

ROUND 12 CAPITAL PROJECT NOMINATION FORM
LAKE TAHOE FEDERAL SHARE EIP CAPITAL PROJECTS
APPENDIX K

Project Name:	Lake Tahoe Stormwater Tools Improvement	EIP Number: <i>(Required)</i>	628, 10110, 10111
Federal Agency Sponsor: <i>(Required)</i>	US Environmental Protection Agency	Contact:	Jack Landy
Threshold:	Water Quality	Phone Number:	775-589-5248
Threshold Standard:	WQ-1, WQ-2, WQ-3, WQ-4, WQ-5	Email:	Landy.Jacques@epamail.epa.gov
FUNDING REQUESTED IN THIS ROUND:		\$ 480,000	

Federal Share EIP Consideration

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

1. Does the project involve federal land? Yes
 No

 If yes, is the federal land involved important to successful implementation of the project?

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

EIP # 628 Urban runoff model EIP # 10110 Direct loading from urbanized and non-urbanized area EIP # 10111 Loading rates from stormwater runoff

3. Does the project involve the conservation of a federal or regional threatened, rare, endangered, or special interest species? If yes, identify. Yes
 No

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

<p>This project will ultimately help to restore and maintain the waters of Lake Tahoe. Tahoe is designated an Outstanding National Resource Water (ONRW) due its ecological status as one of the few large, deepwater, ultraoligotrophic lakes in the world with unique transparency, color and clarity. Not only is restoration of Lake Tahoe clarity mandated under federal anti-degradation policy, but is necessary to maintain its value for human enjoyment and recreation, as a supply of municipal and domestic drinking water and as an substantial economic asset.</p> <p>To that end, the federal government has enacted legislation and appropriated hundreds of millions of dollars in the Environmental Improvement Program. However, transparency and accountability for expenditures of these funds has been lacking and is sorely needed. The stormwater tools to be enhanced and refined through this project will not only act to target actions on those which are most cost-effective and in areas with the greatest achievable benefits, but will enable transparent and consistent reporting of accomplishments. Furthermore, the tools will enable implementing jurisdictions to demonstrate accountability for acceptance of these grant monies and thereby ensure protection of the public investment which have gone towards these efforts.</p>

5. Does the project develop knowledge and/or information to develop future capital projects in the EIP? (such projects that fulfill this function would include technical assistance, data management, and/or resource inventories) Yes
 No

Yes, this project will enhance and refine beta-version stormwater tools that Lake Tahoe urban jurisdictions will use to target stormwater pollutant load reduction actions and strategies. The load reduction estimation model will be used at a jurisdictional scale to identify areas where the greatest load reductions may be achieved. The model has recently been applied in a jurisdiction for the purposes of informing the development of a stormwater management plan. The investigation has identified the locations where water quality improvements should be prioritized. Moreover, the analysis has provided invaluable information on the cost-effectiveness of actions which will likely fundamentally change the priority actions and strategies that will jurisdictions will implement. Consequently, these results also have significant policy implications as well.

It will also be used to develop and evaluate different alternatives at the project scale, enabling for the most cost-effective alternative to be identified. Estimated load reduction results will be reported to a public reporting platform. Rapid assessment methodologies will be used not only to verify that stormwater treatment facilities and roadways are being maintained in a condition that is appropriate to protect downstream water quality, but will also provide valuable information to jurisdictions regarding maintenance priorities of structural best management practices as well operations and maintenance practices.

Check all Capital Focus Area(s) that apply (as defined in the Federal Vision):

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

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

- 1. Continued emphasis on forest ecosystem health/fuels reduction projects considering the LTBMU Stewardship Fireshed Assessment and Lake Tahoe Basin Multi-Jurisdictional Fuels Reduction and Wildfire Prevention Strategy.
- 2. Continued implementation and/or completion of projects approved in Rounds 5 through 11 which implement the EIP. Project proposal should clearly describe the phase/product being produced along with the consequence of not completing the project phase proposed for Round 12.

List Previously Approved Rounds and funding(provide project titles):

- 3. Project is consistent with and contributes toward TMDL pollutant reductions within the four source categories (atmospheric, urban & groundwater, forested uplands, and stream channel). *NOTE: If “yes”, then please respond to questions in the Accomplishments section of the nomination proposal.*
- 4. Control of aquatic invasive species and prevention and/or detection of new aquatic invasive species.

Project Nomination Proposal Outline

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

- Summarize ONLY the Round 12 project (also summarize scaling of funding to be described in more detail in the “Project Description” section below).

A suite of tools have been developed to identify the most effective opportunities to reduce fine sediment particles (FSP), phosphorus and nitrogen pollutant loads that enter Lake Tahoe via urban stormwater. The Pollutant Load Reduction Model (PLRM), Best Management Practice Rapid Assessment Methodology (BMP RAM), Road Rapid Assessment Methodology (Road RAM), and the TMDL Accounting and Tracking Tool (ATT), each play critical roles that enable municipalities and departments of transportation (collectively referred to as jurisdictions) to prioritize capital investments, staff time and maintenance equipment deployment to most effectively reduce stormwater pollutant loading. This project seeks to leverage the approximate \$2 million investment to date to develop these beta-version tools by taking them to fully functional initial versions. Enhancements and refinements in the tools to be accomplished will be based on user-feedback provided by the jurisdictions, who have already or will soon undergo training and testing of the tools. Refining and enhancing the tools will facilitate acceptance of the tools by the jurisdictions. Moreover, because these tools represent an important component for reporting accomplishments, their completion is essential in overcoming the historical lack of transparency and accountability for expenditures of public dollars on water quality improvements.

