Lahontan Regional Water Quality Control Board (401 and NPDES), U.S. Army Corps of Engineers (Nationwide), and Nevada County or Town of Truckee (Grading permit).

   Pre-Project Monitoring
   Pre- and post-project monitoring are necessary to accurately assess the progress and effectiveness of the restoration. This project will include pre-project monitoring only. Monitoring activities will include measures such as water quality surveys, sediment load reduction estimates, photo point monitoring, and baseline vegetation transects.

Eroding bank just donwstream of the railroad culvert on Donner Creek

Overhead view of treatment area and proposed treatment

4. **Grant Priorities**. The Donner Creek Bank Stabilization Design addresses Grant Priority II. Watershed Improvements, III. Local Stormwater Improvements, and VII. Multiple Objectives. The purpose is to reduce erosion and mitigate stormwater runoff in an urbanized reach of Donner Creek, thus reducing sedimentation and improving water quality in the Truckee River, a 303(d) listed watershed, with an approved TMDL for sedimentation.

5. **Permitting**. As a part of this project, TRWC and our partners will secure all necessary permits and complete State of California Environmental Quality Act (CEQA) compliance between September 2017 and December 2017. We anticipate securing permits from the California Lahontan Regional Water Quality Control Board (401 and NPDES), U.S. Army Corps of Engineers (Nationwide), and Nevada County, California (Grading permit).

6. **Future Phases**. The Truckee River Fund previously funded the Donner Basin Assessment. The current request for funding is for the final design, permitting, and pre-project monitoring. The final and future phase will be construction and post-project monitoring. There are a number of possible funding sources for the final phase, such as US EPA 319(h) grants, Lahontan Regional Water Quality Control Board TMDL funds, Tahoe Truckee Community Foundation, Bella Vista Foundation and Laird Norton Family Foundation.

7. **Principals involved**. Michele Prestowitz will be the lead from the Truckee River Watershed Council. We anticipate stakeholder involvement from the Town of Truckee, Truckee Tahoe Sanitation Agency, Union Pacific, and private landowners along Donner Creek.

8. **Staff positions involved**. No full time staff positions are associated with this project. Part-time staff positions are:
   - Michele Prestowitz, Program Manager, TRWC
   - Lisa Wallace, Executive Director, TRWC

9. **Volunteers involved**. This project will be featured during Truckee River Day 2017. We anticipate 10 volunteers will work 6 hours on this workday. 10 volunteers x 6 hours = 60 hours.

10. **Time Line**.

Task	Start Date	Completion Date
Project design	January 2017	October 2017
Permitting and environmental documentation	September 2017	December 2017
Pre-project monitoring	May 2017	October 2017
Project administration and Reporting	January 2017	December 2017

11. **Success**. We will know we are successful with this project when we have complete design, permitting, and pre-project monitoring. Ultimately, project construction and pre- and post-project monitoring will confirm erosion reduction.

12. **Grant match**.

Match amount to be provided:	**$260,600**
Match details:	Match is: Cash: **$260,000** In-kind: **$600 = 10 volunteers x 6 hours x $10/hour** For the cash portion of your match, is the funding already being held by the applicant for this project? Yes __ No _X_
Description of matching funds/in-kind donations:	Matching funds are anticipated from Bella Vista Foundation, Lahontan Water Quality Control Board, Tahoe Truckee Community Foundation, and the Town of Truckee. We anticipate 10 volunteers will work 6 hours on Truckee River Day 2017.

13. PROJECT BUDGET

	PROJECT BUDGET			
Budget Item Description	**TRF $**	**Other Funding**	**Match $**	**Total**
Design	$35,000			$35,000
Permitting and environmental documentation	$20,000			$20,000
Pre-Project Monitoring	$10,000			$10,000
Project Administration and Reporting	$25,000			$25,000
Construction	$0	Bella Vista Foundation, Lahontan Water Quality Control Board, Tahoe Truckee Community Foundation, Town of Truckee.	$250,000	$250,000
Post-Project Monitoring	$0	Bella Vista Foundation, Lahontan Water Quality Control Board, Tahoe Truckee Community Foundation, Town of Truckee.	$10,000	$10,000
TOTAL	**$90,000**		**$260,000**	**$350,000**

TRWC and our partners completed the Donner Basin Assessment, including project concept designs, in January 2016. Work up to this time has been funded by:

$70,000: Truckee River Fund
$25,000: Laird Norton Family Foundation

Attachment A
Full list of grants to TRWC from the Truckee River Fund

Date awarded:	April 2016
Project title:	Johnson Canyon Westside Restoration – Construction Implementation
Amount of Award	$67,000
Date awarded:	October 2015
Project title:	Johnson Canyon Westside Restoration
Amount of Award	$25,000
Date awarded:	September 2014
Project title:	Donner Lake Watershed Assessment
Amount of Award	$70,000
Date awarded:	March 2014
Project title:	Truckee Wetlands Restoration – Phase 3,4, & 5 – Design
Amount of Award	$50,000
Date awarded:	October 2013
Project title:	Truckee River Big Chief Corridor –Restoration
Amount of Award:	$150,000
Date awarded:	March 2013
Project title:	Truckee River Big Chief Corridor – Implementation
Amount of Award	$11,000
Date awarded:	March 2013
Project title:	Middle Martis Wetland Restoration – planning and design
Amount of Award:	$120,000
Date awarded:	August 2012
Project title:	Phase 2 Coldstream Canyon Floodplain Restoration
Amount of Award:	$196,000
Date awarded:	March 2012
Project title:	Lacey Creek and Meadow Assessment
Amount of Award	$50,000
Date awarded:	March 2012
Project title:	Negro Canyon Restoration – pre-project monitoring
Amount of Award:	$25,000
Date awarded:	October 2010
Project title:	Coldstream Canyon Floodplain Restoration Project
Amount of Award:	$135,000
Date awarded:	August 2010
Project title:	Truckee Wetlands Restoration Project – Phase 2
Amount of Award:	$40,000
Date awarded:	July 2006
Project title:	“This Drains to the Truckee River” Storm Drain Stenciling Pilot Project
Amount of Award:	$9,300

Donner Basin

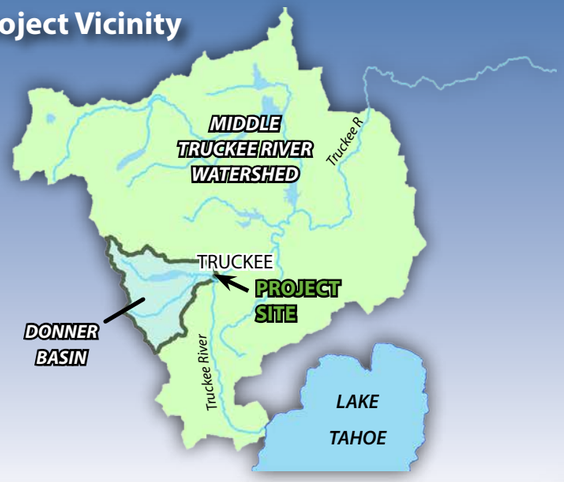
Bank Stabilization Downstream of Railroad Culvert

Truckee River Watershed Council
Collaborative solutions to protect, enhance and restore the Truckee River Watershed

truckeeriverwc.org

View of the upstream portion of the eroding bank. Photo by Jai Singh, cbec (2015).

Project Vicinity



Project Location

Location: Right bank immediately downstream of railroad culvert.

Project Description

The right bank and hillslope will be reprofiled by pulling the top of the hillslope further back from the channel and stabilized through a combination of large wood, rock, erosion control fabric, hydroseeding with native, drought tolerant grasses and sedges and riparian plantings. The site will incorporate large log toe protection, essentially one long large wood structure along the base of the bank. Additional longitudinal peak stone toe protection may be needed to provide additional toe anchorage, due to the site hydraulics. A combination of plantings and the placement of coir, jute or other erosion control fabric further up the hillslope will help stabilize the site.

Problem

Just downstream of the railroad culvert outlet, the right bank of Donner Creek and hillslope above exhibit severe erosion. The erosion appears to be driven by the orientation of the railroad culvert outlet which directs high velocity flows at the soft, non-cohesive soils of the bank. Suspended sediment monitoring[1] between water years 2012 and 2014 shows that significant fine sediment loading occurs in the last 0.5 miles of Donner Creek between Highway 89 and W. River Street. Field observations indicate that this bank erosion site is likely one of the two locations responsible for a significant portion of these fine sediment contributions. Addressing this site is particularly important given that the Donner Basin is a significant contributor of fine sediment to the Truckee River and the Truckee River is currently listed as impaired for suspended sediment.

Benefits

The project will stabilize the existing bank and hillslope erosion, thus reducing fine sediment loading to Donner Creek during high flow events. The project will also enhance riparian habitat and, depending on design, could improve in-stream habitat.

Constraints

Reprofiling the bank will require the setback of private residences and other infrastructure. Further analysis is needed to determine if extending the bank into the channel is feasible. If reprofiling the bank is not an option, the site design will need to incorporate a steep bank and hillslope.

Cost Estimate: $100,000 to > $1M

Timeline: 2 to 5 years

Project concept assumes support of all land owners, land managers, and stakeholders.

[1]Balance Hydrologics, Inc (Balance). 2014. Middle Truckee River Total Maximum Daily Load (TMDL) Suspended Sediment Monitoring Report, Water Year 2014, Nevada County, California. Prepared for Truckee River Watershed Council. Prepared by Balance Hydrologics, Inc. December 2014.

Railroad culvert just upstream of eroding bank. Photo by Jai Singh, cbec (2015).

View of the downstream portion of the eroding bank. Photo by Jai Singh, cbec (2015).

Project Benefits	
Benefit	**Comments**
Geomorphic / Physical Processes	The project will reduce bank erosion and excessive fine sediment loading to the lower portion of Donner Creek, thus reducing impacts to fine sediment dynamics in the downstream-most portion of Donner Creek.
Water Quality	The project will improve water quality by reducing suspended sediment loads in the lower portion of Donner Creek as well as the Middle Truckee River.
Fine Sediment Reduction	The project will stabilize a severely eroding stream bank, thus largely eliminating one of the largest sources of fine sediment to the downstream-most half mile of Donner Creek.
Habitat	The project will enhance riparian habitat on the right bank and may improve in-stream habitat quality by providing cover for aquatic species. The project could also improve downstream in-stream habitat by reducing the amount of fine sediment along the stream bed.

cbec eco engineering, H.T. Harvey & Associates, Susan Lindstrom. 2016. Donner Basin Watershed Assessment. Prepared for Truckee River Watershed Council. January 2016.

For more information about this project, please visit truckeeriverwc.org

cbec

H.T. HARVEY & ASSOCIATES
Ecological Consultants

Truckee River Watershed Council
Collaborative solutions to protect, enhance and restore the Truckee River Watershed

truckeeriverwc.org

Project Location

Treatment Area

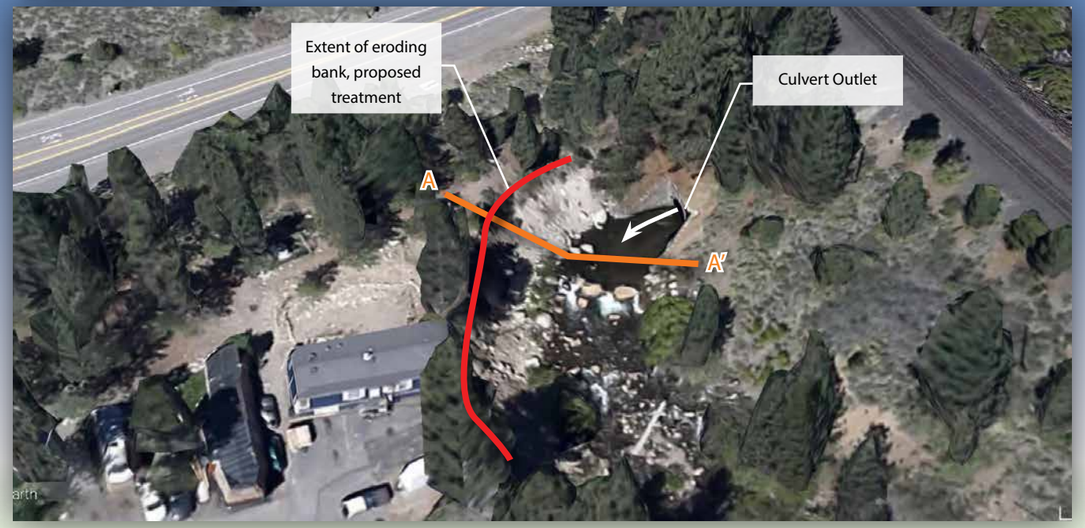
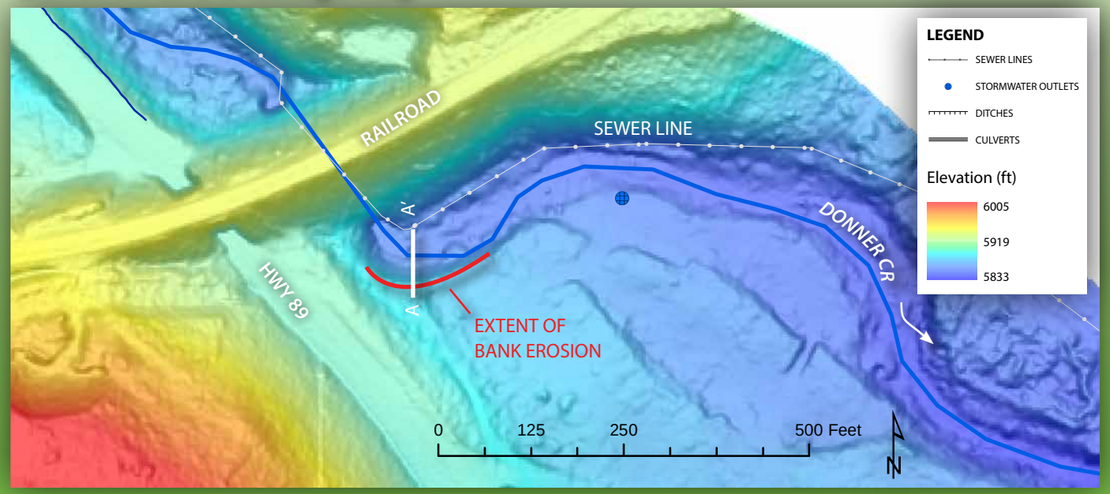


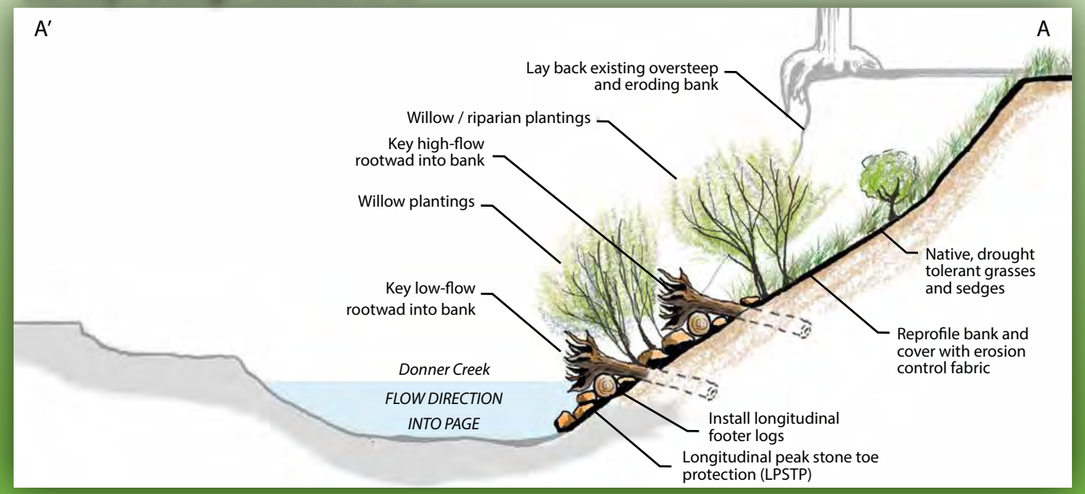
Image from Google Earth

Elevation and Drainage Map



Elevation data from USFS 2014 LiDAR dataset

Concept Design Section A-A'



cbec
H.T. HARVEY & ASSOCIATES
Ecological Consultants

Submitted by Desert Research Institute

Grant application to the *Truckee River Fund*
from the Truckee River Watershed Council
Donner Creek Concept Designs

Cover Sheet

Organization Name:	Truckee River Watershed Council (TRWC)	
Type:	501(c)(3) EIN#91-1818748	**Governmental entity?** No
Address:	P.O. Box 8568, Truckee, CA 96162	
Project Name:	Donner Creek Concept Designs	
Amount requested: $40,000	**Website:** www.truckeeriverwc.org	
This funding will be used to (complete this sentence with a max of 2 sentences):	Decrease sedimentation (TMDL pollutant) to Donner Creek and the Truckee River with wetland restoration, bank stabilization, and instream restoration.	

