

Tahoe Sierra IRWM

Attachment 3: Work Plan

**Introduction**

In the following pages of this work plan, the Tahoe Sierra IRWM presents detailed descriptions for the suite of 9 projects that are a part of this proposal. Each individual project has also provided an introduction that includes goals and objectives, purpose and need, existing data and studies, maps (if appropriate) and any other information pertinent to each project.

**Goals and Objectives**

The Tahoe Sierra IRWMP partnership was formed in 2004. Since the inception, it has grown significantly and thus the goals and objectives have changed as new partners and agencies have brought resources and integration challenges to the attention of the partnership. The current partnership, which consists of approximately 38 agencies, established the following goals and objectives for our region:

**Goals:**

1) Protect and improve water quality, 2) Protect the community water supply, 3) Manage groundwater for sustainable yield, 4) Contribute to ecosystem restoration, and 5) Implement integrated watershed management throughout the region.

**Objectives:**

1) Foster a collaborative water management planning environment; 2) Promote integration of water management across geographies of the region; 3) Recommend priorities for implementation projects; 4) Cooperatively apply for and obtain funding for implementation projects; 5) Revise and update the Tahoe Sierra IRWM Plan as needed; and, 6) Communicate the best available information to decision makers, stakeholders and the public.

In order to meet the goals and objectives above, the Tahoe Sierra IRWM has adopted the following water management strategies:

- 1.) Ecosystem restoration
- 2.) Environmental and Habitat Protection and Improvement
- 3.) Water Supply Reliability
- 4.) Flood Management
- 5.) Groundwater Management
- 6.) Recreation and Public Access
- 7.) Stormwater Capture and Management
- 8.) Water Conservation
- 9.) Water Quality Protection and Improvement
- 10.) Water Recycling

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- 11.) Wetlands Enhancement and Creation
- 12.) Land Use Planning
- 13.) NPS Pollution Control
- 14.) Surface Storage
- 15.) Watershed Planning
- 16.) Water and Wastewater Treatment
- 17.) Water Transfers

The suite of 9 projects proposed in this application meet the goals and objectives by implementing one or more of the 17 water management strategies listed above, as further described in the individual work plans, as well as the Performance Measures and Program Preferences section of this application.

### **Purpose and Need**

The Tahoe Sierra IRWM contains approximately 78 projects as proposed by members of the partnership. Each partner can submit projects for evaluation and ranking annually. The projects are divided into three subcategories: water supply, water quality/restoration, and stormwater/floodwater. The partnership gives each subcategory equal weight in ranking distribution as we believe these three subcategories must be integrated to address water issues in our region. The suite of projects chosen for this application represent those ranked at the top of each subgroup category, as well as an equity distribution among the subgroups. In addition, the top ranked projects are evaluated by the partnership for need, readiness to proceed, agency interest in the grant funding available, and those that also meet the criteria as established for the Proposition 84 IRWM funding.

Further information regarding project purpose and need is provided in the individual project work plans below.

### **Project List**

<b>Project</b>	<b>Implementing Agencies</b>	<b>Abstract</b>	<b>Current Status</b>
1. Markleeville Creek Restoration Project	Alpine County	The Markleeville Creek Restoration Project will re-establish the natural form and function of Markleeville Creek through the site. The project will reconstruct the floodplain and realign the sewer system in order to improve geomorphic function, reduce water quality risks and create a recreational resource for the community. The primary elements of the proposed restoration project include the following: removal of the flood walls, protection or relocation of underground sewer lines, site	The project is current at the 10% design phase for the sewer system improvements and 50% design phase for the stream restoration portion.

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		grading for floodplain establishment, re-vegetation, and provision of natural pathways through the project area as appropriate.	
2. Negro Canyon Restoration	Truckee River Watershed Council	The Negro Canyon Restoration project restores the eastern portion of the Gregory Creek sub-watershed in the Truckee River watershed. The watershed has experienced significant impacts through past land use including intense logging, fire, and construction of Interstate 80. These impacts have led to the development of a poorly constructed road network that has disrupted natural drainage patterns and is causing significant erosion. Restoration of the eastern side of the watershed was identified as the highest priority through a watershed assessment. Restoration work will primarily consist of restoring abandoned road alignments, revegetating areas with native plants, restoring eroded stream channels, and re-establishing natural drainage patterns. Significant water quality improvement and habitat gains will be achieved.	The entire Negro Canyon Restoration project includes work at six sites. Design is completed on two sites, and funding is in place to complete design work for the remaining four as well as environmental permitting and CEQA for all six sites. We are requesting funding to implement restoration at three sites, implementation for the remaining three sites is already in place.
3. Water Quality Monitoring Program	Town of Truckee	The town of Truckee Water Quality Monitoring Program will implement the Truckee River Water Quality Monitoring Plan (TRWQMP). The project will implement water quality monitoring in three high risk sub-watersheds of the Truckee River including Truckee Town Corridor, Donner Creek/Cold Creek and Trout Creek, and will provide data analysis and reporting of the results.	The Town has commenced implementation of approximately 37% of Phase 1 and 2 of the Water Quality Monitoring Program.
4. Woodfords Water Supply Improvements	Washoe Tribe of Nevada and California	This program focuses on water use efficiency best management practices implementation to decrease water	This project is ready to be implemented.

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		usage and educate residents of the Tribe's Woodfords Community on the importance of water conservation and to detect leaks in homes, laterals and mains and repair pipes as prioritized by water meter data collection. In conjunction with our partner agencies, incentives will be offered through rebates for water efficient appliances, household leak repair, Turf Buy Back and Smart Controller Irrigation to reduce water consumption. By focusing on indoor retrofits, outdoor landscaping improvements and repairs to priority leaking pipes, a significant water savings can be realized.	
5. Aquatic Invasive Species Regional Outreach Framework	Tahoe Resource Conservation District (TRCD)	Develop a framework to support regional outreach efforts	Tahoe, Truckee, and Northern NV at 30% coordinated prevention implementation
6. West Lake Tahoe Regional Water Treatment	Tahoe City Public Utility District	The West Lake Tahoe Regional Water Treatment Plant project is the final design, permitting and construction of a permanent all- season surface water treatment plant utilizing Lake Tahoe as the water source. The project replaces an existing summer seasonal water treatment plant and supplements or replaces ground water sources, providing a long term solution to water delivery needs along the West Shore of Lake Tahoe. This project offers an integrated, regional approach to improving the supply of high quality drinking water.	TCPUD is the implementing agency and the stages of the project include: <ul style="list-style-type: none"> <li>▪ Site evaluation and preliminary design for the water treatment plant is currently in progress and will be completed in the fall of 2013, prior to any grant awards.</li> <li>▪ The final design &amp; permitting of the water treatment plant</li> </ul>

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			<p>is scheduled to begin in the fall of 2013.</p> <p>Construction is scheduled to begin in the late summer/fall of 2014 and will be completed by the end of 2015.</p>
7. Regional Water Use Efficiency Program	<p>South Tahoe Public Utility District (STPUD-lead agency); Tahoe City Public Utility District (TCPUD) ;North Tahoe Public Utility District (NTPUD); St. Joseph's Community Land Trust Sierra Gardens Affordable Housing</p>	<p>This project will be utilizing resources in a regional approach to water conservation efforts. Integrated elements include: turf buyback; outreach and educational components; water savings appliances and fixtures; training and mentoring.</p>	<p>Agency water conservation programs in place; regional program would integrate current programs. Program design still needs to be completed, utilizing existing elements.</p>
8. Griff Creek Environmental Improvement Project	<p>Placer County</p>	<p>Griff Creek runs through the urbanized area of Kings Beach California and outlets directly into Lake Tahoe. Do to development and urbanization the creek has lost its natural meandering and flood control characteristics and has become an eroded stream channel and a sediment pollution source to Lake Tahoe. In addition no water quality treatment facilities exist in the Griff Creek watershed to treat urban runoff before it enters Griff Creek. This project will</p>	<p>90% design completion currently under review</p>

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		<p>reintroduce SEZ area and natural flood control zones helping take some of the pressure off of the main Griff Creek Channel. In addition multiple water quality features will be constructed to treat the urban runoff before it enters Griff Creek all helping to reduce the sediment load in Lake Tahoe.</p>	
<p>9. Best Management Practices</p>	<p>Tahoe Regional Planning Agency</p>	<p>In an effort to improve water quality and restore Lake Tahoe's clarity, this project will fund the TRPA Stormwater Management Program (SMP) to reduce non-point source inputs of fine sediment and nutrients to Lake Tahoe from privately owned parcels. In order to accomplish these reductions, SMP will provide BMP technical guidance, resources and permitting assistance, to property owners to facilitate private parcel BMP installation. The SMP Team will also enable partnerships between private land owners and public agencies to implement a combination of low-impact development and area-wide BMPs.</p> <p>The SMP team will engage private parcel owners in watershed restoration through a strategically designed outreach plan which will use a combination of multi-media advertisements, web-based design tools, and workshops to inform property owners about the</p>	<p>As of June 2012, 15,196 of 43,470 parcels in the Tahoe Region have achieved a BMP Certificate. This equates to 58% compliance in Nevada and 26% compliance in California and total Region-wide pollutant load reductions in tons/year of 251,336 TSS, 5,290 TN, 741 DN, and 1,441 TP.</p>

		importance of BMP installation and maintenance.	
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**Integrated Elements of Projects**

Synergies and linkages exist between many of the projects as proposed above. Projects 8 and 9 are environmental improvement projects (EIP) and part of a larger land management plan as proposed by the Tahoe Resource Planning Agency, a bi-state environmental land steward and regulatory agency. Coordinated implementation of these EIP's occurs among the IRWMP partnership level, as well as regionally with regulatory agencies, local stakeholders and public agencies. Although these projects implement a regional water quality/land management plan, they are individual projects in terms of construction/implementation.

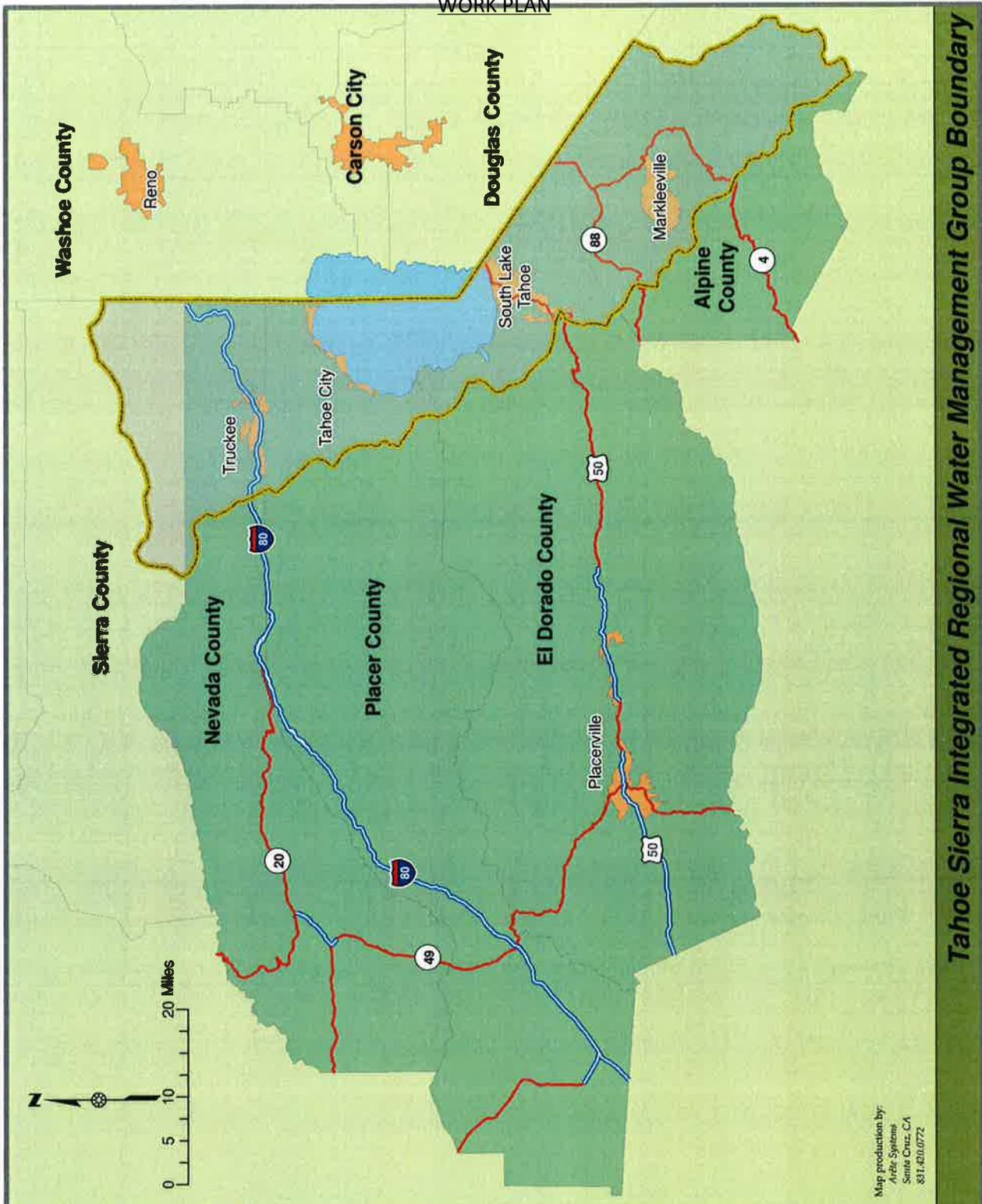
Projects 4 and 7 are water conservation/water supply projects and are integrated in terms of development of regional water use efficiency programs and sharing information, supplies, website access and staff training. These projects also implement water use efficiency Best Management Practices in disadvantaged communities.

Projects 1, 2, 3 and 5 are restoration projects designed to restore water quality within three sub-basins encompassed by the Tahoe Sierra IRWM: Alpine County, Lake Tahoe, and Truckee. The Town of Truckee works closely with the Truckee River Watershed Council to integrate restoration projects by focusing on high priority projects that will work in tangent when implemented. Alpine County works closely with the Markleeville Public Utility District to integrate wastewater treatment issues in relocating current sewer lines within the restoration process. Tahoe Resource Conservation District proposes a regional approach to aquatic invasive species treatment to ensure that integration of current projects Lake Tahoe basin wide will result in a more cost effective and preventative approach.

Project 6 proposes to integrate many smaller water supply sources into a larger more efficient water treatment plant.

**Regional Maps**

The regional map and watershed map enclosed below outline the Tahoe Sierra IRWM. Each individual project has also included a project map that identifies where in the region the projects are located.



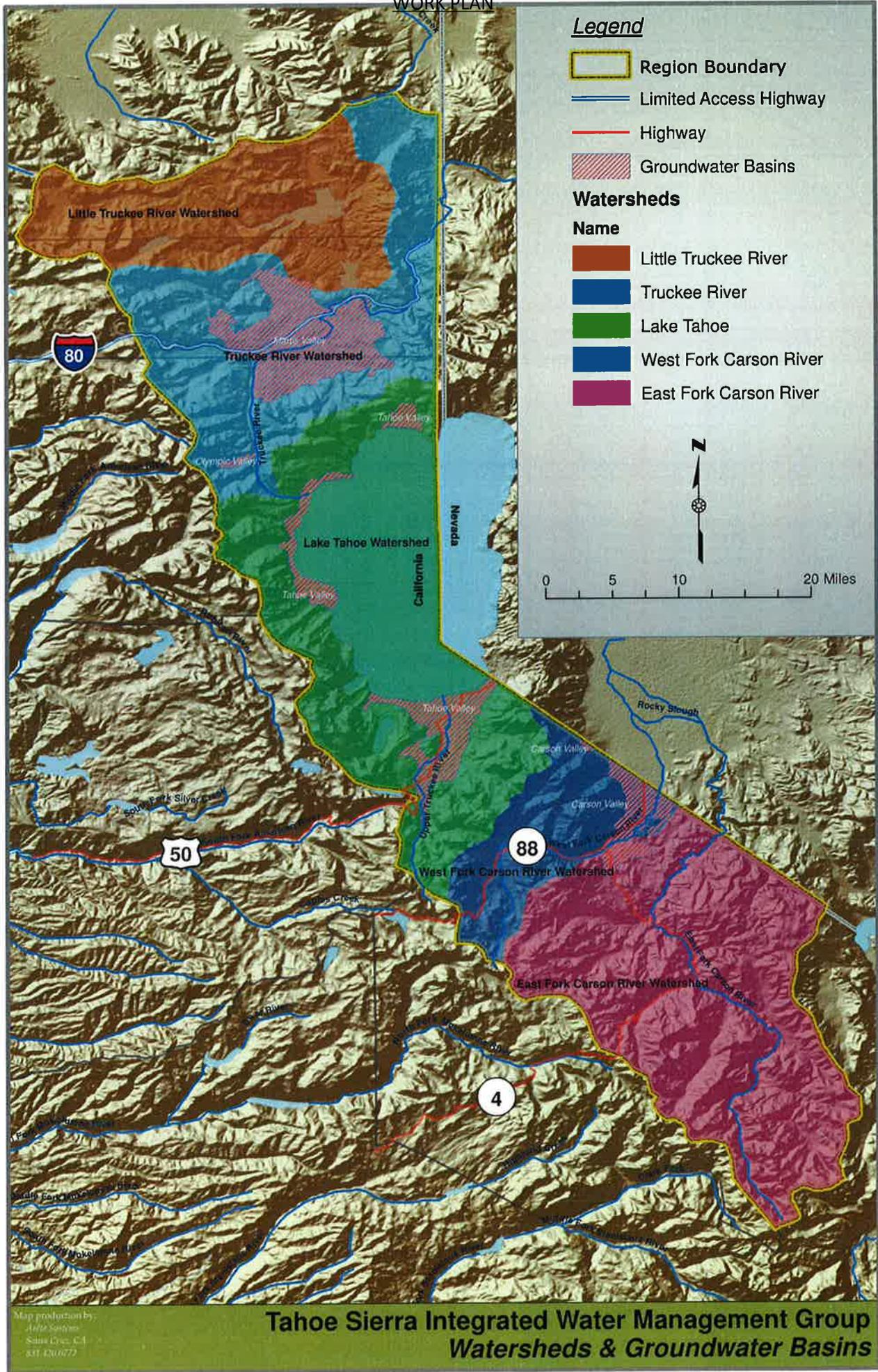
**Legend**

-  Region Boundary
-  Partner Counties
-  Urban Areas
-  Limited Access Highway
-  Highway



**Overview**

Map production by:  
 Arize Systems  
 Santa Cruz, CA  
 831.420.0772



Map production by:  
Aqua Systems  
Santa Cruz, CA  
831.430.6772

### Tahoe Sierra Integrated Water Management Group Watersheds & Groundwater Basins

**Existing Data and Studies**

Provided with each project work plan below.

**Project Map**

Provided with each project work plan below.

**Project Timing and Phasing**

Provided with each project work plan below.

**Project 0: TAHOE SIERRA PROPOSITION 84 ADMINISTRATION (Tahoe Regional Planning Agency)**

**Introduction**

This project will provide project reporting, invoicing, coordination, and general administration for the nine projects which make up the Tahoe Sierra Proposition 84 proposal.

**Goals and Objectives**

The goal of this project is to ensure that all component projects follow funding guidelines, submit invoices as directed by the Department of Water Resources, and provide monthly and final progress reports to the Department of Water Resources. The Tahoe Regional Planning Agency (TRPA) will be the agency responsible for distributing funding received by DWR to IRWM partner agencies and will facilitate communications between partner agencies and DWR to ensure successful projects. Objectives for this project include timely submittal of accurate invoices and reports which provide DWR with a clear understanding of project progress.

**Purpose and Need**

In order for the nine component projects which make up the Tahoe-Sierra proposal to be successfully implemented, invoicing, reporting, and dispersal of funds must happen in a timely and efficient manner. The Tahoe Regional Planning Agency possesses sufficient staffing and expertise to ensure that this will occur.

**Integrated Elements of the Project**

TRPA will integrate invoices and reports from all nine components into a single invoice and report for submittal to DWR.

**Project Map**

N/A

**Completed Work**

N/A

**Project Timing and Phasing**

The program is not dependent upon any other phase and is ready for immediate implementation. The program can be phased, if necessary, based on funding level commitments.

**Proposed Work**

**Task A: Direct Project Administration**

**Subtask A.1 Administration**

The TRPA and regional partners shall provide all technical and administrative services as needed for project completion, review all work performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations.

**Subtask A.2 Labor Compliance**

TRPA will pay the State Prevailing Wage for all construction activities and will be responsible for complying with all Labor Code requirements under Senate Bill X2-9 and for paying associated fees within this Code. STPUD will provide all necessary documentation of compliance to grant manager prior to finalizing contract.

**Subtask A.3 Monthly Repots**

TRPA shall request information from project partners and assemble a monthly progress report for submittal to DWR.

Deliverable: Reports

**Subtask A.4 Monthly Invoicing**

TRPA shall assemble all invoices received from project partners and submit invoices to DWR monthly.

Deliverable: Invoices

**Subtask A.5 Draft Final Report Review**

TRPA shall assemble review, and submit a final project report to DWR.

Deliverable: Draft final report

**Subtask A.6 Final Report Review**

TRPA shall address any comments from DWR on the draft final report and submit a final project report.

Deliverable: Final project report

**Subtask A.8 Retention Invoicing**

**PROJECT #1: MARKLEEVILLE CREEK RESTORATION PROJECT (Alpine County)**

**INTRODUCTION**

The purpose of the Markleeville Creek Restoration Project is to reestablish the natural form and function of Markleeville Creek and its floodplain through the site of the former United States Forest Service (USFS) Guard Station in downtown Markleeville, California. This site, which is approximately four acres in size, has been subject to significant and repeated flooding over the years.

The flood wall which was constructed in the 1930's to prevent flooding has resulted in confined high water flows contributing to downstream erosion, stream incision and stream bank failures. The USFS Guard Station was originally developed by placing fill material in the floodplain of Markleeville Creek. Most of the developed area is within the 100-year flood plain, including some of the former buildings/parking within the 25-year floodplain.

Floodplain restoration planning for the Markleeville Creek project began in 2005 with the creation of a Technical Advisory Committee (TAC). A draft Restoration Design Plan was completed in May 2007. Having relocated their Guard Station facility in June 2010, the USFS is now preparing to transfer ownership of the land as stated in a Memorandum of Understanding between the USFS and Alpine County. Alpine County's acquisition of the land is expected to be complete by Fall 2013.

The project is currently fully funded for and in the midst of Phase 2, Planning and Design. Phase 3 of the project, Final Design and Implementation. This proposal will fund Phase 3A, sewer system modifications and pre-project baseline monitoring, which is the critical path element for project implementation.

**Goals and Objectives**

The primary goals of the restoration project are to 1) restore the natural stream channel and floodplain and 2) provide community benefits for residents and tourists. The project will restore the floodplain and streamside environment to more closely resemble its natural state in order to improve geomorphic function and reconnect the stream to its historic floodplain.

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The primary elements of the proposed restoration project include the following: replacement and relocation of underground sewer lines, replacement and relocation of above ground sewer manholes and pump station infrastructure, realignment and access road improvements to waste water treatment plant through restoration area, removal of the flood walls, removal of fill material and site grading for floodplain re-establishment, re-vegetation, and provision of pathways through the project area.

By relocating the gravity sewer mains and manholes out of the floodplain restoration area, we will reduce the risk of inundation due to flooding and reduce the risk of pipe failure due to shallow depth/cover exposure. Construction of a new sewer pump station at a more accessible location (off HWY 88) will provide improved access to the facilities during all weather (and flooding) conditions, replace a critical piece of infrastructure nearing the end of its service life, and allow provisions to increase or mitigate the response time prior to sanitary sewer overflows. By removing the existing sewer pump station from its current location, the flood plain restoration project can incorporate an improved design at the confluence of Millberry Creek and Markleeville Creek to simulate natural conditions and reduce erosion/scour.

### **Purpose and Need**

The existing condition of the project reach is that of a narrow, constructed stream channel which extends downstream from the bridge for Highway 89. The creek has been highly altered since the 1930s when rock floodwalls were erected and the floodplain was filled for the construction of the Guard Station facility. This stream confinement has resulted in accelerated water flows causing erosion, stream incision and bank failures downstream. Markleeville Creek's streambed elevation has decreased as a result of the influence of the Highway 89 Bridge and the floodwalls. In addition to the hydrologic and geomorphic degradation, the project sites lacks sufficient riparian vegetation due to the floodwall and fill material footprints at prior building and parking locations. A large portion of the property is devoid of vegetation. Native plants grow at the site but in limited number and patchy distribution.

One of the existing sewer manholes within the project limits is not accessible by construction or service vehicles for inspection, maintenance, or bypass pumping under any conditions. Several of the existing sewer manholes within the project limits are not accessible during inclement weather or flood conditions. By relocating sewer manholes outside the proposed floodplain restoration area to locations adjacent to (existing and proposed) roadways, the sewer infrastructure will be accessible during all weather conditions.

The existing access road to the MPUD sewer pump station and wastewater treatment plant has limited access to large vehicles (such as vacuum trucks) especially during inclement weather. The existing sewer pump station site does not have sufficient space for bypass pumping, temporary power, and maintenance/construction activities while maintaining access to the treatment plant. The sewer pump station is not accessible during flood events.

By relocating the sewer pump station to a more suitable location along the proposed (improved) access road, sufficient space will be available for maintenance and/or emergency activities to prevent sewer overflows – during all weather conditions. By relocating the new sewer pump station south of Millberry

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Creek, the pump station will be accessible to MPUD operations / emergency staff even during the most severe flood events.

The proposed new sewer manholes and pump station facilities will be constructed outside the floodway restoration area at finish surface elevations above the maximum anticipated flood height. This improvement will reduce the risk of inundation and subsequent sewer overflows. The proposed collection system and pump station improvements will include provisions for extending the Time-To-Overflow for sewage in the event of a pump station failure or malfunction, via storage. This improvement will provide additional safeguards and reliability for sewer function and extend the time necessary to procure emergency equipment and contractors in the event of a major failure or blockage. Underground sewer collection system piping will be constructed in new locations (alignments) outside the proposed floodway restoration areas, with sufficient cover and protection to prevent damage due to flooding, erosion, or exposure. New pipe constructed to today's standards (materials and methods), which will extend the service life for the foreseeable future.