Project Description

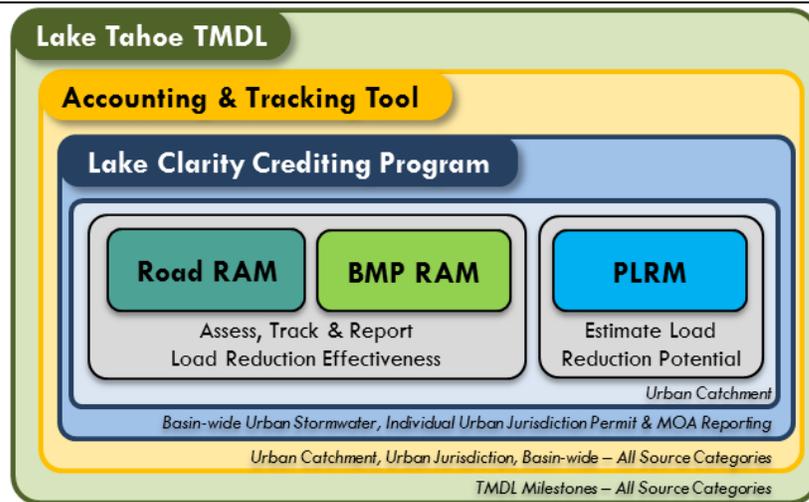
Introduction

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

Note: Focus needs to be the project in Round 12 not a history of an ongoing project or program.

The Lake Clarity Crediting Program (Crediting Program) is the program under which the urban stormwater source category of the Lake Tahoe Total Maximum Daily Load (TMDL) will be implemented. The Crediting Program seeks to motivate effective actions to improve lake clarity by establishing an accounting framework that connects on-the-ground actions to load reduction goals defined in the Lake Tahoe TMDL report. The Crediting Program provides flexibility for jurisdictions to prioritize pollutant control activities that address the most effective and efficient load reduction opportunities; increases transparency and accountability by comparing load reductions achieved by jurisdictions and basin-wide to accepted targets; and defines the procedures for jurisdictions to use the stormwater tools in an integrated fashion to 1) identify and document expected load reductions, and 2) report ongoing effectiveness of operations.

The Crediting Program uses a suite of user friendly tools developed to identify the most effective opportunities to reduce loading of fine sediment particles, phosphorus and nitrogen from entering Lake Tahoe. The Pollutant Load Reduction Model (PLRM), Best Management Practice Maintenance Rapid Assessment Methodology (BMP RAM), Road Rapid Assessment Methodology (Road RAM), and the TMDL Accounting and Tracking Tool (ATT), each play critical roles that enable municipalities and departments of transportation (collectively referred to as jurisdictions) to prioritize capital investments, staff time and maintenance equipment deployment to most effectively reduce pollutant loading from urban stormwater. Please note a one page attachment has been included with this application describing these tools in more detail.



Each of the 7 urban stormwater jurisdictions are participating in the Crediting Program Support Services Project through which they are beta-testing and training of the initial versions of the stormwater tools on a non-regulatory basis. The process is expected to result in recommendations for technical improvements to the stormwater tools that will make each of the tools more efficient, functional and better able to support targeted efforts to reduce pollutant loadings. Round 12 SNPLMA Capital funding is being requested to carry out these recommendations. The outcome will be second versions of the PLRM, BMP and Road RAMs and ATT with improved operability, functionality and which end-user will be more willing to accept. This funding will leverage the approximate \$2 Million that has already been invested in these tools:

Stormwater Tool	Amount	Funding Source
PLRM prototype (named PLRE-STs)	\$335,000	USACE Sacramento District Lahontan RWQCB (through SNPLMA)
PLRM (current beta-version)	\$820,000	TOTAL
	\$506,500	USACE Sacramento District
	\$313,500	NDEP (through SNPLMA)
BMP RAM	\$156,000	USACE Sacramento District
Road RAM	\$263,400	TOTAL
	\$153,400	CTC
	\$110,000	NDEP
Accounting and Tracking Tool	\$140,000	USACE Sacramento District
Integrated Tahoe Stormwater Tool	\$142,000	TOTAL
	\$60,000	Lahontan (earmarked)
	\$69,000	NDSL (request pending)
	\$13,000	NDEP (earmarked)
Trainings/Workshops	~\$100,000	CTC, USACE, TRPA/NDEP
ALL TOOLS	~\$1,950,000	

Demonstration of accountability through accomplishments reporting is a high priority in order to maintain the capital funding stream for water quality improvements. The ATT currently includes functionality to report load reductions at a variety of scales and for all source categories. However, the information stored in the ATT is not publically available. The soon to be initiated TMDL Management System project will produce a web-based Activity Tracking and Public Reporting platform. This platform will enable TMDL implementers to track planned and completed activities aimed at achieving load reductions and report visual and summary text displays to the public and stakeholders regarding the status of TMDL related science (monitoring and research) activities as well as progress toward achieving TMDL load reductions. While this will be beneficial, the platform is more rigid in that it will necessitate manual updates and lacks functionality that a more robust web-based map viewer system could provide. Such a map-based visual reporting platform would not only improve the transparency and accountability for capital funds received to implement water quality improvements but deliver expanded functionality for stormwater managers, enabling them to increase their productivity and efficacy.