Key People:

Director:	Lisa Wallace
Board Chair:	Michael Park

Project Contact:

Name:	Lisa Wallace
Position:	Executive Director
Phone:	530-550-8760 x 2
Fax:	
Email:	lwallace@truckeeriverwc.org

Organization Mission: We bring the community together for the Truckee to restore, protect, ad enhance the Truckee River watershed.

Has your organization received other grants from the Truckee River Fund?
Yes X **No**
(use additional page if necessary)

If yes,

Date awarded:	April 2016
Project title:	Johnson Canyon Westside Restoration – Construction Implementation
Amount of Award	$67,000
Date awarded:	October 2015
Project title:	Johnson Canyon Westside Restoration
Amount of Award	$25,000

Please see Attachment A for a full list of awarded grants

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☒ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☒ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☒ C. Projects that remove pollution from the Truckee River.
- ☐ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.
- ☐ E. Other projects that meet the evaluation criteria.

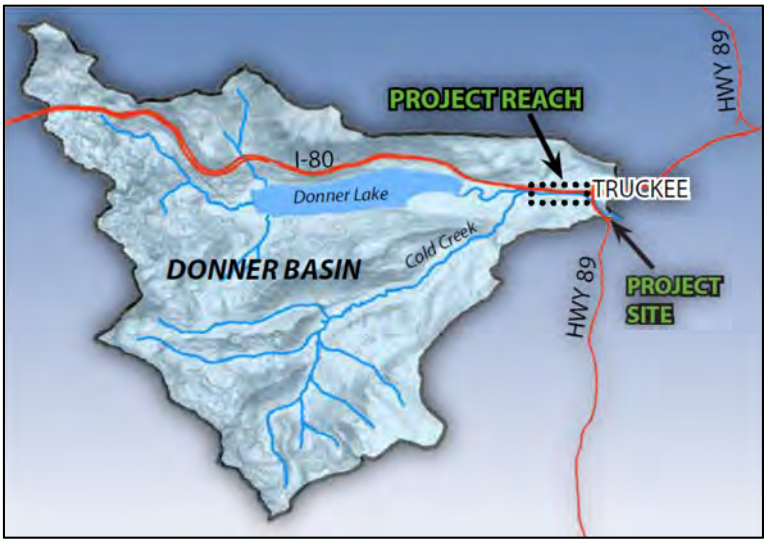
1. **Project Goals and Measurable Outcomes and how you will measure and report them.**
The goal of the Donner Creek Concept Designs project is to complete 60% designs for three restoration projects that will improve water quality and habitat along Donner Creek, and decrease sedimentation reaching the Truckee River. TMDL Monitoring completed by the Truckee River Watershed Council (TRWC) concludes that this reach of Donner Creek is in the top three sedimentation dischargers within the Town of Truckee to the Truckee River. (Middle Truckee River TMDL Suspended Sediment Monitoring Report WY 2011, 2012, 2013, 2014). The three projects support implementation of the Middle Truckee River TMDL through environmental restoration of river banks and wetlands, and improved instream habitat.

   The TRWC completed the Donner Basin Assessment in early 2016. This report outlines the causes of degradation and recommends restoration and management priorities. The Assessment identified these three projects as significant opportunities to address sedimentation to the Truckee River. All three projects are along Donner Creek, an important waterway delivering water supply for Reno/Sparks via the Truckee Meadows Water Authority.

   These designs are in support of a collaborative partnership with the California Department of Transportation (Caltrans) resulting from the Donner Basin Assessment. See the attached memo between TRWC and Caltrans. Other stakeholders important to the projects are the Town of Truckee and the Tahoe Truckee Unified School District.

   Outcomes of the project are 60% designs for the following restoration opportunities:
   - Project Site 1: Bank Stabilization and Channel Enhancement Along Highway 89;
   - Project Site 2: Stormwater Treatment Wetland Complex and Educational Site;
   - Project Site 3: Stormwater Infiltration and Treatment Along I-80.

   We will know we are successful when the designs are accepted by Caltrans, the Town of Truckee and the School District. Ultimately, project construction by Caltrans and pre- and post- project monitoring will confirm erosion reduction.



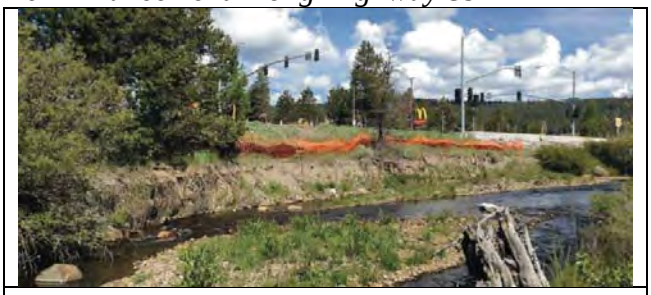
Donner Basin - Project Site 1, and Project Reach including Project Sites 2 and 3

2. **Project location**. Donner Creek is the only outflow of Donner Lake, located within the California portion of the Truckee River watershed. The project area is on the lower portion of the creek, within the final mile of the confluence with the main stem of the Truckee River.

3. **Project description**.
During the Donner Basin Assessment, TRWC solicited feedback and input from stakeholders, including Caltrans, the Town of Truckee, and the School District. Caltrans is the main stakeholder regarding water quality concerns for Donner Creek. Subsequently, Caltrans staff identified specific partner-funding opportunities to implement priority stormwater improvement and ecological restoration projects. To be eligible for these funds, TRWC needs to bring forward 60% designs. This project will also further develop the public-private partnership between TRWC and Caltrans, and leverage resources and participation from the above mentioned stakeholders.

The proposed project addresses three specific sites along Donner Creek (see attached project sheets for more details):

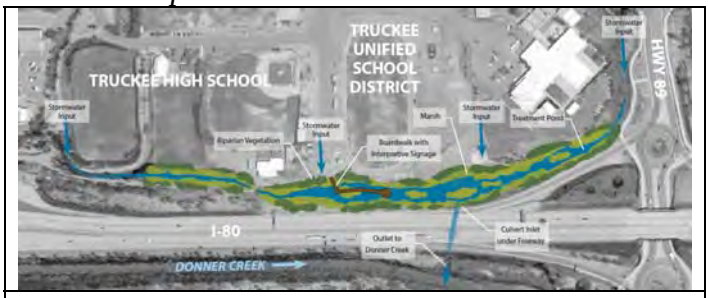
Project Site 1: Bank Stabilization and Channel Enhancement Along Highway 89



Project Site 1: Eroding bank along Highway 89

One bank of Donner Creek shows severe erosion, and both stream banks offer limited area for riparian habitat and little riparian canopy for the stream channel. This project will re-profile the bank to extend further into the stream channel while setting back the other bank to enhance aquatic and riparian habitat and reduce erosion pressure. This project will reduce the fine sediment loading from the existing bank erosion on the right bank, benefitting water quality in both Donner Creek and the Truckee River. By stabilizing the right bank and adjusting the stream channel further to the east, the project will reduce the erosion risk to Highway 89. The project will enhance riparian habitat along the stream corridor, particularly along the left bank, and improve instream habitat quality and substrate diversity by reducing fine sediment loads and restoring natural physical processes.

Project Site 2: Stormwater Treatment Wetland Complex and Educational Site



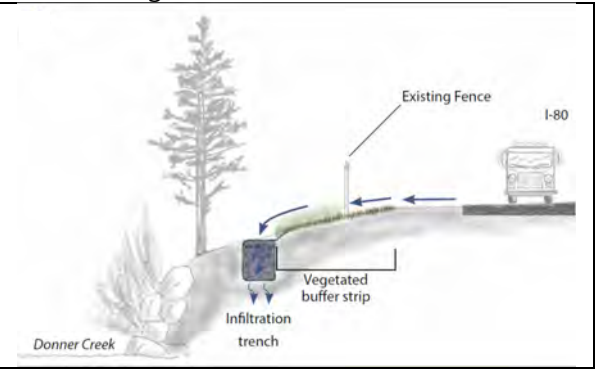
Project Site 2: Stormwater treatment and educational site along school district property

Stormwater from commercial areas, roads, and the high school currently drains to a ditch along the north side of I-80 and into Donner Creek. The ditch offers minimal stormwater treatment and many pollutants flow directly into Donner Creek. This project will construct a stormwater treatment wetland complex with multiple treatment cells to capture

stormwater and fine sediment, improve water quality, provide a wetland habitat, and improve the quality of riparian habitats. The complex will create a unique living classroom for the neighboring schools' environmental education programs.

Project Site 3: Stormwater Infiltration and Treatment Along I-80

Much of the stormwater from the interstate's east-bound traffic drains off the edge of the pavement and directly into Donner Creek. This stormwater likely transports a large array of pollutants and trash into Donner Creek, leading to water quality impairment and trash accumulation. This project will construct multiple treatment cells of stormwater trenches, percolation drains, or grass swales to enhance capture of stormwater pollutants. This will result in significant improvements in water quality, reduce hydrologic impacts, and reduce fine sediment loading.



Project Site 3: Storwater capture and treatment concept

4. **Grant Priorities**. The Donner Creek Design addresses of the following TWMA Grant Priorities:
   - II. Watershed Improvements
   - III. Local Stormwater Improvements
   - VI Stewardship and Environmental Awareness
   - VII. Multiple Objectives
   - VIII. Leverage Stakeholder Assets and Participation.

   The purpose is to reduce erosion, mitigate stormwater runoff in multiple urbanized reaches of Donner Creek, and engage a valuable stakeholder in order to reduce sedimentation and improve water quality in the Truckee River, a 303(d) listed watershed with an approved TMDL (Lahontan Water Board, 2008).

5. **Permitting**. Permitting is not included in this phase of the project. In partnership with Caltrans, we anticipate securing all necessary permits and completing State of California Environmental Quality Act (CEQA) during the final design.

6. **Future Phases**. The Truckee River Fund previously funded the Donner Basin Assessment. The current request for funding is for concept designs. Future phases will be final design, construction, and post-project monitoring. See the attached memo outlining our work with Caltrans to secure future funding through the State Highway Operation and Protection Program (*SHOPP*), Minor Program, and Cooperative Implementation Agreements (CIA) program.

7. **Principals involved**. Michele Prestowitz will be the lead from the Truckee River Watershed Council. We anticipate significant stakeholder involvement from Caltrans and the Town of

Truckee. The Truckee Tahoe Unified School District (TTUSD) will be involved with the *Stormwater Treatment Wetland Complex and Educational Site* project.

8. **Staff positions involved**. No full time staff positions are associated with this project. Part-time staff positions are:
   - Michele Prestowitz, Program Manager TRWC
   - Lisa Wallace, Executive Director, TRWC

9. **Volunteers involved**. This project will be featured during Truckee River Day 2017. We anticipate 10 volunteers will work 6 hours on this workday. 10 volunteers x 6 hours = 60 hours.
10. **Time Line**.

Task	**Start Date**	**Completion Date**
Design consultant	January 2017	February 2017
30% Designs	February 2017	July 2017
60% Designs	August 2017	December 2017
Partner coordination	January 2017	December 2017
Project administration	January 2017	December 2017

11. **Success**. We will know we are successful with this project when we have completed 60% designs for all three projects and project partners have agreed to the designs. Ultimately, project construction and pre- and post- project monitoring will confirm erosion reduction.

12. **Grant match**.

Match amount to be provided:	**$649,000**
Match details:	Match is: Cash: **$640,000** In-kind: **$9,000** For the cash portion of your match, is the funding already being held by the applicant for this project? Yes __ No _X_
Description of matching funds/in-kind donations:	Matching funds are anticipated from the California Department of Transportation (Caltrans) and the Truckee Tahoe Unified School District. $9,000 in-kind from Caltrans, TTUSD and Town of Truckee in reviewing 30% and 60% designs (3 agencies X 40 hrs/agency X $75/hr = $9,000).