The Markleeville Creek Restoration Project has been incorporated in the Tahoe Sierra Integrated Regional Water Management Plan (IRWMP). The project demonstrates the ability to meet a variety of the IRWMP's water quality (WQ), ecosystem restoration (ER) and integrated water management (IWM) objectives. The following are the specific objectives this project addresses:

- WQ1: Reduce nutrient and sediment loads to receiving water bodies.
- WQ5: Restore degraded streams and wetlands to reestablish natural water filtering processes.
- WQ6: Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies.
- ER1: Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable native fish populations.
- ER2: Restore wetlands and natural biogeochemical cycles.
- ER3: Educate public about ecosystem services provided by healthy wetlands and SEZs.
- ER5: Minimize disturbance caused by urban development.
- IWM1: Ensure sound planning that is based on watershed science.
- IWM2: Encourage collaboration among multiple jurisdictions within a watershed
- IWM3: Form partnerships to share resources, take advantage of cost sharing opportunities, and exchange information.

This project will also integrate a variety of recreational and educational opportunities for both visitors and locals, including an interpretive nature trail, fishing access and picnic tables. This project presents a unique opportunity to provide immediate environmental benefits while simultaneously creating a scenic and recreational resource.

### **Integrated Elements of Project**

This project effectively provides multiple benefits for both environmental protection and community enhancement. It contributes toward several IRWM goals in the areas of water quality, environmental restoration and integrated water management. This project can be used as a model for how a project

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that developed as a flood safety issue can evolve into a community-based effort to enhance natural resources while providing valuable public resources at the same time.

The Markleeville planning team has tapped into the expertise of other IRWM partners who have conducted similar restoration projects. There are a variety of similarities between this project and the Truckee River Watershed Council's Negro Canyon restoration project in the arena of goals and performance measures. There are also linkages with the Town of Truckee's water quality monitoring project with partner collaboration on monitoring protocols and volunteer management practices.

### **Completed Work**

Markleeville Creek's geomorphic and ecologic stability has been the focus of concern since the major flooding event of 1997. The proposed restoration project will support the efforts over the past thirteen years (since the 1997 flood) to stabilize this reach of Markleeville Creek. Specifically, the 1997 flood resulted in the destabilization of a downstream bank that supports the primary sewer force main and access road to the wastewater treatment facilities for the Markleeville community, and damage to a water supply line for the downstream USFS Markleeville campground. At that time, Alpine County and Markleeville Public Utility District (MPUD) mitigated the threat of a sewer line failure by stabilizing the slope. The State Water Resources Control Board provided a \$120,000 grant for this project.

Planning for this Markleeville Creek Restoration Project began in 2005 with the creation of a Technical Advisory Committee consisting of the planning consultants and key stakeholders. In addition, AWG staff and volunteers performed community outreach and education regarding the need for site restoration. Initial funding was secured for the completion of Phase 1 of the project, Preliminary Planning and Design; with the development of a draft Restoration Design Plan in May 2007.

Relocation of USFS facilities and additional grant funding by the fall of 2011 allowed for beginning Phase 2 of the project, Alternatives Refinement /Design Development. The TAC reconvened and began planning for the completion of the restoration design and implementation. Project planning and design to date has consisted of research of all environmental factors involved - geomorphic assessment, hydrologic modeling, flood levels, soils testing, water quality consideration, channel type and possible bioengineering restoration techniques.

Since 2006, AWG staff and volunteers have been conducting pre-restoration project water quality monitoring on an annual basis including testing of basic ambient parameters (such as temperature, pH and conductivity) and bioassessment sampling.

### **Existing Data and Studies**

Watershed assessment and management reports have identified the need for improved stream bank stability, floodplain function, water quality and wildlife habitat in the Upper Carson River Watershed. The Markleeville Creek Restoration Project has been identified as a priority floodplain restoration project for the Upper Carson River Watershed in three watershed-level planning and assessment documents – the Upper Carson River Watershed Stream Corridor Condition Assessment (2004), the

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Carson River Watershed Adaptive Stewardship Plan (2007) and the Carson River Watershed Floodplain Management Plan (2008).

The 2007 Draft Design Report included a complete geomorphic and hydraulic assessment.

Since the beginning of Phase 2 of the project, Consultants have reviewed the existing Design Report and Improvement Plans for constructability and optimum design for geomorphic and hydraulic stability, and floodplain connectivity. They have also conducted extensive research and investigation including the following:

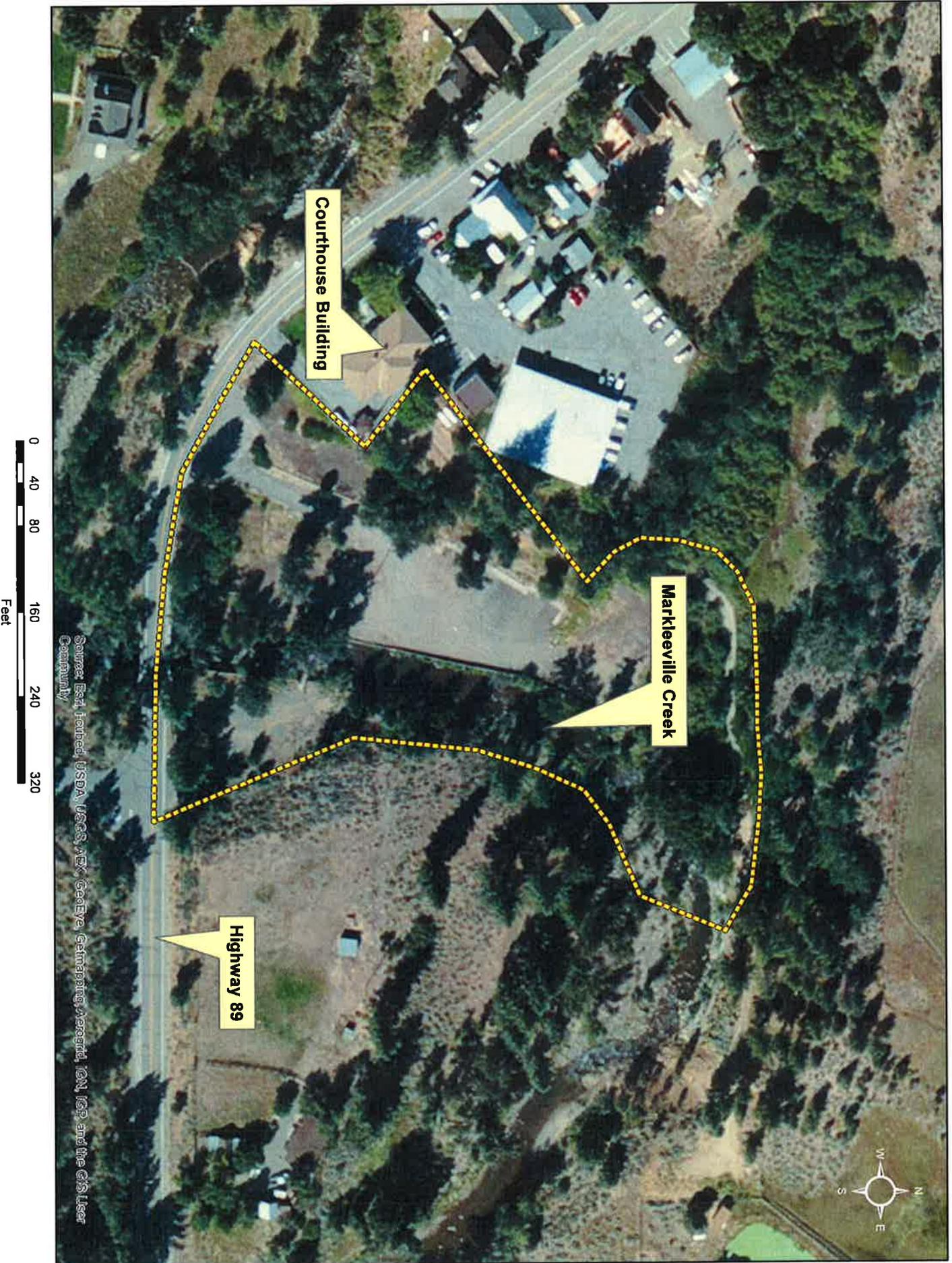
- Updates/file searches to clarify and verify Cultural Resources evaluation status
- Supplemental observations of site geomorphology, hydraulics, and vegetation (in support of wetlands permitting and targeting future conditions)
- Engineering review of initial hydraulic model and building refined hydraulic model of project reach extending further downstream to natural bedrock outcrops below the MPUD road
- Validating flood model for existing conditions
- Gathering additional community and agency input on sewer system options and iterative opportunities/constraints for final restored site land uses.

The TAC has also been working together to identify options for sewer line protection and/or relocation. A Condition assessment of the sewer facilities within the project limits was conducted in April 2012 and a set of design concepts were developed by June 2012. The planning team has reached the point of getting agreement on sewer system improvements that would be desirable for MPUD and consistent with ecologic, geomorphic, and hydraulic needs of the restoration functions.

### **Project Map placeholder**

(Attached)

# Markleeville Creek Floodplain Restoration Project Location Map (Aerial)



### **Project Timing and Phasing**

The project has three phases overall: 1) Initial Planning & Design, 2) Land Acquisition, Alternatives Refinement and Design Development, and 3) Final Design and Implementation. The project team is currently completing Phase 2 and preparing for Phase 3.

Phase 3 has been divided into four primary steps that are needed for complete implementation. The TAC identified the need for this after considering the total cost estimate for project implementation and recognizing the limited availability of that amount of funding from a single source.

The steps identified for Phase 3 implementation are as follows:

- A. Sewer System Modifications and Pre-Project Baseline Monitoring
- B. Site Restoration and Sewer Activation
- C. Recreation Enhancements
- D. Monitoring and Management

This proposal will address Phase 3A as one incremental piece. This step of sewer system modifications and baseline water quality monitoring has been identified as a critical path item to complete in order for the ecologic/geomorphic restoration and any recreation/public access elements to be added without hindrance at a future time.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

Alpine County will be responsible for overall project administration with specific tasks delegated to project partners and consultants as needed. This work will include preparation of all necessary documents for the administration of the grant, oversight of project work and hiring of consultants. Alpine County will work closely with the partner agencies through the existing MOU and additional agreements as needed.

##### **Sub-Task A.1: Administration**

This task includes administration of the grant funding and contracts including:

- processing payment requests of contractors, consultants, and agencies for costs incurred
- maintaining files/documentation necessary for proper administration of grant monies
- overall program management for whole project
- correspondence with consultants, agencies, and contractors regarding project status, schedules, milestone completions, inspections, and documentation

**Deliverables:** Preparation of invoices and other deliverables as required

##### **Sub-Task A.2: Labor Compliance Program**

This task includes maintaining documentation of labor compliance for contractors while working on the project components. Administrator will request routine payroll compliance reports from

contractors to document prevailing wage, insurance, and other compensation rules are being followed in accordance with grant requirements.

**Deliverables:** Documentation of labor compliance as required

**Sub-Task A.3: Quarterly Progress Reports**

Alpine County will meet project requirements through regular communications with regional and state grant managers. Quarterly reports will be submitted to the State beginning the end of the quarter following grant award, and will continue for the term of the grant. The description of activities and accomplishments of each task during the quarter will be in sufficient detail to provide a basis for payment of invoices.

**Deliverables:** Quarterly Reports

**Sub-Task A.4: Draft Final Report**

Alpine County will prepare a draft final project report that includes the results of all work completed under the grant.

**Deliverables:** Draft Final Report

**Sub-Task A.5: Final Report**

Alpine County will prepare a draft final project report that incorporates comments made by regional and state managers on the draft project report.

**Deliverables:** Final Report

**Sub-Task A.6: Project Monitoring Plan**

Alpine County will prepare a Project Monitoring Plan (PMP). The PMP will include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category of activities identified in the project. The PMP will be submitted for approval at the start of project implementation and will be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** PMP

**Task B: Land Purchase Easement**

Alpine County is in the process of acquiring the land from the USFS through a Townsite Act application with grant funding provided by the California River Parkways Program (awarded November 2012). The land transfer process is targeted for completion by October 2013.

**Task C: Planning, Design, Engineering, Environmental Documentation**

Alpine County will oversee MPUD and Consultant work on these tasks. All necessary construction and environmental permits will be obtained. All tasks necessary to comply with CEQA and any other environmental compliance requirement will be administered by the County.

**Sub-Task C.1: Assessment and Evaluation**

Most of this work has been completed under the current Phase 2 of the project planning. Completed work includes initial planning, site reconnaissance, surveying, background research, and investigations into project feasibility, layouts, and components. Also included in this task are investigations for environmental components such as habitat, endangered species, mitigation requirements, and best management practices for construction. The remaining tasks to be completed under this grant are as follows: final topographic surveys, final assessment of underground utilities and soils studies.

**Deliverables:** Results from topographic surveys, assessment of underground utilities and soils studies

**Sub-Task C.2: Pre-Project Baseline Monitoring**

This task will allow for collection of necessary baseline monitoring data for pre-project conditions, prior to disturbances that would occur from the Phase 3A construction. The overall project monitoring plan will be finalized early in 2013 using the existing funding. Additionally, pre-project baseline monitoring using a portion of existing funding will commence with seasonal peak flows in late spring 2013 and cover the core of the summer 2013 growing season.

A subset of the pre-project baseline monitoring would be performed under this grant to ensure that monitoring during 2014 (after existing grants expire) could be completed immediately prior to Phase 3A construction. The focus this effort would be on the pre-project baseline topography, geomorphology, aquatic habitat and streambank vegetation characteristics ('pre-project assessment of stream conditions' in Attachment 6).

**Deliverables:** Monitoring data for pre-construction period in Spring 2014; photographs, topographic data, habitat rating, geomorphic and vegetation observation.

**Sub-Task C.3: Final Design**

This task includes preparation of Construction Documents (plans and specifications) for public bidding and construction of the proposed improvements for all Phase 3 design elements. Project construction documents will be compiled into separate packages to meet funding and bid phasing. Phase 3A construction elements will be completed with funding provided by this grant application. Final design for the rest of Phase 3 is in progress and funded as part of the Phase 2 efforts; with the potential for more than one construction bid package to result if needed to fit the funding cycles and construction seasons.

**Deliverables:** Final plans and specifications

**Sub-Task C.4: Environmental Documentation**

This task includes modification/addenda/circulation as needed of the Mitigated Negative Declaration (MND) that will be drafted for the entire project, including Phase 3A during late 2013 under existing grant funding. While we expect to be able to adequately address all general

categories of potential impact and issues of concern using project description that will be available during 2013, some of the details, quantities and potential impact and mitigations may require data that will not be available until the final design (Task C2, above) is in process. Any follow up documentation to the MND will be processed and made available for review in accordance with the applicable sections of CEQA and the CEQA Guidelines.

**Deliverables:** Modified public/final version of the Mitigated Negative Declaration.

**Sub-Task C.5: Permitting**

This task includes preparation of permit applications (and fees) from jurisdictional agencies and governmental agencies to perform the proposed work. Permits may be necessary from the following agencies: Alpine County, Markleeville Public Utility District, Caltrans, U.S. Army Corps of Engineers, U.S. Department of Fish and Game, U.S. Department of Water Resources, U.S. Environmental Protection Agency, California State Water Resources Control Board.

**Deliverables:** Copies of all permits

**Task D: Construction/Implementation**

MPUD will serve as lead on Phase 3A Construction tasks with oversight by the County. The Project will comply with all applicable laws and regulations regarding the bid process. Water quality monitoring will be implemented according to guidelines established in the adopted environmental documents and permits. All other Phase 3 construction elements (steps B,C and D) will be performed under a future grant application. All sub-task descriptions below are for Phase 3A project implementation only.

**Sub-Task D.1: Construction Contracting**

This task includes solicitation of bids and contract negotiation for construction of the Phase 3A improvements.

**Deliverables:** bid package, copy of construction contract.

**Sub-Task D.2: Mobilization and Site Preparation**

This task includes initial contractor mobilization to the site, preparation of construction schedules, initial site kickoff meeting, site safety & security measures, insurance documentation, and site preparation prior to major construction components.

**Sub-Task D.3: Project Construction**

This task includes construction of the project improvements, including implementation of Best Management Practices during construction for protection of the environment. This task also includes any demolition, removal, or abandonment of existing facilities detailed in the Construction Documents. General construction components include:

- new gravity sewer mains and manholes around the project limits
- new sewer pump station structure along access road to wastewater treatment plant (*Note: mechanical & electrical for pump station in future phase*)
- new force main from proposed pump station to tie-in at existing pump station force main

- sanitary sewer overflow prevention (storage) provisions for mitigation of time to overflow concerns next to Markleeville and Millberry Creeks
- access road improvements to pump station and wastewater treatment plant site
- temporary dewatering systems for trenching and pump station construction
- treatment (settling & filtration) for trench dewatering during construction

**Deliverables:** Physical construction elements, photo record of construction activities, field inspection notes and reports.

**Sub-Task D.4: Performance Testing and Demobilization**

This task includes required testing, start-up, and commissioning of new facilities following project construction. Once complete, contractor will remove temporary construction facilities and site measures and restore site and surrounding areas to final (post construction) requirements.

**Deliverables:** Final Inspection Report

**Task E: Environmental Compliance, Mitigation, Enhancement**

All necessary steps will be taken to ensure environmental compliance based on adopted environmental documents and permits.

**Sub-Task E.1: Environmental Compliance, Mitigation, Enhancement**

This task includes environmental monitoring, observation, documentation, testing, and other mitigation and monitoring measures that may be required during construction as part of jurisdictional agency permit requirements for the Phase 3A component. We have attempted to include all critical sewer system modifications in this phase without creating temporary or long-term impacts that can be more appropriately and efficiently be implemented during Phase 3B (site restoration and sewer activation). Therefore, we expect very few requirements in addition to those for temporary stormwater compliance. We do not expect that any enhancement will be required as part of Phase 3A since it is a critical step in implementing the full site restoration which, in itself, will constitute additional enhancements.

**Deliverables:** Field Monitoring Reports

**Task F: Construction Administration**

MPUD will provide all technical and administrative staffing services as needed for construction oversight, including review invoices for accuracy, ensuring timely construction progress, and meeting applicable procurement policies and regulation.

**Sub-Task F.1: Construction Administration**

This task includes Construction Administration activities such as:

- Response to Requests for Information (RFIs)
- Submittal review and responses

## WORK PLAN

- Construction Phase Engineering
- Processing change orders
- Administering construction meetings
- Reporting progress status and schedule updates to Project Administrator
- Processing and submitting progress payment requests to Project Administrator
- Acceptance of improvements on behalf of owner/agency

### **Sub-Task F.2: Construction Monitoring & Inspections**

This task includes Construction Administration activities such as:

- Weekly and milestone inspections
- Certification of construction completed according to approved Construction Documents

Scope and labor estimate for Construction Administration does not include full-time inspection or construction management. Full-Time Construction Management is included in Contractor's scope of work.

**Deliverables:** Construction Documentation and Correspondence

### **Task G: Other Costs**

Extensive outreach and community input has been solicited to date through educational flyers, public presentations and a community input workshop. Project partners will continue community outreach efforts through this phase of the project with guidance from a professional consultant.

#### **Sub-Task G.1: Community Outreach/Communications**

This task involves ongoing community education about the project, outreach regarding the CEQA scoping and continued partnership building and long-term stewardship needs. Project partners will review past community outreach efforts and develop plans to implement on-going activities to maintain positive communications with stakeholders and community members.

**Deliverables:** Copies of all outreach materials

### **Task H: Construction/Implementation Contingency**

#### **Sub-Task H.1: Contingency**

This item includes construction contingency funding in the event that unforeseen conditions are discovered during construction, change orders are necessary, or other possible cost over-runs occur. Construction contingency is typically at least 30% of construction cost estimate at this level of planning/design.

**Deliverables:** Documentation of costs as needed

## **PROJECT #2: NEGRO CANYON RESTORATION (Truckee River Watershed Council)**

### **INTRODUCTION**

The Negro Canyon Restoration Project addresses erosion sites within the Gregory Creek watershed, a tributary to Donner Lake in the Truckee River watershed. The watershed is steep, and underlain by fine volcanic soils which are highly erosive. Past land uses have caused significant drainage alterations and during storm events, erosion from the watershed is severe. Several headcuts have developed in the creek and tributaries, leading to even more erosion. Restoration work is partially funded, we are requesting funding to complete work at three sites within the canyon.

### **Goals and Objectives**

The goal of the Negro Canyon Restoration Project is to reduce erosion and improve habitat in the Truckee River Watershed. Specific objectives include:

- Improvement of water quality through reduction of approximately 5,000 tons of fine sediment delivered to stream
- 1,200 linear feet of stream channel restored
- 0.6 acres of riparian and upland native scrub habitat restored and enhanced
- 2,000 linear feet of trail re-routed and improved

### **Purpose and Need**

The Negro Canyon Restoration project meets the Tahoe Sierra IRWM goals of protecting and improving water quality and ecosystem restoration. The project includes restoration of six highly erosive sites within a priority watershed in the Truckee River basin. The Negro Canyon Restoration project directly addresses the following objectives of the Tahoe Sierra IRWM:

- WQ2: Reduce nutrient and sediment loads to receiving water bodies
- WQ5: Restore degraded streams and wetlands to re-establishing natural water filtering processes
- WQ6: Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies
- ER1: Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable native fish populations
- ER2: Restore wetlands and natural biogeochemical cycles

Restoration is sorely needed in Negro Canyon. At present, during rain on snow or rain on bare ground events, massive erosion takes place in the watershed. There is high hydrologic connectivity between the restoration projects and the mainstem of Gregory Creek which flows directly to Donner Lake. Erosion in the watershed not only impacts water quality and habitat, but is also impacting the recreational road and trail network. Maintenance costs will be reduced once the restoration work is implemented.

### **Integrated Elements of Project**

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The Donner Lake/Donner Creek sub-basin is a high priority for the Town of Truckee Stormwater Monitoring Plan. Reducing erosion from Negro Canyon will help the Town to meet their goals of reducing sediment in Donner Creek. The Negro Canyon Restoration project additionally helps to meet the Truckee River sediment TMDL target for sediment reduction, another focus of the Town of Truckee monitoring program.

The techniques we will use in the Negro Canyon restoration project can be applied throughout the Tahoe Sierra IRWM region in areas of historic land use impacts that are currently difficult to access. Through our monitoring program we will be able to provide a quantitative estimate of the amount of sediment reduction achieved by particular treatments. This information will be widely applicable throughout the region.

### **Completed Work**

We have completed a watershed assessment and conceptual restoration plan for the Negro Canyon Restoration project (see "Existing Data"). Design plans are complete for two of the six restoration sites, and funding is in place to complete design work on the remaining four sites. Prior to grant award date, we will have started final project design, CEQA compliance, and permitting. We anticipate finalizing design and CEQA by December, 2013. Permits will be obtained by June of 2014.

### **Existing Data and Studies**

The Negro Canyon Restoration Project is based upon the following planning documents and technical studies:

#### Planning Documents:

Coordinated Watershed Management Strategy (CWMS)

Truckee River Watershed Council, 2004. Chapter 5 included with Attachment 7.

Truckee River Sediment TMDL – Staff Report

Lahontan Regional Water Quality control Board (LRWQCB), 2008a. Chapter 10 included with Attachment 7.

#### Technical Studies:

Negro Canyon Watershed Assessment (NCWA)

Integrated Environmental Restoration Services (IERS) & River Run, 2010. Prepared for TRWC. Included with Attachment 7.

Negro Canyon Restoration Plan – Projects G& H

IERS, 2010. Prepared for TRWC. Included with Attachment 7.

Negro Canyon Pre-Treatment Monitoring Report

IERS, 2012. Included with Attachment 7.

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Restoration in the entire Donner Lake sub-basin (including Negro Canyon) was identified as a general priority through the CWMS (Chapter 5, Page 120) and the TMDL studies (Chapter 10, Page 10-12). The CWMS outlines overall conditions in the Truckee River Watershed and lists priorities for preservation and restoration. The CWMS was developed through a stakeholder process, involving most major landowners and land managers in the Truckee River Watershed. The Staff Report for the Truckee River sediment TMDL analyzed all available data on suspended sediment and turbidity for the Truckee River and key tributaries. In Chapter 10 of the Staff Report, TMDL implementation actions are described and addressing excessive erosion in Negro Canyon is specifically identified as a project related to TMDL attainment.

TRWC completed the Negro Canyon Watershed Assessment (NCWA) in 2010 (IERS, 2010a), based on the prioritization of this watershed in the CWMS and TMDL studies. The purpose of the assessment was to understand geomorphic and hydrologic processes in the watershed and how human actions have interrupted these functions. From that scientific and technical basis, areas of erosion and impacted function within the watershed were identified. Preliminary restoration actions and project concepts were derived from the assessment, including relative cost, impacts to the drainage network, sediment production, and project sequencing.

From the NCWA, TRWC developed project designs for two of the sites identified in the assessment. The design work is included in the document "Negro Canyon Restoration Plan – Projects G & H" included in Attachment 7.

Pre-project monitoring to assess sediment reduction and habitat gains achieved from implementation has begun. The data are summarized in the Pre-Treatment Monitoring Report, included in Attachment 7. Sediment yield from the project site is high, as explained in Attachment 7 and the Monitoring Report.