- Describe what Round 12 is specifically funding; list the number of years the requested funding will cover; briefly describe how this project links into previous projects/rounds (identify and describe other round projects and funding received). Show scaling of project (reduced funding request and associated reduction in accomplishments).

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

WORK TO BE PERFORMED

Task 1. PLRM Technical Improvement Tasks

The beta version of the PLRM was released in the Fall of 2009. Upon its release, jurisdictions and regulators participated in a three-part series of independent trainings for the tool. The scope of the US Army Corps of Engineers contract included an effort for the model developers to solicit and prioritize recommended improvements based on feedback from the trainees. The outcome of the process included a number of desirable improvements and updates to PLRM that would greatly improve the functionality and applicability of the tool. Please note that while the subtask list below represents the priority improvements as identified during the testing and feedback received from the training sessions, the order of prioritization has been slightly modified based on: 1) additional feedback from PLRM users during the testing period for the Catchment Registration process; 2) partial completion of some of the proposed improvements through other funding sources; and 3) common errors observed among PLRM users during the first 1.5 years of model use.

Task 1A. Integrate Road RAM Into PLRM

Research collected in support of the Road RAM has shown that the current structure of the PLRM Road Shoulder Conditions form and supporting algorithms could be improved to better integrate with the Road RAM and to support future validations of the algorithms through research and monitoring. Contractors will modify PLRM road methodology to better align with Road RAM tool concepts, outputs and approach. Subtasks include: 1. Incorporate Road RAM research and approach into PLRM algorithms 2. Re-organize Road Shoulder Conditions Form in PLRM to align with Road RAM concepts.

Task 1B. Pollutant Generation Output By Urban Land Use

Pollutant generation by urban land use is not currently reported with PLRM output. This limits the ability for a user to assess the significance of pollutant sources in their project area. Improving PLRM output reporting functions will assist planning efforts, including better estimates of jurisdictional baseline loading and the formulation of strategies to achieve TMDL allocations. Subtasks include: 1. Develop code to identify pollutant loading generated by urban land use 2. Revise output reports in PLRM to include this information.

Task 1C. Update Characteristic Effluent Concentrations (CECs)

Some of the CECs used to represent performance of storm water treatment facilities in PLRM were developed from data sources outside of the Tahoe Basin. Additionally, the estimates of fine sediment particle (FSP) CECs currently in PLRM are supported by minimal data. This task would refine the CEC defaults in PLRM for FSP, total suspended sediment (TSS), total phosphorous (TP) and dissolved phosphorous (DP) based on results from Tahoe specific stormwater research conducted after release of the PLRM version 1.

Task 1D. Refine Stormwater Treatment Vault Option

Initial use of treatment vault option in PLRM has raised concerns that performance may be over-predicted for this storm water treatment facility, especially for FSP removal. This task would refine the representation of the Treatment Vault option in PLRM to require justification of CECs for a User-Defined SWT (which can be a treatment vault) to reduce the chances that treatment performance is over-predicted. Subtask include: 1. Modify graphical user interface (GUI) and require CECs to be confirmed by user. 2. Flag CECs regardless of values in Recommended Range Report as a warning (requires justification to use).

Task 1E. Incorporate Climate Change Analysis Option

The current meteorological dataset used in the PLRM is based on an 18-year historic dataset. Scientific evidence suggests that climate change may affect hydrology and storm water runoff in the Tahoe Basin. The climate change analysis conducted for the TMDL indicates that Lake Tahoe may experience a 10% decrease in precipitation and a 2°C increase in temperature. A new algorithm will be developed under this task to generate a meteorological dataset that can be used in PLRM to estimate how potential climate change effects may influence pollutant loading.

Task 1F. Increase Program Stability and Improve User Experience

The PLRM programming code needs additional development to reduce access violations caused when both the PLRM and SWMM5 (the parent model upon which PLRM is based) try to access the same Windows program. The errors result in PLRM program crashes. Additionally, this task will correct program deficiencies identified during testing with participants from the SWQIC, and prioritized for correction by the SWQIC participants. This task will increase overall PLRM stability, resulting in a better user experience.

Task 1G. Develop Infiltration and Cut Slope Algorithms and Guidance.

The current PLRM algorithms do not provide adequate default values to represent infiltration for urban land uses (in particular for compacted road shoulders). Additionally, there is no direct method to represent cut slope erosion in the PLRM. This task will incorporate currently ongoing and recently completed research to improve algorithms and guidance to better estimate both infiltration on pervious road shoulders and pollutant loads from cut slopes.

Task 1H. Model Testing and Update Documentation

This task is necessary to test the revised version of the model after completion of Task 1A through 1G and to update the technical documentation and user documentation. In the process of testing PLRM v2, source code no longer in use will be eliminated, guidance within code on general architecture, linkages, and function will be created as well as a mapping document of code to allow future transfer of the tool to another code manager.