13. PROJECT BUDGET

	PROJECT BUDGET			
Budget Item Description	**TRF $**	**Other Funding**	**Match $**	**Total**
30% Design	$17,500	Caltrans, TTUSD, Town of Truckee	$4,500	$22,000
60% Designs	$17,500	Caltrans, TTUSD, Town of Truckee	$4,500	$22,000
Partner Coordination	$2,500			$2,500
Project Administration	$2,500			$2,500
100% Design	$0	Caltrans, TTUSD	$40,000	$40,000
Construction	$0	Caltrans, TTUSD	$600,000	$600,000
TOTAL	**$40,000**		**$649,000**	**$689,000**

TRWC and our partners completed the Donner Basin Assessment, including project concept designs, in January 2016. Work up to this time has been funded by:

$70,000: Truckee River Fund
$25,000: Laird Norton Family Foundation

Attachment A
Full list of grants to TRWC from the Truckee River Fund

Date awarded:	April 2016
Project title:	Johnson Canyon Westside Restoration – Construction Implementation
Amount of Award	$67,000
Date awarded:	October 2015
Project title:	Johnson Canyon Westside Restoration
Amount of Award	$25,000
Date awarded:	September 2014
Project title:	Donner Lake Watershed Assessment
Amount of Award	$70,000
Date awarded:	March 2014
Project title:	Truckee Wetlands Restoration – Phase 3,4, & 5 – Design
Amount of Award	$50,000
Date awarded:	October 2013
Project title:	Truckee River Big Chief Corridor –Restoration
Amount of Award:	$150,000
Date awarded:	March 2013
Project title:	Truckee River Big Chief Corridor – Implementation
Amount of Award	$11,000
Date awarded:	March 2013
Project title:	Middle Martis Wetland Restoration – planning and design
Amount of Award:	$120,000
Date awarded:	August 2012
Project title:	Phase 2 Coldstream Canyon Floodplain Restoration
Amount of Award:	$196,000
Date awarded:	March 2012
Project title:	Lacey Creek and Meadow Assessment
Amount of Award	$50,000
Date awarded:	March 2012
Project title:	Negro Canyon Restoration – pre-project monitoring
Amount of Award:	$25,000
Date awarded:	October 2010
Project title:	Coldstream Canyon Floodplain Restoration Project
Amount of Award:	$135,000
Date awarded:	August 2010
Project title:	Truckee Wetlands Restoration Project – Phase 2
Amount of Award:	$40,000
Date awarded:	July 2006
Project title:	“This Drains to the Truckee River” Storm Drain Stenciling Pilot Project
Amount of Award:	$9,300

530.550.8760

P.O. Box 8568
Truckee, CA 96162

truckeeriverwc.org

Truckee River Watershed Council
Collaborative solutions to protect, enhance and restore the Truckee River Watershed

July 27, 2016

California Department of Transportation
703 B Street
Marysville, CA 95901

Attn: Douglas Coleman, Branch Chief, Office of Environmental Engineering, South
Sean Cross, Staff Engineer/NPDES Coordinator
Rex Hervey, Transportation Engineer
Constantine Kontaxis, NPDES Branch Chief
Suzanne Melim, Environmental Branch Chief
Darrell Naruto, Staff Engineer/NPDES Coordinator

This memo summarizes the proposed partnership of the Truckee River Watershed Council (TRWC) and the California Department of Transportation (Caltrans) to cost-share and implement projects in the Donner Basin in Truckee, CA.

Lisa Wallace and Michele Prestowitz from TRWC and Caltrans staff of the Headquarters Watershed Management, Storm Water Program Implementation, and the District 3 NPDES Unit met to review projects identified through TRWC's Donner Basin Watershed Assessment. All agreed several projects are viable and can benefit Caltrans District 3 in obtaining Compliance Unit Credits along the I-80 and Nev-89 corridors, per the Truckee River TMDL.

More specifically, we agreed to working in the near term on the following three projects:
- Project Site 1: Bank Stabilization and Channel Enhancement Along Highway 89;
- Project Site 2: Stormwater Treatment Wetland Complex and Educational Site;
- Project Site 3: Stormwater Infiltration and Treatment along I-80.

Caltrans identified the following funding/cost-share sources:
- State Highway Operation and Protection Program (*SHOPP*)
  - Minor B – up to $291,000, relatively short range timeframe
  - Minor A – from $291,000 to $1,250,000, relatively short range timeframe
  - 335 Stormwater Program – from $100 million to $500 million, within the Caltrans right of way, long range timeline and asset management
- Cooperative Implementation Agreements (CIA) program – outside the Caltrans right of way, relatively short range timeframe.

Next steps are for TRWC and Caltrans to develop specific project and funding/cost share proposals. As agreed, TRWC will take the lead to facilitate these next steps.

Sincerely,

Lisa Wallace, Executive Director

Michele Prestowitz, Program Manager

Donner Basin

Bank Stabilization and Channel Enhancement Along Highway 89

Truckee River Watershed Council
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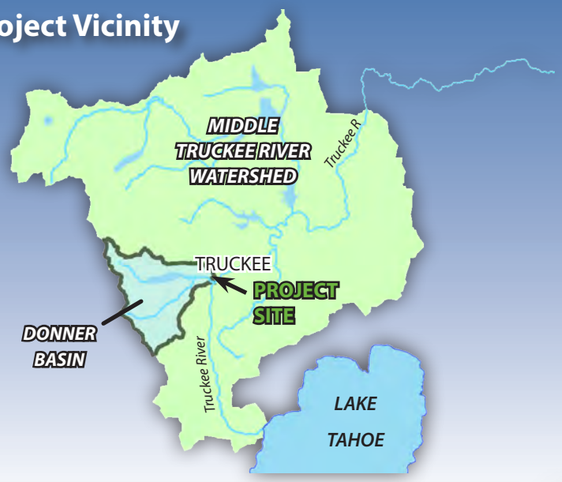
Eroding bank adjacent to Highway 89. Photo by Jai Singh, cbec (2015).

Project Vicinity



Project Location

Location: Donner Creek right bank 350 ft downstream of Highway 89 bridge

Project Description

To address the bank erosion concerns and improve habitat conditions, the right bank will be reprofiled such that the toe of the bank extended further into the current stream channel alignment. Concurrently, the left bank will be set back, reprofiled and replanted to enhance aquatic and riparian habitat and reduce erosion pressure on the right bank. Depending on bank stability objectives, the right bank may be further stabilized with plantings and an erosion control fabric, and/or longitudinal peak stone toe protection.

Problem

The right bank of Donner Creek currently exhibits severe bank erosion that, if unaddressed, will likely affect the stability of Highway 89 relatively soon. Both stream banks offer limited area for riparian habitat and little riparian canopy for the channel. Suspended sediment monitoring between water years 2012 and 2014[1] shows that significant fine sediment loading occurs in the last 0.5 miles of Donner Creek between Highway 89 and W. River Street. Field observations indicate that this bank erosion site is likely one of the two locations responsible for a significant portion of these fine sediment contributions. Addressing these sites is particularly important given that the Donner Basin is a significant contributor of fine sediment to the Truckee River and the Truckee River is currently listed as impaired for suspended sediment.

Benefits

This project would reduce the fine sediment loading from the existing bank erosion site on the right bank, benefitting water quality in both Donner Creek and the Truckee River. By stabilizing the right bank and adjusting the stream channel further to the east, the project would reduce the erosion risk to Highway 89. The project would enhance riparian habitat along the stream corridor, particularly along the left bank, and improve instream habitat quality and substrate diversity by reducing fine sediment loads and restoring natural physical processes.

Constraints

The proximity of the project to Highway 89 may become a constraint if stakeholders do not have buy-in.

Cost Estimate: $100,000 to > $1M

Timeline: 2 to 5 years

Project concept assumes support of all land owners, land managers, and stakeholders.

[1]Balance Hydrologics, Inc (Balance). 2014. Middle Truckee River Total Maximum Daily Load (TMDL) Suspended Sediment Monitoring Report, Water Year 2014, Nevada County, California. Prepared for Truckee River Watershed Council. Prepared by Balance Hydrologics, Inc. December 2014.

Eroding bank adjacent to Highway 89. Photo by Jai Singh, cbec (2015).

Heavily armored bank immediately upstream of the project site.
Photo by Jai Singh, cbec (2015).

Project Benefits	
Benefit	**Comments**
Geomorphic / Physical Processes	The project will reduce bank erosion and excessive fine sediment loading to the lower portion of Donner Creek, thus lessening impacts to fine sediment dynamics in the downstream-most portion of Donner Creek. The project will also slightly widen the active low and moderate-flow channel, providing a broader riparian zone and more frequent interaction between flood flows and the riparian corridor.
Water Quality	The project will improve water quality by reducing suspended sediment loads in the lower portion of Donner Creek, as well as the Middle Truckee River.
Fine Sediment Reduction	The project will stabilize a severely eroding stream bank, thus largely eliminating one of the largest sources of fine sediment to the downstream-most half mile of Donner Creek.
Habitat	The project will significantly enhance the aquatic and riparian habitats through this reach of the creek. Increasing connectivity with the floodplain on the left bank would enhance riparian habitat diversity and increase the width and extent of the existing riparian corridor. Channel realignment and reprofiling to re-establish natural geomorphic processes could also improve aquatic habitat quality and substrate diversity within the creek by reducing fine sediment loads and restoring natural physical processes.

cbec eco engineering, H.T. Harvey & Associates, Susan Lindstrom. 2016. Donner Basin Watershed Assessment. Prepared for Truckee River Watershed Council. January 2016.

For more information about this project, please visit truckeeriverwc.org

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Ecological Consultants

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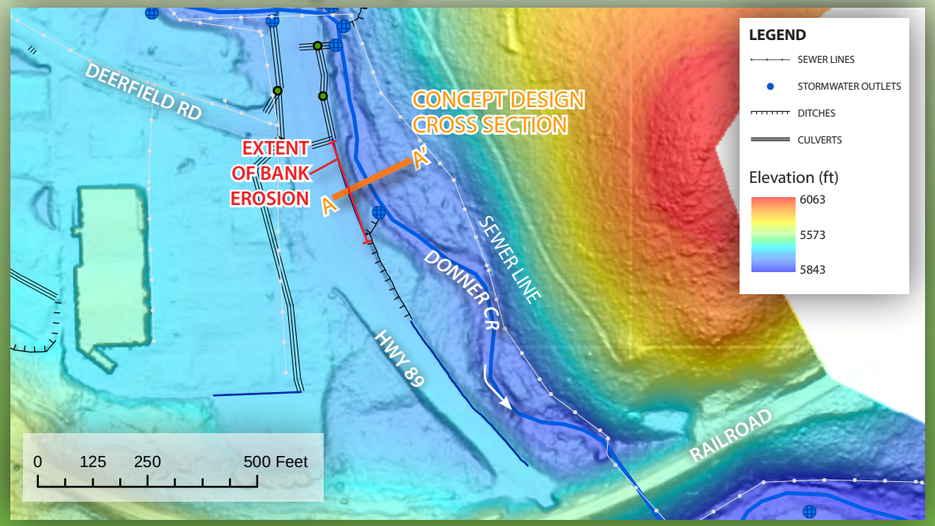
Project Location

Treatment Area

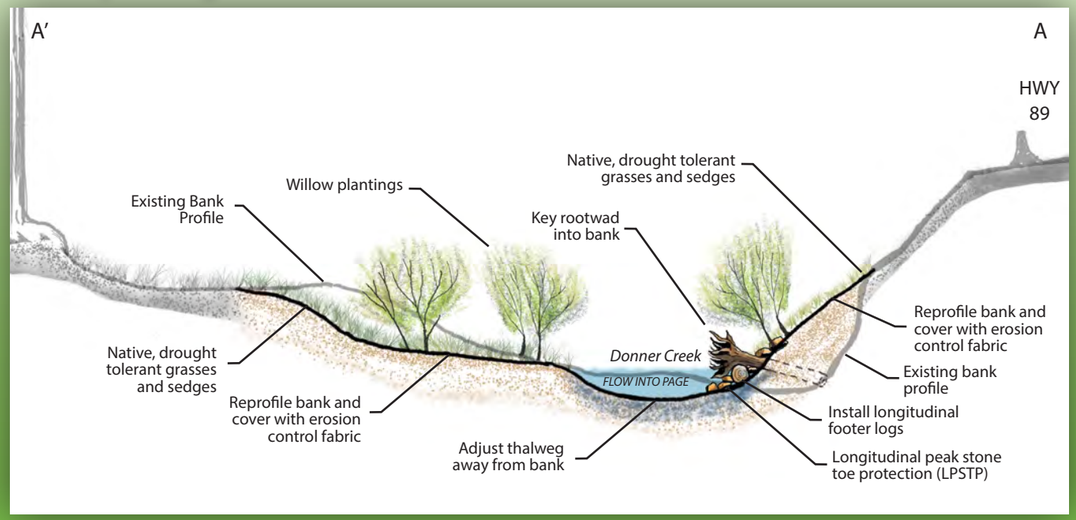
Image from Google Earth

Elevation and Drainage Map



Elevation data from USFS 2014 LiDAR dataset

Concept Design Section A-A'



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Submitted by Desert Research Institute

Donner Basin
Stormwater Treatment Wetland Complex and Educational Site

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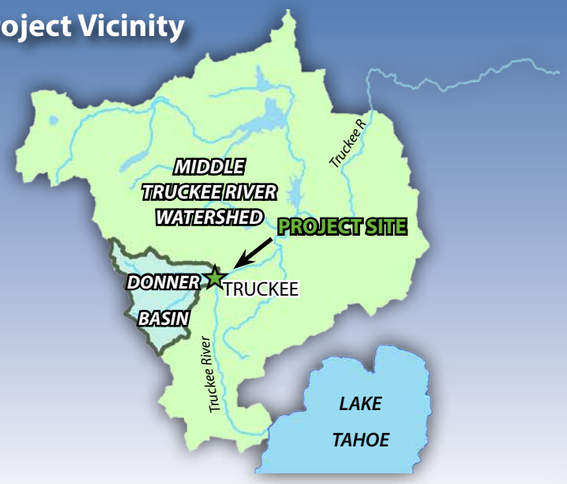
Photo by Chris Bowles, cbec (2015).

Project Vicinity



Project Location

Location: North of I-80 near Truckee High School and athletic fields

Project Description

We propose to construct a stormwater treatment wetland complex in the area of the existing ditch. Multiple wetlands or treatment cells will capture stormwater and improve water quality. The complex will create a living classroom for the neighboring high school's environmental education programs, featuring a board walk and signs. The site offers an unusual opportunity within a highly developed portion of the basin to intercept stormwater from a significant urban area before it enters Donner Creek.

Problem

Stormwater from commercial areas, roads, the high school and athletic fields currently drains to a ditch along the north side of I-80 and into Donner Creek. This ditch offers minimal stormwater treatment and many pollutants flow directly into Donner Creek. At present, land alongside the ditch has minimal use, particularly to the north.

Benefits

The treatment wetland complex will improve water quality by capturing urban stormwater pollutants and fine sediment. Depending on the design of the wetland complex, the project will help reduce peak stormwater flows entering Donner Creek. The complex will also provide a wetland habitat area and improve the quality of riparian habitats.

Constraints

The project will require the support of land managers and the repurposing of land as a stormwater treatment wetland complex. A sewer line passes through the project site.

Cost Estimate: $100,000 to > $1M

Timeline: 2 to 5 years

Project concept assumes support of all land owners, land managers, and stakeholders.

Sediment accumulation at culvert inlets which convey water to Donner Creek. Photo by Jai Singh, cbec (2015).

Stormwater outlet from high school in project site. Photo by Jai Singh, cbec (2015).

Project Benefits

Benefit	Comments
Geomorphic / Physical Processes	The capture of stormwater and fine sediment in the wetland complex would help reduce impacts to physical processes occurring in both upland areas and within Donner Creek.
Hydrology	The wetland complex could store a significant volume of stormwater, helping reduce the impacts of urbanization on the basin's hydrology and lessening peak stormwater flows entering Donner Creek.
Water Quality	Urban stormwater pollutants coming from roads, parking lots, athletic fields, and commercial areas could be captured by the treatment wetland before entering Donner Creek.
Fine Sediment Reduction	The wetland complex would help reduce stormwater velocities and capture fine sediment that would otherwise drain into Donner Creek.
Habitat	The complex would support wetland habitat with native vegetation and could enhance riparian habitats adjacent to the complex. Wetlands, wet meadows, and riparian habitats provide relatively high value to migratory birds and other wildlife.

cbec eco engineering, H.T. Harvey & Associates, Susan Lindstrom. 2016. Donner Basin Watershed Assessment. Prepared for Truckee River Watershed Council. January 2016.