# Negro Canyon Watershed Assessment

## Map 5-3 Projects

### Initial Projects



These projects can be started any time in the future

### Subsequent Projects



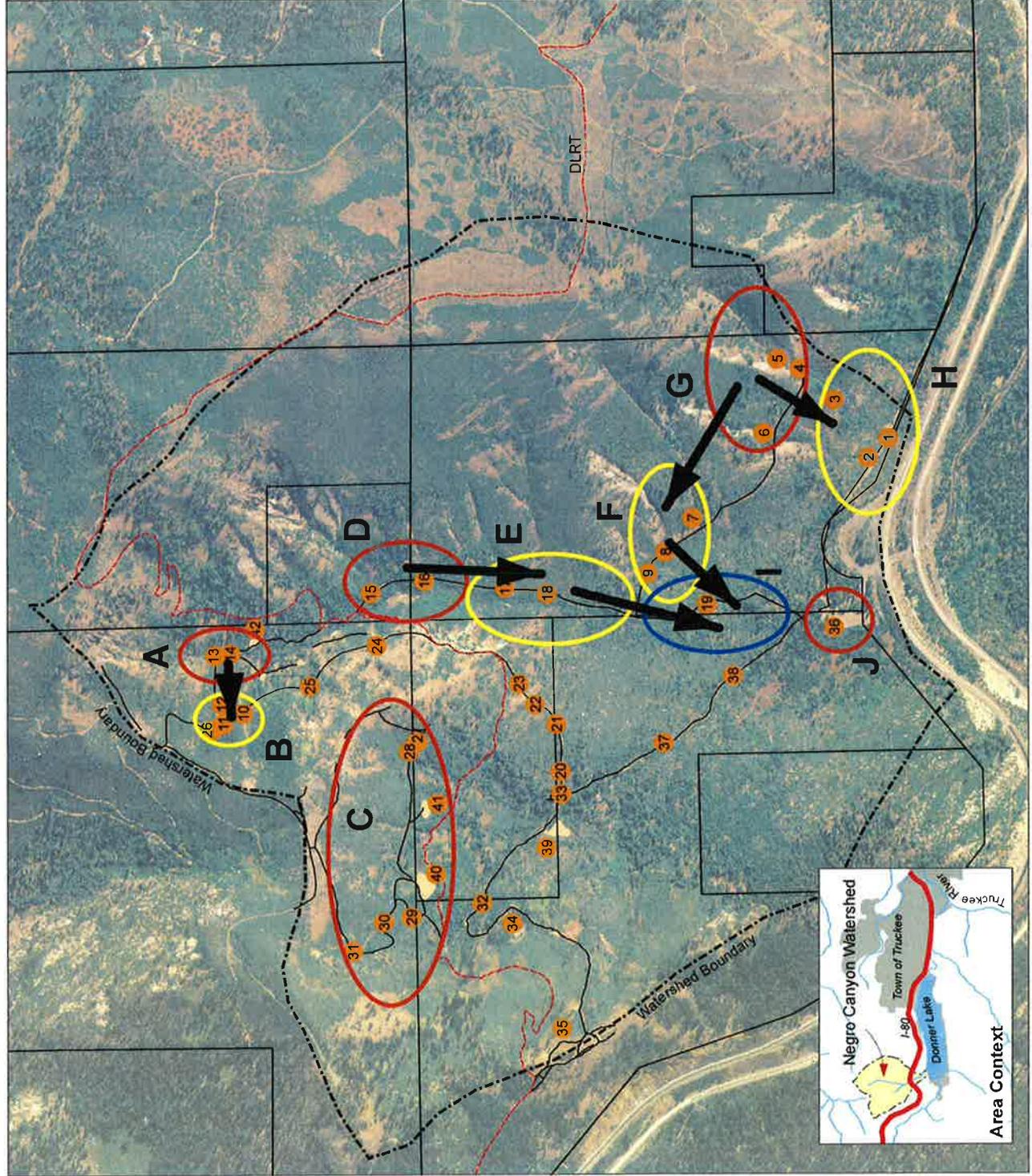
These projects should begin construction after completion of any related initial projects

It is possible that projects can be combined, provided they follow the above sequence.

### Area of High Erosion



The numbers within the circle correspond to specific erosion hot spots, which are described in detail in Table 4-1 in the document.



January, 2009

Integrated Environmental Restoration Services, Inc.  
River Run Consulting, LLC  
Map Drawn By Gerald Dion

Figure 1. Negro Canyon Restoration - Site Plan

### **Project Timing and Phasing**

This grant will allow us to complete restoration of the east side of Negro Canyon. Funding is partially in place and will result in successful implementation of a subset of the restoration; however significant cost savings will be realized if full implementation can take place at once. Access to the restoration site is challenging, so mobilization is likely to be expensive. Completing all restoration work in one season will prevent incurring costs for additional equipment mobilization.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

Direct Project Administration will include all activities directly related to project completion. Subtasks are described in detail below.

##### **Sub-Task A.1: Administration**

Truckee River Watershed Council (TRWC) will provide all technical and administrative services as needed for project completion, review all work performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations. Administrative activities will include coordination of environmental permitting, construction activities, operation of the project monitoring program, preparation of invoices and maintenance of financial records, meetings, solicitation of professional services for execution of work, preparing quarterly reports, and notifying DWR at least 15 days prior to any media events.

**Deliverables:** Preparation of invoices and other deliverables as required.

##### **Sub-Task A.2: Labor Compliance Program**

TRWC will pay State Prevailing Wage for all construction activities. TRWC will be responsible for complying with all Labor Code requirements and will provide all necessary documentation of compliance to grant manager prior to finalizing contract.

**Deliverables:** Documentation of labor compliance as required.

##### **Sub-Task A.3: Quarterly Progress Reports**

TRWC will meet project requirements through regular communication with regional and state grant managers and the completion of quarterly progress reports submitted to TRPA by the 30<sup>th</sup> of the following month. The progress reports will describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter will be in sufficient detail to provide a basis for payment of invoices and will be translated into percent of task work completed for the purpose of calculating invoice amounts. All subcontractor activities and expenditures will be documented in progress reports.

**Deliverables:** Quarterly progress reports.

**Sub-Task A.4: Draft Final Project Reports**

TRWC will prepare a draft final project report that includes the results of the tasks listed above.

The report will include the following narrative sections:

- A brief introduction including a statement of purpose, the objectives of the project, and a description of the approach, accomplishments, and lessons learned during the project.
- A list of the task deliverables previously submitted as outlined in the Work Tasks.
- Any additional information that is deemed appropriate by TRPA or by the Department of Water Resources.

**Deliverables:** Draft Final Project Completion Report

**Sub-Task A.5: Final Project Reports**

TRWC will prepare and submit a final project report that incorporates comments made by regional and state grant managers on the draft project report.

**Deliverables:** Final Project Completion Report

**Sub-Task A.6: Project Monitoring Plan**

TRWC will prepare a Project Monitoring Plan (PMP). The PMP will include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category of activities identified in the project. The PMP will be submitted for approval at the start of project implementation and will be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** PMP

**Task B: Land Purchase Easement**

No work under this category.

**Task C: Planning, Design, Engineering, Environmental Documentation**

Planning, Design, Engineering, and Environmental Documentation will include completion of engineered restoration plans, CEQA compliance, and permitting. TRWC staff will manage subcontractors to complete this work and will assist with permit preparation.

**Sub-Task C.1: 100% Design**

Final design plans will consist of site topographic surveys, detailed mapping, determination of treatment types and placements, determination of cut and fill quantities, construction schematics, and layout for trail relocation. Design plans are 50% complete.

**Deliverables:** Final Design plans

**Sub-Task C.2: CEQA/Environmental Documentation**

CEQA will be completed for the entire project including all six construction sites. The project should qualify for a Categorical Exemption: 15333, Small Habitat Restoration Projects.

**Deliverables:** Approved and adopted CEQA documentation

**Sub-Task C.3: Permitting**

TRWC will secure all necessary environmental permits for the project. Permits may be necessary from the following agencies: Lahontan Regional Water Quality Control Board (401 Water Quality Cert); U.S. Army Corps of Engineers (Nationwide 27); State Water Resources Control Board (NPDES); Nevada County (grading permit); and California Department of Fish & Game (Section 1600).

**Deliverables:** Copies of all approved permits.

**Task D: Construction/Implementation**

Construction/Implementation includes all activities directly related to completing construction of the project. Contracting, mobilization, construction, demobilization, revegetation and performance testing are all included in this task.

**Sub-Task D.1: Construction Contracting**

TRWC will develop a bid package or RFP for construction services, and advertise the construction work. A mandatory pre-bid meeting will take place on-site. A contractor will be hired to complete the work using an evaluation process. Evaluation of the bids will be performed by a qualified team. Bids will be ranked using standard score sheets taking both cost and experience into account. The top 1-2 ranked companies may be interviewed before selection. The contract will be awarded to the top qualified applicant.

**Deliverables:** bid package, copies of advertisements, copy of pre-bid tour sign in sheet, copy of construction contract.

**Sub-Task D.2: Mobilization and Site Preparation**

Equipment will be trailered to the bottom of the canyon. Access roads may need to be improved before all equipment can be walked to work sites. Site preparation will include access road improvements (as needed), material stockpile and staging, and placement of construction BMPs.

**Sub-Task D.3: Project Construction**

Project construction will begin in summer after seasonal drainages are dry. Construction will be supervised in the field. TRWC shall hold a site tour of the completed project for stakeholders and the general public. The project will also be presented in a community meeting after

## WORK PLAN

completion. TRWC shall develop and place interpretive signage at the project site. Work will consist of the following at each site:

Site D: At Site D (Figure 1), an abandoned road is currently used as a trail. The road bed is capturing water flow and eroding sediment into Gregory Creek. In Phase 1 of construction, the trail will be relocated to a new alignment. Restoration work in the current phase will include treating the road segment and addressing two drainage crossings. Road treatment will include full recontouring to match hillslope grade where sufficient fill material is available. Where recontouring is not possible, eroding road segments will be treated by tilling the soil to 12 inches, incorporating soil amendments and native seeds, and mulching the area. Any altered drainage paths will be restored to establish natural hydrologic patterns. Approximately 1,200 feet of road will be treated.

Site D includes erosion hot spots 15 and 16 (Figure 1). At 15, there is minor erosion of road fill in a perennial drainage. Restoration actions will include pulling back the fill (removing the source of fine sediment) and stabilizing the toe of the slope with native materials – brush wattles and rock. At 16, there is substantial erosion of road fill and flow diversion. Road fill has migrated down the drainage channel to the confluence with the mainstem of Gregory Creek. Restoration actions include removing the fill, regrading the road, stabilizing the channel with rock, and revegetating the area with native species.

Site E: At Site E (Figure 1), the trail continues down the canyon from Site D on the abandoned road alignment. The trail actively captures flow and is eroding sediment into the creek. This segment of the road is very close to the creek, so there is high connectivity. Restoration will also address a logging landing that is actively eroding. In Phase 1 of construction, the trail will be relocated to a new alignment. Restoration work in the current phase will include treatment of approximately 2,500 linear feet of the road segment as described above for Site D and addressing two drainage crossings, erosion hot spots 17 and 18 (Figure 1).

At erosion hot spot 17, there is significant erosion of the road fill and logging landing. Flow is currently diverted upslope. At erosion hot spot 18, fill is also being significantly eroded, and flow paths are diverted. Restoration actions at both areas will include removing fill, grading the road, stabilizing the channel with native materials, and revegetating with native species.

Site I: An abandoned road runs through Site I and is deeply eroded by water capture from drainage disruptions higher in the watershed. Restoration actions at this site include reducing erosion from the road through recontouring or spot treatments, and addressing drainage crossings. The drainage crossings are highly modified through this site. To restore natural hydrologic patterns we will construct new drainage channels.

**Deliverables:** Photo record of construction activities.

**Sub-Task D.4: Performance Testing, Revegetation, and Demobilization**

The project will be monitored for success including estimates of sediment load reduction as outlined in the Project Performance Measure Tables. Monitoring activities will include direct measurements of soil erosion such as pre- and post- project cross sections and photo-monitoring. Photo-monitoring locations will be established at each project site to document pre- and post-project conditions.

All sites will be stabilized before the onset of winter. Stabilization will include seeding, mulching, and planting using native materials. All equipment will be moved out as project sites are completed (in sequential order). Final re-vegetation work will be completed during an annual volunteer work day in October following construction. TRWC will recruit and train volunteers to participate in the volunteer work day through extensive outreach.

**Deliverables:** Final monitoring report, photo record of revegetation activities.

**Task E: Environmental Compliance, Mitigation, Enhancement**

No work under this category. CEQA documentation has been listed above.

**Task F: Construction Administration**

TRWC will provide all technical and administrative staffing services as needed for construction oversight, including reviewing invoices for accuracy, ensuring timely construction progress, processing payment, and meeting all applicable procurement policies and regulations. TRWC will also conduct outreach related to project implementation.

**Task G: Other Costs**

Other costs include construction monitoring and completion of construction as-built plans.

**Sub-Task G.1: Construction monitoring**

During construction, the project engineer will monitor the construction progress to ensure compliance with plans. Activities will include maintenance of BMPs, construction staking and re-staking, and directing equipment in the field.

**Sub-Task G.2: Construction As-builts**

Post-construction survey to document as-built condition of project site and development of post-project map showing final project contours.

**Deliverables:** As-built map

**Task H. Construction Contingency**

Project Design is presently at 10%/Conceptual Design phase. As such, construction costs can only be roughly estimated based on best professional judgment. We have included a contingency amount of approximately 10% of expected project construction costs. Contingency budget will be used if

construction estimate is higher than expected, to cover change orders during construction, and for any adaptive management that may be necessary in the season following construction.

**Deliverables:** Documentation of costs, as needed.

### **PROJECT # 3: WATER QUALITY MONITORING PROGRAM (Town of Truckee)**

#### **INTRODUCTION**

The Town is seeking funds to implement and operate the Truckee River Water Quality Monitoring Plan (TRWQMP). The TRWQMP has been created in response to an order issued by the Lahontan Regional Water Quality Control Board (the Board). The California Water Code Section 13267 Board order, issued to both Placer County (the County) and the Town of Truckee (the Town) on March 9, 2007 and July 3, 2007, respectively, requires the creation of a comprehensive monitoring program for the middle Truckee River. Though regulated under separate board orders, the County and Town chose to coordinate efforts in the development of a monitoring program to ensure the cost-effective collection, integration and analysis of water quality data within the watershed. In 2009, the town voluntarily started implementing Phase I of the TRWQMP, but requires additional funds for continued implementation and operation of Phases 1, II and III of the plan.

The TRWQMP is just one element of a much larger stormwater program in the Truckee River Watershed. Both the County and the Town have developed and are implementing Stormwater Management Programs (SWMPs). The respective SWMPs detail the specific actions each jurisdiction (County and Town) will implement in order to protect surface water. Each jurisdiction is responsible for the water quality monitoring on waters within their boundaries.

The project area covered under the TRWQMP includes the main stem of the middle Truckee River and all areas contributing surface water runoff between its outlet from Lake Tahoe and its confluence with Juniper Creek (approximately 210 square miles). This area includes 15 sub-watersheds, which drain to the main stem of the Truckee River either through tributaries, direct runoff, or stormwater infrastructure. Preliminary screening for potential source areas was conducted using an integration of GIS data on land use, land condition and other human disturbances. The analysis resulted in the classification of each sub-watershed as low, medium or high disturbance. Of the seven identified high disturbance sub-watersheds, three are in Truckee including Truckee Town Corridor, Donner/Cold Creeks and Trout Creek. The TRWQMP was subsequently designed to focus monitoring resources and efforts on those high disturbance sub-watersheds where water quality is expected to be the most impaired and where the majority of actions under the Town's SWMPs are expected to be implemented. As of Fall 2012, the Town has now completed 3 years of monitoring.

The Town seeks funds to implement and operate Phase 1, Phase II, and Phase III of the TRWQMP within Truckee.

### **Goals and Objectives**

The primary goal of this project is to implement the TRWQMP. The project goals and objectives include:

- Ensure regulatory compliance with NPDES permits, Middle Truckee River TMDL, Lahontan Board Orders.
- Develop scientifically defensible water quality monitoring datasets of surface water resources that can be used to evaluate the effectiveness of Stormwater Management Programs and efforts, target appropriate user groups, and provide information to make Land Use decisions.
- Ensure collaboration and integration of multiple monitoring efforts.
- Implement a comprehensive and integrated data collection analysis and reporting framework to evaluate and track resources spatially and over time.
- Focus monitoring resources on pollutants of concern and greatest risk of land use activity sources.
- Maximize monitoring resources by including a range of monitoring types that vary in frequency, collection, relative cost and statistical accuracy.
- Focus monitoring resources on times of greatest expected deviation from minimally impacted locations.
- Coordinate, collaborate, and integrate with other monitoring efforts.

### **Purpose and Need**

The TRWQMP has been created in response to an order issued by the Lahontan Regional Water Quality Control Board. The purpose of this project is to implement and operate Phase 1, Phase II, and Phase III of the TRWQMP.

The Town of Truckee will implement and operate a water quality monitoring program on the three identified high priority sub-watersheds within Truckee. The proposed work will include the implementation and operation of Phase 1 and Phase II of the Truckee River Water Quality Monitoring Plan (TRWQMP). In addition, as part of the annual reporting, the monitoring performed previously is evaluated and minor modifications to the program may be made to improve efficiency, evaluate opportunities, data, and existing and changing conditions at the monitoring sites. In the TRWQMP, this is considered Phase 3, or adaptive management of the program.

All phases include implementation, equipment, operation, maintenance, permits, analysis, and reporting, including:

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### Phase 1-

- Rapid Assessment Monitoring (RAM) along the main stem of the Truckee River and from the confluence of the Truckee River upstream 1 mile at Donner Creek and Trout Creek.
- Discrete Community Monitoring Stations in 3 locations.

### Phase 2-

- Discrete Community Monitoring Stations in an additional 4 locations.
- Discrete Tributary Monitoring Stations in 2 to 3 tributaries.
- Near Continuous Turbidity Probes and grab samples at the upstream and downstream ends of the Truckee River.

### Phase 3-

- Adaptive Management

The project work includes the implementation of different performance assessment types. The results of each assessment type provide a different evaluation of the surface water resource condition with the project area. When integrated, the results from the various assessment types address a number of key questions regarding water quality in the project area, the pollutant load contribution of a number of key community developments, and the effectiveness of the SWMPs. Collectively, these assessment types are designed to meet the goals and objectives of the water quality monitoring program.

As some of the monitoring is currently underway, the requested funding would be used to fill in existing gaps in the monitoring program and extend the monitoring program time frame. A combination of the following assessment types would be implemented with the available funding.

Rapid Assessment Methodologies rely on simple and repeatable observations of site or habitat conditions. Rapid assessment protocols are designed to produce relatively-accurate, low-cost, quantitative spatial data that are consistent with, and comparable to, data from more rigorous evaluations. The rapid assessment observations focus upon the density and distribution of fine sediment within the stream channels themselves. These evaluations are a cost-effective means of tracking changes in relative fine sediment distribution at specific locations over time on a relative scale. The low cost allows for data collection over a much greater spatial area.

Discrete Water Quality measurements include both the collection of discrete grab water samples for submission to an analytical laboratory and spot measurements of specific water quality parameters using hand-held probes. Discrete water quality measurements are conducted at a discrete location at a discrete time. Thus, discrete observations provide a snap-shot of the water quality where and when the measurements are taken.

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Discrete water quality measurements are used to characterize both stormwater quality emanating from specific community developments (community level) and surface water quality in tributaries (tributary level) throughout the project area. Community level discrete water quality assessments are designed to capture the “worst-case scenario” of stormwater quality from localized areas of development. These first flush samples can be analyzed for a range of pollutants depending upon the catchment land use and associated pollutants of concern.

Tributary level discrete water quality assessments compare and track the cumulative water quality impacts on a sub-watershed scale. This discrete stream sampling technique focuses on evaluating the pollutant concentration and estimates of event loads during high flow conditions when pollutant transport is most likely. Tributary level discrete water quality assessments capture in-stream water quality samples during the rising limbs of high flow events, including summer thunderstorms, winter rains, spring snow melt, and rain or snow events. Long-term seasonal and annual tributary level assessments will allow comparisons of sub-watershed water quality over time as a result of human activities and SWMP actions to mitigate potential water quality impacts.

Near-continuous water quality monitoring includes two distinct types of water quality observations:

- In situ water quality probes that conduct automated measurements at specific locations at 15 minute time intervals and store the time-series data internally.
- Water sampling instruments that collect water samples at specific locations on either specific time intervals or during specified flow conditions. Sample collection can be linked to measurement of stage (depth) or turbidity. This improves the accuracy and precision of total load estimates.

The continuous datasets provided by in situ probes are extremely valuable to evaluate processes and long-term trends. In situ monitoring will be used to track the status and trends for the priority pollutant of concern – sediment – within the Truckee River. Continuous turbidity records along the main stem will be used to estimate event, season, and annual loads of suspended sediment.

Automated sampling instruments allow for the remote collection of flow-weighted water samples during specific flow conditions and/or at predetermined times. Water sample collection during known flow conditions allows representative calculations of flow-weighted event mean concentrations (EMCs) and pollutant loading for pollutants of concern.

To ensure the collection of a consistent and integrated data set, it is critical that data are collected in a consistent format using standardized methods. The project will implement the protocols and standards documented in the TRWQMP for data generation, management and reporting.

Samples will be collected using standardized sampling strategies and field protocols, laboratory analyses must focus on the same pollutants of concern and report to the same units, and data storage and reporting will be centralized and consistent.

## WORK PLAN

By evaluating and analyzing the data in a comprehensive manner, a better overall picture of the watershed is anticipated spatially and over time. The data will be used to make Land Use decisions, Stormwater Management Program effectiveness evaluations, and stormwater capital improvement project recommendations.

This project has been incorporated in the Tahoe Sierra Regional Water Management Plan (IRWMP). The project meets both water quality (WQ) and integrated water management (IWM) objectives including:

- WQ1. Develop TMDL standards.
- WQ3. Meet nutrient and sediment standards for tributary streams and stormwater runoff.
- WQ6. Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies.
- IWM1. Ensure sound planning that is based on watershed science.
- IWM2. Encourage collaboration among multiple jurisdictions within a watershed.
- IWM3. Form partnerships to share resources, take advantage of cost sharing opportunities and exchange information.

### **Integrated Elements of Project**

The TRWQMP was developed in partnership with Placer County and with input from community stakeholders including Placer County (partner), Town of Truckee (partner), Truckee River Watershed Council (community participant), Lahontan Regional Water Quality Control Board (regulatory agency, community participant), Contractors Association of Tahoe Truckee (community participant), Squaw Valley and Martis Valley stakeholders (partners, community participants) along with many other businesses, residents, developers and organizations. The TRWQMP was developed in a manner to coordinate other efforts in the area (Squaw Creek TMDL requirements, Martis Valley monitoring requirements, Middle Truckee River TMDL, Storm Water Management Programs for Placer County and the Town of Truckee).

As monitoring has progressed and been conducted now for 3 years, partners and stakeholders continue to coordinate efforts as conditions change and opportunities arise. The Truckee River Watershed Council (TRWC) received grant funding related to TMDL monitoring and has recently started implementation. When the Town was planning the next few years of monitoring, these TMDL monitoring locations were considered and the Town's future monitoring plan complements the work being done by the TRWC.

### **Completed Work**

CEQA Categorical Exemption for the Truckee River Watershed Monitoring project is complete and filed with the State Clearing House.

The Town, in partnership with Placer County, procured the services of CDM Smith to begin the implementation of the TRWQMP. The Town has implemented Phase I for 3 years, with the 3<sup>rd</sup> year completed in September 2012.

In August 2011, the Town received funding from the first round of Proposition 84. The Town received \$232,635, about 37%, of the \$623,000 amount originally requested, and we were able to tailor the water monitoring elements to fit the revised budget as well as coordinate with area stakeholders and partners and their monitoring efforts. The Town is requesting additional funding through the second round of Proposition 84 to fill in the gaps of the water quality monitoring program and continue the efforts already being conducted.

With the first round of Prop 84 funding, the Town was able to complete the 3<sup>rd</sup> year of Phase 1 monitoring and implement a portion of Phase 2 of the monitoring program for the next 2 years. Two near continuous turbidity stations are now installed along the main stem of the Truckee River on either end of the Town boundaries and will be monitored for sediment related constituents and develop a relationship between turbidity and TSS. During this same time period, TRWC received other grant funding and has installed similar stations on major tributaries at Cold Creek and Trout Creek and are collecting grab samples for TSS on Donner Creek. As these monitoring types and locations were similar to the ones described in the TRWMP, the effort by TRWC helped fill the monitoring gap created from the budget limitations. Due to the funding constraints, Phase 1 monitoring was scaled back for the next 2 years in order to fund the 2 near continuous stations. Funding from the second round of Proposition 84 would fill in existing gaps in the monitoring program and allow the current monitoring efforts to continue.

### **Existing Data and Studies**

The base of this project is the Truckee River Water Quality Monitoring Plan (TRWQMP) which references many existing documents such as the USGS National Field Manual for the Collection of Water-Quality Data, SWAMP Program, Middle Truckee River TMDL and Truckee's SWMP.

- Truckee River Water Quality Monitoring Plan, 2<sup>nd</sup> Nature, September 2008 for Placer County and the Town of Truckee.
- Truckee River TMDL, Lahontan Regional Water Quality Control Board.
- Storm Water Management Program, Town of Truckee, December 6, 2007.
- Annual Reports for TRWQMP, CDM Smith for the Town of Truckee, January 2011, January 2012, and January 2013.

## WORK PLAN

- Many existing studies, data and resources were used in the creation of the TRWQMP and are cited within the plan.

The TRWQMP documents spatial scale of observations, assessment types, data collection and management protocols by assessment type and data management and reporting.