Task 2. RAM Tools Improvement Tasks

The beta first versions of the BMP RAM and RRAM were released in the Fall of 2009 and 2010, respectively. BMP RAM testing and training has been provided to jurisdictions through the current Crediting Program Support Services project and a detailed Road RAM training is planned for April 21, 2011. User feedback on the utility of the tools and priority recommendations for improvements will be documented through the Support Services effort. A prioritization process will be carried out in order to dedicate available funding to those tasks of the highest importance. The following subtasks will greatly improve utility of the RAMs and thereby facilitate jurisdictional acceptance of them:

Task 2A. BMP RAM Technical Improvements

Priority improvements based on developer testing and feedback from the Crediting Program Support Services project will be incorporated into the BMP RAM protocol. One known deficiency is that PLRM input parameters do not currently align with the observations defined in BMP RAM. However, BMP RAM is the method used to confirm that expected conditions for BMP performance are being maintained over time. Translators must be created and incorporated into BMP RAM and PLRM protocols and user guidance to align PLRM input parameters for treatment BMP performance with measured values as quantified using the BMP RAM. Tahoe specific research is being conducted to inform the development of these performance metric translations for infiltration rate, treatment BMP capacity and other metrics. This will require definition of testable hypotheses, engineering estimates, and analyses of recently obtained field datasets. These and other technical improvements will be incorporated into BMP RAMv2 and documented in BMP RAM Technical Guidance document. The BMP RAM User Manual will also be updated.

Task 2B. Road RAM Technical Improvements

Priority improvements based on developer testing and feedback from the Crediting Program Support Services project will be incorporated into the RRAM protocol, including functional improvements to the database data analysis/reporting/display. Improvements will result in a database that is capable for integration with the ATT. This task will also feature updating of the RRAM Technical Guidance and User Manual documents.

Task 3. Update the Tahoe Integrated Stormwater Tool

NDEP and the Lahontan Water Board have earmarked \$70K and submitted funding requests to the US Army Corps of Engineers and Nevada Division of State Lands to overcome what is deemed the greatest impediment to the acceptance and use of the existing stormwater tools - the confusion and administrative burden resulting from the current stormwater tools operating independently. The Integrated Tahoe Stormwater Tool project will produce a single online user interface that allows jurisdictions to upload PLRM outputs and enter all information necessary for registering catchments in the Crediting Program, prioritize maintenance activities, report road and treatment BMP conditions, declare credits, and generate outputs necessary to complete certain requirements of annual stormwater reports.

Update of the PLRM and RAMS based on user feedback will necessitate a corresponding update of the Tahoe Integrated Stormwater Tool (description provided in the Introductory section of this application). Subtasks include: 1. Updating common fields between each tool identify where field definitions require additional alignment to be defined in the same units and terms. 2. Updating the data relationship wireframe structure for the Integrated Tahoe Stormwater Tool that will seamlessly integrate the required data, functions and infrastructure of the BMP RAM, Road RAM and ATT to minimize data entry and complexity for the users, while increasing functionality and reporting ease; 3. Updating the file type and field specifications that enable PLRM outputs to be uploaded to the Integrated Tahoe Stormwater Tool; 4. Update standardized data outputs that will allow information in the Integrated Tahoe Stormwater Tool to be exported and available for upload to jurisdiction asset management systems and the EIP database.

Task 4. Urban Stormwater Management and Reporting Platform Development

This task will leverage investments to develop the Tahoe Integrated Stormwater Tool and the Activity Tracking and Public Reporting Platform (funded through separate efforts) by building off of them and linking them to a web-based map viewer with expanded functionalities relevant to stormwater managers. Priority tasks to be completed for this project will be identified by the Stormwater Quality Improvement Committee (SWQIC) who will also oversee development and completion of this task. The following subtasks may be accomplished based on the amount of funding available for this effort and final input with respect to workplan and priorities. It is important to recognize that this task is intended to build off – not duplicate- existing stormwater management systems that jurisdictions may currently operate. Furthermore, if possible, this tool will be developed in conjunction with the Tahoe Integrated Information Management System.

Task 4A. Web-based Map Viewer Development

A web-based map viewer could be developed that displays a variety of information relevant to urban stormwater management, including reporting of accomplishments. The map viewer would serve as one stop

shop where urban stormwater managers, funders, regulators and stakeholders can observe up-to-date information such as what and where load reduction activities/BMPs have been or are planned to be implemented; Crediting Program catchment credit schedules; and jurisdictional and basin-wide progress toward achieving TMDL load reductions. The enhanced visual reporting platform would improve the transparency and accountability for capital funds received to implement water quality improvements. The tool could feature zoom capability, such that different information is displayed at scales ranging from the basin to the catchment level. While input would be solicited through the SWQIC to finalize what information shall be displayed, examples of information that could be extracted or displayed by clicking on specific map features include but are not limited to the following:

1. Jurisdictional stormwater load reduction plans
2. Jurisdictional or basin-wide progress toward accomplishing TMDL load reductions (ie., ATT linkage)
3. Crediting Program catchment credit schedules
4. BMP RAMs and RRAM inspection results
5. Structural and private parcel BMPs
6. Roadway operations and maintenance practices

Task 4B. PLRM Input Functionalities Development

This task would seek to furnish specific functionalities to the web-based map viewer that would increase urban stormwater manager's productivity and efficiency. Currently, parameters that must be input into the PLRM in order to run the model include the distribution of soils, land uses, parcel level BMP implementations, and directly connected impervious area in the catchment (ie.,project) area. Generating this information has the potential to occupy a significant amount of personnel time, which would be minimized through the inclusion of an "intersection" function that automatically tabulates and summarizes PLRM input parameters once a catchment boundary is imported into the map viewer. Reducing the time required for managers to accomplish PLRM runs would allow them to focus more time on scenario development, thereby improving their ability to target actions where the greatest load reductions will be realized and in the most cost-effective manner of doing so.