For more information about this project, please visit truckeeriverwc.org

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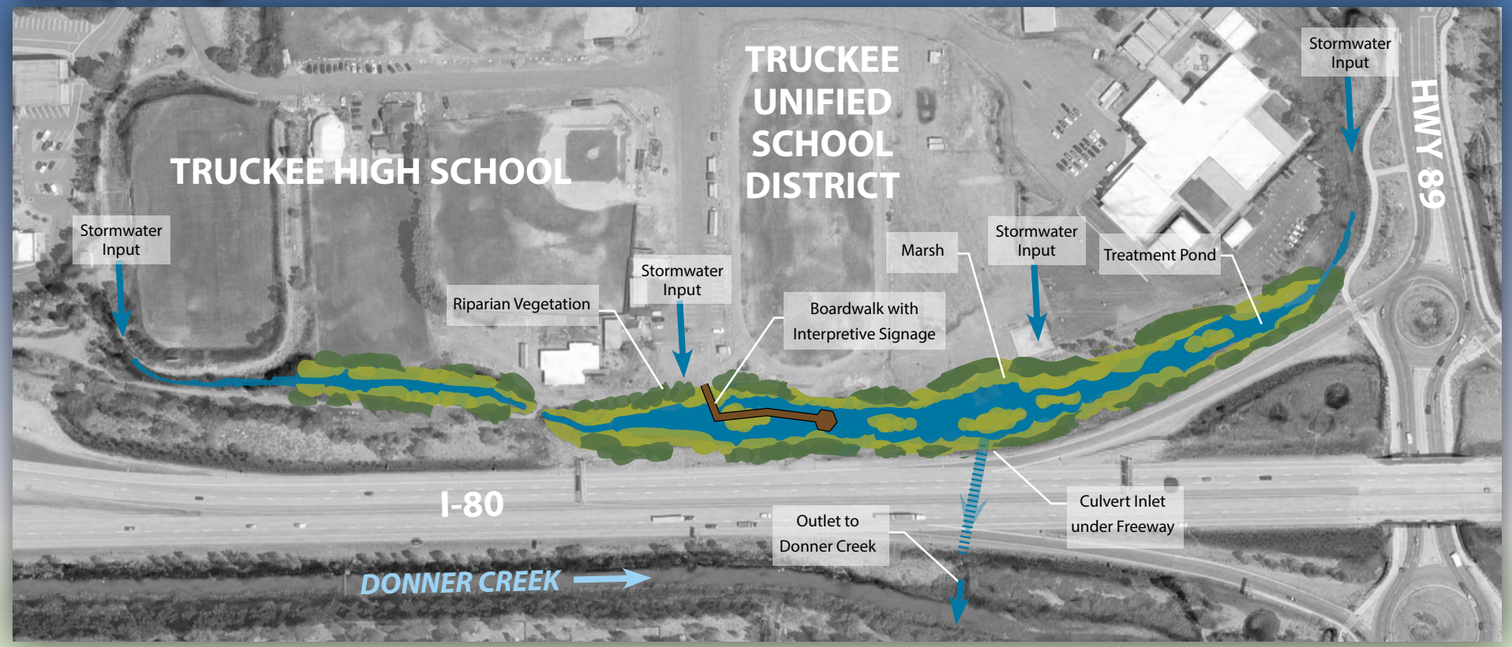
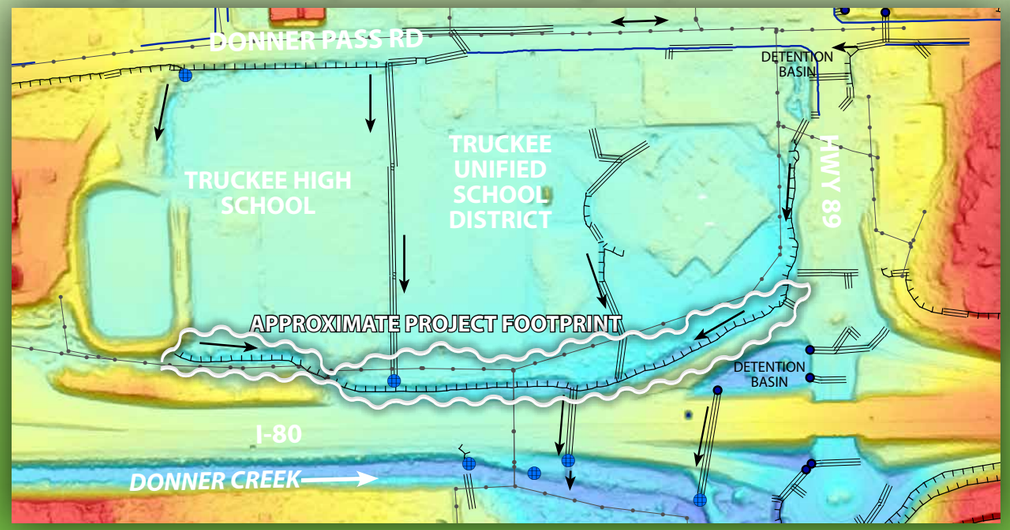
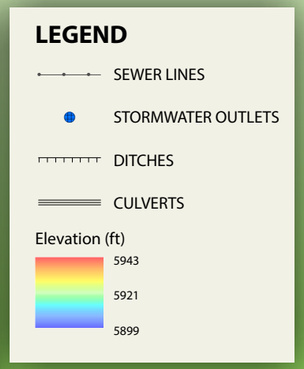
Concept Design



Existing Stormwater System and Drainage Map





Elevation data from USFS 2014 LiDAR dataset.

Submitted by Desert Research Institute

Project Footprint

Photo by Chris Bowles, cbec (2015).

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Donner Basin
Stormwater Infiltration and Treatment Along I-80

Photo by Chris Bowles, cbec (2015).

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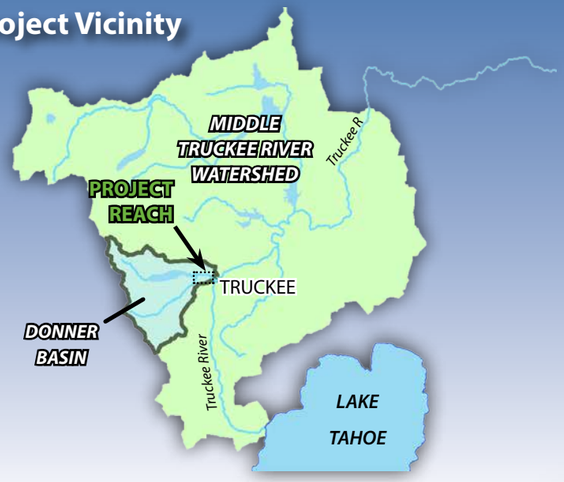
Project Vicinity



Project Location

Location: The southern edge of I-80 along the highly straightened section of Donner Creek between Cold Creek Rd and Highway 89

Project Description

Stormwater from the interstate will be captured in a stormwater treatment feature constructed immediately between the southern edge of pavement and the top of the Donner Creek stream bank. Designs will involve a stormwater trench, percolation drain or grass swale. The feature will be divided into cells to further enhance treatment and infiltration. Soil amendments or replaceable media will also be used to enhance capture of stormwater pollutants.

Problem

Much of the stormwater from the interstate's east-bound traffic currently drains directly off the edge of the pavement and into Donner Creek. This stormwater likely transports a large array of pollutants as well as trash into Donner Creek, leading to water quality impairment and trash accumulation.

Benefits

Most significant will be the water quality improvements realized from capturing stormwater pollutants. The stormwater treatment feature will help reduce and attenuate some of the hydrology impacts by detaining a portion of the runoff from the interstate. The feature may also assist with reducing fine sediment loading from pulverized traction sand and minor hillslope erosion due to stormwater concentration.

Constraints

Available space along the highway corridor between the edge of pavement and Donner Creek's stream bank is limited. Depending on the project design and materials, regular maintenance may be required.

Cost Estimate: $100,000 to > $1M

Timeline: 2 years

Project concept assumes support of all land owners, land managers, and stakeholders.

Existing buffer between I-80 (right) and Donner Creek (left). Photo by Jai Singh, cbec (2015).

Localized erosion and debris from I-80 runoff. Photo by Jai Singh, cbec (2015).

Project Benefits	
Benefit	**Comments**
Geomorphic / Physical Processes	The capture of stormwater and fine sediment by the vegetated buffer strip and infiltration trench will help reduce impacts to physical processes within Donner Creek.
Hydrology	The infiltration trench will store stormwater and promote infiltration, thereby reducing the impacts of urbanization on the basin's hydrology and lessening the peak stormwater flows entering Donner Creek.
Water Quality	The project will capture a portion of the stormwater pollutants from the interstate, reducing the loading of hydrocarbons, metals, trash and other contaminants from the road surface before they enter Donner Creek.
Fine Sediment Reduction	The vegetated buffer and infiltration trench will help capture fine sediment derived from traction sand applied to the interstate during the winter season that is subsequently pulverized by vehicle traffic.

cbec eco engineering, H.T. Harvey & Associates, Susan Lindstrom. 2016. Donner Basin Watershed Assessment. Prepared for Truckee River Watershed Council. January 2016.

For more information about this project, please visit truckeeriverwc.org

cbec eco engineering

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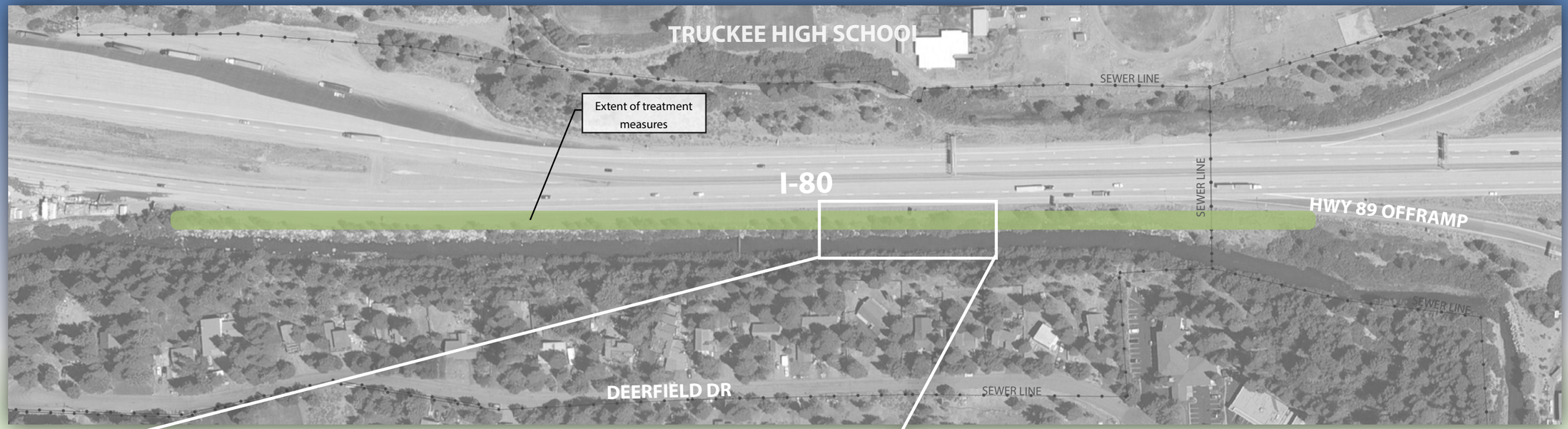
Project Reach



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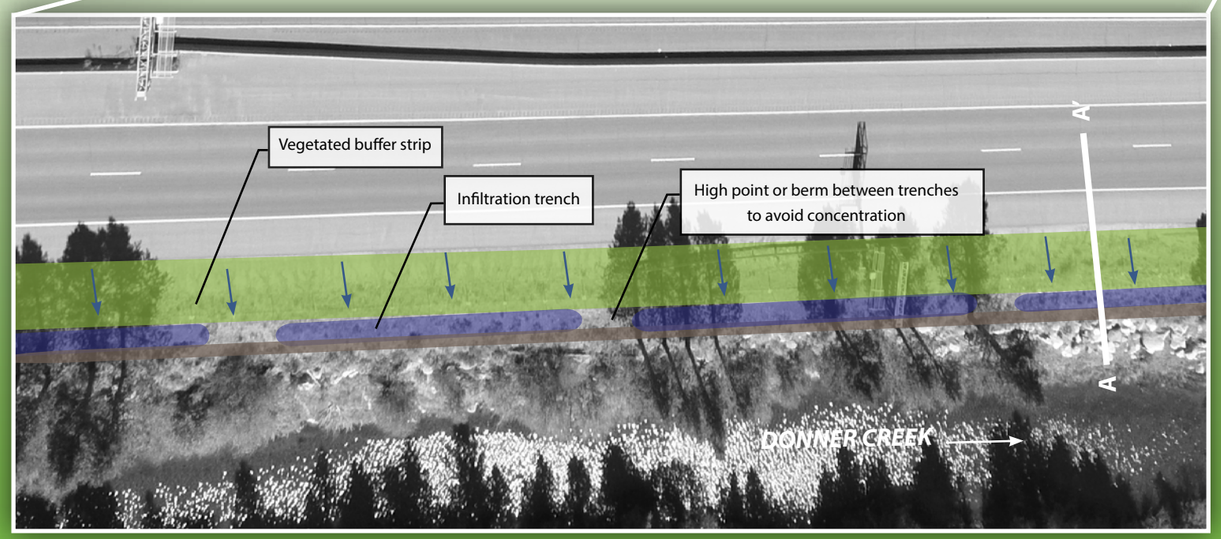
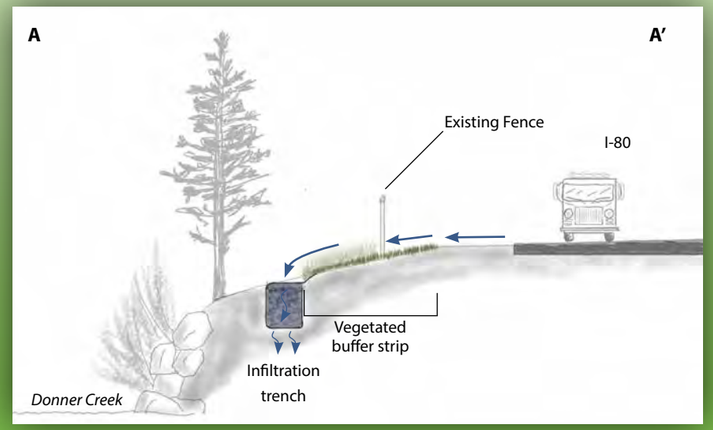


Concept Design



Stormwater Capture and Treament Design

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Ecological Consultants

Submitted by Desert Research Institute

COMMUNITY FOUNDATION of Western Nevada

TRF #179

Cover Sheet

Organization Name:	Sierra Nevada Journeys	
Type:	**501(c)(3) EIN#** 01-0881587	**Governmental entity?** No
Address:	190 E. Liberty St. Reno, NV 89501	
Project Name:	Watershed Education Initiative	
Amount requested: $28,446	**Website:** www.sierranevadajourneys.org	
This funding will be used to (complete this sentence with a max of 2 sentences):	Deliver high-quality, experiential watershed education programs based on local issues associated with the Truckee River, such as water quality and invasive species while empowering youth to protect and enhance the quality of the Truckee River. Significantly increase parent engagement, citizen science, and volunteer components to increase the long-term sustainability of our Watershed Education Initiative, thereby fostering protection of the primary water source for our community.	