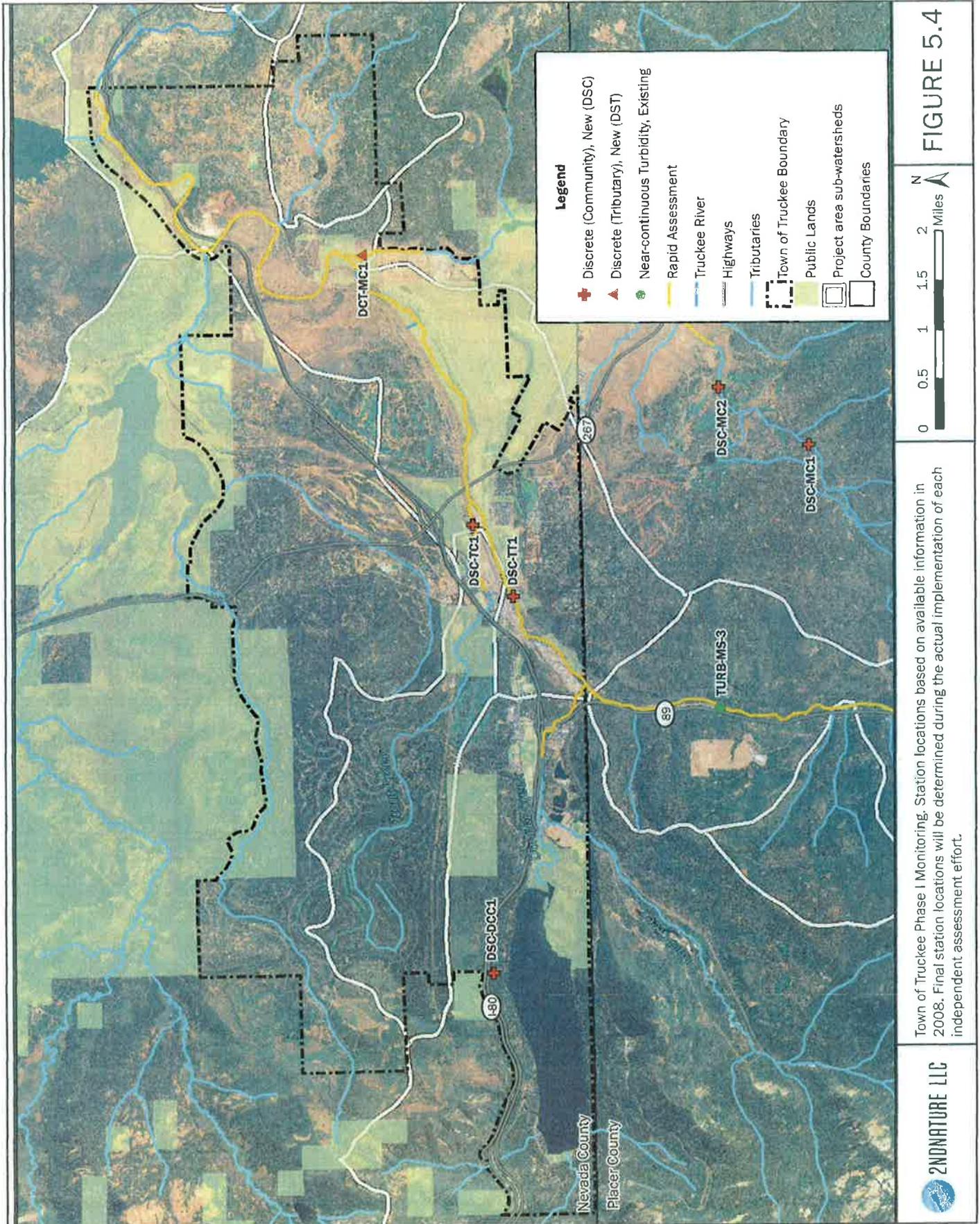


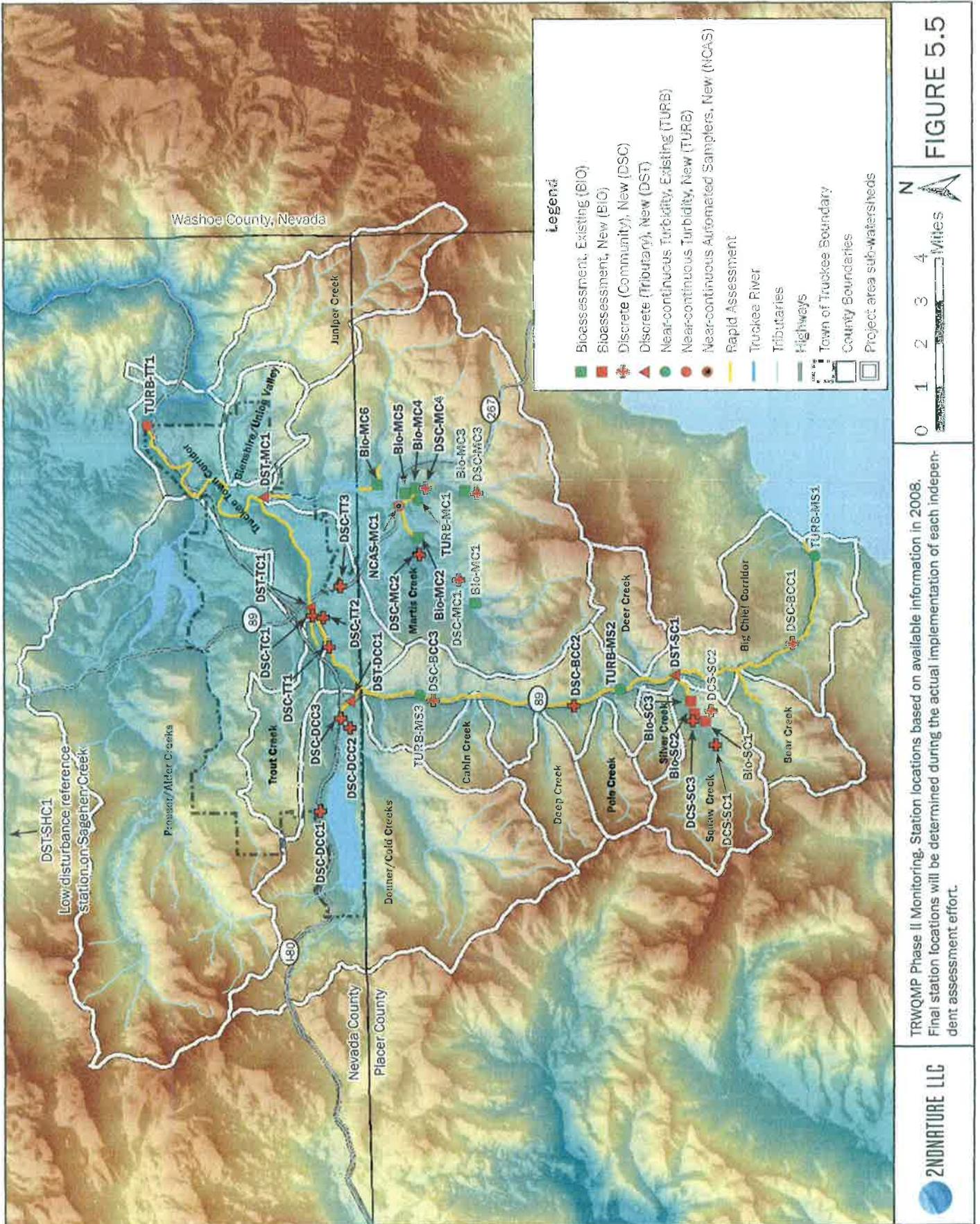
FIGURE 5.4

0 0.5 1 1.5 2 Miles

Town of Truckee Phase I Monitoring. Station locations based on available information in 2008. Final station locations will be determined during the actual implementation of each independent assessment effort.



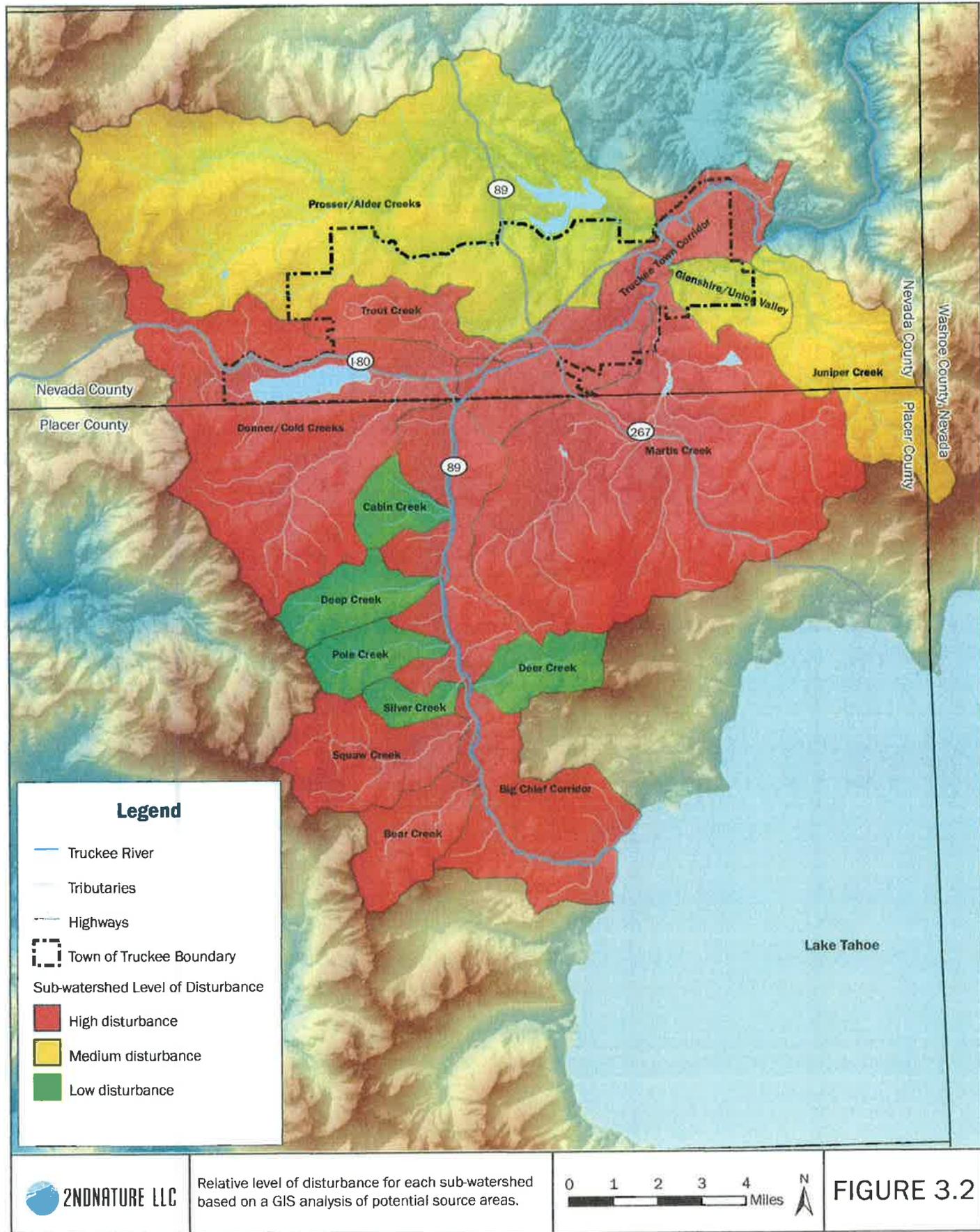
WORK PLAN



TRWQMP Phase II Monitoring Station locations based on available information in 2008. Final station locations will be determined during the actual implementation of each independent assessment effort.



WORK PLAN



### **Project Timing and Phasing**

Phase I includes both rapid assessment and discrete stormwater sampling from communities of concern and have been implemented for 3 years. Phase II (strategic expansion) includes near-continuous turbidity stations at either end of the Town of Truckee boundaries and additional community and tributary discrete sampling stations in high-disturbance sub-watersheds. Phase III includes adaptive management of the program. While Phase III does not necessarily add additional elements of monitoring, this phase is important to include, allowing modifications and changes to the program as conditions and opportunities change and data provides answers or new questions. All portions of the monitoring program are ready to implement and operate upon successful funding.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

The Town will provide all technical and administrative services as needed for project completion, review all work performed, and coordinate budgeting and scheduling to assure project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws and regulations.

##### **Sub-Task A.1: Administration**

Project Monitoring Plan (PMP)

**Deliverables:** PMP

##### **Sub-Task A.2: Performance Measures**

The TRWQMP provides a framework for reporting data and comprehensive analysis. An annual report will be produced every year and results of the monitoring data coordinated with the annual reporting and effectiveness evaluation for the Stormwater management programs. Annual reports will be posted on the Town's website. Data will be posted on the Truckee River Information Gateway (TRIG) website which is available to other agencies and the public.

**Deliverables:** Annual Report

##### **Sub-Task A.3: Quarterly Progress Reports and Invoices**

##### **Sub-Task A.4: Draft Final Report**

##### **Sub-Task A.5: Final Project Report**

**Deliverables:** Quarterly Reports, Sampling and Analysis Plan, Draft Final Report, Final Project Report.

#### **Task B: Land Purchase/Easement**

Not applicable

**Task C: Planning/Design/Engineering/Environmental Documentation**

**Sub-Task C.1: 100% Design**

CEQA Categorical Exclusion complete

**Deliverables:** CEQA Categorical Exclusion documentation

**Sub-Task C.2: CEQA/Environmental Documentation**

Permitting – 401, 404, or Stream Bed Alteration permits (if needed)

**Deliverables:** Final Permits

**Task D: Construction/Implementation**

**Sub-Task D.1: Sampling and analysis Plan (SAP)**

The Town will produce a Sampling and Analysis Plan which provides details of the next year's monitoring. If changes occur to the proposed monitoring, the Sampling and Analysis Plan will be updated.

**Sub-Task D.2: Establish Monitoring Sites/Stations**

The Town will establish tributary monitoring and additional discrete community station locations based on access, land use, safety and priority watershed drainage area.

**Sub-Task D.3: Perform Discrete Community Monitoring**

Discrete community monitoring will be performed at 3 to 7 outfall locations annually that drain priority areas. Discrete community monitoring consists of performing water quality sampling at small outfall drainage locations to evaluate pollutants related to sediment. Monitoring will be performed during storms and snow melt events (approximately 6-8 times per year) at each station. Monitoring will consist of one, or a combination, of the following methods; installing and using passive grab samplers, grab samples, and/or field monitoring methods.

**Sub-Task D.4: Perform Rapid Assessment Monitoring**

The Town will perform rapid assessment monitoring (RAM) along the Truckee River and along two tributaries. RAM consists of establishing 150 meter reaches in which cross sections across the river or stream every 15 to 30 meters are evaluated for sediment size at 5 locations across each section. The reach is given a priority based on the size and quantity of fine sediment deposition.

**Sub-Task D.5: Perform In Stream Monitoring**

In stream monitoring will be performed in up to 2 locations on the main stem and 2 tributaries to the Truckee River, with a focus on monitoring for sediment related constituents. Passive samplers, grab samples, turbidity gauges, and/or a combination of these sampling techniques will be used with a focus on storms and snow melt events at each location.

**Sub-Task D.6: Data Analysis and Reporting**

A database including previous year monitoring data will be maintained and updated throughout the implementation of the water quality monitoring program. The annual report will include data analysis of the Town's water quality monitoring for the previous year.

**Deliverables:** Monitoring database will be provided; report will be posted on the Town website and TRIG website for public use.

**Task E: Environmental Compliance/Mitigation/Enhancement**

Not Applicable. CEQA documentation listed above for

**Task F: Construction/Implementation Administration**

**Sub-Task F.1: Construction Administration**

Administer implementation of water quality monitoring.

**Task G: Other Costs**

Not Applicable

**Task H: Construction Implementation Contingency**

Not Applicable

**PROJECT #4: WOODFORDS COMMUNITY IMPROVEMENT AND PIPE REPLACEMENT (Washoe Tribe of Nevada and California)**

**INTRODUCTION**

Through this project, the Washoe Tribe of NV and Ca (Tribe) will partner and collaborate with other water suppliers and stakeholders within the Tahoe Sierra IRWM region. Together addressing inter-related natural resource issues on a watershed basis is an opportunity to share and optimize resources through this regional approach and partnering. The Tribe for this Project will work directly with other urban water suppliers to continue to create a regional approach within the Tahoe Sierra IRWM. Throughout the Project, the Tribe will continue efforts to coordinate with the partners and to exchange water conservation information and materials.

Partnering through this Tahoe Sierra IRWM is an opportunity for the Tribe and the partnering agencies to save money by incorporating regional approaches such as: ordering water saving appliances and fixtures in bulk, utilizing a single website to advertise programs, utilizing water supply specialists to train each other on implementing new programs within the region and unifying efforts within the region. This will help the Tribe to delineate the most cost effective Water Use Efficiency programs. In addition, the Lake Tahoe and Truckee watersheds are the aboriginal homeland of the Tribe as shown in the Regional Map as the nuclear homelands of the Tribe. The Tribe, in present day considers Lake Tahoe as the heart of Washoe and that "Water is Life" to them.

## WORK PLAN

The Woodfords Community/Reservation is located in Markleeville, California on 80 Acres of Trust Land and is part of Alpine County. The Reservation ("Community") is in the middle Carson River watershed. The general legal description of the Woodford's Trust land is: Range 20 East, Township 11 North and is shown on one of the Project Maps located below. The Woodford's location is in one of the most remote and rugged areas of the Eastern Sierra Nevada Range and is the home of the Southern Washoe or Hung-a-lel-ti People since time immemorial. Before the Tribe was displaced from their Sierra Nevada homelands by the Gold Rush to California, Washoe Territory extended from Sonora Pass, in the South, to Honey Lake in the North, near Susanville, California.

### **Goal and Objectives**

The goals of the Water Use Efficiency Program are to decrease water usage and educate residents of the Tribe's Woodfords Community on the importance of water conservation and to detect leaks in homes, laterals and mains and repair pipes as prioritized by water meter data collection. In conjunction with our partner agencies, incentives will be offered through rebates for water efficient appliances, household leak repair, Turf Buy Back and Smart Controller Irrigation to reduce water consumption. By focusing on indoor retrofits, outdoor landscaping improvements and repairs to priority leaking pipes, a significant water savings can be realized. Utilizing the Water Use Efficiency Program at a regional level will allow partners to share resources and send a unified message to consumers regarding the importance of water conservation.

Implementation of this Project will help to meet Statewide priorities such as:

- Use and Reuse of Water More Efficiently
- Drought Preparedness
- Expand Environmental Stewardship
- Climate Change Response Actions
- Protect Surface Water and Groundwater Quality

The Woodfords Community Improvement and Pipe Replacement Project has been incorporated in the Tahoe Sierra Integrated Regional Water Management Plan (IRWMP). The Project addresses and will demonstrate water savings objectives, especially the IRWMP's water supply (WS1-3), ecological restoration (ER1), and ground water management (GWM1-3) objectives. The following are just a few of the specific objectives addressed:

- WS1- Provide adequate water supply for a 25-year management window
- WS2- Build reliable infrastructure to supply water
- WS3- Implement and promote water conservation measures and practices
- GWM1-Create more reliable groundwater supply
- GWM2- Protect groundwater quality
- GWM3- manage groundwater for multiple uses
- IWM1- Ensure sound planning based on watershed science
- ER4- Manage forest health and wildfire risks

### **Purpose and Need**

In our region water use nearly triples due to landscape irrigation. Turf grass is the most water intensive landscaping option a homeowner can choose. On average residents use 40 percent more water on their grass than most turf requires. The Turf Buy Back Program will offer landowners \$1.00 per square foot to replace irrigated turf grass with water efficient landscaping. Studies indicate that installing Smart Irrigation Controllers save up to 25 % on total outdoor water use. Rebates for Smart Irrigation Controllers will be offered to qualifying commercial properties for \$2500 each. In addition, a low water use demo area and Community greenhouse will be used to develop a Native Plants and especially a Washoe Native Plants demonstration and plant rebate program with \$100 in native, indigenous drought tolerant plants.

Rebates will be offered at \$100 each for High Efficiency Toilets, Clothes Washers and for leak repair. Toilets account for the largest indoor water consumption, about 27%. Subsequently Clothes Washers account for the second largest indoor water consumption at 22%. In an average household water leaks will often account for about 10,000 gallons of water loss per year. Additional savings will also be in the repairing the priority lateral and system pipe leaks. By offering this broad range of rebates, incentives for indoor and outdoor water conservation and leak detection and repair, which all Woodfords residents will benefit from the Water Use Efficiency Program.

The Woodfords Community Improvement and Pipe Replacement Project will apply to the entire Community and all 80 Acres of Trust Land. The Tribe will utilize and with regional partners coordinate, integrate, and implement comprehensive water conservation activities to reduce water use and save water. Concurrently, implement the Water Use Efficiency Program, the Leak detection and repairs utilizing water meter and RadioRead Tranceivers (Model 520R Sensus MXUs) data collection and database, and Pipe Replacements/weed control, revegetation, and update fire hydrants as needed. A water use database and the collected data will be used immediately to implement targeted water conservation activities and detection of leaks in homes, laterals and water supply mains.

The Woodfords Community currently has 59 homes and three commercial properties ( a fire station/Tribal offices, gymnasium, and education center). Construction of the water system for this Washoe Reservation occurred in the early 1980's. After about 30 years, this infrastructure starts to degrade and needs to be replaced.

Water saved will allow less groundwater pumpage from the Community's two public water supply wells. An associated savings of operating costs for the water that remains in the aquifer, as opposed to being pumped for treatment usage, will also be realized. In addition, the quality of the water saved is protected in the aquifer.

### **Integrated Elements of the Project**

As described above, the integrated elements of this project will be utilizing resources in a regional approach to water conservation efforts. Integrated elements include: turf buyback; outreach and educational components; water savings appliances and fixtures; training and mentoring.

## WORK PLAN

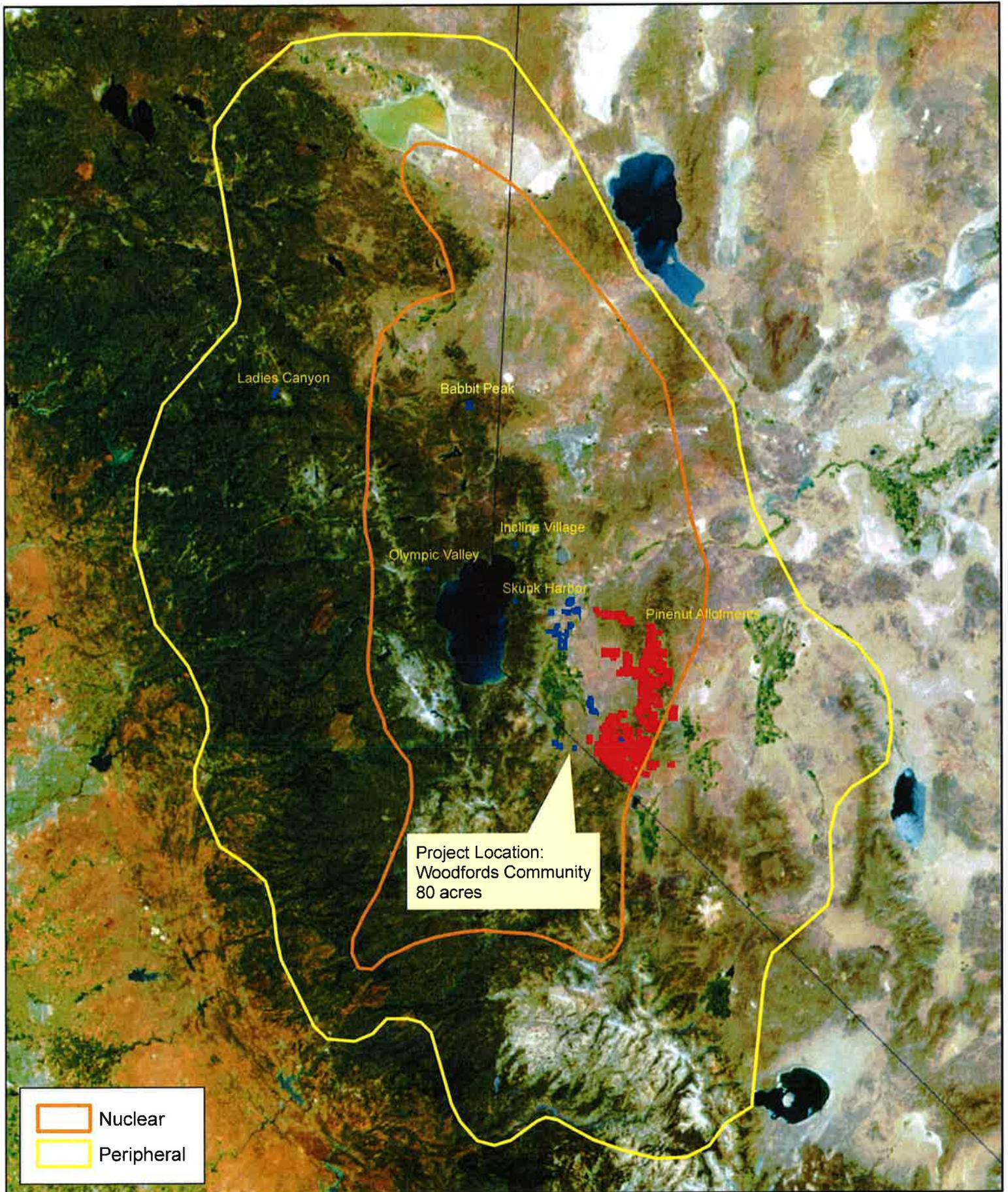
The Woodfords Community Improvement and Pipe Replacement Project addresses several IRWM goals for protecting the Community water supply, protecting and improving water quality, and integrated water management and conservation. The Project especially has synergies and linkages with South Tahoe Public Utility District (STPUD), Tahoe City Public Utility District (TCPUD), St. Joseph's Community Land Trust and North Tahoe Public Utility District (NTPUD), and has plans for a regional approach to water conservation.

Leak detection data collected from the water meters/MXU's readings will help to prioritize major leaks. The water meter data collection program is also a linkage to the other Projects and partnering agencies. The priority scattered leaks in water lines will be addressed and the pipes replaced.

Through this project, the Washoe Tribe of NV and Ca will partner and collaborate with other water suppliers within the Tahoe Sierra IRWM region. Together addressing inter-related natural resource issues on a watershed basis is an opportunity to share and optimize resources through this regional approach and partnering. The Woodfords Community/Reservation is located in Markleeville, California on 80 Acres and is part of Alpine County. The Community/Reservation (Community) is in the middle Carson River watershed.

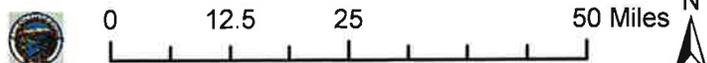
### **Regional Map**

The Washoe Tribe of NV and CA is providing a regional map which locates the Project for the Woodfords Community. Also, delineated on this Regional Map are the aboriginal Tribal lands of the Tribe.