CONNECTION TO TIIMS & LONG TERM MAINTENANCE OF TOOLS

The TMDL agencies agree that the ideal place to host the stormwater tools are on TIIMS. The vision is to host these tools there and in fact some of the stormwater tools are currently hosted on TIIMS. We furthermore believe that building the map viewer on TIIMS could offer a significant cost savings. This stated, a task in the upcoming Lake Tahoe TMDL Management System project is to assist the TMDL agencies in the development of a strategic plan on the long-term administration, operations and maintenance and funding for TMDL-related tools either existing or which will be developed through this project. Associated with this task is carrying out a feasibility evaluation of potential options including but not limited to integration with TIIMS, simply hosting on TIIMS; and various options with respect to agency administration of the tools. This would need to be closely coordinated with the EIP Working Group and final recommendation endorsed by the Basin partners - Tahoe Interagency Executives Steering Committee (TIE SC) to ensure that systems are developed and linked to meet long term objectives for reporting EIP accomplishments, etc..

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

The project is anticipated to be ready to move forward at the time when funding is assumed to become available and funding agreements are in place (January 2011). Tasks 1, 2 and 3 are the highest priorities and are considered urgent. Task 4 is also a high priority but is not considered urgent. USEPA and NDEP possess the capacity to administer the grant and will see the project through to successful completion. NDEP has administered a previous SNPLMA funded project that was successfully completed and serves as the administrator of two current SNPLMA projects.

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

The project involves the collaboration and coordination of the following entities:

USEPA – project sponsor, grant administration, and project advisory committee agency member;

NDEP – grant administration, subcontract manager, and potential in-kind federal match as project advisory committee agency member (~\$15,000K);

Lahontan Water Board - in-kind match as project advisory committee agency member (\$12,000);

TRPA – potential in-kind match as project advisory committee agency member (~\$8,000)

SWQIC – this project will be coordinated with the Stormwater Quality Improvement Committee; the Committee will be asked to provide one or two local jurisdiction representatives to participate on the project advisory committee (approximately \$8,000 in in-kind match); in addition, if Task 4 is funded, all SWQIC agencies will be asked to provide input in the production of a final workplan for the map-based tool; finally, regular updates will be provided to the SWQIC regarding the progress and outcomes of the project.

TSC – the Tahoe Science Consortium will be invited to provide one representative to participate on the project advisory committee. However, funding will not be provided for the representative’s participation; therefore TSC participation could result in additional in-kind match contribution.

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

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

The pending Lake Tahoe Restoration Act commits a minimum of \$40M to stormwater management, TMDL implementation and erosion control. Furthermore, LTRA requires reporting accomplishments (ie., performance measures) which with respect to TMDL are pounds of TMDL pollutants (fine sediment particles, phosphorous, nitrogen) reduced. Therefore, this project directly addresses LTRA by improving the tools to report accomplishments with respect to TMDL implementation and particularly the urban stormwater source category. The specific goals of this project are to:

- Increase the acceptance of the Tahoe stormwater tools and reduce the cost and complexity of their use to support the Crediting Program.
- Improve the ability for jurisdictions and funders to target investments and communicate priorities for stormwater pollutant controls to document effective load reductions.
- Simplify and streamline reporting of results of stormwater management to support LTRA and annual stormwater reporting requirements, which will increase transparency and accountability for the use of EIP funds.

Objectives (specific measurable statements of action – Round 12 only - which when completed will move towards achieving the goal)

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

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

The associated objectives to achieve the stated goals include:

- Enhancement and refinement of the beta-tested versions of PLRM, BMP RAMs, RRAM and subsequent update of the Tahoe Integrated Stormwater Tool by addressing known operational improvement needs;
- Creation of an easily accessible, centralized, web-based map-viewer application that enables jurisdictions, funders, regulators, stakeholders and decision-makers to observe spatial and tabular data of the progress made toward achieving TMDL load reductions at a variety of scales, including where and what types of project and other load reduction actions have been implemented on the ground.
- Providing specific functionalities to the web-based map viewer that will facilitate urban stormwater managers to target their actions on those source areas which are most cost-effective and capable of achieving the greatest load reductions.

Fulfilling the project objectives will result in the cost-efficient restoration of clarity within Lake Tahoe.

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

There are no known environmental risks from unintended consequences of the proposed project.

Accomplishments

- Describe the anticipated project accomplishments (i.e. products or identifiable environmental benefits being produced or implemented under this project), and how the project results/accomplishments will be communicated and made available to the public.

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

Anticipated benefits are both environmental and economic as this project will aid in the cost-efficient restoration of clarity within Lake Tahoe. Project accomplishments include the following products and deliverables:

- Technical improvement to PLRM - include enhanced functionality, stability and greater user experience
- Technical improvements to the BMP RAM – Updated field protocol, user manual and technical document based on jurisdiction input
- Technical improvements to the Road RAM - Updated field protocol, user manual and technical document based on jurisdiction input
- Updated Tahoe Integrated Stormwater Tool – based on corresponding updates to the PLRM and RAMs
- Urban Stormwater Management and Reporting Platform – a publicly accessible web-based map to increase transparency and accountability of public dollars spent for water quality improvements and with increased functionality to improve the efficacy of urban jurisdictional stormwater management.

Once the project is complete, the Lahontan Water Board, NDEP and TRPA will post the deliverables on their respective websites and send out a notice of availability to the public and stakeholder distribution lists the agencies maintain.