Key People:	**Director:**	Eaton Dunkelberger, CEO
	Board Chair:	Mark Burrell
	Project Contact:	**Name:** Sean Hill
		Position: Education Director
		Phone: 775-355-1688
		Fax: 775-329-1689
		Email: sean@sierranevadajourneys.org
Organization Mission:	Sierra Nevada Journeys' mission is to deliver innovative outdoor, science-based education programs for youth to develop critical thinking skills and to inspire natural resource stewardship.	

Has your organization received other grants from the Truckee River Fund?
Yes X No
(Please see page 7.)

If yes,

Date awarded:	April 2016
Project title:	Watershed Education Initiative
Amount of Award:	$33,041
Date awarded:	October 2015
Project title:	Watershed Education Initiative
Amount of Award:	$28,484
Date awarded:	September 2014
Project title:	Watershed Education Initiative
Amount of Award:	$23,900

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☐ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☐ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☐ C. Projects that remove pollution from the Truckee River.
- ☐ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.[1]
- ☒ E. Other projects that meet the evaluation criteria.

NARRATIVE

1

COMMUNITY FOUNDATION of Western Nevada

1. **Specific project goals and measurable outcomes and how you will measure and report them.**

During the past 7 years Sierra Nevada Journeys' (SNJ) Watershed Education Initiative (WEI) has impacted over 5,500 students and more than 400 educators. This initiative educates students about the local watershed including: human impacts on the watershed, water quality, and watershed protection. While in-class and field-based lessons reach students and educators, WEI's additional outreach components serve to engage families and community volunteers. Through programs led by our credentialed science teachers and with the assistance of our volunteer program, we will successfully meet the following objectives:

675 K-8th grade students receive watershed-based outdoor science education in the Truckee River Watershed.

100% of students gain first-hand experience with the local watershed through a field-study on the Truckee River or one of its tributaries.

80% of students can define what happens to rain water, and associated non-point source pollutants after they enter a storm drain.

70% of students can use knowledge of storm drains to describe how individuals and communities can protect watersheds.

80% of students can correctly identify, label, and diagram the Truckee River Watershed.

95% of students participating in "Hands in the River" curriculum complete a Truckee River issue case study on invasive species in the watershed.

75 volunteers engage with WEI and serve 450 educational service hours.

550 parents receive engaging follow-up messages from SNJ with watershed-focused information and resources geared towards supporting parental involvement and engagement in their child's watershed learning. This number is lower than the student numbers as some provide illegible email addresses or none at all.

Methods to measure objectives include pre- and post-assessments scores, and an internal database that tracks participating students, schools, and volunteers. Outcomes that we expect to achieve through WEI include the following short, mid, and long-term changes in knowledge, attitude, and behavior:

	Short Term	Mid-term	Long Term
Knowledge	**S**tudents understand important science concepts related to the Truckee River watershed. Students learn about an aquatic invasive species (AIS) issue facing the Truckee River and its impacts. **P**arents engage in student learning to increase school-based education into local homes.	**S**tudents incorporate knowledge gained from the program and apply it to new situations, including in the classroom. **T**eachers use extension lessons (provided by SNJ), student enthusiasm for the Truckee continues through watershed exploration.	**I**mproved educational system that incorporates hands-on watershed lessons about the Truckee River watershed to foster higher-order critical thinking and problem solving skills. **S**tudents understand and discuss with parents how their behavior affects the Truckee River.
Attitudes	**S**tudents articulate how their actions affect the Truckee River watershed and local ecosystems. **P**arents discuss protection of our water resources with their students.	**S**tudents share watershed knowledge with their friends and families to encourage environmental stewardship.	**E**nvironmentally literate families foster a communal sense of stewardship and appreciation for Truckee River watershed.
Behavior	**S**tudents take ownership of actions and suggest ways they can help improve the Truckee River watershed. **P**arents and volunteers engage in watershed education directly.	**S**tudents influence peers on actions related to the watershed. **P**arents and volunteers increase watershed awareness and share knowledge with the community.	**I**mproved health of Truckee River watershed and local ecosystems as students and their families adopt environmental stewardship practices that help reduce water pollution.

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2. Project location.

The three main field sites for this program will be the Truckee River at the McCarran Ranch Preserve, Galena Creek, and the Oxbow Nature Study Area. These locations are convenient for Truckee Meadows' students and foster a sense of ownership for the participants because of their proximity to home. Water samples for WEI are taken from a variety of monitoring sites along the Truckee River.

3. Project description.

Through this funding, SNJ will serve 675 students in 25 classrooms throughout northern Nevada. Conducted over a four-week period, WEI includes three in-class lessons, one field-study experience, pre- and post-assessments, classroom extension lessons for teachers, family and community engagement, and citizen science. Curriculum developed and delivered by SNJ's team of credentialed teachers aligns to state and national standards and the North American Association for Environmental Education's Guidelines for Excellence.

WEI Overview

The ***school-based*** component includes three in-class lessons for a total of 4.5 hours of engaging instruction. This component fosters student interest in science by connecting them with their local watersheds, wild lands, and natural resources. Students participate in hands-on lessons that incorporate the Truckee River watershed, the water cycle, point and non-point source pollution, invasive species, sources and impacts of erosion, water conservation and stewardship. Through a case study model funded by the Truckee River Fund in 2013 students study pressing issues facing the watershed and learn how to address the problem. The case study currently focuses on the discovery and spread of the New Zealand mud snail in the Truckee River.

The ***field-based*** component includes approximately one day of outdoor science education as students hike around the Truckee or one of its tributaries. Students get their hands in the water to seek clues related to the health of the watershed and determine water quality by collecting and identifying macro-invertebrates (aquatic insects) or conducting chemical tests such as pH, dissolved oxygen, or turbidity. Students search for evidence of the New Zealand Mud Snail to learn about water quality issues facing the Truckee River. SNJ instructors encourage students to participate in stewardship projects with their friends and families such as the Truckee River Cleanup Day. Additionally, SNJ will support the Truckee River Snapshot Day, an annual student-based water quality-monitoring event that SNJ staff members help to facilitate.

SNJ provides four ready-to-use classroom ***extension lessons for teachers*** that help students prepare for and review learning objectives as well as extend and reinforce each SNJ-directed lesson. By explicitly modeling modern teaching methods and reinforcing with SNJ's classroom lessons, we support educators and multiply the effects of our student programming. Funded by the Nevada Division of Forestry and Project Learning Tree, extensions help teachers teach the Arts, Math, English Language Arts (ELA), and Social Studies through a watershed-focused lens. With a focus on student achievement, we provide teachers with meaningful and easy-to-use interdisciplinary bridges to build on and reinforce WEI's lessons.

To encourage ***family engagement*** SNJ provides parents with an email summary and pictures of their child's experience after each 4-lesson unit along with information for family-based discussion of the curriculum. This increases parent involvement allowing individuals within families to reinforce the attitudes, motivations, skills, and behaviors learned and to foster parent–student communication about watershed-related topics. The National Parent Teacher Association identifies many benefits of family engagement, including increased student achievement, regardless of socioeconomic status, ethnic/racial background, or the parent's education.

The ***volunteer component*** of the program builds our capacity to involve the local community and broadens accessibility to our programming for low-income schools by helping to keep costs low. Volunteers, who are primarily comprised of retired educators, naturalists, and parent chaperones, consistently report learning tremendous amounts in their participation with WEI. Community and parent volunteers will donate 450 hours.

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SNJ collaborates with local ***citizen science*** (also known as crowd-sourced science) projects as an innovative way to foster student interest in science and technology while also engaging them in environmental stewardship activities. The Truckee River Guide (TRG) is an on-line, interactive field guide and community wildlife-mapping project. Visitors to the site learn about local species of plants and animals and can submit their own photos and observations to create a public record of wildlife presence along the Truckee River. SNJ students share data, artwork and stories of our classes' explorations at the Truckee River. See previous student contributions here: http://truckeeriverguide.org/sierra-nevada-journeys/

4. **Grant priorities**.

WEI is an education program that addresses water, water quality and watershed protection for K-8th grade students, directly aligning with grant priority VI: *Stewardship and Environmental Awareness.* Students gain first-hand experience with the Truckee River, explore human impacts on their water source, and obtain skills and knowledge to help protect the watershed. WEI advances this priority effectively because of whom it serves and how. Elementary childhood is a critical time during which a person's role as an environmental steward is developed. Studies show that adults with environmental awareness had at least one transcendent experience in nature when they were children, fostering their interest in environmental protection. The need to increase access to these experiences is strong.

A recent study showed that American children are spending 30 minutes of unstructured time outdoors each week.[2] Children's access to nature has been radically reduced, decreasing their understanding of an individual's role and impact on their environment.[3] In turn, children are not learning about local issues facing the Truckee River nor what they can do to prevent further degradation of this river ecosystem. SNJ's program successfully teaches children about these issues by encouraging them to explore and analyze the natural world around them. This is an evidence-based method backed by research. A 2005 study revealed a 27% increase in test scores of students who attended outdoor education programs. [4] The National Wildlife Foundation's "Back to School Back Outside" report states that 78% of children who spend regular time in the outdoors are better able to concentrate and perform at a high level in the classroom.

5. **Permitting.** N/A

6. **If future phases of the project will be needed, identify anticipated sources of funding.** N/A

7. **Principals involved in leading or coordinating the project or activity.**

Credentialed science educators on the SNJ staff will be directly responsible for coordination and delivery of Watershed Education programs. Sean Hill, SNJ's Education Director, will oversee the implementation of WEI. Sean is a former science teacher and holds a Bachelor of Science degree from Montana State University and a Master of Science degree in Human Dimensions of Natural Resources from Colorado State University. His passion for outdoor science education was inspired by his service as a Graduate Fellow for the Walking Mountains Science School in Avon, Colorado.

8. **Number of staff positions involved in project:** Fulltime 0 Part-time 7 (7 employees work on this project on a part-time basis)

9. **Number of volunteers involved in project and an estimated number of volunteer hours.** 75 volunteers (including field educators and parent volunteers) will donate 450 volunteer hours.

10. **Time Line of Project.**

[2] Oliver R. W. Pergams and Patricia A. Zaradic. "Videophilia: Implications for Childhood Development and Conservation", *The Journal of Developmental Processes* 2:1, 2007.
[3] Charles, Louv, Bodner, and Guns. "A Report on the Movement to Reconnect Children to the Natural World", 2009
[4] American Institute for Research

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Key Dates	Task/ Milestone	Description/Notes
Present – Dec. (Continuous)	School Outreach	SNJ outreach efforts are continuous to reach as many local schools as possible. Outreach is now underway for Quarter 3 & 4 of 2016. SNJ targets schools that participated in watershed programming in the past and new schools that have not received WEI.
Aug. – Dec.	Program Delivery	SNJ instructors will deliver engaging watershed eduation lessons to 675 students through school-based and field-based programs.
Aug. - Dec.	Program Assessment Compilation	SNJ staff will compile student assessment data. These results will be utilized to update the watershed curriculum to ensure effective programming in the future.
Dec.	Final Report	Submit the final report to the Community Foundation of Western Nevada. This report will include a summary of the work completed, student assessment data, and a budget update.

11. Success. Tell the committee how we will know you succeeded in what you proposed to do.

Both pre- and post-assessments are required to measure the impact on student learning and sense of stewardship. The following objectives will help determine the success of the Watershed Education Initiative:

675 K-8th grade students receive watershed-based outdoor science education in the Truckee River Watershed.

100% of students gain first-hand experience with the local watershed through a field-study on the Truckee River or one of its tributaries.

80% of students can define what happens to rain water, and associated non-point source pollutants after they enter a storm drain.

70% of students can use knowledge of storm drains to describe how individuals and communities can protect watersheds.

80% of students can correctly identify, label, and diagram the Truckee River Watershed.

95% of students participating in "Hands in the River" curriculum complete a Truckee River issue case study on invasive species in the watershed.

75 volunteers engage with WEI and serve 450 educational service hours.

550 parents receive follow-up messages from SNJ about the program; parents receive watershed-focused information and resources to support parental involvement and engagement in their child's learning.

12. Grant match.

Match amount to be provided:	**$15,250**
Match details:	Match is: Cash: **$6,250** In-kind: **$9,000** For the cash portion of your match, is the funding already being held by the applicant for this project? Yes __ No __X__
Description of matching funds/in-kind donations:	Match provided by bus transportation expenses paid for by the Washoe County School District. In-kind match provided by field educator and parent volunteer hours.

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13. Project budget

	ORIGINAL PROJECT BUDGET			
Budget Item Description*	**TRF $**	**Other Funding Name****	**Match $**	**Total**
Labor—paid ***Program Teachers*** at $18.15/hour x 700 hours, 21.65% fringe/benefits ***Education Director*** at $25.50 x 275 hours, 17.9% fringe/benefits	$23,723	-	$0	$23,723
Labor--volunteer - 75 volunteers at $20/hr for 450 hours	$0	SNJ Volunteers	$9,000	$9,000
Materials - $2/student for 675 students for printing and program supplies and materials	$1,350	-	$0	$1,350
Other (be specific): Transportation costs cover expenses associated with SNJ staff traveling to and from schools and field sites including company vehicle expenses. Approx. 1,500 miles to serve 25 classes (60 miles/class).	$810	-	$0	$810
School bus transportation for students.	$0	Washoe County School District	$6,250	$6,250
Overhead (13%)	$2,563		$0	$2,563
TOTAL	**$28,446**		**$15,250**	**$43,696**

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Continued List of Grants Received, Sierra Nevada Journeys

Date awarded:	March 2014
Project title:	Watershed Education Initiative
Amount of Award:	$23,750
Date awarded:	October 2013
Project title:	Watershed Education Initiative
Amount of Award:	$24,200
Date awarded:	March 2013
Project title:	Watershed Education Initiative
Amount of Award:	$16,050
Date awarded:	October 2012
Project title:	Watershed Education Initiative
Amount of Award:	$12,690
Date awarded:	October 2011
Project title:	Watershed Education Initiative
Amount of Award:	$10,000
Date awarded:	March 2011
Project title:	Watershed Education Initiative
Amount of Award:	$10,000

TRF #180

Truckee River Fund RFP Cover Sheet for August 2016 Proposal

Organization Name:	Nevada Land Trust	
Type:	**501(c)(3) EIN#** 880287591	**Governmental entity? N**
Address:	PO Box 20288., Reno, NV 89515	
Project Name:	One Truckee River Phase I Implementation: AmeriCorps Support, Watershed Survey and Watershed Education	
Amount requested: $98,534	**Website:** www.nevadalandtrust.org 11133	
This funding will be used to	Provide two AmeriCorps volunteers to (1) complete a comprehensive GIS inventory of the Truckee River corridor and (2) complete a Community Watershed Survey; provide management support for two additional AmeriCorps volunteers, who will (3) complete and implement Watershed Warriors curricula for K-12, and (4) a Community Watershed Education Plan; and support KTMB and NLT in their continued leadership of the One Truckee River initiative through the adoption of Phase I Action Plans.	