Project Location:  
Woodfords Community  
80 acres

- Nuclear
- Peripheral



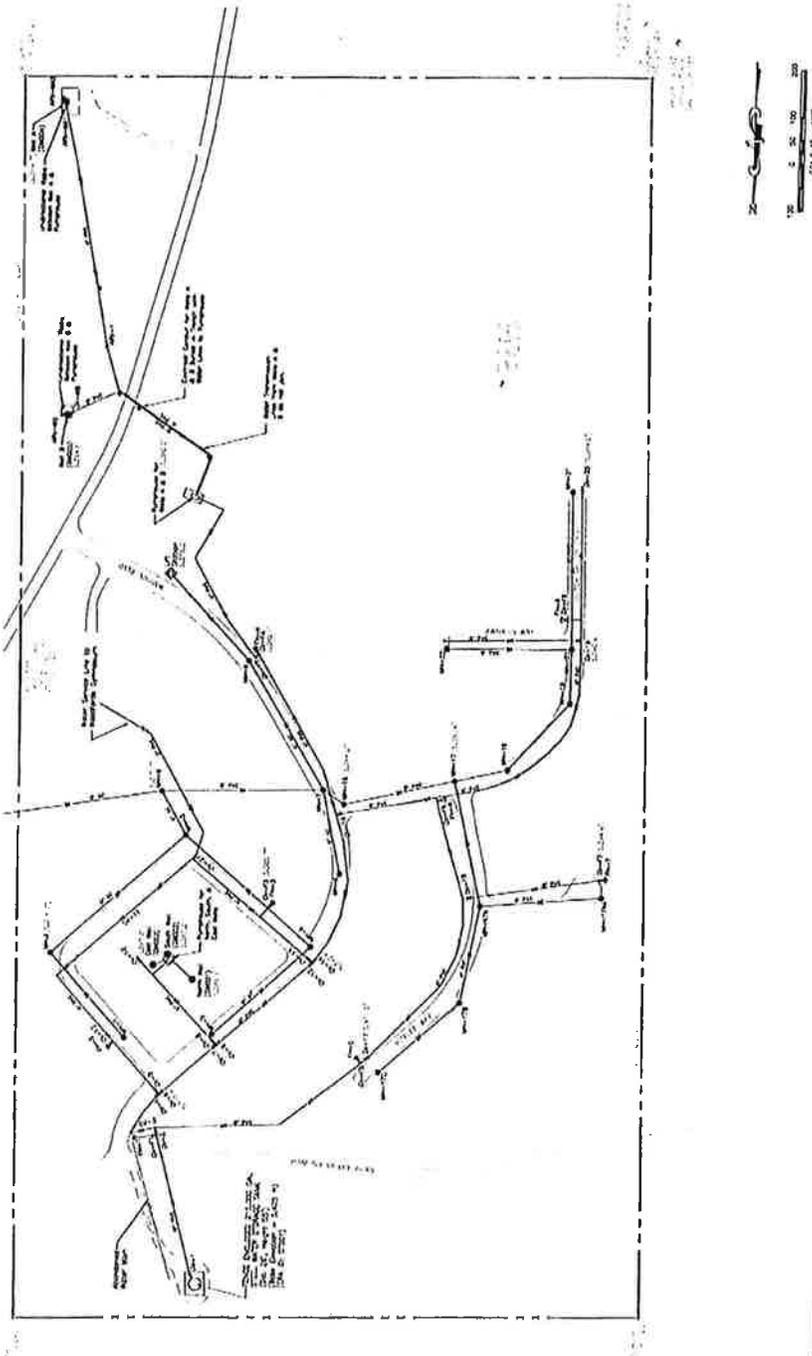
# Woodfords Community



0 0.0375 0.075 0.15 Miles



Figure 6. Woodfords community water and sewer drawing.



### **Completed Work**

Many elements of a water conservation program have already been implemented at each individual agency; however, there has been no regional integration of those programs. This project will utilize work completed by each individual agency to design the regional program and implement a broader based outreach. Concurrent, the Tribe's Project is a standalone project, as many activities will be implemented individually to maintain Tribal integrity and sensitivities. However, the areas where collaboration and learning from the regional project can be utilized will help optimize the funding.

Completed work that is integral to this Tribal Project is the previous installation of Sensus water meters and RadioRead Transceivers in 2006. Data collection of water use has been collected generally monthly over the years for the functioning meters at the Woodfords Community. Some of the water meters and MXUs need to be repaired or replaced. Another completed work that is important to this Project is that Summit Plumbing did video footage of supply lines and sewer lines finding many tree root intrusions, soil settlement "belly's", some seismic activity, etc.. A recent, December, 2012 "draft only" report by Blackrock Geoscience is a feasibility study that reviewed the video pipe line footage and provided conclusions and recommendations.

### **Existing Data and Studies**

The feasibility, technical methods and cost effectiveness of this program is supported by data from the Indian Health Service and the California Urban Water Conservation Councils, Best Management Practices Pipe leaks can occur from tree root invasion, soil slippage, soil settlement, past construction activities, seismic activity, loss of foundation due to washout, and pipe backup and other events (EPA Handbook, 1990).

### **Project Map**

The Project Map below is an aerial photo of the Woodfords Community and also shows the boundaries of Woodfords Community.

An Indian Health Service "As Built" Water System Drawing for the Woodfords Community will be attached. The bold lines in the Figure along streets indicate the locations of main water lines. See Attachment 3 File Project 4 Project Maps: Aerial Photo and Woodfords Community As Built Water and Sewer Drawing (p.19 Feasibility Study, December, 2012)

### **Project Timing**

This project is ready to implement. The project will be able to start in October as funds are available. The Water Use Efficiency Program is a standalone project although regional sharing will be implemented individually.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

**Sub-Task A.1: Project Administration**

The Washoe Tribe of Nevada & Ca. shall provide all technical and administrative services as needed for project completion, review all worked performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations.

**Sub-Task A.2: Labor Compliance Program**

The Washoe Tribe of NV and CA will pay the State Prevailing Wage and/or Federal Prevailing Wage for all construction activities. The Washoe Tribe of NV and CA will be responsible for complying with all Labor Code requirements under Senate Bill X2-9 and for paying associated fees within this Code. The Tribe will provide all necessary documentation of compliance to grant manager prior to finalizing contract. As necessary the Tribe will also follow Davis-Bacon as applicable.

**Deliverables:** Documentation of labor compliance as required.

**Sub-Task A.3: Quarterly Reporting and Invoicing**

Washoe Tribe of Nevada & Ca. shall meet project requirements through regular communication with regional and state grant managers and the completion of quarterly progress reports and Invoices submitted in a timely manner to TRPA. The progress reports will describe activities undertaken and accomplishments of each task during the quarter, milestones achieved and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purposes of calculating invoice amounts. All subcontractor activities and expenditures shall be documented in progress reports.

**Deliverables:** Quarterly Progress Reports, Quarterly Invoices

**Sub-Task A.4: Prepare Draft Project Reports**

Washoe Tribe of Nevada & Ca. shall prepare a draft project report that includes the results of the tasks listed under Work Item: Water-Use Efficiency Program Implementation, water meter database, leak detection/pipe repairs. The report shall include the following narrative sections. Copies of the draft project report shall be submitted to the grant managers for review and comment.

**Deliverables: Draft Project Report.**

**Sub-Task A.5: Submit Draft Project Reports**

The Washoe Tribe of Nevada & Ca. shall submit copies of the draft project report to grant managers for review and comments.

**Sub-Task A.6: Prepare Final Project Reports**

The Washoe Tribe of Nevada & Ca. shall prepare and submit a final project report that incorporates comments made by grant manager on the draft project report.

**Deliverables: Final Project Report**

**Sub-Task A.7: Project Monitoring Plan**

A Project Monitoring Plan (PMP) with Regional partners shall be prepared and as necessary another Tribe's Project Monitoring Plan. The PMP shall include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category of activities identified in the project. The PMP shall be submitted for approval at the start of project implementation and environmental benefits resulting from the project.

**Deliverables: Project Monitoring Plan**

**Task B: Land Purchase Agreement**

There are no activities planned for this task.

**Task C: Planning, Design, Engineering, Environmental. Documentation**

The Tribe will collaborate with its Regional Partners in coordinating and developing a regional water-use efficiency program. The Tribe's program will build upon this Regional sharing but will be emphasizing its water metering program and leak detection and repair. Regional Partners will stay connected through emails and quarterly group meetings to coordinate the Regional Water Use Efficiency Program, which will build upon existing conservation measures. STPUD has plans to provide administrative oversight for the program and Water Conservation Specialist staff time.

**Sub-Task C.1: 100% Design**

Outreach materials, Program Materials, and design of a Tahoe Sierra IRWM Website content. All these program materials will be initially drafted with the Regional Partners then modified to target the Tribe's Woodfords Community. Regional Partners will work together regarding low water use landscaping appropriate and to design/update effective brochures for advertising the program. In addition, the Tribe with Regional Partners will help design flyers, application printing, resident contract printing, Resident Information Packet.

**Deliverables:** Water Conservation and Turf Buyback Brochures, Flyers, Tribal Homeowner/Renter Information Packets, Tribal Water Meter and Leak Detection/Pipe Replacement Program Information Flyers and newsletter articles.

**Sub-Task C.2: CEQA/Environmental Documentation**

If needed a CEQA and/or NEPA clearance. This project is on Tribal Trust (Reservation) Land only.

**Deliverables: CEQA Exempt Form**

**Task D: Construction Implementation**

## WORK PLAN

The Tribe will partner with the Regional Partners and will concurrently launch the expanded Water Use Efficiency Program by circulating brochures for program through billing inserts of regional partners, partner agencies and other interested parties. Local nurseries, landscape contractors, hardware stores and local appliance stores will be provided with a list of updated water savings rebate information

### **Sub-Task D.1: Coordinate/Integrate Water Efficiency Plan**

With the Tahoe Sierra Group Partners, a flyer will be designed and distributed for a one day workshop to prepare landscape contractors to participate in the Turf Buy Back Program, low water use landscaping and water efficient irrigation practices and rebates.

**Deliverables:** Workshop Flyer, Workshop Participant Certificate

### **Sub-Task D.2: Water Use Efficiency Program**

Implement Turf Buyback program and low water use landscape program consisting of the following procedures:

- Perform pre-inspection site visit and gather data on homeowner water usage to provide homeowner with estimated total annual water saving
- Take a pre-conversion and post-conversion digital photo of property
- Review water conservation landscape plan per site with homeowner
- Provide consultation for homeowner throughout implementation off landscape water conservation plan
- Input data from Site Inspection Worksheet, Water Conservation Plan and post site visit into Irrigation database.

In addition, homeowner water audits will be done and rebates for High-Efficient Toilets rebate will be \$100. Water Efficient Clothes Washer rebate is \$100 per home. Inside leak repairs may receive a rebate of \$100. One square foot of Grass Turf removed for a rebate of \$1.00 per square foot.

**Deliverables:** Site Inspection Data Worksheet, Landscape Water Conservation Plan and Water Savings Report, Irrigation Database, Rebate Database

### **Sub-Task D.3: Leak Detection and Repairs/ Water Meter Program**

Leak Detection of laterals and main water supply lines/pipes will be assisted by the RadioRead Water Meter/MXU data collection and database. In addition, video footage and a draft feasibility study will help delineate system leaks and homeowner laterals. Repair of water meter and RadioRead transceivers will be simultaneously developed in to a more complete database. Three years of pre Project water use is available for 60% to 70% of the Woodfords Community.

**Deliverables:** Summary of water meter database, Chart or map of leaks detected in the system.

### **Sub-Task D.4: Pipe Replacement/Weed Control/Revegetation/ Fire Hydrants**

Pipe replacements would start, depending on weather, within a few months of the award of the grant. The RFQ would be put to bid, once bid, a procurement package including contract will be developed and circulated to legal and Tribal administration. In addition the Tribe's Water Utility

## WORK PLAN

Management Authority (WUMA) staff will be invited to meet and develop a plan to simultaneously repair pipes especially leaking lateral and broken cleanouts in homeowner yards. Weed Control staff will spray for invasive weeds after digging and backfilling. In some cases revegetation over impacted areas will be necessary and use Washoe Native Plants where possible over disturbed areas. In the process of pipe replacement activities, a under rated fire hydrant may be detected and replaced.

**Deliverables:** Photo Record of Construction Activities, Map of Pipe Replaced, Chart of pipe replacement, invasive weeds eradicated, revegetation done and cost tabulated and fire hydrant sufficiency reviewed.

### **Task E: Environmental Compliance, Mitigation, Enhancement**

No mitigation will be required for this project. CEQA documentation is described above.

### **Task F: Construction Administration**

All contract and bid procedures will be completed as required by Grant Agreement and as per Washoe Tribe of Nevada & Ca. contracting requirements. The Washoe Tribe of Nevada & Ca. will administer the contract bid process. Bid meetings include review of a draft Request for Proposal (RFP), pre-bid, opening and closing will be conducted by Washoe Tribe of Nevada & Ca..

#### **Sub-Task F.1: Construction Oversight/Bidding**

Bid scattered prioritized pipe replacements. Washoe Tribe of Nevada & Ca. shall provide all technical and administrative staffing services as needed for construction oversight, including reviewing invoices for accuracy, ensuring timely construction progress, processing payment, and meeting all applicable procurement policies and regulations. Washoe Tribe of Nevada & Ca. will also conduct outreach related to project implementation.

**Deliverables:** Bid documents, Photo-record of construction activities

#### **Sub-Task F.2:**

Regional participation in water conservation sub group to optimize time and resources. As part of this, the Tribe will host a Turf Buy Back and Landscaping Workshops. Corresponding with partners on water meter problems will help troubleshoot the meters. A purchase order is planned for ten meters and 30 MXUs to repair some non-functional meters. Pre-Project meter data for over three years is available.

**Deliverables:** Final monitoring report with pre and post water meter data.

### **Task G: Other Costs**

Other Costs at 25% for the Washoe Tribe of Nevada & Ca. are included here. These costs are requested for rental of office space and utilities for working staff and as prorated by their participation in these tasks. This is also requested here to reimburse the costs of a Woodfords Community remote project site and to have a construction office on that remote site.

**Task H : Construction/Implementation Contingency**

Construction contingency funds are needed due to remote rugged location and the poor site development conditions of the Woodfords Community. The Woodford's 80 acres is located on a very rocky hilltop which has required blasting of trenches previously to install water and sewer. The geology, seismic activity and hydrogeology of the area are challenges that may increase costs. In addition, the locating of leaks and prioritizing the worst sections may be challenging as work may be scattered 50 to 100 foot sections to replace. This may increase costs. Only a portion of the total almost 1.5 miles of water supply lines in the Woodfords Community will be able to be replaced in this Project.

**Project #5: AQUATIC INVASIVE SPECIES REGIONAL OUTREACH FRAMEWORK (Tahoe Resource Conservation District)**

**INTRODUCTION**

Aquatic Invasive Species (AIS) pose an ever-increasing threat to the health of our Nation's and region's ecosystems, and in turn can have a direct negative effect on local economies. Thousands of AIS have been dispersed or transplanted across the globe by humans. These species arrive in the ballast or on the hulls of ships, through the movement of shellfish and bait, by the opening of new channels or canals, through intentional release, and other vectors. Much of the ongoing spread of AIS to inland waters throughout North America can be attributed to the overland movement of trailered watercraft. Additionally, spread of AIS can occur by way of fishing gear such as footwear, bait and tackle equipment. Once established, they can change ecosystems, reduce native biodiversity and impact local economies.

The proposed project will help protect multiple inland waters from the introduction of AIS by developing a regional prevention and outreach framework designed to unify consistent messaging, provide useful tools for collaboration, and identify shared resource possibilities. The development and approval of the framework will be accomplished through a coordinated Regional Outreach Committee. Currently, the regional focus of this proposed project includes the entire Tahoe Sierra IRWM with the inclusion of the west slope of El Dorado County. The Tahoe Resource Conservation District (Tahoe RCD) and current project partners wish to expand the current regional boundary to include participation from a wide regional area, and will include but is not limited to additional counties, groups, water managers, etc. to participate in the development of a regional outreach framework. While there is awareness of particular AIS programs such as the one in the Tahoe Region, the project hinges on enhancing regional public awareness concerning AIS, most notably quagga and zebra mussels, and will bring together stakeholders to address regional outreach needs and provide guidance for developing a unified approach in the prevention of the increasing threat of AIS.

Invasive species populations span geographic and jurisdictional boundaries; making coordination and collaboration critical to success. For this reason, the Tahoe RCD proposes to initiate a coordinated, multi-party outreach effort specifically intended to accelerate regional prevention and control efforts of aquatic invasive species. In particular, the real and advancing threat presented by quagga and zebra mussels that are rapidly spreading across the western United States give great concern to local water managers, conservation organizations and regulatory agencies. Coordination, cooperation and targeted outreach efforts are crucial to the success of this effort. A diverse set of efforts will include a formalize

## WORK PLAN

outreach framework that will provide decision processes, regional-scale campaigning, strategies for shared messaging, tools for conducting public outreach and a regional outreach committee to oversee this product driven effort.

Fundamental to this endeavor is the development of a multi-party framework that; addresses key regional outreach questions, identifies entity roles and responsibilities, and develops various outreach strategies appropriate for specific waterbodies. The assistance of agencies, specifically the Tahoe Regional Planning Agency (TRPA), in the Lake Tahoe Basin that have been successful in developing a similar program for Lake Tahoe will be needed to accomplish project goals. Once the regional prevention and outreach coordination tools are developed by the project, the implementation of these tools in support of prevention programs, given the limited capacity and jurisdiction of the Tahoe RCD, will require the combined efforts of agencies, entities and other partners outside the Tahoe Basin. In particular, the El Dorado RCD could serve as a suitable liaison on the west slope to provide support and assistance to gaining involvement from interested partners.

Due to the successful implementation, by the Tahoe RCD and the TRPA, of the Lake Tahoe Watercraft Inspection Program (WIP), many boaters in the Lake Tahoe region are aware of the threat of spreading AIS and the necessary steps for inspection and decontamination. However, outside the region, many boaters are still unaware that they could be transporting AIS from one area to another. This is evidenced by the expansive, non-local boating community and water enthusiasts arriving at Lake Tahoe with little or no prior knowledge of proper preventive practices to avoid the inadvertent spread of AIS.

Beginning in 2010, the Tahoe RCD utilized the experience and growth of implementing the Lake Tahoe WIP to address gaps in prevention efforts in the Truckee River watershed downstream of Lake Tahoe. The TRPA, recognizing that supporting neighboring waterbodies provides better protection to Lake Tahoe, provided full support and guidance in identifying and expanding a regional effort. In 2012, the State of Nevada passed a statewide AIS prevention program, and the attempt to further expand a regional effort was realized by sharing outreach messaging through strategically placed billboards and a shared AIS hotline number.

Efforts to prevent the continued spread and introduction of AIS are extremely varied across state, tribal, federal and local jurisdictions. Success will be determined by consistency in coordination, cooperation and effective programmatic outreach and concurrent management efforts. Prevention is the first-line of defense. It can be the most cost-effective approach to protect against invasive species. Once a species becomes widespread, controlling the species may require significant and sustained expenditures. Therefore, public investment in prevention tools, resources and infrastructure are indispensable in protecting human health, agriculture and natural resources.

### **Goals and Objectives**

The goals of this project are to:

- 1) Develop a framework that provides a coordinated effort in prevention outreach across the region

## WORK PLAN

- 2) Increase awareness and understanding of the aquatic invasive species threat to ecosystems, native biodiversity and local economies

The objectives of this project are to:

- 1) Support agencies, entities and other partners with limited resources to implement prevention outreach
- 2) Develop a Regional Outreach Committee
- 3) Develop and coordinate regional prevention protocols
- 4) Develop and coordinate regional outreach tools
- 5) Identify reciprocity opportunities
- 6) Develop a framework package with tools for implementation
- 7) Investigate the potential for a regional cooperative MOU

### **Purpose and Need**

Currently, California is without a statewide program and coordination efforts are not being met.

### **Integrated Elements of Project**

Work with intra- and inter- IRWM groups and other regional partners to implement a coordinated outreach campaign. Support efforts to restore aquatic ecosystems and water supply by increasing awareness and understanding of AIS introductions and establishment.

### **Completed Work**

Regional collaboration began in 2010 between the Tahoe Watercraft Inspection Program (Tahoe WIP) and the Truckee Regional Aquatic Invasive Species Prevention Program (TRAISPP). Utilizing the experience and resources provided by the Tahoe WIP, a voluntary watercraft program was initiated by TRAISPP in the Truckee River watershed. A stakeholder group was identified and quarterly meetings were held. The Tahoe RCD brought the stakeholder group through a risk analysis exercise, development of program alternatives, draft ordinance language and a comprehensive education and outreach campaign. This process was well coordinated with the Tahoe WIP. In 2012, through a coordinated process, the Town of Truckee and the Counties of Nevada and Sierra in California, has all passed ordinances related to prevention through mandatory inspections. Also in 2012, following the 2011 passage of the State of Nevada Aquatic Invasive Species Prevention bill, SB 167, collaboration began with the Nevada Department of Wildlife to unify messaging between Lake Tahoe, Truckee and Northern Nevada using print ads and billboards.

In 2013 work will continue to proceed with existing partners the Tahoe Sierra IRWM, specifically in the Truckee River watershed, to implement prevention actions through watercraft inspection and outreach efforts to more fully incorporate elements of regional coordination. As more users become acquainted with universal messaging, such as Clean, Drain, Dry, a number of small, unprotected waterbodies will benefit from the inadvertent introduction of unwanted aquatic invasive species.

### **Existing Data and Studies**

Aquatic Invasive Species (AIS) are one of the largest threats to the ecosystems and economies of the United States. Approximately 49% of the species on the threatened or endangered species lists are at risk primarily because of predation or competition with AIS. In fact, impacts of invasive species are second only to habitat destruction as a cause of global biodiversity loss. AIS such sea lamprey, hydrilla, and the New Zealand mudsnail may prey upon, displace, alter habitat, or otherwise harm native species. Other AIS, such as Quagga and Zebra mussel may reduce production of fisheries, decrease water availability to residential and commercial users, block transport routes, choke irrigation canals, foul industrial and public water supply pipelines, degrade water quality, accelerate filling of lakes and reservoirs, and decrease property values. The damages to human enterprises caused by AIS results in enormous economic costs. The United States invests more than \$120 billion per year in damage and control costs to combat invasive species. As the world trade network continues to grow, the number and frequency of introduced species are expected to increase. Additionally, climate change may also allow increased introductions.

### **Project Map**

The mapping for this project includes the entire IRWM region and the enclosed project location, area map for the Tahoe Sierra partners will serve as the Aquatic Invasive Species project map as well.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

Tahoe RCD will provide all technical and administrative services as needed for project completion, review all work performed and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule and in accordance with approved procedures, applicable laws and regulations.

##### **Sub-Task A.1: Labor Compliance Program**

Tahoe RCD will pay State Prevailing Wage for all construction activities. Tahoe RCD will be responsible for complying with all Labor Code requirements and will provide all necessary documentation of compliance to grant manager prior to finalizing contract.

**Deliverables:** Documentation of labor compliance as required.

##### **Sub-Task A.2. Prepare and Submit quarterly invoices**

Tahoe RCD shall meet project requirements through regular communication, accurate accounting for grant balances and completion of quarterly invoices submitted to TRPA by the 10<sup>th</sup> of each subsequent month.

**Deliverables:** Preparation of invoices and other deliverables as required

##### **Sub-Task A.3. Prepare and Submit Quarterly Progress Reports**

## WORK PLAN

Tahoe RCD shall meet project requirements through regular communication with grant administrator and the completion of quarterly progress reports submitted to TRPA by the 30<sup>th</sup> of each subsequent month. The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts. All subcontractor activities and expenditures will be documented in progress reports.

**Deliverables:** Quarterly Progress Reports

### **Sub-Task A.4. Prepare and Submit Draft Final Project Report**

Tahoe RCD shall prepare and submit a draft project report for this project. The report will include the following narrative sections:

- A brief introduction including a statement of purpose, the objectives of the project, and a description of the approach, accomplishments, and lessons learned during the project.
- A list of the task deliverables previously submitted as outlined in the Work Tasks.
- Any additional information that is deemed appropriate by TRPA or by the Department of Water Resources.

**Deliverables:** Draft Final Project Report

### **Sub-Task A.5. Prepare and Submit Final Project Report**

Tahoe RCD will prepare and submit a final project report that incorporates comments made by TRPA and Department of Water Resources on the Draft Project Report.

**Deliverables:** Final Project Report

### **Sub-Task A.6: Project Monitoring Plan**

Tahoe RCD will prepare a Project Monitoring Plan (PMP). The PMP will include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category of activities identified in the project. The PMP will be submitted for approval at the start of project implementation and will be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** PMP

### **Task B: Land Purchase/ Easement**

There are no applicable work items for this project under this category.

### **Task C: Planning/ Design/Engineering/Environmental Documentation**

Project is expected to be exempt from CEQA documentation through articles 15304 – Minor Alterations to Land and 15307 – Action by Regulatory Agencies for Protection of Natural Resources.

**Sub-Task C.1. Prepare and Submit Environmental Documentation**

Tahoe RCD will file a notice of exemption with California State Clearing House. Project implementation and deliverables are not expected to entail significant disturbance to natural resources. A review of the project task will be completed and all necessary environmental documentation will be submitted to State Clearing House and to DWR grant manager for approval prior to implementation of project tasks and deliverables.

**Deliverables:** Approved and adopted CEQA/NEPA documentation.

**Task D: Construction/ Implementation**

Currently, the regional focus includes the entire Tahoe Sierra IRWM with additional inclusion of the west slope of El Dorado County. The Tahoe RCD and current project partners wish to expand the current regional boundary to include participation from a wide regional area, and will include but is not limited to additional counties, groups, water managers, etc. to participate in the development of a regional outreach framework.

**Sub-task D.1. Develop Regional Outreach Committee**

While there is awareness of particular AIS programs such as the one in the Tahoe Region, the project hinges on enhancing regional public awareness concerning AIS, most notably quagga and zebra mussels, and will bring together stakeholders to address regional outreach needs and provide guidance for developing a unified approach in the prevention of the increasing threat of AIS.

**Deliverables:** Develop a stakeholder list, Regional Outreach Committee and host quarterly regional outreach committee meetings

**Sub-Task D.2. Develop and Coordinate Regional Prevention Tools**

Tahoe RCD will utilize existing resources and expertise and solicit input and recommendation from collaborating partners to develop regional prevention tools.

**Deliverables:** Reasonable and accepted regional prevention protocols

**Sub-Task D.3. Develop and Coordinate Regional Outreach Tools**

Tahoe RCD will utilize existing resources and expertise and solicit input and recommendation from collaborating partners to develop regional outreach tools.

**Deliverables:** Campaign development of regional messaging, billboards, PSAs, rack cards, and print ads and/or articles

**Sub-Task D.4. Identify Reciprocity Opportunities**

## WORK PLAN

In an effort to provide ease of access, user convenience and better messaging, Tahoe RCD will identify where gaps in reciprocity exists and identify where possible opportunities exist to allow boaters access to multiple waterbodies under a single inspection.

**Deliverables:** Document challenges and opportunities for reciprocity between waterbodies and implement where feasible

### **Sub-Task D.5. Develop a Framework Package with Tools for Implementation**

This project will help protect inland waters from the introduction of AIS by developing a prevention outreach framework designed to unify consistent messaging, provide useful tools for collaboration, and identify shared resource possibilities. The development and approval of the framework will be accomplished through a coordinated Regional Outreach Committee.

**Deliverables:** Consolidate information gathered through efforts of project into a comprehensive and multi-party support framework package with useful tools for implementation

### **Sub-Task D.6. Investigate the Potential for a Regional Cooperative MOU**

In an effort to formalize regional collaboration, Tahoe RCD will investigate the potential for development of a regional cooperative MOU.