- If you checked “yes” for the project being consistent with and contributing to TMDL pollutant reductions, please consider and integrate the following in the project description:

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

Because this project is a water quality implementation planning project, advanced, alternative or innovative practices are not demonstrated through actual on-the-ground implementation. However, the stormwater tools to be updated and improved with this request each support the implementation of advanced, alternative or innovative practices called for in the TMDL implementation plan. For example, the PLRM enables users to calculate catchment scale pollutant loading for the implementation of various advanced roadway operations and management practices, such as the use of high technology vacuum sweepers, reduction of or alternatives to abrasive material applications, as well as the use of advanced treatment structural BMPs. The RAMs evaluate the functional condition of the BMPs and roadways to verify that the actions implemented are actually performing to an appropriate level for the protection of water quality.

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

Monitoring is not a component of this project. However, monitoring data and results from current projects, some of which are SNPLMA-funded, will be used in the update of the tools. Additionally, the RAM tools in particular provide standardized, cost effective and scientifically defensible means to monitor and evaluate the water quality effectiveness of both road management practices and Treatment BMPs at specific locations overtime throughout the Tahoe Basin. Thus, funding for this project will not only result in greater instantaneous data integration across the Tahoe basin, but will vastly improve how effectiveness data is used to inform load reduction activities.

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

Because this project is a water quality implementation planning project, quantitative estimates of project effectiveness or load reductions resulting from the project are not applicable. The project improves the beta-version of decision-making support and rapid assessment tools developed for the purpose of estimating and tracking load reductions accomplished by local and state highway jurisdictions.

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

Not applicable.

Monitoring

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

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

Not applicable.

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

It is intended that members of the science community will be retained to carry out the tasks and invited to participate on the Project Advisory Committee. Additionally, results from other SPLMA-funded research will be used to enhance and update the existing stormwater tools to the extent possible.

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

EPA will be the grant administrator while NDEP will be the manager of the project. Both agencies will provide all technical and administrative services needed for contract completion, including monitoring, supervision and review of all work performed as well as budget coordination and scheduling to assure that the project work is completed within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations. Progress reports describing the activities undertaken and the accomplishments toward achieving project goals, tasks and targets shall be submitted on a quarterly basis. Accomplishment of project goals and objectives will be fulfilled with the submittal of all indicated deliverables.

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

Monitoring and research is not proposed for this project. However, monitoring data and research results will be used in the update of the tools.

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

While monitoring and research is not proposed for this project, the tools updated and produced through this project are intended to improve the performance of water quality implementation projects into the future. The RAM tools in particular provide standardized, cost effective and scientifically defensible means to monitor and evaluate the water quality effectiveness of both road management practices and Treatment BMPs at specific locations overtime throughout the Tahoe Basin. Thus, funding for this project will not only result in greater instantaneous data integration across the Tahoe basin, but will vastly improve how effectiveness data is used to inform load reduction activities.

Attachments:

1. Supplementary Information Regarding Lake Clarity Crediting Program Associated Stormwater Tools
2. Douglas County Letter of Support
3. Washoe County Letter of Support
4. City of South Lake Comment Letter/Letter of Support

Appendix B-8

LAKE TAHOE RESTORATION PROJECTS ESTIMATED NECESSARY EXPENSES & KEY MILESTONE DATES

Project Name:	Lake Tahoe Stormwater Tools Improvement	Agency:	United States Environmental Protection Agency
Prepared by:	USEPA, NDEP, Lahontan Water Board	Phone:	(775) 589-5248
SNPLMA Project #:		EIP #:	628,10110, 10111

Identify estimated costs of eligible reimbursement expenses:

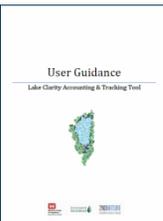
1. Planning, Environmental Assessment and Research Costs (specialist surveys, reports, monitoring, data collection, analysis, NEPA, etc.)	\$ _____		_____ %
2. FWS Consultation – Endangered Species Act	\$ _____		_____ %
3. Direct Labor (Payroll) to Perform the Project	\$ 20000		4 %
4. Project Equipment (tools, software, specialized equipment, etc.)	\$ _____		_____ %
5. Travel (including per diem where official travel status required to carry out project, such as serve as COR, experts to review reports, etc.)	\$ _____		_____ %
6. Official Vehicle Use (pro rata cost for use of Official Vehicles when required to carry out project)	\$ _____		_____ %
7. Cost of Contracts, Grants and/or Agreements to Perform the Project	\$ 400000		85 %
8. Other Direct and Contracted Labor: Agency payroll for the Contracting Officer to do project procurement, COR, Project Inspector, Sec. 106 Consultation if required, NEPA Lead, Project Manager, Project Supervisor, and subject experts to review contracted surveys, designs/drawings, plans, reports, etc.; Also covered is the cost to contract for a Project Manager and/or Project Supervisor if contracted separately from other project contract(s)	\$ 60000		11% %
9. Other Necessary Expenses (see Appendix B-11): Indirect costs associated with implementing a project, such as support services, budget tracking etc.	\$ _____		_____ %
TOTAL:	\$ 480000		100 %

Estimated Key Milestone Dates:

Milestones/Deliverables:	Date:
Detailed workplan/agreement with NDEP in place	7/31/2012
NDEP subcontracts in place	12/30/2012
Second versions of BMP and Road RAM	12/30/2013
Second version of PLRM	3/31/2014
Urban Stormwater Management and Reporting Platform	6/30/2014
Final Completion Date: 6/30/2014	

COMMENTS:

**SUPPLEMENTARY INFORMATION REGARDING
LAKE CLARITY CREDITING PROGRAM ASSOCIATED STORMWATER TOOLS**

<p>ROAD RAPID ASSESSMENT METHODOLOGY</p> 	<p>SHORT NAME FUNDER FORMAT COMPLETED</p> <p>Road RAM NDEP & CTC Online Database 12/10</p>
	<p><i>Download v1.0 User Guidance, Technical Document & Online Database here</i> http://www.tahoeroadram.com/</p> <p>v1: Cost-effective, repeatable and simple set of field observations that define the relative pollutant load generation from urban roads in different conditions. v2 (proposed): Incorporate priority improvements based on developer testing and feedback from jurisdiction users during the 2010 beta-testing of the Road RAM.</p>
<p>BEST MANAGEMENT PRACTICE MAINTENANCE RAPID ASSESSMENT METHODOLOGY</p> 	<p>SHORT NAME FUNDER FORMAT COMPLETED</p> <p>BMP RAM US ACE Access Database 9/09</p>
	<p><i>Download version 1.0 User Guidance, Technical Document & Database here</i> http://tinyurl.com/bmpramuser, http://tinyurl.com/bmpramtech, http://tinyurl.com/bmpramdbv1</p> <p>v1: Simple, repeatable set of field observations that assist in determining the relative condition of urban stormwater treatment BMPs to inform the relative urgency for maintenance of water quality Treatment BMPs and to inform the estimation of load reduction achieved in a given year. v2 (proposed): Incorporate priority improvements based on developer testing and feedback from jurisdiction users during the 2010 beta-testing of the BMP RAM.</p>
<p>POLLUTANT LOAD REDUCTION MODEL</p> 	<p>SHORT NAME FUNDER FORMAT COMPLETED</p> <p>Accounting & Tracking Tool USACE PC Application 12/09</p>
	<p><i>Download version 1.0 PLRM Application, User's Manual & Applications Guide here</i> http://tinyurl.com/plrmexe, http://tinyurl.com/plrmuserman, http://tinyurl.com/plrmapplguide</p> <p>v1: An advanced continuous-simulation model, PLRM was specifically designed to evaluate and compare pollutant load reduction alternatives for stormwater quality improvement projects in the Tahoe Basin. v2 (proposed): Incorporate priority improvements based on developer testing and feedback from jurisdiction users during the 2010 beta-testing of the PLRM.</p>
<p>TMDL ACCOUNTING & TRACKING TOOL</p> 	<p>SHORT NAME FUNDER FORMAT COMPLETED</p> <p>PLRM USACE & CA Water Board Access Database 9/09</p>
	<p><i>Download v1.0 User Guidance & MS Access Database here</i> http://tinyurl.com/atuserguide, http://tinyurl.com/atdbzip</p> <p>v1: A Microsoft Access® database to track and report load reductions from TMDL implementation activities in all source categories. v2: Functions will be assumed by the Integrated Tahoe Stormwater Tool, a single online user interface allowing jurisdictions to upload PLRM outputs and enter all information necessary for registering catchments in the Crediting Program, prioritize maintenance activities, report road and treatment BMP conditions, declare credits, and generate outputs necessary to complete certain requirements of annual stormwater reports. NDEP and Lahontan have earmarked \$70K to develop the Integrated Tahoe Stormwater Tool and additional funding is being requested through US Army Corps of Engineers and Nevada Division of State Lands. Rd 12 Capital funding is being requested to link the Tahoe Integrated Stormwater Tool to a web-based map viewer and increase the utility as a stormwater management and reporting platform.</p>



COMMUNITY DEVELOPMENT

1594 Esmeralda Avenue, Minden, Nevada 89423

Mahmood Azad, P.E.

COUNTY ENGINEER

775-782-9063

FAX: 775-782-6297

website: www.douglascountynv.gov

Planning Division
Engineering Division
Building Division
Regional Transportation
Code Enforcement

23rd December, 2010

Mr. Jeff Marsolais
Acting Forest Supervisor
Lake Tahoe Basin Management Unit
United States Forest Service
35 College Drive
South Lake Tahoe, CA 96150

Dear Mr. Marsolais,

Douglas County, NV is in full support of the proposal entitled *Lake Tahoe Stormwater Tools Improvement* that was submitted for consideration of Round 12 Southern Nevada Public Lands Management Act Capital funding by the Nevada Division of Environmental Protection in partnership with the Lahontan Water Board. As a part of the Lake Clarity Crediting Program Support Services project that our agency is actively participating in, we have tested and received training on the Pollutant Load Reduction Model (PLRM) Best Management Practices Maintenance Rapid Assessment Methodology (BMP RAM) and Road Rapid Assessment Methodology (Road RAM) and have deemed them as very useful.

The testing and training our agency has accomplished on the initial versions of the stormwater tools has indicated that these are valuable tools which facilitate municipalities and departments of transportation to prioritize capital investments, staff time and the deployment of maintenance equipment to most effectively reduce pollutant loading from urban stormwater. The proposed project will carry out recommendations for improvements to the stormwater tools to make them more efficient.

In conclusion, we strongly support the proposed work and request you to award funding for the project. If you have any questions please call me at (775) 782-9063.