Key People:	**Director:**	Alicia Reban	
	Board Chair:	Reed Simmons	
	Project Contact:	**Name:**	Alicia Reban
		Position:	Executive Director
		Phone:	851-5180
		Fax:	851-5182
		Email:	a.reban@nevadalandtrust.org

Organization Mission:	The Nevada Land Trust is dedicated to preserving Nevada's open spaces and special places for future generations.
Has your organization received other grants from the Truckee River Fund? Yes X (See Attached)	Yes, see attached

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Our project best fits the following:

- X A. Projects that improve bank or channel stabilization and decrease erosion.
- X D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.
- X E. Other projects that meet the evaluation criteria.

NARRATIVE

1. **Project goals and outcomes and how we will measure and report them.**

Nevada Land Trust (NLT) requests Truckee River Fund support for the following projects (please note that the cost break downs listed for each item includes staff, equipment, travel, etc.):

Provide full support for two AmeriCorps volunteers:

- Under the management of NLT, Volunteer 1 will conduct a GIS inventory of the Truckee River corridor through Reno and Sparks, and create a baseline map that includes all amenities/assets (trails, signs, lighting, benches, access points, drinking fountains, etc.) and needs/opportunities (hazards, weed infestations, illegal camping and dumping hot spots, degraded banks, etc.). This information is the essential first step to support the One Truckee River (OTR) Working Group's drafting of the Phase I Action Plan as it relates to improvements and restoration. Upon adoption of the Phase 1 Action Plan, this position will support the implementation of the highest-priority action items. This project will directly impact all Truckee River Fund Grant Priorities that overlap with those identified by the OTR initiative (Grant Priorities I, II, III, IV, V, VI, VII, VIII) Cost: $19,872

- Under the supervision of Keep Truckee Meadows Beautiful (KTMB), Volunteer 2 will conduct a Community Watershed Survey to assess public understanding of the Truckee River watershed. This position will be responsible for the following tasks:
  - Research past surveys (i.e.: Carson River Subconservancy District) and provide information to a public-research specialist consultant (not supported by this grant) to create an in-depth survey of Nevada communities throughout the Truckee River watershed;
  - Follow the consultant's and OTR Working Group's guidance to ensure a broad and statistically valid sample size. Options include mailings, email, social media, and in-person interviews;
  - Compile the results and identify gaps in public understanding of the services provided by the Truckee River watershed and its stewardship needs;
  - Provide survey results to the Nevada Department of Environmental Protection in support of their Truckee River Watershed Plan for water quality;
  - Share survey results with the OTR Working group and support Volunteer 3's work (below) to create a Community Watershed Education Plan addressing education and outreach priorities identified in the Phase I Action Plan;
  - Share survey results with the Washoe County School District, education nonprofits and organizations (i.e.: GreeNevada, etc.) and support Volunteer 4 (below) in updating curricula that meets state education standards and addresses priorities identified in the OTR Phase I Action Plan.
  - Once the survey and curricula are well developed, this position will support implementation of other Action Plan priorities to improve watershed education in the Truckee Meadows;
  - This survey will help OTR and its partners more effectively identify current gaps, key audiences, and messaging for improving community awareness of the vital role played by the Truckee River in our region and to foster greater stewardship for the watershed through both youth and adult education programs. (Grant Priorities VI, VIII) Cost: $18,795

Provide management support (only) for two additional AmeriCorps volunteers:

Funding has been procured for NLT and KTMB to host one additional AmeriCorps volunteer each. We request TRF support for staff to manage these volunteers during their tenure.

- Under supervision of NLT, Volunteer 3 will research and create a Community Watershed Education Plan that has strategies and tactics to improve public knowledge and stewardship of the Truckee River, completing the following tasks:
  - Research and compile current adult and youth education materials throughout the watershed that are relevant to watershed respect and management;
  - Coordinate with the OTR Working Group to create a Community Watershed Education Plan that addresses the education priorities identified in the Phase I Action Plan;
  - Conduct additional gap analysis to identify education topics and successful models to improve community understanding stewardship of the watershed;
  - Share information with environmental education partners to improve education outcomes relating to watershed appreciation and management. (Grant Priorities VI, VIII) Cost: $10,072

- Under supervision of KTMB, Volunteer 4 will help update and deliver Watershed Warriors Curricula to K-12 students and adults, completing the following tasks:
  - Work with KTMB's education staff to review and enhance KTMB's current Watershed Warriors curricula in line with Common Core and Next Generation Science Standards;
  - Expand relationships with Washoe County School District administration and teachers and coordinate classroom education presentations;
  - Target underserved schools to empower students to address environmental issues that impact water quality and lower the quality of life and health in the Truckee Meadows;
  - In partnership with other outdoor educators, enhance watershed-specific curricula to be delivered at sites along the Truckee River and its tributaries;
  - Outreach to the adult community in the Truckee Meadows to increase volunteerism, organizational support, and awareness of the Truckee River. (Grant Priorities VI, VIII) Cost: $9,795

<u>One Truckee River Coalition Engagement and Management for Phase I Action Plans</u>

NLT and KTMB request support for our continued leadership as we see the OTR initiative through to an approved Phase I Action Plan. Renown Health is also supporting this phase, but it's not enough to complete the work. National Park Service is providing in-kind support to help the OTR coalition formalize our structure and processes. TRF support will help ensure the adoption of a Phase I Action Plan. Priorities include:

- Form and convene One Truckee River Working Group to draft Phase I Action Plan;
- Establish action items, create and monitor metrics for success, and begin cooperative implementation of highest priority action items;
- Develop and formalize OTR administrative and fundraising structure and/or agreements to improve management and funding for OTR priorities

- This project will result in an adopted Phase I Action Plan with timelines and tangible action items that will address all TRF grant priorities, as guided by the OTR Working Group. (Grant Priorities I, II, III, IV, V, VI, VII, VIII) Cost: $40,000

In summary, TRF support will ensure the continued leadership of the OTR initiative by NLT and KTMB through the adoption of the OTR Phase I Action Plan, initial implementation of some of its highest priorities, and four full-time people working to help implement the OTR Phase I Action Plan and improve community-wide and K-12 curricular understanding of, and respect for, the Truckee River watershed.

2. **Project location**.

The GIS inventory and OTR leadership components will focus solely on the Truckee River corridor through Sparks and Reno, which is Phase I of the OTR initiative. The education components will solicit information and perspectives throughout the Truckee watershed. However, the application of results from these projects and education initiatives involving the Truckee River will be focused during Phase I on the more urban corridor through Sparks and Reno.

3. **Project description**: Addressed in section 1 of this proposal.

4. **Grant priorities**.

The GIS and OTR leadership components of this proposal will lead to improved outcomes for all Grant Priorities listed on page 2 of the TRF RFP. The survey and education aspects of this proposal will address Grant Priorities VI and VIII, in addition to leading to actionable outcomes related to education-related priorities in the OTR Action Plan.

5. **Permitting**: No permits are required for this grant.

6. **Future Phases:**

The consensus and tangible action plans that will result from this project around the OTR initiative will facilitate fundraising for their implementation. Similarly, the survey results, Community Watershed Education Plan, and Watershed Warriors Curricula will identify specific needs that will also facilitate the fundraising to implement them. We plan to engage government agencies, foundations, businesses and individual donors to implement these projects to benefit the Truckee River.

7. **Principals:**

Nevada Land Trust and Keep Truckee Meadows Beautiful are the lead organizations. Members of the existing OTR Core Planning Team, the OTR Working Group discussed above, and a host of other partners and stakeholders are expected to provide immense value to this project.

8. Number of **staff positions involved** in project: Part-time **5** (both organizations)

9. Number of **volunteers involved:** Four AmeriCorps volunteers, each with a 1700-hour commitment, totaling 6,800 hours in service to a healthier Truckee River. This does not include any volunteer time donated by OTR Working Group members.

10. **Time Line** of Project:
Fall 2016: Recruit & Hire AmeriCorps; complete GIS inventory; begin research to compile survey, education plan and curricula; facilitate Core Planning Team discussions; host 2nd OTR forum to recruit OTR Working Group;
Winter 2016-17: Incorporate GIS data into OTR base map; distribute survey results; analyze gaps in current education programs; update K-12 curricula; compile data for Community Watershed Education Plan; produce draft OTR Phase I Action Plan;
Spring 2017: Adopt OTR Phase I Action Plan; draft implementation plans for OTR priority action items; draft Community Watershed Education Plan; convene watershed outdoor educators to coordinate and strategize most effective delivery of Watershed Education and Curricula elements;
Summer 2017: Implement priority action items; finalize reporting and recommendations for the future.

11. **Success**:
By summer of 2017, the Truckee River Fund Advisory Committee will know this grant has succeeded based on the following outcomes:

- Formation of an OTR Phase I Working Group;
- An adopted Phase I Action Plan with timelines and individual measures of success for each item;
- A GIS database and baseline map produced of all inventoried amenities and challenges along the Truckee River corridor through Reno and Sparks;
- Completion of the Community Watershed Survey and distribution of results;
- A draft Community Watershed Education Plan, with priority actions intended to address adults, youth and targeted demographic groups (recreationists, anglers, underserved populations, dog walkers, etc.) as well as identifying the measurements that will be used to gauge effectiveness, to improve the health of the Truckee River through Reno and Sparks;
- Improved coordination among K-12 educators regarding watershed education in the Truckee Meadows;
- Improved Watershed curricula for K-12 students, leading to better watershed knowledge and stewardship among students with a process for measuring program effectiveness;
- More than 2,000 youth and adults educated by Watershed Warriors educator;
- More effective delivery of adult and youth education about the river, resulting from better coordination among environmental educators throughout the watershed.
- Implementation begun on OTR Phase I highest priority action items;
- Examination of the metrics required by the AmeriCorps program to gauge impacts and effectiveness of individual programs and placements.

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	ORIGINAL PROJECT BUDGET				REIMBURSEMENT REPORT	
Budget Item Description*	TRF $	Other Funding Name**	Match $	Total	Expenditures to date TRF	Expenditures to date (other sources)
Staff Costs (2 orgs.)	$71,640	National Park Service	$12,000 (In-Kind)	$83,640		
Travel (mileage reimb)	$3,434	Truckee Meadows Parks Foundation	$14,604 (cash)	$18,038		
Equipment (1 GPS unit, 3 laptops)	$3,000					
Americorp Staff Stipend (for 2)	$18,000					
12% Admin (of Americorp staff) Fee for Truckee Meadows Parks Foundation	$2,160					
Supplies (printing etc.)	$300					
TOTAL	$98,534		$26,604	$123,167		

*These are sample descriptions.

** Match is used across all line items, though only slotted in the top two above.

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Grant Match

Match amount to be provided:	**$ $26,604**
Match details:	Please provide the form of your matching funds. If match is made up of both cash and in-kind, fill in both sections. Match is: Cash **$14,604** In-kind **$12,000** Note: Volunteer and in-kind hours may be calculated at a maximum rate of $20/hour per individual. For the cash portion of your match, is the funding already being held by the applicant for this project? Yes No X , but is readily available from TMPF.
Description of matching funds/in-kind donations:	Cash available from Truckee Meadows Parks Foundation that they got from Terrie Lee Wells Foundation for the AmeriCorps Program. In-Kind is from National Parks Foundation time from Deb Rice and Barbara Reardon, plus their travel time as required

ATTACHMENTS

You may be asked to submit the following attachments via email. If you are asked to submit the attachments, clearly label each file with your organization's name. If you do not have the ability to email them, place each of the items listed below on a separate page and submit just one copy.

Nonprofits submit:

X Last audited financial statements if your organization has been audited
X List of Board of Directors
X Copy of agency's IRS 501(c)(3) Tax Determination Letter
X Copy of the agency's most recent IRS Form 990

Governmental entities submit:

☐ Departmental budget in lieu of audited financial statements

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Attachment A: NLT TRF Grant History (page 7)

NLT TRF Grant History

Date awarded:	March 21, 2012
Project title:	TRF #104: Washoe Drive Fire Stabilization and Restoration Effort
Amount of Award:	$115,000
Date awarded:	**December 12, 2011**
Project title:	**TRF #99: Caughlin Fire Emergency Watershed Stabilization & Restoration Effort**
Amount of Award:	**$219,856**
Date awarded:	October 11, 2011
Project title:	TRF #90: Weed Treatments & Revegetation: Truckee River & Tributaries
Amount of Award:	$127,500
Date awarded:	**July 21, 2009**
Project title:	**TRF #70: Weed Treatments & Revegetation: Truckee River & Tributaries**
Amount of Award:	**$125,000**
Date awarded:	July 21, 2009
Project title:	TRF #66: Scope of Work for Truckee River Ecosystem Restoration Coordination: Creation of a 5-year Weed Control and Restoration Plan for the Truckee River
Amount of Award:	$10,000
Date awarded:	**July 17, 2008**
Project title:	**#46 Weed Treatments & Revegetation: Truckee River & Tributaries**
Amount of Award:	**$112,500**

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Cover Sheet

Organization Name:	**Truckee Donner Land Trust**	
Type:	**501(c)(3) EIN#68-0245327**	**Governmental entity? N**
Address:	**P.O. Box 8816**	
Project Name:	**Webber Lake Little Truckee River Headwaters Management**	
Amount requested: $50,000	**Website: www.tdlandtrust.org**	
This funding will be used to (complete this sentence with a max of 2 sentences):	Funding will allow the Land Trust to thin 35-40 acres of forest immediately around Webber Lake and Lacey Meadows, the headwaters of the Little Truckee River. This timber management will launch a multi-year program, addressing areas of disease and overstock and aid in prevention of catastrophic wildfires.	

Key People:	**Director:**	**Perry Norris**
	Board Chair:	**Jeff Brown**
	Project Contact:	**Name:** **John Svahn** **Position:** **Director of Stewardship** **Phone:** **530-582-4711** **Fax:** **530-582-5528** **Email:** **john@tdlandtrust.org**

Organization Mission:	To preserve and protect scenic, historic and recreational lands with high natural resource values in the greater Truckee Donner region and manage recreational activities on these lands in a sustainable manner.

Has your organization received other grants from the Truckee River Fund?
Yes **No X** (use additional page if necessary)

If yes,

Date awarded:	
Project title:	
Amount of Award:	
Date awarded:	
Project title:	
Amount of Award:	
Date awarded:	
Project title:	
Amount of Award:	

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☐ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☐ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☐ C. Projects that remove pollution from the Truckee River.
- ☐ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.[3]

[3] For proposals related to weed control/eradication, contact Tracy Turner at the Community Foundation of Western Nevada for additional criteria. tturner@nevadafund.org; 775-333-5499.

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TRUCKEE RIVER

TRUCKEE MEADOWS WATER AUTHORITY

☒ E. Other projects that meet the evaluation criteria.