**Deliverables:** Document challenges and opportunities for a regional cooperative MOU and develop a Draft MOU for consideration.

### **Task E: Environmental Compliance/ Mitigation/ Enhancement**

There are no applicable work items for this project under this category. CEQA documentation has been included above.

### **Task F: Construction Administration**

There are no applicable work items for this project under this category.

## **PROJECT #6: WEST LAKE TAHOE REGIONAL WATER TREATMENT PLANT PROJECT**

### **INTRODUCTION**

Water service along the West Shore of Lake Tahoe suffers from an inefficient, ineffective, disjointed, delivery system. Separate water systems were constructed subdivision by subdivision, and most are well over 40 years old, some dating back to the early 1900's. There are nine different ownerships serving approximately 2,820 connections. Some are under public control, some private investor-owned, and some are mutual water companies. None of these systems is in full compliance with current California Department of Public Health standards. Several are in violation of primary drinking water standards and others are in violation of secondary drinking water standards. All have source capacity issues for either their primary or back-up sources and there is a lack of adequate storage to meet fire suppression standards throughout the area.

Due to the small numbers of connections in each system these systems are significantly undercapitalized to meet today's drinking water standards. The Tahoe City Public Utility District proposed project is for the final design, permitting, and construction of a permanent all-season surface water treatment plant utilizing Lake Tahoe as the water source. The West Lake Tahoe Regional Water Treatment Plant project will provide adequate water source to address these water supply needs on an integrated, regional basis.

### **Goals and Objectives**

To address water supply needs on an integrated, regional basis.

1. To replace interim water treatment plant providing a long term solution to improve the reliability of the McKinney Quail Water Service Area's water supply.
2. Provide emergency domestic and fire suppression source for surrounding water purveyors both private and public
3. To reduce reliance upon groundwater which has historically show static level declines to due overproduction, (prior to the completion of the interim water treatment plant).
4. To provide the additional source capacity required to serve all or a portion of the planned Homewood Mountain Resort project.
5. To optimize water resources and potentially irrigate landscaping and supply Homewood Mountain Resorts snowmaking operations with non-potable water.

### **Purpose and Need**

The West Lake Tahoe Regional Water Treatment Plant project addresses critical water delivery issues on the West Shore of Lake Tahoe. Many of the residences and businesses on the West Shore are located in water systems (public and private) that do not meet California Department of Public Health standards for primary and/or backup domestic source capability. Because these systems are small (most are under 500 customers) and undercapitalized, they lack the financial capability to address these needs on an individual basis.

A new water treatment plant has been studied by the TCPUD as a long term solution for the water delivery deficiencies in the McKinney /Quail Water Service Area (WSA), one of the small water systems in the project area.

The McKinney/Quail WSA is an isolated sub-system of the TCPUD located on Lake Tahoe's west shore between Homewood and Tahoma and contains 508 water service connections. The McKinney/Quail WSA is supplied a groundwater well and an interim surface water treatment plant at Chambers Landing. The interim plant was constructed in the spring of 2004 and operates only during the peak demand months of the year (May – September). The well is operated during the lower demand months (October – April) and on an as-needed basis during peak demand periods. The interim plant was designed, constructed and permitted to supplement the Crystal Way Well on a temporary and emergency basis and was never intended to be operated permanently.

## WORK PLAN

Since the McKinney/Quail WSA is surrounded by a number of other private and public water systems that could benefit from additional water supply, an integrated, regional project became the most cost effective and efficient approach .

The West Lake Tahoe Regional Water Treatment Plant Project addresses 4 of the 5 goals of the Tahoe Sierra IRWMP. These are:

- 1) Protect and improve water quality
- 2) Protect the community water supply
- 3) Manage groundwater for sustainable yield
- 5) Implement integrated watershed management throughout the region

### **Integrated Elements of Project**

As described above, this project provides an integrated, regional approach to protect and improve water quality and protect the community water supply.

### **Completed Work**

TCPUD has been studying possible solutions for providing additional source water to the McKinney-Quail WSA for some time and currently is working with a consultant to prepare a final preliminary design report (PDR). The PDR will evaluate and make recommendations regarding supply capacity and expandability, treatment technology, alternative site selection, and preliminary design and estimates for the water treatment plant, intake system, and raw water and finish water pipelines and system modifications. The PDR will be completed prior to the grant awards.

### **Existing Data and Studies**

In 2004, TCPUD contracted with Carollo Engineers to prepare a Preliminary Design Report (PDR) for a permanent alternative water source for the WSA. Work was completed on water quality and treatment technology selection, site alternative evaluations, preliminary site and building layout, and water rights.

In 2007, TCPUD contracted with Gilmore Engineering to prepare a Preliminary Design Report (PDR) determining the feasibility of constructing a microfiltration water treatment plant facility on the interim water treatment plant property. This property is very constrained, is owned by the TCPUD, and would also include the existing sewer lift station. The PDR was completed in October 2007.

WORK PLAN



Surface Water Treatment Plant Project

★ Potential Site

TAHOE CITY PUBLIC UTILITY DISTRICT

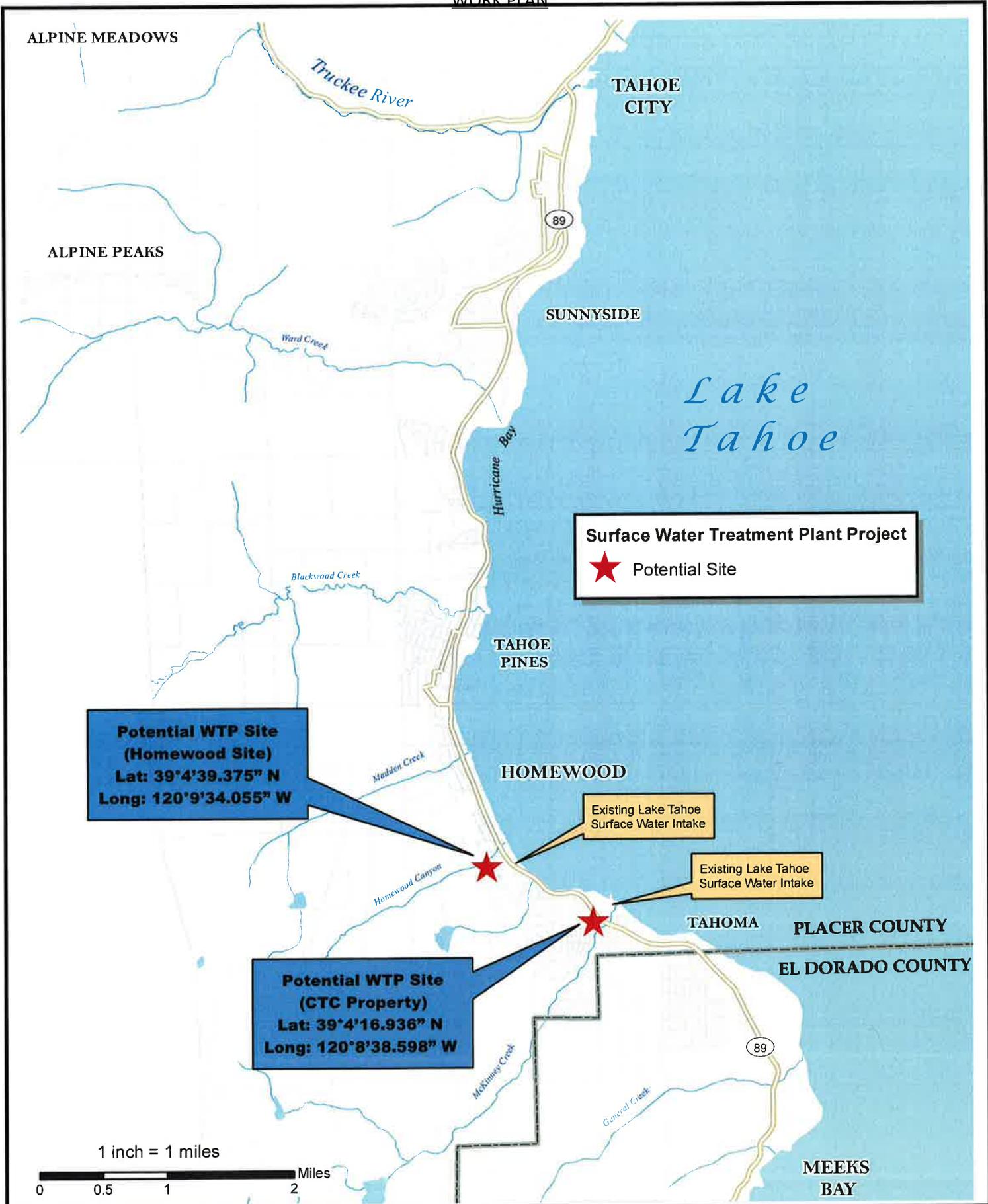


P.O. BOX 5249  
TAHOE CITY, CA. 96145  
(530) 583-3796

WEST LAKE TAHOE REGIONAL WATER TREATMENT PLANT  
REGIONAL LOCATION MAP



Map prepared: Jan. 29, 2013



**Surface Water Treatment Plant Project**  
 ★ Potential Site

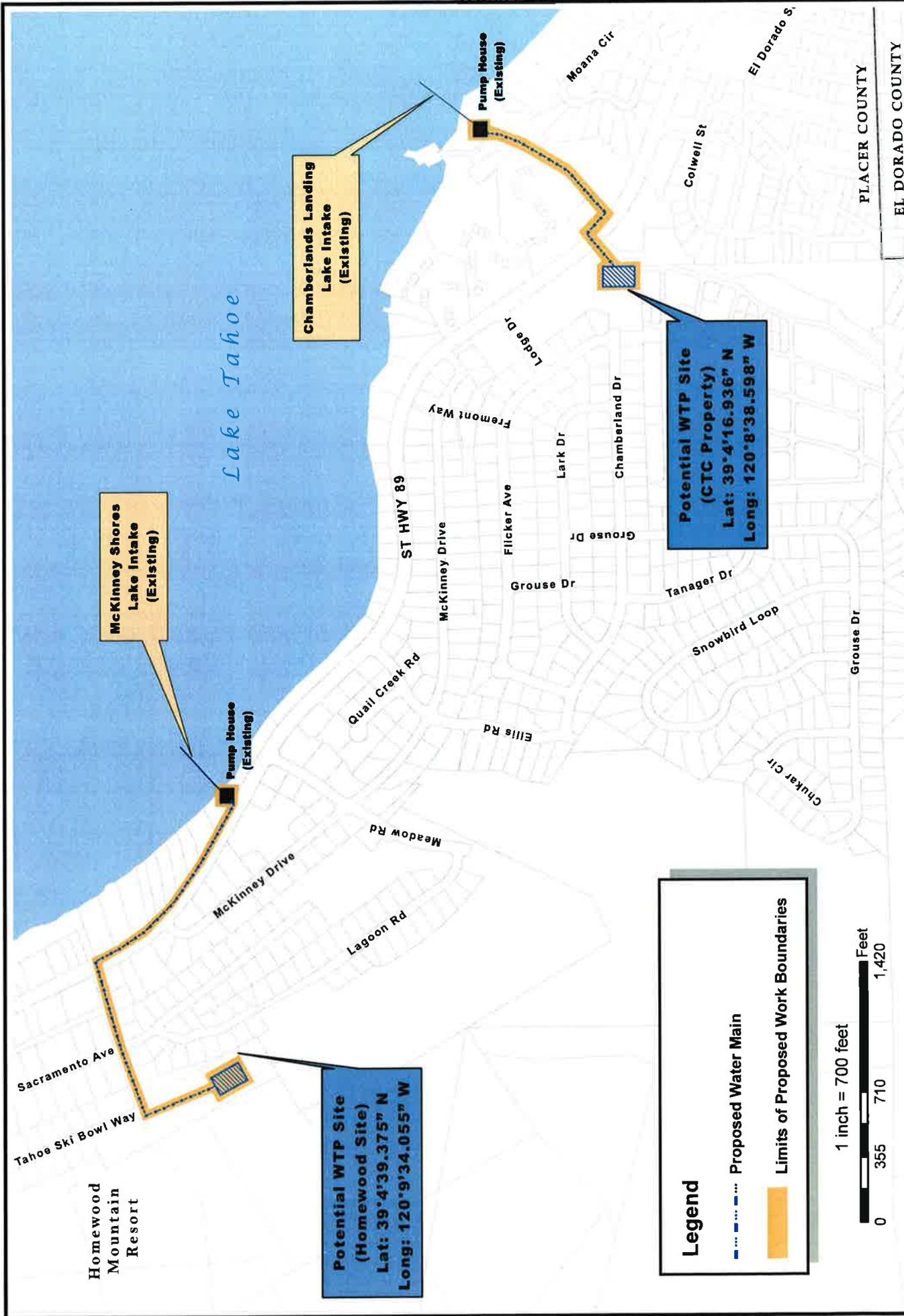
**Potential WTP Site (Homewood Site)**  
 Lat: 39°4'39.375" N  
 Long: 120°9'34.055" W

**Potential WTP Site (CTC Property)**  
 Lat: 39°4'16.936" N  
 Long: 120°8'38.598" W

Existing Lake Tahoe Surface Water Intake

Existing Lake Tahoe Surface Water Intake

WORK PLAN



WEST LAKE TAHOE REGIONAL WATER TREATMENT PLANT  
 PROJECT MAP

TAHOE CITY PUBLIC UTILITY DISTRICT  
 P.O. BOX 5249  
 TAHOE CITY, CA. 96145  
 (530) 583-3796



### **Project Timing and Phasing**

The West Lake Tahoe Regional Water Treatment Plant Project is not a phased project.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

The TCPUD shall provide all technical and administrative services as needed for project completion, review all work performed, reviewing invoices for accuracy, processing payments, coordinating budgeting and scheduling to assure that the project is completed within budget, on schedule, and meeting all applicable procurement policies and regulations.

##### **Sub-Task A.1: Labor Compliance Program**

TCPUD will pay the State Prevailing Wage for all construction activities and will be responsible for complying with all Labor Code requirements under Senate Bill X2-9 and for paying associated fees within this Code. TCPUD will provide all necessary documentation of compliance to grant manager prior to finalizing contract.

**Deliverables:** Documentation of labor compliance as required

##### **Sub-Task A.2: Quarterly Reporting and Invoicing**

The TCPUD shall meet project requirements through regular communication with DWR and the completion of quarterly progress reports submitted to DWR by the 30th of the month at the end of the calendar quarter (March, June, September, and December). The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts. All subcontractor activities and expenditures shall be documented in progress reports.

The TCPUD shall submit quarterly invoices as per the grant agreement.

**Deliverables:** Quarterly Progress Reports, Quarterly Invoices

##### **Sub-Task A.3: Final Project Report**

The TCPUD shall prepare and submit a final project report upon conclusion of the West Lake Tahoe Regional Water Treatment Plant.

**Deliverables:** Final Project Report

##### **Sub-Task A.4: Project Monitoring Plan**

TCPUD will prepare a Project Monitoring Plan (PMP). The PMP will include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category

of activities identified in the project. The PMP will be submitted for approval at the start of project implementation and will be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** PMP

**Task B: Land Purchase / Easement:**

**Sub-Task B.1: Acquire easement from California Tahoe Conservancy (CTC) or Homewood**

Once site is selected TCPUD will need to acquire an easement from either the CTC or Homewood Mountain Resort.

**Task C: Planning, Design, Engineering, Environmental Documentation**

TCPUD will engage professional engineering services to complete the final design, permitting, and construction documents for a new surface water treatment plant, on behalf of the TCPUD.

**Sub-Task C.1: Final Design**

Final plans, specifications and estimates will be prepared for the new surface water treatment plant.

**Deliverables:** Completion of project plans and specifications at the final level.

**Sub-Task C.2: CEQA**

A public draft EIS/Proposed Mitigated Negative Declaration will be prepared.

**Deliverables:** Approved and adopted CEQA documentation

**Sub-Task C.3: Permitting**

TCPUD will secure all necessary environmental permits for the project. Permits may be necessary from the following agencies: Lahontan Regional Water Quality Control Board (401 Water Quality Cert); U.S. Army Corps of Engineers (Nationwide 27); State Water Resources Control Board (NPDES); Nevada County (grading permit); and California Department of Fish & Game (Section 1600).

**Deliverables:** Copies of all approved permits.

**Task D: Construction**

**Sub-Task D.1: Construction contracting**

TCPUD will call for bids, open project bids and award project.

**Deliverables:** Contract awarded to low bid.

**Sub-Task D.2: Project Construction**

TCPUD will issue a Notice to Proceed and construction of the West Lake Tahoe Regional Water Treatment Plant will begin.

**Deliverables:** Notice of Completion will be issued. Photo record of construction activities.

**Task E: Environmental Compliance/Mitigation/Enhancement**

**Sub-Task E.1: Potential Environmental Compliance/Mitigation**

During environmental documentation phase there may be some environmental mitigation identified that needs to be completed.

**Task F: Construction Administration**

The TCPUD shall provide all technical services as needed for construction oversight to ensure that the project is completed within budget, on schedule, and meeting all applicable procurement policies and regulations. TCPUD will also conduct outreach related to project implementation.

**Sub-Task F.1: Construction Phase Services**

TCPUD will provide all technical staffing services as needed for construction oversight, including inspections, testing, and construction management. TCPUD will also conduct outreach related to project implementation.

**Task G: Other Costs**

**Sub-Task G.1: Miscellaneous, Design-related expenses**

Miscellaneous design-related expenses that occur as part of the construction management.

**Sub-Task G.2: Miscellaneous, Construction-related expenses**

Miscellaneous construction-related expenses that occur as part of the construction management.

**Task H: Construction Contingency**

A standard 10% contingency is included in the budget for unforeseen costs in the project.

**PROJECT #7: REGIONAL WATER USE EFFICIENCY (South Tahoe Public Utility District, Lead Agency)**

**INTRODUCTION**

Urban water suppliers within the Tahoe Sierra IRWM region, including South Tahoe Public Utility District (STPUD), Tahoe City Public Utility District (TCPUD), and North Tahoe Public Utility District (NTPUD), created a regional approach to water conservation practices in the Lake Tahoe basin in 2012, utilizing Prop 84 Round One Implementation Funds. The initial efforts of the regional program were focused on coordinating with the partners and the exchange of water conservation information and materials. A water efficient appliance rebate program and a small landscape conversion rebate

program were also launched as a result of the initial program funding. Although the shift towards a regional program is in progress, each agency continues to have individual approaches to water conservation. The partner agencies can save money by incorporating additional regional approaches to include: ordering water saving appliances and fixtures in bulk; utilizing a single website to advertise programs; utilizing agency water specialists to train each other on implementing new programs within the region, and unifying efforts within the region. The proposed regional water use efficiency program has also been expanded to include additional agencies and partners, specifically the Washoe Tribe of Nevada and California and the St. Joseph's Community Land Trust.

### **Goal and objectives**

The goals of the Water Use Efficiency Program are to decrease water usage within the Tahoe basin and to educate local residents on the importance of water conservation. By increasing public knowledge of water saving techniques, behaviors, and devices, we also give residents the opportunity to play a role in improving the quality of their local water bodies by managing water more efficiently. The goals of the program will be accomplished by providing incentives through rebates for water efficient appliances, leak repair, Turf Buy Back and Irrigation Efficiency Improvements to reduce water consumption. By focusing on indoor retrofits and outdoor landscaping improvements significant water savings can be realized. Utilizing the program at a regional level will allow partners to share resources and send a unified message to consumers in the region regarding the importance of water conservation. Specific goals and objectives include:

- Reduce turf by 126,000 sq ft to save approximately 2,772,000 MG of water annually
- Implement water savings best management practices in commercial/residential units to include high efficiency toilets, high efficiency clothes washer and leak detection to save approximately 2,055,812 MG of water annually
- Reduce energy usage by 19,069 kWh annually through the reduction in water production/treatment necessary to meet water user need
- Reduce 13.5 Metric Tons of Carbon Dioxide Equivalent annually through reduction in energy usage
- Educate a minimum of 500 regional commercial/residential water users in the benefits of water use efficiency and the related impact on energy reduction and the reduction in greenhouse gas (GHG) emissions

### **Purpose and Need**

The Tahoe Sierra IRWM Plan has specifically identified Water Supply Objectives as a regional priority and the following water supply objectives are implementation by the water use efficiency project: (TSIRWM Plan, 2007, pg. 17)

WS1 Provide adequate water supply for a 20-year management window.

WS3 Implement and promote water conservation measures and practices.

In addition, the project meets Tahoe Sierra IRWM Plan Water Management Strategies:

Tahoe Sierra partners recommend that local and regional agencies involved in land use planning consider the limitations set by the Interstate Water Compact, and that the State's water quality program take the availability of water into account. In addition the following strategies are critical to preserving and maintaining the current water supply:

1. Encouragement of the use of Best Management Practices to minimize water use for agricultural, landscape, and turf irrigation. These practices should also encourage the use of water saving devices and appliances for both public and private water users.  
(TSIRWM Plan, 2007, pg. 22)

In order to meet the Water Supply Objectives and the Water Management Strategies as identified by the TSIRWM partnership, a regional water use efficiency program was chosen as a highly ranked implementation program. In our region, irrigation practices during the summer season consume nearly triple the amount of water utilized during the winter months. Turf grass is the most water intensive landscaping option a homeowner can choose. On average residents use 40 percent more water on their grass than most turf requires. The Turf Buy Back Program will offer landowners \$1.00 per square foot to replace irrigated turf grass with water efficient landscaping. Studies indicate that installing more efficient irrigation components can save up to 25 percent on total outdoor water use.

The highest water-using appliances inside the home are toilets and clothes washers, accounting for almost 50% of indoor water use. One of the most cost effective ways to reduce the water consumed by these appliances is to offer financial incentives to replace older models with new, water-efficient options. Rebates will be offered for High Efficiency Toilets, Clothes Washers and for leak repair. In an average household, water leaks account for about 10,000 gallons of water loss per year. By offering a broad range of rebates and incentives for indoor and outdoor water conservation a large number of consumers can benefit from the Water Use Efficiency Program.

### **Integrated Elements of the Project**

As described above, the integrated elements of this project will be utilizing resources in a regional approach to water conservation efforts. Integrated elements include: turf buyback; outreach and educational components; water savings appliances and fixtures; training and mentoring.

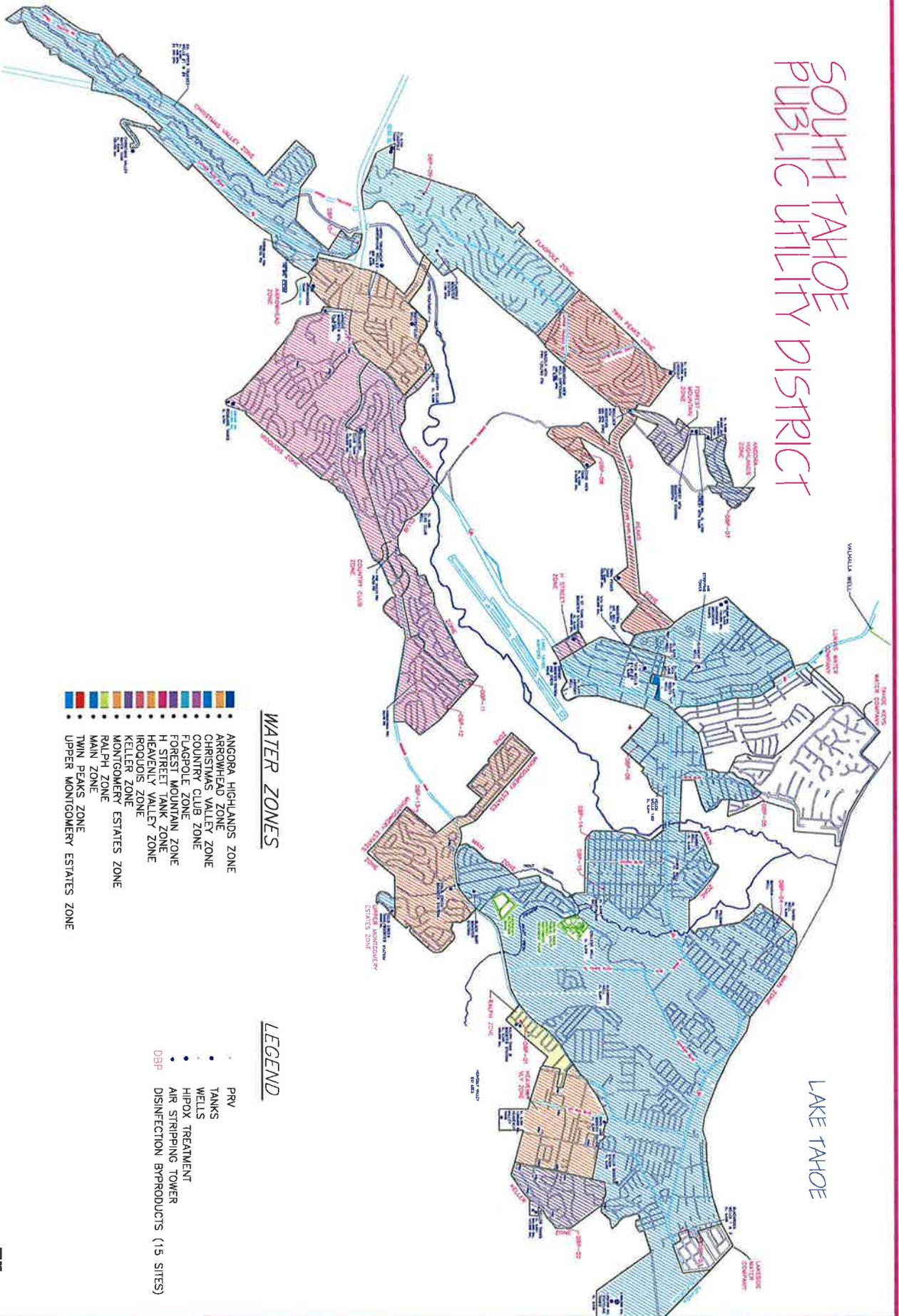
### **Project (Regional) Map**

Please refer to the regional project map that is included with this attachment. The project map includes the region in which the water conservation program will be implemented and includes the service areas for all three urban water suppliers: STPUD, TCPUD, and NTPUD.