Sincerely,

Mahmood Azad, PE
County Engineer

WASHOE COUNTY

Department of Public Works

"Dedicated to Excellence in Public Service"

Dan St. John, P.E., Public Works Director

1001 East 9th Street PO Box 11130 Reno, Nevada 89520 Telephone: (775) 328-2040 Fax: (775) 328-3699



January 21, 2011

Mr. Jeff Marsolais
Acting Forest Supervisor
Lake Tahoe Basin Management Unit
United States Forest Service
35 College Drive
South Lake Tahoe, CA 96150

Re: Letter of Support for *Lake Tahoe Stormwater Tools Improvement Grant Proposal*,
Round 12 SNPLMA Capital

Dear Mr. Marsolais,

I would like to express our agency's support of the proposal entitled *Lake Tahoe Stormwater Tools Improvement* that was submitted for consideration of Round 12 Southern Nevada Public Lands Management Act Capital funding by the Nevada Division of Environmental Protection in partnership with the Lahontan Water Board. As a part of the Lake Clarity Crediting Program Support Services project that our agency is actively participating in, we have tested and received training on the Pollutant Load Reduction Model (PLRM) Best Management Practices Maintenance Rapid Assessment Methodology (BMP RAM) and Road Rapid Assessment Methodology (Road RAM) and have been asked to provide feedback that will be used to improve them in the future.

The testing and training our agency has accomplished on the initial versions of the stormwater tools has indicated that these are valuable tools which will facilitate the County to prioritize capital investments, staff time and the deployment of maintenance equipment to most effectively reduce pollutant loading from urban stormwater. However, we also believe the current versions of these tools are better characterized as beta versions. The proposed project will carry out technical improvements to the stormwater tools that will make them more efficient, functional and better able to support targeted efforts to reduce pollutant loadings.

In addition, the proposed Urban Stormwater Management and Reporting Platform would be a beneficial product for the County. The web-based map viewer will not only improve the transparency and accountability for capital funds received to implement water quality improvements, thus helping to maintain the funding stream for these projects, but will also improve urban jurisdictions abilities to observe and track our load reduction activities, including the maintenance of assets. Moreover, with enhanced functionality features to be provided will better enable stormwater managers to target cost-effective actions in areas where the greatest load reductions can be achieved.

In conclusion, we strongly support the proposed work and implore you to award funding for the project.

Sincerely,


Dan St. John, P.E.
Public Works Director

cc: Dave Childs Kimble Corbridge
Kris Klein Jason Kuchnicki



City of South Lake Tahoe

"making a positive difference now"

March 7, 2011

Mr. Jeff Marsolais
Acting Forest Supervisor
Lake Tahoe Basin Management Unit
United States Forest Service
35 College Drive
South Lake Tahoe, CA 96150
jmarsolais@fs.fed.us

Dear Mr. Marsolais:

I would like to express our agency's support of the proposal entitled *Lake Tahoe Stormwater Tools Improvement* that was submitted for consideration of Round 12 Southern Nevada Public Lands Management Act Capital funding by the Nevada Division of Environmental Protection in partnership with the Lahontan Water Board. As a part of the Lake Clarity Crediting Program Support Services project that our agency is actively participating in and funding, we have tested and received training on the Pollutant Load Reduction Model (PLRM) and Best Management Practices Maintenance Rapid Assessment Methodology (BMP RAM), and have been asked to provide feedback that will be used to improve them in the future.

Our work with the initial versions of the stormwater tools has indicated that these are valuable tools which facilitate municipalities and departments of transportation to prioritize capital investments, staff time and the deployment of maintenance equipment to most effectively reduce pollutant loading from urban stormwater. However, we also believe the current versions of these tools are better characterized as beta versions, and that we've learned how they could be improved during this beta-testing period. The proposed project will carry out regulatory agency and jurisdictions' recommendations for technical improvements to the stormwater tools that will make them more efficient, functional and better able to support targeted efforts to reduce pollutant loadings.

At this point, we support funding for Tasks 1-3. Technical improvements to improve PLRM and RAMs, and provide better integration with other TMDL tools are important to us. The City and favors adding a section to Task 1 to refine PLRM sediment trap options. Just as Task 1D helps address a concern that vault performance may be over-predicted, the City and other jurisdictions are concerned that the performance of thousands of sediment traps in retaining fine sediment is under-predicted. After we've reviewed and have received training in the Road RAM, we hope to have an opportunity for input on tasks related to improving the Road RAM.

At this time our support for Task 4 is conditional. Given the timeframe (contracts with consultants in place by the end of July 2012), the first part of Task 4 should be to review existing GIS platforms already in use by the jurisdictions. Rather than constructing a new GIS platform, it may be more



efficient to use one of the existing jurisdictions' GIS platforms, or maybe set up a system to import data from the jurisdictions' GIS platforms. For a product with a delivery date in mid 2014, most or all of the jurisdictions may already have developed web-based map viewers that already perform many of these functions. The jurisdictions are likely to maintain and update their own GIS systems, because they would be using them for asset management, tracking inspections, and scheduling maintenance practices. It is not clear what agencies would be the long-term hosts, and responsible for maintenance, operation, and updates for the Urban Stormwater Management and Reporting Platform. We can support a modified Task 4A which would help jurisdictions with tasks such as updating information on structural and private parcel BMPs. For Task 4B, the deliverable could be modified to provide GIS coverages or geo-databases to jurisdictions which could be used with their existing GIS platforms, rather than to specify that the product is being developed only for the web viewer specified in Task 4A.

In conclusion, we strongly support the proposed work as identified above, and ask you to award funding for the project.

Sincerely,

Robert Erlich
Stormwater Coordinator
Public Works Department
City of South Lake Tahoe

rerlich@cityofslt.us
530-542-6038