NARRATIVE REQUIREMENTS

Provide answers for all 11 sections below; use the numbers and topics (in **bold**) to label each section in your response. Your application is limited to 5 narrative pages, including the cover sheet. Your budget is page 6. **All projects are required to have measurable outcomes:**

1. Specific **project goals and measurable outcomes and how you will measure and report them.** The project goal is to begin management of the forest surrounding Webber Lake and Lacey Meadows by treating an estimated 35-40 acres. Webber Lake and Lacey Meadows are identified as areas that will benefit the watershed when restored.This acreage includes timber stands infested with pine bark beetle and areas of former meadowthat have been converted to lodgepole pine stands. The forest to be treated is adjacent to an active campground; the treatment will be done in a way to minimize the potential for a fire originating in the campground to spread to the adjacent forest.

2. **Project location**. Webber Lake is the headwater lake of the Little Truckee River. It is located northwest of Truckee via Highway 89 and Jackson Meadows (Fiberboard) Road in Sierra County. The Driving distance is 24 miles from Truckee.

3. **Project description**. Include site map and aerial photos if applicable/possible. Maps and photos must fit on 8-1/2" x 11" paper. Cite any studies that support your project. The Webber Lake property, which constitutes the headwaters of the Little Truckee River, consists of approximately 3,200 acres of lake, meadow, and conifer forest habitat. In December 2012, the Land Trust was successful in acquiring the property. The property has astounding resource values including Webber Lake, a 220-acre natural lake that is the headwater lake of the Little Truckee River: the riparian system – a largely intact ecosystem that provides clean source water to the Little Truckee River, Lacey Meadow, a 1,500 - acre meadow system, and Upper Lacey Meadow, a 400-acre meadow system. The Little Truckee River, which flows east off of the Sierra into Nevada, is a significant contributor of water for the cities of Reno and Sparks.

While the property is superlative, the forest, in particular, suffers from overstock, disease, and an interruption in the natural fire cycle. Lodgepole pine encroaches into meadow habitat in numerous locations. Upland stands need to be thinned to minimize disease and bark beetle infestations, and minimize the threat of catastrophic wildfire

.

Management of timber stands has an effect on water quality and quantity. Timber stands that have been denuded by catastrophic wildfire are prone to large episodes of erosion, adversely impacting watercourses. Overstocked forests can consume more groundwater than do forests with normal stocking levels. Functioning headwater meadows are important for spring runoff attenuation and water storage, and their importance as water storage facilities is becoming increasingly recognized. While restoration of the watercourses to re-water desiccated meadows is critical to proper function, so too is reclaiming portions of meadow that have been replaced with dense stands of lodgepole pine. Lodgepole pine is a species with a non-serotinous cone that left unmanaged, can quickly encroach upon meadow systems and other forest openings. Lodgepole encroachment places unnatural demands on groundwater levels, depriving meadows of the moisture needed to maintain their integrity. This continual draw on the groundwater by growing conifers is significant, leading to a gradual drying of the meadow soils, which perpetuates conifer regeneration. Left unmanaged, lodgepole pine is capable of dominating meadow openings, thereby eliminating the benefits to groundwater supply, water quality, and wildlife once offered by the meadow ecosystems.

To properly manage the forest, the Land Trust has contracted with a Registered Professional Forester to complete a Non-industrial Timber Management Plan, to be completed this summer. With this plan, the Land Trust will begin managing the timber stands this summer, starting with the 35-40 acres of forest adjacent to the Webber Lake campground, which is a high-risk area for ignition and propagation of wildfire. Some of the acreage will also include mastication of dense stands of lodgepole pine that are converting meadow to forest habitat. The project will be on-going as hundreds of acres of forest will ultimately be treated. Treatment will be completed through a mix of mechanical mastication of smaller trees and downed fuels, and mechanical tree felling and transport. Non-merchantable wood will be turned to chips and dispersed onsite. Logs are to be retained by the timber operator to offset the cost of the project.

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4. **Grant priorities.** Explain how the proposed project advances the TRF's grant priorities (page 2 of the cover sheet); refer to the priorities by number in your narrative. meadows are excellent source water reservoirs, protection and enhancement of the meadow by removing encroaching lodgepoles, and by reducing the threat of fire to the upper watershed will aid in source water protection. When forests are managed sustainably, they act as a natural filter, helping soils absorb key nutrients, deflect the erosive energy of raindrops, and provide for stabilization of the soil profile through the presence of extensive root masses. Following a wildfire, erosion and the amount of sediment entering waterways will increase. Wildfire destroys vegetation, eliminating the canopies that protect soil from erosion, and killing root systems that hold onto soil. Post-fire rainfall leads to surface erosion and flood events as soils lie bare and exposed to the erosive energy of precipitation. This circumstance affects water quality by increasing turbidity and changing water chemistry through inputs of nitrates, phosphorus, and other nutrients once held within the soil. While the project is small and doesn't address a large acreage of forest that could be burned, the acreage is immediately adjacent to Webber Lake. In addition, the project is designed to help keep a fire from becoming catastrophic in a high-risk area (next to an active campground). Lastly, Land Trust staff intends to post signage explaining the need for treatment and updates on the progress. The area is open to the public for day-use and the Land Trust has found interpretive signage to be an effective communication for stewardship activities.

5. **Permitting**. Provide a permitting schedule for your project along with your plan for getting the required permits. Be sure to include the cost of permitting as a line item in your budget. The project is intended to follow the creation of a Non-industrial Timber Management Plan (NiTMP), funded through a California Proposition 1 grant through the Sierra Nevada Conservancy. This serves as permission through CEQA. The NiTMP is a comprehensive document for management of all of the timber on the property. Should the NiTMP not be funded, the timber management in this proposal will still occur via an exemption from CEQA through CalFire. This exemption is granted for emergency fuels management adjacent to populated areas. The NiTMP should be complete in August. Should the NiTMP not get funded, a CalFire exemption will them be pursued with a completion prior to the mid-October start date for timber operations. The Land Trust has been told by the Sierra Nevada Conservancy that there is a high likely hood NiTMP will be funded in September.

6. If **future phases** of the project will be needed, identify anticipated sources of funding. Future phases will be needed. To complete future phases, the Land Trust will rely on a mixture of grant requests, revenue from the existing lease of the private campground (which will cease in 2016), revenue generation from the public campground (which will open in 2018), and existing grazing leases. After the refurbishment of the existing campground when it transitions from private to public, forest management is the top priority of the Land Trust at Webber Lake/Lacey Meadows.

7. **Principals involved** in leading or coordinating the project or activity. John Svahn, Stewardship Director;Danielle Banchio, Registered Forester #2808.

8. Number of **staff positions involved** in project: Fulltime **2** Part-time **2** ("Fulltime" means 100% of their staff position will be dedicated to this project; "part-time" means only a portion of their staff position will be dedicated to this project)

9. Number of **volunteers involved** in project and an estimated number of volunteer hours. Volunteers will not be involved in the timber management.

10. **Time Line** of Project. List key dates and include project milestones. *Note*: Be realistic in your estimate of dates and milestones. List any factors that may cause a delay in implementing and/or completing the project. The NiTMP is scheduled to be completed November 2016. Timber operations will begin in August of 2017. The time delay between the permit and the timber operations is because the Land Trust will wait until the campground is closed for the season. As timber operations will occur in meadow and former meadow, a potential delay may be due to moist soils incapable of supporting the heavy equipment that will fell andmasticate the trees.

11. **Success.** Tell the committee how we will know you succeeded in what you proposed to do. Success will be measured by completion of the treatment of the stated acreage. The Land Trust will submit photos and a report, and will

offer a tour of the property to the committee.

12. Grant match. All applicants must provide a match of at least 25 percent for dollars requested. The match may be with funding and/or in-kind services. For larger grant requests, priority will be given to projects that significantly leverage the grant with funding from other sources. Complete the Grant Match section. All applicants must provide a match of at least 25 percent for dollars requested. The match maybe with funding and/or in-kind services. For larger grant requests, priority will be given to projects that significantly leverage the grant with funding from other sources. Complete the Grant Match section.

1. **Project budget** (see Sample Budget Template on page 5 of this RFP). Provide detail on line-item expenditures and show which costs are to be paid for by the Truckee River Fund grant, which expenses will be paid for by other sources, and which will be paid for with in-kind services. Other sources of funding should be provided.
   - *Note 1:* Project budget must be a stand-alone, one-page attachment.
   - *Note 2:* Indirect/overhead expenses cannot exceed 25 percent.

   Grants from the Truckee River Fund are paid on a reimbursable basis for actual expenditures only. Craft your budget in such a way that requests for reimbursement correspond to the original budget.

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Grant Match

Match amount to be provided:	**$18,750 at a minimum**
Match details:	Please provide the form of your matching funds. If match is made up of both cash and in-kind, fill in both sections. Match is: Cash: **$18,750 plus a requested $70,000 from the Sierra Nevada Conservancy** In-kind: **$** Note: Volunteer and in-kind hours may be calculated at a maximum rate of $20/hour per individual. For the cash portion of your match, is the funding already being held by the applicant for this project? Yes __X No __
Description of matching funds/in-kind donations:	**A grant match of 25% is ensured from stewardship funds raised during acquisition of the property, which are held in an account restricted to Webber Lake/Lacey Meadows expenditures. As well, we are requesting grant funds from the Sierra Nevada Conservancy for the creation of the Non-industrial Timber Management Plan.**

ATTACHMENTS

You may be asked to submit the following attachments via email. If you are asked to submit the attachments, clearly label each file with your organization's name. If you do not have the ability to email them, place each of the items listed below on a separate page and submit just one copy.

Nonprofits submit:

- ☐ Last audited financial statements if your organization has been audited
- ☐ List of Board of Directors
- ☐ Copy of agency's IRS 501(c)(3) Tax Determination Letter
- ☐ Copy of the agency's most recent IRS Form 990

Governmental entities submit:

- ☐ Departmental budget in lieu of audited financial statements

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SAMPLE BUDGET TEMPLATE

	ORIGINAL PROJECT BUDGET				REIMBURSEMENT REPORT	
Budget Item Description*	**TRF $**	**Other Funding Name****	**Match $**	**Total**	**Expenditures to date TRF**	**Expenditures to date (other sources)**
Design/Engineering	$6,000	Sierra Nevada Conservancy NiTMP (Applied for; TRF project not contingent on creation of the NiTMP	-	$6,000		
Permitting	$1,500		$70,000	$71,500*		
Labor--paid	$67,500		$18,750	$86,250		
TOTAL	$75,000		$88,750	$163,750**		

*The NiTMP is considered both a design and permitting document in CEQUA

** Funding to treat additional acres is not identified in this amount as it is conditional on the findings of the NiTMP.

50 Washington Street, Suite 300, Reno, NV 89503
Phone 775-333-5499 // Fax 775-333-5487 // nevadafund.org
Connecting people who care with causes that matter.

Organization Name:	**Nevada Tahoe Conservation District**	
Type:	**501(c)(3) EIN# 33-1044148**	**Governmental entity? Yes**
Address:	**PO Box 915, Zephyr Cove, NV 89448**	
Project Name:	**Rosewood and Third Creeks Invasive Weed Removal, Phase II**	
Amount requested: $11,379.67 $11,380	**Website: www.ntcd.org**	
This funding will be used to (complete this sentence with a max of 2 sentences):	**Improve riparian habitat by removing invasive weeds encroaching on Rosewood, Third and Deer Creek, provide invasive weed training and help develop a sustainable program for Incline Village Golf Course personnel.**	

Key People:	**Director:**	**Meghan Kelley, P.E.**
	Board Chair:	**Glen Smith**
	Project Contact:	**Name:** **Domi Fellers** **Position:** **Environmental Scientist III** **Phone:** **775.586.1610 x26** **Fax:** **775.586.1612** **Email:** **dfellers@ntcd.org**
Organization Mission:	**To promote the conservation and improvement of the Lake Tahoe Basin's natural resources by providing leadership, education, and technical assistance to all basin users.**	
Has your organization received other grants from the Truckee River Fund? **Yes X No** (use additional page if necessary)	If yes,	

Date awarded:	October 22, 2015
Project title:	Rosewood and Third Creeks Invasive Weed Removal
Amount of Award:	$7,350.00
Date awarded:	
Project title:	
Amount of Award:	
Date awarded:	
Project title:	
Amount of Award:	

DESCRIPTION OF PROJECT UNDER CONSIDERATION

Indicate the description that best fits the project you are proposing. Mark no more than three categories:

- ☒ A. Projects that improve bank or channel stabilization and decrease erosion.
- ☐ B. Structural controls or Low Impact Development (LID) projects on tributaries and drainages to the Truckee River where data supports evidence of pollution and/or sediments entering the Truckee River.
- ☐ C. Projects that remove pollution from the Truckee River.
- ☒ D. Projects that remove or control invasive aquatic species or terrestrial invasive plant species that are adverse to water supply.[1]
- ☐ E. Other projects that meet the evaluation criteria.

[1] For proposals related to weed control/eradication, contact Tracy Turner at the Community Foundation of Western Nevada for additional criteria. tturner@nevadafund.org; 775-333-5499.

Rosewood and Third Creek Invasive Weed Removal, Phase II

1. Project Goals and Measurable Outcomes

The Rosewood and Third Creek Invasive Weed Removal, Phase II (Project) is a cooperative educational and water quality enhancement effort to improve riparian habitat by removing invasive weeds along the upper Rosewood, Third and Deer Creek riparian area. Rosewood, Third and Deer Creek flow into Lake Tahoe.

Through this Project, NTCD will achieve the following:

1. Improved riparian habitat through invasive weed removal along the upper Rosewood, Third and Deer Creek watersheds within the 135 acre project area located between Tahoe Boulevard (State Route 28) and Mt. Rose Highway (State Route 431).
2. Train the Incline Village Golf Course staff on invasive weed identification and treatment.
3. Provide educational material to the public through field identification information sheets.
4. Help the Incline Village Golf Course staff develop a sustainable invasive weed identification and treatment program to continue promoting riparian health along stream corridors, thus improving the headwaters of the Truckee River watershed.

Outcomes by Task

1. Project Management

   Monthly grant management duties for NTCD
2. Project Coordination

   NTCD and Incline Village Golf Course staff (up to 5 staff) will coordinate with the Lake Tahoe Basin Management Unit (LTBMU) and Lake Tahoe Basin Weed Coordinating Group (LTBWCG) to attend invasive weed training.
3. Field Identification Training

   NTCD, a LTBWCG member, will provide one invasive weed field identification training to Incline Village Golf Course staff.
4. Invasive Weed Identification and Mapping

   NTCD and Incline Village Golf Course staff will survey and map invasive weed infestation locations in the project area.
5. Invasive Weed Removal

   5.1. NTCD and Incline Village Golf Course staff will remove invasive weeds within the project area for a two year period.
6. Outreach and Education

6.1. Provide educational material on invasive weeds at Incline Village General Improvement District (IVGID) facilities. Expected to reach all IVGID facility users, 1800 per year.
6.2. Participate in outreach events to promote invasive weed awareness. Target groups for outreach events will include local school groups, HOAs, North Lake Tahoe Demo Garden and IVGID Waste Not events. Expected outreach to 300 people.

7. Monitoring
7.1. NTCD will perform pre and post monitoring of the project area through photo point monitoring.
7.2. Incline Village Golf Course staff will continue to monitor invasive weed infestation areas.