# SOUTH TAHOE PUBLIC UTILITY DISTRICT



- WATER ZONES**
- ARROWHEAD ZONE
  - CHRISTMAS VALLEY ZONE
  - COUNTRY CLUB ZONE
  - FLAGPOLE ZONE
  - FOREST MOUNTAIN ZONE
  - H STREET TANK ZONE
  - HEAVENLY VALLEY ZONE
  - IRONCLAD ZONE
  - KELLER ZONE
  - MONTGOMERY ESTATES ZONE
  - RALPH ZONE
  - TWIN PEAKS ZONE
  - UPPER MONTGOMERY ESTATES ZONE

- LEGEND**
- PRV
  - TANKS
  - WELLS
  - HIFOX TREATMENT
  - AIR STRIPPING TOWER
  - DISINFECTION BY-PRODUCTS (15 SITES)

### **Completed Work**

The environmental documentation, including filing of the CEQA exempt form is complete. Many elements of a water conservation program have already been implemented at each individual agency including water efficient appliance rebates and landscape conversion incentives; however, there has been only minimal regional integration of those programs. This project will utilize work completed by each individual agency and the existing regional program to build a stronger, more extensive regional approach and implement a broader based outreach effort.

### **Existing Data and Studies**

The feasibility, technical methods and cost effectiveness of this program is supported by data from the California Urban Water Conservation Councils, Best Management Practices which can be found on their website in the Resource Center section at [www.cuwcc.org/resource-center](http://www.cuwcc.org/resource-center). Data on the turf removal program is included in "Evaluating the Effectiveness of Cash for Grass Programs," Mojave Water Agency, June 2011 and The Handbook of Water Use and Conservation: Homes, Landscapes, Business, Industry, Farms; Amy Vickers, May 2001. A more detailed description of the data is included in Attachment 7: Physical Benefits and the appropriate pages from the references listed above are included with that attachment.

### **Project Timing and Phasing**

The Water Use Efficiency Program is a stand-alone project, although regional implementation is proposed. The program is not dependent upon any other phase and is ready for immediate implementation. The program can be phased, if necessary, based on funding level commitments.

### **PROPOSED WORK**

#### **Task A : Direct Project Administration**

The Regional Partners shall provide all technical and administrative services as needed for project completion, review all worked performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations.

##### **Sub-Task A.1: Labor Compliance Program**

STPUD will pay the State Prevailing Wage for all construction activities and will be responsible for complying with all Labor Code requirements under Senate Bill X2-9 and for paying associated fees within this Code. STPUD will provide all necessary documentation of compliance to grant manager prior to finalizing contract.

**Deliverables:** Documentation of labor compliance as required

##### **Sub-Task A.2: Quarterly Reporting and Invoicing**

The Regional Partners shall meet project requirements through regular communication with DWR and the completion of quarterly progress reports submitted to DWR by the 30th of the

## WORK PLAN

month at the end of the calendar quarter (March, June, September, and December). The progress reports shall describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts. All subcontractor activities and expenditures shall be documented in progress reports. Invoicing will include documentation of all expenditures.

**Deliverables:** Quarterly Progress Reports, Quarterly Invoices

### **Sub-Task A.3: Draft Project Report**

The Regional Partners shall prepare a draft project report that includes the results of the sub-tasks listed under Construction/Implementation. The report shall include the following narrative sections:

- A brief introduction including a statement of purpose, the objectives of the project, and a description of the approach, accomplishments, and lessons learned during the project.
- A list of the task deliverables previously submitted as outlined in the Work Tasks.
- Any additional information that is deemed appropriate by DWR

The Regional Partners shall submit copies of the draft project report to DWR for review and comment.

**Deliverables:** Draft Project Report

### **Sub-Task A.4: Final Project Report**

The Regional Partners shall prepare and submit a final project report that incorporates comments made by DWR on the draft project report.

**Deliverables:** Final Project Report

### **Sub-Task A.5: Project Monitoring Plan**

The Regional Partners shall prepare a Project Monitoring Plan (PMP). The PMP shall include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for each category of activities identified in the project. The PMP shall be submitted for approval at the start of project implementation and shall be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** PMP

**Task B: Land Purchase / Easement**

There are no activities planned for this task.

**Task C: Planning, Design, Engineering, Environmental Documentation**

The Regional Partners shall coordinate and develop a regional water-use efficiency program. The partners shall stay connected through emails and quarterly group meetings to coordinate the Regional Water Use Efficiency Program, which will utilize existing conservation measures. STPUD will provide administrative oversight for the program and Water Conservation Specialist staff time.

**Sub-Task C.1: Design Program Materials**

The STPUD Water Conservation Specialist (WCS) will schedule a meeting with TRCD staff to discuss regulations and program requirements regarding landscaping within the region. The Regional Partners will then design/update an effective brochure for advertising the program, and update and print program applications and landowner contracts for program participants. The WCS will also update homeowner information packets and update and submit media publications.

**Deliverables:** Program Brochure, Program applications, Landowner Contracts, Media Publications, Homeowner Information Packet.

**Sub-Task C.2: Design Program Content for Tahoe Sierra IRWM Website**

The Tahoe Sierra IRWM Group is currently in the process of developing a website for the partnership, utilizing Prop 84 Round Two Planning Funds. The Regional Partners will use the Tahoe Sierra IRWM website to advertise the Regional Water Use Efficiency Program. The STPUD Water Conservation Specialist (WCS) will collaborate with the regional partners to develop the website content, which will include a program overview, the purpose of the program, and agency specific information. The WCS will be responsible for uploading the initial website content and information. The WCS will also be responsible for monitoring and updating the content on a quarterly basis.

**Deliverables:** Website Content in Word format, Web Address, Quarterly Updates

**Sub-Task C.3: Environmental Documentation**

STPUD, TCPUD and NTPUD will provide environmental documentation required for the program.

**Deliverables:** CEQA Exempt Form

**Task D: Construction / Implementation**

The Regional Partners will launch the expanded Water Use Efficiency Program by circulating brochures for program through billing inserts of regional partners, partner agencies, and other interested parties. Local nurseries, landscape contractors, hardware stores, and local appliance stores will be provided with a list of updated water savings rebate information.

**Sub-Task D.1: Host Turf Buy Back Workshop**

The Water Conservation Specialist employed by STPUD will create and distribute a flyer for a one day workshop to certify landscape contractors to participate in the Turf Buy Back Program. Participants who attend this one day workshop will be updated on the requirements of the Turf Buy Back Program and water efficient irrigation practices and rebates. They will receive a Certificate of Completion at the end of the workshop.

**Deliverables:** Workshop Flyer, Workshop Certificate of Completion

**Sub-Task D.2: Implement Turf Buy Back Program**

Participation in the Turf Buy Back Program will consist of the following processes:

- Perform pre-inspection site visit and gather data on homeowner water usage to provide homeowner with estimated total annual water savings
- Take a pre-conversion and post-conversion digital photo of property
- Review water conservation landscape plan per site with homeowner
- Provide consultation for homeowner throughout implementation of landscape water conservation plan
- Provide homeowner with individual water savings report.
- Input data from Site Inspection Worksheet, Water Conservation Plan, and post site visit into Irrigation database.

**Deliverables:** Site Inspection Data Worksheet, Landscape Water Conservation Plan and Water Savings Report (with pre and post digital photos), Irrigation Database reports

**Sub-Task D.3: Implement Turf Buy Back/Irrigation Efficiency Program on DAC Subsidized Housing Complex**

Sierra Gardens Apartments in South Lake Tahoe, owned by St. Joseph Community, LLC, is a 76-unit affordable housing community where all residents must income-qualify for affordable housing under strict HUD requirements. The community is located on approximately 4 acres, all of which are currently utilizing turf landscaping. 2.5 acres of turf will be removed and replaced with low water use, native plants and the irrigation system will be redesigned to take advantage of drip irrigation and other irrigation efficiencies.

**Deliverables:** Site Inspection Data Worksheet, Landscape Water Conservation Plan and Water Savings Report (with pre and post digital photos), Irrigation Database reports

**Sub-Task D.4: Host Irrigation Efficiency Improvement Workshops**

The WCS will create and distribute flyers for a series of one day workshops on Irrigation Efficiency Improvements. Participants who attend this workshop will learn various techniques to

## WORK PLAN

improve the efficiency of their current irrigation system, as well as the latest technology available for new water efficient irrigation system design. Participants will also be instructed on how to create proper irrigation schedules and the water needs of vegetation in the region.

**Deliverables:** Workshop Flyer, Irrigation Efficiency Information Packet

### **Sub-Task D.5: Review and Process Rebates for Water Saving Devices**

The Water Use Efficiency program will offer the following rebates to interested participants: HET toilets, clothes washers, and irrigation efficiency rebates. The irrigation efficiency rebates will be available for the purchase of rain sensors, soil moisture sensors, and freeze gauges. The WCS will provide applications to interested participants, verify eligibility, and approve and process rebates. All rebates will be tracked in a database. The Regional Partners shall issue the following number of rebates:

- 100 High-Efficiency Toilet rebates of \$100 each
- 20 Water Efficient Clothes Washer rebates of \$100 each
- 100 Leak Repair rebates of \$100 each
- 126,000 SF of Grass Turf removed for a rebate of \$1.00 per SF

**Deliverables:** Rebate Database

### **Sub-Task D.6: Performance Testing and Data Analysis**

The WCS will input data collected from the Irrigation and Rebate databases into a Water Use Efficiency Program database to calculate the total program water savings in gallons. Twenty five (25) post audits will be performed to monitor water savings. With this information, the WCS will compile the annual water savings from the program, including monitoring/auditing results, into a report format to be submitted with annual and final grant reports along with Turf Buy Back landscape photos.

**Deliverables:** Water Conservation Program Database, Annual Water Savings Report, Landscape Photos

### **Task E: Environmental Compliance/Mitigation/Enhancement**

There is no expected mitigation and environmental compliance (CEQA NOE) is described above.

### **Task F: Construction Administration**

The Regional Partners shall provide all technical and administrative staffing services as needed for program oversight, including reviewing invoices for accuracy, ensuring timely program progress, processing payment and meeting all applicable procurement policies and regulations.

### **Task G: Other Costs**

There are no activities planned for this task.

**Task H: Construction / Implementation Contingency**

There are no activities planned for this task.

**PROJECT #8: GRIFF CREEK ENVIRONMENTAL IMPROVEMENT PROJECT (Placer County)**

**INTRODUCTION**

Griff Creek is located within the Kings Beach Watershed on the north shore of Lake Tahoe. Due to development in the urbanized area of Kings Beach, the once braided stream channel system of Griff Creek with natural flood control zones has been forced into a single channel that has resulted in significant bank erosion and incised channels. In addition, the watershed currently has no urban water treatment facilities and the untreated urban runoff flows directly into Griff Creek, The eroding creek and untreated urban runoff is contributing to nutrient and sediment deposition into the creeks outlet, Lake Tahoe.

Placer County Department of Public Works will perform and/or provide all required engineering services necessary to prepare final design and construction documents of the Griff Creek Water Quality Project. Placer County will complete the design, publicly bid the project per California Contract Code and have the project constructed.

This Work Plan outlines the Construction contracting tasks that will be completed as part of the grant award. This proposal is for funds related to the construction of the project.

**Goals and Objectives**

The main objective of the Griff Creek Water Quality Improvement Project is to identify water quality pollutant sources of sediment and nutrients within the residential area and to further develop alternatives to reduce the pollutants. A secondary objective is to assess the lower west fork of Griff Creek drainage for opportunities to improve water quality, stream health, and fish habitat and passage.

The main project goal is to improve the water quality of runoff reaching Lake Tahoe by reducing pollutant sources, mostly sediment and nutrients, originating in the Griff Creek water shed. The goal will be achieved restoring stream environmental zones (SEZ), improving natural flood control zones, and constructing urban water treatment facilities to treat runoff before it enters Griff Creek.

**Purpose and Need**

Lake Tahoe's clarity is decreasing as a result of sediment and nutrient loading. Fine sediment particles remain suspended in the water column, scattering light and reducing clarity. Nutrients, particularly phosphorus and nitrogen, stimulate the production of algae, which also reduces lake clarity. Often times, phosphorus is adsorbed onto fine sediments. Reducing erosion and runoff from disturbed soils and providing more opportunities for infiltration and treatment can improve storm water runoff and ultimately the clarity and health of Lake Tahoe. The purpose of the project is to improve the water quality in the Griff Creek subwatershed before it enters Lake Tahoe by preventing further stream

degradation, reduce flooding, installing water quality enhancement features, and restoring stream environmental zones were feasible.

The Griff Creek Water Quality Improvement Project demonstrates the ability to meet a variety of the Tahoe Sierra Integrated Regional Water Management Plans (IRWMP's) water quality (WQ) and ecosystem restoration (ER)) objectives. The following are the main specific objectives addressed:

- WQ2: Reduce nutrient and sediment loads to receiving water bodies. The project is reducing nutrient and sediment load to Lake Tahoe and will monitor the reduction in fine sediment TMDL using a computer generated pollutant load reduction model (PLRM).
- WQ3: Meet nutrient and sediment standards for tributary streams and storm water runoff. The project is implementing water quality features to treat urban storm water runoff before it enters Griff Creek and Lake Tahoe. Grab samples and PLRM will be conducted to track efficiency.
- WQ4: Ensure that drinking water continues to meet the standards of the Safe Drinking Water Act. These improvements will reduce fine particle and sediment pollutants that are discharged into Lake Tahoe which is a drinking source for Basin communities. PLRM will be conducted to determine the pollutant reduction.
- WQ5: Restore degraded streams and wetlands to re-establishing natural water filtering processes. SEZ restoration is part of this project and will be photographically monitored
- ER1: Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable native fish populations. SEZ restoration is part of this project and will be photographically monitored
- ER2: Restore wetlands and natural biogeochemical cycles. SEZ restoration is part of this project and will be photographically monitored.
- ER5: Minimize Disturbance caused by urban development. The project is removing fill placed in the SEZ do to urban development. This activity will be photographically monitored.

### **Integrated Elements of Project**

This project effectively provides multiple benefits for environmental protection in an urbanized disturbed area . It contributes toward several IRWM goals in the areas of water quality and ecosystem restoration.

The Placer County planning team has tapped into the expertise of other IRWM partners who have conducted similar restoration projects. There are a variety of similarities between this project and the Markleeville Creek Restoration Project in the arena of goals and objectives. There are also linkages with the Town of Truckee's water quality monitoring project with partner collaboration on monitoring protocols and volunteer management practices.

### **Completed Work**

The project is at 90% design review phase. A combined CEQA/NEPA environmental document was completed for this project in 20008. The Notice of Determination (NOD) for the project was adopted by

the Placer County Board of supervisors on December 9<sup>th</sup> 2008. Draft permits for the project including the TRPA permit, US Army Corp of Engineers Section 404 permit, Lahonton 401 water quality certification permit, and California Fish and Game stream bank alteration permit are complete and will be submitted in March 2013. Right of Way easements necessary for construction will be obtained by October 2013 and are being purchased using existing California Tahoe Conservancy (CTC) grant funding.

### **Existing Data and Studies**

The following reports have been developed for the project:

- Kings Beach Watershed Improvement Project Final SEZ Existing Conditions and Alternatives Report, February 2006 (pages 2-1 – 2-58, 4-4 – 4-3). Document focuses on existing state of project area and project alternatives to fix the problem areas.
- Kings Beach Watershed Improvement Project Final Hydrologic Conditions Report, February 2006. This report describes the existing hydrologic conditions in the Kings Beach Watershed Improvement Program (WIP) area .
- Kings Beach Watershed Improvement Project Final Review Alternatives Memorandum, June 2006. Memorandum evaluates the alternatives previously developed by Placer County for the Kings Beach Watershed Improvement Project (WIP). These alternatives represent approaches to reducing the loading of sediment and nutrients originating in the WIP area that flow to Lake Tahoe.
- Kings Beach Watershed Improvement Project. Final Report SEZ Improvement Plan. The purpose of this report is to recommend an improvement plan for the Griff Creek SEZ within the Kings Beach WIP. Previously developed alternatives were evaluated and one alternative was recommended at each of the twenty potential SEZ enhancement sites identified in the SEZ Existing Conditions and Alternatives Report (Placer County, 2006).
- Kings Beach Watershed Improvement Project Final Watershed Improvement Plan Memorandum, November 2006. This memorandum summarizes the results of the planning process for the Kings Beach Watershed Improvement project (WIP) completed under the direction of the Technical Advisory Committee (TAC). The memorandum also presents the preferred alternative identified by the TAC to address water quality issues in the Kings Beach watershed.
- Kings Beach Water Quality and Stream Environmental Zone Improvement Project Final Environmental Compliance Document, November 2008. This is the project environmental document meeting both the NEPA and CEQA guidelines.

### **Project Map**

See attached Regional Map showing locations of activities or facilities of project, water resources that will be affected and proposed monitoring locations.



Sources: Esri, DeLorme, TomTom, USGS, Esri Japan, Esri China (Hong Kong)

**PROJECT MAP**  
**GRIFF CREEK WATER QUALITY PROJECT**  
**PLACER COUNTY, CA**  
**JANUARY, 2013**



**WOOD RODGERS**  
 DEVELOPING INNOVATIVE DESIGN SOLUTIONS  
 5440 Reno Corporate Drive Tel: 775.823.4068  
 Reno, NV 89511 Fax: 775.823.4066

NOTES:  
 BACKGROUND: ESRI

WORK PLAN

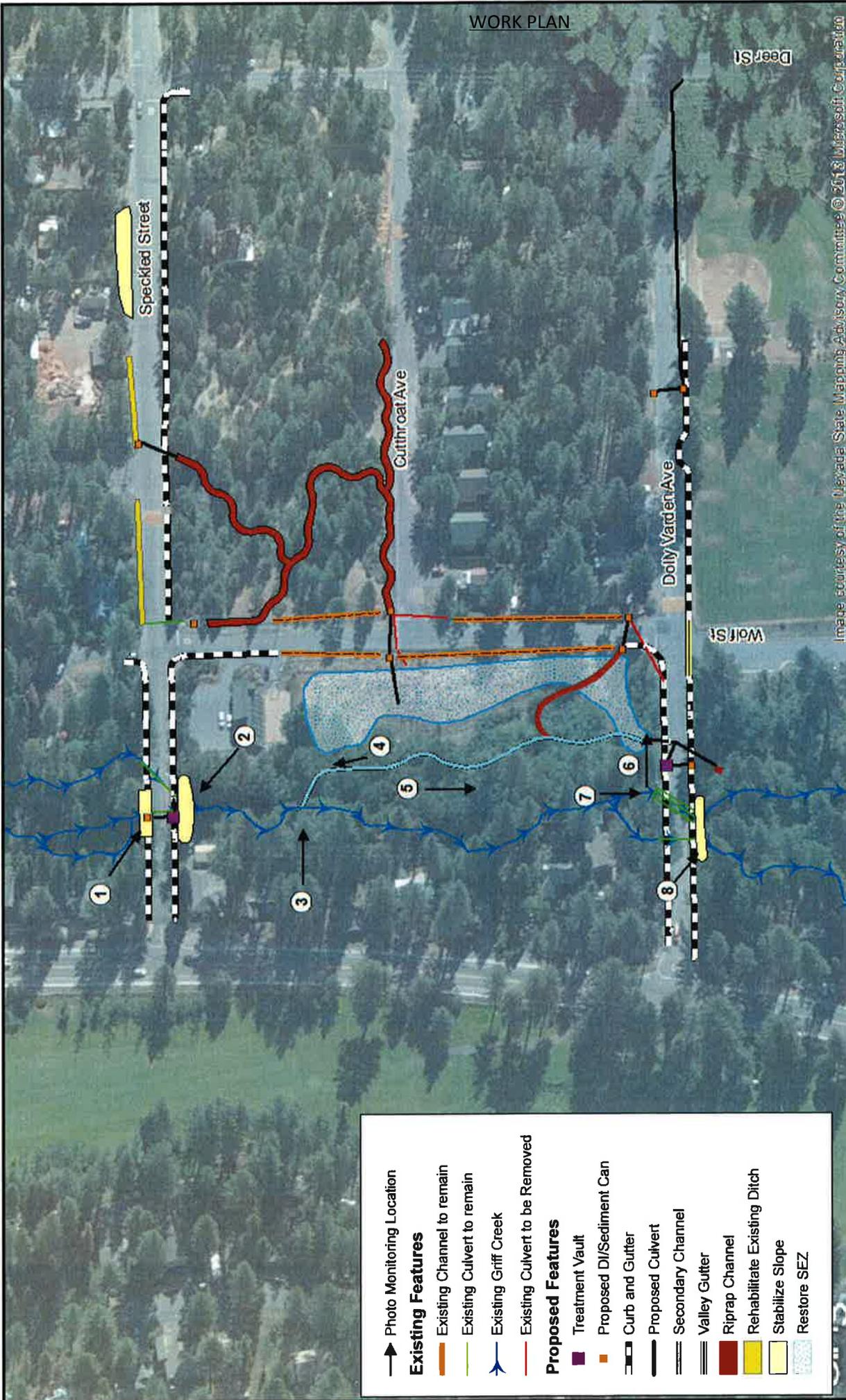
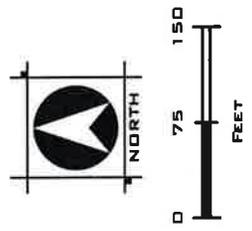


Image courtesy of the Nevada State Mapping Advisory Committee © 2013 Intersect Corporation

- ➔ Photo Monitoring Location
- Existing Features**
- Existing Channel to remain
- Existing Culvert to remain
- Existing Griff Creek
- Existing Culvert to be Removed
- Proposed Features**
- Treatment Vault
- Proposed DI/Sediment Can
- Curb and Gutter
- Proposed Culvert
- Secondary Channel
- Valley Gutter
- Riprap Channel
- Rehabilitate Existing Ditch
- Stabilize Slope
- Restore SEZ



REGIONAL MAP  
 GRIFF CREEK WATER QUALITY PROJECT  
 PLACER COUNTY, CA  
 JANUARY, 2013

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NOTES:  
 BACKGROUND: ESRI

### **Project Timing and Phasing**

Construction will be complete in one phase during the spring/summer 2014. If circumstances arise (shortage of funding) and the project cannot be completed in one phase a detailed phased construction plan will be developed. This project can easily be constructed in stand-alone project phases if needed.

### **PROPOSED WORK**

#### **Task A: Direct Project Administration**

Placer County Department of Public Works (Placer DPW) will perform all technical and administrative services as needed for project completion, review all work performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations.

Project administration includes ongoing project-related management, scheduling and administrative responsibilities and development of monthly invoices and progress reports. Placer DPW will assign a Project Manager to serve as the primary point of contact throughout the project. The Project Manager will attend progress meetings as defined herein with individual agencies to gather information, coordinate project planning, discuss current project issues, and resolve project constraints. The Project Manager will attend agency coordination meetings outlined in this phase of the scope.

A detailed schedule for the Griff Creek Water Quality Improvement Project will be submitted to the TRCD within ten (10) working days of receiving the grant agreement. The project schedule will be maintained and updated at progress meetings, or as necessary.

Placer DPW will prepare invoices against the grant agreement. Invoices shall show a breakdown of hours and charge rates for each individual for all work tasks. The invoice will reflect the task budget, previously billed amount, current amount billed, amount billed to date, budget remaining, percent of budget expended, and percent complete for each task.

#### **Sub-Task A.1: Project Management**

Placer DPW will perform general project management activities including tracking project budget and completion status, project invoice preparation, and project billing status. Placer DPW will maintain continuous communication between TRCD to provide progress updates, discuss current project issues, and guide and assist Placer County staff with completion of work.

#### **Deliverables:**

1. One (1) hard copy of monthly invoices.
2. One (1) electronic copy of detailed construction schedule, updated monthly, or as appropriate. Microsoft Project 2000 or compatible.

#### **Sub-Task A.2: Labor Compliance Program**

Placer County Department of Public Works adheres to and will conform to California Public Contract Code. As required by Proposition 84, Placer DPW will adopt and enforce a labor

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compliance program pursuant to California Labor Code §1771.5(b). Compliance with applicable laws, including California Labor Code provisions, will become an obligation of the grant recipient and sub-recipients (i.e., individual project proponents that will receive grant funds) under the terms of the grant agreement between the grant recipient and the granting agency.

A Compliance Program at Placer County is currently in place, and will remain effective at the time of awarding of a contract for a public works project by the grant recipient. Placer County requires Contractors awarded projects to pay prevailing wage to employees.

### **Sub-Task A.3: Reporting**

Project administration includes ongoing project-related management, scheduling an administrative responsibilities and development of monthly invoices and progress reports. Placer DPW will assign a Project Manager to serve as the primary point of contact throughout the project.

Placer DPW Project Manager will prepare a daily field observation report documenting field activities, field crews, contractor equipment, field problems, and weather conditions. The Project Manager will compare notes with the contractor's representative at the end of each working day to confirm that work accomplished and quantities completed are the same. Special situations will be documented by the Project Manager by photograph or video. The Project Manager will document defective work until it is repaired to be in conformance with the project plans and specifications.

### **Deliverables:**

Daily inspection reports will include, at a minimum, the following items:

- The number, classification, and hourly summary of activity of each of the contractor's employees working.
- Material deliveries.
- Number, type of equipment, and hourly summary of equipment working and not working.
- Weather conditions.
- Discussions with the contractor.
- Problems, changes, and issues dealt with.
- Any other information necessary to create a satisfactory record of the day's activities at the project site in general accordance with accepted construction management practice.

Additionally, Placer County will complete and submit any annual and final reports as specified in the grant Agreement. Placer DPW will provide TRCD with a complete set of maintained record documents. At a minimum, these will include maps, plans, written correspondence, submittals, RFIs, CCOs, and other appropriate construction documents and records. As-Built drawings will also be submitted in electronic or hard copy form, if requested.

## **Task B: Land Purchase Easement**

### **Sub-Task B.1: Land Purchase Easement**

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Currently, funds awarded to this project from the California Tahoe Conservancy are being utilized for required easements.

Limited easements are required on private property for the construction of the Griff Creek WQIP as follows:

- A construction easement is required on APN 090-042-002 (owned by Kuehne) for the construction of slope stabilization;
- A construction easement is required on parcel APN 090-053-037 (owned by Berry) for the removal of an existing culvert;
- A construction easement is required on APN 090-053-022 (owned by Camozzi) for the installation of a culvert and some slope stabilization;
- An access easement is required on APN 090-063-035 for the construction and maintenance of a culvert.

The remainder of the improvements are proposed solely on County ROW and public property. Licensing agreements are required on the following State of California parcels: 090-044-017, 090-044-024, 090-044-025, 090-044-026, 090-042-006, 090-042-003, 090-051-005, 090-051-004. Easements are required on Tahoe Truckee Unified School District parcels 090-052-033 and 090-052-026.

### **Task C: Planning, Design, Engineering, Environmental Documentation**

#### **Sub-Task C.1: Assessment and Evaluation**

This project will be ready for construction in Spring (May 1) 2014. No additional field studies, assessments or evaluations are needed at this time.

#### **Sub-Task C.2: Final Design**

Currently, funds awarded to this project from the Bureau of Reclamation are being utilized for design costs. Current work is progressing on the 90% Design level plans and specifications. The 90% Design level plans and specifications are being reviewed by Placer County as well as an inter-agency peer group. Final design plans will be completed winter 2013. No monies requested from the IRWMP grant award will be used in Final Design. All costs for design have been secured. The final design documents shall consist of final project set of drawings, technical specifications, and engineer's cost estimate.

The plan set shall consist of graphic representations reviewed and sealed by a Registered Civil Engineer showing necessary plans, elevations, sections, and details for use by the Contractor to complete construction. All drawings shall be black ink on paper to facilitate photocopying. All drawings and details shall be consistent with Placer County DPW standards (which may include Caltrans standards) or as approved by Placer County for submittal during project reviews.

#### **Deliverables:**

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1. Two (2) set of original 24 in. x 36 in. construction drawings, sealed and signed by a Professional Engineer licensed in the State of California shall be provided to TRCD by Placer County, if requested.
2. One (1) electronic copy of the construction document package (including full-size hard copy sets of drawings, specifications, and the engineer's cost estimate) complete for construction bidding purposes shall be provided. Plan sheets shall be provided in AutoCAD format at appropriate scale for the size of the copy. The electronic copy of the specifications shall be in Microsoft Word format. The electronic copy of the engineer's cost estimate shall be in Microsoft Excel format.

### **Sub-Task C.3: Environmental Documentation**

The Griff Creek Water Quality Improvement Project is a phase of the overall, comprehensive Kings Beach Watershed Improvement Plan. The Notice of Determination (NOD) for the comprehensive project was received by the California Clearinghouse on December 15, 2008 and adopted by the Placer County Board of Supervisors on December 9th 2008. A copy of the project NOD is attached with this submittal. A copy of the combined CEQA/NEPA environmental document completed for the project entitled, "Kings Beach Water Quality and Stream Environmental Zone Improvement Project – Final Environmental Compliance Document" is available for review upon request.

### **Sub-Task C.4: Permitting**

Placer County DPW will obtain all necessary permits and written agency approvals to complete this project. The permits are currently in draft form under County review. Funds from the US Bureau of Reclamation are being used for all permitting activities. No grant funds from Proposition 84 (IRWMP) sources will be used for these tasks.

### **Tahoe Regional Planning Agency (TRPA)**

Placer County staff will review the TRPA file for the project area and obtain verifications for Land Capability and Existing Coverage. A TRPA Public Service Permit application will be prepared and all supporting documentation submitted to the agency for project approval. A Banking of Existing Land Coverage application will also be prepared and submitted to TRPA as needed to document Stream Environment Zone restoration credit and banking for further public use.

Placer County is currently in the process of applying for a Public Service permit for the project. Scenic Impact Assessment and Change of Operation forms will also accompany the submittal as well as all the items required on the submittal checklist. Placer County will respond to comments from the TRPA after initial review of the permit application and revise plans and permit submittal documents as needed in order to secure the final permit prior to construction. Permit conditions will be included in final plans and specifications as needed.

### **Lahontan Regional Water Quality Control Board Permit**

Placer County shall prepare permit applications including supporting documentation which will include a SWPPP and submit to the agency. Permits and approvals are anticipated to include:

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- NPDES Permit for Discharges of Storm Water Runoff Associated with Construction Activity in the Lake Tahoe Basin (basin-specific permit).
- An exemption for disturbance within the Stream Environment Zone (SEZ).
- Clean Water Act Section 401 Water Quality Certification.

### **U.S. Army Corp of Engineers**

For work within Waters of the United States, this project requires authorization by the U.S. Army Corps of Engineers under the Clean Water Act Section 404. An application for Nationwide Permit 16 shall be prepared and submitted to the U.S. Army Corp of Engineers for all work within jurisdictional waters. A Wetlands Delineation map and report shall be prepared for submittal to Corp. A pre-application meeting with the Corps of Engineers shall be conducted to determine the need for a 404 permit.

Placer County has mapped wetlands and prepared a certified Wetlands Delineation Report to be submitted to the Corps of Engineers. This information is required for completion of 404 permit and 401 Water Quality Certification processes.

#### **Deliverables:**

1. TRPA Land Capability Verification, Soils Hydrology Report and Public Services Permit.
2. Lahontan NPDES Construction Permit, Prohibition exemption for work in the SEZ and 401 Water Quality Certification.
3. US Army Corps of Engineers Section 404 Permit.

### **Task D: Construction/Implementation**

#### **Sub-Task D.1: Construction Contracting**

Placer County DPW will administer the contract bid process. The design engineers and the Project Manager will provide bidding assistance during the bidding process. Services during this phase will include responding to bidders' questions, providing information and clarification regarding the project design and technical specifications, and attending one pre-bid meeting.

The County will resolve issues requiring an addendum during the advertisement of bids with the preparation of addenda to the technical specifications and/or plans as necessary to correct any issue requiring resolution prior to receipt of bids.

Placer County will publicly advertise the project a minimum of six weeks prior to the opening bid date.

Placer County Project Manager will conduct a mandatory pre-bid project walk-through.

Placer County will be responsible for contracting, award, licensing and bonds for the winning Contractor. Placer County will issue the Notice to Proceed.

**Deliverables:**

1. Written answers and notes of verbal answers to questions raised during the bidding process shall be prepared by the COUNTY immediately prior to opening of bids.
2. Revisions to the technical specifications and/or plans as necessary to be incorporated in addenda during the bid advertisement process.

**Sub-Task D.2: Construction**

Placer County DPW will manage the construction and oversee construction of the project

**Mobilization and Site Preparation**

Placer County shall prepare the Contractor for work in the project site through pre-construction meetings, RFPs, and construction mobilization.

Placer County DPW will arrange for and provide one (1) set of field construction stakes for clearing limits, rough grade, slope cuts, banks, culverts, drain inlets, and other proposed improvements. Placer County will provide construction staking in sufficient detail and in a timely manner for the contractor to construct the project.

**Project Construction**

Improvements will be constructed per the final plan set and bid documents in this project phase.

**Performance Testing and Demobilization**

Placer DPW will arrange for and provide construction materials testing services for the project. These services include applicable observation and testing services for soil, Portland Cement Concrete, wetlands revegetation, and asphalt concrete for compliance with contract documents and relevant Placer County Department of Public Works specifications.

Placer County DPW will assess compliance with revegetation and project site restoration when construction work is complete. Demobilization will be supervised so that the project is completed per specifications.

**Task E: Environmental Compliance, Mitigation, Enhancement**

**Sub-Task E.1: Environmental Compliance, Mitigation, Enhancement**

Placer County DPW will manage environmental compliance under the terms and conditions of the project permits. No additional mitigation or environmental compliance will be necessary above and beyond those measures outlined and included in the Specifications and Contract Documents.

**Task F: Construction Administration**

**Sub-Task F.1: Construction Administration**

Placer County DPW will perform construction oversight on the Contractor for the project. This includes construction inspection, surveying and all necessary engineering during construction

**Task F: Other Costs**

**Sub-Task G.1- Other Costs**

N/A

**Task H: Construction Contingency**

**Sub-Task H.1: Construction Contingency**

This item includes construction contingency funding in the event that unforeseen conditions are discovered during construction, change orders are necessary, or other possible cost over-runs occur. Construction contingency is typically 20% of construction cost estimate at this level of planning/design.

**Deliverables:**

Documentation of costs, as needed.

**PROJECT #9: LAKE TAHOE PRIVATE PARCEL BMP RETROFIT PROGRAM (Tahoe Regional Planning Agency)**

**INTRODUCTION**

Lake Tahoe is federally designated as an Outstanding National Resource Water due to its exceptional clarity. However, increased pollutant loading from urban development in Tahoe's watershed has led to an alarming rate of clarity decline since the 1960's. The Lake Tahoe TMDL recognizes stormwater runoff from urban uplands to be the primary source of fine sediment (<16microns) and nutrients contributing to clarity decline (TMDL Technical Report, 2007) and identifies implementation of Best Management Practices (BMPs) on urban uplands as a key strategy to restore Lake Tahoe's clarity. BMP implementation is also recognized by the Lake Tahoe Watershed Assessment, which states that "restoration of existing erosion problems" and "treatment of urban surface flow" are two of the "most appropriate courses of action" to stop the decline in Lake Tahoe's clarity (USDA Forest Service et. al, 2000, p. 306).

Through implementation of Lake Tahoe Private Parcel BMP Retrofit Program, the TRPA Stormwater Management Program will engage property owners and assist them in designing and installing low impact development practices and water quality best management practices (BMPs) on their properties. This will include the installation of stormwater treatment and infiltration as well as stabilization of

eroding areas and restoration of disturbed soils. Thus far, this program has resulted in an estimated 47 million dollars being invested by property owners to control runoff and sediment from private property properties.

### **Goals and Objectives**

The goal of this project is to improve Lake Tahoe water quality by reducing the inputs of fine sediment particles and nutrients from privately-owned developed parcels. Objectives for this project include the installation of stormwater BMPs on privately-owned parcels, improved collaboration between watershed scale implementers and private property owners, increased level of expertise in low impact development and stormwater BMP design and installation among local project designers, reviewers, and installers, and increased public awareness regarding the importance of BMP installation and maintenance in preserving lake clarity.

### **Purpose and Need**

The Private Parcel BMP Retrofit Project is identified in the Tahoe Sierra IRWM plan as a priority project based on geographic scope; ability to achieve multiple benefits, obtain objectives, and meet statewide priorities; strength of partnership commitments; and applicability to proposed IRWMP funding sources.

This proposal primarily supports Objective 1 of the Tahoe Sierra IRWM plan “Protect and improve water quality” through installation of BMPs on Private Parcels as outlined in Subtask 9.1 Facilitate and Track Low Impact Development and BMP Implementation. Completion of this task will help meet Water Quality Objective Two (WQ2) “Reduce nutrient and sediment loads to receiving water bodies and Water Quality Objective Three (WQ3) “Meet nutrient and sediment standards for tributary streams and stormwater runoff.”

Subtask D2.3 Conduct Outreach and Develop Incentives for Installation of Private Parcel BMPs addresses the conflicts arising from regulation of polluting land uses identified within the water quality objective of the IWRM plan and also address WQ6 “Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies.”

This project also supports IRWM Plan Objective 5, “Implement integrated watershed management throughout the region” specifically IWM3 “Form partnerships to share resources, take advantage of cost sharing opportunities and exchange information” through successful implementation of Subtask D2.2 Integrate Private Parcel BMP Implementation into Public Environmental Improvement Projects.

### **Integrated Elements of Project**

Environmental improvement projects (EIP) are part of a larger land management plan as proposed by the Tahoe Resource Planning Agency, a bi-state environmental land steward and regulatory agency. Coordinated implementation of these EIP’s occurs among the IRWMP partnership level, as well as regionally with regulatory agencies, local stakeholders and public agencies.

**Completed Work**

The TRPA Stormwater Management Program has been assisting property owners install BMPs for over ten years. This project builds upon previous successes and utilizes tools that have been developed to assist private parcel owners implement BMPs. Resources such as the TRPA Handbook of Best Management Practices, which was updated and adopted by TRPA in 2012, and the online BMP Designer Tool provide guidance for installation of BMPs in the Tahoe region to meet TRPA stormwater and discharge and infiltration requirements. This project will also utilize existing outreach materials such as the tahoebmp.org website which receives an average of 300 unique visits each month as well as brochures and other printed material.

<b>BMP Status in California Lake Tahoe (through December 2011)</b>					From 1/1/2007 through 12/31/2011
	Total Parcels*	Completed	Remaining ^	% Complete	
Single Family	24,607	5,134	19,473	21%	2,620
Multi-Family	5381	2,788	2,593	52%	1,903
Commercial	1490	272	1,218	18%	185
Total California	31,478	8,194	23,284	26%	4,708
* Total parcel count does not include undeveloped parcels					
^ Remaining numbers are based on the number of properties that have not received BMP Certificates of Completion. However, some properties may be under active building permits that will include BMP implementation.					

**Existing Data and Studies**

The proposed project shall provide physical benefits of improved water quality by building upon previously funded tasks to achieve Total Maximum Daily Load (TMDL) pollutant reduction. Diminished clarity in Lake Tahoe’s water has been linked to the discharge of pollutants such as sediment and nutrients from impervious surfaces (Swift, et al, 2006, p.1-2). Urban upland runoff has been determined to provide a majority of the Tahoe Basin’s suspended sediment (Water Board, NDEP, 2011, p.16). Research and analysis from Northwest Hydraulic Consultants, Geosyntec Consultants, and 2NDNATURE LLC has provided confirmation of the sediment and nutrient load reductions by BMPs. This research was furthered with the development of the Pollutant Load Reduction Model (PLRM) that quantifies the system-wide net reduction of pollutants being discharged by calculating the runoff and determining effluent pollutant concentrations after stormwater treatment (PLRM, 2009).

Studies from Federal, State, County, and private sector data demonstrate the correlation of water pollutants to clarity loss and verify that the installation of BMPs provides hydrologic and pollutant source controls to reduce the discharge of pollutants into the Lake. These documents, along with ongoing research, support the project need, feasibility, and technical methods.

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2NDNATURE, LLC, Northwest Hydraulic Consultants. 2011. Placer County Stormwater TMDL Strategy: Final Technical Report.

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Marvin, J., T. Brejla, S. Lindstrom. 2009. Cultural Resources Study and Evaluation for the Tahoe Biltmore Resort and Casino Boulder bay Resort Project.

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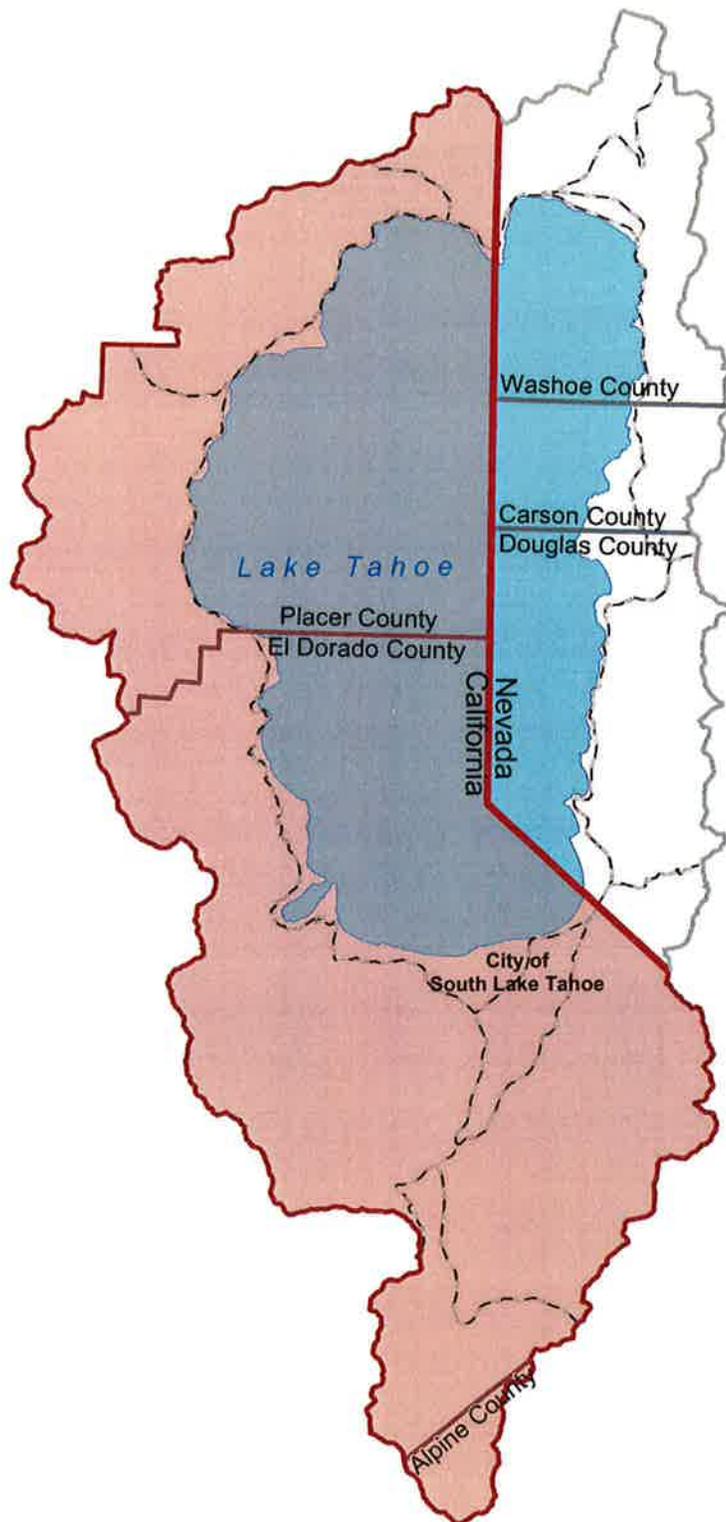
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Taylor, K., R. Susfalk, M. Shanafield and G. Schladow. 2003. Near- Shore Clarity of Lake Tahoe: Status and Causes of Reduction. Division of Hydrologic Sciences Publication no. 41193, Desert Research Institute, Reno NV.

### **Project Map**

See attached.

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**TAHOE  
REGIONAL  
PLANNING  
AGENCY**

Lake Tahoe Region including Placer County,  
El Dorado County, and Alpine County



## **Project Timing and Phasing**

The BMP Retrofit Program Project is an assemblage of many small scale and medium scale projects that have been implemented incrementally over the last decade. This program addresses water quality at the regional level but because each project is constructed individually, each project can still provide a water quality benefit as a stand-alone project at a local level.

## **Proposed Work**

### **Task A: Direct Administration Costs**

#### **Sub-Task A.1: Administration**

The Tahoe Regional Planning Agency shall provide all technical and administrative service as needed for project completion, review all work performed, and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, in accordance with approved procedures, applicable laws, and regulations.

**Deliverables:** Preparation of invoices and other deliverables as required.

#### **Sub-Task A.2: Labor Compliance Program**

The Tahoe Regional Planning Agency will pay State Prevailing Wage for all construction activities. Tahoe Regional Planning Agency will be responsible for complying with all Labor Code requirements under Senate Bill X2-9 and paying associated fees within this Code. Tahoe Regional Planning Agency will provide all necessary documentation of compliance to the grant manager prior to finalizing contract.

**Deliverables:** Compliance with Labor Code requirements as stated in grant agreement.

#### **Sub-Task A.3: Prepare Quarterly Reports**

TRPA shall meet project requirements through regular communication with regional and state grant managers and the compilation of monthly progress reports. The progress reports shall describe activities undertaken and accomplishments of each task during each quarter, milestones achieved and any problems encountered in the performance of the work completed for the project. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis of payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts. All subcontractor activities and expenditures shall be documented in progress reports.

**Deliverables:** Quarterly Progress Reports and Invoicing

#### **Sub-Task A.4: Prepare and Submit Draft Project Report**

TRPA shall prepare a draft project report that includes the results of Quarterly Reports (Task 3.1) and submit to copies of the draft report to grant manager(s) for review and comment. The Draft Project report shall include the following narrative sections:

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- A brief introduction that includes a statement of purpose, objectives of the project, project approach, project accomplishments, and lessons learned during the project.
- A list and summary of task deliverables previously submitted as outlines in Work Tasks.
- Any additional information deemed appropriate by grant managers.

**Deliverables:** Draft Project Report

### **Sub-Task A.5: Prepare Final Project Report**

TRPA shall prepare and submit a final project report that incorporates comments made by grant manager(s) on the draft final report.

**Deliverables:** Final Project report as specified under the Grant Agreement.

### **Sub-Task A.6: Project Monitoring Plan**

TRPA will prepare a Project Monitoring Plan (PMP). The PMP will include a Project Summary, Goals and Desired Outcomes, as well as Project Performance Measures Tables for category of activities identified in the project. The PMP will be submitted for approval at the start of project implementation and will be used to monitor project progress, measure success, and evaluate environmental benefits resulting from the project.

**Deliverables:** Completion and submittal of Project Monitoring Plan.

### **Task B: Land Purchase/Easement**

There are no applicable work items for this project under this budget category.

### **Task C: Planning/Design/Engineering/Environmental Documentation**

#### **Sub-Task C.1: Final Design**

No applicable work items under this task.

#### **Sub-Task C.2: Environmental Documentation**

Project is expected to be exempt from CEQA documentation through articles 15304 – Minor Alterations to Land and 15307 – Action by Regulatory Agencies for Protection of Natural Resources. TRPA will file a notice of exemption with California State Clearing House. Project implementation and deliverables are not expected to entail significant disturbance to natural resources within the Tahoe Basin. A review of the project task will be completed and all necessary environmental documentation will be submitted to State Clearing House and to DWR grant manager for approval prior to implementation of project tasks and deliverables.

**Deliverables:** Approved and adopted CEQA/NEPA documentation.

#### **Sub-Task C.3: Permitting**

Permits will be obtained by property owners for private parcel BMP implementation including Tahoe Regional Planning Agency permits.

**Deliverables:** List of assessor parcel numbers and corresponding TRPA BMP permit numbers.

**Task D: Construction/Implementation**

**Sub-Task D.1: Construction Contracting**

No applicable work items under this task.

**Sub-Task D.2: Implementation**

- **Facilitate and Track Low Impact Development and BMP Implementation**

The Lake Tahoe Urban Uplands generate 72% of the fine sediment particles that are responsible for Lake Tahoe's clarity loss. Modeling data based on event mean concentration data shows that the dense development and commercial/industrial land uses generate a significant amount of this loading. Implementation of Stormwater BMPs to control the pollutants generated on privately owned parcels within urban areas can provide a significant reduction in fine sediment particle loading, up to 23% in Placer County alone. (Placer County TMDL Strategy Report July 2011) Under TaskD 9.1 , TRPA staff will provide technical assistance in developing BMPs plans to private parcel owners and engineers in order to leverage private sector funds to install Low Impact Development Technologies/BMPs and achieve improvement in water quality.

- **Provide Design Assistance for Retrofitting Commercial/Industrial/Large Multi-Family Properties with Low Impact Development and Water Quality BMPs.**

**Deliverables:** Dates of Technical Assistance/Site meetings, Load Reduction Estimates/Volumes of Storm water Captured through BMP Implementation.

- **Provide Technical Support for the TRPA's Online BMP Designer Tool.** This tool is a GIS-based wizard that allows property owners to evaluate the erosion and stormwater generated by their property and design BMPs to meet the needs of their specific site. Providing technical support for this tool include maintaining GIS Dataset linkages within the software, answering questions from the public regarding use of the tool, and updating the tool as necessary to include advances in BMP technology and improve the user experience.

**Deliverables:** Quarterly counts of BMP Designer Tool Users, Summary of BMP Design Tool updates.

- **Inspect and Track Private Parcel BMP Implementation and Enhance Existing Implementation Tracking Tools** Current tracking tools include the TRPA BMP Database and Accella permit tracking software.

**Deliverables:** List of BMP Inspections, Summary of Tracking Tool Updates

**Sub-Task D.3: Integrate Private Parcel BMP Implementation into Public Environmental**

### **Improvement Projects**

In areas with site constraints such as high groundwater or large amounts of impervious surfaces, parcel by parcels retrofits may not be the most effective way of treating private parcel stormwater due to the large and complex types of systems required to meet water quality treatment standards. In Subtask 9 the TRPA Storm Water Management Program Team, will coordinate proper toners and other local entities to facilitate the creation area-wide stormwater treatment systems. These systems will be required to achieve equal or greater treatment than the parcel by parcel stormwater BMP treatments and may incorporate the treatment of run-off generated from public land.

- **Participate in the Lake Tahoe Stormwater Quality Improvement Committee, TRPA Area Plan Meetings and Project Technical Advisory Committee Meetings.**  
The purpose of this task is to provide input and develop opportunities for private parcel owners to participate in mid-and large scale water quality improvement projects.

**Deliverables:** Dates of meetings attended, Maps and Status Reports for Proposed Area- Wide Treatment Areas

- **Utilize the TRPA Accelerated Implementation Process to Enhance the Effectiveness of Environmental Improvement Projects.**  
The TRPA Accelerated Implementation process is an education-focused program that informs of non-compliance. This program will be closely correlated with local jurisdictions TMDL implementation efforts to ensure that the private parcel implementation works in tandem with larger-scale roadway and restoration projects.

**Deliverables:** List of parcels within accelerated implementation areas including current project implementation status.

### **Sub-Task D.4: Conduct Outreach and Develop Incentives for Installation of Private Parcel BMPs**

In coordination with basin partners, develop an education and outreach campaign to engage private parcel owners in the watershed planning process and incentivize BMP installation for local business by publicly recognizing those commercial properties that have installed and maintained BMPs and by implementing the following tasks:

- Create and publish newspaper advertisements, television commercials, and web advertisements to encourage participation in the BMP Retrofit Program.
- Create neighborhood-specific outreach materials to increase BMP implementation in three disadvantaged communities, two within the city of South Lake Tahoe and the Kings Beach Neighborhood.
- Enroll a minimum of 150 California businesses in an annual Lake Friendly Business program and publish the names and of these businesses on the [tahoebmp.org](http://tahoebmp.org) website

## WORK PLAN

and in a Lake Friendly Business Guide to be distributed at strategic locations such as transit centers, hotels, and visitor centers.

- Update the tahoebmp.org website to include current information on Low Impact Development and best available BMP technology, and fertilizer management.
- Conduct a minimum of two annual trainings for BMP Designers and Contractors. The purpose of this task is to provide current information on the best designs and installation methods for BMP in order to minimize maintenance requirements and maximize the capture of pollutants of concern.

**Deliverables:** Collaborative outreach plan developed annually with partner agencies, sample advertisements, publication listing including circulation numbers, list of implementations within DAC neighborhoods targeted for additional outreach efforts, annual Lake Friendly Business list, screenshots of website updates, unique website visitor numbers, sign-in sheet and materials for workshops.

### **Task E: Environmental Compliance/Mitigation/Enhancement**

No applicable work items under this task. CEQA compliance described above.

### **Task F: Construction Administration**

No applicable work items under this task.