2. Project Location

The Project is located in Incline Village, Nevada predominately on Incline Village General Improvement District (IVGID), public, and private property. The area encompasses Rosewood, Third and Deer Creek watersheds between Tahoe Blvd. (State Route 28) and Mt Rose Highway (State Route 431) (see attached map).
The project area is approximately 135 acres.
South end of Rosewood Creek in project area: 119°56'46.43"W 39°14'57.30"N
North end of Rosewood Creek in project area: 119°57'12.87"W 39°15'53.24"N
South end of Third Creek in project area: 119°56'38.53"W 39°14'55.15"N
North end of Third Creek in project area: 119°56'54.23"W 39°16'22.00"N
South end of Deer Creek in project area: 119°56'25.11"W 39°14'49.45"N
North end of Deer Creek in project area: 119°56'39.74"W 39°15'52.88"N

3. Project Description

In 2016 NTCD partnered with the Incline Village Parks and Recreation Department to implement the Rosewood and Third Creeks Invasive Weed Removal Project, which surveyed and mapped invasive weed locations along Rosewood and Third Creeks below Lake Tahoe Boulevard, treated invasive weed occurrences, trained Incline Village Parks & Recreation staff in invasive weed identification and treatment methods and performed public outreach regarding invasive weed early detection and reporting. The infestation was primarily comprised of spotted knapweed (*Centaurea biebersteinii*), common teasel (*Dipsacus fullonum*) and bull thistle (*Cirsium vulgare*). The Project provided training for 5 Incline Village Parks and Recreation staff, surveyed and mapped occurrences of invasive weeds over a 30 acre IVGID parcel and removed over 2750 spotted knapweed, 9000 common teasel and 1500 bull thistle. NTCD coordinated with Incline Village Parks & Recreation staff to ensure continued monitoring and treatment of the area.

During the Rosewood and Third Creeks Invasive Weed Removal Project, NTCD staff determined the seed source for many of the infestations was upstream—outside of the project area. In August 2016, NTCD staff surveyed the upper Rosewood Creek watershed and discovered teasel, bull thistle, Canada thistle and spotted knapweed as shown on the attached map. Upper Third or Deer Creek was not surveyed. Staff removed the flower heads in order to stop further seed production and spread, but is not currently funded to completely treat the area. Unless the upstream invasive weed population is

eradicated, it would continue to produce seed to re-infest the newly treated area. There are numerous stream restoration projects along Rosewood Creek that present prime habitat for infestation (in that they have increased floodplain and reduced canopy cover via construction disturbance). Incline Village contains numerous small streams and seeps that run through town. An uncontrolled infestation along Rosewood presents an increased threat to other nearby streams and riparian areas. NTCD prioritized identifying grant monies to enable future surveying, mapping and eradication efforts upstream of the Rosewood and Third Creeks Invasive Weed Removal Project area, train the Incline Village Championship and Mountain Golf Course's staff on invasive weed identification and treatment methods and continue public outreach and education efforts to the residents and visitors of Incline Village.

The Tahoe Basin has been able to keep weed infestations manageable by early detection and rapid response techniques. The populations of spotted knapweed and common teasel in the Rosewood and Third Creek watersheds are still very manageable at this point. By treating this area now, these infestations can be controlled or even eradicated before they spread to other areas. The common teasel infestation in the Rosewood Creek watershed is the only known occurrence of teasel in the entire Tahoe Basin. Teasel infests wetland areas, displacing desirable native species and decreasing the ability of the wetland to protect water quality. Invasive weeds have been shown to accelerate rates of erosion because their root structure does not bind the soil, and thus are a major threat to water quality and clarity. In addition, invasive weeds threaten the function, composition, and structure of the plant ecosystem at Lake Tahoe. Numerous studies have demonstrated reduced numbers and/or diversity in birds, reptiles, small mammals, and insects in stands of nonnative plant species.

Spotted knapweed, teasel and bull thistle all respond well to mechanical (hand) removal. Soil around the plants will be loosened to allow for removing the plant along with the top four inches of tap root. Plant material will be bagged, removed from the site and disposed.

Spotted knapweed is on the Nevada Noxious Weed List, while bull thistle and common teasel are not listed. The Lake Tahoe Basin Weed Coordination Group (LTBWCG) is a bi-state group across the five counties within the Tahoe Basin dedicated to ensuring that invasive weed detection, management and education is effective and seamless across the Tahoe Basin jurisdictions. LTBWCG categorizes weeds into groups according to the local importance for eradication. Common teasel is a Group 1 Species. LTBWCG's goal for Group 1 species is to "Watch for, Report and Eradicate Immediately" plants. Spotted knapweed and bull thistle are Group 2 species on the LTBWCG list. The goal of Group 2 species is to "Manage Infestation with a Goal of Eradication". The LTBWCG encourages the management/control of populations of these species to prevent further spread in the Lake Tahoe Basin. Although invasive weed species are prioritized differently between the Nevada Department of Agriculture (NDA) and the LTBWCG, removal of spotted knapweed, common teasel and bull thistle will improve the riparian and wildlife habitat.

The current land use of the project area is mainly recreation, with some multi- and single-family residential. The project area contains parts of the Incline Village 'Championship Course' and 'Mountain Course' golf courses and forested areas that IVGID Departments manage. These areas get substantial recreational use during the summer. Training the staff responsible for the daily golf course maintenance is essential to controlling the weed populations and reducing the potential for spread. The Project will provide IVGID personnel training to identify and remove invasive weeds on IVGID property. The LTBWCG host an annual class that provides locally relevant training on species of concern in the Tahoe Basin. Knowledge gained from attending the LTBWCG class and learning from NTCD staff or previously trained Incline Village Parks and Recreation staff will improve IVGID personnel's ability to continue monitoring treated areas and provide early detection and rapid response to any new infestations. The Project is also a starting point to bring the issue to the attention of not just the Incline Village Golf Course staff, but Incline Village locals and tourists.

4. Permitting

No permits are needed for this Project. Permission from property owners will be obtained.

5. Future Phases

No future phases are anticipated.

6. Principles Involved

Domi Fellers
Environmental Scientist III
Nevada Tahoe Conservation District
dfellers@ntcd.org
(775) 586-1610 x 26

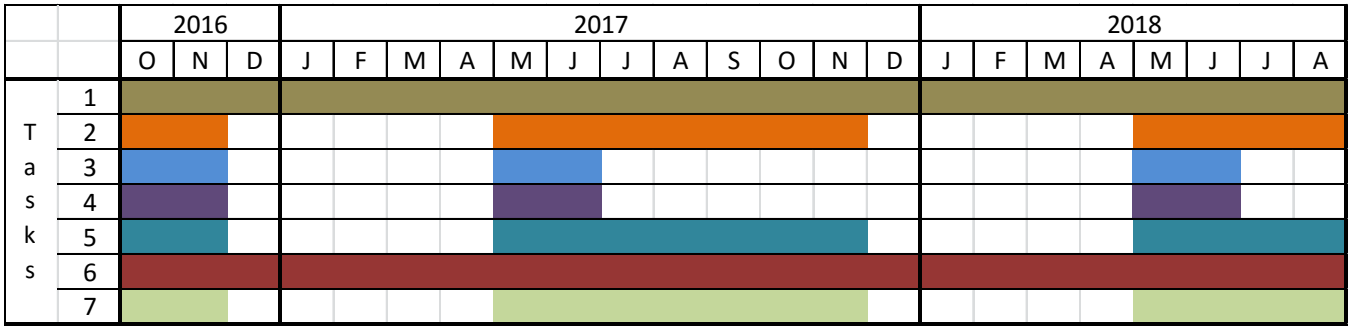
7. Staff Positions Involved

There will be no full-time positions and 3 part-time positions dedicated to this Project.

8. Volunteers Involved

NTCD will coordinate a volunteer weed pull day in late July for the two years (2017 & 2018) of the Project.

9. Timeline



10. Success

Success will be gauged through photo point monitoring showing reduction of weed populations in the project area. The Project will provide IVGID Golf Course staff with the proper training to identify and remove invasive weeds beyond the project timeline. This knowledge will allow IVGID Golf Course staff to continue to monitor treated areas and provide early detection and rapid response to any new infestations beyond the Project timeline. This knowledge will be used not only within the project area but on all IVGID property.

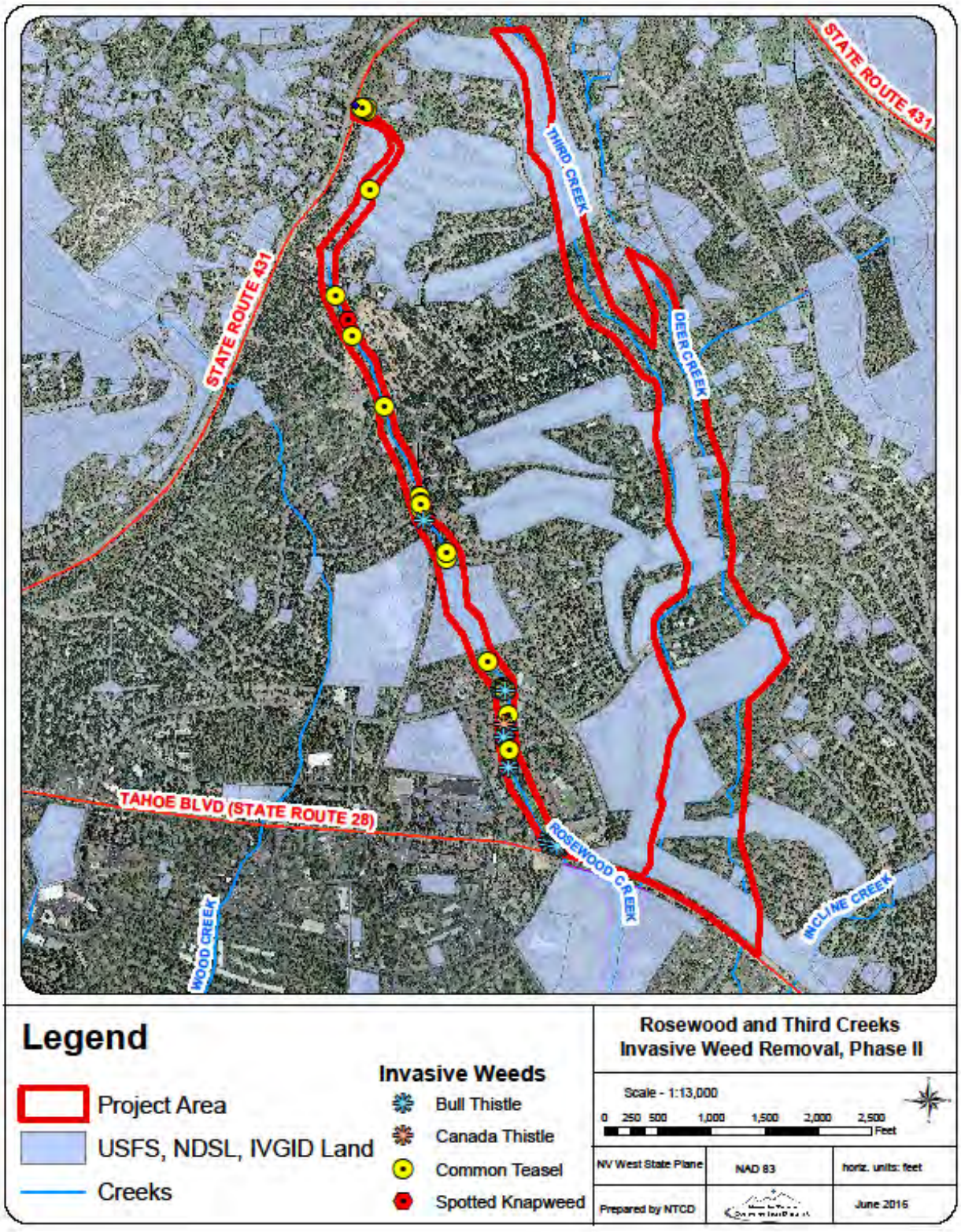
11. Grant Match

Match amount to be provided:	$35,600.09	
Match details:	Cash:	$32,600.09
	In-Kind:	$3,000
	For the cash portion of your match, is the funding already being held by the applicant for this project? Yes ___ No _X_	
Description of matching funds/in-kind donations	We have applied for $9,683.89 of the cash match from the Nevada Department of Agriculture and $11,379.67 of Truckee River Fund. Incline Village General Improvement District has pledged an in-kind match of $3,000. NTCD plans to apply for $5,729.05 of Tahoe Fund (rolling basis).	

12. Project Budget

Item Description	PROJECT BUDGET							
	TRF	NDA	NDSL	Tahoe Fund	Match $	TOTAL $	IVGID In-Kind	Total
1. Project Management	$527.62	$494.25	$529.33		$1,023.58	$1,551.20		$1,551.20
2. Project Coordination	$342.95	$288.36	$506.54	$204.76	$999.66	$1,342.61		$1,342.61
3. Field Identification Training	$369.33	$391.11	$883.19		$1,274.30	$1,643.63	$1,000.00	$2,643.63
4. Invasive Weed Survey and Mapping	$1,477.32	$1,427.51	$1,928.64	$786.10	$4,142.25	$5,619.57	$500.00	$6,119.57
5. Invasive Weed Removal	$4,431.96	$4,175.20	$6,794.88	$1,757.23	$12,727.31	$17,159.27	$800.00	$17,959.27
6. Outreach and Education	$290.19	$261.06	$385.23	$763.81	$1,410.10	$1,700.29	$200.00	$1,900.29
7. Monitoring	$1,002.47	$1,075.03	$1,248.73	$212.00	$2,535.75	$3,538.22	$500.00	$4,038.22
Travel (NV State Rate - $0.54 per mile)	$368.28	$478.95		$368.28	$847.23	$1,215.51		$1,215.51
Equipment and Supplies	$293.62	$212.07			$212.07	$505.69		$505.69
Sub Total	$9,103.74	$8,803.54	$12,276.54	$4,092.18	$25,172.25	$34,275.98	$3,000.00	$37,275.98
In-Direct Charges/Administrative (25% TRF, 10% NDA, 40% Others)	$2,275.93	$880.35	$4,910.61	$1,636.87	$7,427.83	$9,703.76		$9,703.76
Total	**$11,379.67**	**$9,683.89**	**$17,187.15**	**$5,729.05**	**$32,600.08**	**$43,979.74**	**$3,000.00**	**$46,979.74**

Map


STATE ROUTE 431
THIRD CREEK
DEER CREEK
STATE ROUTE 431
TAHOE BLVD (STATE ROUTE 28)
ROSEWOOD CREEK
INCLINE CREEK
WOOD CREEK
Legend
Project Area
USFS, NDSL, IVGID Land
Creeks
Invasive Weeds
Bull Thistle
Canada Thistle
Common Teasel
Spotted Knapweed
Rosewood and Third Creeks
Invasive Weed Removal, Phase II
Scale - 1:13,000
0 250 500 1,000 1,500 2,000 2,500
Feet
NV West State Plane
NAD 83
horiz. units: feet
Prepared by NTCD
June 2016

Photos of Project Area

Teasel on Third Creek HOA property.

Spotted Knapweed

Teasel w/ IVGID Golf Course in background

Teasel seed heads from previous growing season retrieved from within Rosewood Creek. Note the germination of the upper left seed head.